

**Essex Regional Retirement System**

*Actuarial Valuation and Review  
as of January 1, 2008*

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*January 8, 2009*

*Retirement Board  
Essex Regional Retirement System  
491 Maple Street, Suite 202  
Danvers, MA 01923-4025*

*Dear Board Members:*

*We are pleased to submit this Actuarial Valuation and Review as of January 1, 2008. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2009 and later years and analyzes the preceding two years' experience.*

*The census information and financial information on which our calculations were based was prepared by the staff of the Essex Regional 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:*

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

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## SECTION 1: Valuation Summary for the Essex Regional Retirement System

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### Purpose

This report has been prepared by The Segal Company to present a valuation of the Essex Regional Retirement System as of January 1, 2008. 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, 2008;
- The assets of the Plan as of December 31, 2007;
- 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, 2008 is based on financial information as of that date. Declines in the value of assets subsequent to that date are not reflected. We are prepared to work with the Board to model the effects of these and any other subsequent developments.
- During the plan years ended 2006 and 2007, the market value rate of return was 15.02% and 8.53%, respectively. Because the actuarial value of assets gradually recognizes market value fluctuations, the actuarial rate of return for the plan years ended 2006 and 2007 was 8.29% and 8.34%, respectively. The actuarial value of assets as of December 31, 2007 was \$301.4 million, or 100.6% of the market value of assets of \$299.6 million (as reported in the Annual Statement). As of December 31, 2005, the actuarial value of assets was 107.0% of market value.
- As indicated in Section 2, Subsection B of this report, the total unrecognized investment loss as of December 31, 2007 is \$1.8 million. 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 8.50% per year (net of expenses) 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 8.50% rate and all other actuarial assumptions are met, the contribution requirements will increase more than expected in each of the next few years.

**SECTION 1: Valuation Summary for the Essex Regional Retirement System**

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- The unfunded liability has increased from \$114.7 million as of January 1, 2006 to \$143.8 million as of January 1, 2008 compared to an expected unfunded liability of \$113.9 million. The increase is due to the assumption changes noted below and an experience loss (see Exhibit E in Section 3 for more detail).
- With this valuation, we recommend the following changes:
  - Total creditable service reported in the data was used to project benefits and determine entry age. Previously adjusted date of hire was used to determine service.
  - The administrative expense assumption was increased from \$900,000 for calendar 2006 to \$1,000,000 for calendar 2008.
  - The mortality table for disabled participants was changed from the PBGC Mortality Table for Disabled Lives Receiving Social Security Benefits to the 1994 Group Annuity Mortality Table set forward 10 years.
  - The assumed rates of disability were reduced by 50% to more accurately reflect recent experience.

Changing these assumptions resulted in a net increase in the unfunded liability of \$5,527,842 and a decrease in the normal cost of \$1,227,796.
- Because the fiscal 2009 appropriation was set at the previously budgeted amount of \$16,652,520 (assuming appropriation is paid July 1, 2008), the results of this valuation will first be reflected in the fiscal 2010 appropriation. Because the fiscal 2010 appropriation would have increased 10.3% over fiscal 2009, the Board has elected to phase-in the impact over a two-year period. The funding schedule shown in Exhibit G in Section 3 has a fiscal 2010 appropriation of \$17,887,680 (7.4% higher than fiscal 2009) and a fiscal 2011 appropriation of \$19,215,028 (7.4% higher than fiscal 2010). The current funding schedule amortizes the unfunded liability by June 30, 2028 (shorter amortization of certain ERI liabilities).
- Member units have the option of making one payment on July 1 or two payments on July 1 and December 31. If the units choose to make two payments, their total payment amounts will be adjusted for interest. The total appropriation over the next three years of the funding schedule under both scenarios is shown below:

<b>Fiscal Year Ending June 30</b>	<b>July 1 Payments</b>	<b>July 1 and December 31 Payments</b>
2009	\$16,652,520	\$16,995,636
2010	17,887,680	18,256,245
2011	19,215,028	19,610,942

## SECTION 1: Valuation Summary for the Essex Regional Retirement System

### Summary of Key Valuation Results

	2008	2006
<b>Contributions:</b>		
Recommended for fiscal 2009 and 2007	\$16,652,520	\$15,274,181
Recommended for fiscal 2010 and 2008	17,887,680	16,333,115
Recommended for fiscal 2011 and 2009	19,215,028	16,995,636
<b>Funding elements for plan year beginning January 1:</b>		
Normal cost, including administrative expenses	\$16,742,705	\$15,652,933
Market value of assets	299,622,365	244,246,069
Actuarial value of assets	301,420,965	261,327,047
Actuarial accrued liability	445,171,554	376,034,621
Unfunded actuarial accrued liability	143,750,589	114,707,574
<b>GASB 25/27:</b>		
Annual required contributions	\$16,652,520	\$16,622,275
Actual contributions	--	16,622,275
Percentage contributed	--	100.00%
Funded ratio	67.71%	69.50%
<b>Demographic data for plan year beginning January 1:</b>		
Number of retired participants and beneficiaries	1,568	1,508
Number of inactive participants entitled to a return of their employee contributions	880	844
Number of inactive participants with a vested right to a deferred or immediate benefit	65	43
Number of active participants	3,139	2,949
Total payroll	\$106,649,953	\$94,122,574
Average payroll	33,976	31,917

*Notes: Recommended contributions determined with this 2008 valuation are assumed to be paid on July 1 and those determined with the prior valuation are assumed to be paid on July 1 and December 31. Member units have the option of making one payment on July 1 or two payments on July 1 and December 31.*

*2008 and 2006 figures reflect the Veteran's Disability Allowance adopted December 7, 2006 and dispatcher reclassification from Group 1 to Group 2 adopted December 7, 2006.*

**SECTION 2: Valuation Results for the Essex Regional Retirement System**

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**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 seven valuations can be seen in this chart.*

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**CHART 1**  
**Participant Population: 1995 – 2007**

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<b>Year Ended December 31</b>	<b>Active Participants</b>	<b>Inactive Participants</b>	<b>Retired Participants and Beneficiaries</b>
1995	2,900	349	1,409
1997	3,126	461	1,402
1999	2,835	626	1,429
2001	3,023	940	1,424
2003	3,035	1,003	1,498
2005	2,949	887	1,508
2007	3,139	945	1,568

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**SECTION 2: Valuation Results for the Essex Regional 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 3,139 active participants with an average age of 47.4, average years of service of 9.2 years and average payroll of \$33,976. The 2,949 active participants in the prior valuation had an average age of 47.1, average service of 8.8 years and average payroll of \$31,917.

