Andover Retirement System

Actuarial Valuation
January 1, 2007

STONE CONSULTING, INC.

October 2007

STONE CONSULTING, INC.

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October 18, 2007

Andover Retirement Board
Town Offices
36 Bartlet Street
Andover, MA 01810

Dear Andover Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2007 actuarial valuation of the Andover Contributory Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices and meets the parameters set by the Governmental Accounting Standards Board Statement (GASB) No. 25. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

As part of performing the valuation, Stone Consulting, Inc. was furnished member data by the Andover Contributory Retirement System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. In addition, the administrative staff furnished financial statements that were not audited by the actuary or by the plan's auditors.

The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

We anticipate over time the contribution level to decrease as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. The normal cost is expected to remain at a level percentage of payroll. The number of years of the amortization and/or the rate of increase of the amortization is adjusted to maintain a stable contribution level for the upcoming fiscal year. The length of the funding schedule contained in this actuarial valuation report is eighteen years with a 2.30% amortization. The length of the schedule is three years longer than the previous schedule but two years shorter than the maximum length (which is until Fiscal 2028). The amortization increase cannot exceed 4.5% annually. These limits are contained in Chapter 32 of the Massachusetts General Laws.

The contribution amount for Fiscal Year 2008 is $4,503,175 that is $735 less than the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Andover Contributory Retirement Board conducted their previous actuarial valuation effective January 1, 2004. We recommend that a valuation be performed as of January 1, 2009.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond.

Respectfully submitted,

STONE CONSULTING, INC.

Actuaries for the Plan

Lawrence B. Stone

Lawrence B. Stone
Member, American Academy of Actuaries

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INTRODUCTION

This report presents the results of the actuarial valuation of the Andover Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2007 for the purpose of determining the contribution requirements for Fiscal Year 2009 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2006
- The benefit provisions of M.G.L. Chapter 32;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2007);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (i.e., terminations, retirement, death, etc.)

JANUARY 1, 2007 VALUATION SUMMARY

	January 1, 2007	January 1, 2004	Change
Contribution Fiscal 2009	$4,503,175	$4,503,910	($735)
Funding Schedule Length*	18 years	15 years	3 years
Amortization Increase*	2.30%	3.00%	-0.70%
Funding Ratio	73%	78%	-5%
Interest Rate Assumption	8.00%	8.50%	-0.50%
Salary Increase Rate Assumption	4.75%	6.00%	-1.25%

- The Fiscal Year 2009 contribution is ($735) less than the planned 2009 contribution. The System experienced a $5.0 million net actuarial asset loss from calendar year 2004. Stone Consulting, following the Retirement Board instructions, values assets using a smoothing technique consistent with the prior valuation. This technique produces an actuarial value of assets of $99,952,824.

- We believe the existing asset smoothing method is not reasonable because gains and losses are calculated from the actuarial value of assets rather than from the market value of assets. If you use a 4 year phase in of gains and losses calculated from the market value of assets compared to the expected market value of assets, this would produce an actuarial value of assets of $94,128,055. The unfunded actuarial accrued liability would then be $42,771,255. This results in a funding ratio of 69%. Using these results and the length and amortization increase in the proposed schedule would result in a Fiscal 2009 appropriation of $5,078,567.

  The System experienced a 6.6% return on the actuarial value of assets versus the assumption of an 8.50% return. The System's asset portfolio, effective December 31, 2006 was 74% equities and 26% fixed income and short-term investments. The interest rate assumption was changed to 8.00% to reflect anticipated market performance.

- We have changed the salary increase rate to 4.75%, a decrease of 1.25% from the 2004 actuarial valuation. Total compensation changed by 10.6% over the prior valuation; however average annual compensation (compensation divided by number of active members) changed by 9.7%. The number of active members has remained relatively constant. Average age and service have increased by .8 years and 1.5 years respectively.

- The funding level of the Andover Retirement System is 73% compared to 78% for the January 1, 2004 actuarial valuation. Chapter 68 requires a minimum funding ratio of 65% along with additional criteria in order to avoid being labeled an "under performing system". If you are considered an "under performing system" the system assets are required to be transferred to PRIT. The funding level is estimated to be in the second quartile of Massachusetts' Contributory Retirement Systems.

  The schedule length is eighteen (18) years. The maximum period permitted under Chapter 32 of the Massachusetts General Laws is 20 years (2028). The amortization percentage was changed from 3.00% to 2.30%, while maintaining a FY2009 contribution level consistent with the prior valuation. The maximum amortization permitted under Chapter 32 is 4.5%.

