

GASB Statements No. 67 and 68
Report for Fiscal Year 2017

Essex Regional Retirement System

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June 9, 2017

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, 2016 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, 2016 and a reporting date of December 31, 2016. For GASB 68 the results are as of a valuation date of January 1, 2016, a measurement date of December 31, 2016 and a reporting date of June 30, 2017. 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 funding valuation, and are outlined in the January 1, 2016 funding valuation report unless otherwise stated in this report.

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, 2016 were as follows:

Total Pension Liability (TPL)	\$ 788,217,715
Plan Fiduciary Net Position (FNP)	<u>402,929,882</u>
System's Net Pension Liability (NPL)	\$ 385,287,832
Plan FNP as a percentage of the TPL	51.1%
Covered Payroll	\$ 133,089,526
Plan NPL as a percentage of Covered Payroll	289.50%

NOTE: Totals may not sum due to rounding

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 (01/01/2016)	\$ 741,677,667	\$ 378,338,761	\$ 363,338,905
<u>Changes for the Year:</u>			
Service Cost	16,634,897		16,634,897
Interest	57,096,460		57,096,460
Change in benefit terms	4,350,523		4,350,523
Differences between expected and actual experience	(8,590,424)		(8,590,424)
Change in assumptions	20,216,699		20,216,699
Contributions - employer		29,463,314	(29,463,314)
Contributions - employee		12,864,436	(12,864,436)
Net investment income		26,406,995	(26,406,995)
Benefit payments, including refunds of employee contributions	(43,168,107)	(43,168,107)	0
Administrative expense		(975,517)	975,517
Other changes		0	0
Net Changes	<u>46,540,048</u>	<u>24,591,121</u>	<u>21,948,927</u>
Balances at end of Measurement Period (12/31/2016)	\$ 788,217,715	\$ 402,929,882	\$ 385,287,832

Update procedures were used to roll the Total Pension Liability forward from the valuation date (01/01/2016) to the measurement date (12/31/2016). [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 (01/01/2016) is equal to the TPL from the end of the end of the previous measurement period, which 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 (12/31/2016) 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].

The TPL shown is different from the AAL shown in the January 1, 2016 actuarial valuation report. This is due to a different treatment of net 3(8)(c) payments. 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 \$10,921,664, which we have added to the funding AAL as of January 1, 2016 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 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 289.50% of covered 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, 2016, the following employees were covered by the benefits terms:

Inactive employees or beneficiaries currently receiving benefits	1,768
Inactive employees entitled to a return of contributions	1,030
Active employees	<u>2,738</u>
TOTAL	5,536

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	\$ (6,938,419)
Changes of assumptions	16,328,873	0
Net difference between projected and actual earnings on pension plan investments	<u>16,877,544</u>	<u>0</u>
Total	\$ 33,206,417	\$ (6,938,419)

Year Ending December 31, *	Recognition
2017	\$ 7,550,003
2018	7,550,003
2019	7,916,226
2020	2,804,601
2021	447,164
Thereafter	0

*The years are based on measurement date. For GASB 68, the year ending December 31, 2017 is Fiscal 2018.

Development of Exhibits

DISCOUNT RATE

Projections were made using a discount rate assumption of 7.75%, 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 7.75% 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 2016 calendar year, and is shown on the following page and on page 11.

Calendar Year	2016
Money-Weighted Rate of Return	7.80%

Discount Sensitivity [GASB 68, Paragraph 42 g.]

The following presents Essex Regional's Net Pension Liability calculated at the valuation discount rate of 7.75%, as well as at discount rates one percent higher (8.75%) and one percent lower (6.75%).

Fiscal Year	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
2017	\$ 471,944,872	\$ 385,287,832	\$ 321,176,656

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 NEPC. The real rates of return below are based on 30-year return estimates provided by NEPC, adjusted using a 3.00% inflation assumption.

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Geometric Average)
Global Equity	38.17%	-
Large Cap Equities	13.84%	4.37%
Small/Mid Cap Equities	3.34%	4.61%
International Equities	15.27%	4.69%
Emerging Equities	5.73%	6.42%
Core Fixed Income	11.45%	-
Core Bonds	4.77%	0.97%
20+ Yr. Treasury STRIPS	1.91%	0.73%
TIPS	4.77%	0.73%
Value-Added Fixed Income	9.54%	-
High-Yield Bonds	1.43%	2.67%
Bank Loans	2.39%	2.91%
EMD (External)	0.95%	2.67%
EMD (Local Currency)	0.00%	3.40%
Distressed Debt	2.86%	5.88%
Other Credit Opportunities	1.91%	3.73%
Private Equity	13.25%	6.31%
Real Estate	10.43%	3.40%
Timberland	3.82%	2.91%
Cash	0.93%	0.00%
Hedge Funds / Portfolio Completion	12.41%	3.38%

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

(Amounts in Thousands)

Fiscal Year *	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
TOTAL PENSION LIABILITY										
Service cost	16,635	15,393	14,801							
Interest	57,096	56,454	54,243							
Change of benefit terms	4,351	-	-							
Differences between expected and actual experience	(8,590)	-	-							
Change of assumptions	20,217	-	-							
Benefit payments , including refunds of employee contributions	(43,168)	(40,902)	(42,573)							
Net change in total pension liability	46,540	30,945	26,471							
Total pension liability - beginning	741,678	710,733	684,261							
Total pension liability - ending	788,218	741,678	710,733							
PLAN FIDUCIARY NET POSITION										
Contributions - employer	29,463	32,124	26,141							
Contributions - employee	12,864	12,492	14,525							
Net Investment Income	26,407	4,104	29,323							
Benefit payments , including refunds of employee contributions	(43,168)	(40,902)	(42,573)							
Administrative expense	(976)	(949)	(937)							
Other	-	-	-							
Net change in plan fiduciary net position	24,591	6,868	26,479							
Plan fiduciary net position - beginning	378,339	371,471	344,992							
Plan fiduciary net position - end	402,930	378,339	371,471							
Essex Regional net pension liability - ending	385,288	363,339	339,262							
Plan fiduciary net position as a percentage of the total pension liability	51.1%	51.0%	52.3%							
Covered-employee payroll	133,090	128,258	123,190							
Essex Regional's net pension liability as a percentage of covered employee payroll	289.5%	283.3%	275.4%							

Note: sums may not total due to rounding

Schedule of Plan Contributions

(Amounts in Thousands)

Fiscal Year	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially determined contribution	\$ 29,420	\$ 32,050	\$ 26,066							
Contributions in relation to the actuarially determined contribution	<u>(29,463)</u>	<u>(32,124)</u>	<u>(26,141)</u>							
Contribution deficiency / (excess)	(43)	(73)	(74)	* Information not available for years prior to 2015						
Covered-employee payroll	\$ 135,886	\$ 130,825	\$ 125,729							
Contributions as a percentage of covered-employee payroll	21.7%	24.6%	20.8%							

Components of Essex Regional's Pension Expense for the Fiscal Year Ended June 30, 2017 [GASB 68, Paragraph 33]

NOTE*	Description	Fiscal 2017
A	Service Cost	\$ 16,634,897
A, B	Interest on the Total Pension Liability	57,096,460
C	Differences between Expected and Actual Experience	(1,652,005)
D	Changes of Assumptions	3,887,827
D	Changes to Benefit Provisions	4,350,523
A	Employee Contributions	(12,864,436)
E	Projected Earnings on Pension Plan Investments	(29,250,889)
F	Differences between Projected and Actual Earnings on Plan Investments	5,314,181
A	Pension Plan Administrative Expense	975,517
A	Other Changes in Fiduciary Net Position	<u>0</u>
	Total Pension Expense	\$ 44,492,076

* 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, 2016 actuarial valuation of Essex Regional performed by Stone Consulting, Inc. unless otherwise noted. 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. The NPL was allocated to individual employers in the following manner: liabilities were developed to reflect the present value of remaining ERI payments by the various employers, the total of these liabilities being subtracted from the total NPL, and the remainder being allocated to individual employer in the same proportion as the FY2017 contribution. The ERI liabilities were allocated directly to the employers with remaining ERI payments. Per GASB 68, the change in proportionality from FY2016 to FY2017 of the individual employers' NPL and deferred inflows and outflows need to be allocated to the individual employers. This is calculated on page 18. These amounts are then recognized over the average working lifetime, which is 5.2 years. The contribution excess generated by Federal Grants has been allocated to the employers receiving those grants.

