

GASB Statements No. 67 and 68
Report for Fiscal Year 2016

Essex Regional Retirement System

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August 19, 2016

Essex Regional Retirement System
491 Maple Street
Suite 202
Danvers, MA 01923

Dear Members of the Board:

For the purpose of satisfying the requirements of the Government Accounting Standards Board (GASB) Statements No. 67 and 68, Stone Consulting, Inc. has prepared a set of illustrative tables and other Required Supplementary Information (RSI) based on the January 1, 2014 actuarial valuation of the Essex Regional Retirement System performed by Stone Consulting, Inc. The valuation and this report were prepared using generally accepted actuarial principles and practices and meet the parameters set by the Governmental Accounting Standards Board (GASB).

For GASB 67 the results are as of a valuation date of January 1, 2014 and a reporting date of December 31, 2015. For GASB 68 the results are as of a valuation date of January 1, 2014, a measurement date of December 31, 2015 and a reporting date of June 30, 2016. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system. The methods, assumptions, and plan provisions used to prepare these exhibits are consistent with those used in the valuation, and are outlined in the January 1, 2014 valuation report.

We have modified our starting amounts in this report compared to our Fiscal 2015 report. This was done to be consistent with Essex Regional Retirement System's Financial Statement for the year ending December 31, 2014 which was audited by Powers & Sullivan, LLC. This was a result of differing treatments of payable amounts to the State Retirement System and a receivable contribution from the Essex Agricultural and Technical High School.

We are pleased to present these exhibits. If the Essex Regional Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in a misleading or inaccurate understanding of the results. The undersigned is a consultant for Stone Consulting, Inc. and a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan



Lawrence B. Stone
Member, American Academy of Actuaries

GASB Statements No. 67 and 68 – Net Pension Liability

The components of the Net Pension Liability of the Essex Regional Retirement System as of December 31, 2015 were as follows:

Total Pension Liability (TPL)	\$ 741,677,667
Plan Fiduciary Net Position (FNP)	<u>378,338,761</u>
System's Net Pension Liability (NPL)	\$ 363,338,905
Plan FNP as a percentage of the TPL	51.0%
Covered Payroll	\$ 128,258,043
Plan NPL as a percentage of Covered Payroll	283.29%

Changes to the Net Pension Liability [GASB 68, Paragraph 44]

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at beginning of Measurement Period (01/01/2015)	\$ 710,732,903	\$ 371,470,711	\$ 339,262,192
<u>Changes for the Year:</u>			
Service Cost	15,392,788		15,392,788
Interest	56,453,975		56,453,975
Change in benefit terms	0		0
Differences between expected and actual experience	0		0
Change in assumptions	0		0
Contributions - employer		32,123,556	(32,123,556)
Contributions - employee		12,491,708	(12,491,708)
Net investment income		4,103,829	(4,103,829)
Benefit payments, including refunds of employee contributions	(40,902,000)	(40,902,000)	0
Administrative expense		(949,043)	949,043
Other changes		0	0
Net Changes	<u>30,944,764</u>	<u>6,868,050</u>	<u>24,076,714</u>
Balances at end of Measurement Period (12/31/2015)	\$ 741,677,667	\$ 378,338,761	\$ 363,338,905

NOTE: amounts may not sum due to rounding in this report

Update procedures were used to roll the Total Pension Liability forward from the valuation date (01/01/2014) to the measurement date (12/31/2015). [GASB Statement No. 68, Paragraph 45 a.]

Projection of the Net Pension Liability

TOTAL PENSION LIABILITY (TPL)

The Total Pension Liability at the beginning of the measurement period (01/01/2015) is equal to the TPL from the end of the end of the previous measurement period, and is then compared to the Actuarial Accrued Liability calculated as of that date. GASB Statement No. 68, Paragraph 32 requires that the AAL be calculated under the Entry Age Normal Cost Method. Any changes since the prior valuation in assumptions or plan provisions are calculated, and the remainder of any difference between the projected TPL and the Accrued Liability is recognized as "Differences between actual and expected experience".

The TPL is projected to the end of each measurement period (12/31/2015) by adding all of the changes resulting from experience, assumption changes, and changes to plan provisions. Interest is given to the TPL, Service Cost, and paid benefits, and added to the total, less the projected benefit payments for the year. Changes due to expected and actual gains on pension plan assets will be recognized over a five-year period [GASB Statement No. 68, Paragraph 33b], and liabilities arising from experience or changes in assumptions will be spread over the lifetime of the current employees [GASB Statement No. 68, Paragraph 33a].

In the funding valuation we fund the net 3(8)(c) payments on a pay-as-you-go basis. For GASB Statements No. 67 and 68 we have developed a liability amount of \$10,934,299, which we have added to the January 1, 2014 funding AAL to derive the Total Pension Liability. The liability is calculated by assuming that every dollar of 3(8)(c) net benefit generates the same amount of liability as a dollar of the total retirement benefit.

PLAN FIDUCIARY NET POSITION (FNP)

GASB Statement No. 68, Paragraph 20 requires that Market Value of Assets be used for the Fiduciary Net Position. Net investment income is the portion of the change in assets during the measurement period not attributed to employee/employer contributions, benefits payments, administrative expense, or other changes. The FNP includes a receivable of \$4,156,756, representing the present value of 17 payments of \$421,947 to be paid to the Essex Regional Retirement System by the Essex Technical High School.

The projected Net Pension Liability (NPL) for the end of the year is the portion of the TPL not covered by the FNP. This amount is presented as a percentage of covered employee payroll. The NPL ratio for Essex Regional is 283.29% of covered employee payroll. In this report, covered payroll is reported as described in GASB Statement No. 82. It is a projected pensionable payroll for the measurement period.

Distribution of the Member Population

As of January 1, 2014, the following employees were covered by the benefits terms:

Inactive employees or beneficiaries currently receiving benefits	1,725
Inactive employees entitled to a return of contributions	1,118
Active employees	<u>2,714</u>
TOTAL	5,557

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions [GASB 68, Paragraph 44 h.]

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Differences between expected and actual experience	\$ 0	\$ 0
Changes of assumptions	0	0
Net difference between projected and actual earnings on pension plan investments	<u>19,347,832</u>	<u>0</u>
Total	\$ 19,347,832	\$ 0

Year Ending December 31, *	Recognition
2016	\$ 4,745,402
2017	4,745,402
2018	4,745,402
2019	5,111,625
2020	0
Thereafter	0

*The years are based on measurement date. For GASB 68, the year ending December 31, 2016 is Fiscal 2017.

Discount Sensitivity [GASB 68, Paragraph 42 g.]

The following presents Essex Regional's Net Pension Liability calculated at the valuation discount rate of 8.00%, as well as at discount rates one percent higher (9.00%) and one percent lower (7.00%).

Fiscal Year	1% Decrease (7.00%)	Current Discount Rate (8.00%)	1% Increase (9.00%)
2016	\$ 446,289,285	\$ 363,338,905	\$ 299,228,487

Development of Exhibits

DISCOUNT RATE

Projections were made using a discount rate assumption of 8.00%, which is consistent with the assumption used in the valuation. One of the objectives of the provisions introduced by GASB 68 is to examine how benefit payments and plan contributions and investment earnings interact on a cash flow basis. GASB requires that these amounts be calculated with Market Value of Assets and using the Entry Age Normal cost method.

Projected contributions for each year are the sum of the projected normal cost, the amortization of the unfunded liability, administrative expense, and other benefit costs such as 3(8)(c) payments. The amortization bases and periods are consistent with those seen in the valuation report. Administrative expenses are increased by 4.00% per year. Essex Regional's Fiduciary Net Position was projected to be available to make all future benefit payments of current active and inactive employees. Thus, the long-term expected rate of return on investments was applied for all benefit periods when calculating the Net Pension Liability.

The long-term rate of return which was used to develop the discount rate of 8.00% includes the effect of inflation (not subtracted out as in the real rates of return). It is based on a combination of expected rates of

return on the mix of current and expected investments over a long-term period. These expectations are based on current market conditions, historical experience and future expectations. It assumes a rebalancing of assets on an ongoing basis as well as a constant monitoring of asset allocation and manager performance.

GASB Statement No. 67, Paragraph 30 b. 4 requires that a return rate for the measurement period be developed using the market value of assets at the beginning of the measurement period, along with monthly cash flows. This has been done for the 2015 calendar year, and is shown below and on page 11.