- Non-economic assumptions have changed since the January 1, 2004 actuarial valuation.

JANUARY 1, 2007 ACTUARIAL VALUATION RESULTS

	January 1, 2007	January 1, 2004	Percentage Change
Funding			
• Contribution for Fiscal 2009	$4,503,175		
• Contribution for Fiscal 2009 based on current schedule		$4,503,910	0%
Members *			
• ***Actives***			
a. Number	726	720	0.8%
b. Annual Compensation	$30,468,282	$27,550,741	10.6%
c. Average Annual Compensation	$41,967	$38,265	9.7%
d. Average Attained Age	46.7	45.9	1.7%
e. Average Past Service	10.8	9.3	16.1%
• ***Retired, Disabled and Beneficiaries***			
a. Number	352	334	5.4%
b. Total Benefits*	$6,517,428	$5,007,516	30.2%
c. Average Benefits*	$ 18,515	$14,993	23.5%
c. Average Age**	71.5	70.8	1.0%
• ***Inactives***			
a. Number	129	99	30.3%
Normal Cost			
a. Total Normal Cost as of January 1, 2007	$3,491,344	$4,189,419	-16.7%
b. Less Expected Members' Contributions	2,628,295	2,472,920	6.3%
c. Normal Cost to be funded by the Municipality	$863,049	$1,825,399	-52.7%
d. Adjustment to July 1, 2008	62,217	35,677	74.4%
e. Administrative Expense Assumption	148,500	108,900	36.4%
f. Normal Cost Adjusted to July 1, 2008	$1,073,766	$1,969,976	-45.5%

*Excluding State reimbursed COLA
**Excludes beneficiaries in 2004

SUMMARY OF JANUARY 1, 2007 VALUATION
(Continued)

	January 1, 2007	January 1, 2004	Percentage Change
Actuarial Accrued Liability as of January 1, 2007			
a. Active Members	$74,856,475	$58,527,951	27.9%
b. Inactive Members	878,793	439,695	99.9%
c. Retired Members and Beneficiaries	61,164,042	45,264,252	35.1%
d. Total	$136,899,310	$104,231,898	31.3%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2007	$136,899,310	$104,231,898	31.3%
b. Less Actuarial Value of Assets as of January 1, 2007	99,952,824	81,431,072	22.7%
c. Unfunded Actuarial Accrued Liability as of January 1, 2007	$36,946,486	$22,800,826	62.0%
d. Adjustment to July 1, 2008	$ 1,539,475	$949,274	
e. Unfunded Actuarial Accrued Liability as of July 1, 2008	$38,485,961	$23,750,100	

DEMOGRAPHIC INFORMATION

Members	January 1, 2007	Percentage Change
• ***Actives***		
a. Number	726	0.8%
b. Annual Compensation	$30,468,282	10.6%
c. Average Annual Compensation	$41,967	9.7%
d. Average Attained Age	46.7	1.7%
e. Average Past Service	10.8	16.1%
• ***Retired, Disabled and Beneficiaries***		
a. Number	352	5.4%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	$6,517,428	30.2%
• ***Inactives***		
a. Number	129	30.3%

- The data was supplied by the Andover Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Andover Retirement Board, we were able to develop a database sufficient for valuation purposes.
- Payroll changed by 10.6% over the course of the past year. Average annual compensation changed by 9.7% over the same time period.
- The salary increase assumption includes general wage adjustments, step increases, and promotional increases.

