

**OFFICE OF THE
TOWN MANAGER**



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Town of Shrewsbury
MASSACHUSETTS 01545-5398

April 20, 2006

To: Board of Selectmen
Finance Committee

From: Daniel J. Morgado

Re: Retirement System Actuarial Valuation

Every two years the Retirement Board commissions an actuarial valuation of the retirement system.

On Friday, Mr. Daniel Sherman presented the attached to the Retirement Board who must now consider which funding schedule to adopt (see pages 2 & 3 which outlines four possible options).

Frankly, the news was very disappointing as I had expected that our funding ratio would improve from the January 1, 2004 valuation of 77.9%. Instead, the funding ratio has fallen to 71.3% due to asset losses (actually it is a variation from what was projected in 2002 not an actual loss in the traditional sense) of \$4,927,025 and liability losses of \$1,930,573 (actually it is a variation from what was projected in 2002 not an actual loss in the traditional sense).

While our investment return has been good in comparison to other system, increases in the number of employees has created a wider gap between accrued liabilities and the actuarial value of the investment portfolio. The growth of employees has been:

Department	2000	2002	2004	2006	Difference 2004 to 2005	Percent
Housing	10	12	11	10	(1)	-9%
Light	41	38	38	35	(3)	-8%
Cable	10	14	18	21	3	17%
Water	N/A	11	11	11	0	0%
Sewer	N/A	5	5	5	0	0%
Custodians	N/A	N/A	30	30	0	0%
School	N/A	N/A	286	322	36	13%
All Others	430	507	179	181	2	1%
	491	587	578	615	37	6%

Note: Full breakouts are not available for 2000 & 2002

As shown above we are operating with 124 more employees in the system in 2006 then we were operating with in 2000.

I have attached a comparison of valuations for the period of 2002 to 2006 for your review.

What this all means in that the appropriation for pensions in FY 2008 will be \$2,538,769 and increase of \$607,050 over FY 2007 which will account for 60% of the total increase allowed under Proposition 2 ½ for FY 2008. This increase is necessary to maintain the system on a full funding schedule of 16 years (2022).

While the funding schedule may be pushed out to 2028 for some savings, it is an approach that I strongly recommend against in light of our GASB 45 (unfunded liability for retiree health insurance) reporting requirement next year.

Please review the attached and Mrs. Thompson and I are available for any questions.

Cc Mary Thompson
Anthony Bent
Patrick Collins

Comparison of Actuarial Valuations
2000 to 2006
Shrewsbury Retirement System

Area	2000	2002	2004	2006	Since 2000
Active Employees	491	587	578	615	124
Inactives(Refunds)	119	166	156	137	18
Retirees/Beneficiaries	214	209	197	195	-19
Disabled	30	29	30	30	0
Total (includes Housing Authority)	854	991	961	977	123
	Change	137	-30	16	123
		16.0%	-3.0%	1.7%	14.4%
Total Payroll	\$14,064,649	\$16,773,825	\$17,995,844	\$19,896,839	
	Change	\$2,709,176	\$1,222,019	\$1,900,995	\$5,832,190
		19%	7%	11%	41.5%
Average Payroll	\$28,645	\$28,576	\$31,135	\$32,353	
	Change	-\$69	\$2,559	\$1,218	\$3,708
		-0.2%	9.0%	3.9%	12.9%
Actuarial Accrued Liability	\$49,486,969	\$59,312,723	\$65,276,552	\$75,979,303	
	Change	\$9,825,754	\$5,963,829	\$10,702,751	\$26,492,334
		19.9%	10.1%	16.4%	53.5%
Assets Actuarial Value	\$48,071,979	\$46,779,157	\$50,857,118	\$54,147,807	
	Change	-\$1,292,822	\$4,077,961	\$3,290,689	\$6,075,828
		-2.7%	8.7%	6.5%	12.6%
Funding Ratio	97.1%	78.9%	77.9%	71.3%	-25.9%
Unfunded Accrued Liability	\$1,414,990	\$12,533,566	\$14,419,434	\$21,831,496	
	Change	\$11,118,576	\$1,885,868	\$7,412,062	\$20,416,506
		785.8%	15.0%	51.4%	1442.9%
			Expected Unfunded Accrued Liability	\$14,973,898	
			Loss	\$6,857,598	
			Asset Loss	\$4,927,025	
			Liability Loss	\$1,930,573	

