

Middlesex County Retirement System

*Actuarial Valuation and Review
as of January 1, 2010*

Copyright © 2010

**THE SEGAL GROUP, INC.,
THE PARENT OF THE SEGAL COMPANY
ALL RIGHTS RESERVED**



The Segal Company
116 Huntington Ave., 8th Floor Boston, MA 02116
T 617.424.7300 F 617.424.7390 www.segalco.com

December 23, 2010

*Retirement Board
Middlesex County Retirement System
25 Linnell Circle
Billerica, MA 01865*

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2010. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2011 and later years and analyzes the preceding two years' experience.

The census and financial information on which our calculations were based was prepared by the staff of the Middlesex County Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under my supervision.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

THE SEGAL COMPANY

By:

A handwritten signature in blue ink, appearing to read "Kathleen A. Riley".

*Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Consultant*

SECTION 1

VALUATION SUMMARY

Purpose	i
Significant Issues in Valuation Year.....	i
Summary of Key Valuation Results.....	iii

SECTION 2

VALUATION RESULTS

A. Participant Data.....	1
B. Financial Information.....	4
C. Actuarial Experience.....	7
D. Recommended Contribution .	13
E. Information Required by the GASB.....	14

SECTION 3

SUPPLEMENTAL INFORMATION

EXHIBIT A Table of Plan Coverage.....	15
EXHIBIT B Participants in Active Service as of December 31, 2009	16
EXHIBIT C Summary Statement of Income and Expenses on an Actuarial Value Basis.....	17
EXHIBIT D Development of the Fund Through December 31, 2009 and Comparison of Employer and Employee Contributions	18
EXHIBIT E Development of Unfunded Actuarial Accrued Liability	19
EXHIBIT F Table of Amortization Bases.....	20
EXHIBIT G Funding Schedule.....	21
EXHIBIT H Unit Results.....	22
EXHIBIT I Definitions of Pension Terms.....	97

SECTION 4

REPORTING INFORMATION

EXHIBIT I Summary of Actuarial Valuation Results.....	99
EXHIBIT II Supplementary Information Required by the GASB – Schedule of Employer Contributions.....	100
EXHIBIT III Supplementary Information Required by the GASB – Schedule of Funding Progress.	101
EXHIBIT IV Supplementary Information Required by the GASB.....	102
EXHIBIT V Actuarial Assumptions and Actuarial Cost Method	103
EXHIBIT VI Summary of Plan Provisions ...	107

SECTION 1: Valuation Summary for the Middlesex County Retirement System

Purpose

This report has been prepared by The Segal Company to present a valuation of the Middlesex County Retirement System as of January 1, 2010. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of January 1, 2010;
- The assets of the Plan as of December 31, 2009;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The actuarial valuation report as of January 1, 2010 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.
- As indicated in Section 2, Subsection B of this report, the total unrecognized investment loss as of December 31, 2009 is \$130,903,956. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience. This implies that earning the assumed rate of investment return of 8.125% per year on a **market value** basis will result in investment losses on the actuarial value of assets in the next few years. Therefore, if the actual market return is equal to the assumed 8.125% rate and all other actuarial assumptions are met, the contribution requirements would still increase in each of the next few years.
- During the plan years ended 2008 and 2009, the market value rate of return was -26.04% and 13.34%, respectively, compared to the assumed rate of return of 8.25%. Because the actuarial value of assets gradually recognizes market value fluctuations over a five-year period, the actuarial rate of return for the plan years ended 2008 and 2009 was -8.73% and 12.77%, respectively. The actuarial value of assets as of December 31, 2009 was \$820.0 million, or 119.0% of the market

SECTION 1: Valuation Summary for the Middlesex County Retirement System

value of assets of \$689.0 million. As of December 31, 2007, the actuarial value of assets was 97.3% of the market value of assets.

- This valuation reflects the following:
 - The investment return assumption was lowered from 8.25% to 8.125%.
 - The mortality table for healthy lives was changed from the RP-2000 Employee Mortality Table to the RP-2000 Employee Mortality Table projected 10 years with Scale AA (gender distinct) for pre-retirement mortality and from the RP-2000 Healthy Annuitant Mortality Table to the RP-2000 Healthy Annuitant Mortality Table projected 10 years with Scale AA (gender distinct) for post-retirement mortality.
- The Middlesex County Retirement System has adopted Section 101 of Chapter 32 of the Acts of 2000, increasing the supplemental annual allowance from \$6,000 per year to \$9,000 per year. This change will increase the unfunded liability by \$587,656 as of July 1, 2011. In addition, the Board approved increases in the retiree Cost of Living Adjustment (COLA) base from \$12,000 to \$13,000 as of July 1, 2011 and from \$13,000 to \$14,000 as of July 1, 2012. These changes will increase the unfunded liability by \$9,112,871 as of July 1, 2011 and by \$8,986,277 as of July 1, 2012. They will increase the normal cost by \$243,456 as of July 1, 2011 and by \$244,033 as of July 1, 2012.
- The unfunded liability has increased from \$754.9 million as of January 1, 2008 to \$922.4 million as of January 1, 2010 due to a net investment loss over the two-year period, fewer deaths than expected among retired members and beneficiaries, salary increases more than expected for continuing actives, net 3(8)(c) reimbursements and the assumption changes described above.
- Because the fiscal 2011 appropriation is set to the previously budgeted amount of \$76,243,557, the results of this valuation will first be reflected in the fiscal 2012 appropriation. In fiscal 2012 and later years, the recommended contribution will be the total of the level ERI payments, if applicable, and the prior year's budgeted non-ERI payments increased by 4.75%. This will result in a total fiscal 2012 appropriation of \$79,640,599 and a total fiscal 2013 appropriation of \$83,308,220. These amounts reflect payment of the appropriation in two equal amounts on July 1 and December 31. If the appropriation is made in one payment on July 1, the amount will be lower.
- Exhibit G in Section 3 shows the recommended contributions through fiscal 2040 based on this funding schedule, which also recognizes the adoption of Section 101 and the COLA base increases. This funding schedule fully amortizes the unfunded liability by June 30, 2035. The prior funding schedule fully funded the System by 2028.

SECTION 1: Valuation Summary for the Middlesex County Retirement System

Summary of Key Valuation Results

	2010	2008
Contributions:		
Recommended for fiscal 2011 and 2009	\$76,243,557*	\$71,233,749
Recommended for fiscal 2012 and 2010	79,640,599	74,126,190
Recommended for fiscal 2013 and 2011	83,308,220	76,270,263
Funding elements for plan year beginning January 1:		
Normal cost, including administrative expenses	\$52,228,520	\$45,890,280
Market value of assets	689,083,958	796,064,453
Actuarial value of assets	819,987,914	774,863,669
Actuarial accrued liability	1,742,380,855	1,529,806,307
Unfunded actuarial accrued liability	922,392,941	754,942,638
GASB 25/27 for fiscal year beginning July 1:		
Annual required contributions	\$76,243,557	\$72,050,318
Actual contributions	--	72,050,318
Percentage contributed	--	100.00%
Funded ratio	47.06%	50.65%
Demographic data for plan year beginning January 1:		
Number of retired participants and beneficiaries	4,833	4,764
Number of inactive participants entitled to a return of their employee contributions	2,994	3,077
Number of inactive participants with a vested right to a deferred or immediate benefit	232	190
Number of active participants	8,946	9,285
Total payroll	\$367,100,786	\$346,804,796
Average payroll	41,035	37,351

* Reflects early payment by the Town of Littleton of their deferred liability.

SECTION 2: Valuation Results for the Middlesex County Retirement System

A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

A historical perspective of how the participant population has changed over the past six valuations can be seen in this chart.

CHART 1
Participant Population: 1999 – 2009

Year Ended December 31	Active Participants	Inactive Participants	Retired Participants and Beneficiaries
1999	8,437	1,887	4,383
2001	9,246	2,331	4,481
2003	9,043	2,913	4,780
2005	9,106	3,158	4,763
2007	9,285	3,267	4,764
2009	8,946	3,226	4,833

SECTION 2: Valuation Results for the Middlesex County Retirement System

Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 8,946 active participants with an average age of 47.9, average years of service of 10.6 years and average payroll of \$41,035. The 9,285 active participants in the prior valuation had an average age of 47.0, average service of 9.9 years and average payroll of \$37,351.

Among the active participants, there were 9 participants with unknown age. The actuarial calculations were adjusted for the missing information by assuming that it was the same as information provided for other active participants with similar known characteristics.

Inactive Participants

In this year's valuation, there were 232 participants with a vested right to a deferred or immediate vested benefit and 2,994 participants entitled to a return of their employee contributions.

These graphs show a distribution of active participants by age and by years of service.

CHART 2
Distribution of Active Participants by Age as of December 31, 2009

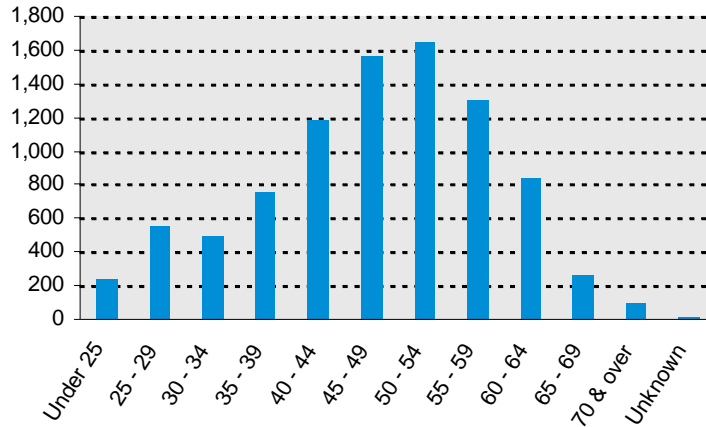
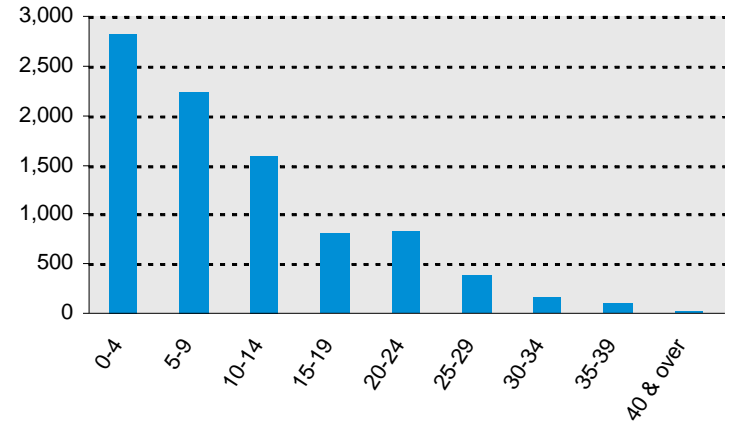


CHART 3
Distribution of Active Participants by Years of Service as of December 31, 2009



SECTION 2: Valuation Results for the Middlesex County Retirement System

Retired Participants and Beneficiaries

As of December 31, 2009, 4,182 retired participants and 651 beneficiaries were receiving total monthly benefits of \$7,664,533 excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 4,117 retired participants and 647 beneficiaries receiving monthly benefits of \$6,947,315 excluding COLAs reimbursed by the Commonwealth.

These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.

CHART 4
Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2009

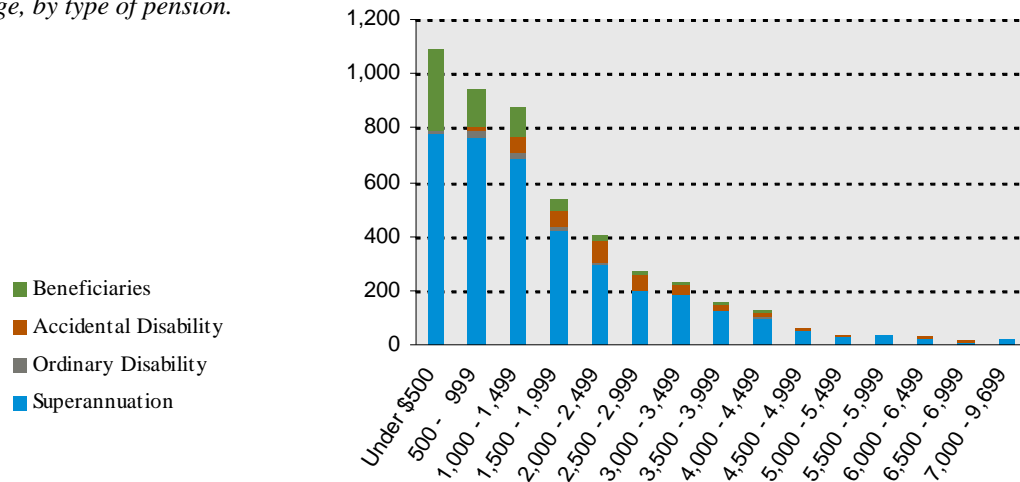
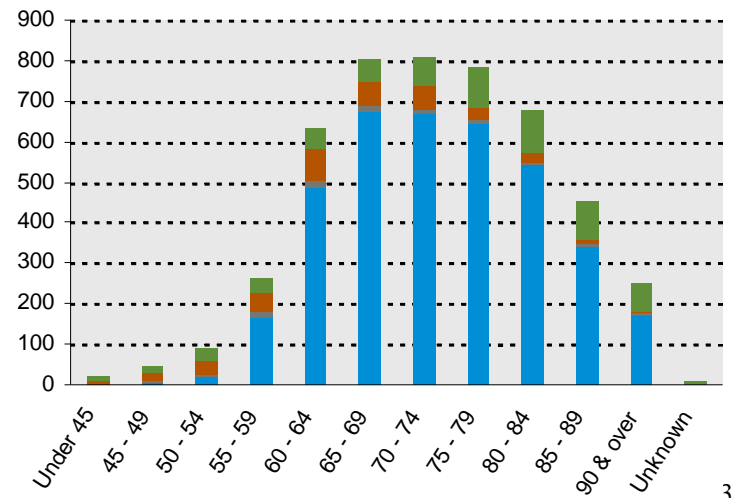


CHART 5
Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2009



SECTION 2: Valuation Results for the Middlesex County Retirement System

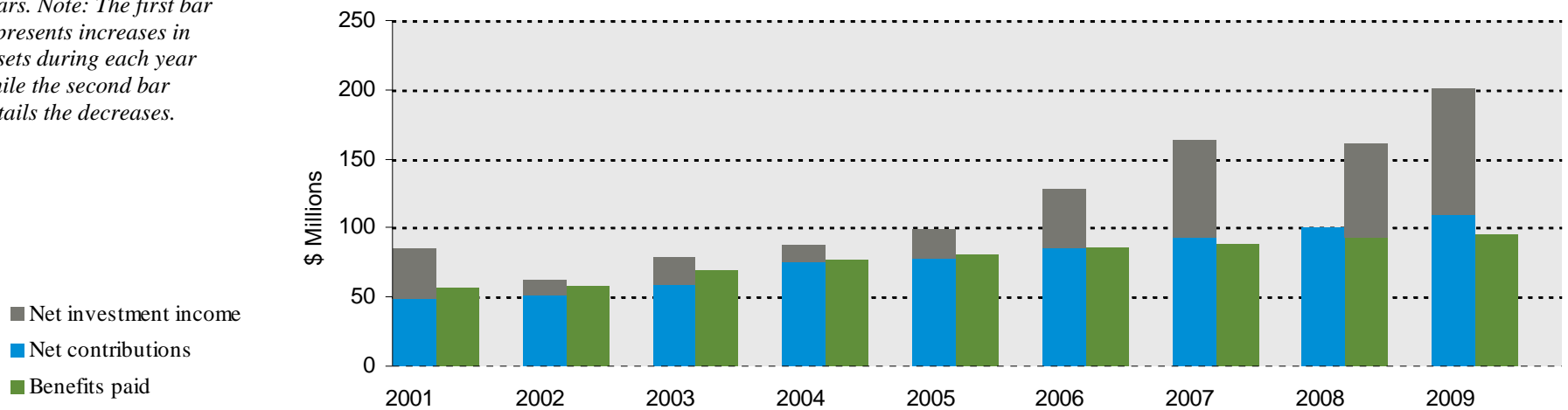
B. FINANCIAL INFORMATION

Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

The chart depicts the components of changes in the actuarial value of assets over the last nine years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

CHART 6
Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 2001 – 2009



SECTION 2: Valuation Results for the Middlesex County Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7
Determination of Actuarial Value of Assets

	Year Ended	
	December 31, 2009	December 31, 2008
1. Market value of assets		
	\$689,083,958	\$595,575,478
2. Calculation of unrecognized return*	Original <u>Amount</u>	Unrecognized <u>Return</u>
(a) Year ended December 31, 2009	\$30,639,098	N/A
(b) Year ended December 31, 2008	-274,324,931	-\$219,459,945
(c) Year ended December 31, 2007	10,156,321	6,093,792
(d) Year ended December 31, 2006	25,585,974	10,234,390
(e) Year ended December 31, 2005	-11,737,421	<u>-2,347,484</u>
(f) Total unrecognized return		-205,479,247
3. Preliminary actuarial value: (1) - (2f)		819,987,914
4. Adjustment to be within 20% corridor		0
5. Final actuarial value of assets: (3) + (4)		<u>\$819,987,914</u>
6. Actuarial value as a percentage of market value: (5) ÷ (1)		120.0%

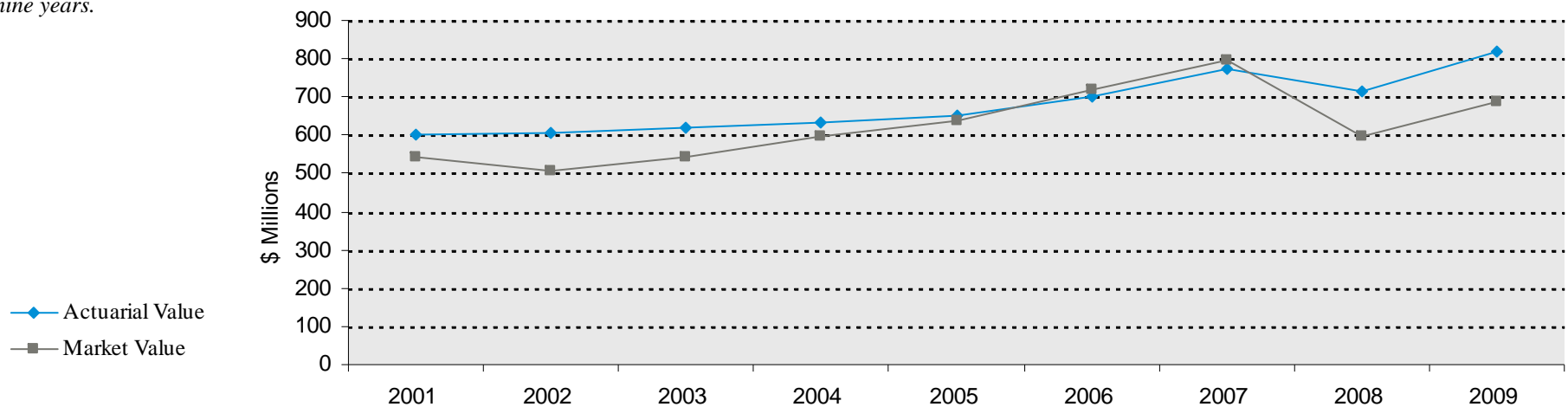
* Unrecognized return is the difference between the total return and the expected return on a market value basis and is recognized over a five-year period.