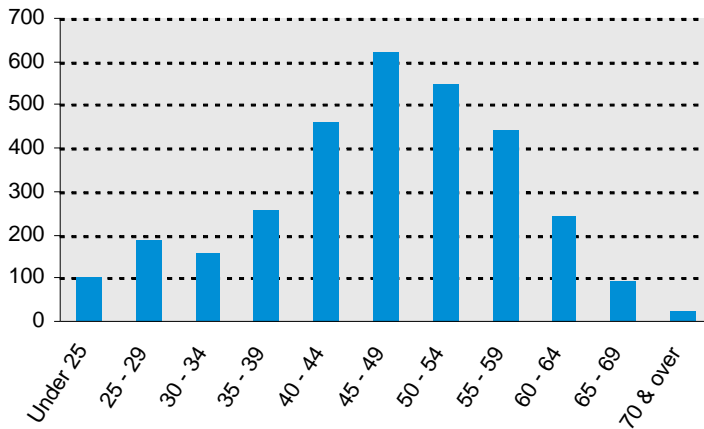
Among the active participants, there were none with unknown age.

**Inactive Participants**

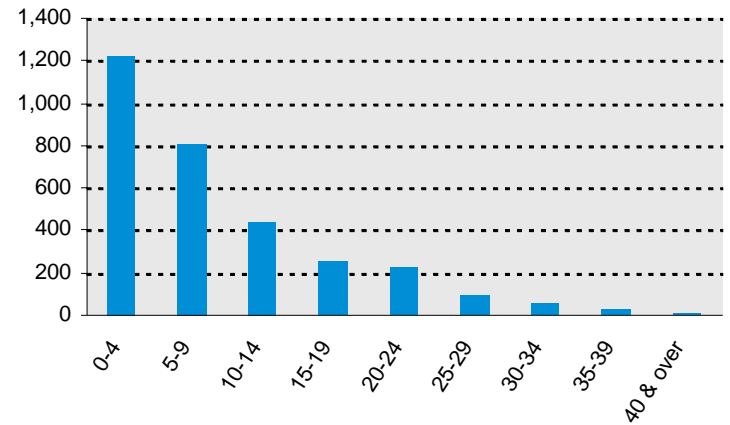
In this year's valuation, there were 65 participants with a vested right to a deferred or immediate vested benefit and 880 participants entitled to a return of their employee contributions.

*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, 2007**



**CHART 3**  
**Distribution of Active Participants by Years of Service as of December 31, 2007**



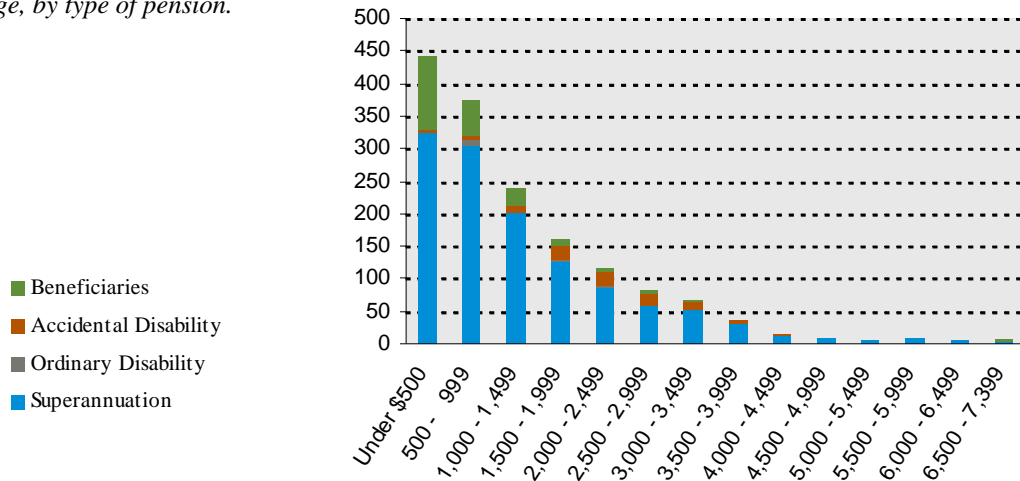
**SECTION 2: Valuation Results for the Essex Regional Retirement System**

**Retired Participants and Beneficiaries**

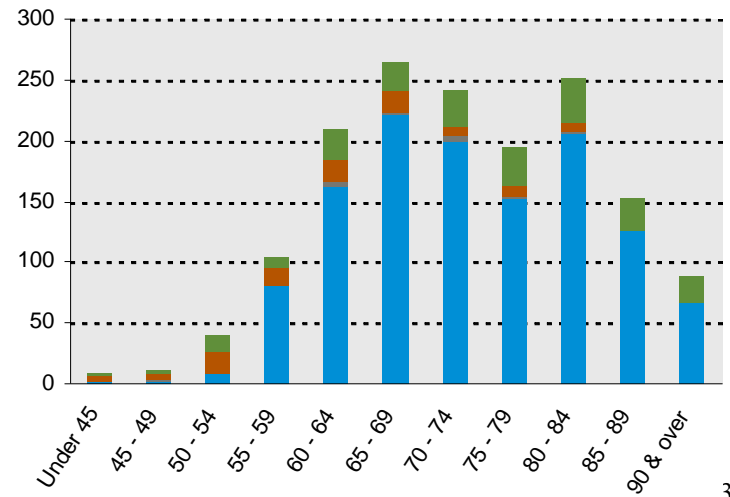
As of December 31, 2007, 1,344 retired participants and 224 beneficiaries were receiving total monthly benefits of \$2,058,323 excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 1,288 retired participants and 220 beneficiaries receiving monthly benefits of \$1,747,997 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, 2007**



