TOWN OF SHREWSBURY
CONTRIBUTORY RETIREMENT SYSTEM

Actuarial Valuation Report

January 1, 2010

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Report Summary:

Highlights	**January 1, 2008**	**January 1, 2010**
Contributions		
Funding Schedule FY 2011	$3,137,489	$3,137,490
Funding Schedule FY 2012	3,245,099	3,845,639
Funded Ratios		
GAS No. 25	77.0%	70.8%
Participants		
Actives	648	591
Retirees and Beneficiaries	191	197
Inactives	112	115
Disabled	30	30
Total	981	933
Payroll		
Payroll of Active Members	$22,402,987	$22,460,537
Average Payroll	34,573	38,004
Normal Cost		
Employer	946,660	698,514
Employee	1,819,080	1,853,530
Administrative Expenses	100,000	120,000
Total	2,865,740	2,672,044
Actuarial Accrued Liabilities		
Actives	49,820,564	49,382,314
Retirees, Beneficiaries, Disabilities and Inactives	34,745,580	41,677,227
Total	85,256,692	91,059,541
Actuarial Value of Assets	65,665,411	64,467,201
Unfunded Actuarial Accrued Liabilities	$19,591,281	$26,592,340

Introduction

This report presents the Town of Shrewsbury actuarial valuation findings as of January 1, 2010, under the Commonwealth of Massachusetts Retirement System.

The actuarial valuation is based on:

- Provisions 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 Employee Retirement Administration Commission by the Town of Shrewsbury 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 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 both 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.

During the preceding two years, the total unfunded actuarial accrued liability increased by 37.7% to $26,592,340. The increase is the result of net unfavorable actuarial experience. The actuarial value of assets for 2008 and 2009 had returns of -18.98% and 19.15%, respectively. The sources of the (gain)/loss are as follows:

Investment	12,387,502
Salary	(1,743,468)
Retiree Mortality	590,797
Active Decrements (Termination)	(52,898)
Active Decrements (Disability)	(105,283)
Active Decrements (Retirement)	(955,001)
Active Decrements (Death)	(91,978)
New Entrants	440,893
Other (Data corrections, Section 3(8)(c), Service buybacks)	1,114,931
Total (gain)/loss	11,585,495
Change in Assumptions	(3,793,604)
Net Change	7,791,891

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

	January 1, 2008	January 1, 2010
Superannuation	$1,894,681	$1,714,742
Termination	330,149	293,965
Death	148,712	145,107
Disability	392,198	398,230
Administrative Expenses	100,000	120,000
Total Normal Cost	2,865,740	2,672,044
% of Pay	12.8%	11.9%
Employee Contributions	1,819,080	1,853,530
% of Pay	8.1%	8.3%
Employer Normal Cost	$1,046,660	$818,514
% of Pay	4.7%	3.6%

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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 inactives. 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

	January 1, 2008	January 1, 2010
Actives		
Superannuations	$44,492,954	$43,793,576
Termination	1,069,289	1,077,337
Death	1,686,664	1,720,497
Disability	2,571,657	2,790,904
Retirees and Inactives		
Retirees and Beneficiaries	26,844,562	32,995,293
Terminated (Refund)	690,548	606,704
Disabled	7,901,018	8,075,230
Total	$85,256,692	$91,059,541

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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

	January 1, 2008	January 1, 2010
Actives		
Superannuation	$61,635,965	$56,956,673
Termination	2,516,800	2,253,942
Death	2,958,435	2,796,214
Disability	6,465,296	6,237,749
Retirees and Inactives		
Retirees and Beneficiaries	26,844,562	32,995,293
Terminated (Refund)	690,548	606,704
Disabled	7,901,018	8,075,230
Total	$109,012,624	$109,921,805

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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

	January 1, 2008	January 1, 2010
Cash equivalents	$293,961	$3,678,565
Short term investments	1,914,091	0
Fixed income securities	14,163,300	6,632,819
Equities	27,510,136	15,930,317
International	6,668,961	3,903,612
Real Estate	4,271,516	0
Venture Capital	0	0
Other	0	28,500,787
Accounts receivable	24,166	5,661
Accounts payable	(69,870)	(45,261)
Accrued income	6,274	47
Total Market Value	$54,782,535	$58,606,547
Total Actuarial Value	$65,665,411	$64,467,201

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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 10%. The calculation of the actuarial value of assets as of January 1, 2010 is presented in Table V.

