

**CITY OF SPRINGFIELD
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2010

TABLE OF CONTENTS

	<u>Page</u>
REPORT SUMMARY	
Highlights	1
Introduction	2
Actuarial Experience	3
ACTUARIAL COSTS AND LIABILITIES	
Normal Costs	4
Present Value of Actuarial Accrued Liabilities	5
Present Value of Future Benefits	6
FUNDED STATUS AND APPROPRIATIONS	
Market Value of Plan Assets	7
Actuarial Value of Assets	8
Unfunded Actuarial Accrued Liabilities	9
Appropriations	10
Appropriation Forecast	11
GASB Statements No. 25 and No. 27	13
PERAC Annual Statement	14
EXHIBITS	
1 Age/Service Distribution with Salary	16
2 Retiree Distribution	17
3 Disabled Retiree Distribution	18
4 Cashflow Forecast	19
5 Summary of Plan Provisions	20
6 Actuarial Methods and Assumptions	27
7 Glossary of Terms	31
CERTIFICATION	33
BREAKOUTS	34

Report Summary:**Highlights****January 1, 2008****January 1, 2010**Contributions

Funding Schedule FY 2011	\$35,984,472	\$35,984,472
Funding Schedule FY 2012	37,387,936	37,872,237

Funded Ratios

GAS No. 25	42.4%	34.3%
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Participants

Actives	3,457	3,244
Retirees and Beneficiaries	2,374	2,309
Inactives	1,280	1,101
Disabled	<u>425</u>	<u>509</u>
Total	7,536	7,163

Payroll

Payroll of Active Members	\$126,477,597	\$124,129,569
Average Payroll	36,586	38,264

Normal Cost

Employer	\$3,126,167	\$3,167,654
Employee	10,294,253	9,653,464
Administrative Expenses	<u>625,000</u>	<u>650,000</u>
Total	\$14,045,420	\$13,471,119

Actuarial Accrued Liabilities

Actives	\$258,972,240	\$258,842,793
Retirees, Beneficiaries, Disabilities and Inactives	<u>440,053,558</u>	<u>552,154,292</u>
Total	\$699,025,798	\$810,997,085

Actuarial Value of Assets296,522,245 278,377,005Unfunded Actuarial Accrued Liabilities

\$402,503,553 \$532,620,080

Introduction

This report presents the findings of an actuarial valuation made as of January 1, 2010, of the City of Springfield Retirement System.

The actuarial valuation is based on:

- Provisions of Chapter 32 of the Massachusetts General Laws "M.G.L.", as of January 1, 2010.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employees' Retirement Administration Commission by the City of Springfield Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2010.

The valuation and forecast do not account for:

- Any other subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability and withdrawal rates as well as payroll, salary increases and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

Since the last actuarial valuation, the total unfunded actuarial accrued liability increased by 32.33% to \$532,620,080. On January 1, 2010 the unfunded accrued liability was approximately \$122 million higher than anticipated. There was a \$63 million loss because the investment return on the actuarial value of assets did not exceed the 8.5% assumption. There were also \$83 million in losses due to unfavorable liability experience.

The asset smoothing corridor limit was increased from 10% to 20%.

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
Superannuation	\$8,749,770	\$7,740,685
Termination	2,215,574	1,972,387
Death	799,747	711,665
Disability	1,655,329	2,396,382
Administrative Expenses	<u>625,000</u>	<u>650,000</u>
Total Normal Cost	\$14,045,420	\$13,471,119
% of Pay	11.1%	10.9%
Employee Contributions	\$10,294,253	\$9,653,464
% of Pay	8.1%	7.8%
Employer Normal Cost	\$3,751,167	\$3,817,654
% of Pay	3.0%	3.1%

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Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
Actives		
Superannuations	\$238,448,000	\$241,216,935
Termination	(5,761,997)	(7,112,488)
Death	9,647,900	9,065,888
Disability	16,638,337	15,672,458
Retirees and Inactives		
Retirees and Beneficiaries	\$321,598,541	\$391,131,598
Terminated (Refund)	8,133,975	8,942,436
Disabled	<u>110,321,042</u>	<u>152,080,258</u>
Total	<u>\$699,025,798</u>	<u>\$810,997,085</u>