Calendar Year	2015
Money-Weighted Rate of Return	1.04%

Long-Term Expected Real Rate of Return

The long-term expected real rate of return reflects the expected rate of return on plan assets minus the expected rate of inflation. Note that the discount rate includes the effect of inflation. The long-term real rate of return removes the effect of inflation on the return amounts. It is a long-term assumption and is meant to reflect a best estimate of future experience, based on the expected asset allocation. The allocation percentages are based on information provided by the Essex Regional Retirement System and the Pension Reserves Investment Trust. The real rates of return below are based on 30-year return estimates provided by PRIT, adjusted using a 3.00% inflation assumption.

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Geometric Average)
Global Equity	37.2%	-
Large Cap Equities	13.5%	4.37%
Small/Mid Cap Equities	3.3%	4.61%
International Equities	14.9%	4.85%
Emerging Equities	5.6%	6.31%
Core Fixed Income	12.1%	-
Core Bonds	4.6%	0.76%
20+ yr Treasuries	4.6%	0.49%
TIPS	2.8%	0.97%
Value-Added Fixed income	9.3%	-
High-Yield Bonds	1.4%	2.67%
Bank Loans	1.4%	2.91%
EMD (external)	0.9%	2.91%
EMD (local currency)	1.9%	3.40%
Private Debt	3.7%	4.85%
Private Equity	13.3%	6.31%
Real Estate	10.9%	3.40%
Timberland	3.7%	3.95%
Hedge Funds	8.4%	3.40%
Portfolio Completion	5.2%	3.09%

**Schedule of Changes in Essex Regional's
Net Pension Liability and Related Ratios**

(Amounts in Thousands)

Fiscal Year *	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
TOTAL PENSION LIABILITY										
Service cost	15,393	14,801								
Interest	56,454	54,243								
Change of benefit terms	-	-								
Differences between expected and actual experience	-	-								
Change of assumptions	-	-								
Benefit payments , including refunds of employee contributions	(40,902)	(42,573)								
Net change in total pension liability	30,945	26,471								
Total pension liability - beginning	710,733	684,261								
Total pension liability - ending	741,678	710,733								
PLAN FIDUCIARY NET POSITION										
Contributions - employer	32,124	26,141								
Contributions - employee	12,492	14,525								
Net Investment Income	4,104	29,323								
Benefit payments , including refunds of employee contributions	(40,902)	(42,573)								
Administrative expense	(949)	(937)								
Other	-	-								
Net change in plan fiduciary net position	6,868	26,479								
Plan fiduciary net position - beginning	371,471	344,992								
Plan fiduciary net position - end	378,339	371,471								
Essex Regional net pension liability - ending	363,339	339,262								
Plan fiduciary net position as a percentage of the total pension liability	51.0%	52.3%								
Covered-employee payroll	128,258	123,190								
Essex Regional's net pension liability as a percentage of covered employee payroll	283.3%	275.4%								

Note: sums may not total due to rounding

Schedule of Plan Contributions

(Amounts in Thousands)

Fiscal Year	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Actuarially determined contribution	\$ 32,050	\$ 26,066								
Contributions in relation to the actuarially determined contribution	<u>(32,124)</u>	<u>(26,141)</u>								
Contribution deficiency / (excess)	(73)	(74)	* Information not available for years prior to 2015							
Covered-employee payroll	\$ 130,825	\$ 125,729								
Contributions as a percentage of covered-employee payroll	24.6%	20.8%								

Components of Essex Regional's Pension Expense for the Fiscal Year Ended June 30, 2016 [GASB 68, Paragraph 33]

NOTE*	Description	Fiscal 2016
A	Service Cost	\$ 15,392,788
A, B	Interest on the Total Pension Liability	56,453,975
C	Differences between Expected and Actual Experience	0
D	Changes of Assumptions	0
D	Changes to Benefit Provisions	0
A	Employee Contributions	(12,491,708)
E	Projected Earnings on Pension Plan Investments	(29,661,955)
F	Differences between Projected and Actual Earnings on Plan Investments	4,745,402
A	Pension Plan Administrative Expense	949,043
A	Other Changes in Fiduciary Net Position	<u>0</u>
	Total Pension Expense	\$ 35,387,546

* Notes shown on following page. Amounts are based on the following dates:

- **Valuation date:** January 1 ; **Measurement date:** December 31 ; **Reporting date:** following June 30

CHANGES IN METHODS, ASSUMPTIONS, AND PLAN PROVISIONS

The assumptions and methods used to generate these exhibits are consistent with those used in the January 1, 2014 actuarial valuation of Essex Regional performed by Stone Consulting, Inc. unless otherwise noted. There are no changes in assumptions or benefit provisions to reflect as this is the first valuation in which Essex Regional will satisfy the requirements of GASB Statements No. 67 and 68. Any gains or losses resulting from future changes will be recognized over the average service lifetime of plan members.

RESULTS BY EMPLOYER

Exhibits are provided beginning on page 12 which provide individual results for the various employers that make up the Essex Regional Retirement System. Pension expense, as well as any deferred inflows and outflows of resources, have been allocated to the various employers in the same manner as the portion of the FY2016 appropriation that is not related to ERI payments. However, per GASB 68 the change in proportionality from FY2015 to FY2016 of the individual employers' NPL and deferred inflows/outflows need to be allocated to the individual employers. This is calculated on pages 18-19. The contribution excess generated by Federal Grants has been allocated to the employers which received those payments. The Net Pension Liability for the individual employers has been calculated in the following manner: the present value of all future ERI payments was removed from the Net Pension Liability, with the remainder then being allocated using the same employer percentages as the non-ERI portion of the FY2016 appropriation. The Net Pension Liabilities for any employers with ERI payments are then increased by the present value of those payments.

NOTES

- A. See the RSI schedule of changes to the net pension liability, on page 1.
- B. Events that impact the total pension liability are assumed to happen evenly throughout the period. In addition, the amount of interest on the total pension liability is calculated using an interest rate equal to the discount rate that was used to determine the service cost. The amount is determined as follows:

Description	Amount for Period (a)	Portion of Period (b)	Interest Rate (c)	Interest on the Total Pension Liability (a) x (b) x (c)
Beginning total pension liability	\$ 710,732,903	100%	8.00%	\$ 56,858,632
Service cost	15,392,788	100%	8.00%	1,231,423
Benefit payments	(40,902,000)	50%	8.00%	(1,636,080)
Total interest on the net pension liability				\$ 56,453,975

- C. Differences between expected and actual experience recognized in the current period in accordance with paragraph 33a of Statement 68. For the detailed calculation of this amount, see the schedules on page 9.
- D. Assumption and plan provision changes recognized in pension expense in the current period in accordance with paragraph 33a of Statement 68. For detailed calculation of these amounts, see the schedule on page 9.
- E. Changes in the amounts invested are assumed to occur evenly throughout the period. In addition, the amount of projected earnings on pension plan investments is calculated using the assumed rate of return on pension plan investments as of the beginning of the period. The amount is determined as follows:

Description	Amount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	Projected Earnings (a) x (b) x (c)
Beginning plan fiduciary net position	\$ 371,470,711	100%	8.00%	\$ 29,717,657
Employer contributions	32,123,556	50%	8.00%	1,118,672
Employee contributions	12,491,708	50%	8.00%	499,668
Benefit payments, including refunds of employee contributions	(40,902,000)	50%	8.00%	(1,636,080)
Administrative expense and other	949,043	50%	8.00%	(37,962)
Total projected earnings				\$ 29,661,955

- F. Differences between projected and actual earnings recognized in the current period in accordance with paragraph 33b of Statement 68. For detailed calculation of this amount, see the schedule on page 9.