Table V

		January 1, 2010
(1)	Market value at January 1, 2009	$48,878,658
(2)	2009 Contributions	$5,660,740
(3)	2009 Payments	($5,291,798)
(4)	Net interest adjustment at 8.5% on (1), (2), and (3) to December 31, 2009	$4,170,366
(5)	Expected market value on January 1, 2010 (1) + (2) + (3) + (4)	$53,417,966
(6)	Actual market value on January 1, 2010	$58,606,547
(7)	2009 (Gain) / Loss	($5,188,581)
(8)	80% of 2009 (Gain) / Loss	($4,150,865)
(9)	2008 (Gain) / Loss	$24,748,382
(10)	60% of 2008 (Gain) / Loss	$14,849,029
(11)	2007 (Gain) / Loss	($450,645)
(12)	40% of 2007 (Gain) / Loss	($180,258)
(13)	2006 (Gain) / Loss	($1,927,585)
(14)	20% of 2006 (Gain) / Loss	($385,517)
(15)	Actuarial value on January 1, 2010, (6) + (8) + (10) + (12) + (14) but not less than 90% nor greater than 110% of (6)	$64,467,201
(16)	Ratio of actuarial value to market value	110.00%
(17)	Actuarial Value Return for 2008	-18.98%
(18)	Actuarial Value Return for 2009	19.15%
(19)	Market Value Return for 2008	-28.13%
(20)	Market Value Return for 2009	19.08%

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

	January 1, 2008	January 1, 2010
Actuarial Accrued Liability	$85,256,692	$91,059,541
Actuarial Assets	65,665,411	64,467,201
Unfunded Actuarial Accrued Liability	$19,591,281	$26,592,340
Funded Status	77.0%	70.8%

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Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2030, 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, 2022
  $ 26,592,340 over 12 years with 4.5% increasing payments
- Interest adjustment for payments deposited at the various times in the year

The pension appropriation is shown in Table VII.

Table VII

	January 1, 2008	January 1, 2010
Normal cost	$1,046,660	$818,514
Amortization payment of the prior accrued liability	2,002,310	1,887,944
Amortization payment of current (gains)/losses	(236,252)	782,463
Total cost	$2,812,718	$3,488,921
% of Pay	12.6%	15.5%
Fiscal 2011 cost	$3,137,489	$3,137,490
Fiscal 2012 cost	$3,245,099	$3,845,639

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 constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 11 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 14.0% of payroll, decreasing to 16.4% for FY 2012, decreasing to 15.0% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of about 2.2% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2011	$22,460,537	$1,853,530	$857,132	$2,280,358	$3,137,490	14.0	70.2
2012	$23,471,261	$1,967,971	$863,206	$2,982,433	$3,845,639	16.4	72.4
2013	$24,527,468	$2,088,958	$868,092	$3,119,610	$3,987,702	16.3	74.6
2014	$25,631,204	$2,216,849	$871,670	$3,259,993	$4,131,663	16.1	76.9
2015	$26,784,608	$2,352,020	$873,812	$3,406,692	$4,280,504	16.0	79.2
2016	$27,989,916	$2,494,867	$874,381	$3,559,994	$4,434,375	15.8	81.5
2017	$29,249,462	$2,645,807	$873,232	$3,720,193	$4,593,425	15.7	83.9
2018	$30,565,687	$2,805,280	$870,209	$3,887,602	$4,757,811	15.6	86.4
2019	$31,941,143	$2,973,748	$865,146	$4,062,544	$4,927,690	15.4	88.9
2020	$33,378,495	$3,151,697	$857,865	$4,245,358	$5,103,223	15.3	91.5
2021	$34,880,527	$3,339,640	$848,177	$4,436,400	$5,284,577	15.2	94.3
2022	$36,450,151	$3,538,116	$835,879	$4,636,038	$5,471,917	15.0	97.1
2023	$38,090,408	$3,747,691	$820,757	$0	$820,757	2.2	100.0
2024	$39,804,476	$3,968,964	$802,582	$0	$802,582	2.0	100.0
2025	$41,595,677	$4,202,562	$781,109	$0	$781,109	1.9	100.0
2026	$43,467,483	$4,449,147	$756,078	$0	$756,078	1.7	100.0
2027	$45,423,520	$4,709,414	$727,212	$0	$727,212	1.6	100.0
2028	$47,467,578	$4,984,096	$694,218	$0	$694,218	1.5	100.0
2029	$49,603,619	$5,208,380	$725,457	$0	$725,457	1.5	100.0
2030	$51,835,782	$5,442,757	$758,103	$0	$758,103	1.5	100.0
2031	$54,168,392	$5,687,681	$792,218	$0	$792,218	1.5	100.0
2032	$56,605,970	$5,943,627	$827,867	$0	$827,867	1.5	100.0
2033	$59,153,238	$6,211,090	$865,122	$0	$865,122	1.5	100.0
2034	$61,815,134	$6,490,589	$904,052	$0	$904,052	1.5	100.0
2035	$64,596,815	$6,782,666	$944,734	$0	$944,734	1.5	100.0
2036	$67,503,672	$7,087,886	$987,247	$0	$987,247	1.5	100.0
2037	$70,541,337	$7,406,840	$1,031,673	$0	$1,031,673	1.5	100.0
2038	$73,715,697	$7,740,148	$1,078,099	$0	$1,078,099	1.5	100.0
2039	$77,032,904	$8,088,455	$1,126,613	$0	$1,126,613	1.5	100.0
2040	$80,499,384	$8,452,435	$1,177,311	$0	$1,177,311	1.5	100.0
2041	$84,121,857	$8,832,795	$1,230,290	$0	$1,230,290	1.5	100.0
2042	$87,907,340	$9,230,271	$1,285,653	$0	$1,285,653	1.5	100.0