**CHART 5**  
**Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2007**



**SECTION 2: Valuation Results for the Essex Regional 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.

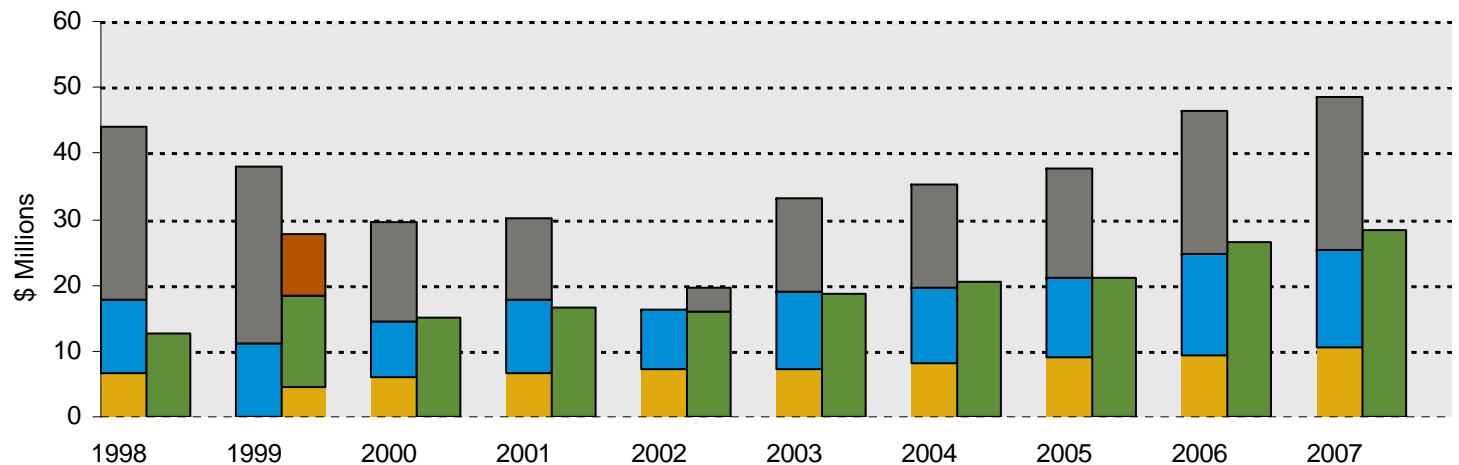
Employee contributions for 1999 reflect the transfer of County employees to the State Retirement System following the elimination of the Essex County Government.

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 ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases. Employer contributions are net of administrative expenses.*

- Change in Asset Method
- Net Investment Income
- Benefits Paid
- Employer Contributions
- Employee Contributions

**CHART 6**  
**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 1998 – 2007**



## SECTION 2: Valuation Results for the Essex Regional 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

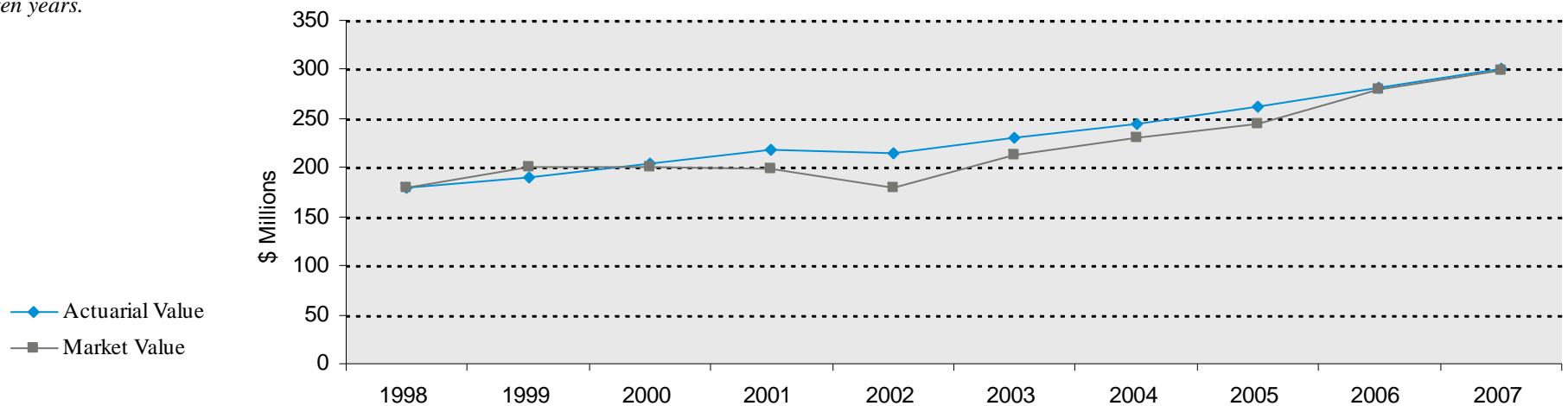
	Year Ended	
	December 31, 2007	December 31, 2006
1. Actuarial value of assets prior year	\$281,222,564	\$261,327,047
2. Contributions, less benefit payments and expenses during the year	-3,123,134	-1,709,552
3. Average actuarial value of assets: (1) + [50% of (2)]	279,660,997	260,472,271
4. Expected investment income: .085 x (3)	23,771,185	22,140,143
5. Preliminary actuarial value of assets at the end of the year: (1) + (2) + (4)	301,870,615	281,757,638
6. Market value of assets at the end of the year	299,622,365	279,082,268
7. Adjustment toward market value: 20% of [(6) - (5)]	-449,650	-535,074
8. Adjustment to be within 20% corridor	0	0
9. Final actuarial value of assets: (5) + (7) + (8)	<u>\$301,420,965</u>	<u>\$281,222,564</u>
10. Actuarial value as a percentage of market value: (9) ÷ (6)	100.6%	100.8%

## SECTION 2: Valuation Results for the Essex Regional Retirement System

Both the actuarial value and market value of assets are representations of the Essex Regional 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 Essex Regional 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 ten years.*

**CHART 8**  
**Actuarial Value of Assets vs. Market Value of Assets as of December 31, 1998 – 2007**



**SECTION 2: Valuation Results for the Essex Regional Retirement System**

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**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 \$24,333,473. 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.*

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**CHART 9**  
**Actuarial Experience for Two-Year Period Ended December 31, 2007**

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1. Net loss from investments*	-\$984,724
2. Net gain from administrative expenses	31,662
3. Net loss from other experience**	<u>-23,380,411</u>
4. Net experience loss: (1) + (2) + (3)	-\$24,333,473

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\* Details in Chart 10

\*\* Details in Chart 13

**SECTION 2: Valuation Results for the Essex Regional 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 Essex Regional Retirement System’s investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.50%. The actual rate of return on an actuarial basis for the 2007 and 2006 plan years was 8.34% and 8.29%, respectively.

Since the actual return for the year was less than the assumed return, the Essex Regional Retirement System experienced an actuarial loss of \$984,724 during the two-year period ending December 31, 2007 with regard to its investments.

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

**CHART 10  
Actuarial Value Investment Experience**

	Year Ended	
	December 31, 2007	December 31, 2006
1. Actual return	\$23,321,535	\$21,605,069
2. Average value of assets	279,660,997	260,472,271
3. Actual rate of return: (1) ÷ (2)	8.34%	8.29%
4. Assumed rate of return	8.50%	8.50%
5. Expected return: (2) x (4)	\$23,771,185	\$22,140,143
6. Actuarial gain/(loss): (1) – (5)	<u>-\$449,650</u>	<u>-\$535,074</u>

**SECTION 2: Valuation Results for the Essex Regional 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 ten years, including five-year and ten-year averages.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.50%.

