



Essex Regional Retirement System

**Governmental Accounting Standards Board
(GASB) Statements No. 67 and 68
Accounting Valuation Report
as of December 31, 2017**

This report has been prepared at the request of the Essex Regional Retirement Board to assist the Board and the member units in preparing their financial report for their liabilities associated with the Essex Regional Retirement System. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Essex Regional Retirement Board and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Copyright © 2018 by The Segal Group, Inc. All rights reserved.



116 Huntington Ave., 8th Floor Boston, MA 02116
T 617.424.7300 www.segalco.com

August 2, 2018

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

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 Accounting Valuation as of December 31, 2017 for the Essex Regional Retirement System, a cost-sharing multiple employer defined benefit pension plan. It contains the actuarial information that will need to be disclosed in order to comply with GASB 67 and 68. Except as otherwise noted, please refer to the Essex Regional Retirement System Actuarial Valuation Report as of January 1, 2018, dated August 2, 2018, for the data, assumptions and plan of benefits underlying these calculations.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist the Board and the member units in preparing their financial reports for their liabilities associated with the Essex Regional Retirement System pension plan. The census and financial information on which our calculations were based were provided by the staff of the Essex Regional Retirement System. That assistance is gratefully acknowledged.


The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

The actuarial calculations were completed under my supervision. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in my opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for the Essex Regional Retirement System.

I look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

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

8737505v4/01203.032

Table of Contents

Essex Regional Retirement System Accounting Valuation as of December 31, 2017

Section 1: Actuarial Valuation Summary

Purpose.....	5
Significant Issues	5
Important Information about Actuarial Valuations	6

Section 2: GASB Information

Exhibit 1 – Net Pension Liability.....	9
Exhibit 2 – Schedule of Changes in Net Pension Liability – Last Two Fiscal Years	12
Exhibit 3 – Schedule of Contributions – Last Four Fiscal Years.....	14
Exhibit 4 – Pension Expense	15
Exhibit 5 – Determination of Proportionate Share	17
Exhibit 6 – Determination of Proportionate Share	20
Appendix – Glossary of Terms.....	32

Section 1: Actuarial Valuation Summary

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 as of December 31, 2017. This report is based on the Essex Regional Retirement System Actuarial Valuation and Review as of January 1, 2018, dated August 2, 2018, which reflects:

- The benefit provisions of Massachusetts General Law Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of December 31, 2017;
- The assets of the System as of December 31, 2017;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues

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

- The Net Pension Liability (NPL) is equal to the difference between the Total Pension Liability (TPL) and the Plan's Fiduciary Net Position. The Plan Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) on a market value basis. The NPL increased from \$385.3 million as of December 31, 2016 to \$376.4 million as of December 31, 2017 and the Plan's Fiduciary Net Position as a percent of the TPL increased from 51.12% to 55.40%.
- The NPL measured as of December 31, 2017 and December 31, 2016 was determined based upon the results of the actuarial valuations as of January 1, 2018 and January 1, 2016, respectively.
- Prior years' figures are as shown in the GASB Statements No. 67 and 68 Report for Fiscal Year 2017, dated June 9, 2017, completed by Stone Consulting, Inc.
- The discount rates used to measure the TPL and NPL as of December 31, 2017 and December 31, 2016 were 7.50% and 7.75%, respectively.

Important Information about Actuarial Valuations

In order to prepare an actuarial valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

Plan of Benefits:	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
Participant Data:	An actuarial valuation for a plan is based on data provided to the actuary by the Essex Regional Retirement System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets:	The valuation is based on the market value of assets as of the valuation date, as provided by the Essex Regional Retirement System. The Essex Regional Retirement System uses an “actuarial value of assets” that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial Assumptions:	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan’s assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of the Essex Regional Retirement System to assist the Board and the member units in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Sections of this report may include actuarial results that are not rounded, but that does not imply precision.
- If the Essex Regional Retirement System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Essex Regional Retirement System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Essex Regional Retirement System.



Section 2: GASB Information

Exhibit 1 – Net Pension Liability

	December 31, 2017	December 31, 2016
Components of the Net Pension Liability		
Total Pension Liability	\$843,829,627	\$788,217,715
Plan Fiduciary Net Position	467,474,289	402,929,882
Net Pension Liability	376,355,338	385,287,833
Plan Fiduciary Net Position as a percentage of the Total Pension Liability*	55.40%	51.12%

* These funded percentages are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.

Actuarial assumptions. The total pension liability as of December 31, 2017 was measured by an actuarial valuation as of December 31, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation:	2.75% (previously, 4.00%)
Salary Increases:	Based on years of service, ranging from 7.50% at 0 years of service decreasing to 3.75% after 5 years of service
Net Investment Return:	7.50% (previously 7.75%)
Cost of Living Adjustment:	3% of first \$14,000
Mortality Rates:	<i>Pre-Retirement:</i> RP-2000 Employee Mortality Table projected generationally with Scale BB <i>Healthy Retiree:</i> RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB <i>Disabled Retiree:</i> RP-2000 Healthy Annuitant Mortality Table, set forward two years projected generationally with Scale BB

Target Asset Allocation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation (approved by the Board) and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	17.50%	6.15%
International developed markets equity	15.50%	7.11%
International emerging markets equity	6.00%	9.41%
Core fixed income	12.00%	1.68%
High-yield fixed income	10.00%	4.13%
Real estate	10.00%	4.90%
Commodities	4.00%	4.71%
Hedge fund, GTAA, Risk parity	13.00%	3.94%
Private equity	<u>12.00%</u>	10.28%
Total	100.00%	

Note: Some asset classes included in the pension plan's target asset allocation have been combined.

Discount rate. The discount rates used to measure the Total Pension Liability (TPL) were 7.50% and 7.75% as of December 31, 2017 and December 31, 2016, respectively. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Plan Fiduciary Net Position (FNP) was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL as of both December 31, 2017 and December 31, 2016.

Discount Rate Sensitivity

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the Net Pension Liability (NPL) of the Essex Regional Retirement System as of December 31, 2017 calculated using the discount rate of 7.50%, as well as what the Essex Regional Retirement System's NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.50%) or 1-percentage-point higher (8.50%) than the current rate.