* Calendar basis ** Beginning of Fiscal Year

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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

		January 1, 2008	January 1, 2010
(1)	Actuarial Accrued Liability	$85,256,692	$91,059,541
(2)	Actuarial Value of Assets	65,665,411	64,467,201
(3)	Unfunded Actuarial Accrued Liability	19,591,281	26,592,340
(4)	Funded Ratio (2)/(1)	77.0%	70.8%
(5)	Covered Payroll	$22,402,987	$22,460,537
(6)	UAAL as a percentage of payroll: (3)/(5)	87.4%	118.4%
(7)	Annual Required Contribution (ARC)	$3,119,214	$3,137,490
(8)	Net Pension Obligation	$0	$0

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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:	$1,853,530	8.3% of pay
The normal cost for the employer was:	698,514	3.1% of pay

The actuarial liability for active members was:	$49,382,314
The actuarial liability for retired and inactive members was:	41,677,227
Total actuarial accrued liability:	91,059,541
System assets as of that date:	64,467,201
Unfunded actuarial accrued liability:	$26,592,340

The ratio of system's assets to total actuarial liability was 70.8%

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

Investment Return:	8.25%
Rate of Salary Increase:	2.5% for 2010, 3.0% for 2011, 3.5% for 2012 and after

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	$64,467,201	$91,059,541	$26,592,340	70.8%	$22,460,537	118.4%
01/01/08	65,665,411	85,256,692	19,591,281	77.0%	22,402,987	87.4%
01/01/06	54,147,807	75,979,303	21,831,496	71.3%	19,896,839	109.7%
01/01/04	50,857,118	65,276,552	14,419,434	77.9%	17,995,844	80.1%
01/01/02	46,779,157	59,312,723	12,533,566	78.9%	16,773,825	74.7%
01/01/00	48,071,979	49,486,969	1,414,990	97.1%	14,064,649	10.1%
01/01/99	39,201,694	46,718,881	7,517,187	83.9%	13,196,123	57.0%
01/01/97	26,399,577	36,258,355	9,858,778	72.8%	11,635,681	84.7%

Attach Copy of Current Approved Funding Schedule

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	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	8	0	0	0	0	0	0	0	0	8
	21,061	0	0	0	0	0	0	0	0	21,061
25-29	61	6	0	0	0	0	0	0	0	67
	27,082	46,533	0	0	0	0	0	0	0	28,824
30-34	23	22	2	1	0	0	0	0	0	48
	31,608	44,990	45,816	69,992	0	0	0	0	0	39,133
35-39	9	13	11	4	0	0	0	0	0	37
	33,571	37,747	49,589	58,899	0	0	0	0	0	42,539
40-44	25	19	10	11	2	0	0	0	0	67
	26,862	31,160	57,130	66,444	56,996	0	0	0	0	39,997
45-49	43	22	13	7	14	5	0	0	0	104
	22,418	27,273	43,772	50,452	65,796	53,745	0	0	0	35,347
50-54	30	31	12	4	8	6	4	0	0	95
	20,806	27,944	37,417	46,113	56,836	62,062	94,925	0	0	35,059
55-59	10	19	7	12	10	11	8	9	1	87
	26,205	24,696	26,898	45,583	45,281	66,889	62,518	64,359	56,515	43,575
60-64	10	7	7	8	9	8	1	4	1	55
	30,579	28,376	34,898	43,224	60,610	69,511	45,756	76,820	88,544	47,958
65-69	1	4	1	1	6	3	0	0	1	17
	15,408	27,934	106,131	36,847	23,224	39,404	0	0	40,139	33,401
70+	1	1	1	1	0	0	0	2	0	6
	18,099	6,571	40,123	59,262	0	0	0	50,729	0	37,585
Total Employees	221	144	64	49	49	33	13	15	3	591
Average Salary	25,840	31,973	43,832	52,306	53,622	62,157	71,200	65,865	61,733	38,004