HISTORY OF ACTIVE PARTICIPANTS

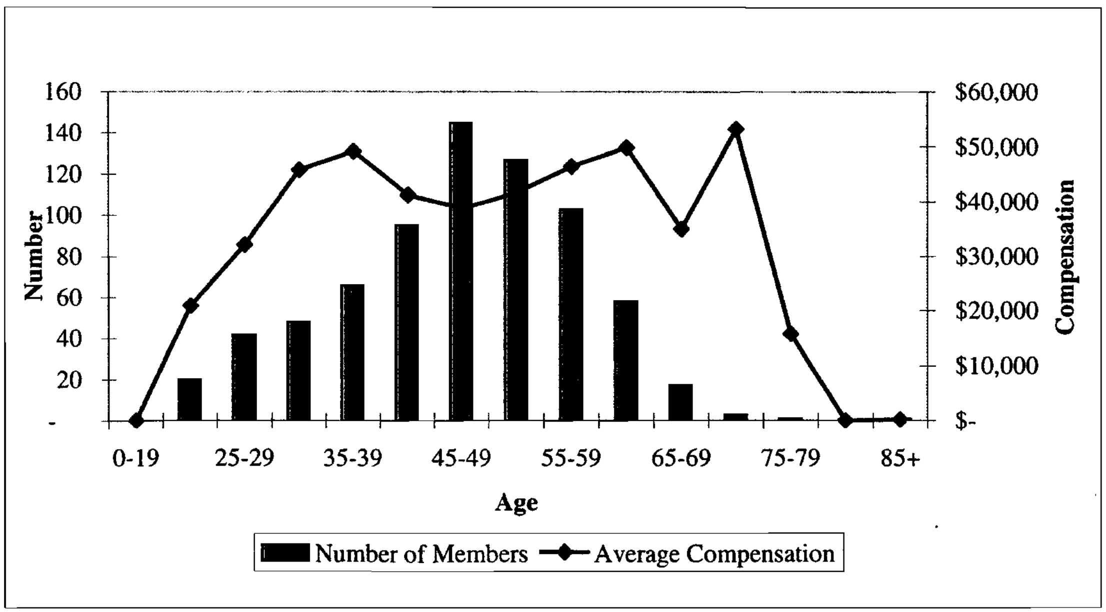
Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2007	726	46.7	10.8	$41,967
2004	720	45.9	9.3	$38,265
2001	664	44.8	9.6	$34,945

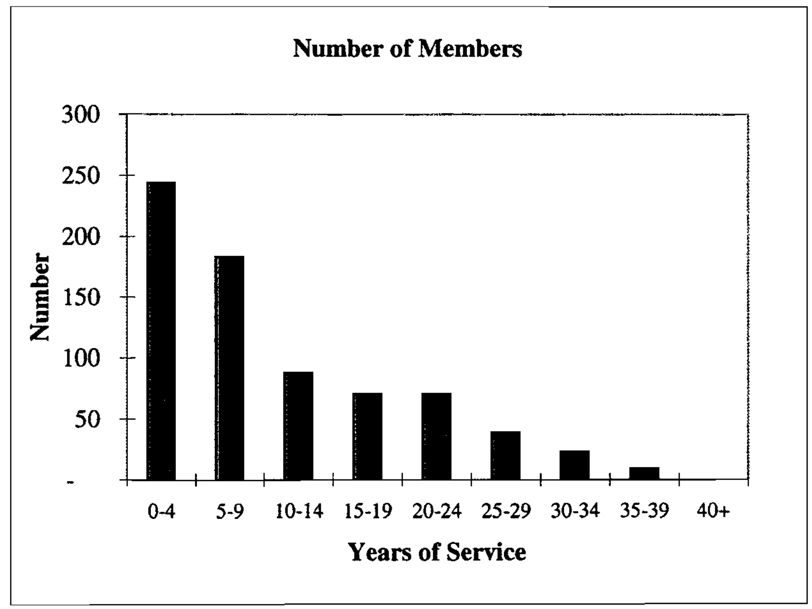
- Employee age has increased by 1.9 years and service has increase by 1.2 years over the course of the past six years. Average annual compensation has grown by 20.1% over the same time period.

The charts on the following pages summarize demographic information regarding active and retiree members.

Andover Contributory Retirement System
Distribution of Plan Members as of January 1, 2007
Active Members

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	$ -	$ -
20-24	20	-	-	-	-	-	-	-	-	20	418,568	20,928
25-29	36	6	-	-	-	-	-	-	-	42	1,352,632	32,206
30-34	19	22	5	2	-	-	-	-	-	48	2,197,192	45,775
35-39	20	25	17	4	-	-	-	-	-	66	3,239,624	49,085
40-44	35	19	10	16	15	-	-	-	-	95	3,916,943	41,231
45-49	51	38	17	15	18	6	-	-	-	145	5,615,246	38,726
50-54	30	39	15	8	15	16	3	1	-	127	5,292,242	41,671
55-59	23	17	16	11	9	10	13	4	-	103	4,778,775	46,396
60-64	9	11	6	9	12	4	3	4	-	58	2,887,610	49,786
65-69	1	5	1	4	-	3	3	-	-	17	593,823	34,931
70-74	-	-	-	1	1	-	1	-	-	3	159,631	53,210
75-79	-	-	1	-	-	-	-	-	-	1	15,746	15,746
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85+	-	1	-	-	-	-	-	-	-	1	249	249
TOTAL	244	183	88	70	70	39	23	9	-	726	$ 30,468,282	$ 41,967