SECTION 2: Valuation Results for the Middlesex County Retirement System

Both the actuarial value and market value of assets are representations of the Middlesex County Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Middlesex County Retirement System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past nine years.

CHART 8
Actuarial Value of Assets vs. Market Value of Assets as of December 31, 2001 – 2009



SECTION 2: Valuation Results for the Middlesex County Retirement System

C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss over the past two years is \$112,239,495, \$110,570,473 from investments and \$1,669,022 from all other sources. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience over the past two years.

CHART 9
Actuarial Experience for Two-Year Period Ended December 31, 2009

1. Net loss from investments*	-\$110,570,473
2. Net gain from administrative expenses	528,659
3. Net loss from other experience**	<u>-2,197,681</u>
4. Net experience loss: (1) + (2) + (3)	-\$112,239,495

* Details in Chart 10

** Details in Chart 13

SECTION 2: Valuation Results for the Middlesex County Retirement System

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Middlesex County Retirement System’s investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets for 2009 and 2008 was 8.25%. The actual rates of return on an actuarial basis for 2009 and 2008 were 12.77% and -8.73%, respectively.

Since the actual returns for the two years were less than the assumed return, the Middlesex County Retirement System experienced an actuarial loss during the two-year period ending December 31, 2009 with regard to its investments of \$110,570,473, including an adjustment for interest on the 2008 investment loss.

This chart shows the gain/(loss) due to investment experience.

**CHART 10
Actuarial Value Investment Experience**

	Year Ended	
	December 31, 2009	December 31, 2008
1. Actual return	\$92,107,036	-\$68,010,444
2. Average value of assets	721,285,725	778,782,343
3. Actual rate of return: (1) ÷ (2)	12.77%	-8.73%
4. Assumed rate of return	8.25%	8.25%
5. Expected return: (2) x (4)	\$59,506,072	\$64,249,543
6. Actuarial gain/(loss): (1) – (5)	<u>\$32,600,964</u>	<u>-\$132,259,987</u>

SECTION 2: Valuation Results for the Middlesex County Retirement System

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last nine years, including five-year and nine-year averages.

Based upon this experience and future expectations, we have lowered the assumed rate of return from 8.25% to 8.125%.

CHART 11

Investment Return – Actuarial Value vs. Market Value: 2001 - 2009

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
2001	\$36,865,149	6.52%	-\$18,318,865	-3.24%
2002	10,658,679	1.78	-35,166,292	-6.48
2003	19,335,262	3.21	42,689,011	8.51
2004	11,844,337	1.91	56,737,116	10.49
2005	22,046,916	3.49	37,630,422	6.29
2006	42,522,819	6.49	78,230,492	12.26
2007	67,081,999	9.53	69,754,061	9.96
2008	-68,010,444	-8.73	-208,326,323	-26.04
2009	<u>92,107,036</u>	12.77	<u>80,318,175</u>	13.34
Total	\$234,451,753		\$103,547,797	
	Five-year average return	4.51%		1.73%
	Nine-year average return	4.02%		1.89%

Note: Investment returns for 2007 and earlier are net of investment and administrative expenses.

SECTION 2: Valuation Results for the Middlesex County Retirement System

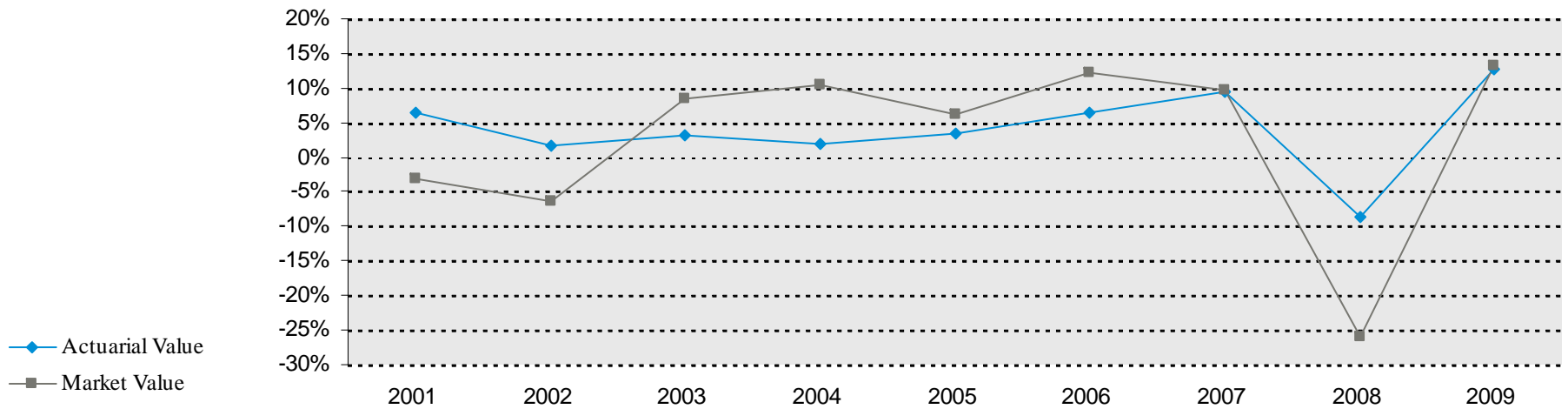
Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

Administrative Expenses

Administrative expenses for the two years ended December 31, 2008 and 2009 were \$2,930,164 and \$2,814,190, respectively, compared to the assumption of \$3,000,000 for calendar 2008 and \$3,120,000 for calendar 2009. This resulted in a gain of \$528,659 for the two-year period, including an adjustment for interest. We have maintained the assumption of \$3,000,000 for calendar 2010.

This chart illustrates how this leveling effect has actually worked over the years 2001 - 2009.

CHART 12
Market and Actuarial Rates of Return for Years Ended December 31, 2001 - 2009



SECTION 2: Valuation Results for the Middlesex County Retirement System

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the two-year period ending December 31, 2009 amounted to \$2,197,681, which is 0.1% of the actuarial accrued liability.

A brief summary of the demographic gain/(loss) experience of the Middlesex County Retirement System for the two-year period ending December 31, 2009 is shown in the chart below.

The chart shows elements of the experience gain/(loss) for the most recent years.

CHART 13

Experience Due to Changes in Demographics for Two-Year Period Ended December 31, 2009

1. Net 3(8)(c) reimbursements	-\$2,378,858
2. Deaths among retired members and beneficiaries	-3,716,717
3. Salary increases more than expected for continuing actives	-2,337,312
4. Miscellaneous gain	<u>6,235,206</u>
5. Total	-\$2,197,681

This valuation reflects the following assumption changes:

- The investment return assumption was lowered from 8.25% to 8.125%.
- The mortality table for healthy lives was changed from the RP-2000 Employee Mortality Table to the RP-2000 Employee Mortality Table projected 10 years with Scale AA (gender distinct) for pre-retirement mortality and from the RP-2000 Healthy Annuitant Mortality Table to the RP-2000 Healthy Annuitant Mortality Table projected 10 years with Scale AA (gender distinct) for post-retirement mortality.

Changing these assumptions resulted in a net increase in the unfunded liability of \$52,495,192 and a net increase in the normal cost of \$1,490,906.

The Middlesex County Retirement System has adopted Section 101 of Chapter 32 of the Acts of 2000, increasing the supplemental annual allowance from \$6,000 per year to \$9,000 per year. This change will increase the unfunded liability by \$587,656 as of July 1, 2011. In addition, the Board approved increases in the retiree Cost of Living Adjustment (COLA) base from \$12,000 to \$13,000 as of

SECTION 2: Valuation Results for the Middlesex County Retirement System

July 1, 2011 and from \$13,000 to \$14,000 as of July 1, 2012. These changes will increase the unfunded liability by \$9,112,871 as of July 1, 2011 and by \$8,986,277 as of July 1, 2012. They will increase the normal cost by \$243,456 as of July 1, 2011 and by \$244,033 as of July 1, 2012.

SECTION 2: Valuation Results for the Middlesex County Retirement System

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

The preliminary recommended contribution of \$79,373,372 is based on a 9-year level amortization of the 2002 ERI, a 10-year level amortization of the 2003 ERI, and a 25-year increasing (4.0% per year) amortization of the remaining unfunded liability.

Because the fiscal 2011 appropriation has already been budgeted at \$76,243,557, the results of this valuation will first be reflected in the fiscal 2012 appropriation. In fiscal 2012 and later years, the recommended contribution will be the total of the level ERI payments, if applicable, and the prior year's budgeted non-ERI payments increased by 4.75%. This will result in a total fiscal 2012 appropriation

of \$79,640,599 and a total fiscal 2013 appropriation of \$83,308,220.

These figures assume that contributions will be made on July 1 and December 31. Units that make their appropriation on July 1 will pay a lower amount.

Exhibit G in Section 3 shows the recommended contributions through fiscal 2040 based on this funding schedule, which also recognizes the adoption of Section 101 and the COLA base increases. This funding schedule fully amortizes the unfunded liability by June 30, 2035. The prior funding schedule fully funded the System by 2028.

The chart compares this valuation's recommended contribution with the prior valuation.

**CHART 14
Recommended Contribution**

	Year Beginning January 1		2008	
	2010	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$49,228,520	12.80%	\$42,890,280	11.91%
2. Administrative expenses	3,000,000	0.78%	3,000,000	0.83%
3. Expected employee contributions	<u>-35,067,171</u>	<u>-9.12%</u>	<u>-32,250,907</u>	<u>-8.95%</u>
4. Employer normal cost: (1) + (2) + (3)	\$17,161,349	4.46%	\$13,639,373	3.79%
5. Actuarial accrued liability	1,742,380,855		1,529,806,307	
6. Actuarial value of assets	<u>819,987,914</u>		<u>774,863,669</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$922,392,941		\$754,942,638	
8. Employer normal cost projected to July 1, 2010 and 2008, adjusted for timing*	17,889,201	4.55%	14,187,898	3.86%
9. Projected unfunded actuarial accrued liability	959,133,436		785,466,933	
10. Payment on projected unfunded actuarial accrued liability, adjusted for timing*	61,484,171	15.64%	56,975,477	15.51%
11. Preliminary recommended contribution: (8) + (10), adjusted for timing*	\$79,373,372	20.19%	\$71,163,375	19.37%
12. Budgeted appropriation	<u>\$76,243,557</u>	<u>19.39%</u>	<u>\$71,233,749</u>	<u>19.39%</u>
13. Projected payroll	\$393,156,942		\$367,339,793	

* Recommended contributions are assumed to be paid on July 1 and December 31.

SECTION 2: Valuation Results for the Middlesex County Retirement System

E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of the GASB reporting requirements. Chart 15 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under the GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

Although the GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 16 shows the funded ratio calculated using both the actuarial value of assets (47.06%) and the market value of assets (39.55%).

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

These graphs show key GASB factors.

CHART 15
Required Versus Actual Contributions

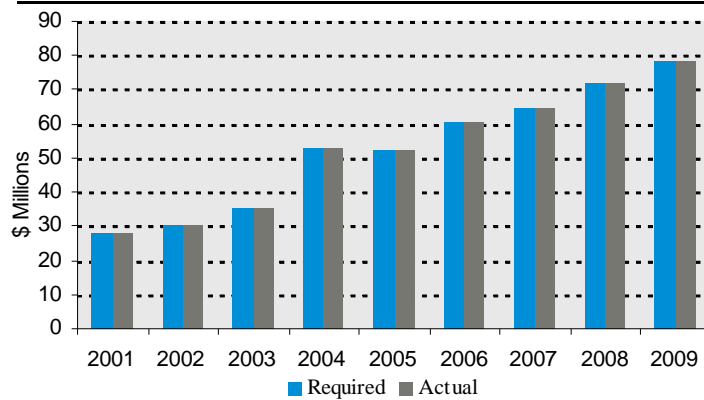
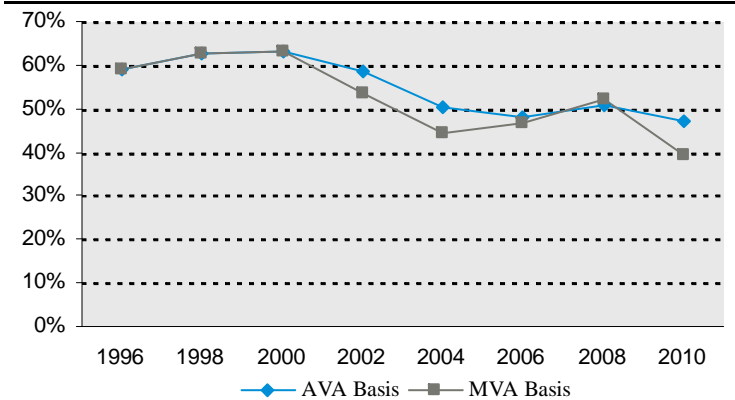


CHART 16
Funded Ratio



SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT A

Table of Plan Coverage

Category	Year Ended December 31		Change From Prior Year
	2009	2007	
Active participants in valuation:			
Number	8,946	9,285	-3.7%
Average age	47.9	47.0	N/A
Average service	10.6	9.9	N/A
Total payroll	\$367,100,786	\$346,804,796	5.9%
Average payroll	41,035	37,351	9.9%
Member contributions	310,736,100	271,386,298	14.5%
Number with unknown age	9	40	-77.5%
Inactive participants with a vested right to a deferred or immediate benefit			
	232	190	22.1%
Inactive participants entitled to a return of their employee contributions			
	2,994	3,077	-2.7%
Retired participants:			
Number in pay status	3,730	3,666	1.7%
Average age	73.6	73.4	N/A
Average monthly benefit	\$1,623	\$1,499	8.3%
Disabled participants:			
Number in pay status	452	451	0.2%
Average age	65.4	64.9	N/A
Average monthly benefit	\$2,341	\$2,128	10.0%
Beneficiaries in pay status			
	651	647	0.6%

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT B

**Participants in Active Service as of December 31, 2009
By Age, Years of Service, and Average Payroll**

Age	Years of Service									
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 and over
Under 25	236	235	1	--	--	--	--	--	--	--
	\$26,567	\$26,506	\$41,056	--	--	--	--	--	--	--
25 - 29	555	460	94	1	--	--	--	--	--	--
	\$34,161	\$33,028	\$39,767	\$28,043	--	--	--	--	--	--
30 - 34	492	212	211	68	1	--	--	--	--	--
	\$44,887	\$36,600	\$50,254	\$53,825	\$61,235	--	--	--	--	--
35 - 39	755	248	218	222	62	5	--	--	--	--
	\$48,073	\$31,623	\$51,338	\$58,150	\$64,554	\$69,882	--	--	--	--
40 - 44	1,188	429	274	239	129	112	5	--	--	--
	\$43,067	\$25,853	\$39,760	\$55,242	\$63,976	\$66,618	\$52,253	--	--	--
45 - 49	1,569	484	429	247	108	214	84	3	--	--
	\$39,943	\$25,819	\$31,036	\$42,342	\$55,204	\$67,455	\$68,298	\$89,200	--	--
50 - 54	1,647	390	456	326	148	144	118	58	7	--
	\$40,472	\$29,695	\$31,397	\$37,261	\$44,650	\$58,328	\$76,521	\$70,710	\$67,653	--
55 - 59	1,301	193	311	270	162	157	87	62	55	4
	\$42,871	\$31,004	\$34,144	\$36,926	\$41,440	\$52,719	\$60,331	\$73,628	\$73,143	\$93,911
60 - 64	840	119	164	136	148	144	56	32	31	10
	\$41,409	\$30,789	\$34,486	\$36,844	\$39,194	\$45,733	\$52,602	\$68,567	\$66,852	\$85,503
65 - 69	262	26	59	54	39	40	29	9	3	3
	\$35,545	\$22,975	\$31,781	\$37,762	\$33,408	\$39,032	\$44,210	\$39,721	\$51,519	\$47,578
70 & over	92	10	12	24	15	10	8	6	4	3
	\$31,203	\$24,808	\$19,839	\$26,311	\$34,299	\$35,909	\$39,213	\$38,658	\$57,464	\$34,648
Unknown	9	9	--	--	--	--	--	--	--	--
	\$28,752	\$28,752	--	--	--	--	--	--	--	--
Total	8,946	2,815	2,229	1,587	812	826	387	170	100	20
	\$41,035	\$29,465	\$37,007	\$44,145	\$48,298	\$57,419	\$64,129	\$68,925	\$69,533	\$73,868