Net Pension Liability	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Essex Regional Retirement System's net pension liability as of December 31, 2017	\$473,500,765	\$376,355,338	\$294,642,498

Exhibit 2 – Schedule of Changes in Net Pension Liability – Last Two Fiscal Years

	December 31, 2017	December 31, 2016
Total Pension Liability		
Service cost	\$17,326,243	\$16,634,897
Interest	60,670,085	57,096,460
Change of benefit terms	0	4,350,523
Differences between expected and actual experience	-49,644	-8,590,424
Changes of assumptions	23,073,540	20,216,699
Benefit payments, including refunds of member contributions	-45,408,312	-43,168,107
Net change in Total Pension Liability	\$55,611,912	\$46,540,048
Total Pension Liability – beginning	<u>788,217,715</u>	<u>741,677,667</u>
Total Pension Liability – ending	\$843,829,627	\$788,217,715
Plan Fiduciary Net Position		
Contributions – employer	\$31,663,092	\$29,463,314
Contributions – employee	12,962,163	12,864,436
Net investment income	66,324,993	26,406,995
Benefit payments, including refunds of member contributions	-45,408,312	-43,168,107
Administrative expense	-997,529	-975,517
Net change in Plan Fiduciary Net Position	\$64,544,407	\$24,591,121
Plan Fiduciary Net Position – beginning	<u>402,929,882</u>	<u>378,338,761</u>
Plan Fiduciary Net Position – ending	\$467,474,289	\$402,929,882
Net Pension Liability – ending	\$376,355,338	\$385,287,833
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	55.40%	51.12%
Covered employee payroll ¹	\$130,781,725	\$133,089,526
Plan Net Pension Liability as percentage of covered employee payroll	287.77%	289.50%

¹ Covered employee payroll for 2017 as estimated in the January 1, 2018 funding valuation report.

Notes to Schedule:

Changes in Actuarial Assumptions:	<p>Effective January 1, 2018:</p> <ul style="list-style-type: none">• The net investment return assumption was lowered from 7.75% to 7.50%.• The inflation rate was lowered from 4.00% to 2.75%.• The assumed interest on employee contributions was increased from 2.0% to 3.5%.• The administrative expense assumption was lowered from \$1,127,500 to \$1,000,000.• The retirement rates for employees in Groups 1 and 2 hired after April 1, 2012 and in Group 4 were revised to match the rates for employees hired before April 1, 2012 and there were minor changes to the rates prior to age 54 for Group 4 employees.• The percentage of employees assumed to be married was lowered from 100% to 80%.• The percentage of accidental disability retirees who are expected to die from the same cause as the disability was lowered from 40% to 20% for Groups 1 and 2 employees and increased from 40% to 60% for Group 4 employees.• The allowance for net 3(8)(c) payments was changed from an estimated liability to a term cost added to the service cost.
Changes in Plan Provisions:	<p>Effective January 1, 2018:</p> <ul style="list-style-type: none">• None

Exhibit 3 – Schedule of Contributions – Last Four Fiscal Years

Year Ended December 31	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered-Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2014	\$26,066,000	\$26,141,000	-\$74,000	\$125,729,000	20.79%
2015	32,050,000	32,124,000	-73,000	130,825,000	24.55%
2016	29,420,000	29,463,000	-43,000	135,886,000	21.68%
2017	31,614,412	31,663,092	-48,680	130,781,725	24.21%

Notes to Schedule:

Valuation date:	Actuarially Determined Contribution for fiscal 2018 was determined with the prior actuary's January 1, 2016 actuarial valuation.
Actuarial cost method:	Entry Age Normal Cost Method
Amortization method:	Level payments on the 2002 and 2003 ERI liability (except payments increase at 4.50% per year for Nahant Housing and Groveland; total appropriation increases 7.41% through fiscal 2022, 6.36% in fiscal 2023 and 4.00% thereafter.
Remaining amortization period:	19 years from July 1, 2016 for non-ERI liability, 3 years from July 1, 2016 for 2002 ERI (except 12 years for Nahant Housing) and 4 years from July 1, 2016 for 2003 ERI (except 12 years for Groveland).
Asset valuation method:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual and expected return on a market value basis, and is recognized over a five-year period, further adjusted, if necessary, to be within 10% of the market value.
Actuarial assumptions:	
• Investment rate of return	7.75% (previously, 8.00%)
• Discount rate	7.75% (previously, 8.00%)
• Inflation rate	4.00%
• Projected salary increases	Based on years of service, ranging from 7.50% at 0 years of service decreasing to 3.75% after 5 years of service
• Cost of living adjustments	3% of first \$13,000, increasing to \$14,000 effective July 1, 2018
Plan membership:	
• Retired participants and beneficiaries receiving benefits	1,768
• Inactive participants entitled to a return of their employee contributions	1,030
• Inactive participants with a vested right to a deferred or immediate benefit	- -
• Active participants	<u>2,738</u>
• Total	5,536

Exhibit 4 – Pension Expense

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	December 31, 2017	December 31, 2016
Components of Pension Expense		
Service cost	\$17,326,243	\$16,634,897
Interest on the Total Pension Liability	60,670,085	57,096,460
Expensed portion of current-period changes in proportion and differences between employer's contributions and proportionate share of contributions	0	0
Expensed portion of current-period benefit changes	0	4,350,523
Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	-9,929	-1,652,005
Expensed portion of current-period changes of assumptions or other inputs	4,614,708	3,887,827
Member contributions	-12,962,163	-12,864,436
Projected earnings on plan investments	-31,158,068	-29,250,889
Expensed portion of current-period differences between actual and projected earnings on plan investments	-7,033,385	568,779
Administrative expense	997,529	975,517
Recognition of beginning of year deferred outflows of resources as pension expense	9,568,231	4,745,402
Recognition of beginning of year deferred inflows of resources as pension expense	-2,018,228	0
Pension Expense	\$39,995,023	\$44,492,075

Deferred Outflows of Resources and Deferred Inflows of Resources

Reporting Date for Employer under GASB 68	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 68	December 31, 2017	December 31, 2016
Deferred Outflows of Resources		
Changes in proportion and differences between employer's contributions and proportionate share of contributions ¹	\$8,792,975	\$0
Changes of assumptions	30,899,878	16,328,873
Net difference between projected and actual earnings on pension plan investments	0	16,877,545
Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
Total Deferred Outflows of Resources	\$39,692,853	\$33,206,418
Deferred Inflows of Resources		
Changes in proportion and differences between employer's contributions and proportionate share of contributions ¹	\$8,792,974	\$0
Changes of assumptions	0	0
Net difference between projected and actual earnings on pension plan investments	16,570,176	0
Difference between expected and actual experience in the Total Pension Liability	<u>5,326,131</u>	<u>6,938,421</u>
Total Deferred Inflows of Resources	\$30,689,281	\$6,938,421
Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:		
Reporting Date for Employer under GASB 68 Year Ended June 30:		
2018	N/A	\$7,550,003
2019	\$5,121,397	7,550,003
2020	5,487,620	7,916,226
2021	375,995	2,804,601
2022	-1,981,440	447,164
Thereafter	0	0

¹ Calculated in accordance with Paragraphs 54 and 55 of GASB 68.