Town of Shrewsbury Contributory Retirement System
as of
January 1, 2006
Primary Results Comparison

	<u>January 1, 2004</u>	<u>January 1, 2006</u>	<u>Change as a Percent (Annualized)</u>	<u>FY 2008</u>
Actives	578	615	3.2%	
Retirees and Beneficiaries	197	195	-0.5%	
Inactives (Refunds)	156	137	-6.3%	
Disabled	<u>30</u>	<u>30</u>	0.0%	
Total	961	977	0.8%	
Total Payroll	17,995,844	19,896,839	5.1%	20,792,197
Average Annual Salary	31,135	32,353	1.9%	
Average Past Service	9.0	9.5		
Average Attained Age	43.9	44.7		
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Employee Normal Cost	1,446,304	1,586,468	4.7%	1,682,874
% of Payroll	8.0%	8.0%		8.1%
Employer Normal Cost	815,008	873,568	3.5%	887,863
% of Payroll	4.5%	4.4%		4.3%
Administrative Expense	100,000	85,000	-7.8%	88,825
% of Payroll	0.6%	0.4%		0.4%
Total Normal Cost	2,361,312	2,545,036	3.8%	2,659,563
% of Payroll	13.1%	12.8%		12.8%
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Total Actuarial Accrued Liability	65,276,552	75,979,303	7.9%	
Assets - Market Value	46,399,063	54,782,535	8.7%	
Assets - Actuarial Value	50,857,118	54,147,807	3.2%	
Funded Ratio	77.9%	71.3%	-4.4%	
Total Unfunded Accrued Liability	14,419,434	21,831,496	23.0%	
Expected Unfunded Accrued Liability		14,973,898		
(Gain)/Loss		6,857,598		
Asset (Gain)/Loss		4,927,025		
Liability (Gain)/Loss		1,930,573		

Town of Shrewsbury Contributory Retirement System
as of
January 1, 2006
Analysis of Funding Alternatives

	FY 2007	FY 2008
Employer Appropriations under current funding schedule	\$2,270,000	\$2,349,000
As a percent of pay	11.6%	11.4%
 <u>Option A</u>		
Employer Normal Cost	\$958,568	\$976,688
Total Unfunded Accrued Liabilities	\$21,831,496	
→ Prior Active unfunded accrued liability	14,973,898	
16 years remaining as of January 1, 2006		
8.5 % interest and 4.5% increasing payments	1,222,009	1,277,000
Unfunded liability for current (gains)/losses	6,857,598	
16 years remaining as of January 1, 2006		
8.5 % interest and 4.5% increasing payments	559,644	584,828
Total Required Employer Appropriations	2,740,221	2,838,516
with interest adjustment for the complete contribution on July 1.	2,854,305	2,956,692
As a percent of pay	14.3%	14.2%
<i>If FY 2007 appropriation unchanged:</i>	2,270,000	3,010,951
 <u>Option B</u>		
Employer Normal Cost	\$958,568	\$976,688
Total Unfunded Accrued Liabilities	\$21,831,496	
→ Total unfunded accrued liability	21,831,496	
18 years remaining as of January 1, 2006		
8.5 % interest and 4.5% increasing payments	1,637,795	1,711,496
ERI accrued liability	0	
3 years remaining as of January 1, 2006		
8.5 % interest	0	0
Total Required Employer Appropriations	2,596,363	2,688,184
with interest adjustment for the complete contribution on July 1.	2,704,458	2,800,102
As a percent of pay	13.6%	13.5%
<i>If FY 2007 appropriation unchanged:</i>	2,270,000	2,836,924

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Town of Shrewsbury Contributory Retirement System
as of
January 1, 2006
Analysis of Funding Alternatives