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT C

Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended December 31, 2009	Year Ended December 31, 2008
Contribution income:		
Employer contributions	\$78,120,707	\$71,923,886
Employee contributions	33,567,538	31,686,242
Federal grant reimbursement and other contributions	91,414	126,432
Less administrative expenses	<u>-2,814,190</u>	<u>-2,930,164</u>
Net contribution income	\$108,965,469	\$100,806,396
Net investment income	<u>92,107,036</u>	<u>-68,010,444</u>
Total income available for benefits	\$201,072,505	\$32,795,952
Less benefit payments:		
Pensions	-\$92,263,816	-\$88,528,288
Net 3(8)(c) reimbursements	-919,310	-1,459,548
Refunds, annuities and Option B refunds	<u>-2,592,038</u>	<u>-2,981,212</u>
Net benefit payments	-\$95,775,164	-\$92,969,048
Change in reserve for future benefits	\$105,297,341	-\$60,173,096

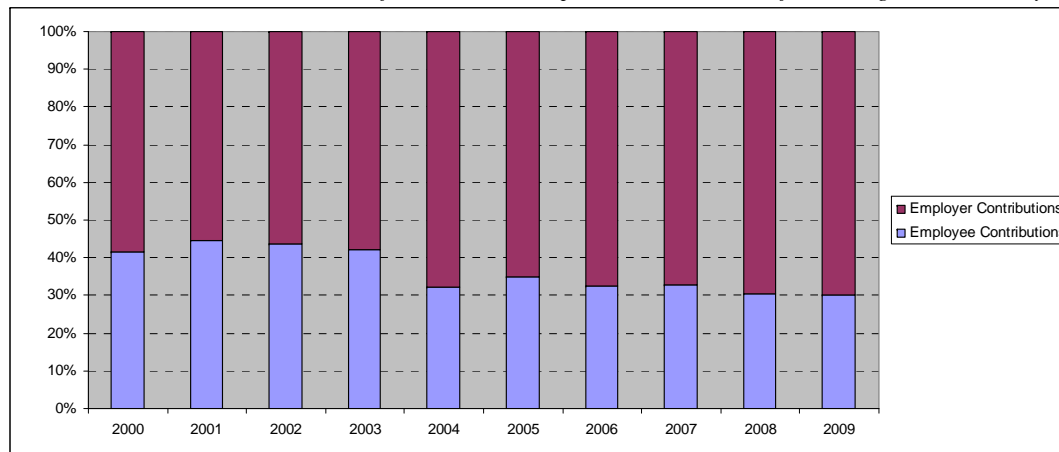
SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT D

Development of the Fund Through December 31, 2009 and Comparison of Employer and Employee Contributions

Year Ended December 31	Employer Contributions	Employee Contributions	Employee Contributions as a Percent of Total Contributions	Other Contributions	Net Investment Return*	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2000	\$27,099,247	\$19,366,034	41.56%	\$133,893	\$3,003,198	\$0	\$51,379,130	\$568,486,709
2001	27,900,209	22,489,216	44.50%	152,881	36,865,149	0	56,195,021	599,699,143
2002	30,248,147	23,596,154	43.71%	143,646	10,658,679	0	58,291,862	606,053,907
2003	35,411,500	26,075,534	42.32%	134,875	19,335,262	0	68,847,698	618,163,380
2004	52,708,663	25,259,767	32.32%	193,703	11,844,337	0	76,958,686	631,211,164
2005	52,141,963	28,088,359	34.94%	156,187	22,046,916	0	80,487,723	653,156,866
2006	59,949,757	29,202,011	32.67%	219,960	42,522,819	0	85,096,827	699,954,587
2007	64,408,516	31,581,761	32.81%	256,313	67,081,999	0	88,419,506	774,863,669
2008	71,923,886	31,686,242	30.54%	126,432	-68,010,444	2,930,164	92,969,048	714,690,573
2009	78,120,707	33,567,538	30.03%	91,414	92,107,036	2,814,190	95,775,164	819,987,914

Note: Net investment return is net of administrative expenses and investment fees through 2007, but only net of investment fees for 2008 and later.



Note: Other contributions have been included with employer contributions for the purposes of this graph.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT E

Development of Unfunded Actuarial Accrued Liability

	Year Ended	
	December 31, 2009	December 31, 2008
1. Unfunded actuarial accrued liability at beginning of year	\$759,298,672	\$754,942,638
2. Normal cost at beginning of year	47,725,891	45,890,280
3. Total contributions	-111,779,659	-103,736,560
4. Interest		
(a) For whole year on (1) + (2)	\$66,579,527	\$66,068,715
(b) For half year on (3)	<u>-4,166,177</u>	<u>-3,866,401</u>
(c) Total interest	<u>62,413,350</u>	<u>62,202,314</u>
5. Expected unfunded actuarial accrued liability	\$757,658,254	\$759,298,672
6. Changes due to:		
(a) Investment loss	\$110,570,473	--
(b) Net loss from other experience	1,669,022	--
(c) Assumption changes	<u>52,495,192</u>	--
(d) Total changes	<u>164,734,687</u>	--
7. Unfunded actuarial accrued liability at end of year	<u>\$922,392,941</u>	--

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT F

Table of Amortization Bases

Type	Outstanding Balance as of July 1, 2010	Annual Fiscal 2011 Payment	Outstanding Balance as of July 1, 2011	Annual Fiscal 2012 Payment	Rate of Increase	Years Remaining as of July 1, 2010
2002 ERI	\$11,665,613	\$1,770,327	\$10,236,601	\$1,687,931	0.0%	9
2003 ERI	5,576,327	788,171	4,873,576	739,594	0.0%	10
Remaining unfunded liability	<u>941,891,496</u>	<u>55,795,858</u>	<u>968,958,203</u>	<u>58,275,403</u>	4.75%	25
Total	\$959,133,436	\$58,354,356	\$984,068,380	\$60,702,928		

Notes: Recommended contributions are assumed to be paid on July 1 and December 31.

Reflects adjustment to set fiscal 2011 appropriation to budgeted amount.

On August 4, 2008, the Town of Littleton paid off the remainder of a deferral of their fiscal 2004 appropriation. These numbers reflect that payment.

On July 9, 2010, the Town of Littleton paid off the remainder of their unfunded 2002 and 2003 ERI Liability (\$462,091 for 2002 and \$296,000 for 2003). The outstanding balances as of July 1, 2011 and the annual fiscal 2012 payment amounts reflect that payment.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT G

Funding Schedule

Appropriation (excluding ERI payments) increases 4.75% per year from prior budgeted amounts, reflects Section 101 death benefit increase and increase to COLA base from \$12,000 to \$13,000 on July 1, 2011, and to \$14,000 on July 1, 2012

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of 2002 ERI Liability	(4) Amortization of 2003 ERI Liability	(5) Amortization of Remaining Unfunded Liability	(6) Total Plan Cost: (2) + (3) + (4) + (5)	(7) Total Unfunded Actuarial Accrued Liability at Beginning of Fiscal Year	(8) Percent Increase in Total Cost
2011	\$17,889,201	\$1,770,327	\$788,171	\$55,795,858	\$76,243,557	\$959,133,436	2.89%
2012	18,937,671	1,687,931	739,594	58,275,403	79,640,599	984,068,380	4.46%
2013	20,033,899	1,687,931	739,594	60,846,796	83,308,220	1,008,644,552	4.61%
2014	20,935,424	1,687,931	739,594	63,787,104	87,150,053	1,023,504,714	4.61%
2015	21,877,518	1,687,931	739,594	66,869,330	91,174,373	1,036,454,542	4.62%
2016	22,862,006	1,687,931	739,594	70,100,317	95,389,848	1,047,188,340	4.62%
2017	23,890,796	1,687,931	739,594	73,487,237	99,805,558	1,055,368,319	4.63%
2018	24,965,882	1,687,931	739,594	77,037,608	104,431,015	1,060,621,639	4.63%
2019	26,089,347	1,687,931	739,594	80,759,309	109,276,181	1,062,537,196	4.64%
2020	27,263,368	-	739,594	84,660,599	112,663,561	1,060,662,128	3.10%
2021	28,490,220	-	-	88,750,135	117,240,355	1,056,287,801	4.06%
2022	29,772,280	-	-	93,036,992	122,809,272	1,048,005,987	4.75%
2023	31,112,033	-	-	97,530,679	128,642,712	1,034,505,755	4.75%
2024	32,512,074	-	-	102,241,167	134,753,241	1,015,143,799	4.75%
2025	33,975,117	-	-	107,178,903	141,154,020	989,213,972	4.75%
2026	35,503,997	-	-	112,354,839	147,858,836	955,941,674	4.75%
2027	37,101,677	-	-	117,780,454	154,882,131	914,477,757	4.75%
2028	38,771,252	-	-	123,467,780	162,239,032	863,891,908	4.75%
2029	40,515,958	-	-	129,429,428	169,945,386	803,165,467	4.75%
2030	42,339,176	-	-	135,678,616	178,017,792	731,183,637	4.75%
2031	44,244,439	-	-	142,229,198	186,473,637	646,727,028	4.75%
2032	46,235,439	-	-	149,095,696	195,331,135	548,462,484	4.75%
2033	48,316,034	-	-	156,293,330	204,609,364	434,933,132	4.75%
2034	50,490,256	-	-	163,838,053	214,328,309	304,547,591	4.75%
2035	52,762,318	-	-	158,636,286	211,398,604	155,568,263	-1.37%
2036	55,136,622	-	-	-	55,136,622	-	-73.92%
2037	57,617,770	-	-	-	57,617,770	-	4.50%
2038	60,210,570	-	-	-	60,210,570	-	4.50%
2039	62,920,046	-	-	-	62,920,046	-	4.50%
2040	65,751,448	-	-	-	65,751,448	-	4.50%

Notes: Recommended contributions are assumed to be paid on July 1 and December 31.

Item (2) increases at 4.5% per year.

Fiscal 2011 appropriation is budgeted amount determined with prior valuation.

Reflects payment by the Town of Littleton of their outstanding ERI liability on July 9, 2010.

SECTION 3: Supplemental Information for the Middlesex Retirement System

**EXHIBIT H
Unit Results**

Summary of Actuarial Valuation Results for Total

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 651 beneficiaries in pay status)	4,833
2. Participants active during the year ended December 31, 2009	8,946
3. Inactive participants entitled to a return of their employee contributions	2,994
4. Inactive participants with a vested right to a deferred or immediate benefit	232

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$49,228,520
2. Administrative expenses		3,000,000
3. Expected employee contributions		<u>-35,067,171</u>
4. Employer normal cost: (1) + (2) + (3)		\$17,161,349
5. Actuarial accrued liability		1,742,380,855
Retired participants and beneficiaries	\$845,979,148	
Active participants	872,283,329	
Inactive participants	11,373,952	
6. Actuarial value of assets		819,987,914
7. Unfunded actuarial accrued liability		922,392,941

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$17,889,201	4.55%
2. Projected unfunded actuarial accrued liability	959,133,436	
3. Payment on projected unfunded actuarial accrued liability	55,795,858	
4. Payment on 2002 ERI	1,770,327	
5. Payment on 2003 ERI	<u>788,171</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$76,243,557	19.39%
7. Total FY11 Appropriation, payable on July 1	74,747,414	19.01%
8. Projected Payroll	393,156,942	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$18,937,671	\$20,033,899
2. Payment on projected unfunded actuarial accrued liability	58,275,403	60,846,796
3. Payment on 2002 ERI	1,687,931	1,687,931
4. Payment on 2003 ERI	<u>739,594</u>	<u>739,594</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$79,640,599	\$83,308,220
6. Total Appropriation, payable on July 1	78,100,351	81,697,040

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

ERI payments for FY 2012 and FY 2013 reflect full payment by the Town of Littleton of their outstanding ERI liability on July 9, 2010.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Middlesex County

100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 97 beneficiaries in pay status)	258
2. Participants active during the year ended December 31, 2009	0
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost	\$0
2. Administrative expenses	0
3. Expected employee contributions	<u>0</u>
4. Employer normal cost: (1) + (2) + (3)	\$0
5. Actuarial accrued liability	26,276,158
Retired participants and beneficiaries	\$26,276,158
Active participants	0
Inactive participants	0
6. Actuarial value of assets	26,276,158
7. Unfunded actuarial accrued liability	0

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$0	0.00%
2. Projected unfunded actuarial accrued liability	0	
3. Payment on projected unfunded actuarial accrued liability	0	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$0	0.00%
7. Total FY11 Appropriation, payable on July 1	0	0.00%
8. Projected Payroll	0	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$0	\$0
2. Payment on projected unfunded actuarial accrued liability	0	0
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$0	\$0
6. Total Appropriation, payable on July 1	0	0

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Middlesex Hospital

200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 11 beneficiaries in pay status)	126
2. Participants active during the year ended December 31, 2009	0
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost	\$0
2. Administrative expenses	0
3. Expected employee contributions	<u>0</u>
4. Employer normal cost: (1) + (2) + (3)	\$0
5. Actuarial accrued liability	12,493,183
Retired participants and beneficiaries	\$12,493,183
Active participants	0
Inactive participants	0
6. Actuarial value of assets	12,493,183
7. Unfunded actuarial accrued liability	0

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$0	0.00%
2. Projected unfunded actuarial accrued liability	0	
3. Payment on projected unfunded actuarial accrued liability	0	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$0	0.00%
7. Total FY11 Appropriation, payable on July 1	0	0.00%
8. Projected Payroll	0	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$0	\$0
2. Payment on projected unfunded actuarial accrued liability	0	0
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$0	\$0
6. Total Appropriation, payable on July 1	0	0

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Acton

300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 17 beneficiaries in pay status)	143
2. Participants active during the year ended December 31, 2009	329
3. Inactive participants entitled to a return of their employee contributions	61
4. Inactive participants with a vested right to a deferred or immediate benefit	5

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,902,346
2. Administrative expenses		115,929
3. Expected employee contributions		<u>-1,383,534</u>
4. Employer normal cost: (1) + (2) + (3)		\$634,741
5. Actuarial accrued liability		60,506,307
Retired participants and beneficiaries	\$25,679,071	
Active participants	34,337,992	
Inactive participants	295,843	
6. Actuarial value of assets		30,598,410
7. Unfunded actuarial accrued liability		<u>29,907,897</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$661,661	4.22%
2. Projected unfunded actuarial accrued liability	31,099,180	
3. Payment on projected unfunded actuarial accrued liability	1,886,534	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$2,548,195	16.25%
7. Total FY11 Appropriation, payable on July 1	2,498,192	15.93%
8. Projected Payroll	<u>15,678,180</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$700,441	\$740,988
2. Payment on projected unfunded actuarial accrued liability	1,920,351	2,004,104
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$2,620,792	\$2,745,092
6. Total Appropriation, payable on July 1	2,570,106	2,692,003

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Ashby

400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	10
2. Participants active during the year ended December 31, 2009	23
3. Inactive participants entitled to a return of their employee contributions	10
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$125,063
2. Administrative expenses		7,620
3. Expected employee contributions		-78,192
4. Employer normal cost: (1) + (2) + (3)		\$54,491
5. Actuarial accrued liability		2,967,447
Retired participants and beneficiaries	\$1,477,295	
Active participants	1,459,776	
Inactive participants	30,376	
6. Actuarial value of assets		1,447,071
7. Unfunded actuarial accrued liability		1,520,376

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$56,801	6.63%
2. Projected unfunded actuarial accrued liability	1,580,935	
3. Payment on projected unfunded actuarial accrued liability	104,261	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$161,062	18.79%
7. Total FY11 Appropriation, payable on July 1	157,900	18.42%
8. Projected Payroll	857,265	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$60,130	\$63,611
2. Payment on projected unfunded actuarial accrued liability	96,766	100,667
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$156,896	\$164,278
6. Total Appropriation, payable on July 1	153,862	161,101

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Ashland

500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 13 beneficiaries in pay status)	93
2. Participants active during the year ended December 31, 2009	280
3. Inactive participants entitled to a return of their employee contributions	130
4. Inactive participants with a vested right to a deferred or immediate benefit	9

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,502,962
2. Administrative expenses		91,591
3. Expected employee contributions		<u>-1,098,648</u>
4. Employer normal cost: (1) + (2) + (3)		\$495,905
5. Actuarial accrued liability		40,817,419
Retired participants and beneficiaries	\$17,338,351	
Active participants	22,499,922	
Inactive participants	426,934	
6. Actuarial value of assets		21,162,397
7. Unfunded actuarial accrued liability		<u>19,655,022</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$516,937	4.25%
2. Projected unfunded actuarial accrued liability	20,437,916	
3. Payment on projected unfunded actuarial accrued liability	1,006,121	
4. Payment on 2002 ERI	182,009	
5. Payment on 2003 ERI	<u>55,632</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,760,699	14.48%
7. Total FY11 Appropriation, payable on July 1	1,726,149	14.19%
8. Projected Payroll	<u>12,160,799</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$547,234	\$578,912
2. Payment on projected unfunded actuarial accrued liability	1,170,950	1,220,474
3. Payment on 2002 ERI	182,009	182,009
4. Payment on 2003 ERI	<u>55,632</u>	<u>55,632</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,955,825	\$2,037,027
6. Total Appropriation, payable on July 1	1,917,999	1,997,631

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Ayer

600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 16 beneficiaries in pay status)	80
2. Participants active during the year ended December 31, 2009	156
3. Inactive participants entitled to a return of their employee contributions	66
4. Inactive participants with a vested right to a deferred or immediate benefit	4

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$863,552
2. Administrative expenses		52,625
3. Expected employee contributions		-591,457
4. Employer normal cost: (1) + (2) + (3)		\$324,720
5. Actuarial accrued liability		27,707,602
Retired participants and beneficiaries	\$11,591,350	
Active participants	15,669,615	
Inactive participants	269,928	
6. Actuarial value of assets		13,705,126
7. Unfunded actuarial accrued liability		14,002,476

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$338,491	5.04%
2. Projected unfunded actuarial accrued liability	14,560,219	
3. Payment on projected unfunded actuarial accrued liability	881,448	
4. Payment on 2002 ERI	15,922	
5. Payment on 2003 ERI	<u>17,346</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,253,207	18.65%
7. Total FY11 Appropriation, payable on July 1	1,228,614	18.29%
8. Projected Payroll	6,719,211	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$358,330	\$379,072
2. Payment on projected unfunded actuarial accrued liability	883,793	921,875
3. Payment on 2002 ERI	15,922	15,922
4. Payment on 2003 ERI	<u>17,346</u>	<u>17,346</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,275,391	\$1,334,215
6. Total Appropriation, payable on July 1	1,250,725	1,308,411