Exhibit 5 – Determination of Proportionate Share

Employer Name	FY 2017 Total Appropriation	Percent of FY 2017 Total Appropriation	Share of NPL as of January 1, 2017	Percent of Total NPL as of January 1, 2017	FY 2018 Total Appropriation	Percent of FY 2018 Total Appropriation	Share of NPL as of January 1, 2018	Percent of Total NPL as of January 1, 2018
Essex Regional Retirement System	\$103,959	0.353358%	\$1,382,393	0.358795%	\$114,978	0.363689%	\$1,389,511	0.369202%
Town of Boxford	1,059,806	3.602290%	14,092,733	3.657716%	1,149,773	3.636863%	13,895,133	3.692025%
Town of Essex	499,581	1.698080%	6,643,169	1.724209%	550,026	1.739795%	6,647,132	1.766185%
Town of Georgetown	1,562,156	5.309783%	19,901,512	5.165362%	1,671,923	5.288484%	19,358,316	5.143627%
Town of Groveland	628,220	2.135326%	8,326,731	2.161172%	694,361	2.196343%	8,367,218	2.223223%
Town of Hamilton	794,132	2.699262%	10,559,951	2.740795%	789,304	2.496659%	9,538,820	2.534525%
Town of Ipswich	2,991,712	10.168856%	39,782,214	10.325322%	3,203,826	10.134069%	38,718,599	10.287777%
Town of Lynnfield	2,418,319	8.219888%	30,649,501	7.954961%	2,609,984	8.255679%	30,083,690	7.993427%
Town of Manchester	996,275	3.386348%	13,247,938	3.438452%	1,047,225	3.312492%	12,655,836	3.362736%
Town of Merrimac	752,567	2.557982%	9,499,256	2.465496%	806,361	2.550612%	9,250,743	2.457981%
Town of Middleton	1,466,978	4.986272%	19,507,109	5.062996%	1,628,327	5.150584%	19,678,511	5.228705%
Town of Nahant	617,979	2.100516%	8,217,561	2.132837%	786,196	2.486828%	9,501,267	2.524547%
Town of Newbery	565,999	1.923836%	7,526,365	1.953440%	590,423	1.867575%	7,135,340	1.895905%
Town of North Andover	4,369,169	14.850846%	58,098,928	15.079357%	4,763,787	15.068403%	57,570,919	15.296958%
Town of Rockport	1,581,652	5.376050%	20,942,698	5.435598%	1,735,586	5.489857%	20,887,794	5.550019%
Town of Rowley	825,898	2.807235%	10,982,349	2.850427%	854,561	2.703074%	10,327,461	2.744072%
Town of Salisbury	1,168,990	3.973408%	14,397,953	3.736934%	1,265,738	4.003674%	14,179,744	3.767648%
Town of Topsfield	1,022,265	3.474688%	13,593,536	3.528151%	1,056,547	3.341979%	12,768,498	3.392671%
Town of Wenham	589,102	2.002363%	7,833,563	2.033172%	668,111	2.113311%	8,074,199	2.145366%
Town of West Newbury	571,759	1.943414%	7,273,721	1.887867%	594,396	1.880143%	6,862,708	1.823465%
Eastern Essex Veteran's District	25,990	0.088340%	345,598	0.089699%	31,075	0.098294%	375,542	0.099784%
North Andover - Boxford Veteran's District	0	0.000000%	0	0.000000%	0	0.000000%	0	0.000000%

Employer Name	FY 2017 Total Appropriation	Percent of FY 2017 Total Appropriation	Share of NPL as of January 1, 2017	Percent of Total NPL as of January 1, 2017	FY 2018 Total Appropriation	Percent of FY 2018 Total Appropriation	Share of NPL as of January 1, 2018	Percent of Total NPL as of January 1, 2018
North Essex Veteran's District	0	0.000000%	0	0.000000%	0	0.000000%	0	0.000000%
Byfield Water District	20,214	0.068708%	268,799	0.069766%	21,753	0.068807%	262,880	0.069849%
Lynnfield Center Water District	69,306	0.235572%	921,596	0.239197%	83,902	0.265392%	1,013,969	0.269418%
Lynnfield Water District	66,418	0.225755%	883,196	0.229230%	65,257	0.206415%	788,641	0.209547%
Northeast Mosquito Control Project	147,276	0.500592%	1,958,391	0.508293%	164,697	0.520955%	1,990,385	0.528858%
Hamilton-Wenham Regional School District	823,009	2.797415%	10,943,949	2.840461%	866,990	2.742389%	10,477,680	2.783986%
Manchester-Essex Regional School District	499,581	1.698080%	6,643,169	1.724209%	531,381	1.680819%	6,421,804	1.706314%
Masconomet Regional School District	505,357	1.717713%	6,719,969	1.744143%	531,381	1.680819%	6,421,804	1.706314%
Pentucket Regional School District	1,070,784	3.639605%	13,822,227	3.587507%	1,043,761	3.301535%	12,208,790	3.243953%
Triton Regional School District	1,009,079	3.429869%	13,074,496	3.393436%	1,105,295	3.496174%	13,022,854	3.460255%
Essex Housing Authority	12,670	0.043065%	122,774	0.031866%	16,433	0.051979%	154,080	0.040940%
Georgetown Housing Authority	47,093	0.160070%	614,397	0.159464%	50,648	0.160205%	600,870	0.159655%
Groveland Housing Authority	25,990	0.088340%	345,598	0.089699%	21,753	0.068807%	262,880	0.069849%
Hamilton Housing Authority	8,830	0.030013%	115,199	0.029899%	15,827	0.050063%	187,771	0.049892%
Ipswich Housing Authority	130,061	0.442079%	1,394,152	0.361847%	140,961	0.445876%	1,377,521	0.366016%
Lynnfield Housing Authority	20,214	0.068708%	268,799	0.069766%	18,645	0.058976%	225,328	0.059871%
Manchester Housing Authority	23,102	0.078524%	307,199	0.079732%	21,753	0.068807%	262,880	0.069849%