**CHART 11**

**Investment Return – Actuarial Value vs. Market Value: 1998 - 2007**

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
1998	\$25,963,975	17.14%	\$25,963,975	17.14%
1999	17,379,065	9.85	26,882,041	15.23
2000	14,947,945	7.86	603,619	0.30
2001	12,428,468	6.05	-2,834,776	-1.41
2002	-3,439,919	-1.57	-19,207,385	-9.68
2003	14,104,284	6.55	33,126,697	18.44
2004	15,847,026	6.91	18,109,749	8.52
2005	16,532,047	6.76	14,037,992	6.10
2006	21,605,069	8.29	36,545,751	15.02
2007	<u>23,321,535</u>	8.34	<u>23,663,231</u>	8.53
Total	\$158,689,495		\$156,890,894	
	Five-year average return	7.43%		10.98%
	Ten-year average return	7.31%		7.57%

*Note: Each year's yield is weighted by the average asset value in that year.*

**SECTION 2: Valuation Results for the Essex Regional 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.

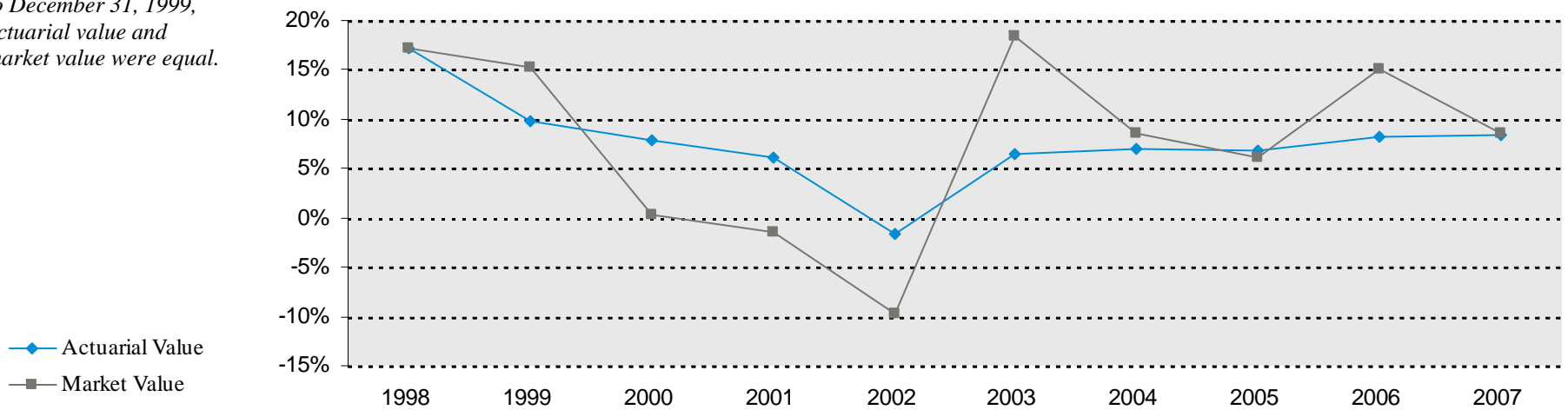
**Administrative Expenses**

Administrative expenses for the years ended December 31, 2006 and 2007 were \$889,755 and \$958,885 compared to the assumption of \$900,000 for calendar 2006 and \$940,500 for calendar 2007. This resulted in a gain of \$31,662 for the two-year period, including an adjustment for interest. We have increased the assumption to \$1,000,000 for calendar 2008.

*This chart illustrates how this leveling effect has actually worked over the years 1998 - 2007. Prior to December 31, 1999, actuarial value and market value were equal.*

**CHART 12**

**Market and Actuarial Rates of Return for Years Ended December 31, 1998 - 2007**



## SECTION 2: Valuation Results for the Essex Regional Retirement System

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### 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, 2007 amounted to \$23,380,411 which is 5.2% of the actuarial accrued liability. A brief summary of the demographic gain/(loss) experience of the Essex Regional Retirement System for the two-year period ending December 31, 2007 is shown in the chart below.

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

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### CHART 13

#### Experience Due to Changes in Demographics for Two-Year Period Ended December 31, 2007

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1. Deaths among retired members and beneficiaries	-\$3,641,669
2. Salary increases less than expected for continuing actives	371,918
3. Net 3(8)c reimbursements	-6,806,026
4. Nonactive members previously unreported	-3,200,144
5. Active members previously unreported with high service	-6,074,169
6. Miscellaneous loss	<u>-4,030,321</u>
7. Total	-\$23,380,411

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## SECTION 2: Valuation Results for the Essex Regional Retirement System

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With this valuation, we recommend the following changes:

- Total creditable service reported in the data was used to project benefits and determine entry age. Previously adjusted date of hire was used to determine service.
- The administrative expense assumption was increased from \$900,000 for calendar 2006 to \$1,000,000 for calendar 2008.
- The mortality table for disabled participants was changed from the PBGC Mortality Table for Disabled Lives Receiving Social Security Benefits to the 1994 Group Annuity Mortality Table set forward 10 years.
- The assumed rates of disability were reduced by 50% to more accurately reflect recent experience.

Changing these assumptions resulted in a net increase in the unfunded liability of \$5,527,842 and a decrease in the normal cost of \$1,227,796.

**SECTION 2: Valuation Results for the Essex Regional 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 \$17,623,765 is based on schedules as elected by the units for the 2002 and 2003 ERI liabilities and a 20-year increasing (4.50% per year) amortization of the remaining unfunded liability.

Because the fiscal 2009 appropriation has already been budgeted at \$16,652,520 (assuming member units choose to make their annual appropriation payments on July 1,

2008), the results of this valuation will first be reflected in the fiscal 2010 appropriation. Due to the substantial increase in the appropriation, the Board has elected to phase-in the increase by adopting a funding schedule with an appropriation of \$17,887,680 for fiscal 2010 and \$19,215,028 for fiscal 2011.

Exhibit G in Section 3 shows the recommended contributions through fiscal 2028 based on this funding schedule. The current funding schedule fully amortizes the unfunded liability by June 30, 2028.

**CHART 14**  
**Recommended Contribution**

	Year Beginning January 1			
	2008		2006	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$15,742,705	14.09%	\$14,752,933	14.96%
2. Administrative expenses	1,000,000	0.90%	900,000	0.91%
3. Expected employee contributions	<u>-10,086,458</u>	<u>-9.03%</u>	<u>-8,676,522</u>	<u>-8.80%</u>
4. Employer normal cost: (1) + (2) + (3)	\$6,656,247	5.96%	\$6,976,411	7.07%
5. Actuarial accrued liability	445,171,554		376,034,621	
6. Actuarial value of assets	<u>301,420,965</u>		<u>261,327,047</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$143,750,589		\$114,707,574	
8. Employer normal cost projected to July 1, 2008 and 2006 (2006 adjusted for timing)	6,804,364	5.96%	7,278,596	7.22%
9. Projected unfunded actuarial accrued liability	149,735,405		119,483,233	
10. Payment on projected unfunded actuarial accrued liability (2006 adjusted for timing)	10,819,401	9.47%	8,355,862	8.29%
11. Preliminary recommended contribution: (8) + (10)	17,623,765	15.43%	15,634,458	15.50%
12. Budgeted appropriation	<u>\$16,652,520</u>	14.58%	<u>\$15,274,181</u>	15.15%
13. Projected payroll	\$114,213,048		\$100,836,097	

Notes: Recommended contributions determined with this 2008 valuation are assumed to be paid on July 1 and those determined with the prior valuation are assumed to be paid on July 1 and December 31. Member units have the option of making one payment on July 1 or two payments on July 1 and December 31.  
2008 and 2006 figures reflect the Veteran's Disability Allowance adopted December 7, 2006 and dispatcher reclassification from Group 1 to Group 2 adopted December 7, 2006.