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	\$ 741,677,667	100%	7.75%	\$ 57,480,019
Service cost	16,634,897	100%	7.75%	1,289,205
Benefit payments	(43,168,107)	50%	7.75%	(1,672,764)
Total interest on the net pension liability				\$ 57,096,460

- 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	\$ 378,338,761	100%	7.75%	\$ 29,321,254
Employer contributions	29,463,314	50%	7.75%	1,141,703
Employee contributions	12,864,436	50%	7.75%	498,497
Benefit payments, including refunds of employee contributions	(43,168,107)	50%	7.75%	(1,672,764)
Administrative expense and other	(975,517)	50%	7.75%	(37,801)
Total projected earnings				\$ 29,250,889

- 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)	2015	2016	2017	2018	2019	2020	2021	2022	2023
2014	\$ -	0									
2015	\$ -	5.2				*No information prior to 2016					
2016	\$ -	5.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ (8,590,424)	5.2	\$ -	\$ -	\$ (1,652,005)	\$ (1,652,005)	\$ (1,652,005)	\$ (1,652,005)	\$ (1,652,005)	\$ (330,401)	\$ -
Net increase (decrease) in pension expense					\$ (1,652,005)	\$ (1,652,005)	\$ (1,652,005)	\$ (1,652,005)	\$ (1,652,005)	\$ (330,401)	\$ -

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

Year	Change of assumptions	Recognition period (years)	2015	2016	2017	2018	2019	2020	2021	2022	2023
2014	\$ -	0									
2015	\$ -	5.2				*No information prior to 2016					
2016	\$ -	5.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ 20,216,699	5.2	\$ -	\$ -	\$ 3,887,827	\$ 3,887,827	\$ 3,887,827	\$ 3,887,827	\$ 3,887,827	\$ 777,565	\$ -
Net increase (decrease) in pension expense					\$ 3,887,827	\$ 3,887,827	\$ 3,887,827	\$ 3,887,827	\$ 3,887,827	\$ 777,565	\$ -

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)	2015	2016	2017	2018	2019	2020	2021
2014	\$ -	5				* No information prior to 2015			
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	\$ -
2017	\$ 2,843,894	5	\$ -	\$ -	\$ 568,779	\$ 568,779	\$ 568,779	\$ 568,779	\$ 568,779
Net increase (decrease) in pension expense					\$ 5,314,181	\$ 5,314,181	\$ 5,314,181	\$ 5,680,404	\$ 568,779

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

				BALANCES AT JUNE 30, 2017	
Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30, 2017 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ -	\$ (8,590,424)	\$ (1,652,005)	\$ -	\$ (6,938,419)
TOTAL				\$ -	\$ (6,938,419)

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

				BALANCES AT JUNE 30, 2017	
Year	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense through June 30, 2017 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ 20,216,699	\$ -	\$ 3,887,827	\$ 16,328,873	\$ -
TOTAL				\$ 16,328,873	\$ -

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

				BALANCES AT JUNE 30, 2017	
Year	Investment Earnings Less than Projected (a)	Investment Earnings More than Projected (b)	Amounts Recognized in Pension Expense through June 30, 2017 (c)	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ -	\$ (1,831,115)	\$ (1,098,669)	\$ -	\$ (732,446)
2016	\$ 25,558,126	\$ -	\$ 10,223,250	\$ 15,334,876	\$ -
2017	\$ 2,843,894	\$ -	\$ 568,779	\$ 2,275,115	\$ -
TOTAL				\$ 17,609,990	\$ (732,446)
NET TOTAL				\$ 16,877,544	

GASB Statement No. 67, Paragraph 30 b. (4)
Money-Weighed Rate of Return, 2016

	NET INVESTMENT AMOUNTS				
	Beginning of month	Middle of Month	End of Month	Periods Invested**	Investment with Interest
Starting Value* (12/31/2015)	\$ 373,682,052.06			12	\$ 402,836,745.67
Cash Flows:					
January	192,399.40	999,965.54	-3,416,442.70	11	(2,377,984.13)
February	753.64	1,027,813.72	-3,619,837.58	10	(2,755,247.03)
March	753.64	1,179,115.26	-3,628,513.52	9	(2,586,657.33)
April	753.64	1,485,978.91	-4,806,208.47	8	(3,485,059.38)
May	258,516.85	1,225,890.50	-4,575,726.37	7	(3,224,092.07)
June	1,288,005.98	1,257,781.67	-3,918,741.33	6	(1,413,014.07)
July	29,834,062.52	1,355,230.35	-4,284,951.80	5	27,957,538.60
August	1,957.28	1,148,378.61	-3,964,099.31	4	(2,881,411.17)
September	1,591.28	1,052,908.98	-3,922,054.33	3	(2,918,546.23)
October	1,130.46	1,317,571.93	-3,569,263.50	2	(2,274,727.54)
November	1,503.00	1,378,641.96	-3,873,987.52	1	(2,505,145.35)
December	370,193.80	1,509,592.47	-4,086,813.04	0	(2,199,969.09)
Ending Value* (12/31/2016)	\$402,172,430.88			Sum:	\$ 402,172,430.88