Employer Name	FY 2017 Total Appropriation	Percent of FY 2017 Total Appropriation	Share of NPL as of January 1, 2017	Percent of Total NPL as of January 1, 2017	FY 2018 Total Appropriation	Percent of FY 2018 Total Appropriation	Share of NPL as of January 1, 2018	Percent of Total NPL as of January 1, 2018
Merrimac Housing Authority	0	0.000000%	0	0.000000%	0	0.000000%	0	0.000000%
Middleton Housing Authority	14,439	0.049078%	191,999	0.049833%	15,537	0.049145%	187,771	0.049892%
Nahant Housing Authority	19,468	0.066172%	229,804	0.059645%	11,297	0.035734%	110,445	0.029346%
North Andover Housing Authority	143,078	0.486323%	1,726,009	0.447979%	146,927	0.464747%	1,639,603	0.435653%
Rockport Housing Authority	60,642	0.206123%	806,396	0.209297%	37,290	0.117953%	450,652	0.119741%
Rowley Housing Authority	11,773	0.040017%	153,599	0.039866%	12,430	0.039318%	150,218	0.039914%
Salisbury Housing Authority	26,684	0.090699%	345,598	0.089699%	28,489	0.090114%	337,990	0.089806%
Topsfield Housing Authority	23,102	0.078524%	307,199	0.079732%	15,537	0.049145%	187,771	0.049892%
Wenham Housing Authority	29,660	0.100815%	318,539	0.082676%	33,960	0.107419%	343,770	0.091342%
West Newbury Housing Authority	0	0.000000%	0	0.000000%	0	0.000000%	0	0.000000%
County of Essex	0	0.000000%	0	0.000000%	0	0.000000%	0	0.000000%
Grand Totals:	\$29,420,338	100.000000%	\$385,287,832	100.000000%	\$31,614,412	100.000000%	\$376,355,338	100.000000%

Note: NPL excluding ERI liability is allocated based on non-ERI appropriation with adjustment for payments on July 1 and December 31, with ERI liability then added to each Employer's allocated NPL.

Exhibit 6 – Determination of Proportionate Share

Employer Name	2018 Share of Cost Allocator (1)	Net Pension Liability (2)	Covered Employee Payroll (3)	Discount Rate Sensitivity		
				1% Decrease (6.50%) (4)	Current Discount Rate (7.50%) (5)	1% Increase (8.50%) (6)
Essex Regional Retirement System	0.369202%	\$1,389,511	\$486,710	\$1,748,174	\$1,389,511	\$1,087,826
Town of Boxford	3.692025%	13,895,133	4,727,147	17,481,767	13,895,133	10,878,275
Town of Essex	1.766185%	6,647,132	2,110,254	8,362,899	6,647,132	5,203,932
Town of Georgetown	5.143627%	19,358,316	6,333,757	24,355,113	19,358,316	15,155,311
Town of Groveland	2.223223%	8,367,218	2,770,480	10,526,978	8,367,218	6,550,560
Town of Hamilton	2.534525%	9,538,820	3,613,506	12,000,995	9,538,820	7,467,788
Town of Ipswich	10.287777%	38,718,599	13,748,965	48,712,702	38,718,599	30,312,162
Town of Lynnfield	7.993427%	30,083,690	10,519,886	37,848,938	30,083,690	23,552,032
Town of Manchester	3.362736%	12,655,836	4,387,209	15,922,581	12,655,836	9,908,049
Town of Merrimac	2.457981%	9,250,743	3,079,919	11,638,559	9,250,743	7,242,257
Town of Middleton	5.228705%	19,678,511	7,387,882	24,757,958	19,678,511	15,405,987
Town of Nahant	2.524547%	9,501,267	3,290,819	11,953,749	9,501,267	7,438,388
Town of Newbery	1.895905%	7,135,340	2,814,757	8,977,125	7,135,340	5,586,142
Town of North Andover	15.296958%	57,570,919	20,639,250	72,431,212	57,570,919	45,071,338
Town of Rockport	5.550019%	20,887,794	6,761,272	26,279,382	20,887,794	16,352,715
Town of Rowley	2.744072%	10,327,461	3,542,535	12,993,202	10,327,461	8,085,202
Town of Salisbury	3.767648%	14,179,744	5,495,084	17,839,842	14,179,744	11,101,092
Town of Topsfield	3.392671%	12,768,498	4,366,319	16,064,323	12,768,498	9,996,251
Town of Wenham	2.145366%	8,074,199	2,788,482	10,158,324	8,074,199	6,321,160
Town of West Newbury	1.823465%	6,862,708	2,495,211	8,634,121	6,862,708	5,372,703
Eastern Essex Veteran's District	0.099784%	375,542	117,124	472,478	375,542	294,006
North Andover - Boxford Veteran's District	0.000000%	0	0	0	0	0

Employer Name	2018 Share of Cost Allocator (1)	Net Pension Liability (2)	Covered Employee Payroll (3)	Discount Rate Sensitivity		
				1% Decrease (6.50%) (4)	Current Discount Rate (7.50%) (5)	1% Increase (8.50%) (6)
North Essex Veteran's District	0.000000%	0	0	0	0	0
Byfield Water District	0.069849%	262,880	90,192	330,736	262,880	205,805
Lynnfield Center Water District	0.269418%	1,013,969	362,590	1,275,696	1,013,969	793,820
Lynnfield Water District	0.209547%	788,641	273,147	992,207	788,641	617,415
Northeast Mosquito Control Project	0.528858%	1,990,385	532,944	2,504,147	1,990,385	1,558,240
Hamilton-Wenham Regional School District	2.783986%	10,477,680	3,709,896	13,182,195	10,477,680	8,202,806
Manchester-Essex Regional School District	1.706314%	6,421,804	1,771,429	8,079,410	6,421,804	5,027,526
Masconomet Regional School District	1.706314%	6,421,804	2,460,943	8,079,410	6,421,804	5,027,526
Pentucket Regional School District	3.243953%	12,208,790	3,812,481	15,360,142	12,208,790	9,558,065
Triton Regional School District	3.460255%	13,022,854	4,089,929	16,384,334	13,022,854	10,195,382
Essex Housing Authority	0.040940%	154,080	30,727	193,851	154,080	120,627
Georgetown Housing Authority	0.159655%	600,870	236,619	755,968	600,870	470,411
Groveland Housing Authority	0.069849%	262,880	82,391	330,736	262,880	205,805
Hamilton Housing Authority	0.049892%	187,771	59,952	236,239	187,771	147,003
Ipswich Housing Authority	0.366016%	1,377,521	414,348	1,733,089	1,377,521	1,078,439
Lynnfield Housing Authority	0.059871%	225,328	89,686	283,490	225,328	176,405
Manchester Housing Authority	0.069849%	262,880	130,158	330,736	262,880	205,805
Merrimac Housing Authority	0.000000%	0	38,015	0	0	0