## SECTION 2: Valuation Results for the Essex Regional Retirement System

### Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

*The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.*

#### CHART 15

#### Reconciliation of Recommended Contribution from July 1, 2006 to July 1, 2008

<b>Budgeted appropriation for fiscal 2007</b>	\$15,274,181
Expected increase	\$1,721,455
Effect of investment loss	71,587
Effect of gain from administrative expenses	-2,302
Effect of gain from salary increases less than expected	-27,038
Effect of loss from deaths among retired members and beneficiaries	264,742
Effect of loss from net 3(8)(c) reimbursements	494,785
Effect of previously unreported retired members	232,644
Effect of previously unreported active members with high service	441,580
Effect of changes in assumptions	-870,836
Effect of assuming member units will choose to make full payments on July 1	-363,178
Effect of net other changes	<u>386,145</u>
<b>Total change</b>	<u>\$2,349,584</u>
<b>Preliminary recommended contribution for fiscal 2009</b>	\$17,623,765
<b>Budgeted appropriation for fiscal 2009</b>	\$16,652,520

*Notes: Recommended contributions determined with this 2008 valuation are assumed to be paid on July 1 and those determined with the prior valuation are assumed to be paid on July 1 and December 31. Member units have the option of making one payment on July 1 or two payments on July 1 and December 31.*

**SECTION 2: Valuation Results for the Essex Regional 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 16 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

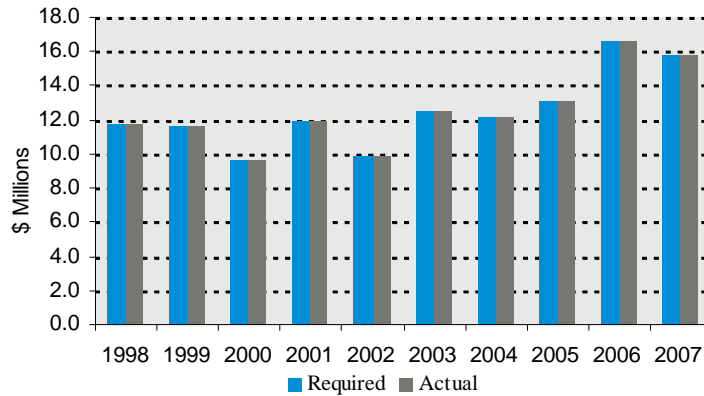
actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under the GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, 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 17 shows the funded ratio calculated using both the actuarial value of assets (67.71%) and the market value of assets (67.30%).

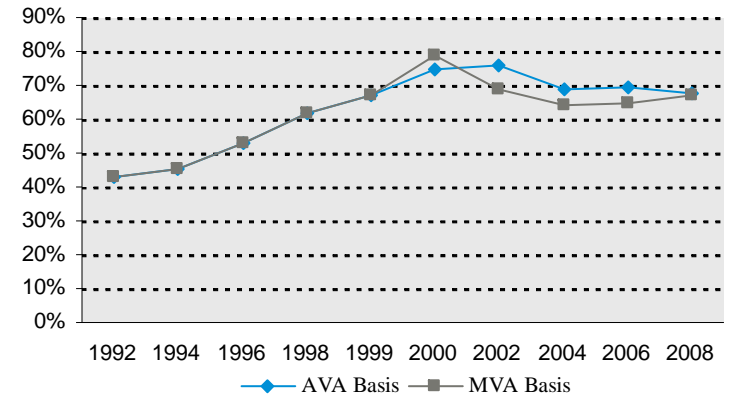
The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

*These graphs show key GASB factors.*

**CHART 16**  
**Required Versus Actual Contributions**



**CHART 17**  
**Funded Ratio**



**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT A**

**Table of Plan Coverage**

<b>Category</b>	<b>Year Ended December 31</b>		<b>Change From Prior Year</b>
	<b>2007</b>	<b>2005</b>	
<b>Active participants in valuation:</b>			
Number	3,139	2,949	6.4%
Average age	47.4	47.1	N/A
Average service	9.2	8.8	N/A
Total payroll	\$106,649,953	\$94,122,574	13.3%
Average payroll	33,976	31,917	6.5%
Member contributions	76,473,235	66,890,498	14.3%
Number with unknown age and/or service information	0	11	-100.0%
<b>Inactive participants with a vested right to a deferred or immediate benefit</b>			
	65	43	51.2%
<b>Inactive participants entitled to a return of their contributions</b>			
	880	844	4.3%
<b>Retired participants:</b>			
Number in pay status	1,227	1,178	4.2%
Average age	73.5	74.0	N/A
Average monthly benefit	\$1,342	\$1,178	13.9%
<b>Disabled participants:</b>			
Number in pay status	117	110	6.4%
Average age	63.1	63.3	N/A
Average monthly benefit	\$2,063	\$1,862	10.8%
<b>Beneficiaries in pay status</b>			
	224	220	1.8%