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
Actives		
Superannuation	\$309,776,411	\$309,242,584
Termination	12,673,026	10,878,693
Death	15,937,039	15,162,946
Disability	31,720,820	38,937,877
Retirees and Inactives		
Retirees and Beneficiaries	\$321,598,541	\$391,131,598
Terminated (Refund)	8,133,975	8,942,436
Disabled	<u>110,321,042</u>	<u>152,080,258</u>
Total	\$810,160,854	\$926,376,392

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
Cash equivalents	\$526,761	\$937,509
Short term investments	0	0
Fixed income securities	0	0
Equities	0	0
International	0	0
Real Estate	0	0
PRIT Fund	309,470,718	225,633,739
Other	0	5,263,238
Accounts receivable	2,631,858	151,654
Accounts payable	(588,849)	(5,302)
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$312,040,488	\$231,980,838
Total Actuarial Value	\$296,522,245	\$278,377,005

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.5%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2010 is presented in Table V.

Table V

	<u>January 1, 2010</u>
(1) Market value at January 1, 2009	\$209,394,032
(2) 2009 Contributions	\$49,927,836
(3) 2009 Payments	(\$58,618,658)
(4) Net interest adjustment at 8.5% on (1), (2), and (3) to December 31, 2009	\$17,429,133
(5) Expected market value on January 1, 2010	\$218,132,343
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2009	\$231,980,838
(7) 2009 (Gain) / Loss	(\$13,848,495)
(8) 80% of 2009 (Gain) / Loss	(\$11,078,796)
(9) 2008 (Gain) / Loss	\$114,731,076
(10) 60% of 2008 (Gain) / Loss	\$68,838,646
(11) 2007 (Gain) / Loss	(\$5,903,055)
(12) 40% of 2007 (Gain) / Loss	(\$2,361,222)
(13) 2006 (Gain) / Loss	(\$17,343,319)
(14) 20% of 2006 (Gain) / Loss	(\$3,468,664)
(15) Actuarial value on January 1, 2010, (6) + (8) + (10) + (12) + (14)	\$283,910,802
but not less than 80% nor greater than 120% of (6)	\$278,377,005
(16) Ratio of actuarial value to market value	120.00%
(17) Actuarial Value Return for 2008	-18.07%
(18) Actuarial Value Return for 2009	25.11%
(19) Market Value Return for 2008	-29.10%
(20) Market Value Return for 2009	15.25%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
Actuarial Accrued Liability	\$699,025,798	\$810,997,085
Actuarial Assets	<u>296,522,245</u>	<u>278,377,005</u>
Unfunded Actuarial Accrued Liability	\$402,503,553	\$532,620,080
Funded Status	42.4%	34.3%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2040, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2040
 \$ 506,095,867 over 30 years with 4.0% increasing payments
- Increasing amortization of the 2002/2003 ERI by June 30, 2028
 \$ 26,147,904 over 18 years with 4.5% increasing payments
- Level amortization of the 2002 Water & Sewer ERI by June 30, 2015
 \$ 376,309 over 5 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
Normal cost	\$3,751,167	\$3,817,654
Amortization of the unfunded accrued liability	26,261,250	29,177,836
Amortization of the 2002 Sewer & Water ERI	88,013	88,013
Amortization of the 2002 and 2003 ERI	<u>1,796,306</u>	<u>1,961,611</u>
Total cost	\$31,896,736	\$35,045,115
% of Pay	25.2%	28.2%
Fiscal 2011 cost	\$35,984,472	\$35,984,472
Fiscal 2012 cost	\$37,387,936	\$37,872,237

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number of employees constant. The total payroll of the system is expected to increase 3.75% per year. The employee contribution rate is expected to increase to 10.5% by 2041 with replacement of members contributing 5%, 7% and 8% with those contributing 9%. Payments are assumed to be spread over the fiscal year.