	FY 2007	FY 2008
Employer Appropriations under current funding schedule	\$2,270,000	\$2,349,000
As a percent of pay	11.6%	11.4%
 <u>Option C</u>		
Employer Normal Cost	\$958,568	\$976,688
Total Unfunded Accrued Liabilities	\$21,831,496	
Initial unfunded accrued liability	21,831,496	
→ 20 years remaining as of January 1, 2006		
8.5 % interest and 4.5% increasing payments	1,523,671	1,592,237
 Total Required Employer Appropriations with interest adjustment for the complete contribution on July 1.	 2,482,239 2,585,583	 2,568,925 2,675,878
As a percent of pay	13.0%	12.9%
 <i>If FY 2007 appropriation unchanged:</i>	 2,270,000	 2,700,621
 <u>Option D</u>		
Employer Normal Cost	\$958,568	\$976,688
Total Unfunded Accrued Liabilities	\$21,831,496	
Initial unfunded accrued liability	21,831,496	
→ 22 years remaining as of January 1, 2006		
8.5 % interest and 4.5% increasing payments	1,431,164	1,495,566
 Total Required Employer Appropriations with interest adjustment for the complete contribution on July 1.	 2,389,732 2,489,224	 2,472,254 2,575,183
As a percent of pay	12.5%	12.4%
 <i>If FY 2007 appropriation unchanged:</i>	 2,270,000	 2,591,254

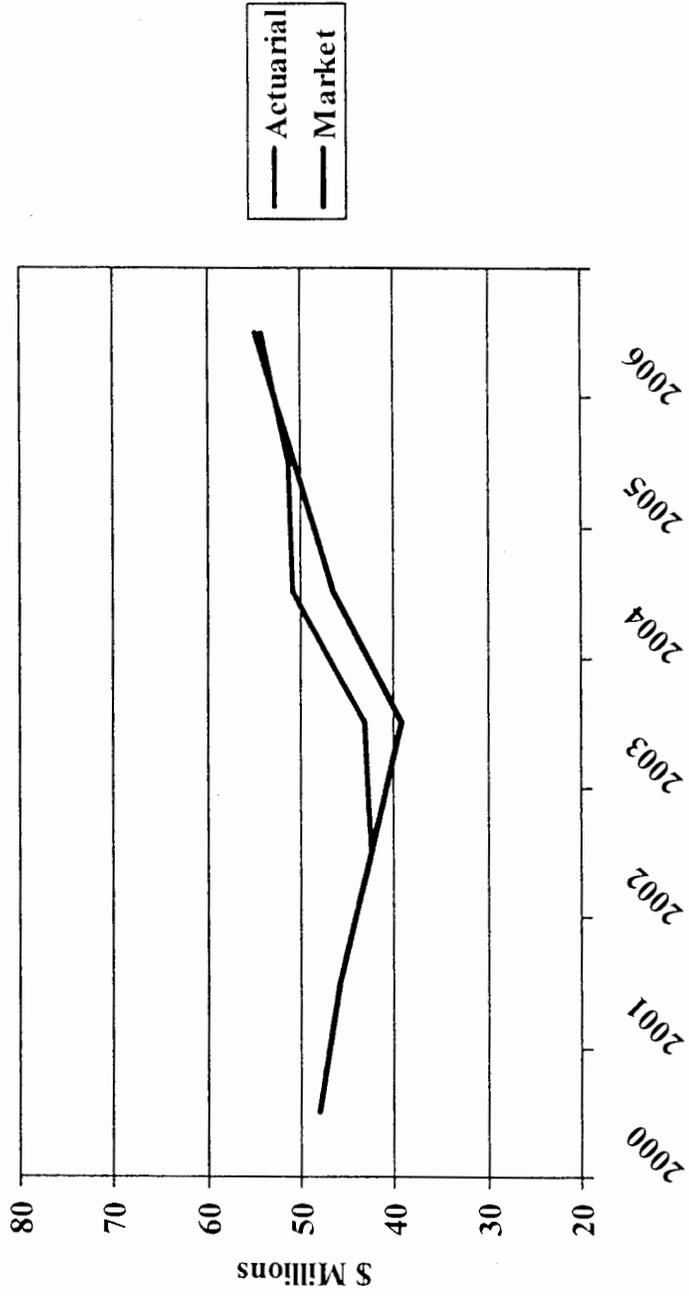
Actuarial Value of Assets

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, 2006 is presented in Table V.