Employer Name	2018 Share of Cost Allocator (1)	Net Pension Liability (2)	Covered Employee Payroll (3)	Discount Rate Sensitivity		
				1% Decrease (6.50%) (4)	Current Discount Rate (7.50%) (5)	1% Increase (8.50%) (6)
Middleton Housing Authority	0.049892%	187,771	67,172	236,239	187,771	147,003
Nahant Housing Authority	0.029346%	110,445	39,940	138,954	110,445	86,466
North Andover Housing Authority	0.435653%	1,639,603	537,818	2,062,820	1,639,603	1,283,619
Rockport Housing Authority	0.119741%	450,652	150,827	566,975	450,652	352,808
Rowley Housing Authority	0.039914%	150,218	54,311	188,993	150,218	117,604
Salisbury Housing Authority	0.089806%	337,990	99,849	425,232	337,990	264,607
Topsfield Housing Authority	0.049892%	187,771	60,117	236,239	187,771	147,003
Wenham Housing Authority	0.091342%	343,770	109,676	432,505	343,770	269,132
West Newbury Housing Authority	0.000000%	0	0	0	0	0
County of Essex	0.000000%	0	0	0	0	0
Grand Totals:	100.000000%	\$376,355,338	\$130,781,725	\$473,500,765	\$376,355,338	\$294,642,498

Employer Name	Schedule of Contributions					Pension Expense	
	Statutory Required Contribution (7)	Contributions In Relation to the Statutory Required Contribution (8)	Contribution Deficiency/ (Excess) (9)	Contributions as a Percentage of Covered Employee Payroll (10)	Proportionate Share of Plan Pension Expense (11)	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (12)	Total Employer Pension Expense (13)
Essex Regional Retirement System	\$114,978	\$114,978	\$0	23.623513%	\$147,662	\$5,344	\$153,006
Town of Boxford	1,149,773	1,151,281	-1,508	24.354669%	1,476,626	4,864	1,481,490
Town of Essex	550,026	550,026	0	26.064445%	706,386	53,225	759,611
Town of Georgetown	1,671,923	1,671,923	0	26.397018%	2,057,195	53,250	2,110,445
Town of Groveland	694,361	694,361	0	25.062842%	889,179	-94,640	794,539
Town of Hamilton	789,304	789,304	0	21.843163%	1,013,684	-167,268	846,416
Town of Ipswich	3,203,826	3,221,617	-17,791	23.431706%	4,114,599	-414,052	3,700,547
Town of Lynnfield	2,609,984	2,609,984	0	24.810003%	3,196,973	-41,508	3,155,465
Town of Manchester	1,047,225	1,047,225	0	23.869959%	1,344,927	75,662	1,420,589
Town of Merrimac	806,361	806,361	0	26.181240%	983,070	15,645	998,715
Town of Middleton	1,628,327	1,630,279	-1,952	22.066933%	2,091,222	191,021	2,282,243
Town of Nahant	786,196	786,196	0	23.890588%	1,009,693	103,003	1,112,696
Town of Newbery	590,423	590,423	0	20.975985%	758,268	-26,336	731,932
Town of North Andover	4,763,787	4,769,727	-5,940	23.109982%	6,118,021	337,994	6,456,015
Town of Rockport	1,735,586	1,746,856	-11,270	25.836204%	2,219,731	174,176	2,393,907
Town of Rowley	854,561	854,561	0	24.122867%	1,097,492	19,599	1,117,091
Town of Salisbury	1,265,738	1,273,581	-7,843	23.176734%	1,506,872	38,531	1,545,403
Town of Topsfield	1,056,547	1,058,923	-2,376	24.252076%	1,356,900	-23,804	1,333,096
Town of Wenham	668,111	668,111	0	23.959667%	858,040	95,032	953,072
Town of West Newbury	594,396	594,396	0	23.821472%	729,295	-74,641	654,654
Eastern Essex Veteran's District	31,075	31,075	0	26.531710%	39,909	903	40,812

Employer Name	Schedule of Contributions					Pension Expense	
	Statutory Required Contribution (7)	Contributions In Relation to the Statutory Required Contribution (8)	Contribution Deficiency/ (Excess) (9)	Contributions as a Percentage of Covered Employee Payroll (10)	Proportionate Share of Plan Pension Expense (11)	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (12)	Total Employer Pension Expense (13)
North Andover - Boxford Veteran's District	0	0	0	0.000000%	0	0	0
North Essex Veteran's District	0	0	0	0.000000%	0	0	0
Byfield Water District	21,753	21,753	0	24.118547%	27,936	-27,081	855
Lynnfield Center Water District	83,902	83,902	0	23.139634%	107,754	-33,191	74,563
Lynnfield Water District	65,257	65,257	0	23.890799%	83,808	4,143	87,951
Northeast Mosquito Control Project	164,697	164,697	0	30.903247%	211,517	-1,770	209,747
Hamilton-Wenham Regional School District	866,990	866,990	0	23.369658%	1,113,456	2,411	1,115,867
Manchester-Essex Regional School District	531,381	531,381	0	29.997307%	682,441	-62,220	620,221
Masconomet Regional School District	531,381	531,381	0	21.592577%	682,441	-96,181	586,260
Pentucket Regional School District	1,043,761	1,043,761	0	27.377474%	1,297,420	-195,340	1,102,080
Triton Regional School District	1,105,295	1,105,295	0	27.024797%	1,383,930	210,951	1,594,881
Essex Housing Authority	16,433	16,433	0	53.480652%	16,374	23,065	39,439
Georgetown Housing Authority	50,648	50,648	0	21.404875%	63,854	6,374	70,228
Groveland Housing Authority	21,753	21,753	0	26.402156%	27,936	-21,055	6,881
Hamilton Housing Authority	15,827	15,827	0	26.399453%	19,954	7,369	27,323