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Bedford

700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 20 beneficiaries in pay status)	162
2. Participants active during the year ended December 31, 2009	360
3. Inactive participants entitled to a return of their employee contributions	162
4. Inactive participants with a vested right to a deferred or immediate benefit	7

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,918,428
2. Administrative expenses		116,910
3. Expected employee contributions		<u>-1,431,719</u>
4. Employer normal cost: (1) + (2) + (3)		\$603,619
5. Actuarial accrued liability		62,327,742
Retired participants and beneficiaries	\$28,319,998	
Active participants	32,947,556	
Inactive participants	523,351	
6. Actuarial value of assets		28,505,563
7. Unfunded actuarial accrued liability		<u>33,822,179</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$629,219	3.95%
2. Projected unfunded actuarial accrued liability	35,169,376	
3. Payment on projected unfunded actuarial accrued liability	2,015,373	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$2,644,592	16.59%
7. Total FY11 Appropriation, payable on July 1	2,592,698	16.27%
8. Projected Payroll	<u>15,940,165</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$666,097	\$704,655
2. Payment on projected unfunded actuarial accrued liability	2,180,941	2,277,722
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$2,847,038	\$2,982,377
6. Total Appropriation, payable on July 1	2,791,976	2,924,698

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Billerica

800

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 63 beneficiaries in pay status)	404
2. Participants active during the year ended December 31, 2009	585
3. Inactive participants entitled to a return of their employee contributions	67
4. Inactive participants with a vested right to a deferred or immediate benefit	13

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$3,769,555
2. Administrative expenses		229,718
3. Expected employee contributions		<u>-2,605,721</u>
4. Employer normal cost: (1) + (2) + (3)		\$1,393,552
5. Actuarial accrued liability		162,435,999
Retired participants and beneficiaries	\$88,298,743	
Active participants	73,016,539	
Inactive participants	271,632	
6. Actuarial value of assets		67,795,750
7. Unfunded actuarial accrued liability		<u>94,640,249</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$1,452,655	4.96%
2. Projected unfunded actuarial accrued liability	98,409,933	
3. Payment on projected unfunded actuarial accrued liability	5,583,538	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$7,036,193	24.03%
7. Total FY11 Appropriation, payable on July 1	6,898,125	23.56%
8. Projected Payroll	<u>29,284,355</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$1,537,794	\$1,626,811
2. Payment on projected unfunded actuarial accrued liability	6,110,448	6,385,823
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$7,648,242	\$8,012,634
6. Total Appropriation, payable on July 1	7,500,325	7,857,670

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Boxborough

900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 4 beneficiaries in pay status)	27
2. Participants active during the year ended December 31, 2009	65
3. Inactive participants entitled to a return of their employee contributions	19
4. Inactive participants with a vested right to a deferred or immediate benefit	2

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$422,669
2. Administrative expenses		25,758
3. Expected employee contributions		-285,999
4. Employer normal cost: (1) + (2) + (3)		\$162,428
5. Actuarial accrued liability		10,542,771
Retired participants and beneficiaries	\$4,434,282	
Active participants	5,749,796	
Inactive participants	140,631	
6. Actuarial value of assets		5,744,299
7. Unfunded actuarial accrued liability		4,798,472

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$169,316	5.43%
2. Projected unfunded actuarial accrued liability	4,989,604	
3. Payment on projected unfunded actuarial accrued liability	329,195	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$498,511	15.99%
7. Total FY11 Appropriation, payable on July 1	488,729	15.67%
8. Projected Payroll	3,118,585	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$179,239	\$189,614
2. Payment on projected unfunded actuarial accrued liability	305,530	317,985
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$484,769	\$507,599
6. Total Appropriation, payable on July 1	475,394	497,782

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Burlington

1000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 37 beneficiaries in pay status)	319
2. Participants active during the year ended December 31, 2009	502
3. Inactive participants entitled to a return of their employee contributions	215
4. Inactive participants with a vested right to a deferred or immediate benefit	16

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$3,226,789
2. Administrative expenses		196,641
3. Expected employee contributions		-2,250,345
4. Employer normal cost: (1) + (2) + (3)		\$1,173,085
5. Actuarial accrued liability		132,115,183
Retired participants and beneficiaries	\$64,027,425	
Active participants	66,540,643	
Inactive participants	895,593	
6. Actuarial value of assets		57,895,125
7. Unfunded actuarial accrued liability		74,220,058

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$1,222,838	4.79%
2. Projected unfunded actuarial accrued liability	77,176,371	
3. Payment on projected unfunded actuarial accrued liability	4,654,724	
4. Payment on 2002 ERI	267,091	
5. Payment on 2003 ERI	<u>71,628</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$6,216,281	24.37%
7. Total FY11 Appropriation, payable on July 1	6,094,297	23.89%
8. Projected Payroll	25,505,828	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$1,294,507	\$1,369,441
2. Payment on projected unfunded actuarial accrued liability	4,623,510	4,830,193
3. Payment on 2002 ERI	267,091	267,091
4. Payment on 2003 ERI	<u>71,628</u>	<u>71,628</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$6,256,736	\$6,538,353
6. Total Appropriation, payable on July 1	6,135,731	6,411,901

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Carlisle

1100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	26
2. Participants active during the year ended December 31, 2009	112
3. Inactive participants entitled to a return of their employee contributions	67
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$609,037
2. Administrative expenses		37,115
3. Expected employee contributions		<u>-425,700</u>
4. Employer normal cost: (1) + (2) + (3)		\$220,452
5. Actuarial accrued liability		13,911,619
Retired participants and beneficiaries	\$3,968,982	
Active participants	9,579,950	
Inactive participants	215,925	
6. Actuarial value of assets		7,439,594
7. Unfunded actuarial accrued liability		<u>6,472,025</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$229,801	4.75%
2. Projected unfunded actuarial accrued liability	6,729,816	
3. Payment on projected unfunded actuarial accrued liability	364,939	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$594,740	12.30%
7. Total FY11 Appropriation, payable on July 1	583,071	12.06%
8. Projected Payroll	<u>4,835,851</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$243,269	\$257,351
2. Payment on projected unfunded actuarial accrued liability	417,184	434,209
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$660,453	\$691,560
6. Total Appropriation, payable on July 1	647,680	678,185

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Chelmsford

1200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 56 beneficiaries in pay status)	401
2. Participants active during the year ended December 31, 2009	517
3. Inactive participants entitled to a return of their employee contributions	115
4. Inactive participants with a vested right to a deferred or immediate benefit	18

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,760,844
2. Administrative expenses		168,247
3. Expected employee contributions		-1,866,966
4. Employer normal cost: (1) + (2) + (3)		\$1,062,125
5. Actuarial accrued liability		116,888,628
Retired participants and beneficiaries	\$64,453,293	
Active participants	51,411,747	
Inactive participants	517,444	
6. Actuarial value of assets		48,098,969
7. Unfunded actuarial accrued liability		68,789,659

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$1,107,172	5.23%
2. Projected unfunded actuarial accrued liability	71,529,670	
3. Payment on projected unfunded actuarial accrued liability	4,246,041	
4. Payment on 2002 ERI	300,428	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$5,653,641	26.72%
7. Total FY11 Appropriation, payable on July 1	5,542,698	26.20%
8. Projected Payroll	21,159,278	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$1,172,062	\$1,239,908
2. Payment on projected unfunded actuarial accrued liability	4,297,985	4,490,519
3. Payment on 2002 ERI	300,428	300,428
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$5,770,475	\$6,030,855
6. Total Appropriation, payable on July 1	5,658,874	5,914,218

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Dracut

1300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 24 beneficiaries in pay status)	190
2. Participants active during the year ended December 31, 2009	334
3. Inactive participants entitled to a return of their employee contributions	39
4. Inactive participants with a vested right to a deferred or immediate benefit	6

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,836,239
2. Administrative expenses		111,901
3. Expected employee contributions		<u>-1,242,184</u>
4. Employer normal cost: (1) + (2) + (3)		\$705,956
5. Actuarial accrued liability		71,947,207
Retired participants and beneficiaries	\$38,702,843	
Active participants	33,024,976	
Inactive participants	159,955	
6. Actuarial value of assets		32,851,703
7. Unfunded actuarial accrued liability		<u>39,095,504</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$735,897	5.24%
2. Projected unfunded actuarial accrued liability	40,652,745	
3. Payment on projected unfunded actuarial accrued liability	2,486,544	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$3,222,441	22.95%
7. Total FY11 Appropriation, payable on July 1	3,159,207	22.50%
8. Projected Payroll	<u>14,043,562</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$779,027	\$824,122
2. Payment on projected unfunded actuarial accrued liability	2,510,709	2,621,968
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$3,289,736	\$3,446,090
6. Total Appropriation, payable on July 1	3,226,113	3,379,443

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Dunstable

1400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	7
2. Participants active during the year ended December 31, 2009	19
3. Inactive participants entitled to a return of their employee contributions	3
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$120,930
2. Administrative expenses		7,370
3. Expected employee contributions		-82,503
4. Employer normal cost: (1) + (2) + (3)		\$45,797
5. Actuarial accrued liability		3,069,378
Retired participants and beneficiaries	\$1,155,555	
Active participants	1,907,707	
Inactive participants	6,116	
6. Actuarial value of assets		1,306,072
7. Unfunded actuarial accrued liability		1,763,306

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$47,739	5.33%
2. Projected unfunded actuarial accrued liability	1,833,541	
3. Payment on projected unfunded actuarial accrued liability	121,675	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$169,414	18.91%
7. Total FY11 Appropriation, payable on July 1	166,089	18.54%
8. Projected Payroll	895,896	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$50,537	\$53,462
2. Payment on projected unfunded actuarial accrued liability	112,425	117,206
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$162,962	\$170,668
6. Total Appropriation, payable on July 1	159,810	167,367

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Groton

1500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 7 beneficiaries in pay status)	60
2. Participants active during the year ended December 31, 2009	104
3. Inactive participants entitled to a return of their employee contributions	17
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$770,836
2. Administrative expenses		46,975
3. Expected employee contributions		<u>-536,744</u>
4. Employer normal cost: (1) + (2) + (3)		\$281,067
5. Actuarial accrued liability		25,349,490
Retired participants and beneficiaries	\$14,020,302	
Active participants	10,848,488	
Inactive participants	156,778	
6. Actuarial value of assets		10,645,226
7. Unfunded actuarial accrued liability		<u>14,704,264</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$292,988	5.11%
2. Projected unfunded actuarial accrued liability	15,289,960	
3. Payment on projected unfunded actuarial accrued liability	750,047	
4. Payment on 2002 ERI	191,263	
5. Payment on 2003 ERI	<u>19,570</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,253,868	21.87%
7. Total FY11 Appropriation, payable on July 1	1,229,260	21.44%
8. Projected Payroll	<u>5,734,503</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$310,160	\$328,114
2. Payment on projected unfunded actuarial accrued liability	863,795	901,532
3. Payment on 2002 ERI	191,263	191,263
4. Payment on 2003 ERI	<u>19,570</u>	<u>19,570</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,384,788	\$1,440,479
6. Total Appropriation, payable on July 1	1,358,006	1,412,618

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Holliston

1600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 7 beneficiaries in pay status)	96
2. Participants active during the year ended December 31, 2009	259
3. Inactive participants entitled to a return of their employee contributions	151
4. Inactive participants with a vested right to a deferred or immediate benefit	11

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,195,909
2. Administrative expenses		72,879
3. Expected employee contributions		<u>-861,957</u>
4. Employer normal cost: (1) + (2) + (3)		\$406,831
5. Actuarial accrued liability		35,312,385
Retired participants and beneficiaries	\$14,199,042	
Active participants	20,004,939	
Inactive participants	524,670	
6. Actuarial value of assets		17,719,945
7. Unfunded actuarial accrued liability		<u>17,592,440</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$424,086	4.37%
2. Projected unfunded actuarial accrued liability	18,293,177	
3. Payment on projected unfunded actuarial accrued liability	1,034,683	
4. Payment on 2002 ERI	56,921	
5. Payment on 2003 ERI	<u>21,125</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,536,815	15.85%
7. Total FY11 Appropriation, payable on July 1	1,506,657	15.54%
8. Projected Payroll	<u>9,694,561</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$448,941	\$474,928
2. Payment on projected unfunded actuarial accrued liability	1,099,368	1,146,701
3. Payment on 2002 ERI	56,921	56,921
4. Payment on 2003 ERI	<u>21,125</u>	<u>21,125</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,626,355	\$1,699,675
6. Total Appropriation, payable on July 1	1,594,901	1,666,803

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Hopkinton

1700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 7 beneficiaries in pay status)	55
2. Participants active during the year ended December 31, 2009	255
3. Inactive participants entitled to a return of their employee contributions	141
4. Inactive participants with a vested right to a deferred or immediate benefit	6

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,518,601
2. Administrative expenses		92,544
3. Expected employee contributions		<u>-1,042,618</u>
4. Employer normal cost: (1) + (2) + (3)		\$568,527
5. Actuarial accrued liability		33,191,672
Retired participants and beneficiaries	\$8,160,441	
Active participants	24,173,660	
Inactive participants	361,382	
6. Actuarial value of assets		19,148,780
7. Unfunded actuarial accrued liability		<u>14,042,892</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$592,640	5.14%
2. Projected unfunded actuarial accrued liability	14,602,244	
3. Payment on projected unfunded actuarial accrued liability	765,556	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,358,196	11.77%
7. Total FY11 Appropriation, payable on July 1	1,331,543	11.54%
8. Projected Payroll	<u>11,537,972</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$627,374	\$663,690
2. Payment on projected unfunded actuarial accrued liability	905,619	941,302
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,532,993	\$1,604,992
6. Total Appropriation, payable on July 1	1,503,345	1,573,951

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Hudson

1800

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 24 beneficiaries in pay status)	181
2. Participants active during the year ended December 31, 2009	401
3. Inactive participants entitled to a return of their employee contributions	135
4. Inactive participants with a vested right to a deferred or immediate benefit	9

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,259,578
2. Administrative expenses		137,699
3. Expected employee contributions		<u>-1,560,741</u>
4. Employer normal cost: (1) + (2) + (3)		\$836,536
5. Actuarial accrued liability		76,204,917
Retired participants and beneficiaries	\$34,137,453	
Active participants	41,220,238	
Inactive participants	469,026	
6. Actuarial value of assets		34,277,378
7. Unfunded actuarial accrued liability		<u>41,927,539</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$872,016	4.93%
2. Projected unfunded actuarial accrued liability	43,597,585	
3. Payment on projected unfunded actuarial accrued liability	2,591,870	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$3,463,886	19.59%
7. Total FY11 Appropriation, payable on July 1	3,395,914	19.21%
8. Projected Payroll	<u>17,679,366</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$923,124	\$976,560
2. Payment on projected unfunded actuarial accrued liability	2,696,294	2,814,665
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$3,619,418	\$3,791,225
6. Total Appropriation, payable on July 1	3,549,419	3,717,903

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Lincoln

1900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 8 beneficiaries in pay status)	80
2. Participants active during the year ended December 31, 2009	190
3. Inactive participants entitled to a return of their employee contributions	155
4. Inactive participants with a vested right to a deferred or immediate benefit	6

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,076,986
2. Administrative expenses		65,632
3. Expected employee contributions		-765,493
4. Employer normal cost: (1) + (2) + (3)		\$377,125
5. Actuarial accrued liability		32,647,003
Retired participants and beneficiaries	\$13,518,829	
Active participants	18,287,848	
Inactive participants	499,215	
6. Actuarial value of assets		16,642,945
7. Unfunded actuarial accrued liability		16,004,058

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$393,120	4.51%
2. Projected unfunded actuarial accrued liability	16,641,527	
3. Payment on projected unfunded actuarial accrued liability	1,077,148	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,470,268	16.85%
7. Total FY11 Appropriation, payable on July 1	1,441,417	16.52%
8. Projected Payroll	8,725,336	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$416,160	\$440,250
2. Payment on projected unfunded actuarial accrued liability	1,022,695	1,066,744
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,438,855	\$1,506,994
6. Total Appropriation, payable on July 1	1,411,028	1,477,849

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Littleton

2000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 9 beneficiaries in pay status)	71
2. Participants active during the year ended December 31, 2009	219
3. Inactive participants entitled to a return of their employee contributions	76
4. Inactive participants with a vested right to a deferred or immediate benefit	9

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,219,248
2. Administrative expenses		74,301
3. Expected employee contributions		-866,536
4. Employer normal cost: (1) + (2) + (3)		\$427,013
5. Actuarial accrued liability		33,413,308
Retired participants and beneficiaries	\$12,190,779	
Active participants	19,959,029	
Inactive participants	312,718	
6. Actuarial value of assets		18,040,404
7. Unfunded actuarial accrued liability		15,372,904

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$445,124	4.65%
2. Projected unfunded actuarial accrued liability	15,985,233	
3. Payment on projected unfunded actuarial accrued liability	860,811	
4. Payment on 2002 ERI	82,396	
5. Payment on 2003 ERI	<u>48,577</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,436,908	15.02%
7. Total FY11 Appropriation, payable on July 1	1,408,713	14.73%
8. Projected Payroll	9,564,152	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$471,212	\$498,489
2. Payment on projected unfunded actuarial accrued liability	932,479	971,464
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,403,691	\$1,469,953
6. Total Appropriation, payable on July 1	1,376,544	1,441,524

Notes: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

ERI payments for FY 2012 and FY 2013 reflect full payment by the Town of Littleton of their outstanding ERI liability on July 9, 2010.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of North Reading

2100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 22 beneficiaries in pay status)	151
2. Participants active during the year ended December 31, 2009	250
3. Inactive participants entitled to a return of their employee contributions	48
4. Inactive participants with a vested right to a deferred or immediate benefit	5