	<u>January 1, 2006</u>
(1) Market value at January 1, 2005	\$50,582,018
(2) 2005 Contributions	\$4,575,848
(3) 2005 Payments	(\$4,443,470)
(4) Net interest adjustment at 8.5% on (1), (2), and (3) to December 31, 2005	\$4,305,098
(5) Expected market value on January 1, 2006	\$55,019,494
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2006	\$54,782,535
(7) 2005 (Gain) / Loss	\$236,959
(8) 80% of 2005 (Gain) / Loss	\$189,567
(9) 2004 (Gain) / Loss	(\$847,628)
(10) 60% of 2004 (Gain) / Loss	(\$508,577)
(11) 2003 (Gain) / Loss	(\$4,046,440)
(12) 40% of 2003 (Gain) / Loss	(\$1,618,576)
(13) 2002 (Gain) / Loss	\$6,514,289
(14) 20% of 2002 (Gain) / Loss	\$1,302,858
(15) Actuarial value on January 1, 2006, (6) + (8) + (10) + (12) + (14)	\$54,147,807
(16) but not less than 90% nor greater than 110% of (6)	\$54,147,807
Ratio of actuarial value to market value	98.84%

Town of Shrewsbury Contributory Retirement System

Asset Values



Breakouts

	Total	All Others	Housing	Light	Cable	Water	Sewer	Custodians	School Employees
(1) Participants	615	181	10	35	21	11	5	30	322
(a) Actives	137	11	1	3	2	0	0	1	119
(b) Inactives	195	102	3	17	2	9	2	15	45
(c) Retirees	30	23	0	2	0	1	0	3	1
(d) Disabled Retirees	977	317	14	57	25	21	7	49	487
(e) Total	\$19,896,839	\$8,394,212	\$410,115	\$2,179,235	\$971,164	\$448,547	\$240,456	\$1,095,188	\$6,157,922
(2) Payroll of Active Participants									
(3) Normal Cost									
(a) Total Normal Cost	2,460,036	1,131,979	39,502	277,132	108,066	44,475	21,983	123,136	713,763
(b) Expected Employee Contributions	1,586,468	735,348	30,300	159,524	82,764	35,744	19,452	84,475	438,861
(c) Administrative Expenses	85,000	39,113	1,365	9,576	3,734	1,537	760	4,255	24,662
(d) Net Employer Normal Cost (a) - (b) + (c)	958,568	435,744	10,567	127,184	29,036	10,268	3,291	42,916	299,564
(4) Actuarial Accrued Liability	75,979,303	45,509,474	1,474,032	12,357,188	1,494,331	1,533,375	808,231	4,819,758	7,982,914
(5) Assets*	54,147,807	31,710,344	1,006,834	9,938,450	1,147,918	1,047,368	552,060	3,292,124	5,452,709
(6) Unfunded Actuarial Accrued Liability (4) - (5)	21,831,496	13,799,130	467,198	2,418,738	346,413	486,007	256,171	1,527,634	2,530,205
(7) Amortizations*	1,913,917	1,209,738	40,958	212,045	30,369	42,607	22,458	133,924	221,817
(8) Total Normal Cost plus Amortization	2,890,605	1,653,732	51,737	341,584	59,987	53,087	25,824	177,664	526,990
(9) Fiscal 2007 Cost	\$2,270,000	1,295,342	\$46,359	\$267,558	\$46,987	\$41,582	\$20,228	\$139,161	\$412,783
(10) Fiscal 2008 Cost	\$3,010,951	1,722,582	\$53,891	\$355,806	\$62,485	\$55,297	\$26,899	\$185,061	\$548,930
(11) Percentage of Total Cost	100.0%	57.2%	1.8%	11.8%	2.1%	1.8%	0.9%	6.1%	18.2%

* Allocation is based on the ratio of the Unfunded Actuarial Accrued Liability