Increase / (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year	Differences between actual and expected experience	Recognition period (years)	2016	2017	2018	2019	2020	2021	2022	2023
2014		0								
2015		5.2		No information available prior to 2016						
2016		5.2								
Net increase (decrease) in pension expense			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Increase / (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Year	Change of assumptions	Recognition period (years)	2016	2017	2018	2019	2020	2021	2022	2023
2014		0								
2015		5.2		No information available prior to 2016						
2016		5.2								
Net increase (decrease) in pension expense			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Increase / (Decrease) in Pension Expense Arising from the Recognition of Differences between Expected and Actual Earnings on Pension Plan Investments

Year	Differences between projected and actual earnings on pension plan investments	Recognition period (years)	2014	2015	2016	2017	2018	2019	2020
2012		5							
2013		5				No information available prior to 2016			
2014		5							
2015	\$ (1,831,115)	5	\$ -	\$ (366,223)	\$ (366,223)	\$ (366,223)	\$ (366,223)	\$ (366,223)	\$ -
2016	\$ 25,558,126	5	\$ -	\$ -	\$ 5,111,625	\$ 5,111,625	\$ 5,111,625	\$ 5,111,625	\$ 5,111,625
Net increase (decrease) in pension expense			\$ -	\$ (366,223)	\$ 4,745,402	\$ 4,745,402	\$ 4,745,402	\$ 4,745,402	\$ 5,111,625

Deferred Outflows and Deferred Inflows of Resources Arising from Differences between Expected and Actual Experience

				BALANCES AT JUNE 30, 2016	
Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30, 2016 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2014	\$ -	\$ -	\$ -	\$ -	\$ -
2015	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL				\$ -	\$ -

Deferred Outflows and Deferred Inflows of Resources Arising from Changes of Assumptions

				BALANCES AT JUNE 30, 2016	
Year	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense through June 30, 2016 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2014	\$ -	\$ -	\$ -	\$ -	\$ -
2015	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL				\$ -	\$ -

Deferred Outflows and Deferred Inflows of Resources Arising from Differences between Expected and Actual Earnings on Pension Plan Investments

				BALANCES AT JUNE 30, 2016	
Year	Investment Earnings Less than Projected (a)	Investment Earnings More than Projected (b)	Amounts Recognized in Pension Expense through June 30, 2016 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2012	\$ -	\$ -	\$ -	\$ -	\$ -
2013	\$ -	\$ -	\$ -	\$ -	\$ -
2014	\$ -	\$ -	\$ -	\$ -	\$ -
2015	\$ -	\$ (1,831,115)	\$ (732,446)	\$ -	\$ (1,098,669)
2016	\$ 25,558,126	\$ -	\$ 5,111,625	\$ 20,446,501	\$ -
TOTAL				\$ 20,446,501	\$ (1,098,669)
NET TOTAL				\$ 19,347,832	

GASB Statement No. 67, Paragraph 30 b. (4)
Money-Weighed Rate of Return, 2015

NET INVESTMENT AMOUNTS				
	Beginning of month	Middle of Month	End of Month	Periods Invested**
Starting Value* (12/31/2014)	\$ 371,125,575.24			12
Cash Flows:				
January	0.00	78,495.45	(3,815,787.26)	11
February	0.00	824,382.06	(3,463,076.40)	10
March	0.00	937,043.16	(3,298,683.47)	9
April	676,779.96	1,361,939.83	(4,525,966.34)	8
May	283,615.75	666,799.15	(3,351,277.84)	7
June	725,946.59	2,046,449.41	(4,635,160.78)	6
July	26,275,489.10	1,167,358.05	(3,539,038.58)	5
August	1,361,785.00	1,093,492.16	(3,693,501.07)	4
September	2,100.00	890,804.84	(3,565,061.21)	3
October	5,242.80	1,341,052.54	(3,507,200.33)	2
November	764.32	1,150,972.19	(3,578,108.89)	1
December	272,489.64	2,211,441.05	(3,693,684.75)	0
Ending Value* (12/31/2015)	\$373,682,052.06			Sum:
				\$ 373,682,052.06

* Value shown does not include any payables or receiveables, except those related to investments.

** Middle of period cash flows are given an additional half period of interest, and beginning of period cash flows are given an additional full period.

Return Rate:	1.04%
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Results by Employer

Employer	Covered Payroll*	Proportionate Share of NPL	Proportionate share of NPL as a percentage of covered payroll*	Proportionate share of NPL Discount Sensitivity	
				1% Increase (9.00%)	1% Decrease (7.00%)
Essex Agricultural & Technical Institute	\$ -	\$ -	N/A	\$ -	\$ -
Essex Regional Retirement System	\$ 760,843	\$ 1,374,161	180.6%	\$ 1,130,542	\$ 1,689,373
Town of Boxford	\$ 5,080,198	\$ 13,307,669	262.0%	\$ 10,948,406	\$ 16,360,244
Town of Essex	\$ 2,231,674	\$ 6,147,565	275.5%	\$ 5,057,688	\$ 7,557,721
Town of Georgetown	\$ 6,505,666	\$ 18,092,138	278.1%	\$ 14,925,084	\$ 22,189,887
Town of Groveland	\$ 2,663,576	\$ 8,281,473	310.9%	\$ 6,826,166	\$ 10,164,446
Town of Hamilton	\$ 3,470,734	\$ 9,546,806	275.1%	\$ 7,854,291	\$ 11,736,696
Town of Ipswich	\$ 13,598,463	\$ 39,272,090	288.8%	\$ 32,309,699	\$ 48,280,501
Town of Lynnfield	\$ 9,961,467	\$ 29,141,294	292.5%	\$ 24,063,749	\$ 35,710,965
Town of Manchester	\$ 4,392,184	\$ 12,475,940	284.0%	\$ 10,264,131	\$ 15,337,728
Town of Merrimac	\$ 3,066,196	\$ 8,843,732	288.4%	\$ 7,298,671	\$ 10,842,836
Town of Middleton	\$ 6,129,251	\$ 17,900,262	292.0%	\$ 14,726,796	\$ 22,006,306
Town of Nahant	\$ 3,060,264	\$ 8,751,239	286.0%	\$ 7,199,767	\$ 10,758,638
Town of Newbury	\$ 2,320,540	\$ 7,160,105	308.6%	\$ 5,890,719	\$ 8,802,552
Town of North Andover	\$ 19,581,065	\$ 53,845,435	275.0%	\$ 44,299,393	\$ 66,196,746
Town of Rockport	\$ 6,712,792	\$ 19,295,790	287.4%	\$ 15,878,705	\$ 23,717,045
Town of Rowley	\$ 3,287,547	\$ 10,053,076	305.8%	\$ 8,270,807	\$ 12,359,097
Town of Salisbury	\$ 4,755,506	\$ 12,894,986	271.2%	\$ 10,657,533	\$ 15,789,954
Town of Topsfield	\$ 4,486,856	\$ 12,512,102	278.9%	\$ 10,293,882	\$ 15,382,185
Town of Wenham	\$ 2,579,576	\$ 7,449,402	288.8%	\$ 6,128,727	\$ 9,158,180
Town of West Newbury	\$ 2,379,301	\$ 6,732,617	283.0%	\$ 5,552,985	\$ 8,258,904
Eastern Essex Veteran's District	\$ 118,812	\$ 253,135	213.1%	\$ 208,258	\$ 311,200
North Andover - Boxford Veteran's District	\$ -	\$ -	N/A	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	N/A	\$ -	\$ -
Byfield Water District	\$ 134,914	\$ 397,784	294.8%	\$ 327,262	\$ 489,029
Lynnfield Center Water District	\$ 430,641	\$ 1,229,513	285.5%	\$ 1,011,538	\$ 1,511,544
Lynnfield Water District	\$ 255,996	\$ 795,567	310.8%	\$ 654,524	\$ 978,058
Northeast Mosquito Control Project	\$ 664,693	\$ 1,988,918	299.2%	\$ 1,636,311	\$ 2,445,145
Hamilton-Wenham Regional School District	\$ 3,656,348	\$ 10,306,211	281.9%	\$ 8,479,065	\$ 12,670,297
Manchester-Essex Regional School District	\$ 2,474,424	\$ 6,545,348	264.5%	\$ 5,384,950	\$ 8,046,750
Masconomet Regional School District	\$ 2,349,100	\$ 6,617,673	281.7%	\$ 5,444,452	\$ 8,135,665
Pentucket Regional School District	\$ 4,514,109	\$ 13,268,746	293.9%	\$ 10,935,126	\$ 16,288,139
Triton Regional School District	\$ 4,336,928	\$ 12,088,079	278.7%	\$ 9,959,614	\$ 14,842,032
Essex Housing Authority	\$ 59,280	\$ 119,424	201.5%	\$ 100,191	\$ 144,309
Georgetown Housing Authority	\$ 210,544	\$ 542,432	257.6%	\$ 446,267	\$ 666,858
Groveland Housing Authority	\$ 124,981	\$ 361,621	289.3%	\$ 297,511	\$ 444,572
Hamilton Housing Authority	\$ 50,153	\$ 144,649	288.4%	\$ 119,004	\$ 177,829
Ipswich Housing Authority	\$ 437,357	\$ 1,301,945	297.7%	\$ 1,083,969	\$ 1,583,976
Lynnfield Housing Authority	\$ 92,607	\$ 253,135	273.3%	\$ 208,258	\$ 311,200
Manchester Housing Authority	\$ 94,290	\$ 289,297	306.8%	\$ 238,009	\$ 355,657
Merrimac Housing Authority	\$ -	\$ -	N/A	\$ -	\$ -
Middleton Housing Authority	\$ 82,948	\$ 216,973	261.6%	\$ 178,507	\$ 266,743
Nahant Housing Authority	\$ 45,027	\$ 222,884	495.0%	\$ 197,239	\$ 256,063
North Andover Housing Authority	\$ 581,402	\$ 1,674,016	287.9%	\$ 1,385,519	\$ 2,047,292
Rockport Housing Authority	\$ 178,300	\$ 650,919	365.1%	\$ 535,520	\$ 800,229
Rowley Housing Authority	\$ 51,314	\$ 144,649	281.9%	\$ 119,004	\$ 177,829
Salisbury Housing Authority	\$ 133,809	\$ 397,784	297.3%	\$ 327,262	\$ 489,029
Topsfield Housing Authority	\$ 59,848	\$ 180,811	302.1%	\$ 148,756	\$ 222,286
Wenham Housing Authority	\$ 96,519	\$ 269,510	279.2%	\$ 224,632	\$ 327,575
West Newbury Housing Authority	\$ -	\$ -	N/A	\$ -	\$ -
County of Essex	\$ -	\$ -	N/A	\$ -	\$ -
TOTAL	\$ 128,258,043	\$ 363,338,905	283.3%	\$ 299,228,487	\$ 446,289,285