The employer total cost is expected to increase during the next 18 years until the ERI liabilities are paid off. After a small decrease in 2029, the employer total cost will continue to increase until the unfunded liabilities are completely paid off in 2041, at which time only the normal cost will remain. The total cost for FYE 2012 represents 29.4% of payroll, decreasing to 26.7% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 0.4% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

Appropriation Forecast

<u>Fiscal Year Ending</u>	<u>Payroll*</u>	<u>Employee Contribution</u>	<u>Employer Normal Cost with Interest</u>	<u>Amortization Payments with Interest</u>	<u>Employer Total Cost with Interest</u>	<u>Employer Total Cost % of Payroll</u>	<u>Funded Ratio %**</u>
2011	\$124,129,569	\$9,653,464	\$3,976,596	\$32,007,876	\$35,984,472	29.0	34.3
2012	\$128,784,428	\$10,132,366	\$4,003,955	\$33,868,282	\$37,872,237	29.4	34.3
2013	\$133,613,844	\$10,633,610	\$4,027,774	\$35,230,022	\$39,257,796	29.4	34.5
2014	\$138,624,363	\$11,158,198	\$4,047,749	\$36,646,712	\$40,694,461	29.4	34.8
2015	\$143,822,777	\$11,707,177	\$4,063,557	\$38,120,572	\$42,184,129	29.3	35.1
2016	\$149,216,131	\$12,281,639	\$4,074,860	\$39,562,234	\$43,637,094	29.2	35.6
2017	\$154,811,736	\$12,882,721	\$4,081,295	\$41,157,455	\$45,238,750	29.2	36.1
2018	\$160,617,176	\$13,511,614	\$4,082,483	\$42,817,057	\$46,899,540	29.2	36.8
2019	\$166,640,320	\$14,169,558	\$4,078,021	\$44,543,643	\$48,621,664	29.2	37.5
2020	\$172,889,332	\$14,857,846	\$4,067,483	\$46,339,917	\$50,407,400	29.2	38.4
2021	\$179,372,682	\$15,577,831	\$4,050,420	\$48,208,696	\$52,259,116	29.1	39.5
2022	\$186,099,157	\$16,330,920	\$4,026,358	\$50,152,910	\$54,179,268	29.1	40.6
2023	\$193,077,876	\$17,118,585	\$3,994,794	\$52,175,606	\$56,170,400	29.1	41.9
2024	\$200,318,296	\$17,942,359	\$3,955,202	\$54,279,956	\$58,235,158	29.1	43.4
2025	\$207,830,232	\$18,803,843	\$3,907,022	\$56,469,260	\$60,376,282	29.1	45.1
2026	\$215,623,866	\$19,704,707	\$3,849,667	\$58,746,950	\$62,596,617	29.0	46.9
2027	\$223,709,761	\$20,646,693	\$3,782,516	\$61,116,600	\$64,899,116	29.0	49.0
2028	\$232,098,877	\$21,631,618	\$3,704,915	\$63,581,925	\$67,286,840	29.0	51.2
2029	\$240,802,585	\$22,661,378	\$3,616,175	\$61,634,254	\$65,250,429	27.1	53.7
2030	\$249,832,682	\$23,737,951	\$3,515,570	\$64,099,624	\$67,615,194	27.1	56.0
2031	\$259,201,407	\$24,863,399	\$3,402,333	\$66,663,609	\$70,065,942	27.0	58.6
2032	\$268,921,460	\$26,039,874	\$3,275,661	\$69,330,153	\$72,605,814	27.0	61.4
2033	\$279,006,015	\$27,269,621	\$3,134,703	\$72,103,359	\$75,238,062	27.0	64.5
2034	\$289,468,740	\$28,554,980	\$2,978,567	\$74,987,494	\$77,966,061	26.9	67.8
2035	\$300,323,818	\$29,898,393	\$2,806,312	\$77,986,994	\$80,793,306	26.9	71.4
2036	\$311,585,961	\$31,302,406	\$2,616,950	\$81,106,473	\$83,723,423	26.9	75.3
2037	\$323,270,435	\$32,769,676	\$2,409,440	\$84,350,732	\$86,760,172	26.8	79.5
2038	\$335,393,076	\$34,302,973	\$2,182,686	\$87,724,761	\$89,907,447	26.8	84.1
2039	\$347,970,317	\$35,905,184	\$1,935,537	\$91,233,752	\$93,169,289	26.8	89.0
2040	\$361,019,203	\$37,579,322	\$1,666,782	\$94,883,102	\$96,549,884	26.7	94.3
2041	\$374,557,424	\$39,328,529	\$1,375,150	\$0	\$1,375,150	0.4	100.0
2042	\$388,603,327	\$40,803,349	\$1,426,718	\$0	\$1,426,718	0.4	100.0