Employer Name	Schedule of Contributions					Pension Expense	
	Statutory Required Contribution (7)	Contributions In Relation to the Statutory Required Contribution (8)	Contribution Deficiency/ (Excess) (9)	Contributions as a Percentage of Covered Employee Payroll (10)	Proportionate Share of Plan Pension Expense (11)	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (12)	Total Employer Pension Expense (13)
Ipswich Housing Authority	140,961	140,961	0	34.019954%	146,388	-8,982	137,406
Lynnfield Housing Authority	18,645	18,645	0	20.789198%	23,945	-7,460	16,485
Manchester Housing Authority	21,753	21,753	0	16.712764%	27,936	-7,414	20,522
Merrimac Housing Authority	0	0	0	0.000000%	0	0	0
Middleton Housing Authority	15,537	15,537	0	23.130173%	19,954	-19,675	279
Nahant Housing Authority	11,297	11,297	0	28.284927%	11,737	-31,936	-20,199
North Andover Housing Authority	146,927	146,927	0	27.319093%	174,240	-28,611	145,629
Rockport Housing Authority	37,290	37,290	0	24.723690%	47,890	-32,329	15,561
Rowley Housing Authority	12,430	12,430	0	22.886708%	15,964	-405	15,559
Salisbury Housing Authority	28,489	28,489	0	28.532083%	35,918	-6,710	29,208
Topsfield Housing Authority	15,537	15,537	0	25.844603%	19,954	-2,119	17,835
Wenham Housing Authority	33,960	33,960	0	30.963930%	36,532	8,536	45,068
West Newbury Housing Authority	0	0	0	0.000000%	0	-6,370	-6,370
County of Essex	0	0	0	0.000000%	0	0	0
Grand Totals:	\$31,614,412	\$31,663,092	-\$48,680	24.210000%	\$39,995,023	\$0	\$39,995,023

Employer Name	Deferred Outflows of Resources				Deferred Inflows of Resources				
	Differences Between Expected and Actual Experience (14)	Changes of Assumptions (15)	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (16)	Total Deferred Outflows of Resources (17)	Differences Between Expected and Actual Experience (18)	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments (19)	Changes of Assumptions (20)	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (21)	Total Deferred Inflows of Resources (22)
Essex Regional Retirement System	\$0	\$114,083	\$54,894	\$168,977	\$19,664	\$61,177	\$0	\$43,489	\$124,330
Town of Boxford	0	1,140,831	98,542	1,239,373	196,642	611,775	0	55,615	864,032
Town of Essex	0	545,749	195,405	741,154	94,069	292,660	0	7,362	394,091
Town of Georgetown	0	1,589,374	448,357	2,037,731	273,956	852,308	0	214,422	1,340,686
Town of Groveland	0	686,973	178,221	865,194	118,412	368,392	0	389,788	876,592
Town of Hamilton	0	783,165	233,029	1,016,194	134,992	419,975	0	799,548	1,354,515
Town of Ipswich	0	3,178,912	0	3,178,912	547,940	1,704,703	0	1,296,380	3,549,023
Town of Lynnfield	0	2,469,960	173,692	2,643,652	425,740	1,324,525	0	217,757	1,968,022
Town of Manchester	0	1,039,081	294,296	1,333,377	179,104	557,211	0	231,485	967,800
Town of Merrimac	0	759,513	102,339	861,852	130,915	407,292	0	42,565	580,772
Town of Middleton	0	1,615,663	753,150	2,368,813	278,488	866,406	0	41,209	1,186,103
Town of Nahant	0	780,082	1,143,418	1,923,500	134,461	418,322	0	599,249	1,152,032
Town of Newbery	0	585,832	65,603	651,435	100,978	314,155	0	214,328	629,461
Town of North Andover	0	4,726,742	1,217,857	5,944,599	814,737	2,534,734	0	59,010	3,408,481
Town of Rockport	0	1,714,949	615,202	2,330,151	295,601	919,648	0	8,362	1,223,611
Town of Rowley	0	847,915	270,509	1,118,424	146,153	454,698	0	316,906	917,757
Town of Salisbury	0	1,164,199	590,534	1,754,733	200,670	624,306	0	300,225	1,125,201
Town of Topsfield	0	1,048,331	222,057	1,270,388	180,698	562,172	0	401,362	1,144,232
Town of Wenham	0	662,915	387,279	1,050,194	114,265	355,491	0	50,077	519,833
Town of West Newbury	0	563,448	95,476	658,924	97,120	302,151	0	311,212	710,483
Eastern Essex Veteran's District	0	30,833	71,136	101,969	5,315	16,534	0	43,125	64,974
North Andover - Boxford Veteran's District	0	0	0	0	0	0	0	0	0

Employer Name	Deferred Outflows of Resources				Deferred Inflows of Resources				
	Differences Between Expected and Actual Experience (14)	Changes of Assumptions (15)	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (16)	Total Deferred Outflows of Resources (17)	Differences Between Expected and Actual Experience (18)	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments (19)	Changes of Assumptions (20)	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (21)	Total Deferred Inflows of Resources (22)
North Essex Veteran's District	0	0	0	0	0	0	0	0	0
Byfield Water District	0	21,583	239	21,822	3,720	11,574	0	86,158	101,452
Lynnfield Center Water District	0	83,250	111,387	194,637	14,350	44,643	0	211,637	270,630
Lynnfield Water District	0	64,750	47,304	112,054	11,161	34,722	0	57,408	103,291
Northeast Mosquito Control Project	0	163,416	81,649	245,065	28,168	87,633	0	86,209	202,010
Hamilton-Wenham Regional School District	0	860,248	101,331	961,579	148,279	461,311	0	173,809	783,399
Manchester-Essex Regional School District	0	527,249	10,568	537,817	90,881	282,739	0	226,176	599,796
Masconomet Regional School District	0	527,249	0	527,249	90,881	282,739	0	316,082	689,702
Pentucket Regional School District	0	1,002,378	207,790	1,210,168	172,777	537,529	0	1,115,969	1,826,275
Triton Regional School District	0	1,069,215	599,444	1,668,659	184,298	573,370	0	0	757,668
Essex Housing Authority	0	12,650	64,025	76,675	2,181	6,784	0	446	9,411
Georgetown Housing Authority	0	49,333	22,312	71,645	8,503	26,455	0	1,231	36,189
Groveland Housing Authority	0	21,583	0	21,583	3,720	11,574	0	78,673	93,967
Hamilton Housing Authority	0	15,417	57,446	72,863	2,657	8,267	0	21,928	32,852
Ipswich Housing Authority	0	113,098	51,726	164,824	19,494	60,649	0	50,920	131,063
Lynnfield Housing Authority	0	18,500	34	18,534	3,189	9,921	0	29,337	42,447
Manchester Housing Authority	0	21,583	39	21,622	3,720	11,574	0	29,238	44,532
Merrimac Housing Authority	0	0	0	0	0	0	0	0	0
Middleton Housing Authority	0	15,417	170	15,587	2,657	8,267	0	50,046	60,970
Nahant Housing Authority	0	9,068	1,604	10,672	1,563	4,863	0	111,855	118,281