* Covered Payroll is the projected amount for the 2016 calendar year based on employee data as of December 31, 2013

Results by Employer (continued)

Employer	Actuarially determined contribution FY2016	Contributions made FY 2016	Contribution deficiency (excess)	Contributions as a percentage of covered payroll**
Essex Agricultural & Technical Institute	\$ 4,156,756	\$ (4,156,756)	\$ -	N/A
Essex Regional Retirement System	\$ 103,904	\$ (103,904)	\$ -	13.7%
Town of Boxford	\$ 1,006,232	\$ (1,007,830)	\$ (1,598)	19.8%
Town of Essex	\$ 464,836	\$ (464,836)	\$ -	20.8%
Town of Georgetown	\$ 1,428,594	\$ (1,428,594)	\$ -	22.0%
Town of Groveland	\$ 639,922	\$ (639,922)	\$ -	24.0%
Town of Hamilton	\$ 721,863	\$ (721,863)	\$ -	20.8%
Town of Ipswich	\$ 2,969,479	\$ (2,987,388)	\$ (17,909)	22.0%
Town of Lynnfield	\$ 2,308,330	\$ (2,316,800)	\$ (8,470)	23.3%
Town of Manchester	\$ 943,343	\$ (943,343)	\$ -	21.5%
Town of Merrimac	\$ 704,032	\$ (704,032)	\$ -	23.0%
Town of Middleton	\$ 1,353,492	\$ (1,355,445)	\$ (1,953)	22.1%
Town of Nahant	\$ 661,707	\$ (661,707)	\$ -	21.6%
Town of Newbury	\$ 541,397	\$ (541,397)	\$ -	23.3%
Town of North Andover	\$ 4,071,413	\$ (4,100,517)	\$ (29,104)	20.9%
Town of Rockport	\$ 1,465,223	\$ (1,465,223)	\$ -	21.8%
Town of Rowley	\$ 760,143	\$ (760,143)	\$ -	23.1%
Town of Salisbury	\$ 1,054,784	\$ (1,065,237)	\$ (10,453)	22.4%
Town of Topsfield	\$ 946,077	\$ (948,614)	\$ (2,537)	21.1%
Town of Wenham	\$ 563,272	\$ (563,272)	\$ -	21.8%
Town of West Newbury	\$ 531,972	\$ (531,972)	\$ -	22.4%
Eastern Essex Veteran's District	\$ 19,140	\$ (19,140)	\$ -	16.1%
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	N/A
North Essex Veteran's District	\$ -	\$ -	\$ -	N/A
Byfield Water District	\$ 30,078	\$ (30,078)	\$ -	22.3%
Lynnfield Center Water District	\$ 92,967	\$ (92,967)	\$ -	21.6%
Lynnfield Water District	\$ 60,155	\$ (60,155)	\$ -	23.5%
Northeast Mosquito Control Project	\$ 150,387	\$ (150,387)	\$ -	22.6%
Hamilton-Wenham Regional School District	\$ 779,283	\$ (779,283)	\$ -	21.3%
Manchester-Essex Regional School District	\$ 494,914	\$ (494,914)	\$ -	20.0%
Masconomet Regional School District	\$ 500,382	\$ (501,483)	\$ (1,101)	21.3%
Pentucket Regional School District	\$ 1,032,257	\$ (1,032,257)	\$ -	22.9%
Triton Regional School District	\$ 937,921	\$ (937,921)	\$ -	21.6%
Essex Housing Authority	\$ 12,446	\$ (12,446)	\$ -	21.0%
Georgetown Housing Authority	\$ 41,015	\$ (41,015)	\$ -	19.5%
Groveland Housing Authority	\$ 27,343	\$ (27,343)	\$ -	21.9%
Hamilton Housing Authority	\$ 11,150	\$ (11,150)	\$ -	22.2%
Ipswich Housing Authority	\$ 121,818	\$ (121,818)	\$ -	27.9%
Lynnfield Housing Authority	\$ 19,140	\$ (19,140)	\$ -	20.7%
Manchester Housing Authority	\$ 21,874	\$ (21,874)	\$ -	23.2%
Merrimac Housing Authority	\$ -	\$ -	\$ -	N/A
Middleton Housing Authority	\$ 16,406	\$ (16,406)	\$ -	19.8%
Nahant Housing Authority	\$ 18,511	\$ (18,511)	\$ -	41.1%
North Andover Housing Authority	\$ 136,359	\$ (136,359)	\$ -	23.5%
Rockport Housing Authority	\$ 49,218	\$ (49,218)	\$ -	27.6%
Rowley Housing Authority	\$ 10,938	\$ (10,938)	\$ -	21.3%
Salisbury Housing Authority	\$ 30,662	\$ (30,662)	\$ -	22.9%
Topsfield Housing Authority	\$ 13,671	\$ (13,671)	\$ -	22.8%
Wenham Housing Authority	\$ 25,626	\$ (25,626)	\$ -	26.6%
West Newbury Housing Authority	\$ -	\$ -	\$ -	N/A
County of Essex	\$ -	\$ -	\$ -	N/A
TOTAL	\$ 32,050,432	\$ (32,123,557)	\$ (73,125)	25.0%

** Here the Covered Payroll figure is projected for Fiscal Year 2017, based on employee data as of December 31, 2013

Results by Employer (continued)