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,399,073
2. Administrative expenses		85,260
3. Expected employee contributions		<u>-994,908</u>
4. Employer normal cost: (1) + (2) + (3)		\$489,425
5. Actuarial accrued liability		56,863,673
Retired participants and beneficiaries	\$27,479,024	
Active participants	29,001,286	
Inactive participants	147,134	
6. Actuarial value of assets		24,918,842
7. Unfunded actuarial accrued liability		<u>31,944,831</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$510,183	4.51%
2. Projected unfunded actuarial accrued liability	33,217,248	
3. Payment on projected unfunded actuarial accrued liability	1,813,640	
4. Payment on 2002 ERI	21,793	
5. Payment on 2003 ERI	<u>57,446</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$2,403,062	21.24%
7. Total FY11 Appropriation, payable on July 1	2,355,904	20.82%
8. Projected Payroll	11,314,220	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$540,084	\$571,347
2. Payment on projected unfunded actuarial accrued liability	2,030,561	2,121,697
3. Payment on 2002 ERI	21,793	21,793
4. Payment on 2003 ERI	<u>57,446</u>	<u>57,446</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$2,649,884	\$2,772,283
6. Total Appropriation, payable on July 1	2,598,635	2,718,667

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Pepperell

2200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 4 beneficiaries in pay status)	34
2. Participants active during the year ended December 31, 2009	74
3. Inactive participants entitled to a return of their employee contributions	10
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$540,991
2. Administrative expenses		32,968
3. Expected employee contributions		<u>-371,520</u>
4. Employer normal cost: (1) + (2) + (3)		\$202,439
5. Actuarial accrued liability		17,150,766
Retired participants and beneficiaries	\$6,438,674	
Active participants	10,572,167	
Inactive participants	65,415	
6. Actuarial value of assets		8,673,813
7. Unfunded actuarial accrued liability		<u>8,476,953</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$211,025	5.11%
2. Projected unfunded actuarial accrued liability	8,814,604	
3. Payment on projected unfunded actuarial accrued liability	490,526	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$701,551	16.98%
7. Total FY11 Appropriation, payable on July 1	687,784	16.64%
8. Projected Payroll	<u>4,132,710</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$223,393	\$236,324
2. Payment on projected unfunded actuarial accrued liability	546,834	570,376
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$770,227	\$806,700
6. Total Appropriation, payable on July 1	755,331	791,098

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Sherborn

2300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 4 beneficiaries in pay status)	32
2. Participants active during the year ended December 31, 2009	85
3. Inactive participants entitled to a return of their employee contributions	38
4. Inactive participants with a vested right to a deferred or immediate benefit	2

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$471,319
2. Administrative expenses		28,722
3. Expected employee contributions		<u>-301,300</u>
4. Employer normal cost: (1) + (2) + (3)		\$198,741
5. Actuarial accrued liability		12,167,312
Retired participants and beneficiaries	\$4,680,638	
Active participants	7,263,030	
Inactive participants	136,213	
6. Actuarial value of assets		6,865,736
7. Unfunded actuarial accrued liability		<u>5,301,576</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$207,170	6.00%
2. Projected unfunded actuarial accrued liability	5,512,747	
3. Payment on projected unfunded actuarial accrued liability	301,357	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$508,527	14.73%
7. Total FY11 Appropriation, payable on July 1	498,549	14.44%
8. Projected Payroll	<u>3,451,814</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$219,312	\$232,007
2. Payment on projected unfunded actuarial accrued liability	341,324	354,992
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$560,636	\$586,999
6. Total Appropriation, payable on July 1	549,793	575,646

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Shirley

2400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 3 beneficiaries in pay status)	29
2. Participants active during the year ended December 31, 2009	116
3. Inactive participants entitled to a return of their employee contributions	63
4. Inactive participants with a vested right to a deferred or immediate benefit	4

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$459,408
2. Administrative expenses		27,996
3. Expected employee contributions		-312,759
4. Employer normal cost: (1) + (2) + (3)		\$174,645
5. Actuarial accrued liability		13,499,467
Retired participants and beneficiaries	\$6,904,941	
Active participants	6,125,861	
Inactive participants	221,005	
6. Actuarial value of assets		6,484,989
7. Unfunded actuarial accrued liability		7,014,478

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$182,052	5.19%
2. Projected unfunded actuarial accrued liability	7,293,877	
3. Payment on projected unfunded actuarial accrued liability	390,593	
4. Payment on 2002 ERI	33,138	
5. Payment on 2003 ERI	<u>19,889</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$625,672	17.84%
7. Total FY11 Appropriation, payable on July 1	613,395	17.49%
8. Projected Payroll	3,508,097	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$192,722	\$203,878
2. Payment on projected unfunded actuarial accrued liability	429,695	447,973
3. Payment on 2002 ERI	33,138	33,138
4. Payment on 2003 ERI	<u>19,889</u>	<u>19,889</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$675,444	\$704,878
6. Total Appropriation, payable on July 1	662,381	691,246

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Stow

2500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	30
2. Participants active during the year ended December 31, 2009	53
3. Inactive participants entitled to a return of their employee contributions	6
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$379,385
2. Administrative expenses		23,120
3. Expected employee contributions		<u>-261,111</u>
4. Employer normal cost: (1) + (2) + (3)		\$141,394
5. Actuarial accrued liability		11,568,135
Retired participants and beneficiaries	\$3,957,361	
Active participants	7,182,040	
Inactive participants	19,074	
6. Actuarial value of assets		5,365,654
7. Unfunded actuarial accrued liability		<u>6,202,481</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$147,391	5.11%
2. Projected unfunded actuarial accrued liability	6,449,536	
3. Payment on projected unfunded actuarial accrued liability	382,639	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$530,030	18.37%
7. Total FY11 Appropriation, payable on July 1	519,630	18.01%
8. Projected Payroll	<u>2,884,986</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$156,029	\$165,061
2. Payment on projected unfunded actuarial accrued liability	398,673	415,924
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$554,702	\$580,985
6. Total Appropriation, payable on July 1	543,974	569,749

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Sudbury

2600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 12 beneficiaries in pay status)	162
2. Participants active during the year ended December 31, 2009	317
3. Inactive participants entitled to a return of their employee contributions	126
4. Inactive participants with a vested right to a deferred or immediate benefit	10

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$1,768,803
2. Administrative expenses		107,791
3. Expected employee contributions		<u>-1,237,116</u>
4. Employer normal cost: (1) + (2) + (3)		\$639,478
5. Actuarial accrued liability		65,563,604
Retired participants and beneficiaries	\$32,655,153	
Active participants	31,727,955	
Inactive participants	609,243	
6. Actuarial value of assets		30,447,085
7. Unfunded actuarial accrued liability		<u>35,116,519</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$666,600	4.76%
2. Projected unfunded actuarial accrued liability	36,515,270	
3. Payment on projected unfunded actuarial accrued liability	2,151,933	
4. Payment on 2002 ERI	26,470	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$2,845,003	20.31%
7. Total FY11 Appropriation, payable on July 1	2,789,175	19.91%
8. Projected Payroll	<u>14,008,458</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$705,669	\$746,517
2. Payment on projected unfunded actuarial accrued liability	2,248,872	2,348,426
3. Payment on 2002 ERI	26,470	26,470
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$2,981,011	\$3,121,413
6. Total Appropriation, payable on July 1	2,923,358	3,061,045

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Tewksbury 2700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 36 beneficiaries in pay status)	277
2. Participants active during the year ended December 31, 2009	363
3. Inactive participants entitled to a return of their employee contributions	65
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,308,945
2. Administrative expenses		140,708
3. Expected employee contributions		<u>-1,605,548</u>
4. Employer normal cost: (1) + (2) + (3)		\$844,105
5. Actuarial accrued liability		111,700,825
Retired participants and beneficiaries	\$66,899,903	
Active participants	44,040,769	
Inactive participants	289,156	
6. Actuarial value of assets		46,024,396
7. Unfunded actuarial accrued liability		<u>65,676,429</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$879,906	4.93%
2. Projected unfunded actuarial accrued liability	68,292,434	
3. Payment on projected unfunded actuarial accrued liability	4,370,226	
4. Payment on 2002 ERI	230,272	
5. Payment on 2003 ERI	<u>353,042</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$5,833,446	32.69%
7. Total FY11 Appropriation, payable on July 1	5,718,975	32.04%
8. Projected Payroll	<u>17,847,102</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$931,476	\$985,396
2. Payment on projected unfunded actuarial accrued liability	3,945,242	4,123,828
3. Payment on 2002 ERI	230,272	230,272
4. Payment on 2003 ERI	<u>353,042</u>	<u>353,042</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$5,460,032	\$5,692,538
6. Total Appropriation, payable on July 1	5,354,435	5,582,444

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Townsend

2800

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 4 beneficiaries in pay status)	20
2. Participants active during the year ended December 31, 2009	58
3. Inactive participants entitled to a return of their employee contributions	17
4. Inactive participants with a vested right to a deferred or immediate benefit	2

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$346,793
2. Administrative expenses		21,134
3. Expected employee contributions		-233,088
4. Employer normal cost: (1) + (2) + (3)		\$134,839
5. Actuarial accrued liability		9,970,779
Retired participants and beneficiaries	\$3,505,548	
Active participants	6,176,859	
Inactive participants	84,632	
6. Actuarial value of assets		5,616,771
7. Unfunded actuarial accrued liability		4,354,008

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$140,558	5.40%
2. Projected unfunded actuarial accrued liability	4,527,435	
3. Payment on projected unfunded actuarial accrued liability	302,289	
4. Payment on 2002 ERI	20,301	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$463,148	17.78%
7. Total FY11 Appropriation, payable on July 1	454,061	17.43%
8. Projected Payroll	2,604,494	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$148,796	\$157,409
2. Payment on projected unfunded actuarial accrued liability	268,351	279,402
3. Payment on 2002 ERI	20,301	20,301
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$437,448	\$457,112
6. Total Appropriation, payable on July 1	428,988	448,271

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Tyngsborough

2900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 8 beneficiaries in pay status)	58
2. Participants active during the year ended December 31, 2009	166
3. Inactive participants entitled to a return of their employee contributions	86
4. Inactive participants with a vested right to a deferred or immediate benefit	2

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$864,096
2. Administrative expenses		52,658
3. Expected employee contributions		<u>-582,923</u>
4. Employer normal cost: (1) + (2) + (3)		\$333,831
5. Actuarial accrued liability		24,875,622
Retired participants and beneficiaries	\$12,144,108	
Active participants	12,466,278	
Inactive participants	226,178	
6. Actuarial value of assets		12,569,472
7. Unfunded actuarial accrued liability		<u>12,306,150</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$347,990	5.42%
2. Projected unfunded actuarial accrued liability	12,796,325	
3. Payment on projected unfunded actuarial accrued liability	809,402	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$1,157,392	18.02%
7. Total FY11 Appropriation, payable on July 1	1,134,680	17.66%
8. Projected Payroll	<u>6,423,924</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$368,385	\$389,709
2. Payment on projected unfunded actuarial accrued liability	786,989	820,269
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$1,155,374	\$1,209,978
6. Total Appropriation, payable on July 1	1,133,029	1,186,577

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Wayland

3000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 13 beneficiaries in pay status)	193
2. Participants active during the year ended December 31, 2009	391
3. Inactive participants entitled to a return of their employee contributions	165
4. Inactive participants with a vested right to a deferred or immediate benefit	13

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,039,193
2. Administrative expenses		124,269
3. Expected employee contributions		<u>-1,470,280</u>
4. Employer normal cost: (1) + (2) + (3)		\$693,182
5. Actuarial accrued liability		68,956,816
Retired participants and beneficiaries	\$33,304,585	
Active participants	34,439,128	
Inactive participants	532,128	
6. Actuarial value of assets		32,753,851
7. Unfunded actuarial accrued liability		<u>36,202,965</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$722,582	4.40%
2. Projected unfunded actuarial accrued liability	37,644,992	
3. Payment on projected unfunded actuarial accrued liability	2,394,625	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>22,997</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$3,140,204	19.13%
7. Total FY11 Appropriation, payable on July 1	3,078,582	18.75%
8. Projected Payroll	<u>16,416,490</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$764,932	\$809,211
2. Payment on projected unfunded actuarial accrued liability	2,307,704	2,409,337
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>22,997</u>	<u>22,997</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$3,095,633	\$3,241,545
6. Total Appropriation, payable on July 1	3,035,764	3,178,854

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Westford

3100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 15 beneficiaries in pay status)	151
2. Participants active during the year ended December 31, 2009	507
3. Inactive participants entitled to a return of their employee contributions	159
4. Inactive participants with a vested right to a deferred or immediate benefit	9

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,621,958
2. Administrative expenses		159,783
3. Expected employee contributions		<u>-1,912,896</u>
4. Employer normal cost: (1) + (2) + (3)		\$868,845
5. Actuarial accrued liability		65,580,919
Retired participants and beneficiaries	\$22,839,230	
Active participants	41,887,616	
Inactive participants	523,125	
6. Actuarial value of assets		33,491,769
7. Unfunded actuarial accrued liability		<u>32,089,150</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$905,695	4.34%
2. Projected unfunded actuarial accrued liability	33,367,316	
3. Payment on projected unfunded actuarial accrued liability	1,686,017	
4. Payment on 2002 ERI	102,299	
5. Payment on 2003 ERI	<u>25,563</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$2,719,574	13.04%
7. Total FY11 Appropriation, payable on July 1	2,666,208	12.79%
8. Projected Payroll	20,849,456	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$958,777	\$1,014,277
2. Payment on projected unfunded actuarial accrued liability	2,023,218	2,108,623
3. Payment on 2002 ERI	102,299	102,299
4. Payment on 2003 ERI	<u>25,563</u>	<u>25,563</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$3,109,857	\$3,250,762
6. Total Appropriation, payable on July 1	3,049,712	3,187,892

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Weston

3200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 25 beneficiaries in pay status)	217
2. Participants active during the year ended December 31, 2009	413
3. Inactive participants entitled to a return of their employee contributions	181
4. Inactive participants with a vested right to a deferred or immediate benefit	14

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,151,682
2. Administrative expenses		131,124
3. Expected employee contributions		<u>-1,625,248</u>
4. Employer normal cost: (1) + (2) + (3)		\$657,558
5. Actuarial accrued liability		75,630,251
Retired participants and beneficiaries	\$39,808,704	
Active participants	34,029,121	
Inactive participants	811,464	
6. Actuarial value of assets		31,696,946
7. Unfunded actuarial accrued liability		<u>43,933,305</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$685,447	3.81%
2. Projected unfunded actuarial accrued liability	45,683,244	
3. Payment on projected unfunded actuarial accrued liability	2,570,632	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$3,256,079	18.08%
7. Total FY11 Appropriation, payable on July 1	3,192,183	17.72%
8. Projected Payroll	<u>18,011,673</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$725,620	\$767,623
2. Payment on projected unfunded actuarial accrued liability	2,837,783	2,965,524
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$3,563,403	\$3,733,147
6. Total Appropriation, payable on July 1	3,494,487	3,660,948

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Town of Wilmington

3300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 33 beneficiaries in pay status)	220
2. Participants active during the year ended December 31, 2009	404
3. Inactive participants entitled to a return of their employee contributions	102
4. Inactive participants with a vested right to a deferred or immediate benefit	7

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$2,320,072
2. Administrative expenses		141,386
3. Expected employee contributions		<u>-1,669,889</u>
4. Employer normal cost: (1) + (2) + (3)		\$791,569
5. Actuarial accrued liability		91,704,032
Retired participants and beneficiaries	\$43,034,031	
Active participants	47,925,727	
Inactive participants	434,432	
6. Actuarial value of assets		38,833,183
7. Unfunded actuarial accrued liability		<u>52,870,849</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$825,142	4.40%
2. Projected unfunded actuarial accrued liability	54,976,786	
3. Payment on projected unfunded actuarial accrued liability	3,250,525	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$4,075,667	21.74%
7. Total FY11 Appropriation, payable on July 1	3,995,690	21.32%
8. Projected Payroll	<u>18,744,867</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$873,503	\$924,067
2. Payment on projected unfunded actuarial accrued liability	3,404,929	3,558,163
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$4,278,432	\$4,482,230
6. Total Appropriation, payable on July 1	4,195,687	4,395,544

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Acton-Boxborough RSD

3400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	64
2. Participants active during the year ended December 31, 2009	179
3. Inactive participants entitled to a return of their employee contributions	64
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$774,406
2. Administrative expenses		47,193
3. Expected employee contributions		<u>-568,769</u>
4. Employer normal cost: (1) + (2) + (3)		\$252,830
5. Actuarial accrued liability		21,100,591
Retired participants and beneficiaries	\$8,808,045	
Active participants	11,945,170	
Inactive participants	274,092	
6. Actuarial value of assets		10,596,728
7. Unfunded actuarial accrued liability		<u>10,503,863</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$263,553	4.06%
2. Projected unfunded actuarial accrued liability	10,922,250	
3. Payment on projected unfunded actuarial accrued liability	595,760	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$859,313	13.22%
7. Total FY11 Appropriation, payable on July 1	842,449	12.96%
8. Projected Payroll	<u>6,498,368</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$279,000	\$295,150
2. Payment on projected unfunded actuarial accrued liability	678,338	707,518
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$957,338	\$1,002,668
6. Total Appropriation, payable on July 1	938,823	983,276

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Acton Water Supply

3500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	5
2. Participants active during the year ended December 31, 2009	16
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	2

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$91,699
2. Administrative expenses		5,588
3. Expected employee contributions		<u>-89,879</u>
4. Employer normal cost: (1) + (2) + (3)		\$7,408
5. Actuarial accrued liability		3,760,084
Retired participants and beneficiaries	\$1,138,098	
Active participants	2,480,870	
Inactive participants	0	
6. Actuarial value of assets		2,144,878
7. Unfunded actuarial accrued liability		<u>1,615,206</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$7,722	0.77%
2. Projected unfunded actuarial accrued liability	1,679,542	
3. Payment on projected unfunded actuarial accrued liability	100,137	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>5,588</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$113,447	11.26%
7. Total FY11 Appropriation, payable on July 1	111,221	11.04%
8. Projected Payroll	<u>1,007,493</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$8,175	\$8,648
2. Payment on projected unfunded actuarial accrued liability	101,596	106,398
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>5,588</u>	<u>5,588</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$115,359	\$120,634
6. Total Appropriation, payable on July 1	113,128	118,301