Employer Name	Deferred Outflows of Resources				Deferred Inflows of Resources				
	Differences Between Expected and Actual Experience (14)	Changes of Assumptions (15)	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (16)	Total Deferred Outflows of Resources (17)	Differences Between Expected and Actual Experience (18)	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments (19)	Changes of Assumptions (20)	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions (21)	Total Deferred Inflows of Resources (22)
North Andover Housing Authority	0	134,616	7,189	141,805	23,203	72,188	0	89,531	184,922
Rockport Housing Authority	0	37,000	90,403	127,403	6,378	19,841	0	257,718	283,937
Rowley Housing Authority	0	12,333	295	12,628	2,126	6,614	0	1,148	9,888
Salisbury Housing Authority	0	27,750	14,118	41,868	4,783	14,881	0	41,774	61,438
Topsfield Housing Authority	0	15,417	63,227	78,644	2,657	8,267	0	86,791	97,715
Wenham Housing Authority	0	28,225	49,679	77,904	4,865	15,136	0	11,401	31,402
West Newbury Housing Authority	0	0	0	0	0	0	0	14,013	14,013
County of Essex	0	0	0	0	0	0	0	0	0
Grand Totals:	\$0	\$30,899,878	\$8,792,975	\$39,692,853	\$5,326,131	\$16,570,176	\$0	\$8,792,974	\$30,689,281

Employer Name	Deferred Inflows/(Outflows) Recognized In Future Pension Expense (Year Ended June 30)					
	2019 (23)	2020 (24)	2021 (25)	2022 (26)	2023 (27)	Thereafter (28)
Essex Regional Retirement System	\$24,252	\$25,604	-\$2,362	-\$2,847	\$0	\$0
Town of Boxford	193,947	207,468	27,140	-53,214	0	0
Town of Essex	143,678	150,147	55,931	-2,693	0	0
Town of Georgetown	316,676	335,513	127,862	-83,006	0	0
Town of Groveland	19,220	27,362	-40,545	-17,435	0	0
Town of Hamilton	-37,465	-28,183	-86,266	-186,407	0	0
Town of Ipswich	112,826	150,501	-330,658	-302,780	0	0
Town of Lynnfield	367,867	397,141	31,764	-121,142	0	0
Town of Manchester	247,881	260,196	-18,103	-124,397	0	0
Town of Merrimac	141,528	150,530	32,515	-43,493	0	0
Town of Middleton	458,804	477,952	218,307	27,647	0	0
Town of Nahant	232,295	241,541	105,815	191,817	0	0
Town of Newbery	70,761	77,704	-43,061	-83,430	0	0
Town of North Andover	1,121,413	1,177,432	366,769	-129,496	0	0
Town of Rockport	458,415	478,740	183,384	-13,999	0	0
Town of Rowley	160,134	170,183	-6,669	-122,981	0	0
Town of Salisbury	231,487	245,285	161,870	-9,110	0	0
Town of Topsfield	149,948	162,373	-29,333	-156,832	0	0
Town of Wenham	204,905	212,762	79,449	33,245	0	0
Town of West Newbury	18,746	25,424	-21,880	-73,849	0	0
Eastern Essex Veteran's District	6,013	6,379	16,808	7,795	0	0
North Andover - Boxford Veteran's District	0	0	0	0	0	0

Employer Name	Deferred Inflows/(Outflows) Recognized In Future Pension Expense (Year Ended June 30)					
	2019 (23)	2020 (24)	2021 (25)	2022 (26)	2023 (27)	Thereafter (28)
North Essex Veteran's District	0	0	0	0	0	0
Byfield Water District	-23,504	-23,248	-26,220	-6,658	0	0
Lynnfield Center Water District	-19,393	-18,406	-41,118	2,924	0	0
Lynnfield Water District	14,875	15,642	-4,570	-17,184	0	0
Northeast Mosquito Control Project	25,315	27,252	-7,995	-1,517	0	0
Hamilton-Wenham Regional School District	144,990	155,186	-23,466	-98,530	0	0
Manchester-Essex Regional School District	25,167	31,416	-59,645	-58,917	0	0
Masconomet Regional School District	-8,794	-2,545	-77,886	-73,228	0	0
Pentucket Regional School District	-29,204	-17,324	-253,865	-315,714	0	0
Triton Regional School District	388,164	400,837	131,537	-9,547	0	0
Essex Housing Authority	25,162	25,312	10,423	6,367	0	0
Georgetown Housing Authority	14,551	15,135	7,420	-1,650	0	0
Groveland Housing Authority	-17,478	-17,222	-20,662	-17,022	0	0
Hamilton Housing Authority	9,924	10,107	7,916	12,064	0	0
Ipswich Housing Authority	9,763	11,104	10,909	1,985	0	0
Lynnfield Housing Authority	-4,394	-4,175	-6,994	-8,350	0	0
Manchester Housing Authority	-3,837	-3,581	-6,945	-8,547	0	0
Merrimac Housing Authority	0	0	0	0	0	0
Middleton Housing Authority	-17,120	-16,937	-9,013	-2,313	0	0
Nahant Housing Authority	-30,433	-30,326	-24,605	-22,245	0	0

Employer Name	Deferred Inflows/(Outflows) Recognized In Future Pension Expense (Year Ended June 30)					
	2019 (23)	2020 (24)	2021 (25)	2022 (26)	2023 (27)	Thereafter (28)
North Andover Housing Authority	-6,299	-4,704	-15,091	-17,023	0	0
Rockport Housing Authority	-26,197	-25,758	-41,736	-62,843	0	0
Rowley Housing Authority	1,639	1,785	104	-788	0	0
Salisbury Housing Authority	-2,111	-1,782	-11,377	-4,300	0	0
Topsfield Housing Authority	436	619	-1,614	-18,512	0	0
Wenham Housing Authority	13,214	13,549	13,024	6,715	0	0
West Newbury Housing Authority	-6,370	-6,370	-1,273	0	0	0
County of Essex	0	0	0	0	0	0
Grand Totals:	\$5,121,397	\$5,487,620	\$375,995	-\$1,981,440	\$0	\$0

Appendix – Glossary of Terms

Definitions of certain terms *as they are used in Statement 68*. The terms may have different meanings in other contexts.