Employer	Proportion	Proportionate Share of Pension Expense	Proportion changes and differences between employer contributions and proportionate share recognized as expense	Total Pension Expense
Essex Agricultural & Technical Institute	0.00%	\$ 35,168	\$ -	\$ 35,168
Essex Regional Retirement System	0.38%	\$ 125,875	\$ 11,367	\$ 137,242
Town of Boxford	3.68%	\$ 1,215,144	\$ (10,491)	\$ 1,204,653
Town of Essex	1.70%	\$ 561,050	\$ 4,916	\$ 565,966
Town of Georgetown	4.94%	\$ 1,935,422	\$ (69,089)	\$ 1,866,333
Town of Groveland	2.27%	\$ 838,824	\$ (57,169)	\$ 781,655
Town of Hamilton	2.64%	\$ 866,871	\$ (89,337)	\$ 777,534
Town of Ipswich	10.86%	\$ 3,598,057	\$ (55,898)	\$ 3,542,159
Town of Lynnfield	7.92%	\$ 3,268,529	\$ (54,020)	\$ 3,214,509
Town of Manchester	3.45%	\$ 1,144,189	\$ 133,009	\$ 1,277,198
Town of Merrimac	2.41%	\$ 970,041	\$ (9,536)	\$ 960,505
Town of Middleton	4.95%	\$ 1,634,513	\$ (9,535)	\$ 1,624,978
Town of Nahant	2.42%	\$ 798,731	\$ 8,348	\$ 807,079
Town of Newbury	1.98%	\$ 654,552	\$ 29,819	\$ 684,371
Town of North Andover	14.89%	\$ 4,942,880	\$ 35,926	\$ 4,978,806
Town of Rockport	5.33%	\$ 1,788,498	\$ 14,575	\$ 1,803,073
Town of Rowley	2.78%	\$ 919,192	\$ 45,734	\$ 964,926
Town of Salisbury	3.49%	\$ 1,534,211	\$ (136,466)	\$ 1,397,745
Town of Topsfield	3.46%	\$ 1,145,020	\$ 22,858	\$ 1,167,878
Town of Wenham	2.06%	\$ 680,933	\$ 29,563	\$ 710,496
Town of West Newbury	1.84%	\$ 713,108	\$ (57,382)	\$ 655,726
Eastern Essex Veteran's District	0.07%	\$ 22,212	\$ (19,413)	\$ 2,799
North Andover - Boxford Veteran's District	0.00%	\$ -	\$ -	\$ -
North Essex Veteran's District	0.00%	\$ -	\$ -	\$ -
Byfield Water District	0.11%	\$ 36,255	\$ (750)	\$ 35,505
Lynnfield Center Water District	0.34%	\$ 112,673	\$ 11,175	\$ 123,848
Lynnfield Water District	0.22%	\$ 73,117	\$ 11,877	\$ 84,994
Northeast Mosquito Control Project	0.55%	\$ 181,909	\$ 10,265	\$ 192,174
Hamilton-Wenham Regional School District	2.85%	\$ 942,271	\$ 45,431	\$ 987,702
Manchester-Essex Regional School District	1.81%	\$ 597,332	\$ 4,804	\$ 602,136
Masconomet Regional School District	1.83%	\$ 604,140	\$ (14,848)	\$ 589,292
Pentucket Regional School District	3.64%	\$ 1,348,931	\$ 88,405	\$ 1,437,336
Triton Regional School District	3.32%	\$ 1,213,993	\$ 115,529	\$ 1,329,522
Essex Housing Authority	0.03%	\$ 25,952	\$ 15,994	\$ 41,946
Georgetown Housing Authority	0.15%	\$ 49,459	\$ (559)	\$ 48,900
Groveland Housing Authority	0.10%	\$ 32,983	\$ (161)	\$ 32,822
Hamilton Housing Authority	0.04%	\$ 13,390	\$ (447)	\$ 12,943
Ipswich Housing Authority	0.34%	\$ 213,376	\$ (23,145)	\$ 190,231
Lynnfield Housing Authority	0.07%	\$ 23,079	\$ (303)	\$ 22,776
Manchester Housing Authority	0.08%	\$ 26,380	\$ (256)	\$ 26,124
Merrimac Housing Authority	0.00%	\$ -	\$ -	\$ -
Middleton Housing Authority	0.06%	\$ 19,199	\$ (13,091)	\$ 6,108
Nahant Housing Authority	0.04%	\$ 99,303	\$ (9,028)	\$ 90,275
North Andover Housing Authority	0.45%	\$ 208,383	\$ (14,854)	\$ 193,529
Rockport Housing Authority	0.18%	\$ 59,941	\$ 12,324	\$ 72,265
Rowley Housing Authority	0.04%	\$ 13,178	\$ (447)	\$ 12,731
Salisbury Housing Authority	0.11%	\$ 37,158	\$ 6,257	\$ 43,415
Topsfield Housing Authority	0.05%	\$ 16,476	\$ (399)	\$ 16,077
Wenham Housing Authority	0.07%	\$ 45,941	\$ (5,182)	\$ 40,759
West Newbury Housing Authority	0.00%	\$ (290)	\$ (6,370)	\$ (6,660)
County of Essex	0.00%	\$ -	\$ -	\$ -
TOTAL	100.00%	\$ 35,387,546		

Deferred Outflows of Resources by Employer

Employer	Differences between expected and actual experience	Changes of assumptions	Net difference between projected and actual earnings on pension plan investments	Changes in proportion and differences between employer contributions and proportionate share of contributions	Employer contributions subsequent to the measurement date	Total Deferred Outflows of Resources
Essex Agricultural & Technical Institute	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Essex Regional Retirement System	\$ -	\$ -	\$ 73,522	\$ 47,736	\$ -	\$ 121,258
Town of Boxford	\$ -	\$ -	\$ 712,000	\$ -	\$ -	\$ 712,000
Town of Essex	\$ -	\$ -	\$ 328,913	\$ 20,649	\$ -	\$ 349,562
Town of Georgetown	\$ -	\$ -	\$ 955,783	\$ -	\$ -	\$ 955,783
Town of Groveland	\$ -	\$ -	\$ 439,196	\$ -	\$ -	\$ 439,196
Town of Hamilton	\$ -	\$ -	\$ 510,783	\$ -	\$ -	\$ 510,783
Town of Ipswich	\$ -	\$ -	\$ 2,101,174	\$ -	\$ -	\$ 2,101,174
Town of Lynnfield	\$ -	\$ -	\$ 1,532,348	\$ -	\$ -	\$ 1,532,348
Town of Manchester	\$ -	\$ -	\$ 667,500	\$ 558,641	\$ -	\$ 1,226,141
Town of Merrimac	\$ -	\$ -	\$ 466,283	\$ -	\$ -	\$ 466,283
Town of Middleton	\$ -	\$ -	\$ 957,718	\$ -	\$ -	\$ 957,718
Town of Nahant	\$ -	\$ -	\$ 468,217	\$ 35,059	\$ -	\$ 503,276
Town of Newbury	\$ -	\$ -	\$ 383,087	\$ 125,241	\$ -	\$ 508,328
Town of North Andover	\$ -	\$ -	\$ 2,880,892	\$ 150,890	\$ -	\$ 3,031,782
Town of Rockport	\$ -	\$ -	\$ 1,031,239	\$ 61,215	\$ -	\$ 1,092,454
Town of Rowley	\$ -	\$ -	\$ 537,870	\$ 192,084	\$ -	\$ 729,954
Town of Salisbury	\$ -	\$ -	\$ 675,239	\$ -	\$ -	\$ 675,239
Town of Topsfield	\$ -	\$ -	\$ 669,435	\$ 96,005	\$ -	\$ 765,440
Town of Wenham	\$ -	\$ -	\$ 398,565	\$ 124,166	\$ -	\$ 522,731
Town of West Newbury	\$ -	\$ -	\$ 356,000	\$ -	\$ -	\$ 356,000
Eastern Essex Veteran's District	\$ -	\$ -	\$ 13,543	\$ -	\$ -	\$ 13,543
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	\$ -	\$ -	\$ 21,283	\$ -	\$ -	\$ 21,283
Lynnfield Center Water District	\$ -	\$ -	\$ 65,783	\$ 46,935	\$ -	\$ 112,718
Lynnfield Water District	\$ -	\$ -	\$ 42,565	\$ 49,884	\$ -	\$ 92,449
Northeast Mosquito Control Project	\$ -	\$ -	\$ 106,413	\$ 43,112	\$ -	\$ 149,525
Hamilton-Wenham Regional School District	\$ -	\$ -	\$ 551,413	\$ 190,810	\$ -	\$ 742,223
Manchester-Essex Regional School District	\$ -	\$ -	\$ 350,196	\$ 20,175	\$ -	\$ 370,371
Masconomet Regional School District	\$ -	\$ -	\$ 354,065	\$ -	\$ -	\$ 354,065
Pentucket Regional School District	\$ -	\$ -	\$ 704,261	\$ 371,299	\$ -	\$ 1,075,560
Triton Regional School District	\$ -	\$ -	\$ 642,348	\$ 485,221	\$ -	\$ 1,127,569
Essex Housing Authority	\$ -	\$ -	\$ 5,804	\$ 67,174	\$ -	\$ 72,978
Georgetown Housing Authority	\$ -	\$ -	\$ 29,022	\$ -	\$ -	\$ 29,022
Groveland Housing Authority	\$ -	\$ -	\$ 19,348	\$ -	\$ -	\$ 19,348
Hamilton Housing Authority	\$ -	\$ -	\$ 7,739	\$ -	\$ -	\$ 7,739
Ipswich Housing Authority	\$ -	\$ -	\$ 65,783	\$ -	\$ -	\$ 65,783
Lynnfield Housing Authority	\$ -	\$ -	\$ 13,543	\$ -	\$ -	\$ 13,543
Manchester Housing Authority	\$ -	\$ -	\$ 15,478	\$ -	\$ -	\$ 15,478
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	\$ -	\$ -	\$ 11,609	\$ -	\$ -	\$ 11,609
Nahant Housing Authority	\$ -	\$ -	\$ 7,739	\$ -	\$ -	\$ 7,739
North Andover Housing Authority	\$ -	\$ -	\$ 87,065	\$ -	\$ -	\$ 87,065
Rockport Housing Authority	\$ -	\$ -	\$ 34,826	\$ 51,759	\$ -	\$ 86,585
Rowley Housing Authority	\$ -	\$ -	\$ 7,739	\$ -	\$ -	\$ 7,739
Salisbury Housing Authority	\$ -	\$ -	\$ 21,283	\$ 26,280	\$ -	\$ 47,563
Topsfield Housing Authority	\$ -	\$ -	\$ 9,674	\$ -	\$ -	\$ 9,674
Wenham Housing Authority	\$ -	\$ -	\$ 13,543	\$ -	\$ -	\$ 13,543
West Newbury Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ -	\$ -	\$ 19,347,829	\$ 2,764,335	\$ -	\$ 22,112,164