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT B**

**Participants in Active Service as of December 31, 2007  
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 & over
Under 25	103	102	1	--	--	--	--	--	--	--
	\$22,263	\$22,316	\$16,793	--	--	--	--	--	--	--
25 – 29	190	158	31	1	--	--	--	--	--	--
	\$28,684	\$27,525	\$34,064	\$44,915	--	--	--	--	--	--
30 – 34	157	87	59	11	--	--	--	--	--	--
	\$39,694	\$35,134	\$45,602	\$44,070	--	--	--	--	--	--
35 – 39	256	114	75	46	18	3	--	--	--	--
	\$37,827	\$27,010	\$39,774	\$55,693	\$48,530	\$62,055	--	--	--	--
40 – 44	461	208	116	58	45	34	--	--	--	--
	\$35,969	\$26,198	\$32,817	\$48,654	\$55,530	\$58,978	--	--	--	--
45 – 49	621	250	185	74	40	60	12	--	--	--
	\$31,518	\$21,930	\$26,060	\$36,770	\$54,273	\$61,123	\$59,170	--	--	--
50 – 54	547	156	159	98	47	36	29	19	3	--
	\$34,313	\$26,296	\$29,155	\$33,191	\$32,855	\$53,150	\$65,827	\$65,484	\$55,981	--
55 – 59	442	89	108	85	50	46	31	23	8	2
	\$35,459	\$23,612	\$28,522	\$33,495	\$34,107	\$41,174	\$61,336	\$64,589	\$64,912	\$69,183
60 – 64	246	44	46	44	40	34	12	9	13	4
	\$36,070	\$24,688	\$26,576	\$34,356	\$33,922	\$43,391	\$44,623	\$59,945	\$70,063	\$58,697
65 – 69	94	12	25	21	11	10	11	4	--	--
	\$30,490	\$16,096	\$28,897	\$30,288	\$36,727	\$40,632	\$25,124	\$57,247	--	--
70 & over	22	4	4	2	3	4	2	2	--	1
	\$29,787	\$33,238	\$12,877	\$44,853	\$36,160	\$28,018	\$28,096	\$18,634	--	\$67,136
Total	3,139	1,224	809	440	254	227	97	57	24	7
	\$33,976	\$25,579	\$31,009	\$38,569	\$41,977	\$51,365	\$55,551	\$62,026	\$66,586	\$62,899

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT C**

**Summary Statement of Income and Expenses on an Actuarial Value Basis**

	Year Ended December 31, 2007	Year Ended December 31, 2006
<b>Contribution income:</b>		
Employer contributions	\$15,729,201	\$16,501,107
Employee contributions	10,503,973	9,219,178
Federal grant reimbursement	59,663	121,168
Less administrative expenses	<u>-958,885</u>	<u>-889,755</u>
Net contribution income	\$25,333,952	\$24,951,698
<b>Net investment income</b>	<u>23,321,535</u>	<u>21,605,070</u>
<b>Total income available for benefits</b>	\$48,655,487	\$46,556,768
<b>Less benefit payments:</b>		
Pensions and annuities	-\$24,114,438	-\$22,243,756
Net (8)c reimbursements	-3,064,153	-3,448,731
Refunds to members	<u>-1,278,495</u>	<u>-968,764</u>
Net benefit payments	-\$28,457,086	-\$26,661,251
<b>Change in reserve for future benefits</b>	\$20,198,401	\$19,895,517

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

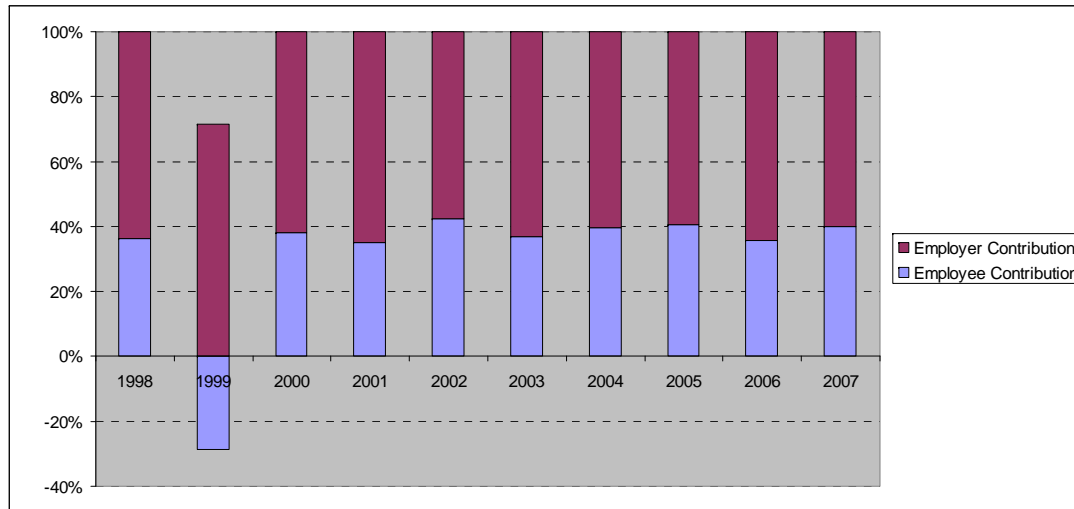
**EXHIBIT D**

**Development of the Fund Through December 31, 2007 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
1998	\$11,668,239	\$6,671,730	36.35%	\$11,866	\$25,963,975	\$432,057	\$12,748,299	\$180,034,664
1999	11,588,914	-4,662,709	-66.83%	50,776	17,379,065	413,112	13,613,882	190,363,716
2000	9,567,297	5,935,785	38.21%	30,972	14,947,945	1,018,310	15,048,275	204,779,130
2001	11,977,601	6,517,779	35.17%	36,960	12,428,468	723,373	16,670,367	218,346,198
2002	9,790,796	7,250,128	42.42%	49,268	-3,439,919	640,963	16,123,146	215,232,362
2003	12,454,333	7,302,261	36.85%	62,236	14,104,284	659,662	18,642,842	229,852,971
2004	12,126,061	8,079,621	39.79%	97,715	15,847,026	705,375	20,627,326	244,670,693
2005	12,958,665	8,906,195	40.51%	121,346	16,532,047	816,262	21,045,637	261,327,047
2006	16,501,107	9,219,178	35.68%	121,168	21,605,070	889,755	26,661,251	281,222,564
2007	15,729,201	10,503,973	39.95%	59,663	23,321,535	958,885	28,457,086	301,420,965

\* Employee contributions for 1999 reflect the transfer of County employees to the State Retirement System following the elimination of the Essex County Government.

\*\* Net of investment fees



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

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT E**

**Development of Unfunded Actuarial Accrued Liability and (Gain)/Loss**

	Year Ended	
	December 31, 2007	December 31, 2006
1. Unfunded actuarial accrued liability at beginning of year	\$114,166,032	\$114,707,574
2. Normal cost at beginning of year	16,357,315	15,652,933
3. Total contributions	-26,292,837	-25,841,453
4. Interest		
(a) For whole year on (1) + (2)	\$11,094,484	\$11,080,643
(b) For half year on (3)	<u>-1,435,720</u>	<u>-1,433,665</u>
(c) Total interest	<u>9,658,764</u>	<u>9,646,978</u>
5. Expected unfunded actuarial accrued liability	\$113,889,274	\$114,166,032
6. Changes due to:		
(a) Investment loss	\$984,724	--
(b) Administrative expense gain	-31,662	--
(c) Continuing active salary gain	-371,918	--
(d) Mortality loss	3,641,669	--
(e) Net 3(8)(c) reimbursement loss	6,806,026	--
(f) Nonactive show-up loss	3,200,144	--
(g) High service active show-up loss	6,074,169	--
(h) Miscellaneous loss	4,030,321	--
(i) Changes in actuarial assumptions	<u>5,527,842</u>	--
(j) Total changes	<u>29,861,315</u>	--
7. Unfunded actuarial accrued liability at end of year	<u>\$143,750,589</u>	--