Active Employees:	Individuals employed at the end of the reporting or measurement period, as applicable.
Actual Contributions:	Cash contributions recognized as additions to a pension Plan Fiduciary Net Position.
Actuarial Present Value of Projected Benefit Payments:	Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
Actuarial Valuation:	The determination, as of a point in time (the actuarial valuation date), of the service cost, Total Pension Liability, and related actuarial present value of projected benefit payments for pensions performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.
Actuarial Valuation Date:	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution:	A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.
Ad Hoc Cost-of-Living Adjustments (Ad Hoc COLAs):	Cost-of-living adjustments that require a decision to grant by the authority responsible for making such decisions.
Ad Hoc Postemployment Benefit Changes:	Postemployment benefit changes that require a decision to grant by the authority responsible for making such decisions.
Agent Employer:	An employer whose employees are provided with pensions through an agent multiple-employer defined benefit pension plan.
Agent Multiple-Employer Defined Benefit Pension Plan (Agent Pension Plan):	A multiple-employer defined benefit pension plan in which pension plan assets are pooled for investment purposes but separate accounts are maintained for each individual employer so that each employer's share of the pooled assets is legally available to pay the benefits of only its employees.
Allocated Insurance Contract:	A contract with an insurance company under which related payments to the insurance company are currently used to purchase immediate or deferred annuities for individual employees. Also may be referred to as an annuity contract.
Automatic Cost-of-Living Adjustments (Automatic COLAs):	Cost-of-living adjustments that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).

Automatic Postemployment Benefit Changes:	Postemployment benefit changes that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).
Closed Period:	A specific number of years that is counted from one date and declines to zero with the passage of time. For example, if the recognition period initially is five years on a closed basis, four years remain after the first year, three years after the second year, and so forth.
Collective Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions:	Deferred outflows of resources and deferred inflows of resources related to pensions arising from certain changes in the collective Net Pension Liability.
Collective Net Pension Liability:	The Net Pension Liability for benefits provided through (1) a cost-sharing pension plan or (2) a single-employer or agent pension plan in circumstances in which there is a special funding situation.
Collective Pension Expense:	Pension expense arising from certain changes in the collective Net Pension Liability.
Contributions:	Additions to a pension Plan Fiduciary Net Position for amounts from employers, non-employer contributing entities (for example, state government contributions to a local government pension plan), or employees. Contributions can result from cash receipts by the pension plan or from recognition by the pension plan of a receivable from one of these sources.
Cost-of-Living Adjustments:	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Employer:	An employer whose employees are provided with pensions through a cost-sharing multiple-employer defined benefit pension plan.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (Cost-Sharing Pension Plan):	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll:	The payroll of employees that are provided with pensions through the pension plan.
Deferred Retirement Option Program (DROP):	A program that permits an employee to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The employee continues to provide service to the employer and is paid for that service by the employer after the DROP entry date; however, the pensions that would have been paid to the employee (if the employee had retired and not entered the DROP) are credited to an individual employee account within the defined benefit pension plan until the end of the DROP period.
Defined Benefit Pension Plans:	Pension plans that are used to provide defined benefit pensions.

Defined Benefit Pensions:	Pensions for which the income or other benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The pensions may be stated as a specified dollar amount or as an amount that is calculated based on one or more factors such as age, years of service, and compensation. (A pension that does not meet the criteria of a defined contribution pension is classified as a defined benefit pension for purposes of Statement 68.)
Defined Contribution Pension Plans:	Pension plans that are used to provide defined contribution pensions.
Defined Contribution Pensions:	Pensions having terms that (1) provide an individual account for each employee; (2) define the contributions that an employer is required to make (or the credits that it is required to provide) to an active employee's account for periods in which that employee renders service; and (3) provide that the pensions an employee will receive will depend only on the contributions (or credits) to the employee's account, actual earnings on investments of those contributions (or credits), and the effects of forfeitures of contributions (or credits) made for other employees, as well as pension plan administrative costs, that are allocated to the employee's account.
Discount Rate:	<p>The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following:</p> <ol style="list-style-type: none"> 1. The actuarial present value of benefit payments projected to be made in future periods in which (a) the amount of the pension Plan Fiduciary Net Position is projected (under the requirements of Statement 68) to be greater than the benefit payments that are projected to be made in that period and (b) pension plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on pension plan investments. 2. The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.
Entry Age Actuarial Cost Method:	A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the actuarial accrued liability.
Inactive Employees:	Terminated individuals that have accumulated benefits but are not yet receiving them, and retirees or their beneficiaries currently receiving benefits.
Measurement Period:	The period between the prior and the current measurement dates.
Multiple-Employer Defined Benefit Pension Plan:	A defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Net Pension Liability (NPL):	The liability of employers and non-employer contributing entities to employees for benefits provided through a defined benefit pension plan.

Non-Employer Contributing Entities:	Entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of Statement 68, employees are not considered non-employer contributing entities.
Other Postemployment Benefits:	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits, regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Pension Plans:	Arrangements through which pensions are determined, assets dedicated for pensions are accumulated and managed and benefits are paid as they come due.
Pensions:	Retirement income and, if provided through a pension plan, postemployment benefits other than retirement income (such as death benefits, life insurance, and disability benefits). Pensions do not include postemployment healthcare benefits and termination benefits.
Plan Members:	Individuals that are covered under the terms of a pension plan. Plan members generally include (1) employees in active service (active plan members) and (2) terminated employees who have accumulated benefits but are not yet receiving them and retirees or their beneficiaries currently receiving benefits (inactive plan members).
Postemployment:	The period after employment.
Postemployment Benefit Changes:	Adjustments to the pension of an inactive employee.
Postemployment Healthcare Benefits:	Medical, dental, vision, and other health-related benefits paid subsequent to the termination of employment.
Projected Benefit Payments:	All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and their expected future service.
Public Employee Retirement System:	A special-purpose government that administers one or more pension plans; also may administer other types of employee benefit plans, including postemployment healthcare plans and deferred compensation plans.
Real Rate of Return:	The rate of return on an investment after adjustment to eliminate inflation.
Service Costs:	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Single Employer:	An employer whose employees are provided with pensions through a single-employer defined benefit pension plan.
Single-Employer Defined Benefit Pension Plan (Single-Employer Pension Plan):	A defined benefit pension plan that is used to provide pensions to employees of only one employer.

Special Funding Situations:	<p>Circumstances in which a non-employer entity is legally responsible for making contributions directly to a pension plan that is used to provide pensions to the employees of another entity or entities and either of the following conditions exists:</p> <ol style="list-style-type: none"> 1. The amount of contributions for which the non-employer entity legally is responsible is not dependent upon one or more events or circumstances unrelated to the pensions. 2. The non-employer entity is the only entity with a legal obligation to make contributions directly to a pension plan.
Termination Benefits:	<p>Inducements offered by employers to active employees to hasten the termination of services, or payments made in consequence of the early termination of services. Termination benefits include early-retirement incentives, severance benefits, and other termination-related benefits.</p>
Total Pension Liability (TPL):	<p>The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of Statement 68.</p>