Deferred Inflows of Resources by Employer

Employer	Differences between expected and actual experience	Changes of assumptions	Net difference between projected and actual earnings on pension plan investments	Changes in proportion and differences between employer contributions and proportionate share of contributions	Employer contributions subsequent to the measurement date	Total Deferred Inflows of Resources
Essex Agricultural & Technical Institute	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Essex Regional Retirement System	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Boxford	\$ -	\$ -	\$ -	\$ 44,061	N/A	\$ 44,061
Town of Essex	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Georgetown	\$ -	\$ -	\$ -	\$ 290,173	N/A	\$ 290,173
Town of Groveland	\$ -	\$ -	\$ -	\$ 240,109	N/A	\$ 240,109
Town of Hamilton	\$ -	\$ -	\$ -	\$ 375,217	N/A	\$ 375,217
Town of Ipswich	\$ -	\$ -	\$ -	\$ 234,773	N/A	\$ 234,773
Town of Lynnfield	\$ -	\$ -	\$ -	\$ 226,886	N/A	\$ 226,886
Town of Manchester	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Merrimac	\$ -	\$ -	\$ -	\$ 40,052	N/A	\$ 40,052
Town of Middleton	\$ -	\$ -	\$ -	\$ 40,045	N/A	\$ 40,045
Town of Nahant	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Newbury	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of North Andover	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Rockport	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Rowley	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Salisbury	\$ -	\$ -	\$ -	\$ 573,157	N/A	\$ 573,157
Town of Topsfield	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of Wenham	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Town of West Newbury	\$ -	\$ -	\$ -	\$ 241,005	N/A	\$ 241,005
Eastern Essex Veteran's District	\$ -	\$ -	\$ -	\$ 81,535	N/A	\$ 81,535
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Byfield Water District	\$ -	\$ -	\$ -	\$ 3,148	N/A	\$ 3,148
Lynnfield Center Water District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Lynnfield Water District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Northeast Mosquito Control Project	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Hamilton-Wenham Regional School District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Manchester-Essex Regional School District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Masconomet Regional School District	\$ -	\$ -	\$ -	\$ 62,361	N/A	\$ 62,361
Pentucket Regional School District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Triton Regional School District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Essex Housing Authority	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Georgetown Housing Authority	\$ -	\$ -	\$ -	\$ 2,349	N/A	\$ 2,349
Groveland Housing Authority	\$ -	\$ -	\$ -	\$ 674	N/A	\$ 674
Hamilton Housing Authority	\$ -	\$ -	\$ -	\$ 1,875	N/A	\$ 1,875
Ipswich Housing Authority	\$ -	\$ -	\$ -	\$ 97,210	N/A	\$ 97,210
Lynnfield Housing Authority	\$ -	\$ -	\$ -	\$ 1,274	N/A	\$ 1,274
Manchester Housing Authority	\$ -	\$ -	\$ -	\$ 1,074	N/A	\$ 1,074
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Middleton Housing Authority	\$ -	\$ -	\$ -	\$ 54,981	N/A	\$ 54,981
Nahant Housing Authority	\$ -	\$ -	\$ -	\$ 37,920	N/A	\$ 37,920
North Andover Housing Authority	\$ -	\$ -	\$ -	\$ 62,389	N/A	\$ 62,389
Rockport Housing Authority	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Rowley Housing Authority	\$ -	\$ -	\$ -	\$ 1,875	N/A	\$ 1,875
Salisbury Housing Authority	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Topsfield Housing Authority	\$ -	\$ -	\$ -	\$ 1,674	N/A	\$ 1,674
Wenham Housing Authority	\$ -	\$ -	\$ -	\$ 21,765	N/A	\$ 21,765
West Newbury Housing Authority	\$ -	\$ -	\$ -	\$ 26,753	N/A	\$ 26,753
TOTAL	\$ -	\$ -	\$ -	\$ 2,764,334	N/A	\$ 2,764,334

Net Amounts to be Recognized in Subsequent Years by Employer

AMOUNT TO BE RECOGNIZED FOR THE YEAR ENDING DECEMBER 31,						
Employer	2016	2017	2018	2019	2020	Thereafter
Essex Agricultural & Technical Institute	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Essex Regional Retirement System	\$ 29,398	\$ 29,398	\$ 29,398	\$ 30,790	\$ 2,274	\$ -
Town of Boxford	\$ 164,140	\$ 164,140	\$ 164,140	\$ 177,617	\$ (2,098)	\$ -
Town of Essex	\$ 85,588	\$ 85,588	\$ 85,588	\$ 91,814	\$ 984	\$ -
Town of Georgetown	\$ 165,334	\$ 165,334	\$ 165,334	\$ 183,425	\$ (13,817)	\$ -
Town of Groveland	\$ 50,552	\$ 50,552	\$ 50,552	\$ 58,865	\$ (11,434)	\$ -
Town of Hamilton	\$ 35,942	\$ 35,942	\$ 35,942	\$ 45,610	\$ (17,870)	\$ -
Town of Ipswich	\$ 459,452	\$ 459,452	\$ 459,452	\$ 499,227	\$ (11,179)	\$ -
Town of Lynnfield	\$ 321,816	\$ 321,816	\$ 321,816	\$ 350,821	\$ (10,807)	\$ -
Town of Manchester	\$ 296,725	\$ 296,725	\$ 296,725	\$ 309,360	\$ 26,606	\$ -
Town of Merrimac	\$ 104,828	\$ 104,828	\$ 104,828	\$ 113,654	\$ (1,907)	\$ -
Town of Middleton	\$ 225,362	\$ 225,362	\$ 225,362	\$ 243,490	\$ (1,903)	\$ -
Town of Nahant	\$ 123,186	\$ 123,186	\$ 123,186	\$ 132,049	\$ 1,669	\$ -
Town of Newbury	\$ 123,778	\$ 123,778	\$ 123,778	\$ 131,029	\$ 5,965	\$ -
Town of North Andover	\$ 742,516	\$ 742,516	\$ 742,516	\$ 797,047	\$ 7,187	\$ -
Town of Rockport	\$ 267,505	\$ 267,505	\$ 267,505	\$ 287,025	\$ 2,914	\$ -
Town of Rowley	\$ 177,656	\$ 177,656	\$ 177,656	\$ 187,837	\$ 9,149	\$ -
Town of Salisbury	\$ 29,149	\$ 29,149	\$ 29,149	\$ 41,930	\$ (27,295)	\$ -
Town of Topsfield	\$ 187,049	\$ 187,049	\$ 187,049	\$ 199,720	\$ 4,573	\$ -
Town of Wenham	\$ 127,318	\$ 127,318	\$ 127,318	\$ 134,862	\$ 5,915	\$ -
Town of West Newbury	\$ 29,933	\$ 29,933	\$ 29,933	\$ 36,672	\$ (11,476)	\$ -
Eastern Essex Veteran's District	\$ (16,091)	\$ (16,091)	\$ (16,091)	\$ (15,835)	\$ (3,884)	\$ -
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	\$ 4,470	\$ 4,470	\$ 4,470	\$ 4,873	\$ (148)	\$ -
Lynnfield Center Water District	\$ 27,310	\$ 27,310	\$ 27,310	\$ 28,555	\$ 2,233	\$ -
Lynnfield Water District	\$ 22,317	\$ 22,317	\$ 22,317	\$ 23,123	\$ 2,375	\$ -
Northeast Mosquito Control Project	\$ 36,365	\$ 36,365	\$ 36,365	\$ 38,379	\$ 2,051	\$ -
Hamilton-Wenham Regional School District	\$ 180,675	\$ 180,675	\$ 180,675	\$ 191,112	\$ 9,086	\$ -
Manchester-Essex Regional School District	\$ 90,695	\$ 90,695	\$ 90,695	\$ 97,324	\$ 962	\$ -
Masconomet Regional School District	\$ 71,993	\$ 71,993	\$ 71,993	\$ 78,695	\$ (2,970)	\$ -
Pentucket Regional School District	\$ 261,137	\$ 261,137	\$ 261,137	\$ 274,468	\$ 17,681	\$ -
Triton Regional School District	\$ 273,076	\$ 273,076	\$ 273,076	\$ 285,235	\$ 23,106	\$ -
Essex Housing Authority	\$ 17,417	\$ 17,417	\$ 17,417	\$ 17,527	\$ 3,200	\$ -
Georgetown Housing Authority	\$ 6,559	\$ 6,559	\$ 6,559	\$ 7,108	\$ (112)	\$ -
Groveland Housing Authority	\$ 4,585	\$ 4,585	\$ 4,585	\$ 4,951	\$ (32)	\$ -
Hamilton Housing Authority	\$ 1,452	\$ 1,452	\$ 1,452	\$ 1,598	\$ (90)	\$ -
Ipswich Housing Authority	\$ (7,010)	\$ (7,010)	\$ (7,010)	\$ (5,765)	\$ (4,632)	\$ -
Lynnfield Housing Authority	\$ 3,019	\$ 3,019	\$ 3,019	\$ 3,275	\$ (63)	\$ -
Manchester Housing Authority	\$ 3,540	\$ 3,540	\$ 3,540	\$ 3,833	\$ (49)	\$ -
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	\$ (10,244)	\$ (10,244)	\$ (10,244)	\$ (10,024)	\$ (2,616)	\$ -
Nahant Housing Authority	\$ (7,129)	\$ (7,129)	\$ (7,129)	\$ (6,983)	\$ (1,811)	\$ -
North Andover Housing Authority	\$ 6,500	\$ 6,500	\$ 6,500	\$ 8,148	\$ (2,972)	\$ -
Rockport Housing Authority	\$ 20,866	\$ 20,866	\$ 20,866	\$ 21,525	\$ 2,462	\$ -
Rowley Housing Authority	\$ 1,452	\$ 1,452	\$ 1,452	\$ 1,598	\$ (90)	\$ -
Salisbury Housing Authority	\$ 11,477	\$ 11,477	\$ 11,477	\$ 11,880	\$ 1,252	\$ -
Topsfield Housing Authority	\$ 1,974	\$ 1,974	\$ 1,974	\$ 2,157	\$ (79)	\$ -
Wenham Housing Authority	\$ (1,860)	\$ (1,860)	\$ (1,860)	\$ (1,605)	\$ (1,037)	\$ -
West Newbury Housing Authority	\$ (6,370)	\$ (6,370)	\$ (6,370)	\$ (6,370)	\$ (1,273)	\$ -
TOTAL	\$ 4,745,402	\$ 4,745,402	\$ 4,745,402	\$ 5,111,625	\$ -	\$ -