* 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:	7.80%
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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 (8.75%)	1% Decrease (6.75%)
Essex Regional Retirement System	\$ 559,167	\$ 1,382,394	247.2%	\$ 1,151,593	\$ 1,694,359
Town of Boxford	\$ 4,787,031	\$ 14,092,734	294.4%	\$ 11,739,854	\$ 17,273,047
Town of Essex	\$ 2,264,722	\$ 6,643,169	293.3%	\$ 5,534,045	\$ 8,142,336
Town of Georgetown	\$ 6,776,013	\$ 19,901,513	293.7%	\$ 16,606,198	\$ 24,355,685
Town of Groveland	\$ 2,778,252	\$ 8,326,731	299.7%	\$ 6,948,341	\$ 10,189,857
Town of Hamilton	\$ 3,526,675	\$ 10,559,951	299.4%	\$ 8,796,893	\$ 12,943,019
Town of Ipswich	\$ 13,639,196	\$ 39,782,214	291.7%	\$ 33,140,296	\$ 48,759,883
Town of Lynnfield	\$ 10,794,272	\$ 30,649,502	283.9%	\$ 25,597,541	\$ 37,478,076
Town of Manchester	\$ 4,569,174	\$ 13,247,938	289.9%	\$ 11,036,102	\$ 16,237,606
Town of Merrimac	\$ 3,066,691	\$ 9,499,256	309.8%	\$ 7,928,532	\$ 11,622,354
Town of Middleton	\$ 7,060,090	\$ 19,507,109	276.3%	\$ 16,250,261	\$ 23,909,286
Town of Nahant	\$ 3,278,389	\$ 8,217,561	250.7%	\$ 6,845,582	\$ 10,072,022
Town of Newbury	\$ 2,549,341	\$ 7,526,365	295.2%	\$ 6,269,786	\$ 9,224,843
Town of North Andover	\$ 20,203,810	\$ 58,098,928	287.6%	\$ 48,398,907	\$ 71,210,138
Town of Rockport	\$ 7,214,969	\$ 20,942,698	290.3%	\$ 17,448,639	\$ 25,665,507
Town of Rowley	\$ 3,636,114	\$ 10,982,349	302.0%	\$ 9,148,769	\$ 13,460,740
Town of Salisbury	\$ 4,884,877	\$ 14,397,953	294.7%	\$ 12,025,840	\$ 17,604,264
Town of Topsfield	\$ 4,405,007	\$ 13,593,536	308.6%	\$ 11,324,001	\$ 16,661,195
Town of Wenham	\$ 2,740,673	\$ 7,833,563	285.8%	\$ 6,525,695	\$ 9,601,367
Town of West Newbury	\$ 2,205,364	\$ 7,273,721	329.8%	\$ 6,068,431	\$ 8,902,873
Eastern Essex Veteran's District	\$ 182,728	\$ 345,598	189.1%	\$ 287,898	\$ 423,590
North Andover - Boxford Veteran's District	\$ -	\$ -	N/A	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	N/A	\$ -	\$ -
Byfield Water District	\$ 88,439	\$ 268,799	303.9%	\$ 223,921	\$ 329,459
Lynnfield Center Water District	\$ 327,435	\$ 921,596	281.5%	\$ 767,729	\$ 1,129,573
Lynnfield Water District	\$ 273,584	\$ 883,196	322.8%	\$ 735,740	\$ 1,082,507
Northeast Mosquito Control Project	\$ 750,146	\$ 1,958,391	261.1%	\$ 1,631,424	\$ 2,400,342
Hamilton-Wenham Regional School District	\$ 3,971,144	\$ 10,943,949	275.6%	\$ 9,116,780	\$ 13,413,674
Manchester-Essex Regional School District	\$ 2,202,134	\$ 6,643,169	301.7%	\$ 5,534,045	\$ 8,142,336
Masconomet Regional School District	\$ 2,538,981	\$ 6,719,969	264.7%	\$ 5,598,023	\$ 8,236,467
Pentucket Regional School District	\$ 4,798,816	\$ 13,822,227	288.0%	\$ 11,527,046	\$ 16,924,549
Triton Regional School District	\$ 4,686,440	\$ 13,074,496	279.0%	\$ 10,901,127	\$ 16,012,169
Essex Housing Authority	\$ 34,582	\$ 122,774	355.0%	\$ 103,541	\$ 148,771
Georgetown Housing Authority	\$ 227,198	\$ 614,397	270.4%	\$ 511,819	\$ 753,048
Groveland Housing Authority	\$ 80,712	\$ 345,598	428.2%	\$ 287,898	\$ 423,590
Hamilton Housing Authority	\$ 59,458	\$ 115,199	193.7%	\$ 95,966	\$ 141,197
Ipswich Housing Authority	\$ 498,093	\$ 1,394,152	279.9%	\$ 1,169,763	\$ 1,697,452
Lynnfield Housing Authority	\$ 89,454	\$ 268,799	300.5%	\$ 223,921	\$ 329,459
Manchester Housing Authority	\$ 105,979	\$ 307,199	289.9%	\$ 255,910	\$ 376,524
Merrimac Housing Authority	\$ -	\$ -	N/A	\$ -	\$ -
Middleton Housing Authority	\$ 89,806	\$ 191,999	213.8%	\$ 159,944	\$ 235,328
Nahant Housing Authority	\$ 44,740	\$ 229,804	513.6%	\$ 204,160	\$ 264,467
North Andover Housing Authority	\$ 578,238	\$ 1,726,009	298.5%	\$ 1,443,920	\$ 2,107,300
Rockport Housing Authority	\$ 185,169	\$ 806,396	435.5%	\$ 671,763	\$ 988,376
Rowley Housing Authority	\$ 50,278	\$ 153,599	305.5%	\$ 127,955	\$ 188,262
Salisbury Housing Authority	\$ 127,477	\$ 345,598	271.1%	\$ 287,898	\$ 423,590
Topsfield Housing Authority	\$ 58,257	\$ 307,199	527.3%	\$ 255,910	\$ 376,524
Wenham Housing Authority	\$ 100,411	\$ 318,538	317.2%	\$ 267,249	\$ 387,864
West Newbury Housing Authority	\$ -	\$ -	N/A	\$ -	\$ -
County of Essex	\$ -	\$ -	N/A	\$ -	\$ -
TOTAL	\$ 133,089,526	\$ 385,287,832	289.5%	\$ 321,176,656	\$ 471,944,872

* Covered Payroll is the projected amount for the 2016 calendar year based on employee data as of December 31, 2015

Results by Employer (continued)

Employer	Actuarially determined contribution FY2017	Contributions made FY 2017	Contribution deficiency (excess)	Contributions as a percentage of covered payroll**
Essex Regional Retirement System	\$ 103,959	\$ (103,959)	\$ -	18.6%
Town of Boxford	\$ 1,059,806	\$ (1,061,314)	\$ (1,508)	22.2%
Town of Essex	\$ 499,581	\$ (499,581)	\$ -	22.1%
Town of Georgetown	\$ 1,562,156	\$ (1,562,156)	\$ -	23.1%
Town of Groveland	\$ 628,220	\$ (628,220)	\$ -	22.6%
Town of Hamilton	\$ 794,132	\$ (794,132)	\$ -	22.5%
Town of Ipswich	\$ 2,991,712	\$ (3,009,923)	\$ (18,211)	22.1%
Town of Lynnfield	\$ 2,418,319	\$ (2,427,649)	\$ (9,330)	22.5%
Town of Manchester	\$ 996,275	\$ (996,275)	\$ -	21.8%
Town of Merrimac	\$ 752,567	\$ (752,567)	\$ -	24.5%
Town of Middleton	\$ 1,466,978	\$ (1,468,481)	\$ (1,503)	20.8%
Town of Nahant	\$ 617,979	\$ (617,979)	\$ -	18.9%
Town of Newbury	\$ 565,999	\$ (565,999)	\$ -	22.2%
Town of North Andover	\$ 4,369,169	\$ (4,370,760)	\$ (1,591)	21.6%
Town of Rockport	\$ 1,581,652	\$ (1,581,652)	\$ -	21.9%
Town of Rowley	\$ 825,898	\$ (825,898)	\$ -	22.7%
Town of Salisbury	\$ 1,168,990	\$ (1,177,505)	\$ (8,515)	24.1%
Town of Topsfield	\$ 1,022,265	\$ (1,024,777)	\$ (2,512)	23.3%
Town of Wenham	\$ 589,102	\$ (589,102)	\$ -	21.5%
Town of West Newbury	\$ 571,759	\$ (571,759)	\$ -	25.9%
Eastern Essex Veteran's District	\$ 25,990	\$ (25,990)	\$ -	14.2%
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	N/A
North Essex Veteran's District	\$ -	\$ -	\$ -	N/A
Byfield Water District	\$ 20,214	\$ (20,214)	\$ -	22.9%
Lynnfield Center Water District	\$ 69,306	\$ (69,306)	\$ -	21.2%
Lynnfield Water District	\$ 66,418	\$ (66,418)	\$ -	24.3%
Northeast Mosquito Control Project	\$ 147,276	\$ (147,276)	\$ -	19.6%
Hamilton-Wenham Regional School District	\$ 823,009	\$ (823,009)	\$ -	20.7%
Manchester-Essex Regional School District	\$ 499,581	\$ (499,581)	\$ -	22.7%
Masconomet Regional School District	\$ 505,357	\$ (505,357)	\$ -	19.9%
Pentucket Regional School District	\$ 1,070,784	\$ (1,070,784)	\$ -	22.3%
Triton Regional School District	\$ 1,009,079	\$ (1,009,079)	\$ -	21.5%
Essex Housing Authority	\$ 12,670	\$ (12,670)	\$ -	36.6%
Georgetown Housing Authority	\$ 47,093	\$ (47,093)	\$ -	20.7%
Groveland Housing Authority	\$ 25,990	\$ (25,990)	\$ -	32.2%
Hamilton Housing Authority	\$ 8,830	\$ (8,830)	\$ -	14.9%
Ipswich Housing Authority	\$ 130,061	\$ (130,061)	\$ -	26.1%
Lynnfield Housing Authority	\$ 20,214	\$ (20,214)	\$ -	22.6%
Manchester Housing Authority	\$ 23,102	\$ (23,102)	\$ -	21.8%
Merrimac Housing Authority	\$ -	\$ -	\$ -	N/A
Middleton Housing Authority	\$ 14,439	\$ (14,439)	\$ -	16.1%
Nahant Housing Authority	\$ 19,468	\$ (19,468)	\$ -	43.5%
North Andover Housing Authority	\$ 143,078	\$ (143,078)	\$ -	24.7%
Rockport Housing Authority	\$ 60,642	\$ (60,642)	\$ -	32.7%
Rowley Housing Authority	\$ 11,773	\$ (11,773)	\$ -	23.4%
Salisbury Housing Authority	\$ 26,684	\$ (26,490)	\$ 194	20.8%
Topsfield Housing Authority	\$ 23,102	\$ (23,102)	\$ -	39.7%
Wenham Housing Authority	\$ 29,660	\$ (29,660)	\$ -	29.5%
West Newbury Housing Authority	\$ -	\$ -	\$ -	N/A
County of Essex	\$ -	\$ -	\$ -	N/A
TOTAL	\$ 29,420,338	\$ (29,463,314)	\$ (42,976)	22.1%

** Here the Covered Payroll figure is projected for Fiscal Year 2017, based on employee data as of December 31, 2015

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 Regional Retirement System	0.36%	\$ 159,635	\$ (1,744)	\$ 157,891
Town of Boxford	3.67%	\$ 1,627,394	\$ (16,226)	\$ 1,611,168
Town of Essex	1.73%	\$ 767,137	\$ 24,925	\$ 792,062
Town of Georgetown	5.14%	\$ 2,298,177	\$ 60,200	\$ 2,358,377
Town of Groveland	2.15%	\$ 961,550	\$ (137,279)	\$ 824,271
Town of Hamilton	2.75%	\$ 1,219,437	\$ (16,516)	\$ 1,202,921
Town of Ipswich	10.36%	\$ 4,593,951	\$ (379,934)	\$ 4,214,017
Town of Lynnfield	7.88%	\$ 3,539,328	\$ (84,931)	\$ 3,454,397
Town of Manchester	3.45%	\$ 1,529,839	\$ 133,533	\$ 1,663,372
Town of Merrimac	2.45%	\$ 1,096,950	\$ 15,423	\$ 1,112,373
Town of Middleton	5.08%	\$ 2,252,632	\$ 77,094	\$ 2,329,726
Town of Nahant	2.14%	\$ 948,943	\$ (175,629)	\$ 773,314
Town of Newbury	1.96%	\$ 869,126	\$ 16,952	\$ 886,078
Town of North Andover	15.13%	\$ 6,709,119	\$ 196,500	\$ 6,905,619
Town of Rockport	5.45%	\$ 2,418,410	\$ 94,107	\$ 2,512,517
Town of Rowley	2.86%	\$ 1,268,214	\$ 98,826	\$ 1,367,040
Town of Salisbury	3.70%	\$ 1,662,640	\$ 352	\$ 1,662,992
Town of Topsfield	3.54%	\$ 1,569,748	\$ 76,536	\$ 1,646,284
Town of Wenham	2.04%	\$ 904,600	\$ 16,709	\$ 921,309
Town of West Newbury	1.88%	\$ 839,951	\$ (31,804)	\$ 808,147
Eastern Essex Veteran's District	0.09%	\$ 39,909	\$ (6,235)	\$ 33,674
North Andover - Boxford Veteran's District	0.00%	\$ -	\$ -	\$ -
North Essex Veteran's District	0.00%	\$ -	\$ -	\$ -
Byfield Water District	0.07%	\$ 31,040	\$ (27,068)	\$ 3,972
Lynnfield Center Water District	0.24%	\$ 106,424	\$ (54,610)	\$ 51,813
Lynnfield Water District	0.23%	\$ 101,989	\$ 18,494	\$ 120,483
Northeast Mosquito Control Project	0.51%	\$ 226,150	\$ (15,986)	\$ 210,164
Hamilton-Wenham Regional School District	2.85%	\$ 1,263,780	\$ 45,863	\$ 1,309,643
Manchester-Essex Regional School District	1.73%	\$ 767,137	\$ (47,592)	\$ 719,545
Masconomet Regional School District	1.75%	\$ 776,005	\$ (67,240)	\$ 708,765
Pentucket Regional School District	3.58%	\$ 1,596,156	\$ 48,021	\$ 1,644,177
Triton Regional School District	3.39%	\$ 1,509,810	\$ 161,038	\$ 1,670,848
Essex Housing Authority	0.03%	\$ 14,178	\$ 15,855	\$ 30,032
Georgetown Housing Authority	0.16%	\$ 70,949	\$ 6,218	\$ 77,167
Groveland Housing Authority	0.09%	\$ 39,909	\$ (6,729)	\$ 33,180
Hamilton Housing Authority	0.03%	\$ 13,303	\$ (6,992)	\$ 6,311
Ipswich Housing Authority	0.35%	\$ 160,993	\$ (16,990)	\$ 144,003
Lynnfield Housing Authority	0.07%	\$ 31,040	\$ (293)	\$ 30,747
Manchester Housing Authority	0.08%	\$ 35,475	\$ (244)	\$ 35,231
Merrimac Housing Authority	0.00%	\$ -	\$ -	\$ -
Middleton Housing Authority	0.05%	\$ 22,172	\$ (19,665)	\$ 2,506
Nahant Housing Authority	0.04%	\$ 26,537	\$ (10,582)	\$ 15,956
North Andover Housing Authority	0.44%	\$ 199,315	\$ (21,557)	\$ 177,758
Rockport Housing Authority	0.21%	\$ 93,121	\$ 32,102	\$ 125,222
Rowley Housing Authority	0.04%	\$ 17,737	\$ (398)	\$ 17,340
Salisbury Housing Authority	0.09%	\$ 39,909	\$ (6,797)	\$ 33,111
Topsfield Housing Authority	0.08%	\$ 35,475	\$ 19,360	\$ 54,835
Wenham Housing Authority	0.08%	\$ 36,784	\$ 1,305	\$ 38,089
West Newbury Housing Authority	0.00%	\$ -	\$ (6,370)	\$ (6,370)
County of Essex	0.00%	\$ -	\$ -	\$ -
TOTAL	100.00%	\$ 44,492,076		

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 Regional Retirement System	\$ -	\$ 58,587	\$ 60,556	\$ 36,370	\$ -	\$ 155,513
Town of Boxford	\$ -	\$ 597,264	\$ 617,333	\$ -	\$ -	\$ 1,214,596
Town of Essex	\$ -	\$ 281,544	\$ 291,004	\$ 99,770	\$ -	\$ 672,318
Town of Georgetown	\$ -	\$ 843,445	\$ 871,786	\$ 543,011	\$ -	\$ 2,258,243
Town of Groveland	\$ -	\$ 352,895	\$ 364,753	\$ -	\$ -	\$ 717,648
Town of Hamilton	\$ -	\$ 447,541	\$ 462,579	\$ 305,849	\$ -	\$ 1,215,969
Town of Ipswich	\$ -	\$ 1,686,009	\$ 1,742,661	\$ -	\$ -	\$ 3,428,670
Town of Lynnfield	\$ -	\$ 1,298,956	\$ 1,342,602	\$ -	\$ -	\$ 2,641,558
Town of Manchester	\$ -	\$ 561,460	\$ 580,326	\$ 427,829	\$ -	\$ 1,569,616
Town of Merrimac	\$ -	\$ 402,588	\$ 416,115	\$ 104,828	\$ -	\$ 923,531
Town of Middleton	\$ -	\$ 826,730	\$ 854,509	\$ 363,837	\$ -	\$ 2,045,077
Town of Nahant	\$ -	\$ 348,268	\$ 359,971	\$ 26,711	\$ -	\$ 734,950
Town of Newbury	\$ -	\$ 318,975	\$ 329,693	\$ 95,422	\$ -	\$ 744,089
Town of North Andover	\$ -	\$ 2,462,289	\$ 2,545,025	\$ 789,373	\$ -	\$ 5,796,687
Town of Rockport	\$ -	\$ 887,572	\$ 917,395	\$ 380,674	\$ -	\$ 2,185,641
Town of Rowley	\$ -	\$ 465,443	\$ 481,082	\$ 369,334	\$ -	\$ 1,315,859
Town of Salisbury	\$ -	\$ 610,199	\$ 630,703	\$ 574,636	\$ -	\$ 1,815,538
Town of Topsfield	\$ -	\$ 576,107	\$ 595,465	\$ 298,593	\$ -	\$ 1,470,165
Town of Wenham	\$ -	\$ 331,994	\$ 343,149	\$ 94,603	\$ -	\$ 769,746
Town of West Newbury	\$ -	\$ 308,267	\$ 318,626	\$ 107,429	\$ -	\$ 734,322
Eastern Essex Veteran's District	\$ -	\$ 14,647	\$ 15,139	\$ 55,348	\$ -	\$ 85,134
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	\$ -	\$ 11,392	\$ 11,775	\$ -	\$ -	\$ 23,167
Lynnfield Center Water District	\$ -	\$ 39,058	\$ 40,371	\$ 35,760	\$ -	\$ 115,189
Lynnfield Water District	\$ -	\$ 37,431	\$ 38,688	\$ 65,798	\$ -	\$ 141,917
Northeast Mosquito Control Project	\$ -	\$ 82,999	\$ 85,787	\$ 32,847	\$ -	\$ 201,633
Hamilton-Wenham Regional School District	\$ -	\$ 463,815	\$ 479,400	\$ 147,194	\$ -	\$ 1,090,409
Manchester-Essex Regional School District	\$ -	\$ 281,544	\$ 291,004	\$ 15,371	\$ -	\$ 587,919
Masconomet Regional School District	\$ -	\$ 284,799	\$ 294,368	\$ -	\$ -	\$ 579,167
Pentucket Regional School District	\$ -	\$ 585,799	\$ 605,483	\$ 282,895	\$ -	\$ 1,474,177
Triton Regional School District	\$ -	\$ 554,110	\$ 572,729	\$ 560,829	\$ -	\$ 1,687,667
Essex Housing Authority	\$ -	\$ 5,203	\$ 5,378	\$ 51,180	\$ -	\$ 61,761
Georgetown Housing Authority	\$ -	\$ 26,039	\$ 26,914	\$ 28,465	\$ -	\$ 81,418
Groveland Housing Authority	\$ -	\$ 14,647	\$ 15,139	\$ -	\$ -	\$ 29,786
Hamilton Housing Authority	\$ -	\$ 4,882	\$ 5,046	\$ -	\$ -	\$ 9,929
Ipswich Housing Authority	\$ -	\$ 59,086	\$ 61,071	\$ 25,852	\$ -	\$ 146,009
Lynnfield Housing Authority	\$ -	\$ 11,392	\$ 11,775	\$ 44	\$ -	\$ 23,211
Manchester Housing Authority	\$ -	\$ 13,019	\$ 13,457	\$ 51	\$ -	\$ 26,527
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	\$ -	\$ 8,137	\$ 8,411	\$ -	\$ -	\$ 16,548
Nahant Housing Authority	\$ -	\$ 9,739	\$ 10,067	\$ -	\$ -	\$ 19,806
North Andover Housing Authority	\$ -	\$ 73,150	\$ 75,608	\$ -	\$ -	\$ 148,758
Rockport Housing Authority	\$ -	\$ 34,176	\$ 35,324	\$ 122,504	\$ -	\$ 192,004
Rowley Housing Authority	\$ -	\$ 6,510	\$ 6,728	\$ 205	\$ -	\$ 13,443
Salisbury Housing Authority	\$ -	\$ 14,647	\$ 15,139	\$ 20,023	\$ -	\$ 49,808
Topsfield Housing Authority	\$ -	\$ 13,019	\$ 13,457	\$ 82,986	\$ -	\$ 109,463
Wenham Housing Authority	\$ -	\$ 13,500	\$ 13,954	\$ 27,244	\$ -	\$ 54,698
West Newbury Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
County of Essex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ -	\$ 16,328,873	\$ 16,877,544	\$ 6,172,866	\$ -	\$ 39,379,283

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 Regional Retirement System	\$ 24,895	\$ -	\$ -	\$ 55,061	N/A	\$ 79,956
Town of Boxford	\$ 253,788	\$ -	\$ -	\$ 57,659	N/A	\$ 311,446
Town of Essex	\$ 119,633	\$ -	\$ -	\$ -	N/A	\$ 119,633
Town of Georgetown	\$ 358,395	\$ -	\$ -	\$ 221,084	N/A	\$ 579,478
Town of Groveland	\$ 149,951	\$ -	\$ -	\$ 519,403	N/A	\$ 669,354
Town of Hamilton	\$ 190,168	\$ -	\$ -	\$ 285,879	N/A	\$ 476,047
Town of Ipswich	\$ 716,414	\$ -	\$ -	\$ 1,539,824	N/A	\$ 2,256,238
Town of Lynnfield	\$ 551,949	\$ -	\$ -	\$ 302,688	N/A	\$ 854,637
Town of Manchester	\$ 238,574	\$ -	\$ -	\$ -	N/A	\$ 238,574
Town of Merrimac	\$ 171,066	\$ -	\$ -	\$ 30,516	N/A	\$ 201,582
Town of Middleton	\$ 351,292	\$ -	\$ -	\$ 30,510	N/A	\$ 381,802
Town of Nahant	\$ 147,985	\$ -	\$ -	\$ 772,702	N/A	\$ 920,687
Town of Newbury	\$ 135,538	\$ -	\$ -	\$ 54,042	N/A	\$ 189,580
Town of North Andover	\$ 1,046,269	\$ -	\$ -	\$ -	N/A	\$ 1,046,269
Town of Rockport	\$ 377,145	\$ -	\$ -	\$ -	N/A	\$ 377,145
Town of Rowley	\$ 197,775	\$ -	\$ -	\$ -	N/A	\$ 197,775
Town of Salisbury	\$ 259,284	\$ -	\$ -	\$ 436,691	N/A	\$ 695,975
Town of Topsfield	\$ 244,798	\$ -	\$ -	\$ -	N/A	\$ 244,798
Town of Wenham	\$ 141,070	\$ -	\$ -	\$ 53,990	N/A	\$ 195,060
Town of West Newbury	\$ 130,988	\$ -	\$ -	\$ 183,623	N/A	\$ 314,611
Eastern Essex Veteran's District	\$ 6,224	\$ -	\$ -	\$ 62,122	N/A	\$ 68,345
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Byfield Water District	\$ 4,841	\$ -	\$ -	\$ 112,936	N/A	\$ 117,776
Lynnfield Center Water District	\$ 16,596	\$ -	\$ -	\$ 276,299	N/A	\$ 292,895
Lynnfield Water District	\$ 15,905	\$ -	\$ -	\$ -	N/A	\$ 15,905
Northeast Mosquito Control Project	\$ 35,267	\$ -	\$ -	\$ 110,255	N/A	\$ 145,523
Hamilton-Wenham Regional School District	\$ 197,083	\$ -	\$ -	\$ -	N/A	\$ 197,083
Manchester-Essex Regional School District	\$ 119,633	\$ -	\$ -	\$ 220,059	N/A	\$ 339,692
Masconomet Regional School District	\$ 121,016	\$ -	\$ -	\$ 267,559	N/A	\$ 388,575
Pentucket Regional School District	\$ 248,916	\$ -	\$ -	\$ 169,612	N/A	\$ 418,529
Triton Regional School District	\$ 235,451	\$ -	\$ -	\$ -	N/A	\$ 235,451
Essex Housing Authority	\$ 2,211	\$ -	\$ -	\$ 585	N/A	\$ 2,796
Georgetown Housing Authority	\$ 11,064	\$ -	\$ -	\$ 1,790	N/A	\$ 12,854
Groveland Housing Authority	\$ 6,224	\$ -	\$ -	\$ 28,101	N/A	\$ 34,325
Hamilton Housing Authority	\$ 2,075	\$ -	\$ -	\$ 28,920	N/A	\$ 30,994
Ipswich Housing Authority	\$ 25,106	\$ -	\$ -	\$ 74,065	N/A	\$ 99,171
Lynnfield Housing Authority	\$ 4,841	\$ -	\$ -	\$ 971	N/A	\$ 5,812
Manchester Housing Authority	\$ 5,532	\$ -	\$ -	\$ 818	N/A	\$ 6,350
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
Middleton Housing Authority	\$ 3,458	\$ -	\$ -	\$ 69,504	N/A	\$ 72,961
Nahant Housing Authority	\$ 4,138	\$ -	\$ -	\$ 35,414	N/A	\$ 39,553
North Andover Housing Authority	\$ 31,083	\$ -	\$ -	\$ 75,685	N/A	\$ 106,768
Rockport Housing Authority	\$ 14,522	\$ -	\$ -	\$ -	N/A	\$ 14,522
Rowley Housing Authority	\$ 2,766	\$ -	\$ -	\$ 1,428	N/A	\$ 4,195
Salisbury Housing Authority	\$ 6,224	\$ -	\$ -	\$ 54,829	N/A	\$ 61,053
Topsfield Housing Authority	\$ 5,532	\$ -	\$ -	\$ 1,276	N/A	\$ 6,808
Wenham Housing Authority	\$ 5,736	\$ -	\$ -	\$ 16,583	N/A	\$ 22,319
West Newbury Housing Authority	\$ -	\$ -	\$ -	\$ 20,383	N/A	\$ 20,383
County of Essex	\$ -	\$ -	\$ -	\$ -	N/A	\$ -
TOTAL	\$ 6,938,419	\$ -	\$ -	\$ 6,172,866	N/A	\$ 13,111,285