Andover Retirement System
Distribution of Plan Members as of January 1, 2007
Retired Members

Disabled Member

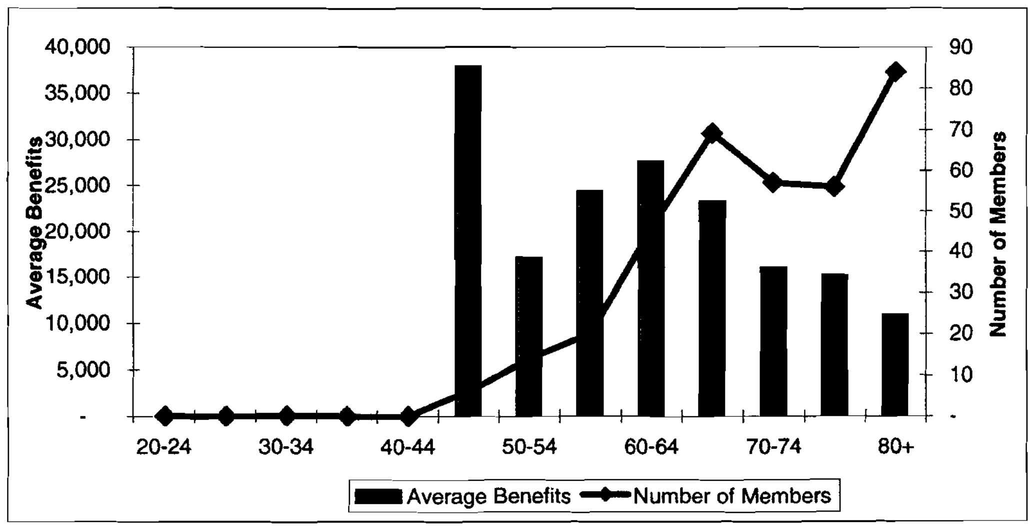
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	4	44,579	178,317
50-54	4	21,921	87,683
55-59	4	35,218	140,873
60-64	9	29,766	267,898
65-69	9	25,448	229,030
70-74	4	20,841	83,364
75-79	3	20,924	62,772
80+	2	15,730	31,461
TOTAL	39	$ 27,728	$ 1,081,397

Retired Members and Beneficiaries

Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	2	24,637	49,274
50-54	10	15,230	152,298
55-59	16	21,633	346,135
60-64	37	27,113	1,003,186
65-69	60	22,929	1,375,769
70-74	53	15,665	830,229
75-79	53	14,912	790,323
80+	82	10,839	888,817
TOTAL	313	$ 17,368	$ 5,436,030

Total

Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	6	37,932	227,590
50-54	14	17,141	239,981
55-59	20	24,350	487,008
60-64	46	27,632	1,271,084
65-69	69	23,258	1,604,799
70-74	57	16,028	913,593
75-79	56	15,234	853,095
80+	84	10,956	920,277
TOTAL	352	$ 18,515	$ 6,517,428



Benefits shown are net of State reimbursed COLA.

VALUATION METHODOLOGY

Stone Consulting, Inc. used the Entry Age Normal actuarial funding method in this actuarial valuation. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

NORMAL COST

		January 1, 2007	% of Payroll*
Gross Normal Cost (GNC)	$	3,491,344	11.5%
Employees Contribution		2,628,295	8.6%
Net Normal Cost (NNC)	$	863,049	2.8%
Adjusted to Beginning of Fiscal Year 2009	$	62,217	
Administrative Expense	$	148,500	0.5%
Adjusted Net Normal Cost With Admin. Expense	$	1,073,766	

*Payroll paid in 2006 for employees as of January 1, 2007 is $30,468,282. Payroll for new hires in 2006 was annualized.

- The gross normal cost (GNC) is the "price" of benefits accruing in the current year if the assumptions underlying the normal cost were realized.

- An individual normal cost represents that part of the cost of a member's future benefits that 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 GNC to determine employer normal cost, or net normal cost (NNC).

- Administrative expenses added to the NNC. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the interest rate assumption that is net of fees.

ACTUARIAL ACCRUED LIABILITY AND FUNDED STATUS

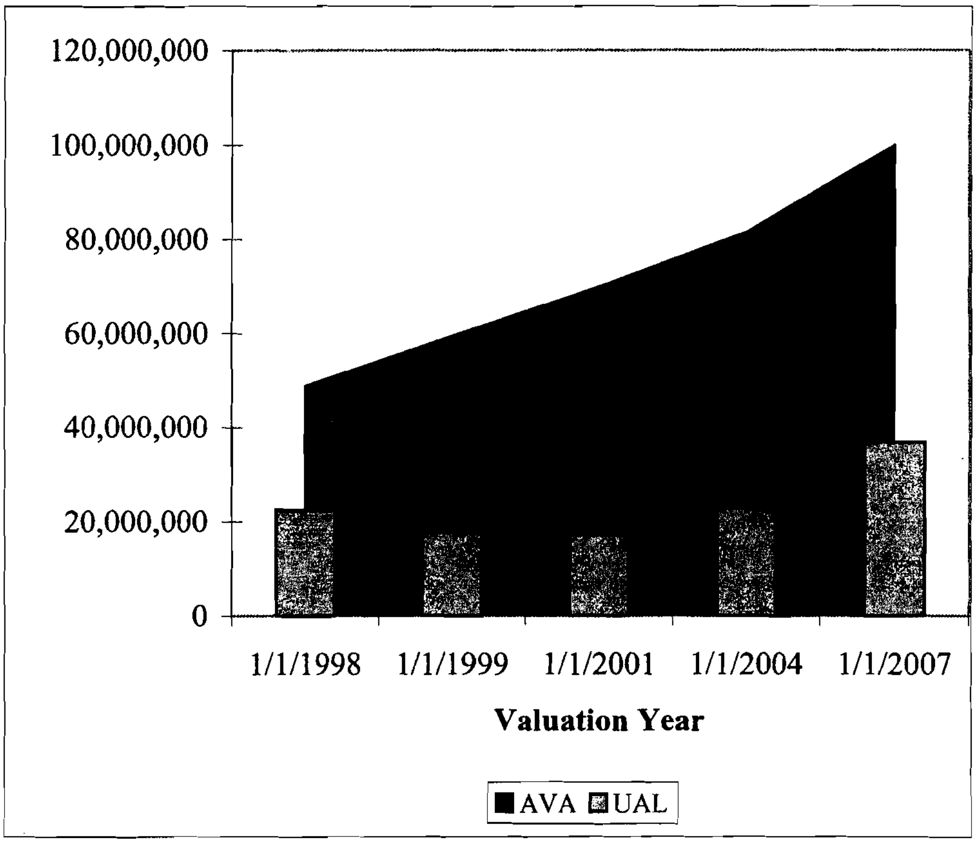
			January 1, 2007	Percentage Change
Active Actuarial Accrued Liability			$ 74,856,475	27.9%
Superannuation	$	62,267,038		
Death	$	2,474,862		
Disability	$	7,349,510		
Termination	$	2,765,065		
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			62,042,835	35.7%
Retirees and Beneficiaries	$	49,858,742		
Disabled	$	11,305,300		
Inactive	$	878,793		
Total Actuarial Accrued Liability (AAL)			$ 136,899,310	31.3%
Actuarial Value of Assets (AVA)			$ 99,952,824	22.7%
Unfunded Actuarial Accrued Liability			$ 36,946,486	62.0%
Funded Ratio (AVA / AAL)				
2007 (8.00% interest rate):		73%		
2004 (8.50% interest rate):		78%		

- Actuarial Accrued Liability (AAL) is the "price" of benefits attributable to benefits earned in past years, or in other words, represents today's value of all benefits earned by active and inactive members.

- The total AAL is $136,899,310. This along with an actuarial value of assets of $99,952,824 produces a funded status of 73%. Using a market value of assets results in a funding ratio of 70%. This compares to a funded status of 78% for the 2004 valuation.

The chart on the following page is a history of the unfunded actuarial accrued liability (UAL) and the valuation assets (AVA) over the course of the past five actuarial valuations.

HISTORY OF ACTUARIAL VALUATION OF ASSETS (AVA) AND UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAL)



DEVELOPMENT OF FUNDING SCHEDULE

Net Employer Normal Cost for Fiscal 2009	$	1,073,766
Amortization	$	3,259,416
Total Appropriation	$	4,333,182
Adjustment for mid year payment		169,993
Total Appropriation required for Fiscal 2009	$	4,503,175

- The funding schedule is composed of the normal cost, and the amortization of the actuarial accrued unfunded liability and is adjusted by the administrative expense assumption. The contribution is assumed to be made in the middle of the Fiscal Year (January 1).

- The contribution amount for Fiscal 2009 is $4,503,175. The funding schedule is presented on page 14. The schedule's length is eighteen (18) years (for the fresh start base) which is a decrease of 3 years from the January 1, 2004 valuation schedule's length. The maximum funding schedule length allowed by Chapter 32 of the Massachusetts General Laws is twenty years to 2028.

- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach results in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization percentage changed from 3.00% from the January 1, 2004 valuation to 2.30% The maximum amortization increase allowed under Chapter 32 is 4.5%.

ANDOVER RETIREMENT SYSTEM
FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAL	Schedule Contribution	Adjusted for January 1 Payments
2009	1,073,766	38,485,961	3,259,416	4,333,182	4,503,175
2010	1,124,770	38,044,668	3,334,383	4,459,153	4,634,088
2011	1,178,196	37,487,108	3,411,074	4,589,270	4,769,310
2012	1,234,161	36,802,117	3,489,528	4,723,689	4,909,002
2013	1,292,783	35,977,596	3,569,788	4,862,571	5,053,332
2014	1,354,191	35,000,433	3,651,893	5,006,083	5,202,474
2015	1,418,515	33,856,423	3,735,886	5,154,401	5,356,611
2016	1,485,894	32,530,180	3,821,812	5,307,706	5,515,930
2017	1,556,474	31,005,037	3,909,713	5,466,187	5,680,629
2018	1,630,407	29,262,950	3,999,637	5,630,043	5,850,913
2019	1,707,851	27,284,378	4,091,628	5,799,479	6,026,996
2020	1,788,974	25,048,170	4,185,736	5,974,710	6,209,100
2021	1,873,950	22,531,429	4,282,008	6,155,958	6,397,459
2022	1,962,963	19,709,375	4,380,494	6,343,457	6,592,314
2023	2,056,203	16,555,191	4,481,245	6,537,449	6,793,916
2024	2,153,873	13,039,862	4,584,314	6,738,187	7,002,529
2025	2,256,182	9,131,992	4,689,753	6,945,935	7,218,428
2026	2,363,351	4,797,617	4,797,617	7,160,968	7,441,897
2027	2,475,610	-	-	2,475,610	2,572,729
2028	2,593,201	-	-	2,593,201	2,694,934

Amortization of Unfunded Liability as of July 1, 2008

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2009	Fresh Start	3,259,416	2.30%	18	3,259,416	18

Notes on Amortization of Unfunded Liability

Year is the year the amortization base was established.

Type is the reason for the creation of the base. Examples are Gain/(Loss) or Fresh Start.

Original Amortization Amount is the annual amortization amount when the base was established.

Percentage Increasing is the percentage that the Original Amortization Amount increases per year.

Original # of Years is the number of years over which the base is being amortized.

Current Amortization Amount is the amortization payment amount for this year.

Years Remaining is the number of years left to amortize the base.

ASSUMPTIONS AND METHODOLOGY SUMMARY

The principal actuarial assumptions used in this valuation are the same as the assumptions used in the previous valuation, except where noted, and are summarized in the following table:

Assumption	January 1, 2007 Valuation
Interest Rate	8.00% (8.50% prior valuation)
Salary Increase	4.75% (6.00% prior valuation)
COLA	3% of $12,000
COLA Frequency	Granted every year
Mortality	RP-2000 table. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality RP-2000 table, ages set forward 5 years.
Overall Disability	Groups 1 and 2 45% ordinary disability 55% accidental disability Group 4 10% ordinary disability 90% accidental disability
Retirement Rates	Groups 1 and 2 Ages 55 - 65 Group 4 Ages 50 – 65
Administrative Expense	$148,500 budget estimated for FY 2009 provided by Andover Retirement Board.

ASSETS

a.	Cash		2,701,182.03
b.	Pooled Domestic Equity Funds		41,758,104.21
c.	Pooled International Equity Funds		14,847,471.87
e.	Pooled Domestic Fixed Income Funds		21,853,361.70
f.	Pooled Real Estate Funds		10,716,571.30
g.	PRIT Fund		4,514,464.21
h.	Sub-Total:	$	96,391,155.32
i.	Interest Due and Accrued	$	11,177.94
j.	Accounts Receivable		6,402.17
k.	Accounts Payable		(60,456.04)
l.	Sub-Total:	$	(42,875.93)
m.	Market Value of Assets [(h) + (l)]	$	96,348,279.39

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2006 (adjusted for interest due and accrued, payables and receivables) is $96,348,279.39.

- The asset allocation is approximately 3% cash, receivables, payables and short-term investments, 23% fixed income, and 74% equities.

- Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6 to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 6.25 to 9.00% for equities and 3.65 to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 8.00% interest rate assumption is within the reasonable assumption range. We encourage close monitoring for changes in investment performance against expectations.

DISCLOSURE INFORMATION UNDER GASB STATEMENT 25

Schedules of Funding Progress

(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets A	Actuarial Accrued Liability B	Unfunded AAL (UAAL) B-A	Funded Ratio A/B	Covered Payroll C	UAAL as a % of Covered Payroll (B-A)/C
1/1/2007	$99,953	$136,899	$36,946	73%	$30,468	121%
1/1/2004	$81,431	$104,232	$22,801	78%	$27,551	83%
1/1/2001	$69,752	$86,928	$17,176	80%	$24,596	70%
1/1/1999	$59,350	$76,915	$17,566	77%	$21,631	81%
1/1/1998	$48,768	$71,164	$22,396	69%	$20,700	108%

Notes to Schedules

Additional information as of the latest actuarial valuation follows:

Valuation date	1/1/2007
Actuarial cost method	Entry Age Normal
Amortization method	Approximate level percent of payroll (Closed)
Remaining amortization period	18 years
Asset valuation method	A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings at the assumed actuarial rate of return and the new money during the year (contributions less benefit payments and administrative expenses). The difference between the market value of assets and the preliminary actuarial value, less any previous unrecognized adjustments, is recognized in equal installments over the next five years. The actuarial value of assets must be no less than 80% of the adjusted market value nor more than 120% of the adjusted market value. Market value of assets is $96,348,279.39.

Actuarial assumptions:

Investment Rate of Return	8.00% per year
Projected Salary Increases	4.75% per year

PERAC INFORMATION DISCLOSURE

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2007

The normal cost for employees on that date was:	$2,628,295	8.6% of payroll
The normal cost for the employer was:	$863,049	2.8% of payroll
The actuarial liability for active members was:	$74,856,475	
The actuarial liability for retired members was (includes inactives):	$62,042,835	
Total actuarial accrued liability:	$136,899,310	
System assets as of that date:	99,952,824	
Unfunded actuarial accrued liability:	$36,946,486	
The ratio of system's assets to total actuarial liability was:	73%	
As of that date the total covered employee payroll was:	$30,468,282	

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

Investment Return:	8.00% per annum
Rate of Salary Increase:	4.75% per annum

SCHEDULE OF FUNDING PROGRESS (Dollars in $000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2007	$99,953	$136,899	$36,946	73%	$30,468	121%
1/1/2004	$81,431	$104,232	$22,801	78%	$27,551	83%
1/1/2001	$69,752	$86,928	$17,176	80%	$24,596	70%
1/1/1999	$59,350	$76,915	$17,566	77%	$21,631	81%
1/1/1998	$48,768	$71,164	$22,396	69%	$20,700	108%

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Methods

1. Actuarial Cost Method

The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.

The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets.

2. Asset Valuation Method

A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings at the assumed actuarial rate of return and the new money during the year (contributions less benefit payments and administrative expenses). The difference between the market value of assets and the preliminary actuarial value, less any previous unrecognized adjustments, is recognized in equal installments over the next five years. The actuarial value of assets must be no less than 80% of the adjusted market value nor more than 120% of the adjusted market value.

3. Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2009. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

Actuarial Assumptions

1. Investment Return

8.00% per year net of investment expenses. (Changed from 8.50%)

2. Salary Increases

4.75% per year. (Changed from 6.00%)

ACTUARIAL METHODS AND ASSUMPTIONS (Continued)

3. Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption.

	Rate of Withdrawal	
Age	*Group 1 and 2*	*Group 4*
20	37.51%	3.15%
25	28.23%	2.85%
30	17.35%	2.48%
35	10.07%	1.88%
40	7.21%	0.84%
45	5.68%	0.06%
50	4.57%	0.00%
55	0.00%	0.00%

4. Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

	Rate of Disability	
Age	*Group 1 and 2*	*Group 4*
20	0.03%	0.10%
25	0.04%	0.12%
30	0.06%	0.18%
35	0.08%	0.26%
40	0.12%	0.38%
45	0.18%	0.58%
50	0.31%	0.98%
55	0.50%	1.60%
60	0.61%	1.97%

Disability is assumed to be 45% ordinary and 55% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

ACTUARIAL METHODS AND ASSUMPTIONS (Continued)

5. Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement, once the member has achieved 10 years of service:

	Rates of Retirement	
Age	***Group 1 and 2***	***Group 4***
50	N/A	2%
51	N/A	2%
52	N/A	2%
53	N/A	2%
54	N/A	2%
55	10%	5%
56	3%	5%
57	3%	5%
58	3%	5%
59	5%	5%
60	5%	10%
61	5%	10%
62	10%	20%
63	10%	20%
64	10%	20%
65	40%	100%
66	25%	100%
67	25%	100%
68	25%	100%
69	25%	100%
70	100%	100%

6. Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct).