* Calendar basis

** Beginning of Fiscal Year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

Table VIII

	<u>January 1, 2008</u>	<u>January 1, 2010</u>
(1) Actuarial Accrued Liability	\$699,025,798	\$810,997,085
(2) Actuarial Value of Assets	<u>296,522,245</u>	<u>278,377,005</u>
(3) Unfunded Actuarial Accrued Liability	\$402,503,553	\$532,620,080
(4) Funded Ratio (2)/(1)	42.4%	34.3%
(5) Covered Payroll	\$126,477,597	\$124,129,569
(6) UAAL as a percentage of payroll: (3)/(5)	318.2%	429.1%
(7) Annual Required Contribution (ARC)	\$31,709,642	\$35,984,472
(8) Net Pension Obligation	\$0	\$0

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2010.

The normal cost for employees on that date was:	\$9,653,464	7.8% of pay
The normal cost for the employer was:	3,167,654	2.6% of pay
The actuarial liability for active members was:		\$281,484,163
The actuarial liability for retired and inactive members was:		518,431,593
Total actuarial accrued liability:		799,915,756
System assets as of that date:		278,377,005
Unfunded actuarial accrued liability:		\$521,538,751

The ratio of system's assets to total actuarial liability was 34.8%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.5%
Rate of Salary Increase:	4.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a percent of Covered Payroll (b-a)/c
01/01/10	\$278,377,005	\$799,915,756	\$521,538,751	34.8%	\$124,129,569	420.2%
01/01/08	296,522,245	699,025,798	402,503,553	42.4%	126,477,597	318.2%
01/01/05	276,285,563	649,022,965	372,737,402	42.6%	115,382,642	323.0%
01/01/04	291,016,758	615,605,168	324,588,410	47.3%	109,937,408	295.2%
01/01/03	266,402,470	573,138,293	306,735,823	46.5%	113,848,147	269.4%
01/01/02	268,001,414	570,958,349	302,956,935	46.9%	137,353,027	220.6%
01/01/01	291,264,389	539,502,444	248,238,055	54.0%	131,362,563	189.0%
01/01/00	292,171,562	515,715,954	223,544,392	56.7%	126,094,614	177.3%

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2010

Attained Age	Average Salary	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	18	0	0	0	0	0	0	0	0	0	18
	15,879	0	0	0	0	0	0	0	0	0	15,879
20-24	161	5	1	0	0	0	0	0	0	0	167
	21,098	41,020	49,480	0	0	0	0	0	0	0	21,864
25-29	190	32	2	0	0	0	0	0	0	0	224
	26,278	36,901	29,811	0	0	0	0	0	0	0	27,827
30-34	145	49	55	2	0	0	0	0	0	0	251
	31,854	37,750	40,260	43,147	0	0	0	0	0	0	34,937
35-39	133	54	100	83	3	0	0	0	0	0	373
	28,938	50,241	61,212	45,770	50,335	0	0	0	0	0	44,592
40-44	118	65	98	114	50	4	0	0	0	0	449
	27,160	32,259	39,842	47,830	70,600	41,820	0	0	0	0	40,882
45-49	113	54	83	96	106	43	9	0	0	0	504
	30,220	32,829	33,226	42,098	53,809	49,362	50,649	0	0	0	40,216
50-54	94	57	83	61	86	67	58	9	0	0	515
	28,322	33,903	32,930	37,831	47,223	55,913	58,305	45,824	0	0	41,237
55-59	70	35	58	71	62	38	51	40	11	0	436
	30,234	34,756	48,239	31,591	40,995	49,353	64,230	48,521	63,288	0	42,898
60-64	34	13	34	46	34	18	10	21	5	0	215
	26,696	37,272	29,511	34,510	34,773	31,808	49,002	54,736	65,769	0	35,843
65-69	8	11	8	9	12	3	3	6	0	0	60
	21,557	13,221	21,170	41,021	31,017	37,569	35,899	25,524	0	0	26,703
70+	5	8	3	5	4	2	2	1	2	0	32
	14,876	13,602	19,471	23,617	23,726	30,718	43,357	33,838	23,249	0	21,346
Total Employees	1,089	383	525	487	357	175	133	77	18	0	3,244
Average Salary	27,269	35,786	41,655	41,077	49,403	49,475	58,629	47,918	59,528	0	38,264