Effects of Changes in Proportion on Employers' Proportionate Share of NPL, and Deferred Inflows and Deferred Outflows of Resources

Employer	Prior Proportion	Prior proportion			Current proportion		
		Net Pension Liability (net of ERI)	Deferred outflows of resources	Deferred inflows of resources	Net Pension Liability (net of ERI)	Deferred outflows of resources	Deferred inflows of resources
Essex Agricultural & Technical Institute	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Essex Regional Retirement System	0.365%	\$ 1,214,284	\$ -	\$ 5,281	\$ 1,273,603	\$ -	\$ 5,498
Town of Boxford	3.724%	\$ 12,389,026	\$ -	\$ 53,881	\$ 12,333,838	\$ -	\$ 53,244
Town of Essex	1.705%	\$ 5,672,204	\$ -	\$ 24,669	\$ 5,697,697	\$ -	\$ 24,597
Town of Georgetown	4.982%	\$ 16,916,706	\$ -	\$ 72,083	\$ 16,556,837	\$ -	\$ 71,475
Town of Groveland	2.354%	\$ 7,906,594	\$ -	\$ 34,059	\$ 7,608,101	\$ -	\$ 32,844
Town of Hamilton	2.800%	\$ 9,315,057	\$ -	\$ 40,512	\$ 8,848,188	\$ -	\$ 38,197
Town of Ipswich	11.029%	\$ 36,691,344	\$ -	\$ 159,574	\$ 36,398,228	\$ -	\$ 157,129
Town of Lynnfield	7.853%	\$ 26,824,501	\$ -	\$ 113,622	\$ 26,544,564	\$ -	\$ 114,591
Town of Manchester	3.267%	\$ 10,868,675	\$ -	\$ 47,269	\$ 11,562,973	\$ -	\$ 49,917
Town of Merrimac	2.384%	\$ 8,126,535	\$ -	\$ 34,493	\$ 8,077,323	\$ -	\$ 34,869
Town of Middleton	5.002%	\$ 16,640,684	\$ -	\$ 72,372	\$ 16,590,352	\$ -	\$ 71,620
Town of Nahant	2.425%	\$ 8,067,505	\$ -	\$ 35,086	\$ 8,110,839	\$ -	\$ 35,014
Town of Newbury	1.948%	\$ 6,480,618	\$ -	\$ 28,185	\$ 6,636,141	\$ -	\$ 28,648
Town of North Andover	14.946%	\$ 49,719,115	\$ -	\$ 216,249	\$ 49,905,121	\$ -	\$ 215,437
Town of Rockport	5.337%	\$ 17,788,267	\$ -	\$ 77,219	\$ 17,863,955	\$ -	\$ 77,118
Town of Rowley	2.729%	\$ 9,078,854	\$ -	\$ 39,485	\$ 9,317,410	\$ -	\$ 40,223
Town of Salisbury	3.602%	\$ 12,408,280	\$ -	\$ 52,116	\$ 11,697,036	\$ -	\$ 50,495
Town of Topsfield	3.450%	\$ 11,477,481	\$ -	\$ 49,917	\$ 11,596,489	\$ -	\$ 50,061
Town of Wenham	2.029%	\$ 6,750,090	\$ -	\$ 29,357	\$ 6,904,268	\$ -	\$ 29,805
Town of West Newbury	1.907%	\$ 6,466,276	\$ -	\$ 27,592	\$ 6,166,919	\$ -	\$ 26,622
Eastern Essex Veteran's District	0.101%	\$ 336,007	\$ -	\$ 1,461	\$ 234,611	\$ -	\$ 1,013
North Andover - Boxford Veteran's District	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	0.112%	\$ 372,602	\$ -	\$ 1,620	\$ 368,674	\$ -	\$ 1,592
Lynnfield Center Water District	0.325%	\$ 1,081,212	\$ -	\$ 4,702	\$ 1,139,539	\$ -	\$ 4,919
Lynnfield Water District	0.203%	\$ 675,342	\$ -	\$ 2,937	\$ 737,349	\$ -	\$ 3,183
Northeast Mosquito Control Project	0.538%	\$ 1,789,822	\$ -	\$ 7,784	\$ 1,843,372	\$ -	\$ 7,958
Hamilton-Wenham Regional School District	2.800%	\$ 9,315,057	\$ -	\$ 40,512	\$ 9,552,021	\$ -	\$ 41,236
Manchester-Essex Regional School District	1.816%	\$ 6,041,480	\$ -	\$ 26,275	\$ 6,066,371	\$ -	\$ 26,188
Masconomet Regional School District	1.867%	\$ 6,211,147	\$ -	\$ 27,013	\$ 6,133,403	\$ -	\$ 26,478
Pentucket Regional School District	3.480%	\$ 11,737,756	\$ -	\$ 50,351	\$ 12,199,774	\$ -	\$ 52,666
Triton Regional School District	3.125%	\$ 10,523,695	\$ -	\$ 45,214	\$ 11,127,267	\$ -	\$ 48,036
Essex Housing Authority	0.000%	\$ 16,946	\$ -	\$ -	\$ 100,548	\$ -	\$ 434
Georgetown Housing Authority	0.152%	\$ 505,675	\$ -	\$ 2,199	\$ 502,738	\$ -	\$ 2,170
Groveland Housing Authority	0.101%	\$ 336,007	\$ -	\$ 1,461	\$ 335,159	\$ -	\$ 1,447
Hamilton Housing Authority	0.041%	\$ 136,399	\$ -	\$ 593	\$ 134,063	\$ -	\$ 579
Ipswich Housing Authority	0.345%	\$ 1,259,967	\$ -	\$ 4,992	\$ 1,139,539	\$ -	\$ 4,919
Lynnfield Housing Authority	0.071%	\$ 236,203	\$ -	\$ 1,027	\$ 234,611	\$ -	\$ 1,013
Manchester Housing Authority	0.081%	\$ 269,471	\$ -	\$ 1,172	\$ 268,127	\$ -	\$ 1,157
Merrimac Housing Authority	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	0.081%	\$ 269,471	\$ -	\$ 1,172	\$ 201,095	\$ -	\$ 868
Nahant Housing Authority	0.030%	\$ 180,867	\$ -	\$ 434	\$ 134,063	\$ -	\$ 579
North Andover Housing Authority	0.457%	\$ 1,585,558	\$ -	\$ 6,612	\$ 1,508,214	\$ -	\$ 6,511
Rockport Housing Authority	0.162%	\$ 538,943	\$ -	\$ 2,344	\$ 603,286	\$ -	\$ 2,604
Rowley Housing Authority	0.041%	\$ 136,399	\$ -	\$ 593	\$ 134,063	\$ -	\$ 579
Salisbury Housing Authority	0.101%	\$ 336,007	\$ -	\$ 1,461	\$ 368,674	\$ -	\$ 1,592
Topsfield Housing Authority	0.051%	\$ 169,667	\$ -	\$ 738	\$ 167,579	\$ -	\$ 723
Wenham Housing Authority	0.071%	\$ 261,572	\$ -	\$ 1,027	\$ 234,611	\$ -	\$ 1,013
West Newbury Housing Authority	0.010%	\$ 33,268	\$ -	\$ 145	\$ -	\$ -	\$ -
County of Essex	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	100.000%	\$ 335,158,636	\$ -	\$ 1,446,860	\$ 335,158,636	\$ -	\$ 1,446,860