7. Disabled Life Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct) set-forward by 5 years. Death is assumed to be due to the same cause as the disability 40% of the time.

8. Regular Interest Rate Credited to Annuity Savings Account

2% per year.

ACTUARIAL METHODS AND ASSUMPTIONS
(Continued)

9.	Family Composition	Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older).
10.	Cost-of-Living Increases	A 3% COLA on the first $12,000 of a member's retirement allowance is assumed to be granted every year.
11.	Administrative Expenses	Estimated budgeted amount of $148,500 for the Fiscal Year 2009 excluding investment management fees and custodial fee is added to the Normal Cost.
12.	Step Increases	Step increases are assumed to be part of the salary increase assumption.
13.	Credited Service	Service between date of hire and date of membership is assumed to be purchased by all members.
14.	Contribution Timing	Contributions are assumed to be made in the middle of the fiscal year (January 1).
15.	Valuation Date	January 1, 2007.

SUMMARY OF PRINCIPAL PROVISIONS

1. Participant

Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

Group 1: general employees

Group 2: employees in specified hazardous occupations (e.g., electricians)

Group 4: police and firefighters

2. Member Contributions

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over $30,000.

3. Pay

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay

The average of pay during the 3 consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement.

4. Credited Service

Period during which an employee contributes to the retirement system plus certain periods of military service and "purchased" service.

SUMMARY OF PRINCIPAL PROVISIONS (Continued)

5. Service Retirement

a. Eligibility — Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If hired prior to 1978 or a member of group 4, attainment of age 55.

b. Retirement Allowance — Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1	Group 2	Group 4
2.5%	65+	60+	55+
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45

In addition, veterans receive an additional $15 per year for each year of credited service up to 20 years.

6. Deferred Vested Retirement

a. Eligibility — Completion of 10 years of credited service (for elected and appointed members, 6 years in the event of involuntary termination).

SUMMARY OF PRINCIPAL PROVISIONS
(Continued)

6. Deferred Vested Retirement *(continued)*

b. Retirement Allowance	Determined in the same manner as 5b. with the benefit payable at age 55, unless deferred until later at the member's option. Member contributions with interest may be withdrawn after separation from service. If contributions are withdrawn, eligibility for retirement benefits is forfeited. Members hired before 1984 receive full interest on contributions that are withdrawn; otherwise, one half the credited interest is provided for members who withdraw after 5 but before 10 years of credited service and no interest is provided for withdrawals before 5 years of credited service.

7. Ordinary Disability Retirement

a. Eligibility	Non-job related disability after completion of 10 years of credited service.
b. Retirement Allowance	Determined in the same manner as 5b. with the benefit payable immediately. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.

8. Accidental Disability Retirement

a. Eligibility	Disabled as a result of an accident in the performance of duties. No age or service requirement.
b. Retirement Allowance	72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent's allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

SUMMARY OF PRINCIPAL PROVISIONS (Continued)

9. Non-Occupational Death

a. Eligibility	Dies while in active service, but not due to occupational injury. 2 years of service.
b. Retirement Allowance	Benefit as if Option C had been elected (see below). Minimum monthly benefits provided as follows: spouse - $250, first child - $120, each additional child - $90.

10. Occupational Death

a. Eligibility	Dies as a result of an occupational injury.
b. Benefit Amount	Same as 8b.

11. Cost-of-Living Increases — An increase of up to 3% applied to the first $12,000 of annual benefit. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. Optional Forms of Payment

a. Option A	Allowance payable monthly for the life of the member.
b. Option B	Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.
c. Option C	Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

GLOSSARY OF TERMS

1.	Present Value of Benefits	Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.
2.	Actuarial Cost Method	The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.
3.	Actuarial Assumptions	Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.
4.	Actuarial Accrued Liability	The portion of the Present Value of Benefits that is attributable to past service.
5.	Normal Cost	The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.
6.	Actuarial Assets	Market value of assets (adjusted by payables and receivables).
7.	Unfunded Actuarial Accrued Liability	That portion of the Actuarial Accrued Liability not covered by System Assets.
8.	PERAC	Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.
9.	PRIT	Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.
10.	GASB	Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).