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT F**

**Table of Amortization Bases as of July 1, 2008**

<b>Type</b>	<b>Annual Payment</b>	<b>Years Remaining</b>	<b>Outstanding Balance</b>
2002 ERI liability	\$459,322	varies	\$2,803,349
2003 ERI liability	223,674	varies	1,695,438
Remaining unfunded liability	<u>10,136,405</u>	20.00	<u>145,236,618</u>
Total	\$10,819,401		\$149,735,405

*Notes: Does not reflect adjustment to set fiscal 2009 appropriation to budgeted amount.*

*Refer to Exhibit G for information on payments in fiscal year 2010 and later.*

*Payments assumed to be made on July 1. Member units have the option of making one payment on July 1 or two payments on July 1 and December 31.*

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT G**

**Funding Schedule**

(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 Accrued Liability at Beginning of Fiscal Year
2009	\$6,804,364	\$459,322	\$223,674	\$9,165,160	\$16,652,520	\$149,735,405
2010	7,110,561	371,632	223,911	10,181,576	17,887,680	151,777,665
2011	7,430,536	371,899	224,158	11,188,435	19,215,028	152,985,592
2012	7,764,910	372,177	224,417	11,691,915	20,053,419	153,203,194
2013	8,114,331	339,770	197,389	12,218,051	20,869,541	152,892,433
2014	8,479,476	340,074	197,672	12,767,863	21,785,085	152,048,887
2015	8,861,052	340,391	197,967	13,342,417	22,741,827	150,536,457
2016	9,259,799	340,723	198,276	13,942,826	23,741,624	148,271,415
2017	9,676,490	341,070	198,599	14,570,253	24,786,412	145,161,705
2018	10,111,932	341,432	198,936	15,225,914	25,878,214	141,106,185
2019	10,566,969	341,811	199,289	15,911,080	27,019,149	135,993,795
2020	11,042,483	9,190	199,657	16,627,079	27,878,409	129,702,652
2021	11,539,395	9,603	8,937	17,375,297	28,933,232	122,460,398
2022	12,058,668	10,036	9,339	18,157,186	30,235,229	113,997,219
2023	12,601,308	10,487	9,759	18,974,259	31,595,813	103,965,414
2024	13,168,367	10,959	10,198	19,828,101	33,017,625	92,193,436
2025	13,760,944	11,452	10,656	20,720,365	34,503,417	78,493,433
2026	14,380,186	11,968	11,136	21,652,782	36,056,072	62,659,792
2027	15,027,294	12,506	11,638	22,627,156	37,678,594	44,467,538
2028	15,703,522	13,069	12,161	23,645,388	39,374,140	23,670,618

*Notes: Recommended contributions are assumed to be paid on July 1. Member units have the option of making one payment on July 1 or two payments on July 1 and December 31.*

*Assumes contribution of budgeted amount for fiscal year 2009.*

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

**EXHIBIT H**

**Unit Allocation of ERI Amortizations**

**Fiscal 2009 Allocation of 2002 and 2003 ERI Amortizations**

Unit	2002 ERI	2003 ERI
Essex Agricultural School	\$87,944	--
Essex Regional Retirement Board	32,698	\$27,299
Georgetown	58,365	20,117
Groveland	--	5,270
Ipswich Housing Authority	26,743	--
Lynnfield	--	144,023
Merrimac	38,133	7,298
Nahant Housing Authority	5,663	--
North Andover Housing	--	13,434
Pentucket Regional School District	31,034	6,233
Rockport	7,889	--
Salisbury	101,314	--
Triton Regional School District	30,367	--
West Newbury	29,088	--
Wenham Housing	6,045	--
Essex Housing	<u>4,039</u>	<u>--</u>
Total	\$459,322	\$223,674

*Notes: 2002 ERI payments are level (ending in fiscal 2019), except Essex Agricultural School (level, ending in fiscal 2009), Nahant Housing (4.5% increasing, ending in fiscal 2028) and Essex Regional Retirement Board (level, ending in fiscal 2012).  
2003 ERI payments are level (ending in fiscal 2020), except for Groveland (4.5% increasing, ending in 2028) and Essex Regional Retirement Board (level, ending in fiscal 2012).*

**SECTION 3: Supplemental Information for the Essex Regional Retirement System**

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**EXHIBIT I**

**Definitions of Pension Terms**

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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 Essex Regional Retirement System

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**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 Essex Regional 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 224 beneficiaries in pay)	1,568
2. Participants active during the year ended December 31, 2007 with total accumulated contributions of \$76,473,235 and projected payroll of \$111,726,856	3,139
3. Inactive participants with a right to a return of their employee contributions as of December 31, 2007	880
4. Inactive participants with a vested right to a deferred or immediate benefit as of December 31, 2007	65

The actuarial factors as of the valuation date are as follows:

1. Normal cost	\$15,742,705
2. Administrative expenses	1,000,000
3. Expected employee contributions	<u>-10,086,458</u>
4. Employer normal cost: (1) + (2) + (3)	\$6,656,247
5. Actuarial accrued liability	445,171,554
Retired participants and beneficiaries	\$225,861,451
Active participants	212,653,240
Inactive participants	6,656,863
6. Actuarial value of assets (\$299,622,365 at market value as reported on the Annual Statement)	301,420,965
7. Unfunded actuarial accrued liability: (5) – (6)	143,750,589

The determination of the recommended contribution is as follows:

1. Projected employer normal cost	\$6,804,364
2. Projected unfunded actuarial accrued liability	149,735,405
3. Payment on projected unfunded actuarial accrued liability	10,819,401
4. Preliminary recommended contribution: (1) + (3)	17,623,765
5. Budgeted appropriation	16,652,520
6. Projected payroll	114,213,048

*Note: Recommended contributions are assumed to be paid on July 1. Member units have the option of making one payment on July 1 or two payments on July 1 and December 31.*

**SECTION 4: Reporting Information for the Essex Regional Retirement System**

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**EXHIBIT II**

**Supplementary Information Required by the GASB – Schedule of Employer Contributions**

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<b>Plan Year Ended December 31</b>	<b>Annual Required Contributions</b>	<b>Actual Contributions</b>	<b>Percentage Contributed</b>
1998	\$11,680,106	\$11,680,106	100.0%
1999	11,639,690	11,639,690	100.0%
2000	9,598,269	9,598,269	100.0%
2001	12,014,561	12,014,561	100.0%
2002	9,840,064	9,840,064	100.0%
2003	12,516,569	12,516,569	100.0%
2004	12,223,776	12,223,776	100.0%
2005	13,080,011	13,080,011	100.0%
2006	16,622,274	16,622,274	100.0%
2007	15,788,864	15,788,864	100.0%