Retiree Distribution as of January 1, 2010

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	2	0	2	9,491	0	9,491
40-44	1	3	4	3,090	22,422	25,512
45-49	4	2	6	43,631	34,816	78,446
50-54	28	27	55	881,928	282,250	1,164,178
55-59	107	71	178	3,604,810	833,908	4,438,718
60-64	184	146	330	6,453,470	1,965,918	8,419,388
65-69	195	211	406	6,163,287	2,768,964	8,932,251
70-74	133	172	305	3,615,404	2,290,066	5,905,470
75-79	124	235	359	3,211,053	2,923,251	6,134,304
80-84	129	212	341	2,731,489	2,267,526	4,999,014
85-89	82	161	243	1,378,603	1,455,029	2,833,632
90-94	18	45	63	212,485	396,564	609,048
95-99	5	12	17	83,214	74,107	157,321
Total	1,012	1,297	2,309	28,391,954	15,314,820	43,706,774
Average (Age/Payment)	70.8	74.5	72.9	28,055	11,808	18,929
Frequency Percent	43.8	56.2	100.0	65.0	35.0	100.0

Disabled Retiree Distribution as of January 1, 2010

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	1	0	1	40,619	0	40,619
35-39	12	3	15	512,856	110,595	623,451
40-44	24	2	26	924,716	93,786	1,018,502
45-49	34	8	42	1,195,062	161,663	1,356,725
50-54	36	11	47	1,176,231	237,223	1,413,454
55-59	67	13	80	1,973,449	305,578	2,279,027
60-64	72	16	88	2,275,656	286,326	2,561,982
65-69	47	8	55	1,365,656	94,769	1,460,425
70-74	41	6	47	1,157,435	67,050	1,224,485
75-79	22	17	39	486,065	287,542	773,607
80-84	23	14	37	563,634	173,612	737,246
85-89	16	9	25	353,284	103,480	456,764
90-94	3	3	6	82,488	16,972	99,460
95-99	0	1	1	0	8,935	8,935
Total	398	111	509	12,107,150	1,947,531	14,054,681
Average (Age/Payment)	62.2	67.5	63.3	30,420	17,545	27,612
Frequency Percent	78.2	21.8	100.0	86.1	13.9	100.0

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2010	\$61,942,005	\$9,653,464	\$35,984,472	\$23,193,792	\$6,889,723
2011	63,339,188	10,132,366	37,872,237	23,274,213	7,939,627
2012	64,917,477	10,633,610	39,257,796	23,956,281	8,930,210
2013	66,493,377	11,158,198	40,694,461	24,725,734	10,085,016
2014	68,162,313	11,707,177	42,184,129	25,592,688	11,321,681
2015	69,898,615	12,281,639	43,637,094	26,561,485	12,581,603
2016	71,713,437	12,882,721	45,238,750	27,641,414	14,049,448
2017	73,612,080	13,511,614	46,899,540	28,846,256	15,645,331
2018	75,553,823	14,169,558	48,621,664	30,188,743	17,426,141
2019	77,546,785	14,857,846	50,407,400	31,684,413	19,402,874
2020	79,592,318	15,577,831	52,259,116	33,350,030	21,594,659
2021	81,691,808	16,330,920	54,179,268	35,203,986	24,022,366
2022	83,846,679	17,118,585	56,170,400	37,266,457	26,708,764
2023	86,058,390	17,942,359	58,235,158	39,559,556	29,678,682
2024	88,328,443	18,803,843	60,376,282	42,107,515	32,959,197
2025	90,658,375	19,704,707	62,596,617	44,936,873	36,579,822
2026	93,049,766	20,646,693	64,899,116	48,076,684	40,572,728
2027	95,504,237	21,631,618	67,286,840	51,558,746	44,972,967
2028	98,023,452	22,661,378	65,250,429	55,229,969	45,118,323
2029	100,609,120	23,737,951	67,615,194	59,096,144	49,840,169
2030	103,262,992	24,863,399	70,065,942	63,366,652	55,033,001
2031	105,986,868	26,039,874	72,605,814	68,081,692	60,740,512
2032	108,782,595	27,269,621	75,238,062	73,285,188	67,010,276
2033	111,652,067	28,554,980	77,966,061	79,025,113	73,894,086
2034	114,597,231	29,898,393	80,793,306	85,353,854	81,448,321
2035	117,620,082	31,302,406	83,723,423	92,328,596	89,734,343
2036	120,722,670	32,769,676	86,760,172	100,011,752	98,818,930
2037	123,907,099	34,302,973	89,907,447	108,471,422	108,774,744
2038	127,175,526	35,905,184	93,169,289	117,781,890	119,680,836
2039	130,735,828	37,579,322	96,549,884	128,015,609	131,408,986