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Bedford Housing Authority

3600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	2
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$14,517
2. Administrative expenses		885
3. Expected employee contributions		<u>-12,087</u>
4. Employer normal cost: (1) + (2) + (3)		\$3,315
5. Actuarial accrued liability		349,585
Retired participants and beneficiaries	\$214,101	
Active participants	135,484	
Inactive participants	0	
6. Actuarial value of assets		166,765
7. Unfunded actuarial accrued liability		182,820

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$3,456	2.71%
2. Projected unfunded actuarial accrued liability	190,102	
3. Payment on projected unfunded actuarial accrued liability	4,857	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>6,997</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$15,310	11.99%
7. Total FY11 Appropriation, payable on July 1	15,009	11.75%
8. Projected Payroll	127,694	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$3,659	\$3,871
2. Payment on projected unfunded actuarial accrued liability	8,913	9,297
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>6,997</u>	<u>6,997</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$19,569	\$20,165
6. Total Appropriation, payable on July 1	19,191	19,775

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Billerica Housing Authority

3700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	4
2. Participants active during the year ended December 31, 2009	6
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$31,670
2. Administrative expenses		1,930
3. Expected employee contributions		<u>-26,707</u>
4. Employer normal cost: (1) + (2) + (3)		\$6,893
5. Actuarial accrued liability		1,455,724
Retired participants and beneficiaries	\$889,175	
Active participants	566,549	
Inactive participants	0	
6. Actuarial value of assets		526,880
7. Unfunded actuarial accrued liability		928,844

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$7,185	2.48%
2. Projected unfunded actuarial accrued liability	965,842	
3. Payment on projected unfunded actuarial accrued liability	53,654	
4. Payment on 2002 ERI	9,852	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$70,691	24.39%
7. Total FY11 Appropriation, payable on July 1	69,304	23.91%
8. Projected Payroll	289,858	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$7,606	\$8,046
2. Payment on projected unfunded actuarial accrued liability	55,859	58,459
3. Payment on 2002 ERI	9,852	9,852
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$73,317	\$76,357
6. Total Appropriation, payable on July 1	71,899	74,880

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Chelmsford Housing Authority

3800

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	3
2. Participants active during the year ended December 31, 2009	13
3. Inactive participants entitled to a return of their employee contributions	5
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$79,550
2. Administrative expenses		4,848
3. Expected employee contributions		-73,484
4. Employer normal cost: (1) + (2) + (3)		\$10,914
5. Actuarial accrued liability		1,361,457
Retired participants and beneficiaries	\$226,973	
Active participants	1,100,627	
Inactive participants	33,857	
6. Actuarial value of assets		849,715
7. Unfunded actuarial accrued liability		511,742

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$11,377	1.46%
2. Projected unfunded actuarial accrued liability	532,126	
3. Payment on projected unfunded actuarial accrued liability	25,005	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$36,382	4.68%
7. Total FY11 Appropriation, payable on July 1	35,667	4.59%
8. Projected Payroll	777,407	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$12,044	\$12,741
2. Payment on projected unfunded actuarial accrued liability	33,328	34,783
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$45,372	\$47,524
6. Total Appropriation, payable on July 1	44,495	46,605

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Chelmsford Water District

3900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	13
2. Participants active during the year ended December 31, 2009	20
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$111,554
2. Administrative expenses		6,798
3. Expected employee contributions		-97,607
4. Employer normal cost: (1) + (2) + (3)		\$20,745
5. Actuarial accrued liability		4,982,992
Retired participants and beneficiaries	\$2,928,061	
Active participants	2,054,931	
Inactive participants	0	
6. Actuarial value of assets		1,813,434
7. Unfunded actuarial accrued liability		3,169,558

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$21,625	1.98%
2. Projected unfunded actuarial accrued liability	3,295,806	
3. Payment on projected unfunded actuarial accrued liability	202,941	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$224,566	20.51%
7. Total FY11 Appropriation, payable on July 1	220,159	20.11%
8. Projected Payroll	1,094,710	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$22,892	\$24,217
2. Payment on projected unfunded actuarial accrued liability	203,979	213,537
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$226,871	\$237,754
6. Total Appropriation, payable on July 1	222,483	233,156

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Dracut Housing Authority

4000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	4
2. Participants active during the year ended December 31, 2009	6
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$29,720
2. Administrative expenses		1,811
3. Expected employee contributions		<u>-28,031</u>
4. Employer normal cost: (1) + (2) + (3)		\$3,500
5. Actuarial accrued liability		1,800,642
Retired participants and beneficiaries	\$1,021,237	
Active participants	779,405	
Inactive participants	0	
6. Actuarial value of assets		520,628
7. Unfunded actuarial accrued liability		<u>1,280,014</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$3,648	1.16%
2. Projected unfunded actuarial accrued liability	1,330,999	
3. Payment on projected unfunded actuarial accrued liability	48,093	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$51,741	16.48%
7. Total FY11 Appropriation, payable on July 1	50,726	16.15%
8. Projected Payroll	<u>314,055</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$3,862	\$4,086
2. Payment on projected unfunded actuarial accrued liability	84,636	88,674
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$88,498	\$92,760
6. Total Appropriation, payable on July 1	86,786	90,966

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Dracut Water Supply

4100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	4
2. Participants active during the year ended December 31, 2009	14
3. Inactive participants entitled to a return of their employee contributions	7
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$73,833
2. Administrative expenses		4,499
3. Expected employee contributions		-64,937
4. Employer normal cost: (1) + (2) + (3)		\$13,395
5. Actuarial accrued liability		2,932,256
Retired participants and beneficiaries	\$756,949	
Active participants	2,166,838	
Inactive participants	8,469	
6. Actuarial value of assets		1,394,035
7. Unfunded actuarial accrued liability		1,538,221

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$13,963	1.81%
2. Projected unfunded actuarial accrued liability	1,599,491	
3. Payment on projected unfunded actuarial accrued liability	80,844	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$94,807	12.27%
7. Total FY11 Appropriation, payable on July 1	92,947	12.03%
8. Projected Payroll	772,897	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$14,781	\$15,637
2. Payment on projected unfunded actuarial accrued liability	100,087	104,732
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$114,868	\$120,369
6. Total Appropriation, payable on July 1	112,646	118,041

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for E. Chelmsford Water

4200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	2
2. Participants active during the year ended December 31, 2009	4
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$29,608
2. Administrative expenses		1,804
3. Expected employee contributions		<u>-22,746</u>
4. Employer normal cost: (1) + (2) + (3)		\$8,666
5. Actuarial accrued liability		433,499
Retired participants and beneficiaries	\$74,018	
Active participants	359,481	
Inactive participants	0	
6. Actuarial value of assets		199,494
7. Unfunded actuarial accrued liability		<u>234,005</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$9,034	3.75%
2. Projected unfunded actuarial accrued liability	243,326	
3. Payment on projected unfunded actuarial accrued liability	7,829	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$16,863	7.00%
7. Total FY11 Appropriation, payable on July 1	16,532	6.87%
8. Projected Payroll	<u>240,762</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$9,563	\$10,117
2. Payment on projected unfunded actuarial accrued liability	15,422	16,044
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$24,985	\$26,161
6. Total Appropriation, payable on July 1	24,502	25,655

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for E. Middlesex Mosq Control

4300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	2
2. Participants active during the year ended December 31, 2009	6
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$34,215
2. Administrative expenses		2,085
3. Expected employee contributions		<u>-27,051</u>
4. Employer normal cost: (1) + (2) + (3)		\$9,249
5. Actuarial accrued liability		1,048,585
Retired participants and beneficiaries	\$134,817	
Active participants	913,768	
Inactive participants	0	
6. Actuarial value of assets		563,547
7. Unfunded actuarial accrued liability		<u>485,038</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$9,641	2.96%
2. Projected unfunded actuarial accrued liability	504,357	
3. Payment on projected unfunded actuarial accrued liability	27,929	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$37,570	11.54%
7. Total FY11 Appropriation, payable on July 1	36,833	11.31%
8. Projected Payroll	<u>325,559</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$10,206	\$10,797
2. Payment on projected unfunded actuarial accrued liability	31,331	32,713
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$41,537	\$43,510
6. Total Appropriation, payable on July 1	40,734	42,669

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Greater Lowell RTSD

4400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 9 beneficiaries in pay status)	71
2. Participants active during the year ended December 31, 2009	100
3. Inactive participants entitled to a return of their employee contributions	17
4. Inactive participants with a vested right to a deferred or immediate benefit	3

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$507,199
2. Administrative expenses		30,909
3. Expected employee contributions		<u>-426,566</u>
4. Employer normal cost: (1) + (2) + (3)		\$111,542
5. Actuarial accrued liability		18,760,971
Retired participants and beneficiaries	\$9,535,863	
Active participants	8,914,819	
Inactive participants	107,442	
6. Actuarial value of assets		7,818,417
7. Unfunded actuarial accrued liability		<u>10,942,554</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$116,273	2.42%
2. Projected unfunded actuarial accrued liability	11,378,414	
3. Payment on projected unfunded actuarial accrued liability	601,884	
4. Payment on 2002 ERI	166,285	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$884,442	18.39%
7. Total FY11 Appropriation, payable on July 1	867,086	18.03%
8. Projected Payroll	<u>4,809,508</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$123,088	\$130,213
2. Payment on projected unfunded actuarial accrued liability	637,758	666,980
3. Payment on 2002 ERI	166,285	166,285
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$927,131	\$963,478
6. Total Appropriation, payable on July 1	909,200	944,844

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Groton-Dunstable RSD

4500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	41
2. Participants active during the year ended December 31, 2009	180
3. Inactive participants entitled to a return of their employee contributions	64
4. Inactive participants with a vested right to a deferred or immediate benefit	4

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$591,971
2. Administrative expenses		36,075
3. Expected employee contributions		<u>-424,561</u>
4. Employer normal cost: (1) + (2) + (3)		\$203,485
5. Actuarial accrued liability		12,588,763
Retired participants and beneficiaries	\$4,483,641	
Active participants	7,683,613	
Inactive participants	292,192	
6. Actuarial value of assets		6,883,034
7. Unfunded actuarial accrued liability		<u>5,705,729</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$212,115	4.43%
2. Projected unfunded actuarial accrued liability	5,932,998	
3. Payment on projected unfunded actuarial accrued liability	327,814	
4. Payment on 2002 ERI	4,080	
5. Payment on 2003 ERI	<u>15,480</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$559,489	11.68%
7. Total FY11 Appropriation, payable on July 1	548,511	11.45%
8. Projected Payroll	<u>4,790,852</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$224,547	\$237,545
2. Payment on projected unfunded actuarial accrued liability	358,267	372,688
3. Payment on 2002 ERI	4,080	4,080
4. Payment on 2003 ERI	<u>15,480</u>	<u>15,480</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$602,374	\$629,793
6. Total Appropriation, payable on July 1	590,724	617,613

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Hudson Housing Authority

4600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	5
2. Participants active during the year ended December 31, 2009	5
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	1

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$29,704
2. Administrative expenses		1,810
3. Expected employee contributions		<u>-21,695</u>
4. Employer normal cost: (1) + (2) + (3)		\$9,819
5. Actuarial accrued liability		1,455,631
Retired participants and beneficiaries	\$561,385	
Active participants	872,968	
Inactive participants	0	
6. Actuarial value of assets		615,482
7. Unfunded actuarial accrued liability		<u>840,149</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$10,235	3.70%
2. Projected unfunded actuarial accrued liability	873,614	
3. Payment on projected unfunded actuarial accrued liability	52,082	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$62,317	22.54%
7. Total FY11 Appropriation, payable on July 1	61,094	22.10%
8. Projected Payroll	<u>276,495</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$10,835	\$11,462
2. Payment on projected unfunded actuarial accrued liability	54,118	56,593
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$64,953	\$68,055
6. Total Appropriation, payable on July 1	63,697	66,739

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Lincoln Sudbury

4700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	49
2. Participants active during the year ended December 31, 2009	72
3. Inactive participants entitled to a return of their employee contributions	31
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$310,926
2. Administrative expenses		18,948
3. Expected employee contributions		<u>-264,404</u>
4. Employer normal cost: (1) + (2) + (3)		\$65,470
5. Actuarial accrued liability		9,959,387
Retired participants and beneficiaries	\$5,618,214	
Active participants	4,225,964	
Inactive participants	115,209	
6. Actuarial value of assets		4,113,850
7. Unfunded actuarial accrued liability		<u>5,845,537</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$68,247	2.36%
2. Projected unfunded actuarial accrued liability	6,078,375	
3. Payment on projected unfunded actuarial accrued liability	335,814	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$404,061	13.95%
7. Total FY11 Appropriation, payable on July 1	396,133	13.68%
8. Projected Payroll	<u>2,896,736</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$72,247	\$76,429
2. Payment on projected unfunded actuarial accrued liability	378,295	395,638
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$450,542	\$472,067
6. Total Appropriation, payable on July 1	441,829	462,937

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Nashoba Vally THSD

4900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	20
2. Participants active during the year ended December 31, 2009	21
3. Inactive participants entitled to a return of their employee contributions	10
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$99,483
2. Administrative expenses		6,063
3. Expected employee contributions		-77,162
4. Employer normal cost: (1) + (2) + (3)		\$28,384
5. Actuarial accrued liability		3,285,081
Retired participants and beneficiaries	\$1,550,635	
Active participants	1,671,129	
Inactive participants	63,317	
6. Actuarial value of assets		1,352,671
7. Unfunded actuarial accrued liability		1,932,410

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$29,588	3.32%
2. Projected unfunded actuarial accrued liability	2,009,381	
3. Payment on projected unfunded actuarial accrued liability	118,966	
4. Payment on 2002 ERI	4,876	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$153,430	17.20%
7. Total FY11 Appropriation, payable on July 1	150,418	16.86%
8. Projected Payroll	892,143	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$31,322	\$33,135
2. Payment on projected unfunded actuarial accrued liability	122,326	127,832
3. Payment on 2002 ERI	4,876	4,876
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$158,524	\$165,843
6. Total Appropriation, payable on July 1	155,458	162,636

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for N. Chelmsford Water

5000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	2
2. Participants active during the year ended December 31, 2009	8
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$40,223
2. Administrative expenses		2,451
3. Expected employee contributions		<u>-41,832</u>
4. Employer normal cost: (1) + (2) + (3)		\$ 842
5. Actuarial accrued liability		1,689,506
Retired participants and beneficiaries	\$246,311	
Active participants	1,443,195	
Inactive participants	0	
6. Actuarial value of assets		1,183,387
7. Unfunded actuarial accrued liability		<u>506,119</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$ 878	0.18%
2. Projected unfunded actuarial accrued liability	526,279	
3. Payment on projected unfunded actuarial accrued liability	6,631	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$7,509	1.56%
7. Total FY11 Appropriation, payable on July 1	7,361	1.53%
8. Projected Payroll	<u>480,927</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$ 929	\$ 983
2. Payment on projected unfunded actuarial accrued liability	34,275	35,918
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$35,204	\$36,901
6. Total Appropriation, payable on July 1	34,523	36,187

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for North Middlesex RSD

5100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 6 beneficiaries in pay status)	68
2. Participants active during the year ended December 31, 2009	185
3. Inactive participants entitled to a return of their employee contributions	73
4. Inactive participants with a vested right to a deferred or immediate benefit	11

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$556,160
2. Administrative expenses		33,893
3. Expected employee contributions		<u>-401,251</u>
4. Employer normal cost: (1) + (2) + (3)		\$188,802
5. Actuarial accrued liability		15,447,640
Retired participants and beneficiaries	\$6,236,873	
Active participants	8,602,606	
Inactive participants	218,547	
6. Actuarial value of assets		7,454,531
7. Unfunded actuarial accrued liability		<u>7,993,109</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$196,810	4.26%
2. Projected unfunded actuarial accrued liability	8,311,489	
3. Payment on projected unfunded actuarial accrued liability	473,715	
4. Payment on 2002 ERI	23,286	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$693,811	15.02%
7. Total FY11 Appropriation, payable on July 1	680,196	14.73%
8. Projected Payroll	<u>4,619,233</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$208,345	\$220,405
2. Payment on projected unfunded actuarial accrued liability	504,806	526,512
3. Payment on 2002 ERI	23,286	23,286
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$736,437	\$770,203
6. Total Appropriation, payable on July 1	722,194	755,307

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for North Middlesex Welfare District

5200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	0
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$0
2. Administrative expenses		0
3. Expected employee contributions		<u>0</u>
4. Employer normal cost: (1) + (2) + (3)		\$0
5. Actuarial accrued liability		16,946
Retired participants and beneficiaries	\$16,946	
Active participants	0	
Inactive participants	0	
6. Actuarial value of assets		16,946
7. Unfunded actuarial accrued liability		0

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$0	0.00%
2. Projected unfunded actuarial accrued liability	0	
3. Payment on projected unfunded actuarial accrued liability	0	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$0	0.00%
7. Total FY11 Appropriation, payable on July 1	0	0.00%
8. Projected Payroll	0	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$0	\$0
2. Payment on projected unfunded actuarial accrued liability	0	0
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$0	\$0
6. Total Appropriation, payable on July 1	0	0

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Shawsheen Valley RVS

5300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 4 beneficiaries in pay status)	38
2. Participants active during the year ended December 31, 2009	57
3. Inactive participants entitled to a return of their employee contributions	9
4. Inactive participants with a vested right to a deferred or immediate benefit	2

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$260,435
2. Administrative expenses		15,871
3. Expected employee contributions		<u>-215,589</u>
4. Employer normal cost: (1) + (2) + (3)		\$60,717
5. Actuarial accrued liability		8,499,700
Retired participants and beneficiaries	\$4,557,155	
Active participants	3,787,702	
Inactive participants	42,351	
6. Actuarial value of assets		3,898,645
7. Unfunded actuarial accrued liability		<u>4,601,055</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$63,292	2.69%
2. Projected unfunded actuarial accrued liability	4,784,323	
3. Payment on projected unfunded actuarial accrued liability	319,278	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>17,561</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$400,131	17.00%
7. Total FY11 Appropriation, payable on July 1	392,279	16.66%
8. Projected Payroll	<u>2,354,104</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$67,001	\$70,879
2. Payment on projected unfunded actuarial accrued liability	285,878	298,825
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>17,561</u>	<u>17,561</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$370,440	\$387,265
6. Total Appropriation, payable on July 1	363,276	379,775