Net Amounts to be Recognized in Subsequent Years by Employer

Employer	AMOUNT TO BE RECOGNIZED FOR THE YEAR ENDING DECEMBER 31,					
	2017	2018	2019	2020	2021	Thereafter
Essex Regional Retirement System	\$ 25,345	\$ 25,345	\$ 26,659	\$ (774)	\$ (1,018)	\$ -
Town of Boxford	\$ 259,932	\$ 259,932	\$ 273,327	\$ 94,751	\$ 15,209	\$ -
Town of Essex	\$ 155,103	\$ 155,103	\$ 161,418	\$ 69,349	\$ 11,712	\$ -
Town of Georgetown	\$ 450,185	\$ 450,185	\$ 469,101	\$ 260,338	\$ 48,955	\$ -
Town of Groveland	\$ 25,890	\$ 25,890	\$ 33,804	\$ (30,932)	\$ (6,358)	\$ -
Town of Hamilton	\$ 190,414	\$ 190,414	\$ 200,451	\$ 131,822	\$ 26,820	\$ -
Town of Ipswich	\$ 399,628	\$ 399,628	\$ 437,442	\$ (45,631)	\$ (18,636)	\$ -
Town of Lynnfield	\$ 515,669	\$ 515,669	\$ 544,802	\$ 181,391	\$ 29,390	\$ -
Town of Manchester	\$ 393,136	\$ 393,136	\$ 405,729	\$ 123,560	\$ 15,480	\$ -
Town of Merrimac	\$ 201,568	\$ 201,568	\$ 210,597	\$ 92,199	\$ 16,017	\$ -
Town of Middleton	\$ 459,350	\$ 459,350	\$ 477,892	\$ 226,718	\$ 39,966	\$ -
Town of Nahant	\$ (14,600)	\$ (14,600)	\$ (6,789)	\$ (122,490)	\$ (27,258)	\$ -
Town of Newbury	\$ 164,437	\$ 164,437	\$ 171,591	\$ 47,883	\$ 6,162	\$ -
Town of North Andover	\$ 1,334,992	\$ 1,334,992	\$ 1,390,216	\$ 590,674	\$ 99,544	\$ -
Town of Rockport	\$ 504,495	\$ 504,495	\$ 524,401	\$ 234,894	\$ 40,212	\$ -
Town of Rowley	\$ 314,033	\$ 314,033	\$ 324,472	\$ 142,181	\$ 23,364	\$ -
Town of Salisbury	\$ 282,491	\$ 282,491	\$ 296,176	\$ 214,331	\$ 44,074	\$ -
Town of Topsfield	\$ 342,912	\$ 342,912	\$ 355,832	\$ 157,200	\$ 26,512	\$ -
Town of Wenham	\$ 170,213	\$ 170,213	\$ 177,659	\$ 50,080	\$ 6,521	\$ -
Town of West Newbury	\$ 110,730	\$ 110,730	\$ 117,644	\$ 67,049	\$ 13,558	\$ -
Eastern Essex Veteran's District	\$ 537	\$ 537	\$ 866	\$ 11,811	\$ 3,037	\$ -
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	\$ (21,801)	\$ (21,801)	\$ (21,545)	\$ (24,511)	\$ (4,952)	\$ -
Lynnfield Center Water District	\$ (36,551)	\$ (36,551)	\$ (35,675)	\$ (56,842)	\$ (12,087)	\$ -
Lynnfield Water District	\$ 35,801	\$ 35,801	\$ 36,640	\$ 15,421	\$ 2,348	\$ -
Northeast Mosquito Control Project	\$ 22,390	\$ 22,390	\$ 24,251	\$ (9,943)	\$ (2,977)	\$ -
Hamilton-Wenham Regional School District	\$ 260,318	\$ 260,318	\$ 270,720	\$ 89,182	\$ 12,788	\$ -
Manchester-Essex Regional School District	\$ 82,586	\$ 82,586	\$ 88,901	\$ (3,077)	\$ (2,769)	\$ -
Masconomet Regional School District	\$ 64,443	\$ 64,443	\$ 70,830	\$ (6,445)	\$ (2,679)	\$ -
Pentucket Regional School District	\$ 318,878	\$ 318,878	\$ 332,016	\$ 77,912	\$ 7,965	\$ -
Triton Regional School District	\$ 417,242	\$ 417,242	\$ 429,670	\$ 163,787	\$ 24,276	\$ -
Essex Housing Authority	\$ 18,260	\$ 18,260	\$ 18,377	\$ 3,953	\$ 115	\$ -
Georgetown Housing Authority	\$ 18,258	\$ 18,258	\$ 18,842	\$ 11,138	\$ 2,069	\$ -
Groveland Housing Authority	\$ 43	\$ 43	\$ 372	\$ (4,085)	\$ (913)	\$ -
Hamilton Housing Authority	\$ (4,735)	\$ (4,735)	\$ (4,625)	\$ (5,796)	\$ (1,175)	\$ -
Ipswich Housing Authority	\$ 10,330	\$ 10,330	\$ 11,655	\$ 11,675	\$ 2,849	\$ -
Lynnfield Housing Authority	\$ 4,974	\$ 4,974	\$ 5,230	\$ 1,907	\$ 314	\$ -
Manchester Housing Authority	\$ 5,776	\$ 5,776	\$ 6,068	\$ 2,197	\$ 359	\$ -
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	\$ (15,903)	\$ (15,903)	\$ (15,720)	\$ (7,795)	\$ (1,092)	\$ -
Nahant Housing Authority	\$ (6,078)	\$ (6,078)	\$ (5,860)	\$ (1,686)	\$ (44)	\$ -
North Andover Housing Authority	\$ 12,265	\$ 12,265	\$ 13,906	\$ 2,891	\$ 663	\$ -
Rockport Housing Authority	\$ 47,904	\$ 47,904	\$ 48,670	\$ 28,113	\$ 4,892	\$ -
Rowley Housing Authority	\$ 2,612	\$ 2,612	\$ 2,758	\$ 1,078	\$ 188	\$ -
Salisbury Housing Authority	\$ (25)	\$ (25)	\$ 303	\$ (9,287)	\$ (2,210)	\$ -
Topsfield Housing Authority	\$ 25,380	\$ 25,380	\$ 25,672	\$ 21,915	\$ 4,308	\$ -
Wenham Housing Authority	\$ 7,547	\$ 7,547	\$ 7,849	\$ 7,769	\$ 1,667	\$ -
West Newbury Housing Authority	\$ (6,370)	\$ (6,370)	\$ (6,370)	\$ (1,274)	\$ -	\$ -
County of Essex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ 7,550,003	\$ 7,550,003	\$ 7,916,226	\$ 2,804,601	\$ 447,164	\$ -