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**SECTION 4: Reporting Information for the Essex Regional Retirement System**

**EXHIBIT III**

**Supplementary Information Required by the GASB – Schedule of Funding Progress**

<b>Actuarial Valuation Date*</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)</b>
01/01/1992	\$61,357,800	\$143,785,900	\$82,428,100	42.67%	\$52,995,500	155.54%
01/01/1994	80,878,500	178,256,800	97,378,300	45.37%	62,076,500	156.87%
01/01/1996	106,176,700	200,397,500	94,220,800	52.98%	72,953,200	129.15%
01/01/1998	151,293,900	245,965,100	94,671,200	61.51%	85,785,000	110.36%
01/01/1999	180,034,700	268,386,000	88,351,300	67.08%	89,645,300	98.56%
01/01/2000	190,363,700	253,847,100	63,483,400	74.99%	69,525,900	91.31%
01/01/2002	218,346,198	287,390,715	69,044,517	75.98%	85,005,338	81.22%
01/01/2004	229,852,971	333,396,222	103,543,251	68.94%	93,404,002	110.86%
01/01/2006	261,327,047	376,034,621	114,707,574	69.50%	98,641,094	116.29%
01/01/2008	301,420,965	445,171,554	143,750,589	67.71%	111,726,856	128.66%

\* Years for which an actuarial valuation was not performed are omitted.

## SECTION 4: Reporting Information for the Essex Regional Retirement System

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### EXHIBIT IV

#### Supplementary Information Required by the GASB

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<b>Valuation date</b>	January 1, 2008
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Approximate level percent of payroll based on 4.5% annual increases; except level dollar for ERI liability for certain units
<b>Remaining amortization period</b>	As of July 1, 2008, schedules as selected by units for 2002 ERI liability, schedules as selected by units for 2003 ERI liability and 20 years for remaining unfunded liability.
<b>Asset valuation method</b>	A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings (at the assumed actuarial rate of return) and the net new money during the year (contributions less benefit payments and administrative expenses). Twenty percent of the difference between the market value of assets and the preliminary actuarial value is added to the preliminary actuarial value. In order that the actuarial value not differ to significantly from the market value of assets, the final actuarial value of assets must be within 20% of the market value of assets.
<b>Actuarial assumptions:</b>	
Investment rate of return	8.50%
Projected salary increases	5.00%
Cost of living adjustments	3.00% of first \$12,000 of retirement income
<b>Plan membership:</b>	
Retired participants and beneficiaries receiving benefits	1,568
Inactive participants entitled to a return of their employee contributions	880
Inactive participants with a vested right to a deferred or immediate benefit	65
Active participants	<u>3,139</u>
Total	5,652

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**SECTION 4: Reporting Information for the Essex Regional Retirement System**

**EXHIBIT V**

**Actuarial Assumptions and Actuarial Cost Method**

**Mortality Rates:**

*Healthy:* 1994 Group Annuity Mortality Table  
*Disabled:* 1994 Group Annuity Mortality Table set forward 10 years (previously, PBGC Mortality Table for Disabled Lives Receiving Social Security Disability Benefits)

**Termination Rates before Retirement:**

**Groups 1 and 2 - Rate (%)**

Age	Mortality		Disability	Withdrawal
	Male	Female		
20	0.05	0.03	0.03	12.00
25	0.07	0.03	0.04	8.78
30	0.08	0.04	0.06	5.55
35	0.09	0.05	0.07	3.93
40	0.11	0.07	0.11	2.31
45	0.16	0.10	0.18	1.89
50	0.26	0.14	0.30	1.46
55	0.44	0.23	0.50	--
60	0.80	0.44	0.81	--

*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 represent accidental death.

**SECTION 4: Reporting Information for the Essex Regional Retirement System**

**Group 4 - Rate (%)**

Age	Mortality		Disability	Withdrawal
	Male	Female		
20	0.05	0.03	0.09	2.10
25	0.07	0.03	0.13	1.88
30	0.08	0.04	0.17	1.65
35	0.09	0.05	0.22	1.11
40	0.11	0.07	0.33	0.56
45	0.16	0.10	0.54	0.28
50	0.26	0.14	0.91	--
55	0.44	0.23	--	--
60	0.80	0.44	--	--

*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 represent accidental death.*

**Retirement Rates:**

Age	Rate per year (%)	
	Groups 1 and 2	Group 4
50 – 54	--	2.0
55	5.0	10.0
56 – 59	3.0	10.0
60 – 61	5.0	30.0
62 – 64	15.0	30.0
65	25.0	100.0
66 – 69	15.0	--
70 – 71	50.0	--
72	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.

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**Percent Married:** 75%

**Age of Spouse:** Females are 3 years younger than their spouses.

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**Net Investment Return:** 8.50%

**Salary Increases:**

Age	Present salary as a percent of salary at 65	Annual increase
20	11.13	5.0
25	14.20	5.0
30	18.13	5.0
35	23.14	5.0
40	29.53	5.0
45	37.69	5.0
50	48.10	5.0
55	61.39	5.0
60	78.35	5.0

*Includes allowance for inflation of 5.75%.*

**Interest on Employee Contributions:** 3.50%

**Administrative Expenses:** \$1,000,000 for calendar year 2008, increasing 4.50% per year (previously, \$900,000 for calendar 2006)

**2007 Salary:** Salary in the data, except for employees missing salaries or for 2005 hires, whose salary was estimated from contributions.

**Total Service:** Total creditable service reported in the data. Previously, service was calculated from Adjusted Date of Hire reported in the data.

**Actuarial Value of Assets:** A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings (at the assumed actuarial rate of return) and the net new money during the year (contributions less benefit payments and administrative expenses). Twenty percent of the difference between the market value of assets and the preliminary actuarial value is added to the preliminary actuarial value. In order that the actuarial value not differ to significantly from the market value of assets (as reported in the Annual Statement), the final actuarial value of assets must be within 20% of the market value of assets.

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**Actuarial Cost Method:**

Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant less total creditable service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.

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**EXHIBIT VI**

**Summary of Plan Provisions**

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

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**Plan Year:** January 1 – December 31

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**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:

<b>Age Last Birthday at Date of Retirement</b>			
<b>Percent</b>	<b>Group 1</b>	<b>Group 2</b>	<b>Group 4</b>
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

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annual rate of regular compensation received during the last three years of creditable service prior to retirement. The \$30,000 cap on salary used in a benefit determination for any employee hired after January 1, 1979 has been removed.

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.

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**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.

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**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).

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**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

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determined as if the member retired for superannuation at age 55, based on the amount 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.

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### **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.

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### **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 \$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.

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### **"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

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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.

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### **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.

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### **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.

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### **Changes in Plan Provisions**

There have been no changes in plan provisions since the last valuation.