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for South Middlesex RVTS

5400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 6 beneficiaries in pay status)	42
2. Participants active during the year ended December 31, 2009	50
3. Inactive participants entitled to a return of their employee contributions	7
4. Inactive participants with a vested right to a deferred or immediate benefit	1

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$247,766
2. Administrative expenses		15,099
3. Expected employee contributions		<u>-176,826</u>
4. Employer normal cost: (1) + (2) + (3)		\$86,039
5. Actuarial accrued liability		8,357,175
Retired participants and beneficiaries	\$3,451,731	
Active participants	4,855,348	
Inactive participants	24,434	
6. Actuarial value of assets		3,941,075
7. Unfunded actuarial accrued liability		<u>4,416,100</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$89,688	4.13%
2. Projected unfunded actuarial accrued liability	4,592,001	
3. Payment on projected unfunded actuarial accrued liability	251,224	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$340,912	15.69%
7. Total FY11 Appropriation, payable on July 1	334,221	15.38%
8. Projected Payroll	<u>2,172,880</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$94,945	\$100,441
2. Payment on projected unfunded actuarial accrued liability	285,430	297,996
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$380,375	\$398,437
6. Total Appropriation, payable on July 1	373,019	390,731

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Sudbury Water District

5500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2 beneficiaries in pay status)	3
2. Participants active during the year ended December 31, 2009	8
3. Inactive participants entitled to a return of their employee contributions	1
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$58,912
2. Administrative expenses		3,590
3. Expected employee contributions		<u>-59,873</u>
4. Employer normal cost: (1) + (2) + (3)		\$2,629
5. Actuarial accrued liability		2,232,747
Retired participants and beneficiaries	\$369,407	
Active participants	1,862,532	
Inactive participants	808	
6. Actuarial value of assets		1,094,755
7. Unfunded actuarial accrued liability		1,137,992

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$2,741	0.39%
2. Projected unfunded actuarial accrued liability	1,183,320	
3. Payment on projected unfunded actuarial accrued liability	69,905	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$72,646	10.38%
7. Total FY11 Appropriation, payable on July 1	71,219	10.17%
8. Projected Payroll	699,994	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$2,902	\$3,070
2. Payment on projected unfunded actuarial accrued liability	73,495	77,008
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$76,397	\$80,078
6. Total Appropriation, payable on July 1	74,919	78,529

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Tewksbury Housing Authority

5600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	3
2. Participants active during the year ended December 31, 2009	8
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$46,429
2. Administrative expenses		2,829
3. Expected employee contributions		<u>-35,631</u>
4. Employer normal cost: (1) + (2) + (3)		\$13,627
5. Actuarial accrued liability		1,474,803
Retired participants and beneficiaries	\$374,772	
Active participants	1,100,031	
Inactive participants	0	
6. Actuarial value of assets		768,843
7. Unfunded actuarial accrued liability		705,960

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$14,205	3.45%
2. Projected unfunded actuarial accrued liability	734,080	
3. Payment on projected unfunded actuarial accrued liability	45,665	
4. Payment on 2002 ERI	3,483	
5. Payment on 2003 ERI	<u>5,610</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$68,963	16.77%
7. Total FY11 Appropriation, payable on July 1	67,611	16.44%
8. Projected Payroll	411,286	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$15,038	\$15,908
2. Payment on projected unfunded actuarial accrued liability	41,142	42,937
3. Payment on 2002 ERI	3,483	3,483
4. Payment on 2003 ERI	<u>5,610</u>	<u>5,610</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$65,273	\$67,938
6. Total Appropriation, payable on July 1	64,011	66,624

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Wayland Housing Authority

5700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	4
3. Inactive participants entitled to a return of their employee contributions	2
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$22,245
2. Administrative expenses		1,356
3. Expected employee contributions		<u>-20,627</u>
4. Employer normal cost: (1) + (2) + (3)		\$2,974
5. Actuarial accrued liability		736,043
Retired participants and beneficiaries	\$105,582	
Active participants	624,863	
Inactive participants	5,598	
6. Actuarial value of assets		409,070
7. Unfunded actuarial accrued liability		<u>326,973</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$3,100	1.37%
2. Projected unfunded actuarial accrued liability	339,997	
3. Payment on projected unfunded actuarial accrued liability	19,071	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$22,171	9.78%
7. Total FY11 Appropriation, payable on July 1	21,737	9.59%
8. Projected Payroll	<u>226,741</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$3,282	\$3,472
2. Payment on projected unfunded actuarial accrued liability	21,152	22,131
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$24,434	\$25,603
6. Total Appropriation, payable on July 1	23,961	25,108

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Hopkinton Housing Authority

5800

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$14,276
2. Administrative expenses		870
3. Expected employee contributions		<u>-11,825</u>
4. Employer normal cost: (1) + (2) + (3)		\$3,321
5. Actuarial accrued liability		537,455
Retired participants and beneficiaries	\$0	
Active participants	537,455	
Inactive participants	0	
6. Actuarial value of assets		305,087
7. Unfunded actuarial accrued liability		<u>232,368</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$3,462	2.51%
2. Projected unfunded actuarial accrued liability	241,623	
3. Payment on projected unfunded actuarial accrued liability	11,082	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$14,544	10.55%
7. Total FY11 Appropriation, payable on July 1	14,259	10.34%
8. Projected Payroll	<u>137,887</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$3,665	\$3,877
2. Payment on projected unfunded actuarial accrued liability	15,174	15,860
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$18,839	\$19,737
6. Total Appropriation, payable on July 1	18,475	19,355

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for S. Chelmsford Water District

5900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	0
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost	\$0
2. Administrative expenses	0
3. Expected employee contributions	<u>-0</u>
4. Employer normal cost: (1) + (2) + (3)	\$0
5. Actuarial accrued liability	0
Retired participants and beneficiaries	\$0
Active participants	0
Inactive participants	0
6. Actuarial value of assets	
7. Unfunded actuarial accrued liability	0

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$0	0.00%
2. Projected unfunded actuarial accrued liability	0	
3. Payment on projected unfunded actuarial accrued liability	0	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$0	0.00%
7. Total FY11 Appropriation, payable on July 1	0	0.00%
8. Projected Payroll	0	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$0	\$0
2. Payment on projected unfunded actuarial accrued liability	0	0
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$0	\$0
6. Total Appropriation, payable on July 1	0	0

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Sudbury Housing Authority

6000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$17,548
2. Administrative expenses		1,069
3. Expected employee contributions		<u>-10,332</u>
4. Employer normal cost: (1) + (2) + (3)		\$8,285
5. Actuarial accrued liability		569,381
Retired participants and beneficiaries	\$18,260	
Active participants	551,121	
Inactive participants	0	
6. Actuarial value of assets		358,403
7. Unfunded actuarial accrued liability		<u>210,978</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$8,636	6.79%
2. Projected unfunded actuarial accrued liability	219,382	
3. Payment on projected unfunded actuarial accrued liability	15,051	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$23,687	18.63%
7. Total FY11 Appropriation, payable on July 1	23,222	18.26%
8. Projected Payroll	<u>127,159</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$9,142	\$9,671
2. Payment on projected unfunded actuarial accrued liability	13,380	13,909
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$22,522	\$23,580
6. Total Appropriation, payable on July 1	22,086	23,124

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Wilmington Housing Authority

6100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	3
2. Participants active during the year ended December 31, 2009	2
3. Inactive participants entitled to a return of their employee contributions	2
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$7,055
2. Administrative expenses		430
3. Expected employee contributions		<u>-5,646</u>
4. Employer normal cost: (1) + (2) + (3)		\$1,839
5. Actuarial accrued liability		293,349
Retired participants and beneficiaries	\$165,876	
Active participants	123,388	
Inactive participants	4,085	
6. Actuarial value of assets		130,661
7. Unfunded actuarial accrued liability		<u>162,688</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$1,917	2.94%
2. Projected unfunded actuarial accrued liability	169,168	
3. Payment on projected unfunded actuarial accrued liability	11,812	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>3,592</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$17,321	26.53%
7. Total FY11 Appropriation, payable on July 1	16,982	26.01%
8. Projected Payroll	<u>65,287</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$2,029	\$2,146
2. Payment on projected unfunded actuarial accrued liability	8,692	9,086
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>3,592</u>	<u>3,592</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$14,313	\$14,824
6. Total Appropriation, payable on July 1	14,036	14,537

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Acton Housing Authority

6200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	6
3. Inactive participants entitled to a return of their employee contributions	1
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$37,379
2. Administrative expenses		2,278
3. Expected employee contributions		-28,768
4. Employer normal cost: (1) + (2) + (3)		\$10,889
5. Actuarial accrued liability		1,101,720
Retired participants and beneficiaries	\$312,365	
Active participants	789,214	
Inactive participants	141	
6. Actuarial value of assets		620,377
7. Unfunded actuarial accrued liability		481,343

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$11,351	3.64%
2. Projected unfunded actuarial accrued liability	500,516	
3. Payment on projected unfunded actuarial accrued liability	22,784	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$34,135	10.95%
7. Total FY11 Appropriation, payable on July 1	33,466	10.73%
8. Projected Payroll	311,753	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$12,016	\$12,712
2. Payment on projected unfunded actuarial accrued liability	31,388	32,749
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$43,404	\$45,461
6. Total Appropriation, payable on July 1	42,565	44,582

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Burlington Housing Authority

6300

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	5
3. Inactive participants entitled to a return of their employee contributions	2
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$29,289
2. Administrative expenses		1,785
3. Expected employee contributions		<u>-22,187</u>
4. Employer normal cost: (1) + (2) + (3)		\$8,887
5. Actuarial accrued liability		425,704
Retired participants and beneficiaries	\$0	
Active participants	422,682	
Inactive participants	3,022	
6. Actuarial value of assets		353,667
7. Unfunded actuarial accrued liability		<u>72,037</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$9,264	3.88%
2. Projected unfunded actuarial accrued liability	74,907	
3. Payment on projected unfunded actuarial accrued liability	-2,063	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$7,201	3.02%
7. Total FY11 Appropriation, payable on July 1	7,059	2.96%
8. Projected Payroll	<u>238,748</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$9,807	\$10,375
2. Payment on projected unfunded actuarial accrued liability	4,949	5,062
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$14,756	\$15,437
6. Total Appropriation, payable on July 1	14,471	15,138

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Ayer Housing Authority

6400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	1
4. Inactive participants with a vested right to a deferred or immediate benefit	1

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$13,970
2. Administrative expenses		851
3. Expected employee contributions		<u>-12,471</u>
4. Employer normal cost: (1) + (2) + (3)		\$2,350
5. Actuarial accrued liability		439,369
Retired participants and beneficiaries	\$121,529	
Active participants	275,846	
Inactive participants	548	
6. Actuarial value of assets		200,113
7. Unfunded actuarial accrued liability		<u>239,256</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$2,450	1.80%
2. Projected unfunded actuarial accrued liability	248,786	
3. Payment on projected unfunded actuarial accrued liability	10,603	
4. Payment on 2002 ERI	3,582	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$16,635	12.21%
7. Total FY11 Appropriation, payable on July 1	16,307	11.97%
8. Projected Payroll	<u>136,223</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$2,594	\$2,744
2. Payment on projected unfunded actuarial accrued liability	14,134	14,783
3. Payment on 2002 ERI	3,582	3,582
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$20,310	\$21,109
6. Total Appropriation, payable on July 1	19,917	20,701

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Holliston Housing Authority

6500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	4
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$17,966
2. Administrative expenses		1,095
3. Expected employee contributions		<u>-14,826</u>
4. Employer normal cost: (1) + (2) + (3)		\$4,235
5. Actuarial accrued liability		250,385
Retired participants and beneficiaries	\$112,874	
Active participants	137,511	
Inactive participants	0	
6. Actuarial value of assets		136,338
7. Unfunded actuarial accrued liability		<u>114,047</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$4,415	2.80%
2. Projected unfunded actuarial accrued liability	118,589	
3. Payment on projected unfunded actuarial accrued liability	2,646	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$7,061	4.48%
7. Total FY11 Appropriation, payable on July 1	6,923	4.39%
8. Projected Payroll	<u>157,610</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$4,674	\$4,945
2. Payment on projected unfunded actuarial accrued liability	7,591	7,898
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$12,265	\$12,843
6. Total Appropriation, payable on July 1	12,028	12,595

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Littleton Housing Authority

6600

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	2
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$12,019
2. Administrative expenses		732
3. Expected employee contributions		-8,438
4. Employer normal cost: (1) + (2) + (3)		\$4,313
5. Actuarial accrued liability		443,707
Retired participants and beneficiaries	\$179,066	
Active participants	264,641	
Inactive participants	0	
6. Actuarial value of assets		170,443
7. Unfunded actuarial accrued liability		273,264

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$4,496	4.75%
2. Projected unfunded actuarial accrued liability	284,149	
3. Payment on projected unfunded actuarial accrued liability	10,164	
4. Payment on 2002 ERI	4,876	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$19,536	20.62%
7. Total FY11 Appropriation, payable on July 1	19,152	20.21%
8. Projected Payroll	94,742	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$4,760	\$5,036
2. Payment on projected unfunded actuarial accrued liability	15,904	16,611
3. Payment on 2002 ERI	4,876	4,876
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$25,540	\$26,523
6. Total Appropriation, payable on July 1	25,046	26,010

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Westford Housing Authority

6700

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	1
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$15,470
2. Administrative expenses		943
3. Expected employee contributions		<u>-12,362</u>
4. Employer normal cost: (1) + (2) + (3)		\$4,051
5. Actuarial accrued liability		257,360
Retired participants and beneficiaries	\$167,881	
Active participants	88,412	
Inactive participants	1,067	
6. Actuarial value of assets		90,453
7. Unfunded actuarial accrued liability		<u>166,907</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$4,223	3.21%
2. Projected unfunded actuarial accrued liability	173,555	
3. Payment on projected unfunded actuarial accrued liability	12,246	
4. Payment on 2002 ERI	6,866	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$23,335	17.73%
7. Total FY11 Appropriation, payable on July 1	22,878	17.38%
8. Projected Payroll	<u>131,608</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$4,471	\$4,730
2. Payment on projected unfunded actuarial accrued liability	7,614	7,924
3. Payment on 2002 ERI	6,866	6,866
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$18,951	\$19,520
6. Total Appropriation, payable on July 1	18,584	19,142

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Shirley Water District

6800

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	1
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$14,548
2. Administrative expenses		887
3. Expected employee contributions		<u>-16,293</u>
4. Employer normal cost: (1) + (2) + (3)		\$- 858
5. Actuarial accrued liability		457,986
Retired participants and beneficiaries	\$50,373	
Active participants	407,613	
Inactive participants	0	
6. Actuarial value of assets		236,231
7. Unfunded actuarial accrued liability		<u>221,755</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$- 894	- 0.50%
2. Projected unfunded actuarial accrued liability	230,588	
3. Payment on projected unfunded actuarial accrued liability	12,555	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$11,661	6.52%
7. Total FY11 Appropriation, payable on July 1	11,432	6.39%
8. Projected Payroll	<u>178,900</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$- 946	\$-1,001
2. Payment on projected unfunded actuarial accrued liability	14,410	15,119
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$13,464	\$14,118
6. Total Appropriation, payable on July 1	13,204	13,845

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Tyngsboro Housing Authority

6900

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	2
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	1
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$12,452
2. Administrative expenses		759
3. Expected employee contributions		<u>-10,467</u>
4. Employer normal cost: (1) + (2) + (3)		\$2,744
5. Actuarial accrued liability		477,451
Retired participants and beneficiaries	\$387,741	
Active participants	87,841	
Inactive participants	1,869	
6. Actuarial value of assets		179,274
7. Unfunded actuarial accrued liability		<u>298,177</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$2,860	2.55%
2. Projected unfunded actuarial accrued liability	310,054	
3. Payment on projected unfunded actuarial accrued liability	13,008	
4. Payment on 2002 ERI	4,379	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$20,247	18.02%
7. Total FY11 Appropriation, payable on July 1	19,851	17.67%
8. Projected Payroll	<u>112,331</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$3,028	\$3,203
2. Payment on projected unfunded actuarial accrued liability	17,668	18,484
3. Payment on 2002 ERI	4,379	4,379
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$25,075	\$26,066
6. Total Appropriation, payable on July 1	24,590	25,562

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Pepperell Housing Authority

7000

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	1
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$5,653
2. Administrative expenses		344
3. Expected employee contributions		<u>-3,089</u>
4. Employer normal cost: (1) + (2) + (3)		\$2,908
5. Actuarial accrued liability		117,417
Retired participants and beneficiaries	\$0	
Active participants	117,417	
Inactive participants	0	
6. Actuarial value of assets		66,960
7. Unfunded actuarial accrued liability		<u>50,457</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$3,031	8.04%
2. Projected unfunded actuarial accrued liability	52,466	
3. Payment on projected unfunded actuarial accrued liability	2,628	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$5,659	15.01%
7. Total FY11 Appropriation, payable on July 1	5,547	14.71%
8. Projected Payroll	<u>37,714</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$3,209	\$3,395
2. Payment on projected unfunded actuarial accrued liability	3,249	3,365
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$6,458	\$6,760
6. Total Appropriation, payable on July 1	6,333	6,629

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Groton Housing Authority

7100

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	1
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$8,447
2. Administrative expenses		515
3. Expected employee contributions		-7,084
4. Employer normal cost: (1) + (2) + (3)		\$1,878
5. Actuarial accrued liability		313,331
Retired participants and beneficiaries	\$0	
Active participants	313,331	
Inactive participants	0	
6. Actuarial value of assets		138,564
7. Unfunded actuarial accrued liability		174,767