EXHIBIT 5 - SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2010, and does not take into account any subsequent changes.

1. Administration

Each of the 106 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation.

4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later	9.0% of Salary
plus	
1979 and Later	2.0% of Salary in excess of \$30,000

5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. **Service Retirement**

a. **Eligibility:**

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions are to be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

In addition, for veterans (all groups) there is an additional benefit of \$15 per year for each year of service, up to a maximum of 20 years of service.

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$648.48 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997 the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum pension benefit on which a COLA may be granted is \$12,000. All COLA's granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A - Life annuity
- (ii) Option B - Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C - Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 - ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2010.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.50% per annum.

5. Salary Scale

The assumed annual rates for salary increases including longevity are illustrated by the following rates:

<u>Year</u>	<u>Rate</u>
2010	3.5%
2011+	4.0%

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value is based on a 5 year smoothing of realized and unrealized investment earnings greater than or less than the expected return.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2010 is \$650,000 and is anticipated to increase at 3.75% per year.

EXHIBIT 7 - GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

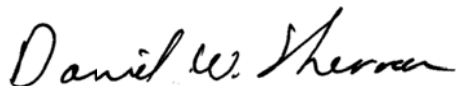
9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the City of Springfield Contributory Retirement System as of January 1, 2010, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Buck Consultants



Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 08-4086

February 2011

BREAKOUTS

Breakouts - January 1, 2010

	<u>Total</u>	<u>All Others</u>	<u>Water & Sewer</u>	<u>Housing Authority</u>
(1) Participants				
(a) Actives	3,244	2,878	240	126
(b) Inactives (Refunds)	1,101	966	82	53
(c) Retirees	2,309	2,223	44	42
(d) Disabled	<u>509</u>	<u>490</u>	<u>10</u>	<u>9</u>
(e) Total	7,163	6,557	376	230
(2) Payroll of Active Participants	124,129,569	107,936,657	11,026,501	5,166,411
Percent of Total Payroll	100.00%	86.95%	8.88%	4.16%
(3) Total Employer Contributions *				
(a) ERI**	2,049,624	1,855,188	130,928	63,508
(b) Remaining Amortizations	29,177,836	25,371,529	2,591,896	1,214,411
(c) Employer Normal Cost	3,167,654	2,754,427	281,386	131,841
(d) Administrative Expenses	<u>650,000</u>	<u>565,206</u>	<u>57,740</u>	<u>27,054</u>
(e) Total Required Employer Contributions	35,045,114	30,546,350	3,061,950	1,436,814
(4) Fiscal 2011 Appropriation	35,984,472	32,252,006	2,529,000	1,203,466
Percent of Total Appropriation	100.00%	89.63%	7.03%	3.34%
5) Fiscal 2012 Appropriation				
(a) ERI**	2,137,897	1,938,672	132,859	66,366
(b) Remaining Amortizations	30,378,016	26,415,143	2,698,510	1,264,363
(c) Employer Normal Cost	3,169,545	2,756,071	281,554	131,920
(d) Administrative Expenses	674,375	586,402	59,905	28,068
(e) Total Appropriation	36,359,833	31,696,288	3,172,828	1,490,717
(f) Fiscal 2012 Appropriation with Adjustment	37,872,237	33,014,710	3,304,803	1,552,724
Percent of Total Appropriation	100.00%	87.17%	8.73%	4.10%

* Appropriations are allocated based on the ratio of the division payroll to the total payroll