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Retiree Distribution as of January 1, 2010

	Number of Employees			Total Payments		
Attained Age	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	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	1	0	1	2,809	0	2,809
50-54	1	1	2	19,650	15,595	35,246
55-59	6	1	7	247,049	4,639	251,689
60-64	20	10	30	802,372	180,030	982,402
65-69	14	16	30	477,736	258,315	736,051
70-74	7	12	19	178,438	230,581	409,020
75-79	16	23	39	317,301	293,313	610,614
80-84	12	27	39	338,906	271,322	610,228
85-89	3	18	21	76,717	157,963	234,681
90-94	2	5	7	36,395	27,129	63,524
95-99	0	2	2	0	21,558	21,558
Total	82	115	197	2,497,375	1,460,446	3,957,821
Average (Age/Payment)	70.9	77.7	74.8	30,456	12,700	20,090
Frequency Percent	41.6	58.4	100.0	63.1	36.9	100.0

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Disabled Retiree Distribution as of January 1, 2010

	Number of Employees			Total Payments		
Attained Age	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	0	1	1	0	20,100	20,100
40-44	1	0	1	37,068	0	37,068
45-49	1	0	1	29,706	0	29,706
50-54	3	1	4	115,707	9,345	125,052
55-59	3	0	3	79,948	0	79,948
60-64	7	0	7	192,391	0	192,391
65-69	5	0	5	129,091	0	129,091
70-74	1	0	1	30,585	0	30,585
75-79	4	0	4	100,100	0	100,100
80-84	1	0	1	17,164	0	17,164
85-89	2	0	2	51,593	0	51,593
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	28	2	30	783,352	29,445	812,798
Average (Age/Payment)	65.3	44.3	63.9	27,977	14,723	27,093
Frequency Percent	93.3	6.7	100.0	96.4	3.6	100.0

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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	$5,291,369	$1,853,530	$3,137,490	$5,724,311	$5,423,962
2011	5,668,971	1,967,971	3,845,639	5,653,493	5,798,132
2012	6,055,951	2,088,958	3,987,702	6,121,921	6,142,630
2013	6,484,420	2,216,849	4,131,663	6,620,386	6,484,478
2014	6,925,367	2,352,020	4,280,504	7,147,028	6,854,185
2015	7,329,974	2,494,867	4,434,375	7,706,143	7,305,411
2016	7,727,709	2,645,807	4,593,425	8,303,291	7,814,814
2017	8,172,492	2,805,280	4,757,811	8,941,118	8,331,717
2018	8,584,343	2,973,748	4,927,690	9,623,506	8,940,601
2019	8,958,547	3,151,697	5,103,223	10,358,264	9,654,637
2020	9,351,851	3,339,640	5,284,577	11,151,804	10,424,169
2021	9,751,367	3,538,116	5,471,917	12,009,260	11,267,926
2022	10,091,751	3,747,691	820,757	12,776,028	7,252,725
2023	10,431,670	3,968,964	802,582	13,368,362	7,708,238
2024	10,777,967	4,202,562	781,109	13,998,478	8,204,182
2025	11,140,169	4,449,147	756,078	14,669,351	8,734,407
2026	11,461,425	4,709,414	727,212	15,386,137	9,361,338
2027	11,755,623	4,984,096	694,218	16,156,278	10,078,969
2028	11,996,816	5,208,380	725,457	16,985,245	10,922,266
2029	12,223,684	5,442,757	758,103	17,884,687	11,861,863
2030	12,414,340	5,687,681	792,218	18,863,447	12,929,006
2031	12,549,314	5,943,627	827,867	19,932,854	14,155,034
2032	12,657,561	6,211,090	865,122	21,104,857	15,523,508
2033	12,691,741	6,490,589	904,052	22,393,142	17,096,042
2034	12,688,279	6,782,666	944,734	23,813,086	18,852,207
2035	12,688,102	7,087,886	987,247	25,378,203	20,765,234
2036	12,632,078	7,406,840	1,031,673	27,103,844	22,910,279
2037	12,531,623	7,740,148	1,078,099	29,008,708	25,295,332
2038	12,409,187	8,088,455	1,126,613	31,111,711	27,917,592
2039	12,825,684	8,452,435	1,177,311	33,409,761	30,213,823

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 107 contributory retirement systems for public employees for 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:

Date of Hire	Member Contribution Rate
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
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 must 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

(iv) if an employee is a State Police officer (Group 3), attainment of age 50

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:

Age at	Percentage of Average Salary		
Retirement	Group 1	Group 2	Group 4
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

For Group 3 (State Police), the benefit is 50% of the participant's final year's rate of regular salary, plus an additional 1% for each year of service in excess of 20 years. 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 $450 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 amount of pension benefit subject to a COLA is $12,000. All COLAs 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 8.25% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 2.5% for 2010, 3.00% for 2011, and 3.5% per year thereafter.

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 of assets is determined using a five-year smoothing of unrealized gains and losses.

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:

Service	General Employees	Police and Fire Employees
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:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
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:

Attained Age	General Employees	Police and Fire Employees
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 $120,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. <u>Actuarial Accrued Liability</u>

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

2. <u>Actuarial Assumptions</u>

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. <u>Actuarial Cost Method</u>

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

4. <u>Actuarial Present Value</u>

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. <u>Forecast</u>

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 Town of Shrewsbury Retirement System contributing 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 is reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Buck Consultants, LLC

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

June, 2010

BREAKOUTS

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Breakouts

	Total	All Others	Housing	Light	Cable	Water	Sewer	Custodians	School Employees
(1) Participants									
(a) Actives	591	172	10	30	30	13	3	22	311
(b) Inactives	115	26	1	4	11	4	0	6	63
(c) Retirees and Benefiaries	197	109	2	19	2	7	2	19	37
(d) Disabled Retirees	30	23	0	2	0	1	0	2	2
(e) Total	933	330	13	55	43	25	5	49	413
(2) Payroll of Active Participants	$22,460,537	$9,315,569	$477,618	$2,158,392	$1,626,031	$656,597	$135,811	$1,017,522	$7,072,997
(3) Normal Cost									
(a) Total Normal Cost	2,552,044	1,130,309	42,489	295,408	165,864	64,152	10,045	109,201	734,576
(b) Expected Employee Contributions	1,853,530	775,229	36,283	164,518	141,519	53,320	10,733	83,973	587,955
(c) Administrative Expenses	120,000	53,148	1,998	13,890	7,799	3,016	472	5,135	34,541
(d) Net Employer Normal Cost (a) - (b) + (c)	818,514	408,228	8,204	144,780	32,144	13,848	(216)	30,363	181,162
(4) Actuarial Accrued Liability	91,059,541	52,761,633	1,630,898	13,736,492	3,016,037	3,084,719	562,497	5,534,861	10,732,405
(5) Assets*	64,467,201	36,551,801	1,107,011	11,093,459	2,197,493	2,093,827	381,808	3,756,921	7,284,880
(6) Unfunded Actuarial Accrued Liability (4) - (5)	26,592,340	16,209,832	523,887	2,643,032	818,544	990,891	180,689	1,777,940	3,447,526
(7) Amortizations*	2,670,407	1,627,794	52,609	265,414	82,198	99,505	18,145	178,541	346,201
(8) Total Required Employer Contributions (3d) + (7)	3,488,921	2,036,022	60,813	410,194	114,342	113,354	17,929	208,904	527,363
(9) Fiscal 2012 Cost	3,845,639	2,244,509	69,291	449,220	125,221	124,961	19,765	230,295	582,375
(10) Fiscal 2013 Cost	3,987,702	2,327,424	71,851	465,815	129,847	129,578	20,495	238,803	603,889
(11) Fiscal 2014 Cost	4,131,663	2,411,446	74,445	482,632	134,535	134,255	21,235	247,424	625,690
(12) Percentage of Total Cost	100.0%	58.4%	1.8%	11.7%	3.3%	3.2%	0.5%	6.0%	15.1%
(13) Funded Ratio	70.80%	69.28%	67.88%	80.76%	72.86%	67.88%	67.88%	67.88%	67.88%

* Allocation is based on the ratio of the Unfunded Actuarial Accrued Liability, adjusted for additional contributions.