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$1,958	2.49%
2. Projected unfunded actuarial accrued liability	181,729	
3. Payment on projected unfunded actuarial accrued liability	2,889	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	0	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$4,847	6.17%
7. Total FY11 Appropriation, payable on July 1	4,752	6.05%
8. Projected Payroll	78,552	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$2,073	\$2,193
2. Payment on projected unfunded actuarial accrued liability	11,773	12,315
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	0	0
5. Total Appropriation: (1) + (2) + (3) + (4)	\$13,846	\$14,508
6. Total Appropriation, payable on July 1	13,578	14,227

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Tyngsboro Water District

7200

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 1 beneficiaries in pay status)	2
2. Participants active during the year ended December 31, 2009	7
3. Inactive participants entitled to a return of their employee contributions	1
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$18,886
2. Administrative expenses		1,151
3. Expected employee contributions		<u>-12,590</u>
4. Employer normal cost: (1) + (2) + (3)		\$7,447
5. Actuarial accrued liability		565,037
Retired participants and beneficiaries	\$461,635	
Active participants	103,214	
Inactive participants	188	
6. Actuarial value of assets		297,346
7. Unfunded actuarial accrued liability		267,691

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$7,763	5.18%
2. Projected unfunded actuarial accrued liability	278,353	
3. Payment on projected unfunded actuarial accrued liability	18,340	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$26,103	17.41%
7. Total FY11 Appropriation, payable on July 1	25,591	17.07%
8. Projected Payroll	149,939	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$8,218	\$8,694
2. Payment on projected unfunded actuarial accrued liability	17,069	17,787
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$25,287	\$26,481
6. Total Appropriation, payable on July 1	24,798	25,969

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for North Reading Housing Authority

7400

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	3
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$11,380
2. Administrative expenses		694
3. Expected employee contributions		<u>-6,570</u>
4. Employer normal cost: (1) + (2) + (3)		\$5,504
5. Actuarial accrued liability		32,137
Retired participants and beneficiaries	\$0	
Active participants	32,137	
Inactive participants	0	
6. Actuarial value of assets		28,716
7. Unfunded actuarial accrued liability		<u>3,421</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$5,737	7.53%
2. Projected unfunded actuarial accrued liability	3,557	
3. Payment on projected unfunded actuarial accrued liability	93	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$5,830	7.66%
7. Total FY11 Appropriation, payable on July 1	5,715	7.50%
8. Projected Payroll	<u>76,154</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$6,073	\$6,425
2. Payment on projected unfunded actuarial accrued liability	151	80
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$6,224	\$6,505
6. Total Appropriation, payable on July 1	6,104	6,379

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for West Groton Water

7500

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	0
2. Participants active during the year ended December 31, 2009	2
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$11,207
2. Administrative expenses		683
3. Expected employee contributions		<u>-7,594</u>
4. Employer normal cost: (1) + (2) + (3)		\$4,296
5. Actuarial accrued liability		19,196
Retired participants and beneficiaries	\$0	
Active participants	19,196	
Inactive participants	0	
6. Actuarial value of assets		13,648
7. Unfunded actuarial accrued liability		<u>5,548</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$4,478	5.62%
2. Projected unfunded actuarial accrued liability	5,769	
3. Payment on projected unfunded actuarial accrued liability	<u>-4,478</u>	
4. Payment on 2002 ERI	0	
5. Payment on 2003 ERI	<u>0</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$0	0.00%
7. Total FY11 Appropriation, payable on July 1	0	0.00%
8. Projected Payroll	<u>79,749</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$4,740	\$5,014
2. Payment on projected unfunded actuarial accrued liability	610	580
3. Payment on 2002 ERI	0	0
4. Payment on 2003 ERI	<u>0</u>	<u>0</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$5,350	\$5,594
6. Total Appropriation, payable on July 1	5,247	5,486

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex County Retirement System

EXHIBIT H (CONTINUED)

Summary of Actuarial Valuation Results for Middlesex County Retirement Board

1

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 0 beneficiaries in pay status)	9
2. Participants active during the year ended December 31, 2009	23
3. Inactive participants entitled to a return of their employee contributions	0
4. Inactive participants with a vested right to a deferred or immediate benefit	0

The actuarial factors as of January 1, 2010 are as follows:

1. Total normal cost		\$167,460
2. Administrative expenses		10,205
3. Expected employee contributions		<u>-143,671</u>
4. Employer normal cost: (1) + (2) + (3)		\$33,994
5. Actuarial accrued liability		6,992,443
Retired participants and beneficiaries	\$2,606,284	
Active participants	4,386,159	
Inactive participants	0	
6. Actuarial value of assets		2,798,219
7. Unfunded actuarial accrued liability		<u>4,194,224</u>

The actuarial factors projected to FY11 are as follows:

	<u>Amount</u>	<u>% of Payroll</u>
1. Projected employer normal cost	\$35,436	2.17%
2. Projected unfunded actuarial accrued liability	4,361,287	
3. Payment on projected unfunded actuarial accrued liability	212,488	
4. Payment on 2002 ERI	8,459	
5. Payment on 2003 ERI	<u>20,528</u>	
6. Total FY11 Appropriation: (1) + (3) + (4) + (5)	\$276,911	16.99%
7. Total FY11 Appropriation, payable on July 1	271,476	16.66%
8. Projected Payroll	<u>1,629,728</u>	

The actuarial factors projected to FY12 and FY13 are as follows:

	<u>FY12</u>	<u>FY13</u>
1. Projected employer normal cost	\$37,513	\$39,684
2. Payment on projected unfunded actuarial accrued liability	260,199	272,284
3. Payment on 2002 ERI	8,459	8,459
4. Payment on 2003 ERI	<u>20,528</u>	<u>20,528</u>
5. Total Appropriation: (1) + (2) + (3) + (4)	\$326,699	\$340,955
6. Total Appropriation, payable on July 1	320,381	334,361

Note: Recommended contributions are assumed to be paid on July 1 and December 31, unless otherwise noted.

SECTION 3: Supplemental Information for the Middlesex County Retirement System

EXHIBIT I

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or actuarial assumptions:

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

Actuarial accrued liability for actives:

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

Actuarial accrued liability for pensioners:

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded actuarial accrued liability:

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There are many approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

SECTION 3: Supplemental Information for the Middlesex County Retirement System

**Amortization of the unfunded
actuarial accrued liability:**

Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

Investment return:

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

SECTION 4: Reporting Information for the Middlesex County Retirement System

EXHIBIT I

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 651 beneficiaries in pay status)	4,833
2. Participants active during the year ended December 31, 2009 (including 9 participants with unknown age) with total accumulated contributions of \$310,736,100 and projected payroll of \$384,598,692	8,946
3. Inactive participants with a right to a return of their employee contributions as of December 31, 2009	2,994
4. Inactive participants with a vested right to a deferred or immediate benefit as of December 31, 2009	232

The actuarial factors as of January 1, 2010 are as follows:

1. Normal cost	\$49,228,520
2. Administrative expenses	3,000,000
3. Expected employee contributions	<u>-35,067,171</u>
4. Employer normal cost: (1) + (2) + (3)	\$17,161,349
5. Actuarial accrued liability	1,742,380,855
Retired participants and beneficiaries	\$845,979,148
Active participants	872,283,329
Inactive participants	24,118,378
6. Actuarial value of assets (\$689,083,958 at market value as reported in the Annual Statement)	\$19,987,914
7. Unfunded actuarial accrued liability: (5) – (6)	922,392,941

The actuarial factors projected to July 1, 2010 are as follows:

1. Projected employer normal cost, adjusted for timing	\$17,889,201
2. Projected unfunded actuarial accrued liability	959,133,436
3. Payment on projected unfunded actuarial accrued liability	61,484,171
4. Preliminary recommended contribution: (1) + (3), adjusted for timing	79,373,372
5. Budgeted appropriation, adjusted for timing	76,243,557
6. Projected payroll	393,156,942
7. Budgeted appropriation as a percentage of projected payroll: (5) ÷ (6)	19.39%

Note: Recommended contributions are assumed to be paid on July 1 and December 31.

SECTION 4: Reporting Information for the Middlesex County Retirement System

EXHIBIT II

Supplementary Information Required by the GASB – Schedule of Employer Contributions

Plan Year Ended December 31	Annual Required Contributions	Actual Contributions	Percentage Contributed
2001	\$27,900,209	\$27,900,209	100.0%
2002	30,248,147	30,248,147	100.0%
2003	35,411,500	35,411,500	100.0%
2004	52,902,366	52,902,366	100.0%
2005	52,298,150	52,298,150	100.0%
2006	60,169,717	60,169,717	100.0%
2007	64,664,829	64,664,829	100.0%
2008	72,050,318	72,050,318	100.0%
2009	78,212,121	78,212,121	100.0%

SECTION 4: Reporting Information for the Middlesex County Retirement System

EXHIBIT III

Supplementary Information Required by the GASB – Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll* [(b) - (a)] / (c)
01/01/1996	\$373,750,361	\$634,920,488	\$261,170,127	58.87%	\$218,345,024	119.61%
01/01/1998	476,708,969	763,093,878	286,384,909	62.47%	215,380,186	132.97%
01/01/2000	570,263,467	905,280,472	335,017,005	62.99%	253,228,818	132.30%
01/01/2002	599,699,143	1,020,828,178	421,129,035	58.75%	280,740,439	150.01%
01/01/2004	618,163,380	1,223,828,127	605,664,747	50.51%	306,025,949	197.91%
01/01/2006	653,156,866	1,364,582,969	711,426,103	47.86%	330,999,861	214.93%
01/01/2008	774,863,669	1,529,806,307	754,942,638	50.65%	360,206,302	209.59%
01/01/2010	819,987,914	1,742,380,855	922,392,941	47.06%	384,598,692	239.83%

* *Not less than zero*

SECTION 4: Reporting Information for the Middlesex County Retirement System

EXHIBIT IV

Supplementary Information Required by the GASB

Valuation date	January 1, 2010
Actuarial cost method	Entry Age Normal Cost Method
Amortization method	Level dollar for the 2002 and 2003 ERIs and increasing amortization for the remaining unfunded liability
Remaining amortization period	As of July 1, 2010, 9 years remaining for 2002 ERI liability, 10 years remaining for 2003 ERI liability and 25 years for remaining unfunded liability.
Asset valuation method	The difference between the expected return and the actual investment return on a market value basis is recognized over a five-year period as described by Revenue Procedure 2000-40.
Actuarial assumptions:	
Investment rate of return	8.125% (previously, 8.25%)
Projected salary increases	4.75% for Group 1 and 5.25% for Group 4
Cost of living adjustments	3.00% of first \$12,000 of retirement income, increasing to \$13,000 on July 1, 2011 and to \$14,000 on July 1, 2012
Plan membership:	
Retired participants and beneficiaries receiving benefits	4,833
Inactive participants entitled to a return of their employee contributions	2,994
Inactive participants with a vested right to a deferred or immediate benefit	232
Active participants	<u>8,946</u>
Total	17,005

SECTION 4: Reporting Information for the Middlesex County Retirement System

EXHIBIT V

Actuarial Assumptions and Actuarial Cost Method

Mortality Rates:

<i>Pre-Retirement:</i>	RP-2000 Employee Mortality Table projected 10 years with Scale AA (gender distinct) (previously, RP-2000 Employee Mortality Table)
<i>Healthy Retiree:</i>	RP-2000 Healthy Annuitant Mortality Table projected 10 years with Scale AA (gender distinct) (previously, RP-2000 Healthy Annuitant Mortality Table)
<i>Disabled Retiree:</i>	RP-2000 Healthy Annuitant Mortality Table set forward 2 years

Termination Rates before Retirement:

Groups 1 and 2 - Rate (%)

Age	Mortality		Disability
	Male	Female	
20	0.03	0.02	0.02
25	0.03	0.02	0.02
30	0.04	0.02	0.03
35	0.07	0.04	0.06
40	0.10	0.06	0.10
45	0.13	0.10	0.15
50	0.18	0.14	0.19
55	0.25	0.23	0.24
60	0.42	0.37	0.28

*Notes: 55% of the disability rates shown represent accidental disability.
 20% of the accidental disabilities will die from the same cause as the disability.
 55% of the death rates shown represent accidental death*

SECTION 4: Reporting Information for the Middlesex County Retirement System

Termination Rates before Retirement (continued):

Age	Group 4 – Rate (%)		
	Mortality		Disability
	Male	Female	
20	0.03	0.02	0.20
25	0.03	0.02	0.20
30	0.04	0.02	0.30
35	0.07	0.04	0.30
40	0.10	0.06	0.30
45	0.13	0.10	1.00
50	0.18	0.14	1.25
55	0.25	0.23	1.20
60	0.42	0.37	0.85

*Notes: 90% of the disability rates shown represent accidental disability.
60% of the accidental disabilities will die from the same cause as the disability.
90% of the death rates shown represent accidental death.*

Withdrawal Rates:

Years of Service	Rate per year (%)		
	Groups 1 and 2	Years of Service	Group 4
0	15.0	0	1.5
1	12.0	1	1.5
2	10.0	2	1.5
3	9.0	3	1.5
4	8.0	4	1.5
5 – 9	7.6	5	1.5
10 – 14	5.4	6	1.5
15 – 19	3.3	7	1.5
20 – 24	2.0	8	1.5
25 - 29	1.0	9	1.5
30+	0.0	10	1.5
		11+	0.0

SECTION 4: Reporting Information for the Middlesex County Retirement System

Retirement Rates:	Rate per year (%)			
	Groups 1 and 2			
	Age	Male	Female	Group 4
	45 – 49	--	--	1.0
	50 – 54	--	--	2.0
	55 – 59	2.0	5.5	15.0
	60 – 61	12.0	5.0	20.0
	62 – 64	30.0	15.0	25.0
	65 – 68	40.0	15.0	100.0
	69	50.0	20.0	--
	70	100.0	100.0	--

Unknown Data for Participants:	Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.
Age of Spouse:	Females three years younger than their spouses.
Percent Married:	75%
Net Investment Return:	8.125% (previously, 8.25%)
Interest on Employee Contributions:	3.5%
Salary Increases:	4.75% for Groups 1 and 2 and 5.25% for Group 4
Administrative Expenses:	\$3,000,000 for calendar year 2010.
2009 Salary:	2009 salaries are equal to salaries provided in the data, except for actives missing salary and employees with less than 1 year of service, where salaries are calculated from annualized contributions divided by the contribution rates provided.
Total Service:	Service based on adjusted date of hire reported in the data, except for actives missing adjusted date of hire, for whom date of hire reported in the data was used.

SECTION 4: Reporting Information for the Middlesex County Retirement System

Actuarial Value of Assets: Market value of assets as reported in the System's Annual Statement less unrecognized return in each of the last five years. Unrecognized return is equal to the difference between the actual market value return and the expected market value return and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.

Actuarial Cost Method: Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant at adjusted date of hire (or date of hire, if adjusted date of hire is missing). Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.

Changes in Assumptions: This valuation reflects the following:
The investment return assumption was lowered from 8.25% to 8.125%.
The mortality table for healthy lives was changed from the RP-2000 Employee Mortality Table to the RP-2000 Employee Mortality Table projected 10 years with Scale AA (gender distinct) for pre-retirement mortality and from the RP-2000 Healthy Annuitant Mortality Table to the RP-2000 Healthy Annuitant Mortality Table projected 10 years with Scale AA (gender distinct) for post-retirement mortality.

SECTION 4: Reporting Information for the Middlesex County Retirement System

EXHIBIT VI

Summary of Plan Provisions

This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts.

Plan Year: January 1 – December 31

Retirement Benefits

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3.)

The annual amount of the retirement allowance is based on the member’s final three-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table based on the age of the member at retirement:

Age Last Birthday at Date of Retirement			
Percent	Group 1	Group 2	Group 4
2.5	65 or over	60 or over	55 or over
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	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45

A member’s final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average

SECTION 4: Reporting Information for the Middlesex County Retirement System

annual rate of regular compensation received during the last three years of creditable service prior to retirement.

The maximum annual amount of the retirement allowance is 80 percent of the member's final three-year average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80 percent maximum.

Employee Contributions

<u>Date of Hire</u>	<u>Contribution Rate</u>
Prior to January 1, 1975	5%
January 1, 1975 – December 31, 1983	7%
January 1, 1984 – June 30, 1996	8%
July 1, 1996 onward	9%

In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Employees hired after 1983 who leave with less than five years of credited service receive no interest on their contributions, and employees who leave with five but less than ten years receive one-half the rate of regular interest otherwise payable.

Retirement Benefits (Superannuation)

Members of Group 1, 2 or 4 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the System).

Ordinary Disability Benefits

A member who is unable to perform his or her job due to a non-occupational disability will receive a retirement allowance if he or she has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be determined as if the member retired for superannuation at age 55, based on the amount

SECTION 4: Reporting Information for the Middlesex County Retirement System

of creditable service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his or her own contributions.

Accidental Disability Benefit

For a job-connected disability, the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his or her own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.

Death Benefits

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of death, a spouse's benefit will be paid equal to the amount the employee would have received under Option C. The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$750 per month (previously, \$500 per month), and there are additional amounts for surviving children.

If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children. However, in accordance with Section 100 of Chapter 32, the surviving spouse of a police officer, firefighter or corrections officer is killed in the line of duty will be eligible to receive an annual benefit equal to the maximum salary held by the member at the time of death.

"Heart And Lung Law" And Cancer Presumption

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman, permanent member of a police department, or certain employees of a county correctional facility is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in total disability or death to a uniformed

SECTION 4: Reporting Information for the Middlesex County Retirement System

fireman is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.

Options

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at the time of death any contributions not expended for annuity payments will be refunded to the beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing a survivor with two-thirds of the lesser amount. Option C pensioners will have benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

Post-Retirement Benefits

The Board has adopted the provisions of Section 51 Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.

Changes in Plan Provisions

The Middlesex County Retirement System has adopted Section 101 of Chapter 32 of the Acts of 2000, increasing the supplemental annual allowance from \$6,000 per year to \$9,000 per year.

The Middlesex County Retirement System has adopted Section 19 of Chapter 188 increasing the retiree Cost of Living Adjustment base from \$12,000 to \$13,000 as of July 1, 2011 and to \$14,000 as of July 1, 2012.