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

Employer	Proportion Change			FY2017 Contribution			Total Proportion Change (A) + (B)	Recognized as Pension Expense*	Deferred for later recognition
	Prior Proportionate Share of Prior NPL net of Deferrals	Share of Prior NPL based on Current Proportion	Difference (A)	Proportionate Share of Contribution based on Share of NPL	Amount Paid	Difference (B)			
Essex Regional Retirement System	\$ 1,300,640	\$ 1,234,223	\$ (66,417)	\$ 105,713	\$ 103,959	\$ (1,754)	\$ (68,171)	\$ (13,110)	\$ (55,061)
Town of Boxford	\$ 12,595,669	\$ 12,582,216	\$ (13,453)	\$ 1,077,684	\$ 1,061,314	\$ (16,370)	\$ (29,824)	\$ (5,735)	\$ (24,088)
Town of Essex	\$ 5,818,652	\$ 5,931,126	\$ 112,475	\$ 508,009	\$ 499,581	\$ (8,428)	\$ 104,046	\$ 20,009	\$ 84,038
Town of Georgetown	\$ 17,136,355	\$ 17,768,385	\$ 632,030	\$ 1,521,887	\$ 1,562,156	\$ 40,269	\$ 672,299	\$ 129,288	\$ 543,011
Town of Groveland	\$ 7,842,277	\$ 7,434,237	\$ (408,040)	\$ 636,753	\$ 628,220	\$ (8,533)	\$ (416,573)	\$ (80,110)	\$ (336,462)
Town of Hamilton	\$ 9,036,024	\$ 9,428,091	\$ 392,067	\$ 807,529	\$ 794,132	\$ (13,397)	\$ 378,670	\$ 72,821	\$ 305,849
Town of Ipswich	\$ 37,170,915	\$ 35,518,190	\$ (1,652,726)	\$ 3,042,182	\$ 3,009,923	\$ (32,259)	\$ (1,684,985)	\$ (324,036)	\$ (1,360,950)
Town of Lynnfield	\$ 27,608,946	\$ 27,364,360	\$ (244,586)	\$ 2,343,796	\$ 2,427,649	\$ 83,853	\$ (160,733)	\$ (30,910)	\$ (129,823)
Town of Manchester	\$ 11,808,440	\$ 11,827,969	\$ 19,529	\$ 1,013,082	\$ 996,275	\$ (16,807)	\$ 2,722	\$ 523	\$ 2,198
Town of Merrimac	\$ 8,377,449	\$ 8,481,086	\$ 103,637	\$ 726,417	\$ 752,567	\$ 26,150	\$ 129,787	\$ 24,959	\$ 104,828
Town of Middleton	\$ 16,942,544	\$ 17,416,255	\$ 473,711	\$ 1,491,727	\$ 1,468,481	\$ (23,246)	\$ 450,465	\$ 86,628	\$ 363,837
Town of Nahant	\$ 8,283,022	\$ 7,336,769	\$ (946,253)	\$ 628,404	\$ 617,979	\$ (10,425)	\$ (956,678)	\$ (183,977)	\$ (772,702)
Town of Newbury	\$ 6,777,018	\$ 6,719,658	\$ (57,360)	\$ 575,548	\$ 565,999	\$ (9,549)	\$ (66,909)	\$ (12,867)	\$ (54,042)
Town of North Andover	\$ 50,964,543	\$ 51,871,642	\$ 907,099	\$ 4,442,878	\$ 4,370,760	\$ (72,118)	\$ 834,981	\$ 160,573	\$ 674,408
Town of Rockport	\$ 18,264,551	\$ 18,697,972	\$ 433,422	\$ 1,601,507	\$ 1,581,652	\$ (19,855)	\$ 413,566	\$ 79,532	\$ 334,034
Town of Rowley	\$ 9,515,207	\$ 9,805,215	\$ 290,008	\$ 839,830	\$ 825,898	\$ (13,932)	\$ 276,076	\$ 53,091	\$ 222,984
Town of Salisbury	\$ 12,219,747	\$ 12,854,721	\$ 634,974	\$ 1,101,025	\$ 1,177,505	\$ 76,480	\$ 711,454	\$ 136,818	\$ 574,636
Town of Topsfield	\$ 11,842,667	\$ 12,136,524	\$ 293,857	\$ 1,039,510	\$ 1,024,777	\$ (14,733)	\$ 279,124	\$ 53,678	\$ 225,446
Town of Wenham	\$ 7,050,837	\$ 6,993,929	\$ (56,907)	\$ 599,040	\$ 589,102	\$ (9,938)	\$ (66,845)	\$ (12,855)	\$ (53,990)
Town of West Newbury	\$ 6,376,617	\$ 6,494,093	\$ 117,477	\$ 556,228	\$ 571,759	\$ 15,531	\$ 133,008	\$ 25,578	\$ 107,429
Eastern Essex Veteran's District	\$ 239,592	\$ 308,556	\$ 68,964	\$ 26,428	\$ 25,990	\$ (438)	\$ 68,526	\$ 13,178	\$ 55,348
North Andover - Boxford Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
North Essex Veteran's District	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Byfield Water District	\$ 376,501	\$ 239,988	\$ (136,513)	\$ 20,555	\$ 20,214	\$ (341)	\$ (136,855)	\$ (26,318)	\$ (110,536)
Lynnfield Center Water District	\$ 1,163,730	\$ 822,815	\$ (340,915)	\$ 70,475	\$ 69,306	\$ (1,169)	\$ (342,084)	\$ (65,785)	\$ (276,299)
Lynnfield Water District	\$ 753,002	\$ 788,531	\$ 35,529	\$ 67,539	\$ 66,418	\$ (1,121)	\$ 34,408	\$ 6,617	\$ 27,791
Northeast Mosquito Control Project	\$ 1,882,505	\$ 1,748,482	\$ (134,023)	\$ 149,760	\$ 147,276	\$ (2,484)	\$ (136,507)	\$ (26,251)	\$ (110,255)
Hamilton-Wenham Regional School District	\$ 9,754,798	\$ 9,770,931	\$ 16,132	\$ 836,894	\$ 823,009	\$ (13,885)	\$ 2,248	\$ 432	\$ 1,815
Manchester-Essex Regional School District	\$ 6,195,153	\$ 5,931,126	\$ (264,026)	\$ 508,009	\$ 499,581	\$ (8,428)	\$ (272,455)	\$ (52,395)	\$ (220,059)
Masconomet Regional School District	\$ 6,263,607	\$ 5,999,694	\$ (263,913)	\$ 513,882	\$ 505,357	\$ (8,525)	\$ (272,438)	\$ (52,392)	\$ (220,046)
Pentucket Regional School District	\$ 12,564,484	\$ 12,340,703	\$ (223,782)	\$ 1,056,998	\$ 1,070,784	\$ 13,786	\$ (209,996)	\$ (40,384)	\$ (169,612)
Triton Regional School District	\$ 11,445,732	\$ 11,673,117	\$ 227,385	\$ 999,819	\$ 1,009,079	\$ 9,260	\$ 236,645	\$ 45,509	\$ 191,136
Essex Housing Authority	\$ 113,620	\$ 109,615	\$ (4,005)	\$ 9,389	\$ 12,670	\$ 3,281	\$ (724)	\$ (139)	\$ (585)
Georgetown Housing Authority	\$ 513,410	\$ 548,543	\$ 35,133	\$ 46,984	\$ 47,093	\$ 109	\$ 35,243	\$ 6,777	\$ 28,465
Groveland Housing Authority	\$ 342,274	\$ 308,556	\$ (33,718)	\$ 26,428	\$ 25,990	\$ (438)	\$ (34,156)	\$ (6,568)	\$ (27,588)
Hamilton Housing Authority	\$ 136,909	\$ 102,852	\$ (34,058)	\$ 8,809	\$ 8,830	\$ 21	\$ (34,037)	\$ (6,546)	\$ (27,491)
Ipswich Housing Authority	\$ 1,236,162	\$ 1,244,721	\$ 8,559	\$ 106,612	\$ 130,061	\$ 23,449	\$ 32,008	\$ 6,155	\$ 25,852
Lynnfield Housing Authority	\$ 239,592	\$ 239,988	\$ 396	\$ 20,555	\$ 20,214	\$ (341)	\$ 55	\$ 11	\$ 44
Manchester Housing Authority	\$ 273,819	\$ 274,272	\$ 453	\$ 23,492	\$ 23,102	\$ (390)	\$ 63	\$ 12	\$ 51
Merrimac Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Middleton Housing Authority	\$ 205,364	\$ 171,420	\$ (33,944)	\$ 14,682	\$ 14,439	\$ (243)	\$ (34,188)	\$ (6,575)	\$ (27,613)
Nahant Housing Authority	\$ 215,144	\$ 205,173	\$ (9,971)	\$ 17,573	\$ 19,468	\$ 1,895	\$ (8,076)	\$ (1,553)	\$ (6,523)
North Andover Housing Authority	\$ 1,586,950	\$ 1,541,008	\$ (45,942)	\$ 131,990	\$ 143,078	\$ 11,088	\$ (34,854)	\$ (6,703)	\$ (28,151)
Rockport Housing Authority	\$ 616,093	\$ 719,963	\$ 103,871	\$ 61,666	\$ 60,642	\$ (1,024)	\$ 102,847	\$ 19,778	\$ 83,069
Rowley Housing Authority	\$ 136,909	\$ 137,136	\$ 226	\$ 11,746	\$ 11,773	\$ 27	\$ 254	\$ 49	\$ 205
Salisbury Housing Authority	\$ 376,501	\$ 308,556	\$ (67,945)	\$ 26,428	\$ 26,490	\$ 62	\$ (67,884)	\$ (13,055)	\$ (54,829)
Topsfield Housing Authority	\$ 171,137	\$ 274,272	\$ 103,135	\$ 23,492	\$ 23,102	\$ (390)	\$ 102,745	\$ 19,759	\$ 82,986
Wenham Housing Authority	\$ 255,966	\$ 284,396	\$ 28,430	\$ 24,359	\$ 29,660	\$ 5,301	\$ 33,731	\$ 6,487	\$ 27,244
West Newbury Housing Authority	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
County of Essex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ 343,991,074	\$ 343,991,074	\$ -	\$ 29,463,314	\$ 29,463,314	\$ -	\$ -	\$ -	\$ -

* Based on an average remaining service life of 5.2 years.