Effects of Changes in Proportion on Employers' Proportionate Share of NPL, and Deferred Inflows and Deferred Outflows of Resources (continued)

Employer	Difference				Recognized as Pension Expense	Deferred for later recognition
	Net Pension Liability	Deferred outflows of resources	Deferred inflows of resources	TOTAL		
Essex Agricultural & Technical Institute	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Essex Regional Retirement System	\$ 59,319	\$ -	\$ 217	\$ 59,103	\$ 11,367	\$ 47,736
Town of Boxford	\$ (55,188)	\$ -	\$ (637)	\$ (54,552)	\$ (10,491)	\$ (44,061)
Town of Essex	\$ 25,493	\$ -	\$ (72)	\$ 25,565	\$ 4,916	\$ 20,649
Town of Georgetown	\$ (359,869)	\$ -	\$ (608)	\$ (359,262)	\$ (69,089)	\$ (290,173)
Town of Groveland	\$ (298,493)	\$ -	\$ (1,215)	\$ (297,278)	\$ (57,169)	\$ (240,109)
Town of Hamilton	\$ (466,869)	\$ -	\$ (2,315)	\$ (464,554)	\$ (89,337)	\$ (375,217)
Town of Ipswich	\$ (293,116)	\$ -	\$ (2,445)	\$ (290,671)	\$ (55,898)	\$ (234,773)
Town of Lynnfield	\$ (279,937)	\$ -	\$ 969	\$ (280,906)	\$ (54,020)	\$ (226,886)
Town of Manchester	\$ 694,298	\$ -	\$ 2,648	\$ 691,650	\$ 133,009	\$ 558,641
Town of Merrimac	\$ (49,212)	\$ -	\$ 376	\$ (49,588)	\$ (9,536)	\$ (40,052)
Town of Middleton	\$ (50,332)	\$ -	\$ (752)	\$ (49,580)	\$ (9,535)	\$ (40,045)
Town of Nahant	\$ 43,334	\$ -	\$ (72)	\$ 43,407	\$ 8,348	\$ 35,059
Town of Newbury	\$ 155,523	\$ -	\$ 463	\$ 155,060	\$ 29,819	\$ 125,241
Town of North Andover	\$ 186,006	\$ -	\$ (812)	\$ 186,816	\$ 35,926	\$ 150,890
Town of Rockport	\$ 75,688	\$ -	\$ (101)	\$ 75,790	\$ 14,575	\$ 61,215
Town of Rowley	\$ 238,556	\$ -	\$ 738	\$ 237,818	\$ 45,734	\$ 192,084
Town of Salisbury	\$ (711,244)	\$ -	\$ (1,621)	\$ (709,623)	\$ (136,466)	\$ (573,157)
Town of Topsfield	\$ 119,008	\$ -	\$ 144	\$ 118,863	\$ 22,858	\$ 96,005
Town of Wenham	\$ 154,178	\$ -	\$ 448	\$ 153,729	\$ 29,563	\$ 124,166
Town of West Newbury	\$ (299,357)	\$ -	\$ (970)	\$ (298,387)	\$ (57,382)	\$ (241,005)
Eastern Essex Veteran's District	\$ (101,396)	\$ -	\$ (448)	\$ (100,948)	\$ (19,413)	\$ (81,535)
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	\$ (3,928)	\$ -	\$ (28)	\$ (3,898)	\$ (750)	\$ (3,148)
Lynnfield Center Water District	\$ 58,327	\$ -	\$ 217	\$ 58,110	\$ 11,175	\$ 46,935
Lynnfield Water District	\$ 62,007	\$ -	\$ 246	\$ 61,761	\$ 11,877	\$ 49,884
Northeast Mosquito Control Project	\$ 53,550	\$ -	\$ 174	\$ 53,377	\$ 10,265	\$ 43,112
Hamilton-Wenham Regional School District	\$ 236,964	\$ -	\$ 724	\$ 236,241	\$ 45,431	\$ 190,810
Manchester-Essex Regional School District	\$ 24,891	\$ -	\$ (87)	\$ 24,979	\$ 4,804	\$ 20,175
Masconomet Regional School District	\$ (77,744)	\$ -	\$ (535)	\$ (77,209)	\$ (14,848)	\$ (62,361)
Pentucket Regional School District	\$ 462,018	\$ -	\$ 2,315	\$ 459,704	\$ 88,405	\$ 371,299
Triton Regional School District	\$ 603,572	\$ -	\$ 2,822	\$ 600,750	\$ 115,529	\$ 485,221
Essex Housing Authority	\$ 83,602	\$ -	\$ 434	\$ 83,168	\$ 15,994	\$ 67,174
Georgetown Housing Authority	\$ (2,937)	\$ -	\$ (29)	\$ (2,908)	\$ (559)	\$ (2,349)
Groveland Housing Authority	\$ (848)	\$ -	\$ (14)	\$ (835)	\$ (161)	\$ (674)
Hamilton Housing Authority	\$ (2,336)	\$ -	\$ (14)	\$ (2,322)	\$ (447)	\$ (1,875)
Ipswich Housing Authority	\$ (120,428)	\$ -	\$ (73)	\$ (120,355)	\$ (23,145)	\$ (97,210)
Lynnfield Housing Authority	\$ (1,592)	\$ -	\$ (14)	\$ (1,577)	\$ (303)	\$ (1,274)
Manchester Housing Authority	\$ (1,344)	\$ -	\$ (15)	\$ (1,330)	\$ (256)	\$ (1,074)
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	\$ (68,376)	\$ -	\$ (304)	\$ (68,072)	\$ (13,091)	\$ (54,981)
Nahant Housing Authority	\$ (46,804)	\$ -	\$ 145	\$ (46,948)	\$ (9,028)	\$ (37,920)
North Andover Housing Authority	\$ (77,344)	\$ -	\$ (101)	\$ (77,243)	\$ (14,854)	\$ (62,389)
Rockport Housing Authority	\$ 64,343	\$ -	\$ 260	\$ 64,083	\$ 12,324	\$ 51,759
Rowley Housing Authority	\$ (2,336)	\$ -	\$ (14)	\$ (2,322)	\$ (447)	\$ (1,875)
Salisbury Housing Authority	\$ 32,667	\$ -	\$ 131	\$ 32,537	\$ 6,257	\$ 26,280
Topsfield Housing Authority	\$ (2,088)	\$ -	\$ (15)	\$ (2,073)	\$ (399)	\$ (1,674)
Wenham Housing Authority	\$ (26,961)	\$ -	\$ (14)	\$ (26,947)	\$ (5,182)	\$ (21,765)
West Newbury Housing Authority	\$ (33,268)	\$ -	\$ (145)	\$ (33,123)	\$ (6,370)	\$ (26,753)
County of Essex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -