ESSEX REGIONAL

RETIREMENT SYSTEM

AUDIT REPORT

JANUARY 1, 2015 - DECEMBER 31, 2019



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COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

PHILIP Y. BROWN, ESO., Chairman

JOHN W. PARSONS, ESQ., Executive Director

Auditor SUZANNE M. BUMP | KATHLEEN M. FALLON | KATE FITZPATRICK | JAMES M. MACHADO | RICHARD MACKINNON, JR. | JENNIFER F. SULLIVAN

April 5, 2021

The Public Employee Retirement Administration Commission (PERAC) has completed a review of the audits of the Essex Regional Retirement System (ERRS) conducted by the firm of Powers & Sullivan, LLC, Certified Public Accountants. Powers & Sullivan conducted these audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits in *Government Auditing Standards*, issued by the Comptroller General of the United States. The audits covered the period from January 1, 2015 to December 31, 2019.

We conducted an inspection of the work papers prepared by Powers & Sullivan. We determined that the audits were conducted in a competent, professional manner and the work papers demonstrated that audit tests and procedures were performed in sufficient detail to allow us to accept the final audit reports as issued.

We identified specific differences between these financial audits designed to provide an opinion on financial statements and our compliance audits performed in accordance with the accounting and management standards established by PERAC in regulation 840 CMR 25.00 and in compliance with the provisions specified in PERAC Memo #18/2019.

Accordingly, we supplemented the field work conducted in the audits by Powers & Sullivan with certain limited procedures designed to provide additional assurance that the accounting and management standards established by PERAC were adhered to and complied with. The specific objectives of our review were to determine: I) that the Board is exercising appropriate fiduciary oversight, 2) that cash balances are accurately stated, 3) that procurements on non-investment contracted providers complied with 23B and that fees paid were in accordance with contracts, 4) that travel expenses were properly documented and accounted for, 5) that retirement contributions are accurately deducted, 6) that retirement allowances were correctly calculated, and 7) that required member documentation is maintained.

To achieve these objectives, we inspected certain records of the Essex Regional Retirement Board in the above areas. Specifically, we reviewed the minutes of the Board meetings for compliance with fiduciary oversight, verified cash balances, examined a sample of non-investment procurements and recalculated the fees charged. We tested a sample of travel expenses for Board approvals, supporting documentation and proper accounting. We tested the payroll records of a sample of active members to confirm that the correct percentage of regular compensation is being deducted, including the additional two percent over \$30,000. We tested a sample of members who retired during our audit period to verify that their retirement allowance was calculated in accordance with the statute. We also reviewed a sample of member files for accuracy and completeness.





In our opinion, the financial records are being maintained and the management functions are being performed in conformity with the standards established by PERAC.

It should be noted that the financial statements included in this audit report were based on the work performed by Powers & Sullivan and the tests conducted for the periods referenced in their opinions. These audits were not performed by employees or representatives of PERAC. It should also be noted that the opinions expressed in these audit reports were based on the laws and regulations in effect at the time.

The financial statements and footnotes presented in this report were limited to the express results as of and for the years ended December 31, 2019, December 31, 2018, December 31, 2016, December 31, 2016 and December 31, 2015.

In closing, I wish to acknowledge the work of Powers & Sullivan, who conducted these examinations, the PERAC auditors who conducted limited procedures to supplement the field work, and express my appreciation to the Essex Regional Retirement Board and staff for their courtesy and cooperation.

Sincerely

John W. Parsons, Esq. Executive Director

SUPPLEMENTARY INFORMATION SCHEDULE OF ALLOCATION OF INVESTMENTS OWNED

(percentages by category)

	AS OF DECEMBER 31, 2019				
	PERCENTA				
		OF TOTAL			
	MARKET VALUE	ASSETS			
Cash	\$2,605,385	0.5%			
Fixed Income Securities	1,189	0.0%			
Pooled Alternative Investment Funds	6,827,074	1.3%			
Pooled Real Estate Funds	36,945	0.0%			
PRIT Cash Fund	1,004,066	0.2%			
PRIT Core Fund	<u>510,315,603</u>	<u>98.0</u> %			
Grand Total	<u>\$520,790,262</u>	<u>100.0%</u>			

For the year ending December 31, 2019, the rate of return for the investments of the Essex Regional Retirement System was 16.49%. For the five-year period ending December 31, 2019, the rate of return for the investments of the Essex Regional Retirement System averaged 8.05%. For the 35-year period ending December 31, 2019, since PERAC began evaluating the returns of the retirement systems, the rate of return on the investments of the Essex Regional Retirement System was 8.81%.

The composite rate of return for all retirement systems for the year ending December 31, 2019 was 16.90%. For the five-year period ending December 31, 2019, the composite rate of return for the investments of all retirement systems averaged 7.95%. For the 35-year period ending December 31, 2019, since PERAC began evaluating the returns of the retirement systems, the composite rate of return on the investments of all retirement systems averaged 9.22%.

SUPPLEMENTARY INFORMATION (Continued)

ADMINISTRATION OF THE SYSTEM

The System is administered by a five-person Board of Retirement. One member shall be appointed by the chief administrative officers of the member units, a second member appointed by the Advisory Council, a third and fourth member who shall be elected by the members in or retired from service of such system, and a fifth member appointed by the other four board members.

Appointed Member: Andrew Sheehan Term Expires: 12/01/23

Appointed Member: Kevin A. Merz Term Expires: 12/01/21

Elected Member: Susan J. Yaskell Term Expires: 12/01/22

Elected Member: H. Joseph Maney, Chairman Term Expires: 12/01/22

Appointed Member: Vincent R. Malgeri Term Expires: 12/12/25

The Board members are required to meet at least once a month. The Board must keep a record of all of its proceedings. The Board must annually submit to the appropriate authority an estimate of the expenses of administration and cost of operation of the system. The board must annually file a financial statement of condition for the system with the Executive Director of PERAC.

The investment of the system's funds is the responsibility of the Board. All retirement allowances must be approved by the Retirement Board. The PERAC Actuary performs verification prior to payment, unless the system has obtained a waiver for superannuation calculations allowing them to bypass this requirement. All expenses incurred by the System must be approved by a majority vote of the Board. Payments shall be made only upon vouchers signed by two persons designated by the Board.

Retirement board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. Fidelity insurance is the only required policy coverage under Ch. 32 §21 and §23 as well as 840 CMR 17.01. The policy is designed to cover specific intentional acts such as theft, fraud or embezzlement and also specify who commits such acts, most commonly employees of the system. This coverage reimburses the system for the losses it suffers as a result of its employees' actions. It does not insure the employees for their illegal acts. Statutorily required coverage is provided by the current fidelity insurance policy to a limit of \$1,000,000 with a \$10,000 deductible issued through Travelers Casualty and Surety Company. The system also has Fiduciary coverage to a limit of \$50,000,000 under a blanket policy issued through the Massachusetts Association of Contributory Retirement Systems.

BOARD REGULATIONS

The Essex Regional Retirement System has adopted Supplemental Regulations which are available on the PERAC website at https://www.mass.gov/essex-regional-retirement-board-regulations.

SUPPLEMENTARY INFORMATION (Continued)

ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Segal Consulting as of January I, 2020.

The actuarial liability for active members was	\$404,422,163
The actuarial liability for vested terminated members was	15,241,999
The actuarial liability for non-vested terminated members was	6,025,575
The actuarial liability for retired members was	520,189,115
The total actuarial liability was	\$945,878,852
System assets as of that date were (actuarial value)	508,759,357
The unfunded actuarial liability was	\$ <u>437,119,495</u>
The ratio of system's assets to total actuarial liability was	53.8%
As of that date the total covered employee payroll was	\$144,695,269

The normal cost for employees on that date was 10.2% of payroll

The normal cost for the employer including administrative expense was 5.4% of payroll

The principal actuarial assumptions used in the valuation are as follows:

Investment Return: 7.30% per annum

Rate of Salary Increase: Varies by group and service

SCHEDULE OF FUNDING PROGRESS AS OF JANUARY 1, 2020

	Actuarial	Actuarial	Unfunded			UAAL as a
Actuarial	Value of	Accrued	AAL	Funded	Covered	% of
Valuation	Assets	Liability	(UAAL)	Ratio	Payroll	Cov. Payroll
Date	(a)	(b)	(b-a)	(a/b)	(c)	((b-a)/c)
1/1/2020	\$508,759,357	\$945,878,852	\$437,119,495	53.8%	\$144,695,269	302.1%
1/1/2018	\$450,330,846	\$843,829,627	\$393,498,781	53.4%	\$130,781,725	300.9%
1/1/2016	\$386,739,098	\$745,583,658	\$358,844,560	51.9%	\$126,928,690	282.7%
1/1/2014	\$327,727,973	\$676,474,202	\$348,746,229	48.4%	\$119,733,698	291.3%
1/1/2013	\$314,565,925	\$619,339,080	\$304,773,155	50.8%	\$119,292,287	255.5%

^{*} Beginning with 1/1/2016 valuation, we used total payroll as the covered payroll.

SUPPLEMENTARY INFORMATION (Continued)

MEMBERSHIP EXHIBIT

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Retirement in Past Years										
Superannuation	73	85	64	82	91	96	101	94	88	89
Ordinary Disability	0	0	0	1	I	I	0	0	2	2
Accidental Disability	2	2	2	5	0	I	1	I	I	1
Total Retirements	75	87	66	88	92	98	102	95	91	92
Total Retirees, Beneficiaries										
and Survivors	1,750	1,717	1,651	1,691	1,712	1,758	1,798	1,825	1,858	1,930
Total Active Members	3,098	3,072	2,850	2,740	2,747	2,739	2,722	2,666	2,774	2,892
Pension Payments										
Superannuation	\$19,973,945	\$21,040,188	\$22,186,140	\$22,887,735	\$23,536,014	\$24,385,981	\$25,551,837	\$26,806,821	\$27,858,890	\$29,271,883
Survivor/Beneficiary Payments	1,352,405	1,521, 4 66	1,659,123	1,650,745	1,779,671	1,860,433	1,955,069	2,038,417	1,911,172	1,878,014
Ordinary Disability	197,430	170,025	213,554	262,644	270,462	248,943	274,120	261,853	288,269	312,998
Accidental Disability	2,909,020	2,828,529	3,012,970	3,096,826	3,196,798	3,248,115	3,316,963	3,402,878	3, 4 51,106	3,425,911
Other	743,772	639,386	743,419	800,879	830,971	844,316	852,220	<u>768,174</u>	<u>747,301</u>	689,832
Total Payments for Year	\$ <u>25,176,572</u>	\$ <u>26,199,594</u>	\$ <u>27,815,206</u>	\$ <u>28,698,829</u>	\$ <u>29,613,916</u>	\$30,587,788	\$ <u>31,950,209</u>	\$ <u>33,278,143</u>	\$ <u>34,256,738</u>	\$35,578,638

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2019

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2019

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Financial Section

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Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsulliyan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2019, and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Essex Regional Retirement System as of December 31, 2019, and the results of its operations and changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis; the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Returns be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated July 30, 2020, on our consideration of the Essex Regional Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Essex Regional Retirement System's internal control over financial reporting and compliance.

Restriction on Use

This report is intended solely for the information and use of Essex Regional Retirement System, the Public Employee Retirement Administration Commission and all member units and is not intended to be and should not be used by anyone other than these specified parties.

July 30, 2020

Powers & Sullivan LC.

Management's Discussion and Analysis

As management of the Essex Regional Retirement System, we offer readers of these financial statements this narrative overview and analysis of the financial activities for the year ended December 31, 2019. The System complies with financial reporting requirements issued by the Governmental Accounting Standards Board (GASB).

The GASB is the authoritative standard setting body that provides guidance on how to prepare financial statements in conformity with generally accepted accounting principles (GAAP). Users of these financial statements rely on the GASB to establish consistent reporting standards for all governments in the United States. This consistent application is the only way users can assess the financial condition of a public retirement system compared to others.

Financial Highlights

- The System's assets exceeded its liabilities at the close of the most recent year by \$524.6 million (net position).
- The System's net position increased by \$68.8 million for the year ended December 31, 2019.
- Total investment income was \$73.6 million; investment expenses were \$2.5 million; and net investment income was \$71.1 million.
- Total contributions were \$54.0 million including \$36.1 million from employers, \$14.3 million from members, and \$3.6 million from other contributions.
- Retirement benefits, refunds and transfers amounted to \$55.2 million.
- Administrative expenses were \$990,000.
- The Total Pension Liability is \$945.9 million as of December 31, 2019 while the Net Pension Liability is \$421.3 million.
- The Plan fiduciary net position as a percentage of the total pension liability is 55.46%.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the System's fiduciary financial statements. These fiduciary financial statements comprise of four components: 1) management's discussion and analysis, 2) fiduciary financial statements, 3) notes to the financial statements and 4) required supplementary information.

Fiduciary Financial Statements

The *statement of net position* presents information on all assets and deferred outflows less deferred inflows and liabilities with the difference reported as *net position*. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position is improving or deteriorating.

The statement of changes in fiduciary net position presents information showing how the System's net position changed during the most recent year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, additions and deductions are reported in this statement for some items that will only result in cash flows in future periods.

Notes to the financial statements

The notes provide additional information that is essential to a full understanding of the data provided in the fiduciary financial statements.

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Essex Regional Retirement System

Management's Discussion and Analysis

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Returns be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context.

Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of the System's financial position. The System's assets exceeded liabilities by \$524.6 million at the close of 2019.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year-end, the System's net position includes investments of \$517.2 million, cash of \$3.6 million, accounts receivable of \$3.9 million, and capital assets of \$156,000.

In 2019, the System's contributions totaled \$54.0 million while deductions totaled \$56.2 million, which resulted in a current deficiency of (\$2.3) million. A (\$1.0) million deficiency occurred in 2018. For 2019, investment income supported current operations. For 2018, a net investment loss was reported, resulting in a decrease in the System's net position.

The main difference of the increase (decrease) in net position between years was the change in net investment income between years. In 2018 the System experienced a net investment loss of \$10.7 million, however in 2019, the System had net investment income of \$71.1 million. The annual money weighted rate of return was 16.13% and -2.43% in 2019 and 2018 respectively. Fluctuations in the System's annual investment returns are expected.

The following tables present summarized financial information for the past two years.

	2019	2018
Statement of Fiduciary Net Position		
Assets:		
Cash and cash equivalents\$	3,609,452	\$ 2,156,881
Investments	517,180,811	449,147,353
Receivables	3,919,155	4,339,105
Capital assets, net of accumulated depreciation	155,719	166,977
•		
Total assets	524,865,137	455,810,316
•		
Liabilities:		
Accounts payable	300,933	73,214
Abandoned property	1,282	-
•		
Total liabilities	302,215	73,214
•		
Net Position Restricted for Pension Benefits \$	524,562,922	\$ 455,737,102

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Essex Regional Retirement System

Management's Discussion and Analysis

	2019		2018
Statement of Changes in Fiduciary Net Position			
Additions:			
Contributions:	11070 105	_	10 000 000
Member contributions\$	14,270,165	\$	13,636,998
Employer contributionsOther contributions	36,090,030 3,590,760		33,969,088
Other contributions	3,590,760		4,291,824
Total contributions	53,950,955		51,897,910
Net investment income (loss):	70.040.000		(0.000.000)
Total investment income (loss)	73,618,293		(8,233,888)
Less, investment expenses	(2,499,157)		(2,489,505)
Net investment income (loss)	71,119,136		(10,723,393)
Total additions	125,070,091		41,174,517
Deductions:			
Administration	990.011		955, 252
Retirement benefits, refunds and transfers	55,254,260		51,956,452
realisment benefite, relating and transferent	00,201,200		01,000,102
Total deductions	56,244,271		52,911,704
Net increase (decrease) in fiduciary net position	68,825,820		(11,737,187)
Fiduciary net position at beginning of year	455,737,102		467,474,289
Fiduciary net position at end of year\$	524,562,922	\$	455,737,102

In 2016, the System recognized a contribution from Essex North Shore Agricultural and Technical School District (Essex Tech) as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Legislation requires Essex Tech to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, in 2015, PERAC approved a funding schedule for Essex Tech to pay ERRS in equal annual payments of \$421,947 through 2033. The \$3,335,625 million present value of these payments has been recorded as an intergovernmental receivable at year-end.

Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the System's Board, 491 Maple Street #202, Danvers, MA 01923.

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Essex Regional Retirement System

Management's Discussion and Analysis

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STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2019

Assets	
CURRENT: Cash and cash equivalents\$	3,609,452
Investments:	3,009,402
Investments in Pension Reserve Investment Trust	510,315,603
Pooled alternative investments	6,828,263
Pooled real estate funds	36,945
Total investments	517,180,811
Receivables, net of allowance for uncollectibles:	
Member contributions	553,306
Employer pension appropriation	30,224
Essex Agricultural and Technical High School	155,149
Total receivables	738,679
Total current assets	521,528,942
NONCURRENT:	
Receivables, net of allowance for uncollectibles:	
Essex Agricultural and Technical High School	3,180,476
Capital assets, net of accumulated depreciation	155,719
	_
Total noncurrent assets	3,336,195
Total Assets	524,865,137
Liabilities	
Accounts payable	300,933
Other liabilities	1,282
_	
Total Liabilities	302,215
Net Position Restricted for Pensions\$	524,562,922

See notes to financial statements.

Essex Regional Retirement System

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STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

YEAR ENDED DECEMBER 31, 2019

Additions: Contributions:		
Employer pension appropriation	\$	36,090,030
Member contributions		14,270,165
Transfers from other systems		1,257,765
3(8)(c) contributions from other systems		1,839,824
Workers' compensation settlements		18,000
Federal grant reimbursements		84,724
State COLA reimbursements.		239,253
Members' makeup payments and redeposits		90,179
Interest not refunded		37,326
Retirement benefits - reimbursement of 91A overearnings		23,689
Treatient benefit to the form bares many of the treating of th	_	20,000
Total contributions	_	53,950,955
Net investment income:		
Investment income (loss)		73,618,293
Less: investment expense	_	(2,499,157)
Net investment income (loss)	_	71,119,136
Total additions	_	125,070,091
Deductions:		
Administration		990,011
Retirement benefits and refunds		49,373,946
Transfers to other systems		2,469,056
3(8)(c) transfer to other systems		3,400,000
Depreciation	_	11,258
Total deductions	_	56,244,271
Net increase (decrease) in fiduciary net position		68,825,820
Fiduciary net position at beginning of year	_	455,737,102
Fiduciary net position at end of year	\$ _	524,562,922

See notes to financial statements.

Essex Regional Retirement System

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NOTE 1 - PLAN DESCRIPTION

Essex Regional Retirement System is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of governmental member units deemed eligible by the Essex Regional Retirement Board (the Board), with the exception of school department employees who serve in a teaching capacity. The pensions of such school employees are administered by the Commonwealth of Massachusetts' Teachers Retirement System. Membership in the Plan is mandatory immediately upon the commencement of employment for all non-teaching permanent, full time employees. The Plan is administered by the Essex Regional Retirement System (the System). As of December 31, 2019, the System had 46 participating employers.

Originally instituted in 1937, as part of Essex County government, the Board served as the regional retirement system for Essex County upon the abolition of county government in 1996 and the current system structure was created by special legislation in July 2010 (Chapter 34B, Section 19A of the Massachusetts General Laws). The System is governed by a five-member Board who establish the policies under which the System operates. Board members also approve all of the System's financial transactions, including the approval of retirement benefits to members. Board members are appointed or elected as specified by MGL Ch. 34B, Section 19A for terms ranging from 3 to 5 years.

The day-to-day operations of the System are managed by the Executive Director. The legislative body for the System is an Advisory Council consisting of full-time treasurers or other qualified officials of the member units. The Advisory Council meets twice annually and is responsible for supervising and certifying the procedures involved in the election of members to the retirement board.

As of December 31, 2019, the System had 1,930 retirees and beneficiaries, 2,892 active participants and 1,210 inactive participants with a vested right to retirement benefits or to receive a refund of their contributions.

The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. The Public Employee Retirement Administration Commission (PERAC) is the state agency responsible for oversight of the Commonwealth's public retirement systems.

Massachusetts Contributory Retirement System benefits are, with certain exceptions, uniform from system to system. The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For persons who became members on or after April 2, 2012, average salary is the average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are three classes of membership in the retirement system: group 1, group 2, and group 4. Group 1 consists of general employees, which includes clerical and administrative positions. Group 2 consists of positions that have been specified as hazardous. Lastly, group 4 consists of police officers, firefighters, and other hazardous positions.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of service or upon reaching the age of 55 with 10 years of service if hired after 1978 and if classified in groups 1 or 2. A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance upon reaching the age of 60 with 10 years of service if in group 1, 50 years of age with 10 years of service if in group 2, and 55 years of age if hired prior to 1978 or if classified in group 4. Normal retirement for most employees occurs at age 65 (except for certain hazardous duty and public safety positions, whose normal retirement is at age 55).

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A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and the interest they generate constitute the annuity. The differential between the total retirement benefit and the annuity is the pension.

Active members contribute between 5% and 11% of their gross regular compensation. The percentage rate is keyed to the date upon which an employee's membership commences. These deductions are deposited in the Annuity Savings Fund and earn interest at a rate determined by the Public Employee Retirement Administration Commission's (PERAC) actuary. When a member's retirement becomes effective, his/her deductions and related interest are transferred to the Annuity Reserve Fund. Any cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by the Commonwealth of Massachusetts' state law during those years are borne by the Commonwealth and are deposited into the Pension Fund. Cost-of-living adjustments granted after 1997 must be approved by the System and all costs are borne by the System.

The pension portion of any retirement benefit is paid from the Pension Fund of the System. The governmental unit employing the member must annually appropriate and contribute the amount of current-year pension assessment.

Administrative expenses, which were previously appropriated from the governmental entities whose employees are members of the System, are now paid from investment income.

Members who become permanently and totally disabled for further duty may be eligible to receive a disability retirement allowance. The amount of benefits to be received in such cases is dependent on several factors, including whether or not the disability is work related, the member's age, years of creditable service, level of compensation, veterans' status and group classification.

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions.

Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying financial statements of the Essex Regional Retirement System (ERRS) have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the recognized standard-setting body for establishing governmental accounting and financial reporting principles.

ERRS is a special-purpose government engaged only in fiduciary activities. Accordingly, the financial statements are reported using the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, additions are recorded when earned and deductions are recorded when the liabilities are incurred.

Cash and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition. Investments are carried at fair value. The fair values were determined by the closing price for those securities traded on national stock exchanges and at the average bid-and-asked quotation for those securities traded in the over-the-counter market. The fair value of private equities are based on management's valuation of estimates and assumptions from information and representations provided by the respective general partners, in the absence of readily ascertainable market values. Real estate assets are reported at fair value utilizing an income approach to valuation along with independent appraisals and estimates by management.

Fair Value Measurements

The System reports required types of financial instruments in accordance with the fair value standards. These standards require an entity to maximize the use of observable inputs (such as quoted prices in active markets) and minimize the use of unobservable inputs (such as appraisals or valuation techniques) to determine fair value. Fair value standards also require the government to classify these financial instruments into a three-level hierarchy, based on the priority of inputs to the valuation technique or in accordance with net asset value practical expedient rules, which allow for either Level 2 or Level 3 depending on lock up and notice periods associated with the underlying funds.

Instruments measured and reported at fair value are classified and disclosed in one of the following categories:

Level 1 – Quoted prices are available in active markets for identical instruments as of the reporting date. Instruments, which are generally included in this category, include actively traded equity and debt securities, U.S. government obligations, and mutual funds with quoted market prices in active markets.

Level 2 – Pricing inputs are other than quoted in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or other valuation methodologies. Certain fixed income securities, primarily corporate bonds, are classified as Level 2 because fair values are estimated using pricing models, matrix pricing, or discounted cash flows.

Level 3 – Pricing inputs are unobservable for the instrument and include situations where there is little, if any, market activity for the instrument. The inputs into the determination of fair value require significant management judgment or estimation.

In some instances, the inputs used to measure fair value may fall into different levels of the fair value hierarchy and is based on the lowest level of input that is significant to the fair value measurement.

Market price is affected by a number of factors, including the type of instrument and the characteristics specific to the instrument. Instruments with readily available active quoted prices generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value. It is reasonably possible that change in values of these instruments will occur in the near term and that such changes could materially affect amounts reported in these financial statements. For more information on the fair value of the System's financial instruments see Note 4.

Accounts Receivable

Accounts receivable consist of member deductions, future appropriations from Essex Technical High School for the unfunded actuarial liability for retirees from Essex Agricultural and Technical School, and pension fund appropriations.

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These receivables are considered 100% collectible and therefore do not report an allowance for uncollectibles.

Deferred Outflows/Inflows of Resources

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of fiduciary net position that applies to a future period(s) and so will not be recognized as an outflow of resources (deduction) until then. The ERRS did not have any items that qualify for reporting in this category.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (addition) until that time. The ERRS did not have any items that qualify for reporting in this category.

NOTE 3 - PLAN ADMINISTRATION

The System is administered by a five-person Board of Retirement. The first member shall be a chief executive or chief administrative officer of a member town, unit or district belonging to the Essex Regional Retirement System for a term of 3 years. This member shall be chosen by weighted vote of the chief executive or chief administrative officers of member towns, units or districts belonging to the Essex Regional Retirement System. The second member shall be a member of the regional retirement board advisory council, and shall be elected by a majority of those present and voting at a public meeting of the council and shall serve for a term of 3 years. The third and fourth members shall be elected by the members in or retired from service of the Essex County Retirement System from among persons retired under the system and shall serve for a term of 3 years. The fifth member, who shall not be an employee, retiree or official of the retirement system, or of any of its constituent governmental units, shall be chosen by the other 4 members and shall serve for a term of 5 years.

First Member	Alan J. Benson	Term Expires:	12/1/2020
Second Member	Kevin A. Merz	Term Expires:	12/1/2021
Third Member	Susan J. Yaskell	Term Expires:	12/1/2022
Fourth Member	H. Joseph Maney	Term Expires:	12/1/2022
Fifth Member	Vincent R. Malgeri	Term Expires:	12/12/2020

Board members are required to meet at least once a month. The Board must keep a record of all of its proceedings. The Board must annually submit to the appropriate authority an estimate of the expenses of administration and cost of operation of the System. The Board must annually file a financial statement of condition for the System with PERAC.

The ERRS Advisory Council consists of the full-time treasurers, elected or appointed, for each town, unit or district within the System. The members of the Advisory Council elect the second member of the Board of Retirement as well as a Chair from among its members. The ERRS Advisory Council is required by statute to meet twice per year, typically in the spring and fall. All ERRS Advisory Council meetings are open, public meetings and are subject to the Commonwealth's Open Meeting Law.

The investment of the System's funds is the responsibility of the Board. Disability retirement allowances must be

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approved by the Retirement Board and are then submitted to the PERAC Actuary for verification prior to payment. Superannuation retirement allowances are not required to obtain PERAC's verification. All expenses incurred by the System must be approved by a majority vote of the Board. Payments shall be made only upon vouchers signed by two persons designated by the Board.

ERRS board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. The MACRS program for ERRS provides \$50,000,000 fiduciary protection for Trustees and employees, as well as a \$1,000,000 fidelity policy for crime coverage.

NOTE 4 - CASH AND INVESTMENTS

Custodial Credit Risk - Deposits

At December 31, 2019, the carrying amount of the System's deposits totaled \$3,609,452; this is comprised of \$2,605,446 of cash deposited with banks along with \$1,004,006 in the PRIT Cash Fund. Of the \$2,605,446, the bank balance totaled \$2,889,677, which was covered by Federal Deposit Insurance. The \$1,004,006 of the PRIT Cash Fund is uninsured and uncollateralized.

Investments

The System's investments are as follows:

Investment Type		Fair Value	
Other Investments: PRIT Pooled Funds Pooled Alternative Investments	\$	510,315,603 6,828,263	
Pooled Real Estate Funds	_	36,945	
Total Investments	\$	517,180,811	(1)

(1) Subsequent to fiscal year end the market value of the PRIT investment declined by approximately (\$18.6 million). Please refer to Note 12 for further information on this matter.

Approximately 99% of the Retirement System's investments are in Pension Reserve Investment Trust (PRIT) Pooled Funds. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board. The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The Administration does not have the ability to control any of the investment decisions relative to its funds in PRIT.

Approximately 1% of the System's funds are invested in pooled alternative investments and pooled real estate funds. The fair values of assets in those funds are based on the quoted values obtained from each pool.

The Administration's annual money-weighted rate of return on pension plan investments was 16.13%. The money—weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested, measured monthly.

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Fair Value of Investments

The retiree pension defined benefit plan holds significant amounts of investments that are measured at fair value on a recurring basis. Because investing is a key part of the plan's activities, the plan shows greater disaggregation in its disclosures. The plan chooses a tabular format for disclosing the levels within the fair value hierarchy.

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles.

The System has the following recurring fair value measurements as of December 31, 2019:

			Fair Value Measurements Using											
Investment Type		•	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)							
Investments by fair value level														
Pooled Alternative Investments\$ Pooled Real Estate Funds	6,828,263 36,945	\$	-	\$	-	\$	6,828,263 36,945							
Total Investments by fair value level	6,865,208	. \$		\$	-	\$	6,865,208							
Investments measured at the net asset value (NAV)														
PRIT Investments.	510,315,603													
Total Investments\$	517,180,811													

Pooled Alternative Investments and Pooled Real Estate Funds classified in level 3 are valued using either a discounted cash flow or market comparable companies' technique.

PRIT Investments are valued using the net asset value (NAV) method. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board (PRIM). The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The System does not have the ability to control any of the investment decisions relative to its funds in PRIT.

NOTE 5 - RECEIVABLES

At December 31, 2019, receivables for the System are as follows:

	Gross Amount	Allowance for Uncollectibles	Net Amount	
Receivables: Member contributions\$	738,679	- \$		
Essex Agricultural and Technical High School	3,180,476		3,180,476	
Total\$	3,919,155	§\$	3,919,155	

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As more fully described in Note 9, the Essex Agricultural and Technical High School receivable consists of the present value of a stream of future payments to be received from Essex Technical High School (Essex Tech), as the successor agency of Essex Agricultural and Technical School from fiscal year 2017 through fiscal year 2033 for the unfunded actuarial liability for its retirees in the Essex Regional Retirement System.

NOTE 6 - CAPITAL ASSETS

Capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are 33 years for buildings and 5 to 20 years for equipment.

The capital assets owned by the System consist of two condominiums in Danvers, Massachusetts that were purchased for the administrative offices of the System. Both units were purchased in fiscal year 2000 for a total of \$375,250. Total capital asset activity for the year ended December 31, 2019, was as follows:

	Beginning Balance	Increases	Decreases	 Ending Balance
Capital assets being depreciated:				
Buildings\$	375,250 \$	-	\$ -	\$ 375,250
Equipment	15,580		(15,580)	
Total capital assets being depreciated	390,830		(15,580)	 375,250
Less accumulated depreciation for:				
Buildings	(208,273)	(11,258)	-	(219,531)
Equipment	(15,580)		15,580	
Total accumulated depreciation	(223,853)	(11,258)	15,580	 (219,531)
Total governmental activities capital assets, net\$	166,977 \$	(11,258)	\$	\$ 155,719

NOTE 7 - MEMBERSHIP

The following table represents the System's membership at December 31, 2019:

Active members	2,892
Inactive members entitled to a return of contributions	1,210
Retired, Beneficiary, and Survivor	1,930
Total	6,032

NOTE 8 – ACTUARIAL VALUATION

The total pension liability was determined by an actuarial valuation as of January 1, 2020, using the following actuarial assumptions, applied to all periods included in the measurement that was rolled back to December 31, 2019:

Valuation date	January 1, 2020				
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/Discount rate	7.30% (previously 7.50%)				
Wage Inflation rate	2.75%				
Cost of living adjustments	2% of first \$14,000 for fiscal 2021 and 3% of first \$14,000 thereafter				
Mortality Rates:					
Pre-Retirement	RP-2014 Employee Mortality Table projected generationally with Scale MP-2019.				
Healthy Retiree	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale MP-2019.				
Disabled Retiree	RP-2014 Healthy Annuitant Mortality Table set forward two years projected generationally with Scale MP-2019.				

Components of the net pension liability as of December 31, 2019 were as follows:

Total pension liability\$	945,878,852
The pension plan's fiduciary net position	(524,562,922)
The net pension liability\$	421,315,930
The pension plan's fiduciary net position as a percentage of the total pension liability	55.46%

Investment policy. The pension plan's policy in regard to the allocation of invested assets is established by PRIT and the Board. Plan assets are managed on a total return basis with a long-term objective of achieving a fully funded status for the benefits provided through the pension plan.

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. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expense, used in the derivation of the long-term investment rate of return assumption are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return	Long-Term Expected Asset Allocation
Domestic equity	6.15%	21.00%
International developed markets equity	6.78%	13.00%
International emerging markets equity	8.65%	5.00%
Core fixed income	1.11%	15.00%
High-yield fixed income	3.51%	8.00%
Real estate	4.33%	10.00%
Commodities	4.13%	4.00%
Hedge fund, GTAA, Risk parity	3.19%	11.00%
Private equity	9.99%	13.00%
Total Fund Expected Return/Total		100.00%

Discount Rate. The discount rates used to measure the Total Pension Liability was 7.30% as of December 31, 2019 and 7.50% as of December 31, 2018. 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 the current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service cost 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 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 Total Pension Liability as of both December 31, 2019 and December 31, 2018.

Sensitivity of the net position liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 7.30%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.30%) or 1-percentage-point higher (8.30%) than the current rate.

			Current		
	1.0% Decrease		Discount Rate		1.0% Increase
_	(6.30%)	_	(7.30%)	_	(8.30%)
Essex Regional Retirement System's net		•			
pension liability as of December 31, 2019\$	529,830,679	\$	421,315,930	\$	330, 102, 507

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Contributions: Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE 9 - ESSEX AGRICULTURAL AND TECHNICAL HIGH SCHOOL

Chapter 463 of the Acts of 2004 created the Essex North Shore Agricultural and Technical School District (Essex Tech). This legislation established Essex Tech as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Prior to July 1, 2014, the non-teacher employees of the Essex Agricultural and Technical High School were members of ERRS. The legislation required that all active and inactive members be transferred to the Salem Contributory Retirement System. Accordingly, as of June 30, 2015, all active and inactive members of ERRS have been transferred to the Salem Contributory Retirement System. Essex Tech, as the successor agency, is required to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, PERAC approved a funding schedule that requires Essex Tech to pay ERRS equal annual assessments of \$421,947 through 2033. The \$3,335,625 present value of these payments has been recorded as a receivable by ERRS as of December 31, 2019.

NOTE 10 - COMMITMENTS AND CONTINGENCIES

Various legal actions and claims are pending against the System. Litigation is subject to many uncertainties, and the outcome of individual litigated matters is not always predictable. Although the amount of liability, if any, at December 31, 2019 cannot be ascertained, management believes any resulting liability should not materially affect the financial position at December 31, 2019.

NOTE 11 - IMPLEMENTATION OF NEW GASB PRONOUNCEMENTS

In May of 2020, the GASB issued Statement #95, Postponement of the Effective Dates of Certain Authoritative Guidance. The objective of this Statement is to provide temporary relief to governments and other stakeholders in light of the COVID-19 pandemic. This Statement postponed the required implementation of many of the upcoming Statements for one year or longer.

There were no GASB pronouncements required to be implemented in 2019 that impacted the System's financial statements.

None of the issued GASB statements that are required to be implemented in future years are anticipated to impact the System's financial statements.

NOTE 12 - SUBSEQUENT EVENTS

Management has evaluated subsequent events through July 30, 2020, which is the date the financial statements were available to be issued.

The System carries its investments at fair (market) value in accordance with Generally Accepted Accounting Principles (GAAP). Market value adjustments are recorded monthly. Subsequent to year end, the System's

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investments of \$517,180,811 in PRIT have declined in value by approximately (\$18.6 million). The market value decline is consistent with recent trends in the overall financial securities markets.

In accordance with GAAP, the System has not recorded the losses in its financial statements as the impairments were not known as of December 31, 2019. The System has recorded the losses associated with the investment during 2020.

Required Supplementary Information

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

	December 31, 2014	December 31, 2015		December 31, 2016		December 31, 2017		December 31, 2018		December 31, 2019
Total pension liability:			•	-	_		•		-	
Service cost\$	10,581,511	\$ 14,484,797	\$	15,597,356 \$		16,877,715	\$	17,892,023	\$	18,590,358
Interest	54,243,222	56,453,975		57,096,460		60,670,085		62,939,560		65,501,353
Changes in benefit terms	=	=		4,350,523		=		-		(2,382,236)
Differences between expected and actual experience	-	-		(8,590,424)		(49,644)		-		72,274
Changes in assumptions	-	-		20,216,699		23,073,540		-		35,268,329
Benefit payments	(38,353,266)	(39,994,008)		(42,130,566)	-	(44,959,784)		(46,458,490)	-	(49,373,946)
Net change in total pension liability	26,471,467	30,944,764		46,540,048		55,611,912		34,373,093		67,676,132
Total pension liability - beginning	684,261,436	 710,732,903		741,677,667	_	788,217,715		843,829,627	_	878,202,720
Total pension liability - ending (a)\$	710,732,903	\$ 741,677,667	\$.	788,217,715 \$	_	843,829,627	\$.	878,202,720	\$ _	945,878,852
Plan fiduciary net position:										
Employer pension appropriation\$	26,066,222	\$ 27,893,676	\$	29,420,144 \$		31,239,783	\$	33,969,088	\$	36,090,030
Member contributions	12,168,827	12,491,708		12,864,434		13,077,844		13,636,998		14,270,165
Other contributions	3,940,038	7,805,125		4,208,413		3,575,613		4,291,824		3,590,760
Net investment income (loss)	29,322,861	4,103,832		26,406,996		66,258,516		(10,723,393)		71,119,136
Administrative expenses	(922,351)	(934,672)		(961,143)		(981,979)		(955,252)		(990,011)
Retirement benefits and refunds	(38,353,266)	(39,994,008)		(42,130,565)		(44,959,784)		(46,458,490)		(49,373,946)
Other retirement deductions	(5,728,996)	(4,483,236)		(5,202,784)		(3,650,033)		(5,489,442)		(5,869,056)
Depreciation	(14,374)	(14,374)	-	(14,374)	-	(15,554)	-	(8,520)	-	(11,258)
Net increase (decrease) in fiduciary net position	26,478,961	6,868,051		24,591,121		64,544,406		(11,737,187)		68,825,820
Fiduciary net position - beginning of year	344,991,750	371,470,711		378,338,762	_	402,929,883		467,474,289		455,737,102
Fiduciary net position - end of year (b)\$	371,470,711	\$ 378,338,762	\$.	402,929,883 \$	_	467,474,289	\$.	455,737,102	\$.	524,562,922
Net pension liability - ending (a)-(b)\$	339,262,192	\$ 363,338,905	\$.	385,287,832 \$	_	376,355,338	\$.	422,465,618	\$ _	421,315,930
Plan fiduciary net position as a percentage of the total										
pension liability	52.27%	51.01%		51.12%		55.40%		51.89%		55.46%
Covered payroll\$	123,190,220	\$ 128,258,043	\$	133,089,526 \$		130,743,710	\$	136,111,184	\$	144,695,269
Net pension liability as a percentage of										
covered payroll	275.40%	283.29%		289.50%		287.86%		310.38%		291.17%

Note: this schedule is intended to present information for 10 years.
Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

SCHEDULE OF CONTRIBUTIONS

	December 31, 2014	December 31, 2015	December 31, 2016	December 31, 2017	December 31, 2018	December 31, 2019
Actuarially determined contribution \$	26,066,222 \$	32,050,432 \$	29,420,338 \$	31,614,412 \$	33,969,088 \$	36, 150, 577
Contributions in relation to the actuarially determined contribution	(26,066,222)	(32,123,557)	(29,463,314)	(31,663,092)	(33,993,920)	(36,174,754)
Contribution deficiency (excess)\$	\$	(73,125) \$	(42,976) \$	(48,680) \$	(24,832) \$	(24,177)
Covered payroll\$	123,190,220 \$	128,258,043 \$	133,089,526 \$	130,743,710 \$	136,111,184 \$	144,695,269
Contributions as a percentage of covered payroll	21.16%	25.05%	22.14%	24.22%	24.98%	25.00%

Note: this schedule is intended to present information for 10 years.

Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

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SCHEDULE OF INVESTMENT RETURNS

Annual money-weighted rate of return,

Year	rate of return, net of investment expense
December 31, 2019	16.13%
December 31, 2018	-2.43%
December 31, 2017	17.11%
December 31, 2016	7.80%
December 31, 2015	1.04%
December 31, 2014	8.48%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

NOTE A - CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

The Schedule of Changes in the Net Pension Liability and Related Ratios includes the detailed changes in the System's total pension liability, changes in the System's net position, and the ending net pension liability. It also demonstrates the plan's net position as a percentage of the total pension liability and the net pension liability as a percentage of covered payroll.

NOTE B - CONTRIBUTIONS

Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The total appropriations are payable on July 1 and January 1. Employers may choose to pay the entire appropriation in July at a discounted rate. Accordingly, actual employer contributions may be less than the "total appropriation". The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE C - MONEY-WEIGHTED RATE OF RETURN

The money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense. A money weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. Inputs to the money weighted rate of return calculation are determined monthly.

NOTE D - CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS

Actuarial Assumptions:

The following are the changes in actuarial assumptions effective in the January 1, 2020 valuation:

- The net investment return assumption was lowered from 7.50% to 7.30%
- The mortality assumption for non-disabled participants was changed from the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally using Scale BB to the RP-2014 Employee and Healthy Annuitant Mortality Tables projected generationally using Scale MP-2019.
- The morality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant Mortality Table set forward two years projected generationally using Scale BB to the RP-2014 Healthy Annuitant Morality Table set forward two years projected generationally using Scale MP-2019.
- The allowance for net 3(8)(c) payments was changed from a term cost added to the service cost to an estimated liability.

Plan Provisions:

Effective January 1, 2020 the Board approved a 2.0% COLA increase on the first \$14,000 of a retirement allowance for fiscal 2021.

Essex Regional Retirement System

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Required Supplementary Information

Audit of Specific Elements, Accounts and Items of Financial Statements

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Essex Regional Retirement System

27 Audit of Specific Elements, Accounts and Items of Financial Statements

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

We have audited the accompanying schedule of employer allocations of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2019, and the related notes. We have also audited the total for all entities of the rows titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense included in the accompanying schedule of pension amounts by employer of the ERRS Pension Plan as of and for the year ended December 31, 2019, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified row totals included in the schedule of pension amounts by employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense for the total of all participating entities for the Essex Regional Retirement System as of and for the year ended December 31, 2019, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the Essex Regional Retirement System as of and for the year ended December 31, 2019, and our report thereon, dated July 30, 2020, expressed an unmodified opinion on those financial statements.

Restriction on Use

Powers & Sullivan LLC

This report is intended solely for the information and use of the Essex Regional Retirement System management, the Essex Regional Retirement System employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

July 30, 2020

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2019

Employer	2020 Pension Fund Appropriation	Current Direct E.R.I./CRAB Appropriation	FY2020 Total Appropriation	Remaining Direct E.R.I. Liability	Allocated Net Pension Liability	Share of Net Pension Liability including E.R.I.	Percent of Total Net Pension Liability including E.R.I.
Retirement Board\$	122,075 \$	-	\$ 122,075 \$		\$ 1,432,033	\$ 1,432,033	0.340%
Town of Boxford	1,339,233	-	1,339,233	-	15,710,208	15,710,208	3.729%
Town of Essex	624,736	-	624,736	-	7,328,622	7,328,622	1.739%
Town of Georgetown	1,752,133	19,880	1,772,013	-	20,553,835	20,553,835	4.878%
Town of Groveland	804,258	8,305	812,563	62,954	9,434,550	9,497,504	2.254%
Town of Hamilton	987,370		987,370		11,582,591	11,582,591	2.749%
Town of Ipswich	3.762.778		3,762,778		44,140,209	44,140,209	10,477%
Town of Lynnfield	2,807,722	142,635	2,950,357	-	32,936,686	32,936,686	7.818%
Town of Manchester-by-the-Sea	1,253,062		1,253,062	_	14,699,357	14,699,357	3.489%
Town of Merrimac	897.609	7.183	904.792	_	10.529.627	10.529.627	2.499%
Town of Middleton	1,820,352	-	1,820,352	_	21,354,095	21,354,095	5.068%
Town of Nahant	876.067	_	876.067	-	10,276,923	10,276,923	2.439%
Town of Newbury	757,582	_	757,582		8,887,005	8,887,005	2.109%
Town of North Andover	5,629,804	_	5.629.804	_	66.041.825	66.041.825	15.675%
Town of Rockport	1,802,399	_	1,802,399	_	21,143,493	21,143,493	5.018%
Town of Rowley	983.780	_	983.780	_	11.540.478	11.540.478	2.739%
Town of Salisbury	1,579,792		1,579,792		18,532,146	18,532,146	4.399%
Town of Topsfield	1.224.339		1.224.339		14.362.415	14.362.415	3.409%
Town of Wenham	761,173	_	761,173		8,929,130	8,929,130	2.119%
Town of West Newbury	707,316		707,316		8,297,347	8,297,347	1.969%
East Essex Veterans District	32,314		32,314		379,067	379,067	0.090%
Byfield Water District	25.133		25.133		294.829	294.829	0.070%
Lynnfield Center Water District	104.123		104,123		1.221.441	1.221.441	0.290%
Lynnfield Water District	82,580		82,580		968,725	968,725	0.230%
NE Massachusetts Mosquito Control District	208,245	_	208,245		2,442,870	2,442,870	0.580%
Hamilton-Wenham Regional School	976,599	-	976,599	-	11,456,239	11,456,239	2.719%
Manchester-Essex Regional School	491,890	19.124	511.014	-	5.770.239	5,770,239	1.370%
Masconomet Regional School	696.545	15,124	696.545	-	8.170.995	8.170.995	1.939%
Pentucket Regional School	1,080,722	6,130	1.086.852		12,677,680	12.677.680	3.009%
Triton Regional School	1,087,902	0,130	1,087,902		12,761,907	12,761,907	3.029%
Essex Housing Authority	14,362		14,362		168,477	168,477	0.040%
Georgetown Housing Authority	61.037	-	61.037	-	716.010	716.010	0.170%
Groveland Housing Authority	25,133	-	25,133	-	294,829	294,829	0.070%
Hamilton Housing Authority	17,952	-	17,952	-	210.590	210.590	0.050%
Ipswich Housing Authority	122.075	-	122.075	-	1.432.031	1,432,031	0.030%
Lynnfield Housing Authority	28,724		28,724	-	336,954	336,954	0.080%
Manchester Housing Authority	28,724	-	28,724	-	336,954	336,954	0.080%
Merrimac Housing Authority	10,771	-	10,771	-	126,352	126,352	0.030%
Middleton Housing Authority	17.952	-	17.952	-	210,590	210,590	0.050%
Nahant Housing Authority	10,771	8.943	19,714	67.788	126.352	194.140	0.046%
North Andover Housing Authority	150,771	13,304	164,102	01,100	1,768,974	1,768,974	0.420%
Rockport Housing Authority	50,266	15,504	50,266	-	589.658	589,658	0.420%
Rowley Housing Authority	14,362	16,279	30,266	-	168,477	168,477	0.140%
Salisbury Housing Authority	14,362 25,133	10,279	25,133	-	294,829	294,829	0.040%
Topsfield Housing Authority	25,133 17.952	-	25,133 17.952	-	294,829	294,829	0.070%
Wenham Housing Authority	28.724	-	28.724	-	336,954	336,954	0.080%
Total\$		241,783		130.742			100.000%

See notes to schedule of employer allocations and schedule of pension amounts by employer.

FOR THE YEAR ENDED DECEMBER 31, 2019

	_	Retirement Board		Town of Boxford	_	Town of Essex		Town of Georgetown
Net Pension Liability Beginning net pension liability	\$	1,604,165	\$	16,041,666	\$	7,260,967	\$	20,577,898
Ending net pension liability	\$	1,432,033	\$	15,710,208	\$	7,328,622	\$	20,553,835
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	197	\$	2,156	\$	1,006	\$	2,822
Net difference between projected and actual investment earnings on pension plan investments		-				-		-
Changes of assumptions		143,128		1,570,196		732,477		2,054,304
Changes in proportion and differences between employer contributions and proportionate share of contributions		40,388		280,985		148,677		220 242
	-	40,300		200,900	-	140,677		230,313
Total Deferred Outflows of Resources	\$_	183,713	\$	1,853,337	\$	882,160	\$	2,287,439
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	6,806	\$	74,661	\$	34,829	\$	97,681
Net difference between projected and actual investment earnings on pension plan investments		53,393		585,751		273,246		766,342
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		140,208		243,643		117,862		646,140
	-				-			
Total Deferred Inflows of Resources	\$ =	200,407	\$	904,055	\$ _	425,937	\$.	1,510,163
Pension Expense Proportionate share of plan pension expense	\$	173,451	\$	1,902,857	\$	887,663	\$	2,489,528
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(17,967)		24,186		31,319		(130,254)
·	_		_		_			
Total Employer Pension Expense	\$ -	155,484	\$	1,927,043	\$.	918,982	, \$,	2,359,274
Contributions Statutory required contribution	\$	122,075	\$	1,339,233	\$	624,736	\$	1,772,013
Contribution in relation to statutory required contribution		(122,075)		(1,340,673)		(624,736)		(1,772,013)
Contribution deficiency/(excess)	\$_	_	\$	(1,440)	\$_	-	\$	
Contributions as a percentage of covered payroll	Ī	25.91%		22.99%	Ī	27.62%		23.11%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense								
June 30, 2021	\$	4,133 4,336	\$	374,805	\$	187,023 129.029	\$	372,755 168,139
June 30, 2022		6,603		293,583 347,529		131,193		245,889
June 30, 2024		(31,766)		(66,635)		8,978		(9,507)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	s	(16,694)	s	` `	\$		\$	777,276
,					-		٠,	
Discount Rate Sensitivity 1% decrease (6.30%)	\$	1,800,870	\$	19,756,552	\$	9,216,193	\$	25,847,712
Current discount rate (7.30%)	\$	1,432,033	\$	15,710,208	\$	7,328,622	\$	20,553,835
1% increase (8.30%)	\$	1,122,003	\$	12,309,003	\$	5,742,001	\$	16,104,003
Covered Payroll	\$	471,161	\$	5,832,314	\$	2,261,786	\$	7,668,229
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

		Town of Groveland	•	Town of Hamilton	_	Town of lpswich		Town of Lynnfield
Net Pension Liability Beginning net pension liability	\$	9,394,005	\$	11,651,319	\$	43,270,288	\$	34,542,647
Ending net pension liability	\$	9,497,504	\$	11,582,591	\$	44,140,209	\$	32,936,686
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	1,303	\$	1,590	\$	6,058	\$	4,520
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		949,252		1,157,651		4,411,703		3,291,939
Changes in proportion and differences between employer contributions and proportionate		403.500		570.003		746 400		620.064
share of contributions	-	183,590	٠	579,803	-	716,408		638,864
Total Deferred Outflows of Resources	\$.	1,134,145	\$.	1,739,044	\$.	5,134,169	\$.	3,935,323
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	45,136	\$	55,045	\$	209,772	\$	156,528
Net difference between projected and actual investment earnings on pension plan investments		354,112		431,854		1,645,756		1,228,036
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		119,701		361,452	-	611,812		1,144,611
Total Deferred Inflows of Resources	\$_	518,949	\$.	848,351	\$_	2,467,340	\$.	2,529,175
Pension Expense Proportionate share of plan pension expense	\$	1,150,363	\$	1,402,909	\$	5,346,374	\$	3,989,383
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(73,524)		(14,444)		(281,571)		(139,826)
Total Employer Pension Expense	\$	1,076,839	\$	1,388,465	\$	5,064,803	\$	3,849,557
Contributions Statutory required contribution	\$	812,563	\$	987,370	\$	3,762,778	\$	2,950,357
Contribution in relation to statutory required contribution	_	(812,563)		(987,370)	_	(3,771,581)		(2,950,357)
Contribution deficiency/(excess)	\$_		\$.		\$_	(8,803)	\$	-
Contributions as a percentage of covered payroll		24.64%		25.25%		25.77%		27.19%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense					_			
June 30, 2021	\$	179,101	\$	309,336	\$	724,664	\$	620,855
June 30, 2022		201,480		204,136		748,084		472,091
June 30, 2023		219,531 15,084		394,796 (17,575)		1,054,615 139,466		589,745 (276,543)
Total Deferred (Inflows)/Outflows Recognized in	-	13,004	•	(17,575)	-	100,400		(210,043)
Future Pension Expense	\$_	615,196	\$.	890,693	\$_	2,666,829	\$.	1,406,148
Discount Rate Sensitivity								
1% decrease (6.30%)	\$	11,943,695	\$	14,565,820	\$	55,509,026	\$	41,419,907
Current discount rate (7.30%)		9,497,504	\$	11,582,591	\$	44,140,209	\$	32,936,686
1% increase (8.30%)	\$	7,441,328	\$	9,075,001	\$	34,584,008	\$	25,806,009
Covered Payroll	\$	3,297,922	\$	3,909,649	\$	14,634,546	\$	10,850,279
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

		Town of Manchester- by-the-Sea		Town of Merrimac	_	Town of Middleton		Town of Nahant
Net Pension Liability								
Beginning net pension liability	\$	14,775,220	\$	9,969,699	\$	22,036,187	\$	10,553,728
Ending net pension liability	\$	14,699,357	\$	10,529,627	\$	21,354,095	\$	10,276,923
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	2,017	\$	1,445	\$	2,931	\$	1,410
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		1,469,164		1,052,410		2,134,288		1,027,153
Changes in proportion and differences between employer contributions and proportionate share of contributions		323,996		486,089		341,924		564,196
Total Deferred Outflows of Resources	_ \$		\$	1,539,944	\$	2,479,143	· -	1,592,759
	* -	1,1.00,111	٠,	1,000,011	٠.	2,110,110	Ψ.	1,002,100
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	69,857	\$	50,041	\$	101,483	\$	48,840
Net difference between projected and actual investment earnings on pension plan investments		548,062		392,594		796,182		383,172
Changes of assumptions		-		-		-		-
Changes in proportion and differences between								
employer contributions and proportionate share of contributions		160,919		228,919		517,592	_	477,908
Total Deferred Inflows of Resources	\$_	778,838	\$	671,554	\$_	1,415,257	\$_	909,920
Pension Expense Proportionate share of plan pension expense	\$	1,780,417	\$	1,275,372	\$	2,586,469	\$	1,244,769
Net amortization of deferred amounts from changes in proportion and differences between employer		462.202		50 220		co eeo		24.455
contributions and proportionate share of contributions	-	162,282	•	56,338	-	60,882	-	34,465
Total Employer Pension Expense	\$ _	1,942,699	\$.	1,331,710	\$.	2,647,351	\$.	1,279,234
Contributions								
Statutory required contribution	\$	1,253,062	\$	904,792	\$	1,820,352	\$	876,067
Contribution in relation to statutory required contribution	_	(1,253,062)		(904,792)	-	(1,821,792)	-	(876,067)
Contribution deficiency/(excess)	\$_	-	\$.		\$_	(1,440)	\$_	-
Contributions as a percentage of covered payroll		26.43%		24.97%		23.81%		27.18%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2021.	Φ.	376 077	•	202 244	•	E22 675		251.648
June 30, 2022	Φ	376,077 266,808	\$	293,341 216,361	\$	533,675 346,795	\$	339,662
June 30, 2023		393,705		260,670		315,971		146,155
June 30, 2024		(20,251)		98,018		(132,555)		(54,626)
Total Deferred (Inflows)/Outflows Recognized in	-	(==,==:,/	•		-	(102,000)	-	(01,020)
Future Pension Expense	\$_	1,016,339	\$.	868,390	\$_	1,063,886	\$_	682,839
Discount Rate Sensitivity	æ	10 405 345	\$	12 244 652	¢	26 064 007	•	12 022 062
1% decrease (6.30%)		18,485,345	•	13,241,653	\$	26,854,087	\$	12,923,862
Current discount rate (7.30%)		14,699,357	\$	10,529,627	\$	21,354,095	\$	10,276,923
1% increase (8.30%)	\$	11,516,998	\$	8,250,000	\$	16,731,008	\$	8,052,005
Covered Payroll.	\$	4,741,557	\$	3,623,368	\$	7,651,762	\$	3,223,708
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

_	Town of Newbury		North Andover		Town of Rockport	_	Town of Rowley
\$	8,780,703	\$	65,601,981	\$	22,162,829	\$	11,777,961
\$	8,887,005	\$	66,041,825	\$	21,143,493	\$	11,540,478
\$	1,220	\$	9,063	\$	2,902	\$	1,584
	-		-		-		-
	888,234		6,600,715		2,113,239		1,153,442
	502 737		1 470 946		262 670		169,482
-				-		-	
\$_	1,392,191	\$	8,080,724	\$	2,378,811	\$_	1,324,508
\$	42,235	\$	313,857	\$	100,482	\$	54,845
	331,350		2,462,352		788,330		430,284
	-		-		-		-
	440.574		407.005		4 200 205		200 770
-	113,374		107,000	-	1,300,303	-	322,778
\$ =	487,159	\$	2,884,074	\$_	2,277,197	\$ =	807,907
\$	1,076,415	\$	7,999,143	\$	2,560,949	\$	1,397,813
	127 898		596 272		(228 608)		9,923
- s		\$		s		s -	1,407,736
Ψ-	1,204,010	٠,	0,000,410	٠.	2,002,041	Ψ-	1,407,700
\$	757,582	\$	5,629,804	\$	1,802,399	\$	983,780
-	(757,582)		(5,636,824)	-	(1,805,835)	-	(983,780)
\$=	-	\$	(7,020)	\$_	(3,436)	\$=	-
	25.95%		25.19%		25.12%		24.06%
\$	297,631	\$	2,006,141	\$	220,303	\$	224,728
	252,232		1,500,961		35,452		108,533
	339,894		1,637,948		38,910		231,416
_	15,275		51,600		(193,051)	_	(48,076)
\$	905,032	\$	5,196,650	\$	101,614	\$	516,601
-		٠,		-		-	
\$	11.175.955	\$	83.051.654	\$	26.589.242	\$	14,512,860
		•		•		•	11,540,478
	-,,	Ť		٠		•	9,042,005
Ψ	0,555,000	Ψ	01,7-77,001	Ψ	10,000,001	Ψ	3,042,000
\$	2,918,867	\$	22,380,902	\$	7,190,132	\$	4,088,227
	\$ \$ \$ - = = = = = = = = = = = = = = = = = = =	Newbury \$ 8,780,703 \$ 8,887,005 \$ 1,220	Newbury	Newbury Andover \$ 8,780,703 \$ 65,601,981 \$ 8,887,005 \$ 66,041,825 \$ 1,220 \$ 9,063	Town of Newbury Andover \$ 8,780,703 \$ 65,601,981 \$ 8,887,005 \$ 66,041,825 \$ \$ 1,220 \$ 9,063 \$ \$	Town of Newbury North Andover Andover Town of Rockport \$ 8,760,703 \$ 65,601,981 \$ 22,162,829 \$ 8,887,005 \$ 66,041,825 \$ 21,143,493 \$ 1,220 \$ 9,063 \$ 2,902	Town of Newbury North Andover Town of Rockport \$ 8,780,703 \$ 65,601,981 \$ 22,162,829 \$ \$ 8,887,005 \$ 66,041,825 \$ 21,143,493 \$ \$ 1,220 \$ 9,063 \$ 2,902 \$ \$ 888,234 6,600,715 2,113,239 \$ 502,737 1,470,946 262,670 \$ 1,392,191 \$ 8,080,724 \$ 2,378,811 \$ \$ 42,235 \$ 313,857 \$ 100,482 \$ 331,350 2,462,352 788,330 \$ \$ 487,159 \$ 2,884,074 \$ 2,277,197 \$ \$ 1,076,415 \$ 7,999,143 \$ 2,560,949 \$ \$ 1,204,313 \$ 8,595,415 \$ 2,332,341 \$ \$ 757,582 \$ 5,629,804 \$ 1,802,399 \$ \$ 757,582 \$ 5,629,804 \$ 1,802,399 \$ \$ 25,95% 25,19% 25,12% \$ 297,631 \$ 2,006,141 \$ 220,303 \$ \$ 25,232 1,500,961 35,452 333,934 1,637,948 38

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

		Town of Salisbury	-	Town of Topsfield		Town of Wenham	-	Town of West Newbury
Net Pension Liability Beginning net pension liability	\$	17,519,189	\$	14,141,999	\$	9,033,992	\$	8,316,337
Ending net pension liability	\$	18,532,146	\$	14,362,415	\$	8,929,130	\$	8,297,347
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	2,543	\$	1,971	\$	1,225	\$	1,139
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		1,852,242		1,435,487		892,444		829,299
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		1,891,648	-	256,781		167,033	-	370,365
Total Deferred Outflows of Resources	\$.	3,746,433	\$_	1,694,239	\$	1,060,702	\$	1,200,803
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	88,072	\$	68,256	\$	42,435	\$	39,432
Net difference between projected and actual investment earnings on pension plan investments		690,966		535,499		332,920		309,364
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		36,417		315,431		105,271		108.046
Total Deferred Inflows of Resources		815,455	-	919,186	•	480,626	· -	456,842
	Э.	815,455	» =	919,100	Э,	400,626	Ф=	436,642
Pension Expense Proportionate share of plan pension expense	\$	2,244,657	\$	1,739,610	\$	1,081,523	\$	1,004,992
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	522,518	_	(14,683)		71,792	_	35,068
Total Employer Pension Expense	\$.	2,767,175	\$_	1,724,927	\$	1,153,315	\$	1,040,060
Contributions_								
Statutory required contribution	\$	1,579,792	\$	1,224,339	\$	761,173	\$	707,316
Contribution in relation to statutory required contribution		(1,579,792)	_	(1,226,814)		(761,173)	_	(707,316
Contribution deficiency/(excess)	\$.		\$_	(2,475)	\$		\$_	-
Contributions as a percentage of covered payroll		25.39%		25.34%		23.92%		26.899
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2021	4	1,035,378	\$	279,896	\$	242,650	\$	261,720
June 30, 2022		849,520	Ψ	152,014	۳	197,060	Ψ	206,310
June 30, 2023		871,128		309,169		163,299		283,051
June 30, 2024		174,952		33,974		(22,933)		(7,120
Total Deferred (Inflows)/Outflows Recognized in			-				-	
Future Pension Expense	\$.	2,930,978	\$_	775,053	\$	580,076	\$_	743,961
Discount Rate Sensitivity 1% decrease (6.30%)	\$	23,305,313	\$	18,061,620	\$	11,228,930	\$	10,434,424
Current discount rate (7.30%)	\$	18,532,146	\$	14,362,415	\$	8,929,130	\$	8,297,347
1% increase (8.30%)	\$	14,520,001	\$	11,253,002	\$	6,996,005	\$	6,501,000

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

FOR THE YEAR	EN	DED DECEMBE	R	31, 2019		l mare - I-I		
		East Essex Veterans District		Byfield Water District		Lynnfield Center Water District		Lynnfield Water District
Net Pension Liability Beginning net pension liability	\$	379.936	\$	295,502	\$	1,182,017	\$	886,515
Ending net pension liability		379,067	\$	294,829	\$	1,221,441	\$	968,725
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	52	\$	40	\$	168	\$	133
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		37,887		29,467		122,080		96,822
Changes in proportion and differences between employer contributions and proportionate share of contributions		30,416		431		99,426		72,353
Total Deferred Outflows of Resources		68,355	\$	29,938	\$	221,674	· -	169,308
Deferred Inflows of Resources			, ,		,	· · · · ·	•	
Differences between expected and actual experience	\$	1,801	\$	1,401	\$	5,805	\$	4,604
Net difference between projected and actual investment earnings on pension plan investments		14,133		10,993		45,541		36,119
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		26,302		32,261		81,073		29,907
Total Deferred Inflows of Resources			\$	44,655	\$	132,419	\$	70,630
Pension Expense	Ψ,	,	•	,	Ť	,	. * =	,
Proportionate share of plan pension expense	\$	45,914	\$	35,711	\$	147,948	\$	117,333
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(6,454)		(27,104)		(18,314)		19,342
					_			
Total Employer Pension Expense	\$	39,460	\$	8,607	\$	129,634	\$.	136,675
Contributions Statutory required contribution	\$	32,314	\$	25,133	\$	104,123	\$	82,580
Contribution in relation to statutory required contribution		(32,314)		(25,133)		(104,123)		(82,580)
Contribution deficiency/(excess)	\$		\$		\$		\$	_
Contributions as a percentage of covered payroll		23.77%		25.29%		15.55%		25.54%
<u>Deferred (Inflows)/Outflows Recognized in</u> Future Pension Expense								
June 30, 2021		17,332	\$	(20,082)	\$	(644)	\$	30,946
June 30, 2022		8,550 561		(522) 6,139		42,916 40.396		17,852
June 30, 2023		(324)		(252)		6,587		35,442 14,438
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense		26,119	\$	(14,717)	\$	89,255	· •	98,678
1	Τ,	,	, •	(11,11)	•	,	′•	,•
Discount Rate Sensitivity 1% decrease (6.30%)	. \$	476,700	\$	370,766	\$	1,536,037	\$	1,218,231
Current discount rate (7.30%)	. \$	379,067	\$	294,829	\$	1,221,441	\$	968,725
1% increase (8.30%)	\$	297,000	\$	231,000	\$	957,003	\$	758,999
Covered Payroll	\$	135,935	\$	99,377	\$	669,540	\$	323,389
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019 Mosquito Wenham Essex Masconomet Regional Regional District School School School Net Pension Liability Beginning net pension liability.....\$ 1,730,812 \$ 11,482,455 \$ 6,332,236 \$ 8,020,835 2.442.870 \$ 11.456.239 \$ 5.770.239 \$ Ending net pension liability.....\$ 8.170.995 Deferred Outflows of Resources Differences between expected and actual experience...... \$ 335 \$ 1,572 \$ 792 \$ 1,121 Net difference between projected and actual investment earnings on pension plan investments........ 244,159 1,145,022 576,721 816,670 Changes in proportion and differences between employer contributions and proportionate share of contributions..... 551,497 13,253 19,499 548,522 7<u>95,991</u> \$ 1,159,847 \$ 597,<u>012</u> \$_ 1,366,313 Total Deferred Outflows of Resources......\$ <u>Deferred Inflows of Resources</u>
Differences between expected and actual experience.......\$ 11,610 \$ 54,445 \$ 27,422 \$ 38,832 Net difference between projected and actual investment earnings on pension plan investments...... 91.082 427,143 215.142 304.653 Changes of assumptions..... Changes in proportion and differences between ployer contributions and proportionate share of contributions..... 297,878 247,461 944,494 400,570 \$ 729,049 \$ 1,187,058 \$ 477,784 Total Deferred Inflows of Resources......\$ Pension Expense Proportionate share of plan pension expense.....\$ 295,883 \$ 1,387,612 \$ 698,907 \$ 989.693 Net amortization of deferred amounts from changes contributions and proportionate share of contributions..... 39,887 (49,724) (308,274) 73,067 335,770 \$ Total Employer Pension Expense.....\$ 1,337,888 \$ 390,633 \$ 1,062,760 Statutory required contribution......\$ 208,245 \$ 976,599 \$ 511,014 \$ 696,545 Contribution in relation to statutory required contribution.... (208,245) (976,599) (511,014) (696,545) Contribution deficiency/(excess).....\$ Contributions as a percentage of covered payroll..... 27.86% 24.70% 23.28% 23.42% Deferred (Inflows)/Outflows Recognized in Future Pension Expense
June 30, 2021......\$ 84,885 \$ 163,486 (186,418) \$ 262,942 June 30, 2022..... 90,161 89.952 (177.750)262,106 June 30, 2023.. June 30, 2024.. 92,688 187,194 (125,505) 339,956 127,687 (9.834)(100.373)23,525 Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense..... 395,421 430,798 \$ (590,046) \$ 888,529 Discount Rate Sensitivity 3.072.059 \$ 14.406.925 \$ 7.256.430 \$ 10.275.528 Current discount rate (7.30%).....\$ 2 442 870 \$ 11 456 239 \$ 5 770 239 \$ 8 170 995 1% increase (8.30%).....\$ 1.913.997 \$ 8.976.003 \$ 4.521.002 \$ 6.402.003 Covered Payroll......\$ 747.451 \$ 3.953.177 \$ 2.194.958 \$ 2.974.269 See notes to schedule of employer allocations and schedule of pension amounts by employer. (continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

	_	Pentucket Regional School	_	Triton Regional School	_	Essex Housing Authority	_	Georgetown Housing Authority
et Pension Liability								
Beginning net pension liability	\$	12,881,509	\$	12,917,765	\$	168,860	\$	717,655
Ending net pension liability	\$	12,677,680	\$	12,761,907	\$	168,477	\$	716,010
eferred Outflows of Resources Differences between expected and actual experience	\$	1,740	\$	1,751	\$	23	\$	98
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		1,267,102		1,275,521		16,839		71,563
Changes in proportion and differences between employer contributions and proportionate		25.050		405.000		40.000		24.000
share of contributions	_	35,659		185,288	_	19,936		31,269
Total Deferred Outflows of Resources	\$_	1,304,501	\$	1,462,560	\$_	36,798	\$.	102,930
eferred Inflows of Resources Differences between expected and actual experience	\$	60,249	\$	60,650	\$	801	\$	3,403
Net difference between projected and actual investment earnings on pension plan investments		472,684		475,824		6,282		26,696
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		1,095,011	-	981,439	-	2,390	-	465
Total Deferred Inflows of Resources	\$ =	1,627,944	\$_	1,517,913	\$=	9,473	\$ -	30,564
ension Expense Proportionate share of plan pension expense	\$	1,535,556	\$	1,545,749	\$	20,407	\$	86,721
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(365,644)		(105,766)		23,099		13,873
Total Employer Pension Expense	\$_	1,169,912	\$	1,439,983	\$_	43,506	\$	100,594
ontributions_								
Statutory required contribution	\$	1,086,852	\$	1,087,902	\$	14,362	\$	61,037
Contribution in relation to statutory required contribution	_	(1,086,852)	-	(1,087,465)	_	(14,362)	_	(61,037
Contribution deficiency/(excess)	\$_	<u> </u>	\$_	437	\$_		\$_	-
Contributions as a percentage of covered payroll		23.90%		21.96%		13.53%		21.83%
eferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2021	¢	(160,202)	¢	79,810	\$	13,973	\$	29.917
June 30, 2022		(216,515)	Φ	(51,110)	Þ	9.941	Ф	20,604
June 30, 2023.		94,544		(50,109)		3,556		22,460
June 30. 2024		(41,270)		(33,944)		(145)		(615)
Total Deferred (Inflows)/Outflows Recognized in	-		•	· · · · ·	_			
Future Pension Expense	\$ _	(323,443)	\$_	(55,353)	\$=	27,325	\$	72,366
iscount Rate Sensitivity		45.040.000		40.040.000		044.070	_	
1% decrease (6.30%)		15,942,962	\$	16,048,882	\$	211,870	\$	900,427
Current discount rate (7.30%)		12,677,680	\$	12,761,907	\$	168,477	\$	716,010
1% increase (8.30%)	\$	9,933,007	\$	9,998,999	\$	132,002	\$	560,996
overed Payroll		4,548,129	\$	4,951,582	\$	106,152	\$	279,578

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

		Proveland Housing Authority		Hamilton Housing Authority	_	Ipswich Housing Authority	_	Lynnfield Housing Authority
Net Pension Liability				044.070	•	4 540 700		005 500
Beginning net pension liability	\$	295,502	\$	211,076	\$	1,519,736	\$	295,502
Ending net pension liability	\$	294,829	\$	210,590	\$	1,432,031	\$	336,954
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	40	\$	29	\$	197	\$	46
Net difference between projected and actual investment earnings on pension plan investments		-		_		_		
Changes of assumptions		29,467		21,048		143,128		33,678
Changes in proportion and differences between employer contributions and proportionate		312		29,130		40,834		52 11°
Share of contributions	<u> </u>	29,819		50,207	- s	184,159	- \$	53,113 86,84
	—	20,010	٠ * •	50,207	٠-	104,103	Ψ-	00,04
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	1,401	\$	1,001	\$	6,806	\$	1,60
Net difference between projected and actual investment earnings on pension plan investments		10,993		7,852		53,393		12,563
Changes of assumptions		-		-		-		
Changes in proportion and differences between								
employer contributions and proportionate share of contributions		36,948		7,944		79,101		14,63
Total Deferred Inflows of Resources	\$ <u></u>	49,342	\$	16,797	\$_	139,300	\$_	28,80
Pension Expense Proportionate share of plan pension expense	\$	35,711	\$	25,503	\$	173,451	\$	40,81
Net amortization of deferred amounts from changes in proportion and differences between employer								
contributions and proportionate share of contributions		(21,078)		7,482	-	(23,033)	-	7,59
Total Employer Pension Expense	\$ _	14,633	\$	32,985	\$_	150,418	\$.	48,40
Contributions .								
Statutory required contribution	\$	25,133	\$	18,280	\$	124,302	\$	29,24
Contribution in relation to statutory required contribution	_	(25,133)	-	(18,280)	-	(124,302)	-	(29,24
Contribution deficiency/(excess)	\$	-	\$		\$_	-	\$ _	
Contributions as a percentage of covered payroll		42.51%		28.89%		21.75%		48.77
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	¢	(14.524)	¢	12 / 31	\$	26 677	\$	15.16
June 30, 2021	φ	(14,524) (10,886)	φ	12,431 16,577	φ	26,677 18,367	φ	13,33
June 30, 2023		6,139		4,517		15,867		22,08
June 30, 2024		(252)		(115)		(16,052)		7,450
Total Deferred (Inflows)/Outflows Recognized in	_		•	-	-	` `	-	
Future Pension Expense	" —	(19,523)	. \$.	33,410	\$ =	44,859	\$ _	58,03
Discount Rate Sensitivity 1% decrease (6.30%)	\$	370,766	\$	264,830	\$	1,800,867	\$	423,74
Current discount rate (7.30%)	\$	294,829	\$	210,590	\$	1,432,031	\$	336,95
1% increase (8.30%)	\$	231,000	\$	164,998	\$	1,122,001	\$	264,00
Covered Payroll	\$	59,129	\$	63,278	\$	571,387	\$	59,96
See notes to schedule of employer allocations and schedule								

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

		Manchester Housing Authority		Merrimac Housing Authority	_	Middleton Housing Authority	_	Nahant Housing Authority
Net Pension Liability					Ī			
Beginning net pension liability	\$	337,719	\$	84,430	\$	211,076	\$	196,109
Ending net pension liability	\$	336,954	\$	126,352	\$	210,590	\$	194,140
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	46	\$	17	\$	29	\$	27
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		33,678		12,629		21,048		19,404
Changes in proportion and differences between employer contributions and proportionate share of contributions		22,364		74.630		308		42,545
Total Deferred Outflows of Resources			\$	87,276	s -	21,385	- \$	61,976
	٠.	,	•	,	*		*-	
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	1,601	\$	600	\$	1,001	\$	923
Net difference between projected and actual investment earnings on pension plan investments		12,563		4,711		7,852		7,238
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		14,827	-	133	-	10,887	-	48,221
Total Deferred Inflows of Resources	\$.	28,991	\$.	5,444	\$ _	19,740	\$=	56,382
Pension Expense Proportionate share of plan pension expense	\$	40,818	\$	15,299	\$	25,503	\$	23,513
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(110)		22,290		(19,690)		(18,485)
Total Employer Pension Expense	\$	40,708	\$	37,589	\$	5,813	\$_	5,028
Contributions Statutory required contribution	\$	28,724	\$	10,771	\$	17,952	\$	19,714
Contribution in relation to statutory required contribution		(28,724)		(10,771)		(17,952)		(19,714)
Contribution deficiency/(excess)	s		s		s -		s -	
Contributions as a percentage of covered payroll		52.38%		21.20%	-	25.88%	-	51.29%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense								
June 30, 2021		7,440	\$	25,041	\$	(4,628)	\$	(7,035)
June 30, 2022		5,600 14,345		24,334 24,930		2,070 4,384		(5,070) 17,508
June 30, 2024		(288)		7,527		(181)		17,506
Total Deferred (Inflows)/Outflows Recognized in		(200)	•	1,021	-	(101)	-	
Future Pension Expense	\$.	27,097	\$	81,832	\$_	1,645	\$_	5,594
Discount Pata Sansitivity								
Discount Rate Sensitivity 1% decrease (6.30%)	\$	423,740	\$	158,895	\$	264,830	\$	244,143
Current discount rate (7.30%)	\$	336,954	\$	126,352	\$	210,590	\$	194,140
1% increase (8.30%)	\$	264,005	\$	98,997	\$	164,998	\$	152,109

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

	-	North Andover Housing Authority	 Rockport Housing Authority	-	Rowley Housing Authority	_	Salisbury Housing Authority
Net Pension Liability Beginning net pension liability	\$	1,785,851	\$ 464,366	\$	168,860	\$	337,719
Ending net pension liability	\$	1,768,974	\$ 589,658	\$	168,477	\$	294,829
Deferred Outflows of Resources							
Differences between expected and actual experience	\$	243	\$ 81	\$	23	\$	40
Net difference between projected and actual investment earnings on pension plan investments		-	-		-		
Changes of assumptions		176,805	58,935		16,839		29,467
Changes in proportion and differences between employer contributions and proportionate share of contributions		19,275	118,044		23,139		1,687
Total Deferred Outflows of Resources	-		\$ 177,060	\$	40,001	\$	31,194
Deferred Inflows of Resources	•		<u> </u>	•	,	•	
Differences between expected and actual experience	\$	8,407	\$ 2,802	\$	801	\$	1,40
Net difference between projected and actual investment earnings on pension plan investments		65,956	21,985		6,282		10,99
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		65,931	150,801		170		67,85
Total Deferred Inflows of Resources	\$_	140,294	\$ 175,588	\$	7,253	\$_	80,24
Pension Expense Proportionate share of plan pension expense	\$	214,258	\$ 71,420	\$	20,407	\$	35,71
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(35,879)	(16,650)		6,143		(21,50
Total Employer Pension Expense	\$	178,379	\$ 	\$	26,550	\$_	14,20
Contributions Statutory required contribution	\$	164,102	\$ 50,266	\$	31,200	\$	25,59
Contribution in relation to statutory required contribution	_	(164,102)	 (50,266)	_	(31,200)	_	(25,59
Contribution deficiency/(excess)	\$_		\$ 	\$_		\$_	
Contributions as a percentage of covered payroll		28.21%	20.62%		54.62%		41.18
Deferred (Inflows)/Outflows Recognized in Future Pension Expense							
June 30, 2021	\$	14,538 12,978	\$ (13,666) (35,251)	\$	10,174 9,280	\$	(20,086 (12,54)
June 30, 2023		29,689	27,993		10,071		(8,63
June 30, 2024	-	(1,176)	22,396	-	3,223	-	(7,796
Future Pension Expense	\$_	56,029	\$ 1,472	\$_	32,748	\$ _	(49,05
Discount Rate Sensitivity 1% decrease (6.30%)	\$	2,224,594	\$ 741,531	\$	211,870	\$	370,766
Current discount rate (7.30%)	\$	1,768,974	\$ 589,658	\$	168,477	\$	294,829
1% increase (8.30%)	\$	1,385,997	\$ 461,999	\$	132,002	\$	231,000
Covered Payroll	\$	581,623	\$ 243,744	\$	57,123	\$	62,15
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2019

		Topsfield Housing Authority		Wenham Housing Authority		West Newbury Housing Authority		Totals
Net Pension Liability Beginning net pension liability	\$	211,076	\$	337,719	\$	-	\$	422,465,618
Ending net pension liability		210,590	\$	336,954	\$	-	\$	421,315,930
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	29	\$	46	\$	-	\$	57,820
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		21,048		33,678		-		42,109,472
Changes in proportion and differences between employer contributions and proportionate share of contributions		24,117		25,667		_		11,709,613
Total Deferred Outflows of Resources	-		\$	59,391		-	\$	53,876,905
Deferred Inflows of Resources	•							
Differences between expected and actual experience	\$	1,001	\$	1,601	\$	-	\$	2,002,263
Net difference between projected and actual investment earnings on pension plan investments		7,852		12,563		-		15,708,653
Changes of assumptions		-		-		-		
Changes in proportion and differences between								
employer contributions and proportionate share of contributions		43,037		26,333		1,273		11,709,613
Total Deferred Inflows of Resources	\$.	51,890	\$	40,497	\$.	1,273	\$	29,420,529
Pension Expense Proportionate share of plan pension expense	\$	25,503	\$	40,818	\$	-	\$	51,030,824
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(2,006)		1,247		(6,370)		
Total Employer Pension Expense		23,497	\$	42,065	\$	(6,370)	\$	51,030,824
Contributions Statutory required contribution	•	18.280	\$	28 724	\$	_	s	36,150,577
Contribution in relation to statutory required contribution		(18,280)	•	(28,724)	*	_	Ť	(36,174,754
Contribution deficiency/(excess)		-	\$	(20,121)	 s	_	\$	(24,177
Contributions as a percentage of covered payroll	-	27.97%	. *	24.81%	• • •	N/A	Τ,	25.009
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	•	2,901	•	10 726	•	(4.072)	•	0.477.000
June 30, 2021	\$	(13,999)	\$	12,736 6,695	\$	(1,273)	\$	9,177,698 6.820.262
June 30, 2023		4,517		(249)		-		8,801,703
June 30, 2024		(115)		(288)		-		(343,287
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$	(6,696)	\$	18,894	\$	(1,273)	\$	24,456,376
Discount Rate Sensitivity								
1% decrease (6.30%)	\$	264,830	\$	423,740	\$	-	\$	529,830,679
Current discount rate (7.30%)	\$	210,590	\$	336,954	\$	-	\$	421,315,930
1% increase (8.30%)	\$	164,998	\$	264,005	\$	-	\$	330,102,507
Covered Payroll	\$	65,352	\$	115,763	\$	-	\$	144,695,269
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(concluded

Essex Regional Retirement System

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NOTE I - Schedule of Employer Allocations

Governmental Accounting Standards Board (GASB) Statement #68 requires employers participating in a cost-sharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. Employers participating in cost-sharing plans are required to recognize their proportionate share of the plan's collective pension amounts for all benefits provided through the plan including the net pension liability, deferred outflows of resources, deferred inflows of resources, contributions and pension expense.

GASB Statement #68 requires the allocation of the collective pension amounts be consistent with the manner in which contributions to the plan are determined. As permissible under GASB Statement #68, The Schedule of Employer Allocations is used to demonstrate the allocation of Essex Regional Retirement System's collective pension amounts.

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the System who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year. Accordingly, the proportionate aggregate rates of regular compensation as of the close of business on September 30, 2018 were applied to allocate the System's fiscal year 2020 pension fund appropriation by member unit.

When a member unit accepts an Early Retirement Incentive Program (E.R.I. or ERIP), PERAC completes an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the ERIP. The accrued liability for the members who accept the ERIP as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. The net increase is amortized for each member unit accepting the ERIP, and is separately identified in the System's funding schedule. The 2002 ERIP amortization is straight line ending in fiscal 2019, except Nahant Housing which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012. The 2003 ERI amortization is straight line ending in fiscal 2020, except for Groveland which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012.

The allocation percentage of the total net pension liability is a blended rate of the following items. (1) The proportionate share of active employer's covered payroll is applied to the fiscal year 2019 pension fund appropriation calculated by the actuary. (2) Current Direct E.R.I. appropriation is a direct current charge calculated by PERAC for only the employers that accepted the ERIP. This direct charge backed out of the total pension fund appropriation to calculate the percentage to be allocated (3) Remaining Direct E.R.I. liability is the future E.R.I. liability associated directly to those employers that accepted the ERIP. This direct liability is added back to those employers once the non-ERIP liability has been allocated.

NOTE II - Schedule of Pension Amounts by Employer

The Schedule of Pension Amounts by Employer presents the net pension liability, the various categories of deferred outflows of resources and deferred inflows of resources, contributions and pension expense for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; and changes of assumptions.

Essex Regional Retirement System

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NOTE III - CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS

Actuarial Assumptions:

The following are the changes in actuarial assumptions effective in the January 1, 2020 valuation:

- The net investment return assumption was lowered from 7.50% to 7.30%
- The mortality assumption for non-disabled participants was changed from the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally using Scale BB to the RP-2014 Employee and Healthy Annuitant Mortality Tables projected generationally using Scale MP-2019.
- The morality assumption for disabled participants was changed from the RP-2000 Healthy Annuitant
 Mortality Table set forward two years projected generationally using Scale BB to the RP-2014 Healthy
 Annuitant Morality Table set forward two years projected generationally using Scale MP-2019.
- The allowance for net 3(8)(c) payments was changed from a term cost added to the service cost to an estimated liability.

Plan Provisions:

Effective January 1, 2020 the Board approved a 2.0% COLA increase on the first \$14,000 of a retirement allowance for fiscal 2021.

Essex Regional Retirement System

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Powers & Sullivan, LLC

Certified Public Accountants



REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS

100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsulliyan.com

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to the financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Essex Regional Retirement System, as of and for the year ended December 31, 2019 and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements, and have issued our report thereon dated July 30, 2020.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Essex Regional Retirement System's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Essex Regional Retirement System's internal control. Accordingly, we do not express an opinion on the effectiveness of Essex Regional Retirement System's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or, significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Essex Regional Retirement System's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

Powers & Sullivan LLC

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

July 30, 2020

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2018

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2018

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Financial Section

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Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2018, and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Essex Regional Retirement System as of December 31, 2018, and the results of its operations and changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis; the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Returns be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated June 10, 2019, on our consideration of the Essex Regional Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Essex Regional Retirement System's internal control over financial reporting and compliance.

Restriction on Use

This report is intended solely for the information and use of Essex Regional Retirement System, the Public Employee Retirement Administration Commission and all member units and is not intended to be and should not be used by anyone other than these specified parties.

June 10, 2019

Payers & Sullivan LC.

Management's Discussion and Analysis

As management of the Essex Regional Retirement System, we offer readers of these financial statements this narrative overview and analysis of the financial activities for the year ended December 31, 2018. The System complies with financial reporting requirements issued by the Governmental Accounting Standards Board (GASB).

The GASB is the authoritative standard setting body that provides guidance on how to prepare financial statements in conformity with generally accepted accounting principles (GAAP). Users of these financial statements rely on the GASB to establish consistent reporting standards for all governments in the United States. This consistent application is the only way users can assess the financial condition of a public retirement system compared to others.

Financial Highlights

- The System's assets exceeded its liabilities at the close of the most recent year by \$455.7 million (net position).
- The System's net position decreased by \$11.7 million for the year ended December 31, 2018.
- Total investment loss was \$8.2 million; investment expenses were \$2.5 million; and net investment loss was \$10.7 million.
- Total contributions were \$52.0 million including \$34.0 million from employers, \$13.6 million from members, and \$4.3 million from other contributions.
- Retirement benefits, refunds and transfers amounted to \$51.9 million.
- Administrative expenses were \$955,000.
- The Total Pension Liability is \$878.2 million as of December 31, 2018 while the Net Pension Liability is \$422.5 million.
- The Plan fiduciary net position as a percentage of the total pension liability is 51.89%.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the System fiduciary financial statements. These fiduciary financial statements comprise of four components: 1) management's discussion and analysis, 2) fiduciary financial statements, 3) notes to the financial statements and 4) required supplementary information.

Fiduciary Financial Statements

The *statement of net position* presents information on all assets and deferred outflows less deferred inflows and liabilities with the difference reported as *net position*. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position is improving or deteriorating.

The statement of changes in fiduciary net position presents information showing how the system's net position changed during the most recent year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, additions and deductions are reported in this statement for some items that will only result in cash flows in future periods.

Notes to the financial statements

The notes provide additional information that is essential to a full understanding of the data provided in the fiduciary financial statements.

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Essex Regional Retirement System

Management's Discussion and Analysis

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Returns be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context.

Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of the System's financial position. The System's assets exceeded liabilities by \$455.7 million at the close of 2018.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year-end, the system's net position includes investments of \$449.1 million, cash of \$2.2 million, accounts receivable of \$4.3 million, and capital assets of \$167,000.

In 2018, the System's contributions totaled \$51.9 million while deductions totaled \$52.9 million, which resulted in a current deficiency of (\$1.0) million. A (\$1.7) million deficiency occurred in 2017. Therefore, for these two years, the system relied on investment income to sustain operations.

The main difference of the increase in net position between years was the change in net investment income between years. Net investment income was \$66.3 million in 2017, however in 2018 the System experienced a net investment loss of \$10.7 million. The annual money weighted rate of return was -2.43% and 17.11% in 2018 and 2017 respectively. Fluctuations in the system's annual investment returns are expected.

In 2016, the System recognized a contribution from Essex North Shore Agricultural and Technical School District (Essex Tech) as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Legislation requires Essex Tech to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, in 2015, PERAC approved a funding schedule for Essex Tech to pay ERRS in equal annual payments of \$421,947 through 2033. The \$3,479,282 million present value of these payments has been recorded as an intergovernmental receivable at year-end.

The following tables present summarized financial information for the past two years.

	2018	2017
Statement of Fiduciary Net Position		
Assets:		
Cash and cash equivalents\$	2,156,881	\$ 2,894,889
Investments	449,147,353	460,271,251
Receivables	4,339,105	4,223,141
Capital assets, net of accumulated depreciation	166,977	175,497
Total assets	455,810,316	 467,564,778
Liabilities:		
Accounts payable	73,214	 90,489
Net Position Restricted for Pension Benefits\$	455,737,102	\$ 467,474,289

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Essex Regional Retirement System

Management's Discussion and Analysis

Statement of Changes in Fiduciary Net Position	2018	2017
Additions: Contributions:		
Member contributions\$ Employer contributions	13,636,998 33,969,088	13,077,844 31,239,783
Other contributions	4,291,824	3,575,613
Total contributions	51,897,910	47,893,240
Net investment income (loss):		
Total investment income (loss)	(8,233,888)	68,602,654
Less, investment expenses	(2,489,505)	(2,344,138)
Net investment income (loss)	(10,723,393)	66,258,516
Total additions	41,174,517	114,151,756
Deductions:	055.050	004.070
Administration	955,252	981,979
Retirement benefits, refunds and transfers	51,956,452	48,625,371
Total deductions	52,911,704	49,607,350
Net increase (decrease) in fiduciary net position	(11,737,187)	64,544,406
Fiduciary net position at beginning of year	467,474,289	402,929,883
Fiduciary net position at end of year\$	455,737,102	467,474,289

Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the System's Board, 491 Maple Street #202, Danvers, MA 01923.

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STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2018

Assets		
CURRENT.		
Cash and cash equivalents	\$	2,156,881
Investments:	•	2,100,001
Investments in Pension Reserve Investment Trust		440,560,329
Pooled alternative investments		8,547,543
Pooled real estate funds		39,481
Total investments		449,147,353
Receivables, net of allowance for uncollectibles:		
Member contributions		762,842
Employer pension appropriation		96,900
Essex Agricultural and Technical High School		143,656
Interest and dividends		81
Total acceptables		4 000 470
Total receivables		1,003,479
Total current assets		452,307,713
NONCURRENT:		
Receivables, net of allowance for uncollectibles:		
Essex Agricultural and Technical High School		3,335,626
Capital assets, net of accumulated depreciation		166,977
Total noncurrent assets		3,502,603
Total Horiculterit assets		3,302,603
Total Assets		455,810,316
Liabilities		70.04.4
Accounts payable		73,214
Net Position Restricted for Pensions	\$	455,737,102

See notes to financial statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

YEAR ENDED DECEMBER 31, 2018

Additions: Contributions:		
Employer pension appropriation	\$	33,969,088
Member contributions.		13,636,998
Transfers from other systems		2,104,173
3(8)(c) contributions from other systems		1,681,210
Workers' compensation settlements		31,698
Federal grant reimbursements		24,832
State COLA reimbursements		268,910
Members' makeup payments and redeposits		160,765
Interest not refunded		16,476
Other revenue		3,760
Outer revenue	_	0,700
Total contributions	_	51,897,910
Net investment income:		
Investment income (loss)		(8,233,888)
mostino it mostile (1656)		(0,200,000)
Less: investment expense	_	(2,489,505)
Net investment income (loss)	_	(10,723,393)
Total additions	_	41,174,517
Deductions:		
Administration		955,252
Retirement benefits and refunds		46,458,490
Transfers to other systems		2,268,708
3(8)(c) transfer to other systems		3,220,734
Depreciation		8,520
	_	
Total deductions	_	52,911,704
Net increase (decrease) in fiduciary net position		(11,737,187)
Fiduciary net position at beginning of year	_	467,474,289
Fiduciary net position at end of year	\$ =	455,737,102

See notes to financial statements.

Essex Regional Retirement System

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Financial Statements

NOTE 1 - PLAN DESCRIPTION

Essex Regional Retirement System is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of governmental member units deemed eligible by the Essex Regional Retirement Board (the Board), with the exception of school department employees who serve in a teaching capacity. The pensions of such school employees are administered by the Commonwealth of Massachusetts' Teachers Retirement System. Membership in the Plan is mandatory immediately upon the commencement of employment for all non-teaching permanent, full time employees. The Plan is administered by the Essex Regional Retirement System (the System). As of December 31, 2018, the System had 46 participating employers.

Originally instituted in 1937, as part of Essex County government, the Board served as the regional retirement system for Essex County upon the abolition of county government in 1996 and the current system structure was created by special legislation in July 2010 (Chapter 34B, Section 19A of the Massachusetts General Laws). The System is governed by a five-member Board who establish the policies under which the System operates. Board members also approve all of the System's financial transactions, including the approval of retirement benefits to members. Board members are appointed or elected as specified by MGL Ch. 34B, Section 19A for terms ranging from 3 to 5 years.

The day-to-day operations of the System are managed by the Executive Director. The legislative body for the System is an Advisory Council consisting of full-time treasurers or other qualified officials of the member units. The Advisory Council meets twice annually and is responsible for supervising and certifying the procedures involved in the election of members to the retirement board.

As of December 31, 2018, the System had 1,858 retirees and beneficiaries, 2,774 active participants and 1,212 inactive participants with a vested right to retirement benefits or to receive a refund of their contributions.

The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. The Public Employee Retirement Administration Commission (PERAC) is the state agency responsible for oversight of the Commonwealth's public retirement systems.

Massachusetts Contributory Retirement System benefits are, with certain exceptions, uniform from system to system. The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For persons who became members on or after April 2, 2012, average salary is the average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are three classes of membership in the retirement system: group 1, group 2, and group 4. Group 1 consists of general employees, which includes clerical and administrative positions. Group 2 consists of positions that have been specified as hazardous. Lastly, group 4 consists of police officers, firefighters, and other hazardous positions.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of service or upon reaching the age of 55 with 10 years of service if hired after 1978 and if classified in groups 1 or 2. A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance upon reaching the age of 60 with 10 years of service if in group 1, 50 years of age with 10 years of service if in group 2, and 55 years of age if hired prior to 1978 or if classified in group 4. Normal retirement for most employees occurs at age 65 (except for certain hazardous duty and public safety positions, whose normal retirement is at age 55).

Essex Regional Retirement System

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Financial Statements

A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and the interest they generate constitute the annuity. The differential between the total retirement benefit and the annuity is the pension.

Active members contribute between 5% and 11% of their gross regular compensation. The percentage rate is keyed to the date upon which an employee's membership commences. These deductions are deposited in the Annuity Savings Fund and earn interest at a rate determined by the Public Employee Retirement Administration Commission's (PERAC) actuary. When a member's retirement becomes effective, his/her deductions and related interest are transferred to the Annuity Reserve Fund. Any cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by the Commonwealth of Massachusetts' state law during those years are borne by the Commonwealth and are deposited into the Pension Fund. Cost-of-living adjustments granted after 1997 must be approved by the System and all costs are borne by the System.

The pension portion of any retirement benefit is paid from the Pension Fund of the System. The governmental unit employing the member must annually appropriate and contribute the amount of current-year pension assessment.

Administrative expenses, which were previously appropriated from the governmental entities whose employees are members of the system, are now paid from investment income.

Members who become permanently and totally disabled for further duty may be eligible to receive a disability retirement allowance. The amount of benefits to be received in such cases is dependent on several factors, including whether or not the disability is work related, the member's age, years of creditable service, level of compensation, veterans' status and group classification.

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions.

Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying financial statements of the Essex Regional Retirement System (ERRS) have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the recognized standard-setting body for establishing governmental accounting and financial reporting principles.

ERRS is a special-purpose government engaged only in fiduciary activities. Accordingly, the financial statements are reported using the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, additions are recorded when earned and deductions are recorded when the liabilities are incurred.

Cash and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition. Investments are carried at fair value. The fair values were determined by the closing price for those securities traded on national stock exchanges and at the average bid-and-asked quotation for those securities traded in the over-the-counter market. The fair value of private equities are based on management's valuation of estimates and assumptions from information and representations provided by the respective general partners, in the absence of readily ascertainable market values. Real estate assets are reported at fair value utilizing an income approach to valuation along with independent appraisals and estimates by management.

Fair Value Measurements

The System reports required types of financial instruments in accordance with the fair value standards. These standards require an entity to maximize the use of observable inputs (such as quoted prices in active markets) and minimize the use of unobservable inputs (such as appraisals or valuation techniques) to determine fair value. Fair value standards also require the government to classify these financial instruments into a three-level hierarchy, based on the priority of inputs to the valuation technique or in accordance with net asset value practical expedient rules, which allow for either Level 2 or Level 3 depending on lock up and notice periods associated with the underlying funds.

Instruments measured and reported at fair value are classified and disclosed in one of the following categories:

Level 1 – Quoted prices are available in active markets for identical instruments as of the reporting date. Instruments, which are generally included in this category, include actively traded equity and debt securities, U.S. government obligations, and mutual funds with quoted market prices in active markets.

Level 2 – Pricing inputs are other than quoted in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or other valuation methodologies. Certain fixed income securities, primarily corporate bonds, are classified as Level 2 because fair values are estimated using pricing models, matrix pricing, or discounted cash flows.

Level 3 – Pricing inputs are unobservable for the instrument and include situations where there is little, if any, market activity for the instrument. The inputs into the determination of fair value require significant management judgment or estimation.

In some instances, the inputs used to measure fair value may fall into different levels of the fair value hierarchy and is based on the lowest level of input that is significant to the fair value measurement.

Market price is affected by a number of factors, including the type of instrument and the characteristics specific to the instrument. Instruments with readily available active quoted prices generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value. It is reasonably possible that change in values of these instruments will occur in the near term and that such changes could materially affect amounts reported in these financial statements. For more information on the fair value of the System's financial instruments see Note 4.

Accounts Receivable

Accounts receivable consist of member deductions, future appropriations from Essex Technical High School for the unfunded actuarial liability for retirees from Essex Agricultural and Technical School, pension fund appropriations, and federal grant reimbursements. These receivables are considered 100% collectible and

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therefore do not report an allowance for uncollectibles.

Deferred Outflows/Inflows of Resources

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of fiduciary net position that applies to a future period(s) and so will not be recognized as an outflow of resources (deduction) until then. The ERRS did not have any items that qualify for reporting in this category.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (addition) until that time. The ERRS did not have any items that qualify for reporting in this category.

NOTE 3 - PLAN ADMINISTRATION

The System is administered by a five-person Board of Retirement. The first member shall be a chief executive or chief administrative officer of a member town, unit or district belonging to the Essex Regional Retirement System for a term of 3 years. This member shall be chosen by weighted vote of the chief executive or chief administrative officers of member towns, units or districts belonging to the Essex Regional Retirement System. The second member shall be a member of the regional retirement board advisory council, and shall be elected by a majority of those present and voting at a public meeting of the council and shall serve for a term of 3 years. The third and fourth members shall be elected by the members in or retired from service of the Essex County Retirement System from among persons retired under the system and shall serve for a term of 3 years. The fifth member, who shall not be an employee, retiree or official of the retirement system, or of any of its constituent governmental units, shall be chosen by the other 4 members and shall serve for a term of 5 years.

First Member	Alan J. Benson	Term Expires:	12/1/2020
Second Member	Kevin A. Merz	Term Expires:	12/1/2021
Third Member	Susan J. Yaskell	Term Expires:	12/1/2019
Fourth Member	H. Joseph Maney	Term Expires:	12/1/2019
Fifth Member	Vincent R. Malgeri	Term Expires:	12/12/2020

Board members are required to meet at least once a month. The Board must keep a record of all of its proceedings. The Board must annually submit to the appropriate authority an estimate of the expenses of administration and cost of operation of the System. The Board must annually file a financial statement of condition for the System with PERAC.

The ERRS Advisory Council consists of the full-time treasurers, elected or appointed, for each town, unit or district within the System. The members of the Advisory Council elect the second member of the Board of Retirement as well as a Chair from among its members. The ERRS Advisory Council is required by statute to meet twice per year, typically in the spring and fall. All ERRS Advisory Council meetings are open, public meetings and are subject to the Commonwealth's Open Meeting Law.

The investment of the System's funds is the responsibility of the Board. Disability retirement allowances must be

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approved by the Retirement Board and are then submitted to the PERAC Actuary for verification prior to payment. Superannuation retirement allowances are not required to obtain PERAC's verification. All expenses incurred by the System must be approved by a majority vote of the Board. Payments shall be made only upon vouchers signed by two persons designated by the Board.

ERRS board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. The MACRS program for ERRS provides \$50,000,000 fiduciary protection for Trustees and employees, as well as a \$1,000,000 fidelity policy for crime coverage.

NOTE 4 - CASH AND INVESTMENTS

Custodial Credit Risk - Deposits

At December 31, 2018, the carrying amount of the System's deposits totaled \$2,156,881 and the bank balance totaled \$3,413,538, which was covered by Federal Depository Insurance.

<u>Investments</u>

The System's investments are as follows:

Investment Type		Fair Value
Other Investments:		
PRIT Pooled Funds	\$	440,560,329
Pooled Alternative Investments		8,547,543
Pooled Real Estate Funds		39,481
Total Investments	- \$	449, 147, 353

Approximately 98% of the Retirement System's investments are in Pension Reserve Investment Trust (PRIT) Pooled Funds. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board. The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The Administration does not have the ability to control any of the investment decisions relative to its funds in PRIT.

Approximately 2% of the System's funds are invested in pooled alternative investments and pooled real estate funds. The fair values of assets in those funds are based on the quoted values obtained from each pool.

The Administration's annual money-weighted rate of return on pension plan investments was -2.43%. The money-weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested, measured monthly.

Fair Value of Investments

The retiree pension defined benefit plan holds significant amounts of investments that are measured at fair value on a recurring basis. Because investing is a key part of the plan's activities, the plan shows greater disaggregation in its disclosures. The plan chooses a tabular format for disclosing the levels within the fair value hierarchy.

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The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles.

The System has the following recurring fair value measurements as of December 31, 2018:

			Fair \	lsing		
Investment Type	12/31/18	-	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)
Investments by fair value level						
Pooled Alternative Investments\$ Pooled Real Estate Funds	8,547,543 39,481	\$	-	\$ -	\$	8,547,543 39,481
Total Investments by fair value level	8,587,024	\$	-	\$ -	\$	8,587,024
Investments measured at the net asset value (NAV)						
PRIT Investments	440,560,329	_				
Total Investments\$	449,147,353	_				

Pooled Alternative Investments and Pooled Real Estate Funds classified in level 3 are valued using either a discounted cash flow or market comparable companies technique.

PRIT Investments are valued using the net asset value (NAV) method. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board (PRIM). The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The System does not have the ability to control any of the investment decisions relative to its funds in PRIT.

NOTE 5 - RECEIVABLES

At December 31, 2018, receivables for the System are as follows:

	Gross Amount	Allowance for Uncollectibles	Net Amount
Receivables:			
Member contributions\$	762,842	\$ -	\$ 762,842
Essex Agricultural and Technical High School	3,479,282	-	3,479,282
Employer pension appropriation	96,900	-	96,900
Interest and dividends	81	-	81
Total\$	4,339,105	\$ -	\$ 4,339,105

As more fully described in Note 9, the Essex Agricultural and Technical High School receivable consists of the present value of a stream of future payments to be received from Essex Technical High School (Essex Tech), as the successor agency of Essex Agricultural and Technical School from fiscal year 2017 through fiscal year 2033 for the unfunded actuarial liability for its retirees in the Essex Regional Retirement System.

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NOTE 6 - CAPITAL ASSETS

Capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are 33 years for buildings and 5 to 20 years for equipment.

The majority of capital assets owned by the System consist of two condominiums in Danvers, Massachusetts that were purchased for the administrative offices of the System. Both units were purchased in fiscal year 2000 for a total of \$375,250. Total capital asset activity for the year ended December 31, 2018, was as follows:

-	Beginning Balance																Increases	Decreases		Ending Balance
Capital assets being depreciated:																				
Buildings\$	375,250 \$	5	-	\$ -	\$	375,250														
Equipment	15,580	_	-		-	15,580														
Total capital assets being depreciated	390,830	_	-		-	390,830														
Less accumulated depreciation for:																				
Buildings	(199,753)		(8,520)	-		(208,273)														
Equipment	(15,580)	_			-	(15,580)														
Total accumulated depreciation	(215,333)	_	(8,520)		-	(223,853)														
Total governmental activities capital assets, net \$	175,497 \$;	(8,520)	\$ -	\$	166,977														

NOTE 7 - MEMBERSHIP

The following table represents the System's membership at December 31, 2018:

Active members	2,774
Inactive members entitled to a return of contributions	1,212
Retired, Beneficiary, and Survivor	1,858
Total	5,844

NOTE 8 – ACTUARIAL VALUATION

The total pension liability was determined by an actuarial valuation as of January 1, 2018, using the following actuarial assumptions, applied to all periods included in the measurement that was updated back to December 31, 2018:

Valuation	date	January 1, 2018						
Salary ind	preases	Based on years of service, ranging from 7.50% at 0 years of service decreasing to 3.75% after 5 years of service.						
Net inves	tment return/Discount rate	7.50%						
Inflation ra	ate	2.75%						
Cost of living adjustments		3% of first \$14,000						
Mortality	Rates: Pre-Retirement	RP-2000 Employee Mortality Table projected generationally with Scale BB.						
	Healthy Retiree	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB.						
	Disabled Retiree	RP-2000 Healthy Annuitant Mortality Table, set forward two years projected generationally with Scale BB.						

Components of the net pension liability as of December 31, 2018 were as follows:

Total pension liability\$	878,202,720
The pension plan's fiduciary net position	455,737,102
The net pension liability\$	422,465,618
The pension plan's fiduciary net position as a percentage of the total pension liability	51.89%

Investment policy. The pension plan's policy in regard to the allocation of invested assets is established by PRIT and the Board. Plan assets are managed on a total return basis with a long-term objective of achieving a fully funded status for the benefits provided through the pension plan.

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. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expense, used in the derivation of the long-term investment rate of return assumption are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return	Long-Term Expected Asset Allocation
Domestic equity	6.16%	21.00%
International developed markets equity	6.69%	13.00%
International emerging markets equity	9.47%	5.00%
Core fixed income	1.89%	15.00%
High-yield fixed income	4.00%	8.00%
Real estate	4.58%	10.00%
Commodities	4.77%	4.00%
Hedge fund, GTAA, Risk parity	3.68%	11.00%
Private equity	10.00%	13.00%
Total Fund Expected Return/Total		100.00%

Discount Rate. The discount rates used to measure the Total Pension Liability was 7.50% as of December 31, 2018 and December 31, 2017. 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 the current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service cost 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 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 Total Pension Liability as of both December 31, 2018 and December 31, 2017.

Sensitivity of the net position liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 7.5%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.5%) or 1-percentage-point higher (8.5%) than the current rate.

		Current	
	1.0% Decrease	Discount Rate	1.0% Increase
	(6.50%)	(7.50%)	(8.50%)
Essex Regional Retirement System's net			
pension liability as of December 31, 2018\$	522,299,488	\$ 422,465,618	\$ 338,473,321

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Contributions: Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE 9 - ESSEX AGRICULTURAL AND TECHNICAL HIGH SCHOOL

Chapter 463 of the Acts of 2004 created the Essex North Shore Agricultural and Technical School District (Essex Tech). This legislation established Essex Tech as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Prior to July 1, 2014, the non-teacher employees of the Essex Agricultural and Technical High School were members of ERRS. The legislation required that all active and inactive members be transferred to the Salem Contributory Retirement System. Accordingly, as of June 30, 2015, all active and inactive members of ERRS have been transferred to the Salem Contributory Retirement System. Essex Tech, as the successor agency, is required to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, PERAC approved a funding schedule that requires Essex Tech to pay ERRS equal annual assessments of \$421,947 through 2033. The \$3,479,282 present value of these payments has been recorded as a receivable by ERRS as of December 31, 2018.

NOTE 10 - COMMITMENTS AND CONTINGENCIES

Various legal actions and claims are pending against the System. Litigation is subject to many uncertainties, and the outcome of individual litigated matters is not always predictable. Although the amount of liability, if any, at December 31, 2018 cannot be ascertained, management believes any resulting liability should not materially affect the financial position at December 31, 2018.

NOTE 11 - IMPLEMENTATION OF NEW GASB PRONOUNCEMENTS

During 2018, the following GASB pronouncements were implemented:

- The GASB issued Statement #85, Omnibus 2017. The financial statements and related notes were not impacted by the implementation of this pronouncement.
- The GASB issued Statement #86, Certain Debt Extinguishment Issues. The financial statements and related notes were not impacted by the implementation of this pronouncement.

The following GASB pronouncements will be implemented in the future:

- The GASB issued Statement #83, Certain Asset Retirement Obligations, which is required to be implemented in 2019.
- · The GASB issued Statement #84, Fiduciary Activities, which is required to be implemented in 2019.
- The GASB issued Statement #87, Leases, which is required to be implemented in 2020.
- The GASB issued Statement #88, Certain Disclosures Related to Debt, Including Direct Borrowings and Direct Placements, which is required to be implemented in 2019.

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- The GASB issued Statement #89, Accounting for Interest Costs Incurred Before the End of a Construction Period, which is required to be implemented in 2020.
- The GASB issued Statement #90, Majority Equity Interests An Amendment of GASB Statements No. 14 and No. 61, which is required to be implemented in 2019.
- The GASB issued Statement #91, Conduit Debt Obligations, which is required to be implemented in 2021

Management is currently assessing the impact the implementation of these pronouncements will have on the financial statements.

NOTE 12 - SUBSEQUENT EVENTS

Management has evaluated subsequent events through June 10, 2019, which is the date the financial statements were available to be issued.

Required Supplementary Information

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

	December 31, 2014		December 31, 2015		December 31, 2016		December 31, 2017	_	December 31, 2018
Total pension liability:	10 501 511	•	11 101 707	•	45 507 050	•	10.077.715	_	47.000.000
Service cost\$	10,581,511	\$	14,484,797	\$	15,597,356	\$	16,877,715	\$	17,892,023
Interest	54,243,222		56,453,975		57,096,460		60,670,085		62,939,560
Changes in benefit terms	-		-		4,350,523				-
Differences between expected and actual experience	-		-		(8,590,424)		(49,644)		-
Changes in assumptions	-		-		20,216,699		23,073,540		-
Benefit payments	(38, 353, 266)		(39,994,008)		(42,130,566)		(44,959,784)	-	(46,458,490)
Net change in total pension liability	26,471,467		30,944,764		46,540,048		55,611,912		34,373,093
Total pension liability - beginning	684,261,436		710,732,903		741,677,667		788,217,715	-	843,829,627
Total pension liability - ending (a)\$	710,732,903	\$.	741,677,667	\$.	788,217,715	\$.	843,829,627	\$ _	878,202,720
Plan fiduciary net position:									
Employer pension appropriation\$	26,066,222	\$	27,893,676	\$	29,420,144	\$	31,239,783	\$	33,969,088
Member contributions	12,168,827		12,491,708		12,864,434		13,077,844		13,636,998
Other contributions	3,940,038		7,805,125		4,208,413		3,575,613		4,291,824
Net investment income (loss)	29,322,861		4,103,832		26,406,996		66,258,516		(10,723,393)
Administrative expenses	(922,351)		(934,672)		(961,143)		(981,979)		(955, 252)
Retirement benefits and refunds	(38, 353, 266)		(39,994,008)		(42,130,565)		(44,959,784)		(46,458,490)
Other retirement deductions	(5,728,996)		(4,483,236)		(5,202,784)		(3,650,033)		(5,489,442)
Depreciation	(14,374)		(14,374)		(14,374)		(15,554)	_	(8,520)
Net increase (decrease) in fiduciary net position	26,478,961		6,868,051		24,591,121		64,544,406		(11,737,187)
Fiduciary net position - beginning of year	344,991,750		371,470,711		378,338,762		402,929,883	-	467,474,289
Fiduciary net position - end of year (b)\$	371,470,711	\$	378,338,762	\$.	402,929,883	\$	467,474,289	\$.	455,737,102
Net pension liability - ending (a)-(b)\$	339,262,192	\$.	363,338,905	\$.	385,287,832	\$.	376,355,338	\$ _	422,465,618
Plan fiduciary net position as a percentage of the total pension liability	52.27%		51.01%		51.12%		55.40%		51.89%
Covered payroll\$	123,190,220	\$	128,258,043	\$	133,089,526	\$	130,743,710	\$	136,111,184
Net pension liability as a percentage of covered payroll	275.40%		283.29%		289.50%		287.86%		310.38%

Note: this schedule is intended to present information for 10 years.
Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

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SCHEDULE OF CONTRIBUTIONS

	December 31, 2014	December 31, 2015	December 31, 2016	December 31, 2017	December 31, 2018
Actuarially determined contribution\$	26,066,222 \$	32,050,432	\$ 29,420,338 \$	31,614,412 \$	33,969,088
Contributions in relation to the actuarially determined contribution	(26,066,222)	(32,123,557)	(29,463,314)	(31,663,092)	(33,993,920)
Contribution deficiency (excess) \$	\$	(73,125)	\$ (42,976)	(48,680) \$	(24,832)
Covered payroll\$	123,190,220 \$	128,258,043	\$ 133,089,526 \$	130,743,710 \$	136,111,184
Contributions as a percentage of covered payroll	21.16%	25.05%	22.14%	24.22%	24.98%

Note: this schedule is intended to present information for 10 years.

Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

Essex Regional Retirement System Audit Report

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SCHEDULE OF INVESTMENT RETURNS

Annual money-weighted rate of return,

	rate of return,
Year	net of investment expense
December 31, 2018	-2.43%
December 31, 2017	17.11%
December 31, 2016	7.80%
December 31, 2015	1.04%
December 31, 2014	8.48%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

NOTE A - CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

The Schedule of Changes in the Net Pension Liability and Related Ratios includes the detailed changes in the systems total pension liability, changes in the systems net position, and the ending net pension liability. It also demonstrates the plan's net position as a percentage of the total pension liability and the net pension liability as a percentage of covered payroll.

NOTE B - CONTRIBUTIONS

Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The total appropriations are payable on July 1 and January 1. Employers may choose to pay the entire appropriation in July at a discounted rate. Accordingly, actual employer contributions may be less than the "total appropriation". The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE C - MONEY WEIGHTED RATE OF RETURN

The money weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense. A money weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. Inputs to the money weighted rate of return calculation are determined monthly.

NOTE D – CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS Actuarial Assumptions: None. Plan Provisions: None.

Audit of Specific Elements, Accounts and Items of Financial Statements

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Essex Regional Retirement System

Audit of Specific Elements, Accounts and Items of Financial Statements

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701

www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

We have audited the accompanying schedule of employer allocations of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2018, and the related notes. We have also audited the total for all entities of the rows titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense included in the accompanying schedule of pension amounts by employer of the ERRS Pension Plan as of and for the year ended December 31, 2018, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified row totals included in the schedule of pension amounts by employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense for the total of all participating entities for the Essex Regional Retirement System as of and for the year ended December 31, 2018, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the Essex Regional Retirement System as of and for the year ended December 31, 2018, and our report thereon, dated June 10, 2019, expressed an unmodified opinion on those financial statements.

Restriction on Use

Powers & Sellivan LLC

This report is intended solely for the information and use of the Essex Regional Retirement System management, the Essex Regional Retirement System employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

June 10, 2019

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2018

Employer	2019 Pension Fund Appropriation	Current Direct E.R.I./CRAB Appropriation	FY2019 Total Appropriation	Remaining Direct E.R.I. Liability	Allocated Net Pension Liability	Share of Net Pension Liability including E.R.I.	Percent of Total Net Pension Liability including E.R.I.
Retirement Board\$	129,352 \$	_	\$ 129,352 \$		\$ 1,604,165	\$ 1,604,165	0.380%
Town of Boxford	1,293,521		1,293,521	-	16,041,666	16,041,666	3.797%
Town of Essex	585,489	_	585,489	_	7,260,967	7,260,967	1.719%
Town of Georgetown	1,657,750	79,230	1.736.980	19,234	20,558,664	20,577,898	4.871%
Town of Groveland	752.285	8.096	760.381	64,509	9,329,496	9,394,005	2.224%
Town of Hamilton	939.505	-	939.505	_	11.651.319	11.651.319	2.758%
Town of Ipswich	3,489,104		3,489,104		43,270,288	43,270,288	10.242%
Town of Lynnfield	2,774,263	145,297	2,919,560	137,493	34,405,154	34,542,647	8.176%
Town of Manchester-by-the-Sea	1,191,401	-	1,191,401	-	14,775,220	14,775,220	3.497%
Town of Merrimac	803.345	45.865	849.210	6.977	9.962.722	9.969.699	2.360%
Town of Middleton	1,776,890	-	1,776,890	-,	22,036,187	22,036,187	5.216%
Town of Nahant	851.001	_	851.001		10.553.728	10.553.728	2.498%
Town of Newbury	708.033		708,033		8,780,703	8,780,703	2.078%
Town of North Andover	5,289,822	_	5.289.822	_	65.601.981	65.601.981	15.528%
Town of Rockport	1,787,102	7,966	1,795,068	_	22,162,829	22,162,829	5.246%
Town of Rowley	949.717	- 1,000	949.717	_	11,777,961	11,777,961	2.788%
Town of Salisbury	1,412,661	102,302	1,514,963		17,519,189	17,519,189	4.147%
Town of Topsfield.	1.140.341	102,002	1.140.341		14.141.999	14.141.999	3.347%
Town of Wenham.	728,457	_	728,457		9.033.992	9.033.992	2.138%
Town of West Newbury	670,589	29,371	699,960		8,316,337	8,316,337	1,969%
East Essex Veterans District	30,636		30,636	_	379,936	379,936	0.090%
Byfield Water District	23.828		23.828		295.502	295.502	0.070%
Lynnfield Center Water District	95.312		95.312		1.182.017	1.182.017	0.280%
Lynnfield Water District	71,484		71,484		886,515	886,515	0.210%
NE Massachusetts Mosquito Control District	139,564	_	139,564	_	1,730,812	1,730,812	0.410%
Hamilton-Wenham Regional School	925,889	_	925,889	_	11,482,455	11,482,455	2.718%
Manchester-Essex Regional School	510,600	19.124	529.724	_	6,332,236	6,332,236	1.499%
Mascon omet Regional School	646.761		646.761		8.020.835	8.020.835	1.899%
Pentucket Regional School	1,038,221	37.623	1,075,844	5,959	12,875,550	12,881,509	3.049%
Triton Regional School	1.041.625	30.664	1.072.289	0,000	12,917,765	12,917,765	3.058%
Essex Housing Authority	13,616	4.078	17,694	_	168,860	168,860	0.040%
Georgetown Housing Authority	57,868	1,010	57.868		717.655	717,655	0.170%
Groveland Housing Authority	23,828	_	23,828	_	295,502	295,502	0.070%
Hamilton Housing Authority	17,020		17.020		211.076	211.076	0.050%
Ipswich Housing Authority	122.544	27.004	149,548		1.519.736	1.519.736	0.360%
Lynnfield Housing Authority	23.828	21,001	23.828		295.502	295.502	0.070%
Manchester Housing Authority	27,232		27,232		337,719	337,719	0.080%
Merrimac Housing Authority	6,808		6,808	-	84,430	84,430	0.020%
Middleton Housing Authority	17,020	-	17.020	-	211.076	211.076	0.050%
Nahant Housing Authority	10.212	8.717	18,929	69.464	126.645	196.109	0.046%
North Andover Housing Authority	142.968	13.552	156.520	12.824	1,773,027	1,785,851	0.423%
Rockport Housing Authority	37,444	16,279	53,723	12,024	464,366	464,366	0.110%
Rowley Housing Authority	13.616	10,279	13,616	-	168.860	168.860	0.040%
Salisbury Housing Authority	27,232	-	27,232	-	337,719	337,719	0.040%
Topsfield Housing Authority	17.020	-	17.020	-	211.076	211.076	0.050%
Wenham Housing Authority	27,232	6,105	33,337		337,719	337,719	0.080%
Total\$	34,040,036 \$	581,273	\$ 34,621,309 \$	316,460	\$ 422,149,158	\$ 422,465,618	100.000%

See notes to schedule of employer allocations and schedule of pension amounts by employer.

FOR THE YEAR ENDED DECEMBER 31, 2018

	_	Retirement Board		Town of Boxford	_	Town of Essex		Town of Georgetown
Net Pension Liability Beginning net pension liability	\$	1,389,511	\$	13,895,133	\$	6,647,132	\$	19,358,316
Ending net pension liability	\$	1,604,165	\$	16,041,666	\$	7,260,967	\$	20,577,898
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		82,508		825,083		373,459		1,058,398
Changes of assumptions		85,046		850,461		384,946		1,090,954
Changes in proportion and differences between employer contributions and proportionate share of contributions		66,951		382,859		140,339		348,933
	_				-			
Total Deferred Outflows of Resources	\$_	234,505	\$	2,058,403	\$	898,744	\$.	2,498,285
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	13,914	\$	139,135	\$	62,977	\$	178,479
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate		31,744		52.450		452.052		931,206
share of contributions				52,158	-	152,953	•	
Total Deferred Inflows of Resources	\$=	45,658	\$	191,293	\$ =	215,930	\$.	1,109,685
Pension Expense Proportionate share of plan pension expense	\$	184,716	\$	1,847,148	\$	836,078	\$	2,369,482
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		12,631		78,023		16,367		(137,489)
	_		_		_			
Total Employer Pension Expense	۰.	197,347	*	1,925,171	* -	852,445	٠,	2,231,993
Contributions Statutory required contribution	\$	126,893	\$	1,268,935	\$	574,361	\$	1,703,966
Contribution in relation to statutory required contribution	_	(126,893)		(1,270,407)	_	(574,361)		(1,703,966)
Contribution deficiency/(excess)	\$_		\$	(1,472)	\$_	-	\$.	
Contributions as a percentage of covered payroll		25.09%		25.77%		26.22%		25.82%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2020	•	68,193	\$	633,646	\$	267.859	\$	575,251
June 30, 2021	Ψ	39,689	Ψ	447,943	Ψ	176,070	Ψ	381,541
June 30, 2022		38,955		365,111		118,566		177,104
June 30, 2023	_	42,010		420,410	_	120,319		254,704
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$_	188,847	\$	1,867,110	\$_	682,814	\$	1,388,600
	_							
Discount Rate Sensitivity 1% decrease (6.50%)	\$	1,983,250	\$	19,832,511	\$	8,976,824	\$	25,440,712
Current discount rate (7.50%)	\$	1,604,165	\$	16,041,666	\$	7,260,967	\$	20,577,898
1% increase (8.50%)	\$	1,285,234	\$	12,852,350	\$	5,817,382	\$	16,486,714
Covered Payroll	\$	505,815	\$	4,930,080	\$	2,190,580	\$	6,599,842
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

	-	Town of Groveland		Town of Hamilton	-	Town of Ipswich	-	Town of Lynnfield
Net Pension Liability Beginning net pension liability	\$	8,367,218	\$	9,538,820	\$	38,718,599	\$	30,083,690
Ending net pension liability	\$	9,394,005	\$	11,651,319	\$	43,270,288	\$	34,542,647
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		483,169		599,271		2,225,553		1,776,658
Changes of assumptions		498,030		617,704		2,294,008		1,831,306
Changes in proportion and differences between employer contributions and proportionate share of contributions		134,816		816,762		_	_	735,772
Total Deferred Outflows of Resources	\$	1,116,015	\$	2,033,737	\$	4,519,561	\$	4,343,736
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	81,477	\$	101,056	\$	375,299	\$	299,601
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		258,565		572,165		1,054,132		132,826
Total Deferred Inflows of Resources		340,042	\$	673,221	\$	1,429,431	\$_	432,427
Pension Expense Proportionate share of plan pension expense	\$	1,081,691	\$	1,341,616	\$	4,982,441	\$	3,977,478
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	(96,346)		(6,306)	_	(457,004)	_	109,869
Total Employer Pension Expense	\$_	985,345	\$.	1,335,310	\$.	4,525,437	\$_	4,087,347
Contributions								
Statutory required contribution	\$	745,929	\$	921,648	\$	3,422,787	\$	2,864,069
Contribution in relation to statutory required contribution	-	(745,929)		(921,648)	-	(3,433,989)	-	(2,864,069)
Contribution deficiency/(excess)	\$_		\$.		\$_	(11,202)	\$_	
Contributions as a percentage of covered payroll		25.93%		24.50%		24.06%		26.17%
<u>Deferred (Inflows)/Outflows Recognized in</u> <u>Future Pension Expense</u>								
June 30, 2020	\$	229,027	\$	397,252	\$	1,041,715	\$	1,306,296
June 30, 2021		161,100		327,748		562,879		931,565
June 30, 2022		184,201		222,341		591,825		774,341
June 30, 2023	-	201,645		413,175	-	893,711	-	899,107
Future Pension Expense	\$_	775,973	\$.	1,360,516	\$	3,090,130	\$_	3,911,309
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	11,613,925	\$	14,404,670	\$	53,495,595	\$	42,705,504
Current discount rate (7.50%)		9,394,005	\$	11,651,319	\$	43,270,288	\$	34,542,647
1% increase (8.50%)	\$	7,526,340	\$	9,334,867	\$	34,667,526	\$	27,675,068
Covered Payroll	\$	2,876,912	\$	3,761,561	\$	14,272,854	\$	10,944,608
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

		Town of Manchester- by-the-Sea		Town of Merrimac	_	Town of Middleton	_	Town of Nahant
let Pension Liability								
Beginning net pension liability	\$	12,655,836	\$	9,250,743	\$	19,678,511	\$	9,501,267
Ending net pension liability	\$	14,775,220	\$	9,969,699	\$	22,036,187	\$	10,553,728
<u>deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		759,945		512,779		1,133,403		542,818
Changes of assumptions		783,320		528,551		1,168,266		559,514
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		556,451		96,444		547,537	_	853,807
Total Deferred Outflows of Resources	\$_	2,099,716	\$	1,137,774	\$	2,849,206	\$_	1,956,139
<u>leferred Inflows of Resources</u> Differences between expected and actual experience	\$	128,151	\$	86,471	\$	191,128	\$	91,536
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		189,726		315,923		86,541		501.792
Total Deferred Inflows of Resources	-	317,877	· ·	402,394	s -	277,669	s -	593,328
	٠-		٠.		٠.		-	
ension Expense Proportionate share of plan pension expense	\$	1,701,321	\$	1,147,982	\$	2,537,398	\$	1,215,229
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		170,556		(50,257)		176,040		80,715
Total Employer Pension Expense	\$_		\$	1,097,725	\$	2,713,438	\$_	1,295,944
					•		_	
ontributions Statutory required contribution	\$	1,168,756	\$	833,069	\$	1,743,117	\$	834,826
Contribution in relation to statutory required contribution		(1,168,756)		(833,069)		(1,744,589)		(834,826)
Contribution deficiency/(excess)	-	(1,100,100)		(000,000)	-	(1,472)	_	(001,020,
	Φ=	25.58%	э.	26.03%	۰.	22.67%	Φ=	24.25%
Contributions as a percentage of covered payroll		25.56%		26.03%		22.61%		24.36%
eferred (Inflows)/Outflows Recognized in Future Pension Expense								
June 30, 2020	\$	682,314	\$	295,056	\$	939,290	\$	446,256
June 30, 2021		397,132		182,055		680,289		311,881
June 30, 2022		287,664 414,729		108,360 149,909		489,928 462,030		398,507 206,167
Total Deferred (Inflows)/Outflows Recognized in	-	7 17,723	•	145,505	-	702,000	-	200,107
Future Pension Expense	\$_	1,781,839	\$	735,380	\$_	2,571,537	\$=	1,362,811
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	18,266,787	\$	12,325,662	\$	27,243,611	\$	13,047,705
Current discount rate (7.50%)	\$	14,775,220	\$	9,969,699	\$	22,036,187	\$	10,553,728
1% increase (8.50%)	\$	11,837,691	\$	7,987,578	\$	17,655,073	\$	8,455,493
overed Payroll		4,569,464	\$	3,200,358	\$	7.695.490	\$	3,426,669

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

	_	Town of Newbury		Town of North Andover	_	Town of Rockport	_	Town of Rowley
et Pension Liability	•	7 425 240	\$	57 570 040	•	20 007 704	\$	40 207 464
Beginning net pension liability		7,135,340		57,570,919	\$	20,887,794	•	10,327,461
Ending net pension liability	\$	8,780,703	\$	65,601,981	\$	22,162,829	\$	11,777,961
eferred Outflows of Resources Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		451,624		3,374,155		1,139,917		605,785
Changes of assumptions		465,516		3,477,941		1,174,980		624,418
Changes in proportion and differences between								
employer contributions and proportionate share of contributions		572,226		1,545,160		438,936		300,515
Total Deferred Outflows of Resources	\$	1,489,366	\$	8,397,256	\$	2,753,833	\$	1,530,718
referred Inflows of Resources Differences between expected and actual experience	\$	76,158	\$	568,990	\$	192,226	\$	102,155
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		-		-		_		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		167,747		112,869		914,151		250.523
	-						-	
Total Deferred Inflows of Resources	\$ =	243,905	\$.	681,859	\$ _	1,106,377	\$ =	352,678
ension Expense Proportionate share of plan pension expense	\$	1,011,072	\$	7,553,864	\$	2,551,980	\$	1,356,197
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		105,380	\$	490,854		(52,792)		48,596
Total Employer Pension Expense	\$_	1,116,452	\$	8,044,718	\$	2,499,188	\$_	1,404,793
ontributions								
Statutory required contribution	\$	694,576	\$	5,189,280	\$	1,760,950	\$	931,666
$\label{prop:contribution} \textbf{Contribution in relation to statutory required contribution}$	_	(694,576)		(5,192,935)		(1,765,069)	_	(931,666
Contribution deficiency/(excess)	\$_	-	\$	(3,655)	\$_	(4,119)	\$_	
Contributions as a percentage of covered payroll		23.69%		24.18%		25.08%		25.33%
eferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2020	\$	409,510	\$	2,763,058	\$	714,845	\$	456,540
June 30, 2021		279,414	•	1,940,567	۳	435,025	•	277,446
June 30, 2022		234,743		1,438,847		244,809		160,102
June 30, 2023	_	321,794		1,572,925		252,777	_	283,952
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$_	1,245,461	\$	7,715,397	\$_	1,647,456	\$_	1,178,040
	-		•				-	
iscount Rate Sensitivity 1% decrease (6.50%)	\$	10,855,692	\$	81,104,545	\$	27,400,181	\$	14,561,240
Current discount rate (7.50%)	\$	8,780,703	\$	65,601,981	\$	22,162,829	\$	11,777,961
1% increase (8.50%)	\$	7,034,972	\$	52,559,355	\$	17,756,537	\$	9,436,332
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Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

		Town of Salisbury		Town of Topsfield		Town of Wenham		Town of West Newbury
Net Pension Liability Beginning net pension liability	•	14 170 744	\$	12,768,498	\$	8,074,199	\$	6,862,708
		14,179,744	•					
Ending net pension liability	\$	17,519,189	\$	14,141,999	\$	9,033,992	\$	8,316,337
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		901,077		727,376		464,652		427,740
Changes of assumptions		928,794		749,749		478,944		440,89
Changes in proportion and differences between employer contributions and proportionate share of contributions		1,591,242		145,521		277,156		506,776
Total Deferred Outflows of Resources	\$	3,421,113	\$	1,622,646	\$	1,220,752	\$	1,375,41
Deferred Inflows of Resources								
Differences between expected and actual experience	\$	151,950	\$	122,659	\$	78,355	\$	72,13
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		163,759		447,237		65,317	-	207,58
Total Deferred Inflows of Resources	\$	315,709	\$.	569,896	\$	143,672	\$_	279,718
Pension Expense Proportionate share of plan pension expense	\$	2,017,282	\$	1,628,407	\$	1,040,236	\$	957,60°
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		332,459		(60,358)		87,449		35,430
	_				_		_	
Total Employer Pension Expense	\$	2,349,741	\$.	1,568,049	\$	1,127,685	\$	993,03
Contributions Statutory required contribution	\$	1,486,168	\$	1,118,667	\$	714,611	\$	686,656
Contribution in relation to statutory required contribution		(1,486,168)	_	(1,121,142)		(714,611)	_	(686,656
Contribution deficiency/(excess)	\$		\$	(2,475)	\$	_	\$	
Contributions as a percentage of covered payroll		25.99%	•	24.67%		24.64%	•	26.43
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	_		_		_		_	
June 30, 2020.	\$	939,257 836,457	\$	429,467 240,071	\$	400,352 267,396	\$	323,476 268,758
June 30, 2021		656,536		113,637		221,357		213,369
June 30, 2023		673,154		269,575		187,975		290,092
Total Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	\$	3,105,404	\$.	1,052,750	\$	1,077,080	\$.	1,095,695
Discount Rate Sensitivity 1% decrease (6.50%)	\$	21,659,190	\$	17,483,928	\$	11,168,837	\$	10,281,59
	\$	17,519,189	\$	14,141,999	\$	9,033,992	\$	8,316,33
Current discount rate (7.50%)								
Current discount rate (7.50%)	\$	14,036,120	\$	11,330,364	\$	7,237,903	\$	6,662,929
, ,		14,036,120 5,717,330	\$	11,330,364 4,544,928	\$ \$	7,237,903 2,900,783	\$	6,662,929 2,598,320

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

		East Essex Veterans District		Byfield Water District		Lynnfield Center Water District	_	Lynnfield Water District
Net Pension Liability Beginning net pension liability	\$	375,542	\$	262,880	\$	1,013,969	\$	788,641
Ending net pension liability	\$	379,936	\$	295,502	\$	1,182,017	\$	886,515
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		19,542		15,199		60,796		45,597
Changes of assumptions		20,143		15,666		62,666		46,999
Changes in proportion and differences between employer contributions and proportionate share of contributions		50,716		467		108,993		29,680
Total Deferred Outflows of Resources	-	90,401	\$	31,332	\$	232,455	\$	122,276
	٠.	30,101	, •	01,002	٠,	202,100	Ψ.	,
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	3,295	\$	2,563	\$	10,252	\$	7,689
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		52,972		59,339		146,861		44,02
Total Deferred Inflows of Resources	\$	56,267	\$		\$	157,113	\$	51,71
Pension Expense Proportionate share of plan pension expense	\$	43,747	\$	34,027	\$	136,106	\$	102,08
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(6,438)		(27,090)		(25,893)		4,11
Total Employer Pension Expense	\$			6,937	\$	110,213	* - \$	106,199
. ,	•						•	
Contributions Statutory required contribution	\$	30,054	\$	23,375	\$	93,500	\$	70,12
Contribution in relation to statutory required contribution		(30,054)		(23,375)		(93,500)	_	(70,12
Contribution deficiency/(excess)	\$_		\$		\$	_	\$_	
Contributions as a percentage of covered payroll		25.03%		24.98%		24.65%		24.66
Deferred (Inflows)/Outflows Recognized in Future Pension Expense								
June 30, 2020	\$	6,722 17,655	\$	(16,855) (19,832)	\$	15,048 (8,194)	\$	34,82 14,59
June 30, 2022		8,873		(272)		35,604		1,97
June 30, 2023. Total Deferred (Inflows)/Outflows Recognized in		884		6,389		32,884	-	19,16
Future Pension Expense	\$_	34,134	\$	(30,570)	\$	75,342	\$_	70,56
Discount Rate Sensitivity 1% decrease (6.50%)	\$	469,720	\$	365,333	\$	1,461,342	\$	1,096,00
Current discount rate (7.50%)		379,936	\$	295,502	\$	1,182,017	\$	886,51
1% increase (8.50%)		304,399	\$	236,752	\$	947,015	\$	710,26
Covered Payroll		120,065	\$	93,575	\$	379,260	\$	284,388
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018 Mosquito Wenham Essex Masconomet Regional Regional District School School School Net Pension Liability Beginning net pension liability.....\$ 1,990,385 \$ 10,477,680 \$ 6,421,804 \$ 6,421,804 Ending net pension liability.....\$ 1.730.812 \$ 11 482 455 \$ 6.332.236 \$ 8.020.835 Deferred Outflows of Resources Differences between expected and actual experience...... \$ Net difference between projected and actual investment earnings on pension plan investments....... 89,022 590,586 325,691 412,542 91,760 608,751 335,708 425,231 Changes in proportion and differences between employer contributions and proportionate share of contributions..... 56,617 55,468 13,868 565,026 237,399 \$ 67<u>5,267</u> \$ 1,254,805 \$ 1,402,799 Total Deferred Outflows of Resources......\$ <u>Deferred Inflows of Resources</u>
Differences between expected and actual experience.......\$ 15,012 \$ 99,591 \$ 54,922 \$ 69,568 Net difference between projected and actual investment earnings on pension plan investments...... Changes of assumptions..... Changes in proportion and differences between ployer contributions and proportionate share of contributions..... 411,499 336,911 768,775 426,511 \$ 436,502 \$ 823,697 \$ 298,215 Total Deferred Inflows of Resources.....\$ Pension Expense Proportionate share of plan pension expense.....\$ 199,298 \$ 1,322,170 \$ 729,139 \$ 923.574 Net amortization of deferred amounts from changes contributions and proportionate share of contributions..... (89,793) (49,227) (212,600) 42.888 109,505 \$ Total Employer Pension Expense.....\$ 1,272,943 \$ 516,539 \$ 966,462 Statutory required contribution......\$ 136,911 \$ 908,291 \$ 519,656 \$ 634,468 Contribution in relation to statutory required contribution.... (136,911) (908,291) (519,656) (634,468) Contribution deficiency/(excess).....\$ Contributions as a percentage of covered payroll..... 24.57% 23.54% 28.15% 24.67% Deferred (Inflows)/Outflows Recognized in Future Pension Expense
June 30, 2020......\$ (29,844) \$ 348,482 \$ 6,724 \$ 320,699 June 30, 2021..... (59.000)173,205 (73.733)235,530 June 30, 2022.. June 30, 2023.. (49,711) 99,699 (68,114) 235,656 (13.307)312,699 (50,557)196,917 Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense..... (189,112) \$ 818,303 \$ (148,430) \$ 1,104,584 Discount Rate Sensitivity 2.139.824 \$ 14.195.902 \$ 7.828.622 \$ 9.916.258 Current discount rate (7.50%).....\$ 1 730 812 \$ 11 482 455 \$ 6 332 236 \$ 8 020 835 1% increase (8.50%).....\$ 1.386.702 \$ 9.199.576 \$ 5.073.295 \$ 6.426.177 Covered Payroll......\$ 557.198 \$ 3.858.732 \$ 1.845.976 \$ 2.571.786 See notes to schedule of employer allocations and schedule of pension amounts by employer. (continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

	_	Pentucket Regional School	_	Triton Regional School	_	Essex Housing Authority	_	Georgetown Housing Authority
let Pension Liability								
Beginning net pension liability	\$	12,208,790	\$	13,022,854	\$	154,080	\$	600,870
Ending net pension liability	\$	12,881,509	\$	12,917,765	\$	168,860	\$	717,655
Deferred Outflows of Resources Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		662,544		664,408		8,685		36,912
Changes of assumptions		682,924		684,845		8,952		38,047
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	-	131,164	-	398,821	-	43,838	-	45,505
Total Deferred Outflows of Resources	\$_	1,476,632	\$	1,748,074	\$_	61,475	\$.	120,464
Deferred Inflows of Resources Differences between expected and actual experience	\$	111,726	\$	112,040	\$	1,465	\$	6,224
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		1,401,460	-	1,183,011	-	3,158	-	672
Total Deferred Inflows of Resources	\$ =	1,513,186	\$ _	1,295,051	\$ =	4,623	\$ =	6,896
Pension Expense Proportionate share of plan pension expense	\$	1,483,266	\$	1,487,443	\$	19,444	\$	82,636
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(334,704)		(82,219)		23,106		13,905
Total Employer Pension Expense	\$_	1,148,562	\$	1,405,224	\$_	42,550	\$	96,541
Contributions .								
Statutory required contribution	\$	1,055,396	\$	1,051,908	\$	17,358	\$	57,868
$\label{prop:contribution} \textbf{Contribution in relation to statutory required contribution}$	_	(1,055,396)	_	(1,052,345)	_	(17,358)	_	(57,868
Contribution deficiency/(excess)	\$_	<u> </u>	\$_	(437)	\$_		\$_	50
Contributions as a percentage of covered payroll		26.53%		24.67%		54.45%		23.67%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2020	•	111,463	\$	365,203	\$	28,955	\$	38.762
June 30, 2021		(115,119)	Ψ	116,481	Ÿ	14.116	Ψ	30,525
June 30, 2022		(172,375)		(15,115)		10,084		21,213
June 30, 2023	_	139,477	_	(13,546)	_	3,697		23,068
Total Deferred (Inflows)/Outflows Recognized in	-	(36,554)	\$	453,023	_	56,852	\$	113,568
Future Pension Expense	Φ=	(30,054)	Φ.	400,023	\$=	56,652	Ψ.	113,366
Discount Rate Sensitivity 1% decrease (6.50%)	\$	15,925,569	\$	15,970,393	\$	208,763	\$	887,246
Current discount rate (7.50%)	\$	12,881,509	\$	12,917,765	\$	168,860	\$	717,655
1% increase (8.50%)	\$	10,320,478	\$	10,349,526	\$	135,288	\$	574,975
	\$	3,977,694	\$	4,264,850	\$	31,879	\$	244,494

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

	_	Groveland Housing Authority	_	Hamilton Housing Authority	_	Ipswich Housing Authority	_	Lynnfield Housing Authority
Net Pension Liability	_						_	
Beginning net pension liability	\$	262,880	\$	187,771	\$	1,377,521	\$	225,328
Ending net pension liability	\$	295,502	\$	211,076	\$	1,519,736	\$	295,50
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$,
Net difference between projected and actual investment earnings on pension plan investments		15,199		10,856		78,166		15,19
Changes of assumptions		15,666		11,190		80,570		15,66
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	288	-	43,322	-	59,373	_	29,63
Total Deferred Outflows of Resources	\$ _	31,153	\$.	65,368	\$_	218,109	\$ -	60,49
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	2,563	\$	1,831	\$	13,181	\$	2,56
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate		57.040		44.000		40.040		00.40
share of contributions	-	57,940	-	14,936	-	46,248	-	22,18
Total Deferred Inflows of Resources	\$=	60,503	\$ _	16,767	\$ =	59,429	\$ =	24,75
Pension Expense Proportionate share of plan pension expense	\$	34,027	\$	24,307	\$	174,992	\$	34,02
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(21,064)		7,428		(8,148)		(13
			_		_		_	
Total Employer Pension Expense	\$ -	12,963	\$.	31,735	\$_	166,844	\$ -	33,88
Contributions Statutory required contribution	\$	23,375	\$	17,020	\$	149,548	\$	23,37
Contribution in relation to statutory required contribution		(23,375)		(17,020)		(149,548)		(23,37
	_		_		_			
Contribution deficiency/(excess)	\$	-	\$	-	\$	-	\$	
Contribution deficiency/(excess) Contributions as a percentage of covered payroll	_	27.35%	\$_	26.78%	\$_	34.53%	\$ =	25.12
Contributions as a percentage of covered payroll	_	27.35%	\$ _	26.78%	\$ =	34.53%	\$_	25.12
Contributions as a percentage of covered payroll Deferred (Inflows)/Outflows Recognized in Future Pension Expense			\$ <u>.</u>		\$ <u>-</u>		\$=	
Contributions as a percentage of covered payroll		(10,829)	\$ <u></u>	14,739	\$ <u>=</u>	44,490	\$ <u>=</u>	25.12 ⁴ 10,09
Contributions as a percentage of covered payroll		(10,829) (14,274)	\$ <u>=</u>	14,739 12,544	\$ <u>=</u>	44,490 44,617	\$ =	10,09 6,76
Contributions as a percentage of covered payroll		(10,829) (14,274) (10,636)	\$ <u>=</u>	14,739 12,544 16,690	\$ =	44,490 44,617 35,840	\$ =	10,09 6,76 5,16
Contributions as a percentage of covered payroll	\$	(10,829) (14,274) (10,636) 6,389	-	14,739 12,544 16,690 4,628	-	44,490 44,617 35,840 33,733	-	10,09 6,76 5,16 13,71
Contributions as a percentage of covered payroll	\$	(10,829) (14,274) (10,636)	-	14,739 12,544 16,690	\$. \$. \$.	44,490 44,617 35,840	-	10,09 6,76 5,16 13,71
Contributions as a percentage of covered payroll	\$ - \$=	(10,829) (14,274) (10,636) 6,389	-	14,739 12,544 16,690 4,628	-	44,490 44,617 35,840 33,733	-	10,09 6,76 5,16 13,71 35,74
Deferred (Inflows)/Outflows Recognized in Future Pension Expense June 30, 2020. June 30, 2021. June 30, 2022. June 30, 2023. Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$ - \$ =	(10,829) (14,274) (10,636) 6,389 (29,350)	\$_	14,739 12,544 16,690 4,628 - 48,601	\$ _	44,490 44,617 35,840 33,733 158,680	\$ _	10,09 6,76 5,16 13,71 35,74
Contributions as a percentage of covered payroll	\$ - \$ - \$	(10,829) (14,274) (10,636) 6,389 (29,350)	\$ <u>_</u> \$	14,739 12,544 16,690 4,628 48,601	\$ <u>_</u> \$ <u></u>	44,490 44,617 35,840 33,733 158,680	\$ \$	10,09 6,76 5,16 13,71 35,74 365,33 295,50
Contributions as a percentage of covered payroll	\$ - \$ - \$	(10,829) (14,274) (10,636) 6,389 (29,350) 365,333 295,502	\$ \$ \$	14,739 12,544 16,690 4,628 48,601 260,956 211,076	\$ = \$	44,490 44,617 35,840 33,733 158,680 1,878,868 1,519,736	\$ = \$	10,09 6,76

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

		Manchester Housing Authority	_	Merrimac Housing Authority	_	Middleton Housing Authority	_	Nahant Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	262,880	\$	-	\$	187,771	\$	110,445
Ending net pension liability	\$	337,719	\$	84,430	\$	211,076	\$	196,109
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		17,370		4,343		10,856		10,087
Changes of assumptions		17,904		4,476		11,190		10,397
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		29,682	-	58,733	-	335	-	53,612
Total Deferred Outflows of Resources	\$.	64,956	\$	67,552	\$	22,381	\$ _	74,096
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	2,929	\$	732	\$	1,831	\$	1,701
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		22,181	-	92	-	30,558	-	79,518
Total Deferred Inflows of Resources	\$.	25,110	\$_	824	\$_	32,389	\$=	81,219
Pension Expense Proportionate share of plan pension expense	\$	38,889	\$	9,721	\$	24,307	\$	22,581
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(92)		14,660		(19,680)		(18,834)
Total Employer Pension Expense			\$	24,381	\$	4,627	- \$_	3,747
	•		•				_	
Contributions Statutory required contribution	\$	26,714	\$	6,679	\$	16,697	\$	18,569
Contribution in relation to statutory required contribution		(26,714)		(6,679)		(16,697)		(18,569)
Contribution deficiency/(excess)			•	(=,=-=)	•		ξ-	(,)
Contributions as a percentage of covered payroll		19.78%	*=	17.57%	Ψ=	23.12%	Ψ=	46.49%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	_				_	/40 000	_	40.040
June 30, 2020		11,605	\$	17,584	\$	(12,369)	\$	(12,042)
June 30, 2021		7,725 5,886		16,563 16,092		(4,449) 2,249		(7,193) (5.237)
June 30, 2023.		14,630		16,489		4,561		17,349
Total Deferred (Inflows)/Outflows Recognized in		,	-	10,100	-	.,,,,,	-	,
Future Pension Expense	\$.	39,846	\$_	66,728	\$_	(10,008)	\$ _	(7,123)
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	417,526	\$	104,382	\$	260,956	\$	242,451
Current discount rate (7.50%)	\$	337,719	\$	84,430	\$	211,076	\$	196,109
1% increase (8.50%)	\$	270,576	\$	67,644	\$	169,111	\$	157,119

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

		North Andover Housing Authority		Rockport Housing Authority	_	Rowley Housing Authority	_	Salisbury Housing Authority
Net Pension Liability Beginning net pension liability	\$	1,639,603	\$	450,652	\$	150,218	\$	337,990
Ending net pension liability	\$	1,785,851	\$	464,366	\$	168,860	\$	337,719
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		91,853		23,884		8,685		17,370
Changes of assumptions		94,678		24,619		8,952		17,904
Changes in proportion and differences between employer contributions and proportionate share of contributions		13,269		58,365		12,968		7,819
Total Deferred Outflows of Resources			\$	106,868	\$	30,605	· -	43,09
Deferred Inflows of Resources	٠.	100,000	٠,	100,000	٠.	55,555	Ψ.	10,00
Differences between expected and actual experience	\$	15,489	\$	4,028	\$	1,465	\$	2,92
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		97,128		222,156		659		57,71
			•	226,184	•	2,124	_	60,64
Total Deferred Inflows of Resources	۵.	112,617	\$.	226,104	\$_	2,124	\$ =	60,64
Pension Expense Proportionate share of plan pension expense	\$	205,636	\$	53,470	\$	19,444	\$	38,89
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(36,143)		(39,530)		2,784		(13,94
Total Employer Pension Expense	•		•	13,940	s -	22,228	* - \$	24,94
rotal Employer Fortillon Expense	Ψ.	100,400	· * •	10,540	٠.	22,220	Ψ-	24,04
Contributions Statutory required contribution	•	153.545	•	37.444	\$	29.327	\$	27.23
Contribution in relation to statutory required contribution		(153,545)	•	(37,444)	Þ	(29,327)	Ψ	(27,23
Contribution deficiency/(excess)	\$_	-	\$	-	\$	-	\$_	·
Contributions as a percentage of covered payroll	-	27.34%	•	24.03%	-	50.70%	-	26.05
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2020	\$	25,712	\$	(23,446)	\$	8,633	\$	(2,25
June 30, 2021		15,986		(38,922)		6,949		(11,34
June 30, 2022		14,359		(59,798) 2,850		6,055		(4,03
June 30, 2023 Total Deferred (Inflows)/Outflows Recognized in		31,126				6,844	-	7:
Future Pension Expense	5 =	87,183	\$.	(119,316)	\$	28,481	\$ _	(17,55
Discount Rate Sensitivity 1% decrease (6.50%)	\$	2,207,870	\$	574,101	\$	208,763	\$	417,52
Current discount rate (7.50%)	\$	1,785,851	\$	464,366	\$	168,860	\$	337,71
1% increase (8.50%)	\$	1,430,798	\$	372,043	\$	135,288	\$	270,57
Covered Payroll	\$	561,662	\$	155,803	\$	57,841	\$	104,55
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2018

	Topsfield Housing Authority		Wenham Housing Authority		West Newbury Housing Authority		Totals
Net Pension Liability Beginning net pension liability\$	187,771	\$	343,770	\$	-	\$	376,355,33
Ending net pension liability\$	211,076	\$	337,719	\$	-	\$	422,465,61
Deferred Outflows of Resources		•				_	
Differences between expected and actual experience \$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments	10,856		17,370		-		21,728,98
Changes of assumptions	11,190		17,904		-		22,397,34
Changes in proportion and differences between employer contributions and proportionate share of contributions	43,706		40,383		_		12,009,85
Total Deferred Outflows of Resources\$		· -	75,657	· -		· -	56.136.18
	50,152	Ψ.	10,001	٠ *		Ť-	30,100,10
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience\$	1,831	\$	2,929	\$	-	\$	3,664,19
Net difference between projected and actual investment earnings on pension plan investments	-		-		-		
Changes of assumptions	-		-		-		
Changes in proportion and differences between							
employer contributions and proportionate share of contributions	64,914		39,728		7,643	_	12,009,85
Total Deferred Inflows of Resources\$	66,745	\$	42,657	\$_	7,643	\$_	15,674,05
Pension Expense Proportionate share of plan pension expense\$	24,307	\$	38,889	\$	-	\$	48,645,63
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(2,060)	_	1,265		(6,370)		
Total Employer Pension Expense\$	22,247	\$	40,154	\$	(6,370)	\$_	48,645,63
Contributions							
Statutory required contribution\$	17,020	\$	32,703	\$	-	\$	33,969,08
Contribution in relation to statutory required contribution	(17,020)		(32,703)			_	(33,993,92
Contribution deficiency/(excess)\$		\$	-	\$_		\$_	(24,83
Contributions as a percentage of covered payroll	26.58%		28.58%		N/A		24.98
<u>Deferred (Inflows)/Outflows Recognized in</u> Future Pension Expense							
June 30, 2020\$	5,251	\$	12,962	\$	(6,370)	\$	14,632,60
June 30, 2021	3,014		13,021		(1,273)		9,520,98
June 30, 2022	(13,886)		6,980		-		7,163,55
June 30, 2023	4,628		37		-	_	9,144,99
Future Pension Expense\$	(993)	\$	33,000	\$_	(7,643)	\$_	40,462,13
Discount Rate Sensitivity							
1% decrease (6.50%)\$	260,956	\$	417,526	\$	-	\$	522,299,48
Current discount rate (7.50%)\$	211,076	\$	337,719	\$	-	\$	422,465,61
1% increase (8.50%)\$	169,111	\$	270,576	\$	-	\$	338,473,32
Covered Payroll\$	64,025	\$	114,410	\$	-	\$	136,111,18
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(conclude
F minoring of embioder.							(55.15.446

Essex Regional Retirement System

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NOTE I - Schedule of Employer Allocations

Governmental Accounting Standards Board (GASB) Statement #68 requires employers participating in a costsharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. Employers participating in cost-sharing plans are required to recognize their proportionate share of the plan's collective pension amounts for all benefits provided through the plan including the net pension liability, deferred outflows of resources, deferred inflows of resources, contributions and pension expense.

GASB Statement #68 requires the allocation of the collective pension amounts be consistent with the manner in which contributions to the plan are determined. As permissible under GASB Statement #68, The Schedule of Employer Allocations is used to demonstrate the allocation of Essex Regional Retirement System's collective pension amounts.

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the system who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year. Accordingly, the proportionate aggregate rates of regular compensation as of the close of business on September 30, 2017 were applied to allocate the System's fiscal year 2019 pension fund appropriation by member unit.

When a member unit accepts an Early Retirement Incentive Program (E.R.I. or ERIP), PERAC completes an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the ERIP. The accrued liability for the members who accept the ERIP as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. The net increase is amortized for each member unit accepting the ERIP, and is separately identified in the system's funding schedule. The 2002 ERIP amortization is straight line ending in fiscal 2019, except Nahant Housing which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012. The 2003 ERI amortization is straight line ending in fiscal 2020, except for Groveland which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012.

The allocation percentage of the total net pension liability is a blended rate of the following items. (1) The proportionate share of active employer's covered payroll is applied to the fiscal year 2019 pension fund appropriation calculated by the actuary. (2) Current Direct E.R.I. appropriation is a direct current charge calculated by PERAC for only the employers that accepted the ERIP. This direct charge backed out of the total pension fund appropriation to calculate the percentage to be allocated (3) Remaining Direct E.R.I. liability is the future E.R.I. liability associated directly to those employers that accepted the ERIP. This direct liability is added back to those employers once the non-ERIP liability has been allocated.

NOTE II - Schedule of Pension Amounts by Employer

The Schedule of Pension Amounts by Employer presents the net pension liability, the various categories of deferred outflows of resources and deferred inflows of resources, contributions and pension expense for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; and changes of assumptions.

Essex Regional Retirement System

43 Audit of Specific Elements, Accounts and Items of Financial Statements

NOTE III - CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS

Actuarial Assumptions:		
None.		
Plan Provisions:		
None.		

Essex Regional Retirement System

44 Audit of Specific Elements, Accounts and Items of Financial Statements

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2017

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2017

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Financial Section

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Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2017, and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Essex Regional Retirement System as of December 31, 2017, and the results of its operations and changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis; the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Returns be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated September 24, 2018, on our consideration of the Essex Regional Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Essex Regional Retirement System's internal control over financial reporting and compliance.

Restriction on Use

This report is intended solely for the information and use of Essex Regional Retirement System, the Public Employee Retirement Administration Commission and all member units and is not intended to be and should not be used by anyone other than these specified parties.

September 24, 2018

Powers & Sullivan LLC

Management's Discussion and Analysis

As management of the Essex Regional Retirement System, we offer readers of these financial statements this narrative overview and analysis of the financial activities for the year ended December 31, 2017. The System complies with financial reporting requirements issued by the Governmental Accounting Standards Board (GASB).

The GASB is the authoritative standard setting body that provides guidance on how to prepare financial statements in conformity with generally accepted accounting principles (GAAP). Users of these financial statements rely on the GASB to establish consistent reporting standards for all governments in the United States. This consistent application is the only way users can assess the financial condition of a public retirement system compared to others.

Financial Highlights

- The System's assets exceeded its liabilities at the close of the most recent year by \$467.5 million (net position).
- The System's net position increased by \$64.5 million for the year ended December 31, 2017.
- Total investment income was \$68.6 million; investment expenses were \$2.3 million; and net investment income was \$66.3 million.
- Total contributions were \$47.9 million including \$31.2 from employers, \$13.1 from members, and \$3.6 million from other contributions.
- Retirement benefits, refunds and transfers amounted to \$48.6 million.
- Administrative expenses were \$982,000.
- The Total Pension Liability is \$843.8 million as of December 31, 2017 while the Net Pension Liability is \$376.4 million.
- The Plan fiduciary net position as a percentage of the total pension liability is 55.40%.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the System fiduciary financial statements. These fiduciary financial statements comprise of four components: 1) management's discussion and analysis, 2) fiduciary financial statements, 3) notes to the financial statements and 4) required supplementary information.

Fiduciary Financial Statements

The *statement of net position* presents information on all assets and deferred outflows less deferred inflows and liabilities with the difference reported as *net position*. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position is improving or deteriorating.

The statement of changes in fiduciary net position presents information showing how the system's net position changed during the most recent year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, additions and deductions are reported in this statement for some items that will only result in cash flows in future periods.

Notes to the financial statements

The notes provide additional information that is essential to a full understanding of the data provided in the fiduciary financial statements.

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Essex Regional Retirement System

Management's Discussion and Analysis

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Returns be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context.

Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of the System's financial position. The System's net position exceeded liabilities by \$467.5 million at the close of 2017.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year-end, the system's net position include investments of \$460.3 million, cash of \$2.9 million, accounts receivable of \$4.2 million, and capital assets of \$175,000.

In 2017, the System's contributions totaled \$47.9 million while deductions totaled \$49.6 million, which resulted in a current deficiency of (\$1.7) million. A (\$1.8) million deficiency occurred in 2016. Therefore, for these two years, the system relied on investment income to sustain operations.

The main difference of the increase in net position between years was the change in net investment income between years. Net investment income was \$66.3 million and \$26.4 million in 2017 and 2016 respectively. The annual money weighted rate of return was 17.11% and 7.8% in 2017 and 2016 respectively. Fluctuations in the system's annual investment returns are expected.

In 2016, the System recognized a contribution from Essex North Shore Agricultural and Technical School District (Essex Tech) as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Legislation requires Essex Tech to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly in 2015, PERAC approved a funding schedule for Essex Tech to pay ERRS in equal annual payments of \$421,947 through 2033. The \$3.6 million present value of these payments has been recorded as an intergovernmental receivable at year-end.

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The following tables present summarized financial information for the past two years.

	2017		2016
Statement of Fiduciary Net Position Assets:			
Cash\$	2,894,889	\$	1,881,650
Investments	460,271,251		397,333,654
Receivables	4,223,141		4,726,786
Capital assets, net of accumulated depreciation	175,497		204,741
Total assets	467,564,778		404,146,831
Liabilities:			
Accounts payable	90,489		1,216,758
Abandoned property			190
Total liabilities	90,489		1,216,948
Net Position Restricted for Pension Benefits\$	467,474,289	\$	402,929,883
Statement of Changes in Fiduciary Net Position	2017	-	2016
Additions:			
Contributions:			
Member contributions\$	13,077,844	\$	16,673,138
Employer contributions	31,239,783		29,431,067
Other contributions	3,575,613		388,786
•	3,373,013	-	
Total contributions	47,893,240	-	46,492,991
Net investment income (loss):			
Total investment income (loss)	68,602,654		28,610,761
Less, investment expenses	(2,344,138)		(2,203,765)
Net investment income (loss)	66,258,516		26,406,996
Total additions	114,151,756	-	72,899,987
Deductions:			
Administration	981,979		975,517
Retirement benefits, refunds and transfers	48,625,371		47,333,349
Total deductions	49,607,350		48,308,866
Net increase (decrease) in fiduciary net position	64,544,406		24,591,121
Fiduciary net position at beginning of year	402,929,883	-	378,338,762
Fiduciary net position at end of year\$	467,474,289	\$_	402,929,883

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Essex Regional Retirement System

Management's Discussion and Analysis

Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the System's Board, 491 Maple Street #202, Danvers, MA 01923.

Essex Regional Retirement System

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STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2017

Assets	
Cash and cash equivalents	\$ 2,894,889
Investments in Pension Reserve Investment Trust	450,210,889 48
Pooled alternative investments	9,833,162
Pooled real estate funds	224,655
Fixed income investments	2,497
	,
Total investments	460,271,251
Receivables, net of allowance for uncollectibles:	
Member contributions	611,413
Essex Agricultural and Technical High School	3,611,647
Interest and dividends	81
Capital assets, net of accumulated depreciation	175,497
	,
Total Assets	467,564,778
Liabilities	
Accounts payable	90,489
Net Position Restricted for Pensions	\$ 467,474,289

See notes to financial statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

YEAR ENDED DECEMBER 31, 2017

Additions:	
Contributions:	
Employer pension appropriation	\$ 31,239,783
Member contributions	13,077,844
Transfers from other systems	1,235,403
3(8)(c) contributions from other systems	1,616,935
Workers' compensation settlements	19,500
Federal grant reimbursements	48,680
State COLA reimbursements	329,665
Members' makeup payments and redeposits	258,951
Interest not refunded	23,548
Other revenue	 42,931
Total contributions	 47,893,240
Net investment income:	
Investment income (loss)	68,602,654
Less: investment expense	(2,344,138)
Net investment income (loss)	66,258,516
Total additions	114,151,756
Deductions:	
Administration	981,979
Retirement benefits and refunds	44,959,784
Transfers to other systems	1,743,990
3(8)(c) transfer to other systems	1,906,043
Depreciation	 15,554
Total deductions	 49,607,350
Net increase (decrease) in fiduciary net position	64,544,406
Fiduciary net position at beginning of year	402,929,883
Fiduciary net position at end of year	\$ 467,474,289

See notes to financial statements.

Essex Regional Retirement System

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NOTE 1 - PLAN DESCRIPTION

Essex Regional Retirement System is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of governmental member units deemed eligible by the Essex Regional Retirement Board (the Board), with the exception of school department employees who serve in a teaching capacity. The pensions of such school employees are administered by the Commonwealth of Massachusetts' Teachers Retirement System. Membership in the Plan is mandatory immediately upon the commencement of employment for all non-teaching permanent, full time employees. The Plan is administered by the Essex Regional Retirement System (the System).

Originally instituted in 1937, as part of Essex County government, the Board served as the regional retirement system for Essex County upon the abolition of county government in 1996 and the current system structure was created by special legislation in July, 2010 (Chapter 34B, Section 19A of the Massachusetts General Laws). The System is governed by a five member Board who establish the policies under which the System operates. Board members also approve all of the System's financial transactions, including the approval of retirement benefits to members. Board members are appointed or elected as specified by MGL Ch. 34B, Section 19A for terms ranging from 3 to 5 years.

The day-to-day operations of the System are managed by the Executive Director. The legislative body for the System is an Advisory Council consisting of full-time treasurers or other qualified officials of the member units. The Advisory Council meets twice annually and is responsible for supervising and certifying the procedures involved in the election of members to the retirement board.

As of December 31, 2017, the System had 1,768 retirees and beneficiaries, 2,738 active participants and 1,030 inactive participants with a vested right to retirement benefits or to receive a refund of their contributions.

The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. The Public Employee Retirement Administration Commission (PERAC) is the state agency responsible for oversight of the Commonwealth's public retirement systems.

Massachusetts Contributory Retirement System benefits are, with certain exceptions, uniform from system to system. The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For persons who became members on or after April 2, 2012, average salary is the average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are three classes of membership in the retirement system: group 1, group 2, and group 4. Group 1 consists of general employees, which includes clerical and administrative positions. Group 2 consists of positions that have been specified as hazardous. Lastly, group 4 consists of police officers, firefighters, and other hazardous positions.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of service or upon reaching the age of 55 with 10 years of service if hired after 1978 and if classified in groups 1 or 2. A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance upon reaching the age of 60 with 10 years of service if in group 1, 50 years of age with 10 years of service if in group 2, and 55 years of age if hired prior to 1978 or if classified in group 4. Normal retirement for most employees occurs at age 65 (except for certain hazardous duty and public safety positions, whose normal retirement is at age 55).

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A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and the interest they generate constitute the annuity. The differential between the total retirement benefit and the annuity is the pension.

Active members contribute between 5% and 11% of their gross regular compensation. The percentage rate is keyed to the date upon which an employee's membership commences. These deductions are deposited in the Annuity Savings Fund and earn interest at a rate determined by the Public Employee Retirement Administration Commission's (PERAC) actuary. When a member's retirement becomes effective, his/her deductions and related interest are transferred to the Annuity Reserve Fund. Any cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by the Commonwealth of Massachusetts' state law during those years are borne by the Commonwealth and are deposited into the Pension Fund. Cost-of-living adjustments granted after 1997 must be approved by the System and all costs are borne by the System.

The pension portion of any retirement benefit is paid from the Pension Fund of the System. The governmental unit employing the member must annually appropriate and contribute the amount of current-year pension assessment. In past years, retirement systems were paying only the actual retirement benefits that were due each year. Systems had no statutory authorization to put aside money for the future benefits of employees who are currently employed. Large unfunded liabilities resulted from operating under this pay-as-you-go basis. In 1977, legislation authorized local governments to appropriate funds to meet future pension obligations. In 1983, additional legislation was passed requiring the transfer of investment earnings (in excess of the amount credited to member accounts) into the Pension Reserve Fund.

Administrative expenses, which were previously appropriated from the governmental entities whose employees are members of the system, are now paid from investment income.

Members who become permanently and totally disabled for further duty may be eligible to receive a disability retirement allowance. The amount of benefits to be received in such cases is dependent on several factors, including whether or not the disability is work related, the member's age, years of creditable service, level of compensation, veterans' status and group classification.

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions.

Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying financial statements of the Essex Regional Retirement System (ERRS) have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the recognized standard-setting body for establishing governmental accounting and financial reporting principles.

ERRS is a special-purpose government engaged only in fiduciary activities. Accordingly, the financial statements are reported using the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, additions are recorded when earned and deductions are recorded when the liabilities are incurred.

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Cash and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition. Investments are carried at fair value. The fair values were determined by the closing price for those securities traded on national stock exchanges and at the average bid-and-asked quotation for those securities traded in the over-the-counter market. The fair value of private equities are based on management's valuation of estimates and assumptions from information and representations provided by the respective general partners, in the absence of readily ascertainable market values. Real estate assets are reported at fair value utilizing an income approach to valuation along with independent appraisals and estimates by management.

Fair Value Measurements

The System reports required types of financial instruments in accordance with the fair value standards. These standards require an entity to maximize the use of observable inputs (such as quoted prices in active markets) and minimize the use of unobservable inputs (such as appraisals or valuation techniques) to determine fair value. Fair value standards also require the government to classify these financial instruments into a three-level hierarchy, based on the priority of inputs to the valuation technique or in accordance with net asset value practical expedient rules, which allow for either Level 2 or Level 3 depending on lock up and notice periods associated with the underlying funds.

Instruments measured and reported at fair value are classified and disclosed in one of the following categories:

Level 1 – Quoted prices are available in active markets for identical instruments as of the reporting date. Instruments, which are generally included in this category, include actively traded equity and debt securities, U.S. government obligations, and mutual funds with quoted market prices in active markets.

Level 2 – Pricing inputs are other than quoted in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or other valuation methodologies. Certain fixed income securities, primarily corporate bonds, are classified as Level 2 because fair values are estimated using pricing models, matrix pricing, or discounted cash flows.

Level 3 – Pricing inputs are unobservable for the instrument and include situations where there is little, if any, market activity for the instrument. The inputs into the determination of fair value require significant management judgment or estimation.

In some instances the inputs used to measure fair value may fall into different levels of the fair value hierarchy and is based on the lowest level of input that is significant to the fair value measurement.

Market price is affected by a number of factors, including the type of instrument and the characteristics specific to the instrument. Instruments with readily available active quoted prices generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value. It is reasonably possible that change in values of these instruments will occur in the near term and that such changes could materially affect amounts reported in these financial statements. For more information on the fair value of the System's financial instruments see Note 4.

Accounts Receivable

Accounts receivable consist of member deductions, future appropriations from Essex Technical High School for the unfunded actuarial liability for retirees from Essex Agricultural and Technical School, pension fund appropriations, and federal grant reimbursements. These receivables are considered 100% collectible and

Essex Regional Retirement System

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therefore do not report an allowance for uncollectibles.

Deferred Outflows/Inflows of Resources

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of fiduciary net position that applies to a future period(s) and so will not be recognized as an outflow of resources (deduction) until then. The ERRS did not have any items that qualify for reporting in this category.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (addition) until that time. The ERRS did not have any items that qualify for reporting in this category.

NOTE 3 - PLAN ADMINISTRATION

The System is administered by a five-person Board of Retirement. The first member shall be a chief executive or chief administrative officer of a member town, unit or district belonging to the Essex Regional Retirement System for a term of 3 years. This member shall be chosen by weighted vote of the chief executive or chief administrative officers of member towns, units or districts belonging to the Essex Regional Retirement System. The second member shall be a member of the regional retirement board advisory council, and shall be elected by a majority of those present and voting at a public meeting of the council and shall serve for a term of 3 years. The third and fourth members shall be elected by the members in or retired from service of the Essex County Retirement System from among persons retired under the system and shall serve for a term of 3 years. The fifth member, who shall not be an employee, retiree or official of the retirement system, or of any of its constituent governmental units, shall be chosen by the other 4 members and shall serve for a term of 5 years.

First Member	Alan J. Benson	Term Expires:	12/1/2020
Second Member	Kevin A. Merz	Term Expires:	12/1/2018
Third Member	Susan J. Yaskell	Term Expires:	12/1/2019
Fourth Member	H. Joseph Maney	Term Expires:	12/1/2019
Fifth Member	Vincent R. Malgeri	Term Expires:	12/12/2020

Board members are required to meet at least once a month. The Board must keep a record of all of its proceedings. The Board must annually submit to the appropriate authority an estimate of the expenses of administration and cost of operation of the System. The Board must annually file a financial statement of condition for the System with PERAC.

The ERRS Advisory Council consists of the full time treasurers, elected or appointed, for each town, unit or district within the System. The members of the Advisory Council elect the second member of the Board of Retirement as well as a Chair from among its members. The ERRS Advisory Council is required by statute to meet twice per year, typically in the spring and fall. All ERRS Advisory Council meetings are open, public meetings and are subject to the Commonwealth's Open Meeting Law.

The investment of the System's funds is the responsibility of the Board. Disability retirement allowances must be approved by the Retirement Board and are then submitted to the PERAC Actuary for verification prior to payment.

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Superannuation retirement allowances are not required to obtain PERAC's verification. All expenses incurred by the System must be approved by a majority vote of the Board. Payments shall be made only upon vouchers signed by two persons designated by the Board.

ERRS board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. The MACRS program for ERRS provides \$50,000,000 fiduciary protection for Trustees and employees, as well as a \$1,000,000 fidelity policy for crime coverage.

NOTE 4 - CASH AND INVESTMENTS

Custodial Credit Risk - Deposits

At December 31, 2017, the carrying amount of the System's deposits totaled \$2,894,889 and the bank balance totaled \$3,215,746, which was covered by Federal Depository Insurance.

<u>Investments</u>

The System's investments are as follows:

		Maturity
Investment Type	Fair Value	Over 10 Years
Debt Securities: Fixed Income\$	2,497 \$	2,497
Other Investments: PRIT Pooled Funds Money Market Mutual Funds Pooled Alternative Investments Pooled Real Estate Funds	450,210,889 48 9,833,162 224,655	
Total Investments\$	460,271,251	

Approximately 98% of the Retirement System's investments are in Pension Reserve Investment Trust (PRIT) Pooled Funds. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board. The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The Administration does not have the ability to control any of the investment decisions relative to its funds in PRIT.

Approximately 2% of the System's funds are invested in pooled alternative investments and pooled real estate funds. The market values of assets in those funds are based on the quoted values obtained from each pool.

The Administration's annual money-weighted rate of return on pension plan investments was 17.11%. The money-weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested, measured monthly.

Fair Value of Investments

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The retiree pension defined benefit plan holds significant amounts of investments that are measured at fair value on a recurring basis. Because investing is a key part of the plan's activities, the plan shows greater disaggregation in its disclosures. The plan chooses a tabular format for disclosing the levels within the fair value hierarchy.

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles.

The System has the following recurring fair value measurements as of December 31, 2017:

			Fair Value Measurements Using					
Investment Type	12/31/2017		Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)	_	Significant Unobservable Inputs (Level 3)	
Investments by fair value level								
Debt Securities								
Fixed Income\$	2,497	\$	2,497	\$	-	\$	-	
Other Investments								
Money Market Mutual Funds	48		48		-		-	
Pooled Alternative Investments	9,833,162		-		-		9,833,162	
Pooled Real Estate Funds	224,655		-			_	224,655	
Total Investments by fair value level	10,060,362	\$	2,545	\$	-	\$_	10,057,817	
Investments measured at the net asset value (NAV)								
PRIT Investments.	450,210,889	_						
Total Investments\$	460,271,251							

Fixed Income, and Money Market Mutual Funds in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. Pooled Alternative Investments and Pooled Real Estate Funds classified in level 3 are valued using either a discounted cash flow or market comparable companies technique.

PRIT Investments are valued using the net asset value (NAV) method. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board (PRIM). The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The System does not have the ability to control any of the investment decisions relative to its funds in PRIT.

NOTE 5 - RECEIVABLES

At December 31, 2017, receivables for the System are as follows:

	Gross	Allowance for	Net
	Amount	Uncollectibles	Amount
Receivables: Member contributions\$ Essex Agricultural and Technical High School.	611,413	\$ - \$	611,413
	3,611,647		3,611,647
Total\$	4,223,060	\$\$	4,223,060

As more fully described in Note 9, the intergovernmental receivable consists of the present value of a stream of future payments to be received from Essex Technical High School (Essex Tech), as the successor agency of Essex Agricultural and Technical School from fiscal year 2017 through fiscal year 2033 for the unfunded actuarial liability for its retirees in the Essex Regional Retirement System.

NOTE 6 - CAPITAL ASSETS

Capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are 33 years for buildings and 5 to 20 years for equipment.

The majority of capital assets owned by the System consist of two condominiums in Danvers, Massachusetts that were purchased for the administrative offices of the System. Both units were purchased in fiscal year 2000 for a total of \$375,250. Total capital asset activity for the year ended December 31, 2017, was as follows:

_	Beginning Balance	Increases	Decreases	_	Ending Balance
Capital assets being depreciated:					
Buildings\$	375,250	\$ -	\$ -	\$	375,250
Equipment	29,270	-	(13,690)	-	15,580
Total capital assets being depreciated	404,520	_	(13,690)	-	390,830
Less accumulated depreciation for:					
Buildings	(185,757)	(11,258)	-		(197,015)
Equipment	(14,022)	(4,296)		-	(18,318)
Total accumulated depreciation	(199,779)	(15,554)		-	(215,333)
Total governmental activities capital assets, net\$	204,741	\$ (15,554)	\$ (13,690)	\$	175,497

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NOTE 7 - MEMBERSHIP

The following table represents the System's membership at December 31, 2017:

Active members	2,738
Inactive members entitled to a return of contributions	1,030
Retired, Beneficiary, and Survivor	1,768
Total	5,536

NOTE 8 - ACTUARIAL VALUATION

The total pension liability was determined by an actuarial valuation as of January 1, 2018, using the following actuarial assumptions, applied to all periods included in the measurement that was updated back to December 31, 2017:

Valuation date		January 1, 2018
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/Dis	scount rate	7.50%
Inflation rate		2.75%
Cost of living adjustment	s	3% of first \$14,000
Mortality Rates: Pre-Retiremer	nt	RP-2000 Employee Mortality Table projected generationally with Scale BB.
Healthy Retire	ee	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB.
Disabled Retir	ree	RP-2000 Healthy Annuitant Mortality Table, set forward two years projected generationally with Scale BB.

Components of the net pension liability as of December 31, 2017 were as follows:

Total pension liability	\$ 843,829,627
The pension plan's fiduciary net position	 467,474,289
The net pension liability	\$ 376,355,338
The pension plan's fiduciary net position as a percentage of the total pension liability	55.40%

Essex Regional Retirement System

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Investment policy: The pension plan's policy in regard to the allocation of invested assets is established by PRIT and the Board. Plan assets are managed on a total return basis with a long-term objective of achieving a fully funded status for the benefits provided through the pension plan.

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 risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expense, used in the derivation of the long-term investment rate of return assumption as of December 31, 2017 are summarized in the following table:

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

Discount Rate. The discount rates used to measure the Total Pension Liability 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 the current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service cost 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 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 Total Pension Liability as of both December 31, 2017 and December 31, 2016.

Sensitivity of the net position liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 7.50%, as well as what the net pension liability 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.

	Current										
	1.0% Decrease		Discount Rate		1.0% Increase						
	(6.50%)		(7.50%)		(8.50%)						
Essex Regional Retirement System's net				_							
pension liability as of December 31, 2017\$	473,500,765	\$	376.355.338	\$	294,642,498						

Essex Regional Retirement System

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Contributions: Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE 9 - ESSEX AGRICULTURAL AND TECHNICAL HIGH SCHOOL

Chapter 463 of the Acts of 2004 created the Essex North Shore Agricultural and Technical School District (Essex Tech). This legislation established Essex Tech as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Prior to July 1, 2014, the non-teacher employees of the Essex Agricultural and Technical High School were members of ERRS. The legislation required that all active and inactive members be transferred to the Salem Contributory Retirement System. Accordingly, as of June 30, 2015, all active and inactive members of ERRS have been transferred to the Salem Contributory Retirement System. Essex Tech, as the successor agency, is required to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, PERAC approved a funding schedule that requires Essex Tech to pay ERRS equal annual assessments of \$421,947 through 2033. The \$3,611,647 present value of these payments has been recorded as an intergovernmental receivable by ERRS as of December 31, 2017.

NOTE 10 - COMMITMENTS AND CONTINGENCIES

Various legal actions and claims are pending against the System. Litigation is subject to many uncertainties, and the outcome of individual litigated matters is not always predictable. Although the amount of liability, if any, at December 31, 2017 cannot be ascertained, management believes any resulting liability should not materially affect the financial position at December 31, 2017.

NOTE 11 - IMPLEMENTATION OF NEW GASB PRONOUNCEMENTS

During 2017, the following GASB pronouncements were implemented:

• GASB Statement #82, Pension Issues – an amendment of GASB Statements #67, #68, and #73. The financial statements and related notes were updated to be in compliance with this pronouncement.

The following GASB pronouncements will be implemented in the future:

- The GASB issued Statement #83, Certain Asset Retirement Obligations, which is required to be implemented in 2019.
- The GASB issued Statement #84, Fiduciary Activities, which is required to be implemented in 2020.
- The GASB issued Statement #85, Omnibus 2017, which is required to be implemented in 2018.
- The GASB issued Statement #86, Certain Debt Extinguishment Issues, which is required to be implemented in 2018.
- The GASB issued Statement #87, Leases, which is required to be implemented in 2021.

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 The GASB issued Statement #88, Certain Disclosures Related to Debt, Including Direct Borrowings and Direct Placements, which is required to be implemented in 2019.

Management is currently assessing the impact the implementation of these pronouncements will have on the financial statements.

NOTE 12 - SUBSEQUENT EVENTS

Management has evaluated subsequent events through September 24, 2018, which is the date the financial statements were available to be issued.

Required Supplementary Information

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

Total pension liability:	-	December 31, 2014		December 31, 2015	December 31, 2016		December 31, 2017
Service cost	•	10,581,511 54,243,222	\$	14,484,797 56,453,975	\$ 15,597,356 57,096,460 4,350,523	\$	16,877,715 60,670,085
Differences between expected and actual experience Changes in assumptions Benefit payments		- - (38,353,266)		- - (39,994,008)	(8,590,424) 20,216,699 (42,130,566)		(49,644) 23,073,540 (44,959,784)
Net change in total pension liability		26,471,467	•	30,944,764	46,540,048	•	55,611,912
Total pension liability - beginning	_	684,261,436		710,732,903	741,677,667		788,217,715
Total pension liability - ending (a)	\$ =	710,732,903	\$.	741,677,667	\$ 788,217,715	\$.	843,829,627
Plan fiduciary net position: Employer pension appropriation. Member contributions. Other contributions. Net investment income (loss). Administrative expenses. Retirement benefits and refunds. Other retirement deductions. Depreciation.		26,066,222 12,168,827 3,940,038 29,322,861 (922,351) (38,353,266) (5,728,996) (14,374)	\$	27,893,676 12,491,708 7,805,125 4,103,832 (934,672) (39,994,008) (4,483,236) (14,374)	\$ 29,420,144 12,864,434 4,208,413 26,406,996 (961,143) (42,130,565) (5,202,784) (14,374)	\$	31,239,783 13,077,844 3,575,613 66,258,516 (981,979) (44,959,784) (3,650,033) (15,554)
Net increase (decrease) in fiduciary net position		26,478,961		6,868,051	24,591,121		64,544,406
Fiduciary net position - beginning of year	_	344,991,750		371,470,711	378,338,762		402,929,883
Fiduciary net position - end of year (b)	\$ =	371,470,711	\$.	378,338,762	\$ 402,929,883	\$.	467,474,289
Net pension liability - ending (a)-(b)	\$ =	339,262,192	\$.	363,338,905	\$ 385,287,832	\$.	376,355,338
Plan fiduciary net position as a percentage of the total pension liability		52.27%		51.01%	51.12%		55.40%
Covered payroll	\$	123,190,220	\$	128,258,043	\$ 133,089,526	\$	130,743,710
Net pension liability as a percentage of covered payroll		275.40%		283.29%	289.50%		287.86%

Note: this schedule is intended to present information for 10 years.

Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

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Required Supplementary Information

SCHEDULE OF CONTRIBUTIONS

	December 31, 2014	 December 31, 2015	 December 31, 2016	 December 31, 2017
Actuarially determined contribution \$	26,066,222	\$ 32,050,432	\$ 29,420,338	\$ 31,614,412
Contributions in relation to the actuarially determined contribution	(26,066,222)	 (32,123,557)	 (29,463,314)	 (31,663,092)
Contribution deficiency (excess)\$	-	\$ (73,125)	\$ (42,976)	\$ (48,680)
Covered payroll\$	123,190,220	\$ 128,258,043	\$ 133,089,526	\$ 130,743,710
Contributions as a percentage of covered payroll	21.16%	25.05%	22.14%	24.22%

Note: this schedule is intended to present information for 10 years.

Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

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SCHEDULE OF INVESTMENT RETURNS

Annual money-weighted rate of return,

Year	rate of return, net of investment expense
December 31, 2017	17.11%
December 31, 2016	7.80%
December 31, 2015	1.04%
December 31, 2014	8.48%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

NOTE A - CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

The Schedule of Changes in the Net Pension Liability and Related Ratios includes the detailed changes in the systems total pension liability, changes in the systems net position, and the ending net pension liability. It also demonstrates the plan's net position as a percentage of the total pension liability and the net pension liability as a percentage of covered payroll.

NOTE B - CONTRIBUTIONS

Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The total appropriations are payable on July 1 and January 1. Employers may choose to pay the entire appropriation in July at a discounted rate. Accordingly, actual employer contributions may be less than the "total appropriation". The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE C - MONEY WEIGHTED RATE OF RETURN

The money weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense. A money weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. Inputs to the money weighted rate of return calculation are determined monthly.

NOTE D - CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS

Effective January 1, 2018 the following changes were made.

Actuarial Assumptions:

- The net investment return assumption and discount rate were 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 3.75%.
- 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 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.

	_		
Plan	Pro	/ISIOI	ns:

None.

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Required Supplementary Information

Audit of Specific Elements, Accounts and Items of Financial Statements

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

We have audited the accompanying schedule of employer allocations of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2017, and the related notes. We have also audited the total for all entities of the rows titled net pension liability, total deferred outflows of resources, total contributions and total pension expense included in the accompanying schedule of pension amounts by employer of the ERRS Pension Plan as of and for the year ended December 31, 2017, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified row totals included in the schedule of pension amounts by employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense for the total of all participating entities for the Essex Regional Retirement System as of and for the year ended December 31, 2017, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the Essex Regional Retirement System as of and for the year ended December 31, 2017, and our report thereon, dated September 24, 2018, expressed an unmodified opinion on those financial statements.

Restriction on Use

This report is intended solely for the information and use of the Essex Regional Retirement System management, the Essex Regional Retirement System employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

September 24, 2018

Powers & Sullivan LLC

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2017

Employer	2018 Pension Fund Appropriation	Current Direct E.R.I. Appropriation	FY2018 Total Appropriation	Remaining Direct E.R.I. Liability	Allocated Net Pension Liability	Share of Net Pension Liability including E.R.I.	Percent of Total Net Pension Liability including E.R.I.
Retirement Board\$	117.123 \$	_	\$ 117.123		\$ 1,389,511	\$ 1.389.511	0.369%
Town of Boxford	1,171,226		1,171,226	_	13,895,133	13,895,133	3 692%
Town of Essex	560,289	_	560,289	_	6,647,132	6,647,132	1.766%
Town of Georgetown	1,623,889	79,230	1,703,119	92,900	19,265,416	19,358,316	5.144%
Town of Groveland	699.570	7.747	707,317	67,694	8,299,524	8,367,218	2.223%
Town of Hamilton	804,031		804,031	_	9,538,820	9,538,820	2.535%
Town of Ipswich	3,263,604		3.263.604		38,718,599	38,718,599	10.288%
Town of Lynnfield.	2.513.386	145,297	2,658,683	265,488	29,818,202	30,083,690	7.993%
Town of Manchester-by-the-Sea	1,066,765	-	1,066,765		12.655.836	12.655.836	3.363%
Town of Merrimac	775.542	45.865	821.407	49.910	9.200.833	9.250.743	2.458%
Town of Middleton	1.658.709		1.658.709		19.678.511	19.678.511	5.229%
Town of Nahant	800.865	_	800.865	_	9.501.267	9.501.267	2.525%
Town of Newbury	601,440		601,440		7.135.340	7,135,340	1.896%
Town of North Andover	4,852,672	_	4.852.672	_	57,570,919	57,570,919	15.297%
Town of Rockport	1,760,004	7,966	1,767,970	7,541	20,880,253	20,887,794	5.550%
Town of Rowley	870,506	.,	870.506	.,	10,327,461	10,327,461	2.744%
Town of Salisbury	1,187,053	102.302	1.289.355	96.842	14.082.902	14.179.744	3.768%
Town of Topsfield.	1,076,261	102,002	1,076,261	00,012	12,768,498	12.768.498	3.393%
Town of Wenham.	680,577	_	680,577	_	8.074.199	8.074.199	2.145%
Town of West Newbury	576,116	29,371	605,487	27,803	6,834,905	6,862,708	1.823%
East Essex Veterans District	31,655	20,011	31,655	21,000	375,542	375,542	0.100%
Byfield Water District	22,159		22,159		262,880	262,880	0.070%
Lynnfield Center Water District	85.468		85.468		1,013,969	1.013.969	0.269%
Lynnfield Water District	66,475		66,475		788.641	788.641	0.210%
NE Massachusetts Mosquito Control District	167,770	_	167,770	_	1,990,385	1,990,385	0.529%
Hamilton-Wenham Regional School	883,167		883,167	_	10,477,680	10,477,680	2.784%
Manchester-Essex Regional School	541,296	_	541,296	_	6,421,804	6,421,804	1.706%
Masconomet Regional School	541.296		541.296		6.421.804	6.421.804	1 706%
Pentucket Regional School	1.025.613	37.623	1.063.236	41.160	12.167.630	12.208.790	3.244%
Triton Regional School.	1.095.254	30.664	1,125,918	29.027	12.993.827	13.022.854	3.460%
Essex Housing Authority	12,662	4,078	16,740	3,860	150,220	154,080	0.041%
Georgetown Housing Authority	50,648	.,	50,648		600,870	600,870	0.160%
Groveland Housing Authority	22,159	_	22,159	_	262,880	262,880	0.070%
Hamilton Housing Authority	15.827		15.827		187,771	187.771	0.050%
Ipswich Housing Authority	113.957	27,004	140.961	25,563	1.351.958	1.377.521	0.366%
Lynnfield Housing Authority	18,993	21,001	18,993	20,000	225.328	225.328	0.060%
Manchester Housing Authority	22,159	_	22,159	_	262,880	262,880	0.070%
Middleton Housing Authority	15.827	_	15.827	_	187.771	187.771	0.050%
Nahant Housing Authority	3,166	8,342	11,508	72,893	37,552	110,445	0.029%
North Andover Housing Authority	136,116	13.552	149,668	24.762	1.614.841	1.639.603	0.436%
Rockport Housing Authority	37,986	10,002	37,986	24,702	450.652	450.652	0.120%
Rowley Housing Authority	12.662	-	12.662		150,218	150,218	0.040%
Salisbury Housing Authority	28,489	_	28,489	_	337,990	337,990	0.090%
Topsfield Housing Authority	15.827	-	15.827	-	187.771	187,771	0.050%
Wenham Housing Authority	28,489	6,105	34,594	5,779	337.991	343,770	0.091%
West Newbury Housing Authority			- 11-91				0.000%
Total\$	31,654,748 \$	545,146	\$ 32,199,894	811,222	\$ 375,544,116	\$ 376,355,338	100.000%

See notes to schedule of employer allocations and schedule of pension amounts by employer.

FOR THE YEAR ENDED DECEMBER 31, 2017

		Retirement Board		Town of Boxford	_	Town of Essex		Town of Georgetown
Net Pension Liability								
Beginning net pension liability	\$	1,382,393	\$	14,092,733	\$	6,643,169	\$	19,901,512
Ending net pension liability	\$	1,389,511	\$	13,895,133	\$	6,647,132	\$	19,358,316
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	_	\$	_	\$	_	\$	_
	•		Ť		•		Ť	
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		114,083		1,140,831		545,749		1,589,374
Changes in proportion and differences between								
employer contributions and proportionate share of contributions		54,894		98,542		195,405		448,357
			_					
Total Deferred Outflows of Resources	\$.	168,977	\$	1,239,373	\$.	741,154	\$.	2,037,731
<u>Deferred inflows of Resources</u> Differences between expected and actual experience	\$	19,664	\$	196,642	\$	94,069	\$	273,956
Net difference between projected and actual investment earnings on pension plan investments		61,177		611,775		292,660		852,308
Changes of assumptions		-		-		-		-
Changes in proportion and differences between								
employer contributions and proportionate share of contributions		43,489		55,615	_	7,362		214,422
Total Deferred Inflows of Resources	\$_	124,330	\$	864,032	\$_	394,091	\$.	1,340,686
Pension Expense								
Proportionate share of plan pension expense	\$	147,662	\$	1,476,626	\$	706,386	\$	2,057,196
Net amortization of deferred amounts from changes								
in proportion and differences between employer								
contributions and proportionate share of contributions	-	5,344		4,864	-	53,225	-	53,250
Total Employer Pension Expense	\$.	153,006	\$	1,481,490	\$.	759,611	\$.	2,110,446
Contributions								
Statutory required contribution	\$	114,978	\$	1,149,773	\$	550,026	\$	1,671,923
Contribution in relation to statutory required contribution	_	(114,978)		(1,151,281)		(550,026)		(1,671,923
Contribution deficiency/(excess)	\$_	-	\$	(1,508)	\$	_	\$	-
Contributions as a percentage of covered payroll	-	23.62%		24.35%	-	26.06%		26.40%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense								
June 30, 2019		24,252	\$	193,947	\$	143,678	\$	316,676
June 30, 2020		25,604 (2,362)		207,468 27,140		150,147 55.931		335,513 127,862
June 30, 2022.		(2,847)		(53,214)		(2,693)		(83,006
Total Deferred (Inflows)/Outflows Recognized in	-				-			
Future Pension Expense	\$_	44,647	\$	375,341	\$ _	347,063	\$.	697,045
Discount Rate Sensitivity 1% decrease (6.50%)	¢	1,748,174	\$	17,481,767	\$	8,362,899	\$	24,355,113
			•		,		•	
Current discount rate (7.50%)		1,389,511	\$	13,895,133	\$	6,647,132	\$	19,358,316
1% increase (8.50%)	\$	1,087,826	\$	10,878,275	\$	5,203,932	\$	15,155,311
Covered Payroll	\$	486,710	\$	4,727,147	\$	2,110,254	\$	6,333,757
Covered Payroll	\$	486,710	\$	4,727,147	\$	2,110,254	\$	6,333,75 (continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

	_	Town of Groveland		Town of Hamilton	-	Town of Ipswich	-	Town of Lynnfield
Net Pension Liability Beginning net pension liability	\$	8,326,731	\$	10,559,951	\$	39,782,214	\$	30,649,501
Ending net pension liability	\$	8,367,218	\$	9,538,820	\$	38,718,599	\$	30,083,690
Deferred Outflows of Resources Differences between expected and actual experience	\$	_	\$	_	\$	_	\$	_
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		686,973		783,165		3,178,912		2,469,960
Changes in proportion and differences between employer contributions and proportionate share of contributions	_	178,221	_	233,029	_	-	_	173,692
Total Deferred Outflows of Resources	\$_	865,194	\$.	1,016,194	\$	3,178,912	\$	2,643,652
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	118,412	\$	134,992	\$	547,940	\$	425,740
Net difference between projected and actual investment earnings on pension plan investments		368,392		419,975		1,704,703		1,324,525
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		389,788		799,548		1,296,380	_	217,757
Total Deferred Inflows of Resources	\$_	876,592	\$	1,354,515	\$_	3,549,023	\$_	1,968,022
Pension Expense Proportionate share of plan pension expense	\$	889,180	\$	1,013,684	\$	4,114,596	\$	3,196,972
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	(94,640)	_	(167,268)	_	(414,052)	_	(41,508)
Total Employer Pension Expense	\$_	794,540	\$.	846,416	\$.	3,700,544	\$_	3,155,464
<u>Contributions</u>								
Statutory required contribution	\$	694,361	\$	789,304	\$	3,203,826	\$	2,609,984
Contribution in relation to statutory required contribution	_	(694,361)		(789,304)	-	(3,221,617)	-	(2,609,984)
Contribution deficiency/(excess)	\$_		\$.		\$_	(17,791)	\$_	<u> </u>
Contributions as a percentage of covered payroll		25.06%		21.84%		23.43%		24.81%
<u>Deferred (Inflows)/Outflows Recognized in</u> Future Pension Expense								
June 30, 2019	\$	19,220	\$	(37,465)	\$	112,826	\$	367,867
June 30, 2020		27,362		(28,183)		150,501		397,141
June 30, 2021		(40,545)		(86,266) (186,407)		(330,658) (302,780)		31,764
Total Deferred (Inflows)/Outflows Recognized in	-	(17,435)	-	(100,407)	-	(302,760)	-	(121,142)
Future Pension Expense	\$_	(11,398)	\$.	(338,321)	\$_	(370,111)	\$_	675,630
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	10,526,978	\$	12,000,995	\$	48,712,702	\$	37,848,938
Current discount rate (7.50%)	\$	8,367,218	\$	9,538,820	\$	38,718,599	\$	30,083,690
1% increase (8.50%)	\$	6,550,560	\$	7,467,788	\$	30,312,162	\$	23,552,032
Covered Payroll	\$	2,770,480	\$	3,613,506	\$	13,748,965	\$	10,519,886
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

		Town of Manchester- by-the-Sea		Town of Merrimac	_	Town of Middleton	_	Town of Nahant
et Pension Liability								
Beginning net pension liability	. \$	13,247,938	\$	9,499,256	\$	19,507,109	\$	8,217,561
Ending net pension liability	. \$	12,655,836	\$	9,250,743	\$	19,678,511	\$	9,501,267
eferred Outflows of Resources Differences between expected and actual experience	. \$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		1,039,081		759,513		1,615,663		780,082
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		294,295	-	102,339	-	753,150	_	1,143,418
Total Deferred Outflows of Resources	. \$	1,333,376	\$	861,852	\$.	2,368,813	\$_	1,923,500
eferred Inflows of Resources Differences between expected and actual experience	. \$	179,104	\$	130,915	\$	278,488	\$	134,461
Net difference between projected and actual investment earnings on pension plan investments		557,211		407,292		866,406		418,322
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		231,485		42,565		41,209		599.249
Total Deferred Inflows of Resources	-		· •	580,772	s -	1,186,103	s -	1,152,032
	Ψ.		Υ.		*	.,,,	*=	
ension Expense Proportionate share of plan pension expense	. \$	1,344,927	\$	983,072	\$	2,091,225	\$	1,009,696
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		75,662		15,645		191,021		103,003
Total Employer Pension Expense	. \$	1,420,589	\$	998,717	\$	2,282,246	\$_	1,112,699
and the street								
ontributions Statutory required contribution	. \$	1,047,225	\$	806,361	\$	1,628,327	\$	786,196
Contribution in relation to statutory required contribution	٠.	(1,047,225)		(806,361)	_	(1,630,279)	_	(786,196
Contribution deficiency/(excess)	. \$	-	\$	-	\$_	(1,952)	\$_	
Contributions as a percentage of covered payroll		23.87%		26.18%		22.07%		23.89%
eferred (Inflows)/Outflows Recognized in Future Pension Expense								
June 30, 2019	. \$	247,881	\$	141,528	\$	458,804	\$	232,295
June 30, 2020		260,196		150,530		477,952		241,541
June 30, 2021		(18,103)		32,515		218,307		105,815
June 30, 2022	٠.	(124,398)		(43,493)	-	27,647	_	191,817
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	. \$	365,576	\$	281,080	\$_	1,182,710	\$_	771,468
incount Data Compilities	•		•					
iscount Rate Sensitivity 1% decrease (6.50%)	. \$	15,922,581	\$	11,638,559	\$	24,757,958	\$	11,953,749
Current discount rate (7.50%)	. \$	12,655,836	\$	9,250,743	\$	19,678,511	\$	9,501,267
1% increase (8.50%)	. \$	9,908,049	\$	7,242,257	\$	15,405,987	\$	7,438,388
				3,079,919		7,387,882		3,290,819

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

	_	Town of Newbury		Town of North Andover		Town of Rockport	_	Town of Rowley
Net Pension Liability		7 500 005		F0 000 000			_	40.000.040
Beginning net pension liability		7,526,365	\$	58,098,928	\$	20,942,698	\$	10,982,349
Ending net pension liability	\$	7,135,340	\$	57,570,919	\$	20,887,794	\$	10,327,461
Deferred Outflows of Resources Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		585,832		4,726,742		1,714,949		847,915
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	65,603		1,217,857		615,202	_	270,509
Total Deferred Outflows of Resources	\$_	651,435	\$	5,944,599	\$	2,330,151	\$_	1,118,424
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	100,978	\$	814,737	\$	295,601	\$	146,153
Net difference between projected and actual investment earnings on pension plan investments		314,155		2,534,734		919,648		454,698
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		214,328		59,010		8,362		316.906
Total Deferred Inflows of Resources	_	629,461	 s	3,408,481		1,223,611	- s	917,757
	Ψ=	025,401	٠,	0,400,401	Ψ.	1,220,011	Ψ=	317,707
Pension Expense Proportionate share of plan pension expense	\$	758,270	\$	6,118,024	\$	2,219,733	\$	1,097,492
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(26,336)		337,994		174,176		19,599
Total Employer Pension Expense	\$_	731,934	\$	6,456,018	\$	2,393,909	\$_	1,117,091
Contributions Statutory required contribution	\$	590,423	\$	4,763,787	\$	1,735,586	\$	854,561
Contribution in relation to statutory required contribution	_	(590,423)		(4,769,727)		(1,746,856)	_	(854,561)
Contribution deficiency/(excess)	\$_	_	\$	(5,940)	\$	(11,270)	\$_	_
Contributions as a percentage of covered payroll		20.98%		23.11%		25.84%		24.12%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2019	\$	70,761	\$	1,121,413	\$	458,415	\$	160,134
June 30, 2020		77,704	•	1,177,432	•	478,740	•	170,183
June 30, 2021		(43,061)		366,769		183,384		(6,669
June 30, 2022	_	(83,430)		(129,496)		(13,999)	-	(122,981)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$_	21,974	\$	2,536,118	\$	1,106,540	\$_	200,667
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	8,977,125	\$	72,431,212	\$	26,279,382	\$	12,993,202
Current discount rate (7.50%)	\$	7,135,340	\$	57,570,919	\$	20,887,794	\$	10,327,461
1% increase (8.50%)	\$	5,586,142	\$	45,071,338	\$	16,352,715	\$	8,085,202
Covered Payroll	\$	2,814,757	\$	20,639,250	\$	6,761,272	\$	3,542,535
Covered Payroll	\$	2,814,757	\$	20,639,250	\$	6,761,272	\$	3,542 (contin

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

14,397,953 14,179,744 - - 1,164,199 590,534 1,754,733 200,670 624,306	\$ \$ \$	13,593,536 12,768,498 - - 1,048,331 222,067 1,270,388 180,698 562,172	\$ \$ \$ \$ \$	7,833,563 8,074,199 - - 662,915 387,279 1,050,194 114,265 355,491	\$ \$ \$ \$ \$	7,273,72° 6,862,708 563,448 95,476 658,920 97,120
14,179,744 - - 1,164,199 590,534 1,754,733	\$ \$	12,768,498 - - 1,048,331 222,057 1,270,388	\$ \$ \$_	8,074,199 - - 662,915 387,279 1,050,194 114,265	\$ \$	6,862,708 563,448 95,476 658,924 97,120
1,164,199 590,534 1,754,733 200,670	\$	1,048,331 222,057 1,270,388 180,698	\$ \$_		\$	563,448 95,478 658,924 97,120
1,164,199 590,534 1,754,733 200,670	\$	222,057 1,270,388 180,698	\$	387,279 1,050,194 114,265	\$.	95,476 658,924 97,126
590,534 1,754,733 200,670		222,057 1,270,388 180,698	•	387,279 1,050,194 114,265	•	95,476 658,924 97,120
590,534 1,754,733 200,670		222,057 1,270,388 180,698	•	387,279 1,050,194 114,265	•	95,476 658,924 97,126
1,754,733		1,270,388 180,698	•	1,050,194 114,265	•	658,924 97,12
1,754,733		1,270,388 180,698	•	1,050,194 114,265	•	658,92 97,12
200,670		180,698	•	114,265	•	97,12
	\$		\$		\$	
624,306		562,172		355,491		302,15
-		_				
				-		
300,225		401,362		50,077	_	311,21
1,125,201	\$	1,144,232	\$_	519,833	\$_	710,48
1,506,871	\$	1,356,900	\$	858,039	\$	729,29
28 521		(23 8M)		95.032		(74,64
			_		_	
1,545,402	٠.	1,333,096	\$_	953,071	*-	654,65
1,265,738	\$	1,056,547	\$	668,111	\$	594,39
(1,273,581)		(1,058,923)		(668,111)	_	(594,39
(7,843)	\$	(2,376)	\$_		\$_	
23.18%		24.25%		23.96%		23.82
231 487	æ	1/10 0/18	æ	204 905	æ	18,74
	Φ		ş		φ	25,42
						(21,88
(9,110)		(156,832)		33,245		(73,84
	· ·		\$		\$	(51,55
525,002	٠.	.20,100	~=	230,001	~ =	,01,00
17,839,842	\$	16,064,323	\$	10,158,324	\$	8,634,12
14,179,744	\$	12,768,498	\$	8,074,199	\$	6,862,70
11,101,092	\$	9,996,251	\$	6,321,160	\$	5,372,70
5,495,084	\$	4,366,319	\$	2,788,482	\$	2,495,21
						(continue
	1,125,201 1,506,871 38,531 1,545,402 1,265,738 (1,273,581) (7,843) 23,18% 231,487 245,285 161,870 (9,110) 629,532 17,839,842 14,179,744 11,101,092	1,125,201 \$, 1,506,871 \$ 38,531 1,545,402 \$, 1,265,738 \$, (1,273,581) (7,843) \$, 23,18% 231,487 \$, 245,285 161,870 (9,110) 629,532 \$, 17,839,842 \$, 14,179,744 \$, 11,101,092 \$	1,125,201 \$ 1,144,232 1,506,871 \$ 1,356,900 38,531 (23,804) 1,545,402 \$ 1,333,096 1,265,738 \$ 1,056,547 (1,273,581) (1,058,923) (7,843) \$ (2,376) 23,18% 24,25% 231,487 \$ 149,948 245,285 162,373 161,870 (23,333) (9,110) (156,832) 629,532 \$ 126,156 17,839,842 \$ 16,064,323 14,179,744 \$ 12,768,498 11,101,092 \$ 9,996,251	1,125,201 \$ 1,144,232 \$ 1,506,871 \$ 1,356,900 \$ 38,531 (23,804) 1,545,402 \$ 1,333,096 \$ 1,265,738 \$ 1,056,547 \$ (1,273,581) (1,058,923) \$ \$ 23,18% 24,25% \$ 231,487 \$ 149,948 \$ 245,265 162,373 161,870 (29,333) (9,110) (156,832) 629,532 \$ 126,156 \$ 17,839,842 \$ 16,064,323 \$ 14,179,744 \$ 12,768,498 \$ 11,101,092 \$ 9,996,251 \$	1.125,201 \$ 1,144,232 \$ 519,833 1,506,871 \$ 1,356,900 \$ 858,039 38,531 (23,804) 95,032 1,545,402 \$ 1,333,096 \$ 953,071 1,265,738 \$ 1,056,547 \$ 668,111 (1,273,581) (1,058,923) (668,111) (7,843) \$ (2,376) \$ - 23,18% 24,25% 23,96% 231,487 \$ 149,948 \$ 204,905 245,285 162,373 212,762 161,870 (29,333) 79,449 (9,110) (156,832) 33,245 629,532 \$ 126,156 \$ 530,361 17,839,842 \$ 16,064,323 \$ 10,158,324 14,179,744 \$ 12,768,498 \$ 8,074,199 11,101,092 \$ 9,996,251 \$ 6,321,160	1.125,201 \$ 1,144,232 \$ 519,833 \$ 1.506,871 \$ 1,356,900 \$ 858,039 \$ 38,531 (23,804) 95,032 1.545,402 \$ 1,333,096 \$ 953,071 \$ 1.265,738 \$ 1,056,547 \$ 668,111 \$ (1,273,581) (1,058,923) (668,111) (7,843) \$ (2,376) \$ - \$ 23,18% 24,25% 23,96% 231,487 \$ 149,948 \$ 204,905 \$ 245,285 162,373 212,762 161,870 (29,333) 79,449 (9,110) (156,832) 33,245 629,532 \$ 126,156 \$ 530,361 \$ 17,839,842 \$ 16,064,323 \$ 10,158,324 \$ 14,179,744 \$ 12,768,498 \$ 0,74,199 \$ 11,101,092 \$ 9,996,251 \$ 6,321,160 \$

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

		East Essex Veterans District		Byfield Water District		Lynnfield Center Water District	_	Lynnfield Water District
Net Pension Liability Beginning net pension liability	\$	345,598	\$	268,799	\$	921,596	\$	883,196
Ending net pension liability	\$	375,542	\$	262,880	\$	1,013,969	\$	788,641
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		30,833		21,583		83,250		64,750
Changes in proportion and differences between employer contributions and proportionate		74.426		220		444 207		47 204
share of contributions		71,136	\$	21,822	\$	111,387 194,637	•	47,304 112,054
	Ψ.	101,303	Ψ.	21,022	٠,	134,037	Ψ.	112,034
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	5,315	\$	3,720	\$	14,350	\$	11,161
Net difference between projected and actual investment earnings on pension plan investments		16,534		11,574		44,643		34,722
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		43,125		86,158		211,637		57,408
Total Deferred Inflows of Resources	\$	64,974	\$	101,452	\$	270,630	\$_	103,291
Pension Expense Proportionate share of plan pension expense	\$	39,908	\$	27,937	\$	107,753	\$	83,808
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		903		(27,081)		(33,191)		4,143
Total Employer Pension Expense	\$		\$	856	\$	74,562	\$	87,951
	۳.	10,011	•		Ϋ,	11,002	*•	0.,00.
Contributions Statutory required contribution	\$	31,075	\$	21,753	\$	83,902	\$	65,257
Contribution in relation to statutory required contribution		(31,075)		(21,753)		(83,902)	_	(65,257)
Contribution deficiency/(excess)	\$.	<u> </u>	\$		\$	-	\$_	-
Contributions as a percentage of covered payroll		26.53%		24.12%		23.14%		23.89%
Deferred (Inflows)/Outflows Recognized in Future Pension Expense				200 FOU			_	
June 30, 2019	\$	6,013 6,379	\$	(23,504) (23,248)	\$	(19,393) (18,406)	\$	14,875 15,642
June 30, 2021		16,808		(26,220)		(41,118)		(4,570)
June 30, 2022		7,795		(6,658)		2,924	-	(17,184)
Future Pension Expense	\$.	36,995	\$	(79,630)	\$	(75,993)	\$_	8,763
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	472,478	\$	330,736	\$	1,275,696	\$	992,207
Current discount rate (7.50%)	\$	375,542	\$	262,880	\$	1,013,969	\$	788,641
1% increase (8.50%)	\$	294,006	\$	205,805	\$	793,820	\$	617,415
Covered Payroll	\$	117,124	\$	90,192	\$	362,590	\$	273,147
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017 Mosquito Wenham Essex Masconomet Regional Regional District School School School Net Pension Liability Beginning net pension liability.....\$ 1,958,391 \$ 10,943,949 \$ 6,643,169 \$ 6,719,969 1.990.385 \$ 10.477.680 Ending net pension liability.....\$ 6.421.804 \$ 6.421.804 Deferred Outflows of Resources Differences between expected and actual experience...... \$ - \$ Net difference between projected and actual investment earnings on pension plan investments........ 163,416 860,248 527,249 527,249 Changes in proportion and differences between employer contributions and proportionate share of contributions..... 81,649 101,331 10,568 245,065 \$ 961,579 \$ 537,817 \$ 527,249 Total Deferred Outflows of Resources......\$ <u>Deferred Inflows of Resources</u>
Differences between expected and actual experience.......\$ 28,168 \$ 148,279 \$ 90,881 \$ 90,881 Net difference between projected and actual investment earnings on pension plan investments...... 87.633 461.311 282,739 282,739 Changes of assumptions..... Changes in proportion and differences between ployer contributions and proportionate share of contributions..... 86,209 173,809 226,176 316,082 202,010 \$ 783,399 \$ 599,796 \$ 689,702 Total Deferred Inflows of Resources......\$ Pension Expense Proportionate share of plan pension expense.....\$ 211,516 \$ 1,113,457 \$ 682,442 \$ 682,442 Net amortization of deferred amounts from changes contributions and proportionate share of contributions.... (1,770) 2,411 (62,220)(96, 181)209,746 \$ Total Employer Pension Expense.....\$ 1,115,868 \$ 620,222 \$ 586,261 Statutory required contribution......\$ 164,697 \$ 866,990 \$ 531,381 \$ 531,381 Contribution in relation to statutory required contribution.... (164,697) (866,990) (531,381) (531,381) Contribution deficiency/(excess).....\$ Contributions as a percentage of covered payroll..... 30.90% 23.37% 30.00% 21.59% Deferred (Inflows)/Outflows Recognized in Future Pension Expense
June 30, 2019......\$ 25,315 \$ 144,990 25,167 \$ (8,794) June 30, 2020..... 27,252 155,186 31.416 (2.545)June 30, 2021... June 30, 2022... (7,995)(23,466)(59.645) (77,886)(1.517)(58.917)(98.530)(73,228)Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense..... 43,055 178,180 \$ (61,979) \$ (162,453)Discount Rate Sensitivity 2.504.147 \$ 13.182.195 \$ 8.079.410 \$ 8.079.410 Current discount rate (7.50%).....\$ 1 990 385 \$ 10 477 680 \$ 6.421.804 \$ 6 421 804 1% increase (8.50%).....\$ 1.558.240 \$ 8.202.806 \$ 5.027.526 \$ 5.027.526 Covered Payroll......\$ 532.944 \$ 3.709.896 \$ 1.771.429 \$ 2.460.943 See notes to schedule of employer allocations and schedule of pension amounts by employer. (continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

	_	Pentucket Regional School		Triton Regional School	_	Essex Housing Authority	_	Georgetown Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	13,822,227	\$	13,074,496	\$	122,774	\$	614,397
Ending net pension liability	\$	12,208,790	\$	13,022,854	\$	154,080	\$	600,870
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		1,002,378		1,069,215		12,650		49,333
Changes in proportion and differences between employer contributions and proportionate share of contributions		207,790		599,444		64,025		22,312
Total Deferred Outflows of Resources	-		\$	1,668,659	- \$	76,675	- \$	71,645
	*	.,,	٠,	.,,	*-	,	* •	,
Deferred Inflows of Resources Differences between expected and actual experience	\$	172,777	\$	184,298	\$	2,181	\$	8,503
Net difference between projected and actual investment earnings on pension plan investments		537,529		573,370		6,784		26,455
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	-	1,115,969			-	446	-	1,231
Total Deferred Inflows of Resources	\$_	1,826,275	\$.	757,668	\$ _	9,411	\$_	36,189
Pension Expense Proportionate share of plan pension expense	\$	1,297,419	\$	1,383,928	\$	16,375	\$	63,855
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(195,340)		210,951		23,065		6,374
Total Employer Pension Expense	-	1,102,079	\$	1,594,879	\$_		\$_	70,229
Contributions Statutory required contribution	\$	1,043,761	\$	1,105,295	\$	16,433	\$	50,648
Contribution in relation to statutory required contribution	_	(1,043,761)		(1,105,295)	_	(16,433)		(50,648)
Contribution deficiency/(excess)	\$_	_	\$	_	\$_		\$_	-
Contributions as a percentage of covered payroll	-	27.38%	•	27.02%	-	53.48%	-	21.40%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	•	(20, 204)	•	200.464	•	25 462		14 551
June 30, 2019		(29,204) (17,324)	Ф	388,164 400,837	\$	25,162 25,312	\$	14,551 15,135
June 30, 2021		(253,865)		131.537		10,423		7.420
June 30, 2022.		(315,714)		(9,547)		6,367		(1,650)
Total Deferred (Inflows)/Outflows Recognized in	-		•	<u> </u>	-		-	,
Future Pension Expense	\$ _	(616,107)	\$.	910,991	\$ _	67,264	\$ =	35,456
Discount Rate Sensitivity								
1% decrease (6.50%)	\$	15,360,142	\$	16,384,334	\$	193,851	\$	755,968
Current discount rate (7.50%)	\$	12,208,790	\$	13,022,854	\$	154,080	\$	600,870
1% increase (8.50%)	\$	9,558,065	\$	10,195,382	\$	120,627	\$	470,411
								236,619

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

	_	Groveland Housing Authority	_	Hamilton Housing Authority	_	Ipswich Housing Authority	_	Lynnfield Housing Authority
let Pension Liability								
Beginning net pension liability	\$	345,598	\$	115,199	\$	1,394,152	\$	268,799
Ending net pension liability	\$	262,880	\$	187,771	\$	1,377,521	\$	225,328
<u>deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		21,583		15,417		113,098		18,500
Changes in proportion and differences between employer contributions and proportionate								
share of contributions			-	57,446	-	51,726	-	34
Total Deferred Outflows of Resources	\$ _	21,583	\$.	72,863	\$_	164,824	\$_	18,534
<u>eferred Inflows of Resources</u> Differences between expected and actual experience	\$	3,720	\$	2,657	\$	19,494	\$	3,189
Net difference between projected and actual investment earnings on pension plan investments		11,574		8,267		60,649		9,921
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	78,673	-	21,928	-	50,920	-	29,337
Total Deferred Inflows of Resources	\$ =	93,967	\$_	32,852	\$=	131,063	\$ =	42,447
lension Expense Proportionate share of plan pension expense	\$	27,934	\$	19,951	\$	146,390	\$	23,946
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(21,055)		7,369		(8,982)		(7,460
Total Employer Pension Expense		6,879	\$_	27,320	\$ _	137,408	\$_	16,486
	-		•		-		•	
<u>contributions</u> Statutory required contribution	\$	21,753	\$	15,827	s	140,961	\$	18,645
Contribution in relation to statutory required contribution		(21,753)	•	(15,827)	•	(140,961)	Ψ	(18,645
• •	_		-	(15,621)	-	(140,961)	-	(10,645)
Contribution deficiency/(excess)	\$=		\$ =		\$=		\$=	
Contributions as a percentage of covered payroll		26.40%		26.40%		34.02%		20.79%
<u>deferred (Inflows)/Outflows Recognized in</u> Future Pension Expense								
June 30, 2019	\$	(17,478)	\$	9,924	\$	9,763	\$	(4,394)
June 30, 2020		(17,222)	•	10,107	•	11,104	*	(4,175)
June 30, 2021		(20,662)		7,916		10,909		(6,994)
June 30, 2022	_	(17,022)	_	12,064	_	1,985	_	(8,350)
Total Deferred (Inflows)/Outflows Recognized in	_				_		_	
Future Pension Expense	\$ =	(72,384)	\$ =	40,011	\$=	33,761	\$=	(23,913)
discount Rate Sensitivity								
1% decrease (6.50%)	\$	330,736	\$	236,239	\$	1,733,089	\$	283,490
Current discount rate (7.50%)	\$	262,880	\$	187,771	\$	1,377,521	\$	225,328
1% increase (8.50%)	\$	205,805	\$	147,003	\$	1,078,439	\$	176,405
		82,391	\$	59,952	\$	414,348	\$	89,686

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

		Manchester Housing Authority		Middleton Housing Authority		Nahant Housing Authority	-	North Andover Housing Authority
Net Pension Liability Beginning net pension liability	\$	307,199	\$	191,999	\$	229,804	\$	1,726,009
Ending net pension liability	\$	262,880	\$	187,771	\$	110,445	\$	1,639,603
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	•		\$	_	s	_	\$	_
billorences between expected and actual experience	Ψ.		۳		•		•	
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		21,583		15,417		9,068		134,616
Changes in proportion and differences between employer contributions and proportionate share of contributions		39		170		1,604		7,189
Total Deferred Outflows of Resources	-		\$	15,587	\$	10,672	s	141,805
Deferred Inflows of Resources	٠.	21,022	٠ ,	10,001	Υ,	10,012	*•	111,000
Differences between expected and actual experience	\$	3,720	\$	2,657	\$	1,563	\$	23,203
Net difference between projected and actual investment earnings on pension plan investments		11,574		8,267		4,863		72,188
Changes of assumptions		-		-		-		
Changes in proportion and differences between								
employer contributions and proportionate share of contributions	_	29,238		50,046		111,855		89,53
Total Deferred Inflows of Resources	\$_	44,532	\$	60,970	\$	118,281	\$_	184,922
Pension Expense Proportionate share of plan pension expense	\$	27,935	\$	19,954	\$	11,736	\$	174,23
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(7,414)		(19,675)		(31,936)		(28,61
				(13,073)		(51,550)	-	(20,01
Total Employer Pension Expense	\$.	20,521	\$	279	\$	(20,200)	\$.	145,628
Contributions								
Statutory required contribution.		21,753	-	15,537	\$	11,297	\$	146,927
Contribution in relation to statutory required contribution Contribution deficiency/(excess)	-	(21,753)		(15,537)	•	(11,297)	-	(146,927
Contributions as a percentage of covered payroll	-	16.71%	Ψ,	23.13%	٠,	28.28%	Ψ=	27.329
Deferred (Inflows)/Outflows Recognized in		10.7170		20.1070		20.20%		27.02
Future Pension Expense								
June 30, 2019	\$	(3,837)	\$	(17,120)	\$	(30,433)	\$	(6,299
June 30, 2020		(3,581)		(16,937)		(30,326)		(4,704
June 30, 2021		(6,945) (8,547)		(9,013) (2,313)		(24,605) (22,245)		(15,091
Total Deferred (Inflows)/Outflows Recognized in					_		-	(17,023
Future Pension Expense	э.	(22,910)	Э,	(45,383)	Э,	(107,609)	Ф.	(43,117
Discount Rate Sensitivity 1% decrease (6.50%)	\$	330,736	\$	236,239	\$	138,954	\$	2,062,820
Current discount rate (7.50%)		262,880	\$	187,771	\$	110,445	\$	1,639,603
1% increase (8.50%)	\$	205,805	\$	147,003	\$	86,466	\$	1,283,619
Covered Payroll	\$	130,158	\$	67,172	\$	39,940	\$	537,818
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

	_	Rockport Housing Authority	_	Rowley Housing Authority	_	Salisbury Housing Authority	_	Topsfield Housing Authority
let Pension Liability								
Beginning net pension liability	\$	806,396	\$	153,599	\$	345,598	\$	307,199
Ending net pension liability	\$	450,652	\$	150,218	\$	337,990	\$	187,771
Deferred Outflows of Resources Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		-		-		-		-
Changes of assumptions		37,000		12,333		27,750		15,417
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	-	90,403	-	295	-	14,118	-	63,227
Total Deferred Outflows of Resources	\$ _	127,403	\$_	12,628	\$_	41,868	\$_	78,644
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	6,378	\$	2,126	\$	4,783	\$	2,657
Net difference between projected and actual investment earnings on pension plan investments		19,841		6,614		14,881		8,267
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	-	257,718	-	1,148	-	41,774	-	86,791
Total Deferred Inflows of Resources	\$ =	283,937	\$_	9,888	\$=	61,438	\$ =	97,715
<u>Proportionate share of plan pension expense</u>	\$	47,890	\$	15,961	\$	35,917	\$	19,954
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(32,329)		(405)		(6,710)		(2,119
			_		_		_	
Total Employer Pension Expense	*-	15,561	\$_	15,556	\$ _	29,207	* -	17,835
<u>Contributions</u>								
Statutory required contribution	\$	37,290	\$	12,430	\$	28,489	\$	15,537
Contribution in relation to statutory required contribution	_	(37,290)	-	(12,430)	_	(28,489)	_	(15,537
Contribution deficiency/(excess)	\$_	<u>-</u>	\$_		\$_		\$ _	
Contributions as a percentage of covered payroll		24.72%		22.89%		28.53%		25.84%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2019	\$	(26,197)	\$	1.639	\$	(2,111)	\$	436
June 30, 2020		(25,758)	•	1,785	•	(1,782)	Ψ.	619
June 30, 2021		(41,736)		104		(11,377)		(1,614)
June 30, 2022	_	(62,843)	_	(788)	_	(4,300)	_	(18,512)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$_	(156,534)	\$_	2,740	\$_	(19,570)	\$_	(19,071)
	_		-		_		_	
Discount Rate Sensitivity 1% decrease (6.50%)	\$	566,975	\$	188,993	\$	425,232	\$	236,239
Current discount rate (7.50%)	\$	450,652	\$	150,218	\$	337,990	\$	187,771
1% increase (8.50%)	\$	352,808	\$	117,604	\$	264,607	\$	147,003
	\$	150,827	\$	54,311	\$	99,849	\$	60,117

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2017

	_	Wenham Housing Authority	_	West Newbury Housing Authority		Totals
Net Pension Liability						
Beginning net pension liability	\$	318,539	\$	-	\$	385,287,832
Ending net pension liability	\$	343,770	\$	-	\$	376,355,338
Deferred Outflows of Resources Differences between expected and actual experience	\$	_	\$	_	\$	
Net difference between projected and actual						
investment earnings on pension plan investments Changes of assumptions		28.225		-		30,899,87
Changes in proportion and differences between		20,220				00,000,01
employer contributions and proportionate share of contributions		49,679		-		8,792,97
Total Deferred Outflows of Resources	\$_	77,904	\$	-	\$	39,692,85
Deferred Inflows of Resources						
Differences between expected and actual experience	\$	4,865	\$	-	\$	5,326,13
Net difference between projected and actual investment earnings on pension plan investments		15,136		-		16,570,170
Changes of assumptions		-		-		
Changes in proportion and differences between						
employer contributions and proportionate share of contributions	_	11,401	_	14,013		8,792,97
Total Deferred Inflows of Resources	\$_	31,402	\$_	14,013	\$	30,689,28
Pension Expense Proportionate share of plan pension expense	\$	36,530	\$	-	\$	39,995,02
Net amortization of deferred amounts from changes in proportion and differences between employer						
contributions and proportionate share of contributions	-	8,536	-	(6,370)		
Total Employer Pension Expense	\$_	45,066	\$_	(6,370)	\$	39,995,02
Contributions						
Statutory required contribution	\$	33,960	\$	-	\$	31,614,41
Contribution in relation to statutory required contribution	_	(33,960)	_			(31,663,09
Contribution deficiency/(excess)	\$_	_	\$_		\$	(48,68
Contributions as a percentage of covered payroll		30.96%		N/A		24.22
Deferred (Inflows)/Outflows Recognized in						
Future Pension Expense June 30, 2019	•	12 244	\$	(C 270)	•	5 424 20
June 30, 2020.	Э	13,214 13,549	Ф	(6,370) (6,370)	Þ	5,121,39 5,487,620
June 30, 2021		13.024		(1,273)		375,99
June 30, 2022		6,715		-		(1,981,44
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	*_	46,502	\$_	(14,013)	\$	9,003,57
Discount Rate Sensitivity	Ī		_			
1% decrease (6.50%)	\$	432,505	\$	-	\$	473,500,76
Current discount rate (7.50%)	\$	343,770	\$	-	\$	376,355,33
1% increase (8.50%)	\$	269,132	\$	-	\$	294,642,498
Covered Payroll	\$	109,676	\$	-	\$	130,743,71
See notes to schedule of employer allocations and schedule of pension amounts by employer.						(conclude

Essex Regional Retirement System

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NOTE I - Schedule of Employer Allocations

Governmental Accounting Standards Board (GASB) Statement #68 requires employers participating in a costsharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. For the first time, employers participating in cost-sharing plans are required to recognize their proportionate share of the plan's collective pension amounts for all benefits provided through the plan including the net pension liability, deferred outflows of resources, deferred inflows of resources, contributions and pension expense.

GASB Statement #68 requires the allocation of the collective pension amounts be consistent with the manner in which contributions to the plan are determined. As permissible under GASB Statement #68, The Schedule of Employer Allocations is used to demonstrate the allocation of Essex Regional Retirement System's collective pension amounts.

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the system who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year. Accordingly, the proportionate aggregate rates of regular compensation as of the close of business on September 30, 2016 were applied to allocate the System's fiscal year 2017 pension fund appropriation by member unit.

When a member unit accepts an Early Retirement Incentive Program (E.R.I. or ERIP), PERAC completes an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the ERIP. The accrued liability for the members who accept the ERIP as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. The net increase is amortized for each member unit accepting the ERIP, and is separately identified in the system's funding schedule. The 2002 ERIP amortization is straight line ending in fiscal 2019, except Nahant Housing which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012. The 2003 ERI amortization is straight line ending in fiscal 2020, except for Groveland which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012.

The allocation percentage of the total net pension liability is a blended rate of the following items. (1) The proportionate share of active employer's covered payroll is applied to the fiscal year 2017 pension fund appropriation calculated by the actuary. (2) Current Direct E.R.I. appropriation is a direct current charge calculated by PERAC for only the employers that accepted the ERIP. This direct charge backed out of the total pension fund appropriation to calculate the percentage to be allocated (3) Remaining Direct E.R.I. liability is the future E.R.I. liability associated directly to those employers that accepted the ERIP. This direct liability is added back to those employers once the non-ERIP liability has been allocated.

NOTE II - Schedule of Pension Amounts by Employer

The Schedule of Pension Amounts by Employer presents the net pension liability, the various categories of deferred outflows of resources and deferred inflows of resources, contributions and pension expense for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; and changes of assumptions.

Essex Regional Retirement System

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NOTE III - CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS

Effective January 1, 2018 the following changes were made.

Actuarial Assumptions:

- The net investment return assumption and discount rate were 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 3.75%.
- 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 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.

Plan	Provis	sions:

None.

Essex Regional Retirement System

43 Audit of Specific Elements, Accounts and Items of Financial Statements

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2016

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2016

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Financial Section

Essex Regional Retirement System

Financial Section

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2016, and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Essex Regional Retirement System as of December 31, 2016 and the results of its operations and changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis; the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Return be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated June 15, 2017 on our consideration of the Essex Regional Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Essex Regional Retirement System's internal control over financial reporting and compliance.

Restriction on Use

This report is intended solely for the information and use of Essex Regional Retirement System, the Public Employee Retirement Administration Commission and all member units and is not intended to be and should not be used by anyone other than these specified parties.

June 15, 2017

Powers & Sullivan LLC

Management's Discussion and Analysis

As management of the Essex Regional Retirement System, we offer readers of these financial statements this narrative overview and analysis of the financial activities for the year ended December 31, 2016. The System complies with financial reporting requirements issued by the Governmental Accounting Standards Board (GASB).

The GASB is the authoritative standard setting body that provides guidance on how to prepare financial statements in conformity with generally accepted accounting principles (GAAP). Users of these financial statements rely on the GASB to establish consistent reporting standards for all governments in the United States. This consistent application is the only way users can assess the financial condition of a public retirement system compared to others.

Financial Highlights

- The System's assets exceeded its liabilities at the close of the most recent year by \$402.9 million (net position).
- The System's net position increased by \$24.6 million for the year ended December 31, 2016.
- Total investment income was \$28.6 million; investment expenses were \$2.2 million; and net investment income was \$26.4 million.
- Total contributions were \$46.5 million including \$29.4 from employers, and \$12.9 from members.
- Retirement benefits, refunds and transfers amounted to \$47.3 million.
- Administrative expenses were \$976,000.
- The Total Pension Liability is \$788 million as of December 31, 2016 while the Net Pension Liability is \$385 million.
- The Plan fiduciary net position as a percentage of the total pension liability is 51.12%.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the System fiduciary financial statements. These fiduciary financial statements comprise of four components: 1) management's discussion and analysis, 2) fiduciary financial statements, 3) notes to the financial statements and 4) required supplementary information.

Fiduciary Financial Statements

The *statement of net position* presents information on all assets and deferred outflows less deferred inflows and liabilities with the difference reported as *net position*. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position is improving or deteriorating.

The statement of changes in fiduciary net position presents information showing how the system's net position changed during the most recent year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, additions and deductions are reported in this statement for some items that will only result in cash flows in future periods.

Notes to the financial statements

The notes provide additional information that is essential to a full understanding of the data provided in the fiduciary financial statements.

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Essex Regional Retirement System

Management's Discussion and Analysis

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Return be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context.

Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of the System's financial position. The System's net position exceeded liabilities by \$402.9 million at the close of 2016.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year end the system's net position include investments of \$397 million, cash of \$1.9 million, accounts receivable of \$4.7 million, and capital assets of \$205,000.

In 2016 the System's contributions were \$46.5 million and net investment income was \$26.4 million while retirement benefit payments, refunds, transfers and administration expenses were \$48.4 million which resulted in a current increase of \$24.5 million. In 2015 the System's contributions were \$48.2 million and net investment income was \$4.1 million while retirement benefit payments, refunds, transfers and administration expenses were \$45.4 million which resulted in a prior year increase of \$6.9 million.

In 2015 the System recognized a contribution from Essex North Shore Agricultural and Technical School District (Essex Tech) as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Legislation requires Essex Tech to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly in 2015, PERAC approved a funding schedule for Essex Tech to pay ERRS in equal annual payments of \$421,947 through 2033. The \$3,734,809 present value of these payments has been recorded as an intergovernmental receivable at year end.

The main difference of the increase in net position between years was the change in net investment income between years. Net investment income was \$26.4 million and \$4.1 million in 2016 and 2015 respectively. The annual money weighted rate of return was 7.33% and 1.04% in 2016 and 2015 respectively. Fluctuations in the system's annual investment returns are expected.

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The following tables present summarized financial information for the past two years.

Essex Regional Retirement System

Management's Discussion and Analysis

	2016	2015
Statement of Fiduciary Net Position Assets:		
Cash	1,881,650 397,333,654 4,726,786 204,741	\$ 994,843 372,507,562 5,531,842 205,425
Total assets	404,146,831	379,239,672
Liabilities: Accounts payableAbandoned property	1,216,758 190	 900,910
Total liabilities	1,216,948	900,910
Net Position Restricted for Pension Benefits\$	402,929,883	\$ 378,338,762
Statement of Changes in Fiduciary Net Position	2016	2015
Additions:		
Contributions: Member contributions	16,673,138 29,431,067 388,786	\$ 15,676,204 27,966,800 390,749 4,156,756
Total contributions	46,492,991	48,190,509
Net investment income (loss): Total investment income (loss) Less, investment expenses Net investment income (loss)	28,610,761 (2,203,765) 26,406,996	 6,246,628 (2,142,796) 4,103,832
Total additions	72,899,987	52,294,341
Deductions: AdministrationRetirement benefits, refunds and transfers	975,517 47,333,349	 949,046 44,477,244
Total deductions	48,308,866	45,426,290
Net increase (decrease) in fiduciary net position	24,591,121	6,868,051
Fiduciary net position at beginning of year	378,338,762	 371,470,711
Fiduciary net position at end of year\$	402,929,883	\$ 378,338,762

Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the System's Board, 491 Maple St #202, Danvers, MA 01923.

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Management's Discussion and Analysis

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Essex Regional Retirement System

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Financial Section

STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2016

Assets	
Cash	

Cash	\$ 1,881,650
Investments: PRIT funds Money market mutual funds Pooled alternative investments Pooled real estate funds Fixed income investments	382,842,963 110,447 11,027,929 3,346,715 5,600
Total investments	397,333,654
Receivables: Members contributions Essex Agricultural and Technical High School Other	991,836 3,734,809 141
Total receivables	4,726,786
Capital assets, net of accumulated depreciation	204,741
Total assets	404,146,831
Liabilities	
Accounts payableAbandoned property	1,216,758 190
Total liabilities	1,216,948
Net Position Restricted for Pensions	\$ 402,929,883

See notes to financial statements.

Essex Regional Retirement System

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STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED DECEMBER 31, 2016

Additions: Contributions:	
Member contributions\$	12,864,434
Retirement benefits - transfers from other systems	2,340,646
Retirement benefits - 3(8)c contributions from other systems	1,468,058
Retirement benefits - Recovery of 91A Overearnings	10,923
Employer contributions.	29,420,144
Employer contributions - federal grant reimbursements	43,170
Retirement benefits - state COLA reimbursements	345,616
Retirement benefits - state COLA reimbursements	343,010
Total contributions	46,492,991
Net investment income (loss):	
Total investment income (loss)	28,610,761
Less, investment expenses	(2,203,765)
Net investment income (loss)	26,406,996
Total additions	72,899,987
Deductions:	
Administration	975,517
Retirement benefits - transfers to other systems	2,591,978
Retirement benefits - 3(8)c contributions to other systems	2,610,806
Retirement benefits and refunds	42,130,565
Total deductions	48,308,866
Net increase (decrease) in fiduciary net position	24,591,121
Fiduciary net position at beginning of year	378,338,762
Fiduciary net position at end of year\$	402,929,883

Essex Regional Retirement System

See notes to financial statements.

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NOTE 1 - PLAN DESCRIPTION

Essex Regional Retirement System is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of governmental member units deemed eligible by the Essex Regional Retirement Board (the Board), with the exception of school department employees who serve in a teaching capacity. The pensions of such school employees are administered by the Commonwealth of Massachusetts' Teachers Retirement System. Membership in the Plan is mandatory immediately upon the commencement of employment for all non-teaching permanent, full time employees. The Plan is administered by the Essex Regional Retirement System (the System).

Originally instituted in 1937, as part of Essex County government, the Board served as the regional retirement system for Essex County upon the abolition of county government in 1996 and the current system structure was created by special legislation in July, 2010 (Chapter 34B, Section 19A of the Massachusetts General Laws). The System is governed by a five member Board who establish the policies under which the System operates. Board members also approve all of the System's financial transactions, including the approval of retirement benefits to members. Board members are appointed or elected as specified by MGL Ch. 34B, Section 19A for terms ranging from 3 to 5 years.

The day-to-day operations of the System are managed by the Executive Director. The legislative body for the System is an Advisory Council consisting of full-time treasurers or other qualified officials of the member units. The Advisory Council meets twice annually and is responsible for supervising and certifying the procedures involved in the election of members to the retirement board.

As of December 31, 2016, the System had 1,798 retirees and beneficiaries, 2,722 active participants and 1,798 inactive participants with a vested right to retirement benefits or to receive a refund of their contributions.

The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. The Public Employee Retirement Administration Commission (PERAC) is the state agency responsible for oversight of the Commonwealth's public retirement systems.

Massachusetts Contributory Retirement System benefits are, with certain exceptions, uniform from system to system. The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For persons who became members on or after April 2, 2012, average salary is the average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are three classes of membership in the retirement system: group 1, group 2, and group 4. Group 1 consists of general employees which includes clerical and administrative positions. Group 2 consists of positions that have been specified as hazardous. Lastly, group 4 consists of police officers, firefighters, and other hazardous positions.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of service or upon reaching the age of 55 with 10 years of service if hired after 1978 and if classified in groups 1 or 2. A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance upon reaching the age of 60 with 10 years of service if in group 1, 50 years of age with 10 years of service if in group 2, and 55 years of age if hired prior to 1978 or if classified in group 4. Normal retirement for most employees occurs at age 65 (except for certain hazardous duty and public safety positions, whose normal retirement is at age 55).

Essex Regional Retirement System

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A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and the interest they generate constitute the annuity. The differential between the total retirement benefit and the annuity is the pension.

Active members contribute between 5% and 11% of their gross regular compensation. The percentage rate is keyed to the date upon which an employee's membership commences. These deductions are deposited in the Annuity Savings Fund and earn interest at a rate determined by the Public Employee Retirement Administration Commission's (PERAC) actuary. When a member's retirement becomes effective, his/her deductions and related interest are transferred to the Annuity Reserve Fund. Any cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by the Commonwealth of Massachusetts' state law during those years are borne by the Commonwealth and are deposited into the Pension Fund. Cost-of-living adjustments granted after 1997 must be approved by the System and all costs are borne by the System.

The pension portion of any retirement benefit is paid from the Pension Fund of the System. The governmental unit employing the member must annually appropriate and contribute the amount of current-year pension assessment. In past years, retirement systems were paying only the actual retirement benefits that were due each year. Systems had no statutory authorization to put aside money for the future benefits of employees who are currently employed. Large unfunded liabilities resulted from operating under this pay-as-you-go basis. In 1977, legislation authorized local governments to appropriate funds to meet future pension obligations. In 1983, additional legislation was passed requiring the transfer of investment earnings (in excess of the amount credited to member accounts) into the Pension Reserve Fund.

Administrative expenses, which were previously appropriated from the governmental entities whose employees are members of the system, are now paid from investment income.

Members who become permanently and totally disabled for further duty may be eligible to receive a disability retirement allowance. The amount of benefits to be received in such cases is dependent on several factors, including whether or not the disability is work related, the member's age, years of creditable service, level of compensation, veterans' status and group classification.

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions.

Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying financial statements of the Essex Regional Retirement System have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the recognized standard-setting body for establishing governmental accounting and financial reporting principles.

ERRS is a special-purpose government engaged only in fiduciary activities. Accordingly, the financial statements are reported using the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, additions are recorded when earned and deductions are recorded when the liabilities are incurred.

Essex Regional Retirement System

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Cash and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition. Investments are carried at fair value. The fair values were determined by the closing price for those securities traded on national stock exchanges and at the average bid-and-asked quotation for those securities traded in the over-the-counter market. The fair value of private equities are based on management's valuation of estimates and assumptions from information and representations provided by the respective general partners, in the absence of readily ascertainable market values. Real estate assets are reported at fair value utilizing an income approach to valuation along with independent appraisals and estimates by management.

Fair Value Measurements

The System reports required types of financial instruments in accordance with the fair value standards. These standards require an entity to maximize the use of observable inputs (such as quoted prices in active markets) and minimize the use of unobservable inputs (such as appraisals or valuation techniques) to determine fair value. Fair value standards also require the government to classify these financial instruments into a three-level hierarchy, based on the priority of inputs to the valuation technique or in accordance with net asset value practical expedient rules, which allow for either Level 2 or Level 3 depending on lock up and notice periods associated with the underlying funds.

Instruments measured and reported at fair value are classified and disclosed in one of the following categories:

Level 1 – Quoted prices are available in active markets for identical instruments as of the reporting date. Instruments, which are generally included in this category, include actively traded equity and debt securities, U.S. government obligations, and mutual funds with quoted market prices in active markets.

Level 2 – Pricing inputs are other than quoted in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or other valuation methodologies. Certain fixed income securities, primarily corporate bonds, are classified as Level 2 because fair values are estimated using pricing models, matrix pricing, or discounted cash flows.

Level 3 – Pricing inputs are unobservable for the instrument and include situations where there is little, if any, market activity for the instrument. The inputs into the determination of fair value require significant management judgment or estimation.

In some instances the inputs used to measure fair value may fall into different levels of the fair value hierarchy and is based on the lowest level of input that is significant to the fair value measurement.

Market price is affected by a number of factors, including the type of instrument and the characteristics specific to the instrument. Instruments with readily available active quoted prices generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value. It is reasonably possible that change in values of these instruments will occur in the near term and that such changes could materially affect amounts reported in these financial statements. For more information on the fair value of the System's financial instruments see Note 4.

Accounts Receivable

Accounts receivable consist of member deductions, future appropriations from Essex Technical High School for the unfunded actuarial liability for retirees from Essex Agricultural and Technical School, pension fund appropriations, and federal grant reimbursements. These receivables are considered 100% collectible and

Essex Regional Retirement System

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therefore do not report an allowance for uncollectibles.

Deferred Outflows/Inflows of Resources

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of fiduciary net position that applies to a future period(s) and so will not be recognized as an outflow of resources (deduction) until then. The ERRS did not have any items that qualify for reporting in this category.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (addition) until that time. The ERRS did not have any items that qualify for reporting in this category.

NOTE 3 - PLAN ADMINISTRATION

The System is administered by a five-person Board of Retirement. The first member shall be a chief executive or chief administrative officer of a member town, unit or district belonging to the Essex regional retirement system for a term of 3 years. This member shall be chosen by weighted vote of the chief executive or chief administrative officers of member towns, units or districts belonging to the Essex regional retirement system. The second member shall be a member of the regional retirement board advisory council, and shall be elected by a majority of those present and voting at a public meeting of the council and shall serve for a term of 3 years. The third and fourth members shall be elected by the members in or retired from service of the Essex county retirement system from among persons retired under the system and shall serve for a term of 3 years. The fifth member, who shall not be an employee, retiree or official of the retirement system, or of any of its constituent governmental units, shall be chosen by the other 4 members and shall serve for a term of 5 years.

First Member	Alan J. Benson	Term Expires:	12/1/2017
Second Member	Kevin A. Merz	Term Expires:	12/1/2018
Third Member	Susan J. Yaskell	Term Expires:	12/1/2019
Fourth Member	H. Joseph Maney	Term Expires:	12/1/2019
Fifth Member	Vincent R. Malgeri	Term Expires:	12/12/2020

Board members are required to meet at least once a month. The Board must keep a record of all of its proceedings. The Board must annually submit to the appropriate authority an estimate of the expenses of administration and cost of operation of the System. The Board must annually file a financial statement of condition for the System with PERAC.

The ERRS Advisory Council consists of the full time treasurers, elected or appointed, for each town, unit or district within the System. The members of the Advisory Council elect the second member of the Board of Retirement as well as a Chair from among its members. The ERRS Advisory Council is required by statute to meet twice per year, typically in the spring and fall. All ERRS Advisory Council meetings are open, public meetings and are subject to the Commonwealth's Open Meeting Law.

The investment of the System's funds is the responsibility of the Board. Disability retirement allowances must be approved by the Retirement Board and are then submitted to the PERAC Actuary for verification prior to payment.

Essex Regional Retirement System

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Superannuation retirement allowances are not required to obtain PERAC's verification. All expenses incurred by the System must be approved by a majority vote of the Board. Payments shall be made only upon vouchers signed by two persons designated by the Board.

ERRS board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. The MACRS program for ERRS provides \$50,000,000 fiduciary protection for Trustees and employees, as well as a \$1,000,000 fidelity policy for crime coverage.

NOTE 4 - CASH AND INVESTMENTS

Custodial Credit Risk - Deposits

At December 31, 2016, the carrying amount of the System's deposits totaled \$1,881,650 and the bank balance totaled \$2,034,142 which was covered by Federal Depository Insurance.

<u>Investments</u>

The System's investments are as follows:

		<u>Maturity</u>
<u>-</u>	Fair Value	Over 10 Years
Investment Type		
Debt Securities: Fixed Income\$	5,600	\$5,600
Other Investments: PRIT Pooled Funds Money Market Mutual Funds Pooled Alternative Investments Pooled Real Estate Funds	382,842,963 110,447 11,027,929 3,346,715	
Total Investments\$	397,333,654	

Approximately 96% of the Retirement System's investments are in Pension Reserve Investment Trust (PRIT) Pooled Funds. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board. The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The Administration does not have the ability to control any of the investment decisions relative to its funds in PRIT.

Approximately 4% of the System's funds are invested in pooled alternative investments and pooled real estate funds. The market values of assets in those funds are based on the quoted values obtained from each pool.

The Administration's annual money-weighted rate of return on pension plan investments was 7.33%. The money-weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested, measured monthly.

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Fair Market Value of Investments

The retiree pension defined benefit plan holds significant amounts of investments that are measured at fair value on a recurring basis. Because investing is a key part of the plan's activities, the plan shows greater disaggregation in its disclosures. The plan chooses a tabular format for disclosing the levels within the fair value hierarchy.

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles.

The System has the following recurring fair value measurements as of December 31, 2016:

			Fair Value Measurements Using			ts Using	
			Quoted Prices in Active Markets for Identical Assets		Significant Other Observable Inputs		Significant Unobservable Inputs
Investment Type	12/31/2016	•	(Level 1)		(Level 2)		(Level 3)
Investments by fair value level							
<u>Debt Securities</u> Fixed Income\$	5,600	\$	5,600	\$	-	\$	-
Other Investments Money Market Mutual Funds Pooled Alternative Investments Pooled Real Estate Funds	110,447 11,027,929 3,346,715	•	110,447 - -		- - -		- 11,027,929 3,346,715
Total Investments by fair value level	14,490,691	\$	116,047	\$		\$	14,374,644
Investments measured at the net asset value (NAV)							
PRIT Investments	382,842,963						
Total Investments\$	397,333,654						

Fixed Income, and Money Market Mutual Funds in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. Pooled Alternative Investments and Pooled Real Estate Funds classified in level 3 are valued using either a discounted cash flow or market comparable companies technique.

PRIT Investments are valued using the net asset value (NAV) method. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board (PRIM). The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The System does not have the ability to control any of the investment decisions relative to its funds in PRIT.

NOTE 5 - RECEIVABLES

At December 31, 2016, receivables for the System are as follows:

	Gross Amount		Allowance for Uncollectibles	Net Amount
Receivables:		•		
Member contributions\$	991,836	\$	- \$	991,836
Essex Agricultural and Technical High School	3,734,809		-	3,734,809
Other	141		-	141
_		•		
Total \$_	4,726,786	\$	\$	4,726,786

As more fully described in Note 9, the intergovernmental receivable consists of the present value of a stream of future payments to be received from Essex Technical High School (Essex Tech), as the successor agency of Essex Agricultural and Technical School from fiscal year 2017 through fiscal year 2033 for the unfunded actuarial liability for its retirees in the Essex Regional Retirement System.

NOTE 6 - CAPITAL ASSETS

Capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are 33 years for buildings and 5 to 20 years for equipment.

The majority of capital assets owned by the System consist of two condominiums in Danvers, Massachusetts that were purchased for the administrative offices of the System. Both units were purchased in fiscal year 2000 for a total of \$375,250. Total capital asset activity for the year ended December 31, 2016, was as follows:

-	Beginning Balance	Increases	Decreases	Ending Balance
Capital assets being depreciated:				
Buildings\$	375,250	\$ -	\$ -	\$ 375,250
Equipment	15,580	13,690		29,270
Total capital assets being depreciated	390,830	13,690		404,520
Less accumulated depreciation for:				
Buildings	(174,499)	(11,258)	-	(185,757)
Equipment	(10,906)	(3,116)		(14,022)
Total accumulated depreciation	(185,405)	(14,374)		(199,779)
Total capital assets being depreciated, net	205,425	(684)		204,741
Total governmental activities capital assets, net\$	205,425	\$ (684)	\$ 	\$ 204,741

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NOTE 7 - MEMBERSHIP

The following table represents the System's membership at December 31, 2016:

Active members	2,722
Inactive members entitled to a return of contributions	1,149
Inactive employees or beneficiaries currently receiving benefits	1,798
•	
Total	5,669

NOTE 8 – ACTUARIAL VALUATION

The total pension liability was determined by an actuarial valuation as of January 1, 2016, using the following actuarial assumptions, applied to all periods included in the measurement that was updated to December 31, 2016:

Valuation date	January 1, 2016
Actuarial cost method	Entry Age Normal Cost Method.
Remaining amortization period	18 years for the fresh start base.
Amortization method	The total appropriation is set to increase annually by 7.41% for five years, then by 6.36% for one year and 4% increases annually thereafter until the final year which will be 3.89%.
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 5 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value.
Projected salary increases	3.75% Ultimate rate, with steps. 7.50% year one, 6.5% year two, 6.00% year three, 5.50% year four, 5.00% year five
Cost of living adjustments	3.0% of the first \$13,000 of a members retirement allowance is assumed to be granted every year.
Rates of retirement	Varies based upon age for general employees, police and fire employees.
Rates of disability	Disability is assumed to be 45% ordinary and 55% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

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Mortality Rates:

BB and Generational Mortality. During employment the healthy employee mortality table is used. Post-employment

the healthy annuitant table is used.

Disabled Retiree...... The RP-2000 mortality table for healthy annuitants (sex-distinct)

projected with scale BB and Generational Mortality set-forward by 2 years. Death is assumed to be due to the same cause

as the disability 40% of the time.

Investment rate of return/Discount rate....... 7.75% per year

Components of the net pension liability as of December 31, 2016 were as follows:

Total pension liability\$	788,217,715
The pension plan's fiduciary net position	402,929,883
The net pension liability\$	385,287,832
The pension plan's fiduciary net position as a percentage of the total pension liability	51.12%

Investment policy: The pension plan's policy in regard to the allocation of invested assets is established by PRIT and the Board. Plan assets are managed on a total return basis with a long-term objective of achieving a fully funded status for the benefits provided through the pension plan.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges 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 and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of January 1, 2016 are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return	Long-Term Expected Asset Allocation
Global Equity		
Large Cap Equities	7.50%	14.50%
SamII/Mid Cap Equities	7.75%	3.50%
International Equities	7.83%	16.00%
Emerging International Equities	9.61%	6.00%
Core Fixed Income		
Core Bonds	4.00%	5.00%
20+ Year Treasuries	3.75%	5.00%
TIPS	3.75%	3.00%
Value Added Fixed Income		
High-Yield Bonds	5.75%	1.50%
Bank Loans	6.00%	1.50%
EMD (External)	5.75%	1.00%
EMD (Local Currency)	6.50%	2.00%
Private Debt	9.06%	4.00%
Private Equity	9.50%	10.00%
Real Estate	6.50%	10.00%
Timberland	6.00%	4.00%
Hedge Funds and Portfolio Completion	6.48%	13.00%
Total Fund Expected Return/Total	7.80%	100.00%

Discount rate: The discount rate used to measure the total pension liability was 7.75%. 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 contributions will be made at rates equal to the actuarially determined contribution rate. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of 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 total pension liability.

Sensitivity of the net position liability to changes in the discount rate. The following presents the net position liability, calculated using the discount rate of 7.75%, as well as what the net position liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75%) or 1-percentage-point higher (8.75%) than the current rate.

		Current		
	1.0% Decrease	Discount Rate		1.0% Increase
	(6.75%)	(7.75%)	_	(8.75%)
Essex Regional Retirement System's net				<u> </u>
pension liability as of December 31, 2016 \$	471,944,872	\$ 385,287,832	\$	321,176,656

Contributions: Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The pension fund appropriations are allocated amongst employers based on covered payroll.

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NOTE 9 - ESSEX AGRICULTURAL AND TECHNICAL HIGH SCHOOL

Chapter 463 of the Acts of 2004 created the Essex North Shore Agricultural and Technical School District (Essex Tech). This legislation established Essex Tech as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Prior to July 1, 2014, the non-teacher employees of the Essex Agricultural and Technical High School were members of ERRS. The legislation required that all active and inactive members be transferred to the Salem Contributory Retirement System. Accordingly, as of June 30, 2015, all active and inactive members of ERRS have been transferred to the Salem Contributory Retirement System. Essex Tech, as the successor agency, is required to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, PERAC approved a funding schedule that requires Essex Tech to pay ERRS equal annual assessments of \$421,947 through 2033. The \$3,734,809 present value of these payments has been recorded as an intergovernmental receivable by ERRS as of December 31, 2016.

NOTE 10 - COMMITMENTS AND CONTINGENCIES

Various legal actions and claims are pending against the System. Litigation is subject to many uncertainties, and the outcome of individual litigated matters is not always predictable. Although the amount of liability, if any, at December 31, 2016 cannot be ascertained, management believes any resulting liability should not materially affect the financial position at December 31, 2016.

NOTE 11 - IMPLEMENTATION OF NEW GASB PRONOUNCEMENTS

During 2016, the following GASB pronouncements were implemented:

- GASB <u>Statement #72</u>, Fair Value Measurement and Application. Notes to the basic financial statements
 were changed to provide additional disclosure on fair value measurement.
- GASB <u>Statement #73</u>, Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68. This pronouncement did not impact the basic financial statements.
- GASB <u>Statement #76</u>, The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments. This pronouncement did not impact the basic financial statements.
- GASB <u>Statement #78</u>, <u>Pensions Provided through Certain Multiple-Employer Defined Benefit Pension Plans</u>. This pronouncement did not impact the basic financial statements.
- GASB <u>Statement #79</u>, Certain External Investment Pools and Pool Participants. The basic financial statements and related notes were updated to be in compliance with this pronouncement.

The following GASB pronouncements will be implemented in the future:

• The GASB issued Statement #82, Pension Issues – an amendment of GASB Statements #67, #68, and #73, which is required to be implemented in 2017.

Management is currently assessing the impact the implementation of these pronouncements will have on the basic financial statements.

Essex Regional Retirement System

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NOTE 12 - SUBSEQUENT EVENTS

Management has evaluated subsequent events through June 15, 2017, which is the date the financial statements were available to be issued.

Essex Regional Retirement System

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Required Supplementary Information

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

	2014	2015	2016
Total pension liability:		2010	2010
Service cost\$	14,800,758 \$	15,392,788 \$	16,634,897
Interest	54,243,222	56,453,975	57,096,460
Changes in benefit terms	,,	,,	4,350,523
Differences between expected and actual experience	=	-	(8,590,424)
Changes in assumptions	_	_	20,216,699
Benefit payments, including refunds or member contributions	(42,572,513)	(40,901,999)	(43,168,107)
Net change in total pension liability	26,471,467	30,944,764	46,540,048
Total pension liability, beginning	684,261,436	710,732,903	741,677,667
Total pension liability, ending (a)\$	710,732,903 \$	741,677,667 \$	788,217,715
Plan fiduciary net position:			
Member contributions\$	14.524,722 \$	12,491,708 \$	12,864,434
Employer contributions	26,140,616	27,966,800	29,463,314
Net investment income (loss)	29,322,861	4,103,832	26,406,996
Retirement benefits and refunds	(42,572,513)	(40,901,999)	(43,168,106)
Administrative expenses	(936,725)	(949,046)	(975,517)
Other contribution		4,156,756	-
Net increase (decrease) in fiduciary net position	26,478,961	6,868,051	24,591,121
Fiduciary net position at beginning of year	344,991,750	371,470,711	378,338,762
Fiduciary net position at end of year (b)\$	371,470,711 \$	378,338,762 \$	402,929,883
Net pension liability - ending (a) - (b)\$	339,262,192 \$	363,338,905 \$	385,287,832
Plan fiduciary net position as a percentage of the total			
pension liability	52.27%	51.01%	51.12%
Covered-employee payroll\$	123,190,220 \$	128,258,043 \$	133,089,526
Net pension liability as a percentage of covered-employee			
payroll	275.40%	283.29%	289.50%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

Essex Regional Retirement System

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Required Supplementary Information

SCHEDULE OF CONTRIBUTIONS

_	2014	2015	2016
Actuarially determined contribution\$ Contributions in relation to the actuarially	26,066,222 \$	32,050,432 \$	29,420,338
determined contribution	(26,066,222)	(32, 123, 557)	(29,463,314)
Contribution deficiency (excess)\$	- \$	(73,125) \$	(42,976)
Covered-employee payroll\$	123,190,220 \$	128,258,043 \$	133,089,526
Contributions as a percentage of covered- employee payroll	21.16%	25.05%	22.14%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

SCHEDULE OF INVESTMENT RETURN

	2014	2015	2016
Annual money-weighted rate of return, net of investment expense	8.48%	1.04%	7.80%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

NOTE A - CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

The Schedule of Changes in the Net Pension Liability and Related Ratios includes the detailed changes in the systems total pension liability, changes in the systems net position, and the ending net pension liability. It also demonstrates the plan's net position as a percentage of the total pension liability and the net pension liability as a percentage of covered payroll.

NOTE B - CONTRIBUTIONS

Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The total appropriations are payable on July 1 and January 1. Employers may choose to pay the entire appropriation in July at a discounted rate. Accordingly, actual employer contributions may be less than the "total appropriation". The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE C - MONEY WEIGHTED RATE OF RETURN

The money weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense. A money weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. Inputs to the money weighted rate of return calculation are determined monthly.

Audit of Specific Elements, Accounts and Items of Financial Statements

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

We have audited the accompanying schedule of employer allocations of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2016, and the related notes. We have also audited the total for all entities of the rows titled net pension liability, total deferred outflows of resources, total contributions and total pension expense included in the accompanying schedule of pension amounts by employer of the ERRS Pension Plan as of and for the year ended December 31, 2016, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified row totals included in the schedule of pension amounts by employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense for the total of all participating entities for the Essex Regional Retirement System as of and for the year ended December 31, 2016, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the Essex Regional Retirement System as of and for the year ended December 31, 2016, and our report thereon, dated June 15, 2017, expressed an unmodified opinion on those financial statements.

Restriction on Use

Powers & Sullivan LLC

This report is intended solely for the information and use of the Essex Regional Retirement System management, the Essex Regional Retirement System employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

June 15, 2017

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2016

Employer	2017 Pension Fund Appropriation	Current Direct E.R.I. Appropriation	FY2017 Total Appropriation	Remaining Direct E.R.I. Liability	_	Allocated Net Pension Liability		Share of Net Pension Liability including E.R.I.	Percent of Total Net Pension Liabilit including E.R.I.
Retirement Board.	105,959	\$ - 5	105,959	\$ -	\$	1,382,393	\$	1,382,393	0.3599
Town of Boxford	1.080.194	,	1.080.194	*	*	14.092.733	*	14.092.733	3.6589
Town of Essex	509.192		509,192			6.643.169		6,643,169	1.7249
Town of Georgetown	1,512,860	79,349	1,592,209	164,005		19,737,507		19,901,512	5.1659
Town of Groveland	632,811	7,495	640.306	70.770		8.255.961		8,326,731	2 1619
Town of Hamilton.	809,409	7,485	809,409	70,770		10,559,951		10,559,951	2.7419
				_					10.3259
Town of Ipswich.	3,049,266	-	3,049,266			39,782,214		39,782,214	
Town of Lynnfield	2,319,326	145,516	2,464,842	390,443		30,259,058		30,649,501	7.9559
Town of Manchester-by-the-Sea	1,015,441		1,015,441			13,247,938		13,247,938	3.4389
Town of Merrimac	721,110	45,935	767,045	91,300		9,407,956		9,499,256	2.465%
Town of Middleton	1,495,200	-	1,495,200	-		19,507,109		19,507,109	5.063%
Town of Nahant	629,868	-	629,868	-		8,217,561		8,217,561	2.133%
Town of Newbury	576,888	-	576,888	-		7,526,365		7,526,365	1.953%
Town of North Andover	4,453,223	-	4,453,223	-		58,098,928		58,098,928	15.079%
Town of Rockport	1,604,102	7,978	1,612,080	14,796		20,927,902		20,942,698	5.4369
Town of Rowley	841,786	-	841,786	-		10,982,349		10,982,349	2.850%
Town of Salisbury	1,089,023	102,456	1,191,479	190,020		14,207,933		14,397,953	3.7379
Town of Topsfield	1,041,931	-	1,041,931	-		13,593,536		13,593,536	3.5289
Town of Wenham	600,435	_	600,435	_		7,833,563		7,833,563	2.033%
Town of West Newbury	553,342	29,416	582,758	54,555		7.219.166		7,273,721	1.8889
East Essex Veterans District	26,490		26,490	-		345,598		345,598	0.090%
Byfield Water District.	20,603	_	20 603	_		268 799		268.799	0.0709
Lynnfield Center Water District.	70,639	_	70,639	_		921.596		921,596	0.239%
Lynnfield Water District	67,696	_	67,696	_		883,196		883,196	0.2299
NE Massachusetts Mosquito Control District	150,109	_	150,109	_		1.958.391		1.958.391	0.5089
Hamilton-Wenham Regional School	838,842	_	838,842	_		10,943,949		10,943,949	2.8409
Manchester-Essex Regional School	509,192	-	509,192	-		6,643,169		6,643,169	1.724%
Masconomet Regional School	515,079	-	515,079	-		6,719,969		6,719,969	1.7449
Pentucket Regional School	1,053,704	37,680	1,091,384	75,091		13,747,136		13,822,227	3.588%
Triton Regional School	997,781	30,710	1,028,491	56,957		13,017,539		13,074,496	3.3939
Essex Housing Authority	8,830	4,084	12,914	7,575		115,199		122,774	0.0329
Georgetown Housing Authority	47,093	-	47,093	-		614,397		614,397	0.1599
Groveland Housing Authority	26,490	-	26,490	-		345,598		345,598	0.090%
Hamilton Housing Authority	8,830	-	8,830	-		115,199		115,199	0.030%
Ipswich Housing Authority	103,016	27,045	130,061	50,158		1,343,994		1,394,152	0.362%
Lynnfield Housing Authority	20,603	-	20,603	-		268,799		268,799	0.070%
Manchester Housing Authority	23,546	-	23,546	-		307,199		307,199	0.080%
Middleton Housing Authority	14,717	-	14,717	-		191,999		191,999	0.0509
Nahant Housing Authority	11,773	8,069	19,842	76,205		153,599		229,804	0.060%
North Andover Housing Authority	129,505	13,573	143,078	36,417		1,689,592		1,726,009	0.4489
Rockport Housing Authority	61,809	-	61,809	-		806,396		806,396	0.2099
Rowley Housing Authority	11,773	-	11,773	-		153,599		153,599	0.040%
Salisbury Housing Authority	26,490	-	26,490	-		345,598		345,598	0.0909
Topsfield Housing Authority	23,546	-	23,546	-		307,199		307,199	0.080%
Wenham Housing Authority	23,546	6,114	29,660	11,340		307,199		318,539	0.083%

See notes to other supplementary information.

FOR THE YEAR ENDED DECEMBER 31, 2016

		Retirement Board	Town of Boxford	_	Town of Essex	Town of Georgetown
Net Pension Liability						
Beginning net pension liability	\$	1,374,161	\$ 13,307,669	\$	6,147,565	\$ 18,092,138
Ending net pension liability	\$	1,382,393	\$ 14,092,733	\$	6,643,169	\$ 19,901,512
Deferred Outflows of Resources						
Differences between expected and actual experience	\$	-	\$ -	\$	-	\$ -
Net difference between projected and actual investment earnings on pension plan investments		60,556	617,333		291,004	871,786
Changes of assumptions		58,587	597,264		281,544	843,445
Changes in proportion and differences between						
employer contributions and proportionate		20.270			00.770	540.044
share of contributions	-	36,370		-	99,770	543,011
Total Deferred Outflows of Resources	\$.	155,513	\$ 1,214,597	\$	672,318	\$ 2,258,242
Deferred Inflows of Resources						
Differences between expected and actual experience	\$	24,895	\$ 253,788	\$	119,633	\$ 358,394
Changes of assumptions		-	-		-	-
Changes in proportion and differences between						
employer contributions and proportionate						
share of contributions	-	55,061	57,659	-	-	221,084
Total Deferred Inflows of Resources	\$_	79,956	\$ 311,447	\$_	119,633	\$ 579,478
Pension Expense						
Proportionate share of plan pension expense	\$	159,636	\$ 1,627,393	\$	767,137	\$ 2,298,177
Net amortization of deferred amounts from changes						
in proportion and differences between employer						
contributions and proportionate share of contributions	-	(1,744)	(16,226)	-	24,925	60,199
Total Employer Pension Expense	\$	157,892	\$ 1,611,167	\$.	792,062	\$ 2,358,376
Contributions		400.050	4.050.000		400 504	4 500 450
Statutory required contribution	\$	103,959	\$ 1,059,806	\$	499,581	\$ 1,562,156
Contribution in relation to statutory required contribution	-	(103,959)	(1,061,314)	-	(499,581)	(1,562,156
Contribution deficiency/(excess)	\$_	-	\$ (1,508)	\$_	-	\$ -
Contributions as a percentage of covered payroll		18.59%	22.17%		22.06%	23.05%
Deferred (Inflows)/Outflows Recognized in						
Future Pension Expense						
June 30, 2018	\$	25,345	\$ 259,932	\$	155,103	\$ 450,184
June 30, 2019		25,345	259,932		155,103	450,184
June 30, 2020		26,659	273,327		161,417	469,101
June 30, 2021		(775)	94,752		69,351	260,339
June 30, 2022	-	(1,017)	15,207	-	11,711	48,956
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$	75,557	\$ 903,150	\$	552,685	\$ 1,678,764
Discount Rate Sensitivity						
1% decrease (6.75%)	\$	1,694,359	\$ 17,273,047	\$	8,142,336	\$ 24,355,685
Current discount rate (7.75%)	\$	1,382,393	\$ 14,092,733	\$	6,643,169	\$ 19,901,512
1% increase (8.75%)	\$	1,151,593	\$ 11,739,854	\$	5,534,045	\$ 16,606,198
Covered Payroll	\$	559,167	\$ 4,787,031	\$	2,264,722	\$ 6,776,013
See notes to schedule of employer allocations and schedule of pension amounts by employer.						(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

	_	Town of Groveland		Town of Hamilton	_	Town of Ipswich		Town of Lynnfield
Net Pension Liability								
Beginning net pension liability	\$	8,281,473	\$	9,546,806	\$	39,272,090	\$	29,141,294
Ending net pension liability	\$	8,326,731	\$	10,559,951	\$	39,782,214	\$	30,649,501
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		364,753		462,579		1,742,661		1,342,602
Changes of assumptions		352,895		447,541		1,686,009		1,298,956
Changes in proportion and differences between								
employer contributions and proportionate share of contributions				305,850				
					-	_ _		
Total Deferred Outflows of Resources	\$.	717,648	\$	1,215,970	\$	3,428,670	\$.	2,641,558
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	149,951	\$	190,168	\$	716,414	\$	551,949
Changes of assumptions		_		_		_		_
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	519,403		285,880	_	1,539,825		302,688
Total Deferred Inflows of Resources	\$_	669,354	\$	476,048	\$_	2,256,239	\$.	854,637
Pension Expense								
Proportionate share of plan pension expense	\$	961,550	\$	1,219,437	\$	4,593,950	\$	3,539,328
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(137,279)		(16,516)		(379,933)		(84,930)
	_				_			
Total Employer Pension Expense	٠.	824,271	\$	1,202,921	\$.	4,214,017	\$.	3,454,398
Contributions								
Statutory required contribution	\$	628,220	\$	794,132	\$	2,991,712	\$	2,418,319
Contribution in relation to statutory required contribution	-	(628,220)		(794,132)	-	(3,009,923)		(2,427,649)
Contribution deficiency/(excess)	\$_		\$		\$	(18,211)	\$	(9,330)
Contributions as a percentage of covered payroll		22.61%		22.52%		22.07%		22.49%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	_		_				_	
June 30, 2017		25,890 25,890	\$	190,414 190,414	\$	399,629 399,629	\$	515,670 515,670
June 30, 2019		33,804		200,452		437,443		544,803
June 30, 2020		(30,931)		131,820		(45,632)		181,389
June 30, 2021		(6,359)		26,822		(18,638)		29,389
Total Deferred Inflows/(Outflows) Recognized in	_				-			
Future Pension Expense	\$.	48,294	\$	739,922	\$.	1,172,431	\$.	1,786,921
<u>Discount Rate Sensitivity</u> 1% decrease (6.75%)	\$	10,189,857	\$	12,943,019	\$	48,759,880	\$	37,478,076
Current discount rate (7.75%)	\$	8,326,731	\$	10,559,951	\$	39,782,214	\$	30,649,501
1% increase (8.75%)	\$	6,948,341	\$	8,796,893	\$	33,140,296	\$	25,597,541
Covered Payroll	\$	2,778,252	\$	3,526,675	\$	13,639,196	\$	10,794,272
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

	Ma	own of inchester- -the-Sea	Town of Merrimac	-	Town of Middleton		Town of Nahant
Net Pension Liability Beginning net pension liability	\$ 1:	2,475,940	\$ 8,843,732	\$	17,900,262	\$	8,751,239
Ending net pension liability		3,247,938	\$ 9,499,256	\$	19,507,109	\$	8,217,561
Deferred Outflows of Resources							
Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		580,326	416,115		854,509		359,971
Changes of assumptions		561,460	402,588		826,730		348,268
Changes in proportion and differences between employer contributions and proportionate share of contributions		427,830	104,828		363,838		26,712
Total Deferred Outflows of Resources		1,569,616	\$ 923,531	- \$	2,045,077	\$	734,951
				•		•	•
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	238,574	\$ 171,066	\$	351,292	\$	147,985
Changes of assumptions		-	-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		-	30,516		30,510	_	772,701
Total Deferred Inflows of Resources	\$	238,574	\$ 201,582	\$_	381,802	\$	920,686
Pension Expense Proportionate share of plan pension expense	\$	1,529,839	\$ 1,096,950	\$	2,252,633	\$	948,944
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		133,533	15,423	_	77,093	_	(175,630
Total Employer Pension Expense	\$	1,663,372	\$ 1,112,373	\$_	2,329,726	\$	773,314
Contributions Statutory required contribution	\$	996,275	\$ 752,567	\$	1,466,978	\$	617,979
Contribution in relation to statutory required contribution	_	(996,275)	(752,567)	_	(1,468,481)		(617,979
Contribution deficiency/(excess)	\$	-	\$ 	\$_	(1,503)	\$	
Contributions as a percentage of covered payroll		21.80%	24.54%		20.80%		18.859
<u>Deferred (Inflows)/Outflows Recognized in</u> <u>Future Pension Expense</u>							
June 30, 2017	\$	393,136 393,136	\$ 201,568 201,568	\$	459,349 459,349	\$	(14,60° (14,60°
June 30, 2019.		405,729	210,597		477,891		(6,790
June 30, 2020		123,559	92,198		226,720		(122,488
June 30, 2021		15,482	16,018		39,966	_	(27,255
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$	1,331,042	\$ 721,949	\$_	1,663,275	\$_	(185,735
Discount Rate Sensitivity 1% decrease (6.75%)	\$ 10	6,237,606	\$ 11,622,354	\$	23,909,286	\$	10,072,02
Current discount rate (7.75%)	\$ 1	3,247,938	\$ 9,499,256	\$	19,507,109	\$	8,217,56
1% increase (8.75%)	\$ 1	1,036,102	\$ 7,928,532	\$	16,250,261	\$	6,845,582
Covered Payroll	\$ 4	4,569,174	\$ 3,066,691	\$	7,060,090	\$	3,278,389
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

	_	Town of Newbury	 Town of North Andover		Town of Rockport	_	Town of Rowley
Net Pension Liability							
Beginning net pension liability	\$	7,160,105	\$ 53,845,435	\$	19,295,790	\$	10,053,076
Ending net pension liability	\$	7,526,365	\$ 58,098,928	\$	20,942,698	\$	10,982,349
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		329,693	2,545,025		917,396		481,08
Changes of assumptions		318,975	2,462,289		887,572		465,44
Changes in proportion and differences between employer contributions and proportionate		05.100	700 070		200.074		200.22
share of contributions	-	95,422	789,373	-	380,674	-	369,33
Total Deferred Outflows of Resources	\$_	744,090	\$ 5,796,687	\$.	2,185,642	\$.	1,315,86
Deferred inflows of Resources Differences between expected and actual experience	\$	135,538	\$ 1,046,269	\$	377,145	\$	197,77
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		54,042	 <u>-</u>		-	_	
Total Deferred Inflows of Resources	\$_	189,580	\$ 1,046,269	\$_	377,145	\$_	197,77
Pension Expense Proportionate share of plan pension expense	\$	869,125	\$ 6,709,119	\$	2,418,411	\$	1,268,21
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	16,952	 196,499	_	94,107	_	98,82
Total Employer Pension Expense	\$_	886,077	\$ 6,905,618	\$.	2,512,518	\$	1,367,04
Contributions							
Statutory required contribution	\$	565,999	\$ 4,369,169	\$	1,581,652	\$	825,89
$\label{prop:contribution} \mbox{Contribution in relation to statutory required contribution}$	_	(565,999)	 (4,370,760)		(1,581,652)	-	(825,89
Contribution deficiency/(excess)	\$ _	-	\$ (1,591)	\$_	-	\$_	
Contributions as a percentage of covered payroll		22.20%	21.63%		21.92%		22.71
Deferred (Inflows)/Outflows Recognized in							
Future Pension Expense June 30, 2017	\$	164,437	\$ 1,334,991	\$	504,495	\$	314,03
June 30, 2018		164,437	1,334,991		504,495		314,03
June 30, 2019		171,591	1,390,215		524,401		324,47
June 30, 2020		47,884	590,676		234,894		142,18
June 30, 2021	_	6,161	 99,545	_	40,212	_	23,36
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	554,510	\$ 4,750,418	\$	1,808,497	\$_	1,118,08
Discount Rate Sensitivity							
1% decrease (6.75%)		9,224,843	\$ 71,210,138	\$	25,665,507	\$	13,460,74
Current discount rate (7.75%)		7,526,365	\$ 58,098,928	\$	20,942,698	\$	10,982,349
1% increase (8.75%)	\$	6,269,786	\$ 48,398,907	\$	17,448,639	\$	9,148,769
Covered Payroll	\$	2,549,341	\$ 20,203,810	\$	7,214,969	\$	3,636,114
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continu

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

	_	Town of Salisbury	Town of Topsfield	_	Town of Wenham	_	Town of West Newbury
Net Pension Liability							
Beginning net pension liability	\$	12,894,986	\$ 12,512,102	\$	7,449,402	\$	6,732,61
Ending net pension liability	\$	14,397,953	\$ 13,593,536	\$	7,833,563	\$	7,273,72
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		630,703	595,465		343,149		318,62
Changes of assumptions		610,199	576,107		331,994		308,26
Changes in proportion and differences between employer contributions and proportionate							
share of contributions	-	574,635	298,593	-	94,603	-	107,42
Total Deferred Outflows of Resources	\$.	1,815,537	\$ 1,470,165	\$	769,746	\$_	734,32
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	259,284	\$ 244,798	\$	141,070	\$	130,98
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions	_	436,691			53,991	_	183,62
Total Deferred Inflows of Resources	\$_	695,975	\$ 244,798	\$_	195,061	\$_	314,61
Pension Expense Proportionate share of plan pension expense	\$	1,662,640	\$ 1,569,748	\$	904,601	\$	839,95
in proportion and differences between employer contributions and proportionate share of contributions	_	352	76,536	_	16,708	_	(31,80
Total Employer Pension Expense	\$.	1,662,992	\$ 1,646,284	\$_	921,309	\$_	808,14
Contributions Statutory required contribution	\$	1,168,990	\$ 1,022,265	\$	589,102	\$	571,75
Contribution in relation to statutory required contribution	-	(1,177,505)	(1,024,777)	-	(589,102)	_	(571,75
Contribution deficiency/(excess)	\$_	(8,515)	\$ (2,512)	\$_	-	\$_	
Contributions as a percentage of covered payroll		24.11%	23.26%		21.49%		25.93
Deferred (Inflows)/Outflows Recognized in Future Pension Expense							
June 30, 2017	\$	282,491 282,491	\$ 342,911 342,911	\$	170,213 170,213	\$	110,73 110.73
June 30, 2019		296,176	355,832		177,658		117,64
June 30, 2020		214,331	157,202		50,081		67,04
June 30, 2021	_	44,073	26,511	_	6,520	_	13,55
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	1,119,562	\$ 1,225,367	\$_	574,685	\$_	419,71
Discount Rate Sensitivity 1% decrease (6.75%)	\$	17,604,264	\$ 16,661,195	\$	9,601,367	\$	8,902,87
Current discount rate (7.75%)		14,397,953	\$ 13,593,536	\$	7,833,563	\$	7,273,72
1% increase (8.75%)		12,025,840	\$ 11,324,001	\$	6,525,695	\$	6,068,43
Covered Payroll		4,884,877	\$ 4,405,007	\$	2,740,673	\$	2,205,36
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

		East Essex Veterans District	Byfield Water District	_	Lynnfield Center Water District	_	Lynnfield Water District
Net Pension Liability Beginning net pension liability	\$	253,135	\$ 397,784	\$	1,229,513	\$	795,567
Ending net pension liability		345,598	\$ 268,799	\$	921,596	\$	883,196
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$ -	\$	-	\$,
Net difference between projected and actual investment earnings on pension plan investments		15,139	11,775		40,371		38,688
Changes of assumptions		14,647	11,392		39,058		37,43
Changes in proportion and differences between employer contributions and proportionate							
share of contributions		55,347		-	35,760	-	65,798
Total Deferred Outflows of Resources	\$.	85,133	\$ 23,167	\$	115,189	\$_	141,91
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	6,224	\$ 4,841	\$	16,596	\$	15,90
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		62,122	112,934	_	276,299		
Total Deferred Inflows of Resources	\$.	68,346	\$ 117,775	\$_	292,895	\$_	15,90
Pension Expense Proportionate share of plan pension expense	\$	39,909	\$ 31,040	\$	106,423	\$	101,99
in proportion and differences between employer contributions and proportionate share of contributions		(6,235)	(27,068)	_	(54,610)	_	18,49
Total Employer Pension Expense	\$.	33,674	\$ 3,972	\$_	51,813	\$_	120,48
Contributions Statutory required contribution	\$	25,990	\$ 20,214	\$	69,306	\$	66,41
Contribution in relation to statutory required contribution		(25,990)	(20,214)	_	(69,306)	_	(66,41
Contribution deficiency/(excess)	\$	-	\$ 	\$_		\$_	
Contributions as a percentage of covered payroll		14.22%	22.86%		21.17%		24.28
Deferred (Inflows)/Outflows Recognized in Future Pension Expense							
June 30, 2017		537 537	\$ (21,801) (21,801)	\$	(36,551) (36,551)	\$	35,80 35.80
June 30, 2019		866	(21,545)		(35,675)		36,640
June 30, 2020		11,811	(24,509)		(56,841)		15,42
June 30, 2021	٠.	3,036	(4,952)	_	(12,088)	_	2,348
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	. \$	16,787	\$ (94,608)	\$_	(177,706)	\$_	126,012
<u>Discount Rate Sensitivity</u> 1% decrease (6.75%)	. \$	423,590	\$ 329,459	\$	1,129,573	\$	1,082,50
Current discount rate (7.75%)	. \$	345,598	\$ 268,799	\$	921,596	\$	883,19
1% increase (8.75%)	\$	287,898	\$ 223,921	\$	767,729	\$	735,74
Covered Payroll	\$	182,728	\$ 88,439	\$	327,435	\$	273,58
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continue

Essex Regional Retirement System

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FOR THE YEAR	_	NE MA Mosquito Control District		Hamilton- Wenham Regional School		Manchester- Essex Regional School		Masconomet Regional School
Net Pension Liability Beginning net pension liability	\$	1,988,918	\$	10,306,211	\$	6,545,348	\$	6,617,673
Ending net pension liability		1,958,391	\$	10,943,949	\$	6,643,169	\$	6,719,969
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		85,787		479,400		291,004		294,368
Changes of assumptions		82,999		463,815		281,544		284,799
Changes in proportion and differences between employer contributions and proportionate								
share of contributions		32,847		147,195		15,371		
Total Deferred Outflows of Resources	\$_	201,633	\$	1,090,410	\$	587,919	\$	579,167
<u>Deferred inflows of Resources</u> Differences between expected and actual experience	\$	35,267	\$	197,083	\$	119,633	\$	121,016
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	110,256		-		220,059		267,55
Total Deferred Inflows of Resources	\$_	145,523	\$	197,083	\$	339,692	\$	388,57
Pension Expense Proportionate share of plan pension expense	\$	226,150	\$	1,263,780	\$	767,137	\$	776,00
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionale share of contributions	_	(15,986)		45,863		(47,591)		(67,24
Total Employer Pension Expense	\$_	210,164	\$	1,309,643	\$	719,546	\$	708,76
Contributions		447.070	•	002.000	•	400.504		505.05
Statutory required contribution	\$	147,276	\$	823,009	\$	499,581	\$	505,35
Contribution in relation to statutory required contribution		(147,276)		(823,009)		(499,581)		(505,35
Contribution deficiency/(excess)	\$=	-	\$		\$		\$	
Contributions as a percentage of covered payroll		19.63%		20.72%		22.69%		19.90
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2017	\$	22,390	\$	260,318	\$	82,587	\$	64,443
June 30, 2018		22,390	•	260,318	•	82,587	•	64,443
June 30, 2019		24,252		270,720		88,901		70,830
June 30, 2020		(9,943)		89,182		(3,079)		(6,44
June 30, 2021	_	(2,979)		12,789		(2,769)		(2,679
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	56,110	\$	893,327	\$	248,227	\$	190,59
Discount Bata Sansitivity								
Discount Rate Sensitivity 1% decrease (6.75%)	\$	2,400,342	\$	13,413,674	\$	8,142,336	\$	8,236,46
Current discount rate (7.75%)	\$	1,958,391	\$	10,943,949	\$	6,643,169	\$	6,719,969
1% increase (8.75%)	\$	1,631,424	\$	9,116,780	\$	5,534,045	\$	5,598,02
Covered Payroll	\$	750,146	\$	3,971,144	\$	2,202,134	\$	2,538,98
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

		Pentucket Regional School	 Triton Regional School	_	Essex Housing Authority		Georgetown Housing Authority
Net Pension Liability							
Beginning net pension liability	\$	13,268,746	\$ 12,088,079	\$	119,424	\$	542,432
Ending net pension liability	\$	13,822,227	\$ 13,074,496	\$	122,774	\$	614,397
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		605,483	572,729		5,378		26,91
Changes of assumptions		585,799	554,110		5,203		26,03
Changes in proportion and differences between employer contributions and proportionate							
share of contributions	-	282,894	 560,829	-	50,595		28,46
Total Deferred Outflows of Resources	\$.	1,474,176	\$ 1,687,668	\$_	61,176	\$.	81,41
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	248,916	\$ 235,451	\$	2,211	\$	11,06
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		169,612	-		_		1,79
Total Deferred Inflows of Resources	\$	418,528	\$ 235,451	\$_	2,211	\$.	12,85
Pension Expense Proportionate share of plan pension expense	\$	1,596,156	\$ 1,509,810	\$	14,178	\$	70,94
in proportion and differences between employer contributions and proportionate share of contributions	_	48,021	 161,038	_	15,855		6,21
Total Employer Pension Expense	\$.	1,644,177	\$ 1,670,848	\$_	30,033	\$	77,16
<u>Contributions</u>							
Statutory required contribution		1,070,784	\$ 1,009,079	\$	12,670	\$	47,09
Contribution in relation to statutory required contribution		(1,070,784)	 (1,009,079)	-	(12,670)		(47,09
Contribution deficiency/(excess)	\$	-	\$ 	\$_	-	\$.	
Contributions as a percentage of covered payroll		22.31%	21.53%		36.64%		20.73
<u>Deferred (Inflows)/Outflows Recognized in</u> Future Pension Expense							
June 30, 2017	\$	318,878	\$ 417,243	\$	18,261	\$	18,25
June 30, 2018		318,878	417,243		18,261		18,25
June 30, 2019		332,016	429,670		18,378		18,84
June 30, 2020		77,910	163,786		3,953		11,13
June 30, 2021	-	7,966	 24,275	_	112		2,07
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$	1,055,648	\$ 1,452,217	\$_	58,965	\$.	68,56
Discount Rate Sensitivity							
1% decrease (6.75%)		16,924,549	\$ 16,012,169	\$	148,771	\$	753,04
Current discount rate (7.75%)		13,822,227	\$ 13,074,496	\$	122,774	\$	614,39
1% increase (8.75%)	\$	11,527,046	\$ 10,901,127	\$	103,541	\$	511,81
Covered Payroll	\$	4,798,816	\$ 4,686,440	\$	34,582	\$	227,198
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continu

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

		Groveland Housing Authority		Hamilton Housing Authority		Ipswich Housing Authority	_	Lynnfield Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	361,621	\$	144,649	\$	1,301,945	\$	253,135
Ending net pension liability	\$	345,598	\$	115,199	\$	1,394,152	\$	268,799
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		15,139		5,046		61,071		11,775
Changes of assumptions		14,647		4,882		59,086		11,392
Changes in proportion and differences between employer contributions and proportionate share of contributions		_		_		25,853		44
Total Deferred Outflows of Resources		29,786	· -	9,928	\$	146,010	s -	23,21
	*		•	-,	•	,	* -	
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	6,224	\$	2,075	\$	25,106	\$	4,84
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		28,102	_	28,921	_	74,065	_	97 [.]
Total Deferred Inflows of Resources	\$_	34,326	\$_	30,996	\$_	99,171	\$_	5,81
Pension Expense Proportionate share of plan pension expense	\$	39,909	\$	13,304	\$	160,992	\$	31,04
in proportion and differences between employer contributions and proportionate share of contributions	_	(6,728)	_	(6,992)		(16,990)	_	(29:
Total Employer Pension Expense	\$.	33,181	\$	6,312	\$.	144,002	\$_	30,74
Contributions Statutory required contribution	•	25.990	\$	8.830	\$	130.061	\$	20.21
Contribution in relation to statutory required contribution		(25,990)	•	(8,830)	Ť	(130,061)	*	(20,21
Contribution deficiency/(excess)	-		\$	-	\$	_	· -	(,
Contributions as a percentage of covered payroll	-	32.20%		14.85%		26.11%	-	22.60
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2017	æ	44	\$	(4,735)	¢	10,329	\$	4,97
June 30, 2018		44	Ψ	(4,735)	Ÿ	10,329	Ψ	4.97
June 30, 2019		373		(4,625)		11,655		5,23
June 30, 2020		(4,086)		(5,798)		11,673		1,900
June 30, 2021	_	(915)	_	(1,175)	_	2,853	_	313
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$	(4,540)	\$	(21,068)	\$	46,839	\$_	17,399
Discount Rate Sensitivity					-		_	
1% decrease (6.75%)		423,590	\$	141,197	\$	1,697,452	\$	329,459
Current discount rate (7.75%)		345,598	\$	115,199	\$	1,394,152	\$	268,799
1% increase (8.75%)	\$	287,898	\$	95,966	\$	1,169,763	\$	223,92
Covered Payroll	\$	80,712	\$	59,458	\$	498,093	\$	89,454
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

		Manchester Housing Authority	Middleton Housing Authority	_	Nahant Housing Authority	_	North Andover Housing Authority
Net Pension Liability Beginning net pension liability	\$	289,297	\$ 216,973	\$	222,884	\$	1,674,016
Ending net pension liability	\$	307,199	\$ 191,999	\$	229,804	\$	1,726,009
Deferred Outflows of Resources Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		13,457	8,411		10,067		75,608
Changes of assumptions		13,019	8,137		9,739		73,150
Changes in proportion and differences between employer contributions and proportionate share of contributions		51					
			10 540	-	40.000	_	140.756
Total Deferred Outflows of Resources	*	26,527	\$ 16,548	\$.	19,806	\$_	148,758
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	5,532	\$ 3,458	\$	4,138	\$	31,083
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		818	69,503		35,415		75,68
Total Deferred Inflows of Resources	\$	6,350	\$ 72,961	\$_	39,553	\$_	106,76
Pension Expense Proportionate share of plan pension expense	\$	35,475	\$ 22,171	\$	26,536	\$	199,31
in proportion and differences between employer contributions and proportionate share of contributions		(244)	(19,665)	_	(10,582)	_	(21,55
Total Employer Pension Expense	\$	35,231	\$ 2,506	\$.	15,954	\$_	177,75
Contributions Statutory required contribution	\$	23,102	\$ 14,439	\$	19,468	\$	143,07
Contribution in relation to statutory required contribution		(23,102)	(14,439)		(19,468)	_	(143,07
Contribution deficiency/(excess)	\$	-	\$ 	\$		\$_	
Contributions as a percentage of covered payroll		21.80%	16.08%		43.51%		24.749
Deferred (Inflows)/Outflows Recognized in Future Pension Expense					4		
June 30, 2017		5,776 5,776	\$ (15,903) (15,903)	\$	(6,079) (6,079)	\$	12,264 12,264
June 30, 2019		6,068	(15,720)		(5,860)		13,90
June 30, 2020		2,198	(7,793)		(1,684)		2,892
June 30, 2021	٠.	359	(1,094)	-	(45)	-	669
Future Pension Expense	. \$	20,177	\$ (56,413)	\$.	(19,747)	\$_	41,990
Discount Rate Sensitivity 1% decrease (6.75%)	. \$	376,524	\$ 235,328	\$	264,467	\$	2,107,300
Current discount rate (7.75%)	. \$	307,199	\$ 191,999	\$	229,804	\$	1,726,009
1% increase (8.75%)	\$	255,910	\$ 159,944	\$	204,160	\$	1,443,920
Covered Payroll	\$	105,979	\$ 89,806	\$	44,740	\$	578,238
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

	_	Rockport Housing Authority		Rowley Housing Authority	_	Salisbury Housing Authority	_	Topsfield Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	650,919	\$	144,649	\$	397,784	\$	180,811
Ending net pension liability	\$	806,396	\$	153,599	\$	345,598	\$	307,199
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		35,324		6,728		15,139		13,457
Changes of assumptions		34,176		6,510		14,647		13,019
Changes in proportion and differences between employer contributions and proportionate share of contributions		122,503		204		20,023		82,986
Total Deferred Outflows of Resources	_		\$	13,442	s -	49,809	- -\$	109,462
	Ψ-	132,003	Ψ.	10,442	٠-	43,003	Ψ-	103,402
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	14,522	\$	2,766	\$	6,224	\$	5,532
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		_		1,429		54,829		1,275
Total Deferred Inflows of Resources	_	14,522	\$	4,195	s -	61,053	* -	6,80
Pension Expense	_				-		-	
Proportionate share of plan pension expense	\$	93,121	\$	17,737	\$	39,909	\$	35,479
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	32,102		(397)	_	(6,798)	_	19,360
Total Employer Pension Expense	\$_	125,223	\$	17,340	\$_	33,111	\$_	54,83
<u>Contributions</u>								
Statutory required contribution	\$	60,642	\$	11,773	\$	26,684	\$	23,10
Contribution in relation to statutory required contribution	_	(60,642)	-	(11,773)	_	(26,490)	-	(23,10
Contribution deficiency/(excess)	\$_	-	\$_	-	\$_	194	\$_	
Contributions as a percentage of covered payroll		32.75%		23.42%		20.78%		39.66
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense June 30, 2017	•	47,904	\$	2,613	\$	(26)	•	25,380
June 30, 2018	Ψ	47,904	Ψ	2,613	Ÿ	(26)	Ψ	25,380
June 30, 2019		48,670		2,759		303		25,672
June 30, 2020		28,111		1,076		(9,287)		21,917
June 30, 2021	_	4,892	_	186	_	(2,208)	_	4,300
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$	177,481	\$	9,247	\$_	(11,244)	\$	102,65
,	-	.,	· •	-,	•	, .,,,	-	,,,
Discount Rate Sensitivity 1% decrease (6.75%)	\$	988,376	\$	188,262	\$	423,590	\$	376,524
Current discount rate (7.75%)	\$	806,396	\$	153,599	\$	345,598	\$	307,199
1% increase (8.75%)	\$	671,763	\$	127,955	\$	287,898	\$	255,910
Covered Payroll	\$	185,169	\$	50,278	\$	127,477	\$	58,257
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2016

	_	Wenham Housing Authority	-	West Newbury Housing Authority	_	Totals
Net Pension Liability Beginning net pension liability	\$	269,510	\$	-	\$	363,338,905
Ending net pension liability		318,539	\$	-	\$	385,287,832
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		13,954		-		16,877,546
Changes of assumptions		13,500		-		16,328,873
Changes in proportion and differences between employer contributions and proportionate						
share of contributions	-	27,242	-		-	6,172,280
Total Deferred Outflows of Resources	\$_	54,696	\$.		\$_	39,378,699
Deferred Inflows of Resources Differences between expected and actual experience	\$	5,736	\$	-	\$	6,938,420
Changes of assumptions		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		16,583		20,383		6,172,284
	_		-		_	
Total Deferred Inflows of Resources	\$ =	22,319	\$_	20,383	\$ =	13,110,704
Pension Expense Proportionate share of plan pension expense	\$	36,786	\$	-	\$	44,492,080
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	1,304		(6,370)	_	
Total Employer Pension Expense	\$_	38,090	\$	(6,370)	\$_	44,492,080
Contributions Statutory required contribution	\$	29,660	\$	_	\$	29,420,338
Contribution in relation to statutory required contribution		(29,660)		_		(29,463,314
Contribution deficiency/(excess)		_	· -	_	s =	(42,976
Contributions as a percentage of covered payroll	_	29.54%		N/A	-	22.149
Deferred (Inflows)/Outflows Recognized in Future Pension Expense						
June 30, 2017		7,547	\$	(6,370)	\$	7,550,00
June 30, 2018		7,547 7,850		(6,370) (6,370)		7,550,003 7,916,228
June 30, 2020		7,769		(1,273)		2,804,605
June 30, 2021		1,664				447,156
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$	32,377	\$	(20,383)	\$	26,267,995
Discount Rate Sensitivity	-		•			
1% decrease (6.75%)	\$	387,864	\$	-	\$	471,944,872
Current discount rate (7.75%)	\$	318,539	\$	-	\$	385,287,832
1% increase (8.75%)	\$	267,249	\$	-	\$	321,176,656
Covered Payroll	\$	100,411	\$	-	\$	133,089,526
See notes to schedule of employer allocations and schedule of pension amounts by employer.						(concluded

Essex Regional Retirement System

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NOTE I - Schedule of Employer Allocations

Governmental Accounting Standards Board (GASB) Statement #68 requires employers participating in a costsharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. For the first time, employers participating in cost-sharing plans are required to recognize their proportionate share of the plan's collective pension amounts for all benefits provided through the plan including the net pension liability, deferred outflows of resources, deferred inflows of resources, contributions and pension expense.

GASB Statement #68 requires the allocation of the collective pension amounts be consistent with the manner in which contributions to the plan are determined. As permissible under GASB Statement #68, The Schedule of Employer Allocations is used to demonstrate the allocation of Essex Regional Retirement System's collective pension amounts.

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the system who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year. Accordingly, the proportionate aggregate rates of regular compensation as of the close of business on September 30, 2015 were applied to allocate the System's fiscal year 2016 pension fund appropriation by member unit.

When a member unit accepts an Early Retirement Incentive Program (E.R.I. or ERIP), PERAC completes an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the ERIP. The accrued liability for the members who accept the ERIP as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. The net increase is amortized for each member unit accepting the ERIP, and is separately identified in the system's funding schedule. The 2002 ERIP amortization is straight line ending in fiscal 2019, except Nahant Housing which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012. The 2003 ERI amortization is straight line ending in fiscal 2020, except for Groveland which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012.

The allocation percentage of the total net pension liability is a blended rate of the following items. (1) The proportionate share of active employer's covered payroll is applied to the fiscal year 2016 pension fund appropriation calculated by the actuary. (2) Current Direct E.R.I. appropriation is a direct current charge calculated by PERAC for only the employers that accepted the ERIP. This direct charge backed out of the total pension fund appropriation to calculate the percentage to be allocated (3) Remaining Direct E.R.I. liability is the future E.R.I. liability associated directly to those employers that accepted the ERIP. This direct liability is added back to those employers once the non-ERIP liability has been allocated.

NOTE II - Schedule of Pension Amounts by Employer

The Schedule of Pension Amounts by Employer presents the net pension liability, the various categories of deferred outflows of resources and deferred inflows of resources, contributions and pension expense for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; and changes of assumptions.

Essex Regional Retirement System

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ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2015

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2015

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Financial Section

Essex Regional Retirement System

Financial Section

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2015, and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Essex Regional Retirement System as of December 31, 2015 and the results of its operations and changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis; the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Return be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated August 22, 2016, on our consideration of the Essex Regional Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Essex Regional Retirement System's internal control over financial reporting and compliance.

Restriction on Use

This report is intended solely for the information and use of Essex Regional Retirement System, the Public Employee Retirement Commission and all member units and is not intended to be and should not be used by anyone other than these specified parties.

August 22, 2016

Powers & Sullivan LLC

Management's Discussion and Analysis

As management of the Essex Regional Retirement System, we offer readers of these financial statements this narrative overview and analysis of the financial activities for the year ended December 31, 2015. The System complies with financial reporting requirements issued by the Governmental Accounting Standards Board (GASB).

The GASB is the authoritative standard setting body that provides guidance on how to prepare financial statements in conformity with generally accepted accounting principles (GAAP). Users of these financial statements rely on the GASB to establish consistent reporting standards for all governments in the United States. This consistent application is the only way users can assess the financial condition of a public retirement system compared to others.

Financial Highlights

- The System's assets exceeded its liabilities at the close of the most recent year by \$378 million (net position).
- The System's net position increased by \$6.9 million for the year ended December 31, 2015.
- Total investment income was \$6.2 million; investment expenses were \$2.1 million; and net investment income was \$4.1 million.
- Total contributions were \$48.2 million including \$27.9 from employers, \$12.5 from members and a one-time contribution from Essex Tech of \$4.1 million.
- Retirement benefits, refunds and transfers amounted to \$44.5 million.
- Administrative expenses were \$949,000.
- The Total Pension Liability is \$741.7 million as of December 31, 2015 while the Net Pension Liability is \$363.3 million.
- The Plan fiduciary net position as a percentage of the total pension liability is 51.01%.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the System fiduciary financial statements. These fiduciary financial statements comprise of four components: 1) management's discussion and analysis, 2) fiduciary financial statements, 3) notes to the financial statements and 4) required supplementary information.

Fiduciary Financial Statements

The *statement of net position* presents information on all assets and deferred outflows less deferred inflows and liabilities with the difference reported as *net position*. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position is improving or deteriorating.

The statement of changes in fiduciary net position presents information showing how the system's net position changed during the most recent year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, additions and deductions are reported in this statement for some items that will only result in cash flows in future periods.

Notes to the financial statements

The notes provide additional information that is essential to a full understanding of the data provided in the fiduciary financial statements.

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Essex Regional Retirement System

Management's Discussion and Analysis

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Schedule of Changes in the Net Pension Liability and Related Ratios; the Schedule of Contributions; and the Schedule of Investment Return be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context.

Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of the System's financial position. The System's net position exceeded liabilities by \$378 million at the close of 2015.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year end the system's net position include investments of \$372.5 million, cash of \$995,000 accounts receivable of \$5.5 million, and capital assets of \$205,000.

In 2015 the System's contributions were \$48.2 million and net investment income was \$4.1 million while retirement benefit payments, refunds, transfers and administration expenses were \$45.4 million which resulted in a current increase of \$6.9 million. In 2014 the System's contributions were \$42.2 million and net investment income was \$29.3 million while retirement benefit payments, refunds, transfers and administration expenses were \$45 million which resulted in a prior year increase of 26.5 million.

In 2015 the System recognized a contribution from Essex North Shore Agricultural and Technical School District (Essex Tech) as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Legislation requires Essex Tech to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly in 2015, PERAC approved a funding schedule for Essex Tech to pay ERRS in equal annual payments of \$421,947 from 2017 through 2033. The \$4,156,756 present value of these payments has been recorded as an intergovernmental receivable and contribution in 2015.

The main difference of the increase in net position between years was the combination of the one-time \$4.1 million Essex Tech contribution along with the change in net investment income between years. Net investment income was \$4.1 million and \$39.2 million in 2015 and 2014 respectively. The annual money weighted rate of return was 1.04% and 8.48% in 2015 and 2014 respectively. Fluctuations in the system's annual investment returns are expected.

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The following tables present summarized financial information for the past two years.

Essex Regional Retirement System

Management's Discussion and Analysis

	2015	2014
Statement of Fiduciary Net Position		
Assets: Cash	994,843 372,507,562 5,531,842 205,425	\$ 794,947 369,752,995 1,325,268 219,799
Total assets	379,239,672	372,093,009
Liabilities:		
Accounts payable	900,910	 621,553 745
Total liabilities	900,910	622,298
Net Position Restricted for Pension Benefits\$	378,338,762	\$ 371,470,711
	2015	 2014
Statement of Changes in Fiduciary Net Position		
Additions: Contributions:		
Member contributions\$ Employer contributions Other contributions Essex Agricultural and Technical High School	15,676,204 27,966,800 390,749 4,156,756	\$ 15,594,962 26,140,616 439,509
Total contributions	48,190,509	42,175,087
Net investment income (loss): Total investment income (loss) Less, investment expenses	6,246,628 (2,142,796)	31,533,042 (2,210,181)
Net investment income (loss)	4,103,832	29,322,861
Total additions	52,294,341	 71,497,948
Deductions: Administration Retirement benefits, refunds and transfers	949,046 44,477,244	936,725 44,082,262
Total deductions	45,426,290	45,018,987
Net increase (decrease) in fiduciary net position	6,868,051	26,478,961
Fiduciary net position at beginning of year	371,470,711	344,991,750
Fiduciary net position at end of year\$	378,338,762	\$ 371,470,711

Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the System's Board, 491 Maple St #202, Danvers, MA 01923.

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Management's Discussion and Analysis

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Essex Regional Retirement System

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Financial Section

STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2015

Assets

Cash	\$	994,843
Investments: PRIT funds Money market mutual funds Pooled alternative investments Pooled real estate funds Fixed income investments		350,223,248 1,407,149 14,860,342 6,011,639 5,184
Total investments		372,507,562
Receivables: Members contributions Essex Agricultural and Technical High School Other		1,374,837 4,156,756 249
Total receivables		5,531,842
Capital assets, net of accumulated depreciation		205,425
Total assets		379,239,672
Liabilities		
Accounts payable		900,910
Net Position Restricted for Pensions	\$.	378,338,762

See notes to financial statements.

Essex Regional Retirement System

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STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED DECEMBER 31, 2015

Additions: Contributions: Member contributions	\$ 12,491,708 1,731,912
Retirement benefits - 3(8)c contributions from other systems	1,452,584
Employer contributions	27,893,676
Employer contributions - federal grant reimbursements	73,124
Retirement benefits - state COLA reimbursements	361,853
Retirement benefits - worker's compensation benefits	28,896
Essex Agricultural and Technical High School	4,156,756
Total contributions	48,190,509
Net investment income (loss):	
Total investment income (loss)	6,246,628
Total investment income (1666)	0,240,020
Less, investment expenses	(2,142,796)
Net investment income (loss)	4,103,832
Total additions	52,294,341
Deductions	
Deductions: Administration	949,046
Retirement benefits - transfers to other systems	1,948,912
Retirement benefits - 3(8)c contributions to other systems	2,534,324
Retirement benefits and refunds	39,994,008
Retirement benefits and retunds	
Total deductions	45,426,290
Net increase (decrease) in fiduciary net position	6,868,051
Fiduciary net position at beginning of year	371,470,711
Fiduciary net position at end of year	\$ 378,338,762

See notes to financial statements.

Essex Regional Retirement System

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NOTE 1 - PLAN DESCRIPTION

Essex Regional Retirement System is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of governmental member units deemed eligible by the Essex Regional Retirement Board (the Board), with the exception of school department employees who serve in a teaching capacity. The pensions of such school employees are administered by the Commonwealth of Massachusetts' Teachers Retirement System. Membership in the Plan is mandatory immediately upon the commencement of employment for all non-teaching permanent, full time employees. The Plan is administered by the Essex Regional Retirement System (the System).

Originally instituted in 1937, as part of Essex County government, the Board served as the regional retirement system for Essex County upon the abolition of county government in 1996 and the current system structure was created by special legislation in July, 2010 (Chapter 34B, Section 19A of the Massachusetts General Laws). The System is governed by a five member Board who establish the policies under which the System operates. Board members also approve all of the System's financial transactions, including the approval of retirement benefits to members. Board members are appointed or elected as specified by MGL Ch. 34B, Section 19A for terms ranging from 3 to 5 years.

The day-to-day operations of the System are managed by the Executive Director. The legislative body for the System is an Advisory Council consisting of full-time treasurers or other qualified officials of the member units. The Advisory Council meets twice annually and is responsible for supervising and certifying the procedures involved in the election of members to the retirement board.

As of January 1, 2014, the System had 1,729 retirees and beneficiaries, 2,677 active participants and 1,110 inactive participants with a vested right to retirement benefits or to receive a refund of their contributions.

The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. The Public Employee Retirement Administration Commission (PERAC) is the state agency responsible for oversight of the Commonwealth's public retirement systems.

Massachusetts Contributory Retirement System benefits are, with certain exceptions, uniform from system to system. The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For persons who became members on or after April 2, 2012, average salary is the average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are three classes of membership in the retirement system: group 1, group 2, and group 4. Group 1 consists of general employees which includes clerical and administrative positions. Group 2 consists of positions that have been specified as hazardous. Lastly, group 4 consists of police officers, firefighters, and other hazardous positions.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of service or upon reaching the age of 55 with 10 years of service if hired after 1978 and if classified in groups 1 or 2. A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance upon reaching the age of 60 with 10 years of service if in group 1, 50 years of age with 10 years of service if in group 2, and 55 years of age if hired prior to 1978 or if classified in group 4. Normal retirement for most employees occurs at age 65 (except for certain hazardous duty and public safety positions, whose normal retirement is at age 55).

Essex Regional Retirement System

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A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and the interest they generate constitute the annuity. The differential between the total retirement benefit and the annuity is the pension.

Active members contribute between 5% and 11% of their gross regular compensation. The percentage rate is keyed to the date upon which an employee's membership commences. These deductions are deposited in the Annuity Savings Fund and earn interest at a rate determined by the Public Employee Retirement Administration Commission's (PERAC) actuary. When a member's retirement becomes effective, his/her deductions and related interest are transferred to the Annuity Reserve Fund. Any cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by the Commonwealth of Massachusetts' state law during those years are borne by the Commonwealth and are deposited into the Pension Fund. Cost-of-living adjustments granted after 1997 must be approved by the System and all costs are borne by the System.

The pension portion of any retirement benefit is paid from the Pension Fund of the System. The governmental unit employing the member must annually appropriate and contribute the amount of current-year pension assessment. In past years, retirement systems were paying only the actual retirement benefits that were due each year. Systems had no statutory authorization to put aside money for the future benefits of employees who are currently employed. Large unfunded liabilities resulted from operating under this pay-as-you-go basis. In 1977, legislation authorized local governments to appropriate funds to meet future pension obligations. In 1983, additional legislation was passed requiring the transfer of investment earnings (in excess of the amount credited to member accounts) into the Pension Reserve Fund. These initiatives have significantly reduced the rate of growth of the Retirement System's unfunded liabilities, and in some Systems have actually reduced such liability.

Administrative expenses, which were previously appropriated from the governmental entities whose employees are members of the system, are now paid from investment income.

Members who become permanently and totally disabled for further duty may be eligible to receive a disability retirement allowance. The amount of benefits to be received in such cases is dependent on several factors, including whether or not the disability is work related, the member's age, years of creditable service, level of compensation, veterans' status and group classification.

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions.

Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying financial statements of the Essex Regional Retirement System have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the recognized standard-setting body for establishing governmental accounting and financial reporting principles.

ERRS is a special-purpose government engaged only in fiduciary activities. Accordingly, the financial statements are reported using the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, additions are recorded when earned and deductions are recorded when the liabilities are incurred.

Essex Regional Retirement System

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Cash and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition. Investments are carried at fair value. The fair values were determined by the closing price for those securities traded on national stock exchanges and at the average bid-and-asked quotation for those securities traded in the over-the-counter market. The fair value of private equities are based on management's valuation of estimates and assumptions from information and representations provided by the respective general partners, in the absence of readily ascertainable market values. Real estate assets are reported at fair value utilizing an income approach to valuation along with independent appraisals and estimates by management.

Accounts Receivable

Accounts receivable consist of member deductions, future appropriations from Essex Technical High School for the unfunded actuarial liability for retirees from Essex Agricultural and Technical School, pension fund appropriations, and federal grant reimbursements. These receivables are considered 100% collectible and therefore do not report an allowance for uncollectibles.

Deferred Outflows/Inflows of Resources

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of fiduciary net position that applies to a future period(s) and so will not be recognized as an outflow of resources (deduction) until then. The ERRS did not have any items that qualify for reporting in this category.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (addition) until that time. The ERRS did not have any items that qualify for reporting in this category.

NOTE 3 - PLAN ADMINISTRATION

The System is administered by a five-person Board of Retirement. The first member shall be a chief executive or chief administrative officer of a member town, unit or district belonging to the Essex regional retirement system for a term of 3 years. This member shall be chosen by weighted vote of the chief executive or chief administrative officers of member towns, units or districts belonging to the Essex regional retirement system. The second member shall be a member of the regional retirement board advisory council, and shall be elected by a majority of those present and voting at a public meeting of the council and shall serve for a term of 3 years. The third and fourth members shall be elected by the members in or retired from service of the Essex county retirement system from among persons retired under the system and shall serve for a term of 3 years. The fifth member, who shall not be an employee, retiree or official of the retirement system, or of any of its constituent governmental units, shall be chosen by the other 4 members and shall serve for a term of 5 years.

Essex Regional Retirement System

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First Member	Alan J. Benson	Term Expires:	12/1/2017
Second Member	Kevin A. Merz	Term Expires:	12/1/2018
Third Member	Susan J. Yaskell	Term Expires:	12/1/2016
Fourth Member	H. Joseph Maney	Term Expires:	12/1/2016
Fifth Member	Vincent R. Malgeri	Term Expires:	12/12/2020

Board members are required to meet at least once a month. The Board must keep a record of all of its proceedings. The Board must annually submit to the appropriate authority an estimate of the expenses of administration and cost of operation of the System. The Board must annually file a financial statement of condition for the System with PERAC.

The ERRS Advisory Council consists of the full time treasurers, elected or appointed, for each town, unit or district within the System. The members of the Advisory Council elect the second member of the Board of Retirement as well as a Chair from among its members. The ERRS Advisory Council is required by statute to meet twice per year, typically in the spring and fall. All ERRS Advisory Council meetings are open, public meetings and are subject to the Commonwealth's Open Meeting Law.

The investment of the System's funds is the responsibility of the Board. Disability retirement allowances must be approved by the Retirement Board and are then submitted to the PERAC Actuary for verification prior to payment. Superannuation retirement allowances are not required to obtain PERAC's verification. All expenses incurred by the System must be approved by a majority vote of the Board. Payments shall be made only upon vouchers signed by two persons designated by the Board.

ERRS board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. The MACRS program for ERRS provides \$50,000,000 fiduciary protection for Trustees and employees, as well as a \$1,000,000 fidelity policy for crime coverage.

NOTE 4 - CASH AND INVESTMENTS

Custodial Credit Risk - Deposits

At December 31, 2014, the carrying amount of the System's deposits totaled \$994,843 and the bank balance totaled \$1,393,401 which was covered by Federal Depository Insurance.

<u>Investments</u>

The System's investments are as follows:

		Maturity
<u>-</u>	Fair Value	Over 10 Years
Investment Type		
Debt Securities: Fixed Income\$	5,184	5,184
Other Investments: PRIT Pooled Funds Money Market Mutual Funds Pooled Alternative Investments Pooled Real Estate Funds	350,223,248 1,407,149 14,860,342 6,011,639	
Total Investments\$	372,507,562	

Approximately 94% of the Retirement System's investments are in Pension Reserve Investment Trust (PRIT) Pooled Funds. This investment pool was established by the Treasurer of the Commonwealth of Massachusetts, who serves as Trustee. PRIT is administered by the Pension Reserves Investment Management Board. The fair values of the positions in each investment Pool are the same as the value of each Pool's shares. The Administration does not have the ability to control any of the investment decisions relative to its funds in PRIT.

Approximately 6% of the System's funds are invested in pooled alternative investments and pooled real estate funds. The market values of assets in those funds are based on the quoted values obtained from each pool.

The Administration's annual money-weighted rate of return on pension plan investments was 1.04%. The money-weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested, measured monthly.

NOTE 5 - RECEIVABLES

At December 31, 2014, receivables for the System are as follows:

	Gross Amount	Allowance for Uncollectibles	Net Amount
Receivables:			
Member contributions\$	1,374,837	\$ - \$	1,374,837
Essex Agricultural and Technical High School	4,156,756	-	4,156,756
Other	249	<u> </u>	249
Total\$	5,531,842	\$\$	5,531,842

As more fully described in Note 9, the intergovernmental receivable consists of the present value of a stream of future payments to be received from Essex Technical High School (Essex Tech), as the successor agency of Essex Agricultural and Technical School from fiscal year 2017 through fiscal year 2033 for the unfunded actuarial

Essex Regional Retirement System

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liability for its retirees in the Essex Regional Retirement System.

NOTE 6 - CAPITAL ASSETS

Capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are 33 years for buildings and 5 to 20 years for equipment.

The majority of capital assets owned by the System consist of two condominiums in Danvers, Massachusetts that were purchased for the administrative offices of the System. Both units were purchased in fiscal year 2000 for a total of \$375,250. Total capital asset activity for the year ended December 31, 2015, was as follows:

	Beginning Balance	Increases	Decreases	Ending Balance
Capital assets being depreciated:				
Buildings	\$ 375,250	\$ -	\$ -	\$ 375,250
Equipment	15,580			15,580
Total capital assets being depreciated	390,830			390,830
Less accumulated depreciation for:				
Buildings	(163,241)	(11,258)	-	(174,499)
Equipment	(7,790)	(3,116)		(10,906)
Total accumulated depreciation	(171,031)	(14,374)		(185,405)
Total capital assets being depreciated, net	219,799	(14,374)		205,425
Total governmental activities capital assets, net	\$ 219,799	\$ (14,374)	\$	\$ 205,425

NOTE 7 - MEMBERSHIP

The following table represents the System's membership at January 1, 2014:

Active members	2,677
Inactive members entitled to a return of contributions	1,110
Inactive employees or beneficiaries currently receiving benefits	1,729
•	
Total	5,516

NOTE 8 - ACTUARIAL VALUATION

The total pension liability was determined by an actuarial valuation as of January 1, 2014, using the following actuarial assumptions, applied to all periods included in the measurement that was updated to December 31, 2015:

Valuation date	January 1, 2014
Actuarial cost method	Entry Age Normal Cost Method.
Amortization method	Closed - Approximate level percent of payroll.
Remaining amortization period	20 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 5 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value.
Projected salary increases	Select and Ultimate. 7.50% year one, 6.5% year two, 6.00% year three, 5.50% year four, 5.00% year five, 3.75% ultimate rate.
Cost of living adjustments	3.0% of the first \$13,000 of a members retirement allowance is assumed to be granted every year.
Rates of retirement	Varies based upon age for general employees, police and fire employees.
Rates of disability	Disability is assumed to be 45% ordinary and 55% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.
Mortality Rates:	
Pre-Retirement	The RP-2000 mortality table (sex-distinct) projected with scale BB and Generational Mortality. During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used.
Disabled Retiree	The RP-2000 mortality table for healthy annuitants (sex-distinct) projected with scale BB and Generational Mortality set-forward by 2 years. Death is assumed to be due to the same cause as the disability 40% of the time.
Investment rate of return/Discount rate	8.00% per year

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Components of the net pension liability as of December 31, 2015 were as follows:

Total pension liability\$	741,677,667
The pension plan's fiduciary net position	378,338,762
The net pension liability\$	363,338,905
The pension plan's fiduciary net position as a percentage of the total pension liability	51.01%

Investment policy: The pension plan's policy in regard to the allocation of invested assets is established by PRIT and the Board. Plan assets are managed on a total return basis with a long-term objective of achieving a fully funded status for the benefits provided through the pension plan.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges 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 and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of January 1, 2014 are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return	Long-Term Expected Asset Allocation		
Core Bonds	0.97%	13.00%		
Value-Added Bonds	3.80%	10.00%		
Large Cap Equities	4.61%	14.50%		
Mid/Small Cap Equities	4.85%	3.50%		
International Equities	5.10%	16.00%		
Emerging Market Equities	6.31%	6.00%		
Private Equity	6.55%	10.00%		
Real Estate	3.40%	10.00%		
Timber/Natural Resources	3.64%	4.00%		
Hedge Funds	3.64%	9.00%		
Cash/Portfolio Completion	0.00%	4.00%		

Discount rate: The discount rate used to measure the total pension liability was 8.00%. 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 contributions will be made at rates equal to the actuarially determined contribution rate. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of 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 total pension liability.

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Sensitivity of the net position liability to changes in the discount rate. The following presents the net position liability, calculated using the discount rate of 8.00%, as well as what the net position liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.00%) or 1-percentage-point higher (9.00%) than the current rate.

	Current				
	1.0% Decrease Discount Rate 1.0% I		1.0% Increase		
	(7.00%)	_	(8.00%)	_	(9.00%)
Essex Regional Retirement System's net					
pension liability as of December 31, 2015 \$	446,289,310	\$	363,338,905	\$	299,228,489

Contributions: Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE 9 - ESSEX AGRICULTURAL AND TECHNICAL HIGH SCHOOL

Chapter 463 of the Acts of 2004 created the Essex North Shore Agricultural and Technical School District (Essex Tech). This legislation established Essex Tech as the successor agency to both the Essex Agricultural and Technical High School and the North Shore Vocational Regional School. Prior to July 1, 2014, the non-teacher employees of the Essex Agricultural and Technical High School were members of ERRS. The legislation required that all active and inactive members be transferred to the Salem Contributory Retirement System. Accordingly, as of June 30, 2014, all active and inactive members of ERRS have been transferred to the Salem Contributory Retirement System. Essex Tech, as the successor agency, is required to reimburse ERRS for the actuarially determined liability associated with the retired members from Essex Agricultural and Technical High School who remain with ERRS. Accordingly, PERAC approved a funding schedule that requires Essex Tech to pay ERRS equal annual assessments of \$421,947 from 2017 through 2033. The \$4,156,756 present value of these payments has been recorded as an intergovernmental receivable by ERRS as of December 31, 2015.

NOTE 10 - COMMITMENTS AND CONTINGENCIES

Various legal actions and claims are pending against the System. Litigation is subject to many uncertainties, and the outcome of individual litigated matters is not always predictable. Although the amount of liability, if any, at December 31, 2015 cannot be ascertained, management believes any resulting liability should not materially affect the financial position at December 31, 2015.

NOTE 11 - IMPLEMENTATION OF GASB PRONOUNCEMENTS

The following GASB pronouncements will be implemented in the future:

- The GASB issued <u>Statement #72</u>, Fair Value Measurement and Application, which is required to be implemented in 2016.
- The GASB issued <u>Statement #76</u>, The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments, which is required to be implemented in 2016.

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- The GASB issued <u>Statement #78</u>, Pensions Provided through Certain Multiple-Employer Defined Benefit Pension Plans, which is required to be implemented in 2016.
- The GASB issued <u>Statement #79</u>, Certain External Investment Pools and Pool Participants, which is required to be implemented in 2016 with certain provisions to be implemented in 2016.
- The GASB issued <u>Statement #82</u>, Pension Issues an amendment of GASB Statements #67, #68, and #73, which is required to be implemented in 2017.

Management is currently assessing the impact the implementation of these pronouncements will have on the financial statements.

NOTE 12 - SUBSEQUENT EVENTS

Management has evaluated subsequent events through August 22, 2016, which is the date the financial statements were available to be issued.

Required Supplementary Information

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

	_	2014	_	2015
Total pension liability: Service cost	·	14,800,758 54,243,222	\$	15,392,788 56,453,975
Changes in benefit terms Differences between expected and actual experience Changes in assumptions Benefit payments, including refunds or member contributions		- - - (42,572,513)		- - - (40,901,999)
Net change in total pension liability	_	26,471,467	-	30,944,764
Total pension liability, beginning	_	684,261,436	_	710,732,903
Total pension liability, ending (a)	\$_	710,732,903	\$	741,677,667
Plan fiduciary net position: Member contributions Employer contributions Net investment income (loss) Retirement benefits and refunds Administrative expenses Other contribution		14,524,722 26,140,616 29,322,861 (42,572,513) (936,725)	\$	12,491,708 27,966,800 4,103,832 (40,901,999) (949,046) 4,156,756
Net increase (decrease) in fiduciary net position		26,478,961		6,868,051
Fiduciary net position at beginning of year	_	344,991,750	-	371,470,711
Fiduciary net position at end of year (b)	\$_	371,470,711	\$.	378,338,762
Net pension liability - ending (a) - (b)	\$_	339,262,192	\$.	363,338,905
Plan fiduciary net position as a percentage of the total pension liability		52.27%		51.01%
Covered-employee payroll		123,190,220		128,258,043
Net pension liability as a percentage of covered-employee payroll		275.40%		283.29%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

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Required Supplementary Information

SCHEDULE OF CONTRIBUTIONS

-	2014	2015
Actuarially determined contribution\$ Contributions in relation to the actuarially	26,066,222 \$	32,050,432
determined contribution	(26,066,222)	(32,123,557)
Contribution deficiency (excess)\$	<u> </u>	(73,125)
Covered-employee payroll\$	123,190,220 \$	128,258,043
Contributions as a percentage of covered- employee payroll	21.16%	25.05%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

SCHEDULE OF INVESTMENT RETURN

	2014	2015
Annual money-weighted rate of return, net of investment expense	8.48%	1.04%

Note: this schedule is intended to present information for 10 years. Until a 10-year trend is compiled, information is presented for those years for which information is available.

See notes to required supplementary information.

NOTE A - CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

The Schedule of Changes in the Net Pension Liability and Related Ratios includes the detailed changes in the systems total pension liability, changes in the systems net position, and the ending net pension liability. It also demonstrates the plan's net position as a percentage of the total pension liability and the net pension liability as a percentage of covered payroll.

Since the system performs an actuarial valuation bi-annually, there are no reported amounts for the changes in benefit terms, differences between expected and actual experience and changes in assumptions as of December 31, 2015.

NOTE B - CONTRIBUTIONS

Governmental employers are required to pay an annual appropriation as established by PERAC. The total appropriation includes the amounts to pay the pension portion of each member's retirement allowance, an amount to amortize the actuarially determined unfunded liability to zero in accordance with the system's funding schedule, and additional appropriations in accordance with adopted early retirement incentive programs. The total appropriations are payable on July 1 and January 1. Employers may choose to pay the entire appropriation in July at a discounted rate. Accordingly, actual employer contributions may be less than the "total appropriation". The pension fund appropriations are allocated amongst employers based on covered payroll.

NOTE C - MONEY WEIGHTED RATE OF RETURN

The money weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense. A money weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. Inputs to the money weighted rate of return calculation are determined monthly.

Audit of Specific Elements, Accounts and Items of Financial Statements

Powers & Sullivan, LLC

Certified Public Accountants



100 Quannapowitt Parkway Suite 101 Wakefield, MA 01880 T. 781-914-1700 F. 781-914-1701 www.powersandsullivan.com

Independent Auditor's Report

To the Honorable Essex Retirement Board Essex Regional Retirement System Danvers, Massachusetts

We have audited the accompanying schedule of employer allocations of the Essex Regional Retirement System (ERRS) as of and for the year ended December 31, 2015, and the related notes. We have also audited the total for all entities of the rows titled net pension liability, total deferred outflows of resources, total contributions and total pension expense included in the accompanying schedule of pension amounts by employer of the ERRS Pension Plan as of and for the year ended December 31, 2015, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified row totals included in the schedule of pension amounts by employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and the specified row totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, total contributions and total pension expense for the total of all participating entities for the Essex Regional Retirement System as of and for the year ended December 31, 2015, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the Essex Regional Retirement System as of and for the year ended December 31, 2015, and our report thereon, dated August 22, 2016, expressed an unmodified opinion on those financial statements.

Restriction on Use

This report is intended solely for the information and use of the Essex Regional Retirement System management, the Essex Regional Retirement System employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

August 22, 2016

Powers & Sullivan LLC

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2015

Employer	2016 Pension Fund Appropriation	Current Direct E.R.I. Appropriation	FY 2016 Total Appropriation	Remaining Direct E.R.I. Liability		Allocated Net Pension Liability		Share of Net Pension Liability including E.R.I.	Percent of Total Net Pension Liability including E.R.I.
Retirement Board\$	105,923	\$ - \$	105,923	\$ -	\$	1,374,161	\$	1,374,161	0.378%
Town of Boxford	1,025,780	-	1,025,780	-		13,307,669		13,307,669	3.663%
Town of Essex	473,866	_	473,866	-		6,147,565		6,147,565	1.692%
Town of Georgetown	1,376,998	79,349	1,456,347	228,038		17,864,100		18,092,138	4.979%
Town of Groveland	632,750	7.172	639,922	72,666		8,208,807		8,281,473	2.279%
Town of Hamilton.	735.886	-	735.886	-		9.546.806		9.546.806	2.628%
Town of Ipswich	3.027.166	_	3,027,166	_		39.272.090		39.272.090	10.809%
Town of Lynnfield	2.207.657	145,516	2,353,173	500.875		28.640.419		29,141,294	8.020%
Town of Manchester-by-the-Sea	961.669		961,669	,		12.475.940		12.475.940	3.434%
Town of Merrimac	671,774	45,935	717,709	128,655		8.715.077		8.843.732	2.434%
Town of Middleton	1,379,786	-10,000	1,379,786	120,000		17,900,262		17.900,262	4.927%
Town of Nahant	674,562		674,562			8,751,239		8,751,239	2.409%
Town of Newbury	551,914		551,914			7,160,105		7,160,105	1.971%
Town of North Andover	4,150,507		4,150,507			53,845,435		53,845,435	14.820%
Town of Rockport	1,485,709	7,978	1,493,687	21,367		19,274,423		19,295,790	5.311%
Town of Rowley	774,910	7,570	774,910	21,307		10,053,076		10,053,076	2.767%
Town of Salisbury	972,819	102,456	1,075,275	274,397		12,620,589		12,894,986	3.549%
Town of Topsfield.	964,456	102,430	964,456	214,591		12,512,102		12,512,102	3.444%
Town of Wenham	574,214		574,214			7.449.402			2.050%
Town of West Newbury	514,214	29.416	542,306	78.782		6.653.835		7,449,402 6.732.617	1.853%
				10,102					
East Essex Veterans District	19,512	-	19,512	-		253,135		253,135	0.070%
Byfield Water District	30,662	-	30,662	-		397,784		397,784	0.109%
Lynnfield Center Water District	94,773 61.324	-	94,773 61.324	-		1,229,513 795.567		1,229,513 795,567	0.338% 0.219%
NE Massachusetts Mosquito Control District	153,309	-	153,309	-		1,988,918		1,988,918	0.547%
Hamilton-Wenham Regional School.	794,422	-	794,422	-		10,306,211		10,306,211	2.837%
Manchester-Essex Regional School	504,528	-	504,528	-		6,545,348		6.545.348	1.801%
Masconomet Regional School	510.103		510.103			6,617,673		6,617,673	1.821%
Pentucket Regional School	1,014,630	37,680	1,052,310	105,725		13,163,021		13,268,746	3.652%
Triton Regional School.	925.432	30,710	956,142	82.247		12.005.832		12.088.079	3.327%
Essex Housing Authority	8,362	4,084	12,446	10,938		108,486		119,424	0.033%
Georgetown Housing Authority	41,812		41,812			542,432		542,432	0.149%
Groveland Housing Authority	27,874		27,874	-		361,621		361,621	0.100%
Hamilton Housing Authority	11,150		11,150	-		144,649		144,649	0.040%
Ipswich Housing Authority	94,773	27,045	121,818	72,432		1,229,513		1,301,945	0.358%
Lynnfield Housing Authority	19,512	-	19,512	-		253,135		253,135	0.070%
Manchester Housing Authority	22,299	-	22,299	-		289,297		289,297	0.080%
Middleton Housing Authority	16,725	-	16,725	-		216,973		216,973	0.060%
Nahant Housing Authority	11,150	7,721	18,871	78,235		144,649		222,884	0.061%
North Andover Housing Authority	125,435	13,573	139,008	46,719		1,627,297		1,674,016	0.461%
Rockport Housing Authority	50,174	-	50,174	-		650,919		650,919	0.179%
Rowley Housing Authority	11,150	-	11,150	-		144,649		144,649	0.040% 0.109%
Salisbury Housing Authority	30,662 13,937	-	30,662 13,937	-		397,784 180,811		397,784 180,811	0.109%
Topsfield Housing Authority	19,512	6,114	13,937 25,626	16,375		253,135		269,510	0.050%
West Newbury Housing Authority	19,512	0,114	20,026	 10,3/5		203,135		209,51U -	0.000%
Total\$	27.874.458	\$ 544.749 \$	28.419.207	\$ 1,717,451	¢	361.621.454	¢	363.338.905	100.000%

See notes to other supplementary information.

FOR THE YEAR ENDED DECEMBER 31, 2015

\$ \$	4,103,556	-	1,214,284 1,374,161 - 73,522 - 47,736	\$ \$	12,389,026 13,307,669 - 712,000	\$ \$	5,672,204 6,147,565 - 328,913	\$ \$ \$	16,916,706 18,092,138 - 955,783
\$ \$ —	- - -	\$	1,374,161 - 73,522	\$	13,307,669	\$	6,147,565	\$	18,092,136
\$ - *		\$	- 73,522 -	Ť	-		-	Ť	-
- \$_			-	\$	712,000 -	\$	- 328,913 -	\$	955,783
\$_		-	-		712,000		328,913		955,783
\$_		-	47,736		-		-		
\$_		-	47,736						
\$_		-	41,136				20,649		
	-	•		-		-		-	
\$		٠,	121,258	\$	712,000	\$_	349,562	\$.	955,783
	-	\$	-	\$	-	\$	-	\$	
	-		-		-		-		
	_		_		44,061		-		290,173
-	-	\$_	-	\$	44,061	- \$_	_	\$_	290,173
		-		-		-		-	
\$	35,168	\$	125,875	\$	1,215,144	\$	561,050	\$	1,935,422
	-		11,367		(10,491)		4,916		(69,089
\$	35,168	\$	137,242	\$	1,204,653	\$_	565,966	\$.	1,866,33
\$	4,156,756	\$	103,904	\$	1,006,232	\$	464,836	\$	1,428,59
_	(4,156,756)		(103,904)	_	(1,007,830)	_	(464,836)	_	(1,428,594
\$_	_	\$_	_	\$_	(1,598)	\$_		\$_	
	N/A	_	13.66%	_	19.84%	Ī	20.83%		21.96
•		•	00.200	•	101.110	•	05 500	•	405.00
Ф	- :	Ф		Ф		Ф		Ф	165,334 165,334
	-								165,334
	-		30,790		177,617		91,814		183,429
	-		2,274		(2,098)		984		(13,81
_			121 259		667 030	•	349.562		665,610
" —		· * •	121,200	٠,	007,303	٠.	040,002	Ψ.	000,010
\$	-	\$	1,689,373	\$	16,360,244	\$	7,557,721	\$	22,189,88
\$	-	\$	1,374,161	\$	13,307,669	\$	6,147,565	\$	18,092,138
\$	-	\$	1,130,542	\$	10,948,406	\$	5,057,688	\$	14,925,084
\$	-	\$	760,843	\$	5,080,198	\$	2,231,674	\$	6,505,666
	* * * * * * * * * * * * * * * * * * * *	\$ 35,168 \$ 4,156,756 (4,156,756) \$ - N/A \$ - - - - - - - - - - - - -	\$ 35,168 \$ \$ \$ 35,168 \$ \$ \$ \$ 4,156,756 \$ \$ (4,156,756) \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$ 35,168 \$ 125,875 - 11,367 \$ 35,168 \$ 137,242 \$ 4,156,756 \$ 103,904 (4,156,756) (103,904) \$ - \$ - N/A 13,66% \$ - \$ 29,398 - 29,398 - 29,398 - 29,398 - 29,398 - 29,398 - 29,398 - 30,790 - 2,274 \$ - \$ 121,258 \$ - \$ 1,689,373 \$ - \$ 1,374,161 \$ - \$ 1,130,542	\$ 35,168 \$ 125,875 \$ - 11,367 \$ 35,168 \$ 137,242 \$ \$ 4,156,756 \$ 103,904 \$ (4,156,756) (103,904) \$ - \$ - \$ N/A 13,66% \$ - \$ 29,398 \$ - 29,398 \$ - 29,398 \$ - 29,398 \$ - 29,398 \$ - 29,398 \$ - 121,258 \$ \$ - \$ 11,689,373 \$ \$ - \$ 1,374,161 \$ \$ - \$ 1,130,542 \$	\$ \$ \$ \$ 44.061 \$ 35,168 \$ 125,875 \$ 1,215,144 11,367 (10,491) \$ 35,168 \$ 137,242 \$ 1,204,653 \$ 4,156,756 \$ 103,904 \$ 1,006,232	\$ \$ \$ \$ \$ 44.061 \$	\$ \$ \$ \$ \$ 44.061 \$ \$ \$ 35,168 \$ 125,875 \$ 1,215,144 \$ 561,050 11,367	\$ \$

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

		Town of Groveland		Town of Hamilton		Town of Ipswich		Town of Lynnfield
Net Pension Liability Beginning net pension liability	Φ	7,906,594	\$	9,315,057	\$	36,691,344	\$	26,824,501
Ending net pension liability	\$	8,281,473	\$	9,546,806	\$	39,272,090	\$	29,141,294
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		439,196		510,783		2,101,174		1,532,348
Changes of assumptions		-		-		-		•
Changes in proportion and differences between employer contributions and proportionate share of contributions						-		
Total Deferred Outflows of Resources	\$.	439,196	\$	510,783	\$	2,101,174	\$	1,532,348
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Changes of assumptions		-		-		-		
Changes in proportion and differences between								
employer contributions and proportionate								
share of contributions	-	240,109		375,217	-	234,773		226,886
Total Deferred Inflows of Resources	\$.	240,109	\$	375,217	\$.	234,773	\$.	226,886
Pension Expense Proportionate share of plan pension expense	\$	838,824	\$	866,871	\$	3,598,057	\$	3,268,529
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(57,169)		(89,337)		(55,898)		(54,020
Total Employer Pension Expense	\$	781,655	\$	777,534	\$	3,542,159	\$	3,214,509
Contributions								
Statutory required contribution	\$	639,922	\$	721,863	\$	2,969,479	\$	2,308,330
Contribution in relation to statutory required contribution		(639,922)		(721,863)		(2,987,388)		(2,316,800
Contribution deficiency/(excess)	\$.		\$		\$.	(17,909)	\$.	(8,470
Contributions as a percentage of covered payroll		24.02%		20.80%		21.97%		23.269
Deferred Inflows/(Outflows) Recognized in								
Future Pension Expense	_	50 550		25.010	_	450 450	_	204.04
June 30, 2017		50,552 50,552	\$	35,942 35,942	\$	459,452 459,452	\$	321,816 321,816
June 30, 2019		50,552		35,942		459,452		321,816
June 30, 2020		58,865		45,610		499,224		350,82
June 30, 2021		(11,434)		(17,870)		(11,179)		(10,807
Total Deferred Inflows/(Outflows) Recognized in	-	(,,		(11,010)	-	(,,		(.0,00
Future Pension Expense	\$	199,087	\$	135,566	\$.	1,866,401	\$.	1,305,462
Discount Rate Sensitivity 1% decrease (7%)	¢	10,164,446	\$	11.736.696	s	48.280.501	\$	35,710,965
• •			•	,,	•	,,		
Current discount rate (8%)		8,281,473	\$	9,546,806	\$	39,272,090	\$	29,141,294
1% increase (9%)	\$	6,826,166	\$	7,854,291	\$	32,309,699	\$	24,063,749
Covered Payroll	\$	2,663,576	\$	3,470,734	\$	13,598,463	\$	9,961,467
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

		Town of Manchester- by-the-Sea		Town of Merrimac	 Town of Middleton	_	Town of Nahant
Net Pension Liability							
Beginning net pension liability	\$	10,868,675	\$	8,126,535	\$ 16,640,684	\$	8,067,505
Ending net pension liability	\$	12,475,940	\$	8,843,732	\$ 17,900,262	\$	8,751,239
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$ -	\$	
Net difference between projected and actual investment earnings on pension plan investments		667,500		466,283	957,718		468,21
Changes of assumptions		-		-	-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		558,641					25.05
					-	-	35,059
Total Deferred Outflows of Resources	\$.	1,226,141	. \$	466,283	\$ 957,718	\$_	503,27
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$ -	\$	
Changes of assumptions		-		-	-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		_		40,052	40,045	_	
Total Deferred Inflows of Resources	\$.	-	. \$	40,052	\$ 40,045	\$_	
Pension Expense Proportionate share of plan pension expense	\$	1,144,189	\$	970,041	\$ 1,634,513	\$	798,73
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		133,009		(9,536)	 (9,535)	_	8,34
Total Employer Pension Expense	\$.	1,277,198	\$	960,505	\$ 1,624,978	\$_	807,07
Contributions Statutory required contribution	\$	943,343	\$	704,032	\$ 1,353,492	\$	661,70
Contribution in relation to statutory required contribution		(943,343)		(704,032)	 (1,355,445)		(661,70
Contribution deficiency/(excess)	\$	-	\$		\$ (1,953)	\$_	
Contributions as a percentage of covered payroll		21.48%		22.96%	22.11%	-	21.62
Deferred Inflows/(Outflows) Recognized in							
Future Pension Expense June 30, 2017	\$	296,725	\$	104,828	\$ 225,362	\$	123.186
June 30, 2018		296,725		104,828	225,362		123,186
June 30, 2019		296,725		104,828	225,362		123,186
June 30, 2020		309,360		113,654	243,490		132,049
June 30, 2021		26,606		(1,907)	 (1,903)	_	1,669
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$.	1,226,141	. \$	426,231	\$ 917,673	\$_	503,27
Discount Rate Sensitivity							
1% decrease (7%)		15,337,728	\$	10,842,836	\$ 22,006,306	\$	10,758,638
Current discount rate (8%)		12,475,940	\$	8,843,732	\$ 17,900,262	\$	8,751,239
1% increase (9%)		10,264,131	\$	7,298,671	\$ 14,726,796	\$	7,199,767
Covered Payroll	\$	4,392,184	\$	3,066,196	\$ 6,129,251	\$	3,060,264
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

	_	Town of Newbury	 Town of North Andover		Town of Rockport	_	Town of Rowley
Net Pension Liability							
Beginning net pension liability	\$	6,480,618	\$ 49,719,115	\$	17,788,267	\$	9,078,85
Ending net pension liability	\$	7,160,105	\$ 53,845,435	\$	19,295,790	\$	10,053,076
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		383,087	2,880,892		1,031,239		537,87
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate							
share of contributions	-	125,241	 150,890	-	61,215	-	192,08
Total Deferred Outflows of Resources	\$_	508,328	\$ 3,031,782	\$.	1,092,454	\$_	729,954
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$ -	\$	-	\$	
Changes of assumptions		-	-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		-	 -	_	-	_	
Total Deferred Inflows of Resources	\$_	-	\$ -	\$_	-	\$_	
Pension Expense Proportionate share of plan pension expense	\$	654,552	\$ 4,942,880	\$	1,788,498	\$	919,19
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	29,819	 35,926	_	14,575	_	45,73
Total Employer Pension Expense	\$_	684,371	\$ 4,978,806	\$.	1,803,073	\$_	964,92
Contributions							
Statutory required contribution	\$	541,397	\$ 4,071,413	\$	1,465,223	\$	760,14
Contribution in relation to statutory required contribution	-	(541,397)	 (4,100,517)	-	(1,465,223)	-	(760,14
Contribution deficiency/(excess)	\$ =	-	\$ (29,104)	\$_	-	\$_	
Contributions as a percentage of covered payroll		23.33%	20.94%		21.83%		23.12
<u>Deferred Inflows/(Outflows) Recognized in</u> Future Pension Expense							
June 30, 2017	\$	123,778	\$ 742,516	\$	267,505	\$	177,656
June 30, 2018		123,778	742,516		267,505		177,656
June 30, 2019		123,778	742,516		267,505		177,656
June 30, 2020		131,029	797,047		287,025		187,83
June 30, 2021	_	5,965	 7,187	_	2,914	_	9,149
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	508,328	\$ 3,031,782	\$	1,092,454	\$_	729,95
Discount Rate Sensitivity							
1% decrease (7%)		8,802,552	\$ 66,196,746	\$	23,717,045	\$	12,359,09
Current discount rate (8%)		7,160,105	\$ 53,845,435	\$	19,295,790	\$	10,053,076
1% increase (9%)		5,890,719	\$ 44,299,393	\$	15,878,705	\$	8,270,807
Covered Payroll	\$	2,320,540	\$ 19,581,065	\$	6,712,792	\$	3,287,547
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

		Town of Salisbury		Town of Topsfield		Town of Wenham	_	Town of West Newbury
Net Pension Liability								
Beginning net pension liability	\$	12,408,280	\$	11,477,481	\$	6,750,090	\$	6,466,27
Ending net pension liability	\$	12,894,986	\$	12,512,102	\$	7,449,402	\$	6,732,61
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		675,239		669,435		398,565		356,00
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions				96,005		124,166		
					-		-	
Total Deferred Outflows of Resources	\$.	675,239	\$	765,440	\$_	522,731	\$_	356,00
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		573,157		_		-		241,00
Total Deferred Inflows of Resources	\$_	573,157	\$.		\$_	-	\$_	241,00
Pension Expense Proportionate share of plan pension expense	\$	1,534,211	\$	1,145,020	\$	680,933	\$	713,10
in proportion and differences between employer contributions and proportionate share of contributions	_	(136,466)		22,858	_	29,563	_	(57,38
Total Employer Pension Expense	\$.	1,397,745	\$	1,167,878	\$.	710,496	\$_	655,72
Contributions Contributions								
Statutory required contribution	\$	1,054,784	\$	946,077	\$	563,272	\$	531,97
Contribution in relation to statutory required contribution	-	(1,065,237)		(948,614)	-	(563,272)	-	(531,97
Contribution deficiency/(excess)	\$_	(10,453)	\$.	(2,537)	\$ =	-	\$=	
Contributions as a percentage of covered payroll		22.40%		21.14%		21.84%		22.36
Deferred Inflows/(Outflows) Recognized in								
Future Pension Expense June 30, 2017	\$	29,149	\$	187,049	\$	127,318	\$	29.93
June 30, 2018		29,149	•	187,049	•	127,318	7	29,93
June 30, 2019		29,149		187,049		127,318		29,93
June 30, 2020		41,930		199,720		134,862		36,67
June 30, 2021	_	(27,295)		4,573	_	5,915		(11,47
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	102,082	\$.	765,440	\$_	522,731	\$_	114,99
Discount Rate Sensitivity								
1% decrease (7%)	\$	15,789,954	\$	15,382,185	\$	9,158,180	\$	8,258,90
Current discount rate (8%)	\$	12,894,986	\$	12,512,102	\$	7,449,402	\$	6,732,61
1% increase (9%)	\$	10,657,533	\$	10,293,882	\$	6,128,727	\$	5,552,98
Covered Payroll	\$	4,755,506	\$	4,486,856	\$	2,579,576	\$	2,379,30
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

		East Essex Veterans District		Byfield Water District		Lynnfield Center Water District	_	Lynnfield Water District
Net Pension Liability Beginning net pension liability	\$	336,007	\$	372,602	\$	1,081,212	\$	675,342
Ending net pension liability	\$	253,135	\$	397,784	\$	1,229,513	\$	795,567
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		13,543		21,283		65,783		42,565
Changes of assumptions		-		-		-		-
Changes in proportion and differences between employer contributions and proportionate share of contributions				-		46,935	_	49,884
Total Deferred Outflows of Resources	\$	13,543	\$	21,283	\$	112,718	\$_	92,449
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	_	\$	_	\$	_	\$	
Changes of assumptions		_		-		_		-
Changes in proportion and differences between employer contributions and proportionate share of contributions		81,535		3,148				
	•						_	
Total Deferred Inflows of Resources	۶.	81,535	\$	3,148	\$.		\$ =	
Pension Expense Proportionate share of plan pension expense	\$	22,212	\$	36,255	\$	112,673	\$	73,117
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(19,413)		(750)		11,175	_	11,877
Total Employer Pension Expense	\$.	2,799	\$	35,505	\$	123,848	\$_	84,994
Contributions Statutory required contribution	\$	19.140	\$	30.078	\$	92.967	\$	60,155
Contribution in relation to statutory required contribution		(19,140)		(30,078)		(92,967)		(60,155
Contribution deficiency/(excess)			\$	- (55,515)		(==,==,)	Ψ-	(35,155
Contributions as a percentage of covered payroll		16.11%	Ψ,	22.29%	Ψ,	21.59%	Ψ=	23.509
		10.1170		22.2370		21.55%		23.307
<u>Deferred Inflows/(Outflows) Recognized in</u> Future Pension Expense								
June 30, 2017		(16,091)	\$	4,470	\$	27,310	\$	22,317
June 30, 2018		(16,091)		4,470		27,310		22,317
June 30, 2019		(16,091)		4,470		27,310		22,317
June 30, 2020		(15,835) (3,884)		4,873 (148)		28,555 2,233		23,123 2,375
Total Deferred Inflows/(Outflows) Recognized in	-	(3,004)		(140)		2,233	-	2,310
Future Pension Expense	\$.	(67,992)	\$	18,135	\$	112,718	\$_	92,449
Discount Rate Sensitivity 1% decrease (7%)	\$	311,200	\$	489,029	\$	1,511,544	\$	978,058
Current discount rate (8%)		253,135	\$	397,784	\$	1,229,513	\$	795,567
1% increase (9%)		208,258	\$	327,262	\$	1,011,538	\$	654,524
Covered Payroll			\$	134,914	\$	430,641	\$	255,996
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015 Mosquito Wenham Essex Masconomet Regional District School School School Net Pension Liability Beginning net pension liability.....\$ 1,789,822 \$ 9,315,057 \$ 6,041,480 \$ 6,211,147 Ending net pension liability.....\$ 1.988.918 \$ 10.306.211 6.545.348 \$ 6 617 673 Deferred Outflows of Resources Differences between expected and actual experience...... \$ - \$ Net difference between projected and actual investment earnings on pension plan investments....... 106,413 551,413 Changes in proportion and differences between employer contributions and proportionate 43,112 190,810 20,175 149,525 \$ 370,371 \$ 742,223 \$ Total Deferred Outflows of Resources......\$ <u>Deferred Inflows of Resources</u>
Differences between expected and actual experience.......\$ Changes of assumptions..... Changes in proportion and differences between employer contributions and proportionate Total Deferred Inflows of Resources......\$ Pension Expense 942,271 \$ Proportionate share of plan pension expense......\$ 181,909 \$ 597,332 \$ 604,140 Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions..... 10,265 45,431 4,804 (14,848) 192,174 \$ 602,136 \$ Total Employer Pension Expense.....\$ 987,702 \$ 589,292 <u>Contributions</u> Statutory required contribution.....\$ 150,387 \$ 779,283 \$ 494,914 \$ 500,382 Contribution in relation to statutory required contribution.... (150,387) (779,283) (494,914) (501,483) Contribution deficiency/(excess).....\$ Contributions as a percentage of covered payroll..... 22.63% 21.31% 20.00% 21.35% Deferred Inflows/(Outflows) Recognized in Future Pension Expense
June 30, 2017..... 36.365 \$ 180.675 \$ 90.695 \$ 71.993 June 30, 2018..... 71,993 71,993 36,365 180,675 90,695 June 30, 2019..... 36.365 180.675 90.695 June 30, 2020..... June 30, 2021... 2,051 9,086 962 (2,970)Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense..... 742,223 \$ 149,525 \$ 370,371 \$ 291,704 Discount Rate Sensitivity
1% decrease (7%)...... 2,445,145 \$ 12,670,297 \$ 8,046,750 \$ 8,135,665 Current discount rate (8%).....\$ 1.988.918 \$ 10.306.211 \$ 6.545.348 \$ 6.617.673 1,636,311 \$ 8,479,065 \$ 5.384.950 \$ 5 444 452 Covered Payroll.....\$ 664.693 \$ 3.656.348 \$ 2.474.424 \$ 2.349.100 See notes to schedule of employer allocations and schedule of pension amounts by employer. (continued)

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

		Pentucket Regional School		Triton Regional School	_	Essex Housing Authority		Georgetown Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	11,737,756	\$	10,523,695	\$	16,946	\$	505,675
Ending net pension liability	\$	13,268,746	\$	12,088,079	\$	119,424	\$	542,432
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		704,261		642,348		5,804		29,022
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		371,299		485,221		67,174		
Total Deferred Outflows of Resources			\$	1,127,569	\$	72,978		29,022
	Ψ.	1,070,000	۳	1,127,000	Ψ-	72,570	۰ ۳ ۱	25,02.
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		-		-		-		2,34
Total Deferred Inflows of Resources	\$_	-	\$	-	\$_	_	\$	2,34
Pension Expense Proportionate share of plan pension expense	\$	1,348,931	\$	1,213,993	\$	25,952	\$	49,45
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	88,405		115,529	_	15,994		(55
Total Employer Pension Expense	\$_	1,437,336	\$	1,329,522	\$_	41,946	\$	48,90
Contributions								
Statutory required contribution	\$	1,032,257	\$	937,921	\$	12,446	\$	41,01
Contribution in relation to statutory required contribution	_	(1,032,257)		(937,921)	_	(12,446)		(41,01
Contribution deficiency/(excess)	\$_	_	\$		\$_	_	\$,	
Contributions as a percentage of covered payroll		22.87%		21.63%		21.00%		19.48
Deferred Inflows/(Outflows) Recognized in								
Future Pension Expense June 30, 2017	¢	261,137	\$	273.076	\$	17,417	\$	6,55
June 30, 2018	Ψ	261,137	Ψ	273,076	٠	17,417	Ψ	6,55
June 30, 2019		261,137		273,076		17,417		6,559
June 30, 2020		274,468		285,235		17,527		7,10
June 30, 2021	_	17,681		23,106	_	3,200		(11:
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	1,075,560	\$	1,127,569	\$_	72,978	\$	26,67
Discount Bata Considirativ	•				_			
Discount Rate Sensitivity 1% decrease (7%)	\$	16,288,139	\$	14,842,032	\$	144,309	\$	666,85
Current discount rate (8%)	\$	13,268,746	\$	12,088,079	\$	119,424	\$	542,43
1% increase (9%)	\$	10,935,126	\$	9,959,614	\$	100,191	\$	446,26
Covered Payroll	\$	4,514,109	\$	4,336,928	\$	59,280	\$	210,54
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continue

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

	_	Groveland Housing Authority	_	Hamilton Housing Authority		Ipswich Housing Authority		Lynnfield Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	336,007	\$	136,399	\$	1,259,967	\$	236,203
Ending net pension liability	\$	361,621	\$	144,649	\$	1,301,945	\$	253,135
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	-
Net difference between projected and actual investment earnings on pension plan investments		19,348		7,739		65,783		13,543
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions				-		_	_	
Total Deferred Outflows of Resources	\$_	19,348	\$	7,739	\$	65,783	\$	13,543
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		674		1,875		97,210		1,274
Total Deferred Inflows of Resources	\$	674	\$	1,875	\$	97,210	· -	1,274
Pension Expense Proportionate share of plan pension expense Net amortization of deferred amounts from changes in proportion and differences between employer	\$	32,983	\$	13,390	\$	213,376	\$	23,07
contributions and proportionate share of contributions	_	(161)	_	(447)		(23,145)	_	(303
Total Employer Pension Expense	\$_	32,822	\$_	12,943	\$	190,231	\$_	22,770
Contributions Statutory required contribution	\$	27,343	\$	11,150	\$	121,818	\$	19,140
Contribution in relation to statutory required contribution	_	(27,343)	_	(11,150)		(121,818)		(19,140
Contribution deficiency/(excess)	\$_		\$_		\$	-	\$_	
Contributions as a percentage of covered payroll		21.88%		22.23%		27.85%		20.67
Deferred Inflows/(Outflows) Recognized in Future Pension Expense	_	4 505		4.450	_	(7.040)	_	
June 30, 2017		4,585 4,585	\$	1,452 1,452	\$	(7,010) (7,010)	э	3,019 3,019
June 30, 2019		4,585		1,452		(7,010)		3,019
June 30, 2020		4,951		1,598		(5,765)		3,275
June 30, 2021	_	(32)	-	(90)		(4,632)	-	(63
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	18,674	\$_	5,864	\$	(31,427)	\$_	12,269
Discount Rate Sensitivity								
1% decrease (7%)		444,572	\$	177,829	\$	1,583,976	\$	311,200
Current discount rate (8%)		361,621	\$	144,649	\$	1,301,945	\$	253,135
1% increase (9%)	\$	297,511	\$	119,004	\$	1,083,969	\$	208,258
Covered Payroll	\$	124,981	\$	50,153	\$	437,357	\$	92,607
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

		Manchester Housing Authority		Middleton Housing Authority	-	Nahant Housing Authority	-	North Andover Housing Authority
Net Pension Liability Beginning net pension liability	\$	269,471	\$	269,471	\$	180,867	\$	1,585,558
Ending net pension liability	\$	289,297	\$	216,973	\$	222,884	\$	1,674,016
Deferred Outflows of Resources Differences between expected and actual experience	\$	-	\$	-	\$	-	\$,
Net difference between projected and actual investment earnings on pension plan investments		15,478		11,609		7,739		87,06
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions			-		_		_	
Total Deferred Outflows of Resources	\$	15,478	\$	11,609	\$.	7,739	\$_	87,065
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		1,074		54,981		37,920		62,389
Total Deferred Inflows of Resources	\$	1,074	. \$	54,981	\$_	37,920	\$_	62,38
Pension Expense Proportionate share of plan pension expense	\$	26,380	\$	19,199	\$	99,303	\$	208,38
in proportion and differences between employer contributions and proportionate share of contributions		(256)		(13,091)	-	(9,028)	_	(14,85
Total Employer Pension Expense	\$	26,124	\$	6,108	\$.	90,275	\$_	193,529
Contributions Statutory required contribution	\$	21,874	\$	16,406	\$	18,511	\$	136,35
Contribution in relation to statutory required contribution		(21,874)		(16,406)		(18,511)	_	(136,35
Contribution deficiency/(excess)	\$	-	\$		\$		\$_	
Contributions as a percentage of covered payroll		23.20%		19.78%		41.11%		23.45
Deferred Inflows/(Outflows) Recognized in Future Pension Expense								
June 30, 2017		3,540 3,540	\$	(10,244) (10,244)	\$	(7,129) (7,129)	\$	6,500 6,500
June 30, 2019		3,540		(10,244)		(7,129)		6,500
June 30, 2020		3,833		(10,024)		(6,983)		8,148
June 30, 2021	٠.	(49)	-	(2,616)	-	(1,811)	-	(2,972
Future Pension Expense	. \$	14,404	\$	(43,372)	\$	(30,181)	\$_	24,670
<u>Discount Rate Sensitivity</u> 1% decrease (7%)	\$	355,657	\$	266,743	\$	256,063	\$	2,047,292
Current discount rate (8%)	\$	289,297	\$	216,973	\$	222,884	\$	1,674,016
1% increase (9%)	\$	238,009	\$	178,507	\$	197,239	\$	1,385,519
Covered Payroll	\$	94,290	\$	82,948	\$	45,027	\$	581,40
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

	_	Rockport Housing Authority	_	Rowley Housing Authority	_	Salisbury Housing Authority		Topsfield Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	538,943	\$	136,399	\$	336,007	\$	169,667
Ending net pension liability	\$	650,919	\$	144,649	\$	397,784	\$	180,81
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Net difference between projected and actual investment earnings on pension plan investments		34,826		7,739		21,283		9,67
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		51,759				26,280		
Total Deferred Outflows of Resources			· -	7,739	s -	47,563	· -	9,67
	*-	00,000	Ψ-	7,700	Ψ-	47,000	· * -	3,07
Deferred Inflows of Resources Differences between expected and actual experience	\$	-	\$	-	\$	-	\$	
Changes of assumptions		-		-		-		
Changes in proportion and differences between employer contributions and proportionate share of contributions		_		1,875		_		1,67
Total Deferred Inflows of Resources	_	_	* -	1,875	s -	_	· -	1,67
	_				-		-	
Pension Expense								
Proportionate share of plan pension expense	\$	59,941	\$	13,178	\$	37,158	\$	16,47
Proportionate share of plan pension expense Net amortization of deferred amounts from changes	\$	59,941	\$	13,178	\$	37,158	\$	16,47
Proportionate share of plan pension expense		59,941 12,324	\$	13,178	\$	37,158 6,257	\$	
Proportionate share of plan pension expense Net amortization of deferred amounts from changes in proportion and differences between employer	_	12,324		,	\$ - \$_		\$ 	16,47 (39 16,07
Proportionate share of plan pension expense	_	12,324		(447)	\$ - \$_	6,257	* 	(39
Proportionate share of plan pension expense	- \$_	12,324	\$ _	(447)	\$ - \$_	6,257	\$ - - - - - -	(39 16,07
Proportionate share of plan pension expense	\$ _	12,324 72,265 49,218	\$ _	(447) 12,731 10,938	* *_	6,257 43,415 30,662	 . \$.	(39 16,07 13,67
Proportionate share of plan pension expense	\$ _	12,324 72,265 49,218 (49,218)	\$ _	(447 <u>)</u> 12,731	* *_	6,257 43,415	 . \$.	(39 16,07 13,67
Proportionate share of plan pension expense	\$ - \$ - \$ -	12,324 72,265 49,218 (49,218)	\$ _	(447) 12,731 10,938 (10,938)	* *_	6,257 43,415 30,662 (30,662)	 . \$.	(39 16,07 13,67 (13,67
Proportionate share of plan pension expense	\$ - \$ - \$ -	12,324 72,265 49,218 (49,218)	\$ _	(447) 12,731 10,938	* *_	6,257 43,415 30,662	 . \$.	(38 16,07 13,67 (13,67
Proportionate share of plan pension expense	\$ - \$ - \$ -	12,324 72,265 49,218 (49,218)	\$ _	(447) 12,731 10,938 (10,938)	* *_	6,257 43,415 30,662 (30,662)	 . \$.	(38 16,07 13,67 (13,67
Proportionate share of plan pension expense	\$ - \$ - \$ -	12,324 72,265 49,218 (49,218)	\$ \$	(447) 12,731 10,938 (10,938) - 21,32%	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662)	\$ - \$ - \$ -	13,67 13,67 (13,67
Proportionate share of plan pension expense	\$ - \$ - \$	12,324 72,265 49,218 (49,218) - 27.60%	\$ _	(447) 12,731 10,938 (10,938) - 21,32%	* *_	6,257 43,415 30,662 (30,662) - 22,91%	 . \$.	(35 16,07 13,67 (13,67 22,84
Proportionate share of plan pension expense	- \$ - \$ - \$ -	12.324 72.265 49.218 (49.218) - 27.60%	\$ \$	(447) 12,731 10,938 (10,938) - 21,32%	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) 	\$ - \$ - \$ -	(38 16,07 13,67 (13,67 22.84
Proportionate share of plan pension expense	- \$ - \$ - \$	12,324 72,265 49,218 (49,218) - 27.60%	\$ \$	(447) 12,731 10,938 (10,938) - 21,32%	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) - 22,91%	\$ - \$ - \$ -	(35 16,07 13,67 (13,67 22.84 1,97 1,97
Proportionate share of plan pension expense	\$ - \$ - \$	12,324 72,265 49,218 (49,218) - 27,60% 20,866 20,866	\$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) 	\$ - \$ - \$ -	(35 16,07 13,67 (13,67 22.84 1,97 1,97 1,97 2,18
Proportionate share of plan pension expense	\$ - \$ - \$	12,324 72,265 49,218 (49,218) - 27.60% 20,866 20,866 21,525	\$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452 1,452 1,452	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) - 22,91% 11,477 11,477 11,477 11,870	\$ - \$ - \$ -	(35 16,07 13,67 (13,67 22.84 1,97 1,97 1,97 2,18
Proportionate share of plan pension expense Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions Total Employer Pension Expense Contributions Statutory required contribution Contribution in relation to statutory required contribution Contribution deficiency/(excess) Contributions as a percentage of covered payroll Deferred Inflows/(Outflows) Recognized in Future Pension Expense June 30, 2017 June 30, 2018 June 30, 2019 June 30, 2020	\$ - \$ - \$	12,324 72,265 49,218 (49,218) - 27.60% 20,866 20,866 21,525	\$ \$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452 1,452 1,452	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) - 22,91% 11,477 11,477 11,477 11,870	\$ - \$ - \$ -	(35 16,07 13,67 (13,67 22.84 1,97 1,97 1,97 2,16 (13
Proportionate share of plan pension expense Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions Total Employer Pension Expense Contributions Statutory required contribution Contribution in relation to statutory required contribution Contribution deficiency/(excess) Contributions as a percentage of covered payroll Deferred Inflows/(Outflows) Recognized in Future Pension Expense June 30, 2017 June 30, 2018 June 30, 2021 June 30, 2020 June 30, 2021 Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$ - \$ - \$	12,324 72,265 49,218 (49,218) - 27.60% 20,866 20,866 21,525 2,462	\$ \$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452 1,452 1,598 (90)	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) 	\$ - \$ - \$ - \$	(35 16,07 13,67 (13,67 22.84 1,97 1,97 1,97 2,16 (7)
Proportionate share of plan pension expense	\$ \$ -	12,324 72,265 49,218 (49,218) - 27.60% 20,866 20,866 21,525 2,462	\$ \$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452 1,452 1,598 (90)	- \$ _ \$ _ \$ _	6,257 43,415 30,662 (30,662) 	\$ - \$ - \$ - \$	(35 16,07 13,67 (13,67 22.84 1,97 1,97 1,97 2,16 (7)
Proportionate share of plan pension expense Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions Total Employer Pension Expense Contributions Statutory required contribution Contribution in relation to statutory required contribution Contribution deficiency/(excess) Contributions as a percentage of covered payroll Deferred Inflows/(Outflows) Recognized in Future Pension Expense June 30, 2017 June 30, 2018 June 30, 2020 June 30, 2021 Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense Discount Rate Sensitivity	\$ \$ - - - - - -	12,324 72,265 49,218 (49,218) - 27.60% 20,866 20,866 21,525 2,462 86,585	\$ \$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452 1,452 1,598 (90) 5,864	\$ \$ \$ \$	6,257 43,415 30,662 (30,662) 	\$ - \$ - \$ - \$	(35 16,07 13,67 (13,67 22.84 1,97 1,97 1,97 2,16 (7) 8,00
Proportionate share of plan pension expense Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions Total Employer Pension Expense Contributions Statutory required contribution Contribution in relation to statutory required contribution Contribution deficiency/(excess) Contributions as a percentage of covered payroll Deferred Inflows/(Outflows) Recognized in Future Pension Expense June 30, 2017 June 30, 2018 June 30, 2020 June 30, 2021 Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense June 30, 2021 Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense Discount Rate Sensitivity 1% decrease (7%)	\$ \$ \$ \$ \$	12,324 72,265 49,218 (49,218) 27,60% 20,866 20,866 21,525 2,462 86,585	\$ \$ \$	(447) 12,731 10,938 (10,938) - 21,32% 1,452 1,452 1,452 1,598 (90) 5,864	\$ \$ \$ - \$	6,257 43,415 30,662 (30,662) 	\$ \$ \$	(39

Essex Regional Retirement System

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FOR THE YEAR ENDED DECEMBER 31, 2015

	_	Wenham Housing Authority		West Newbury Housing Authority		Totals
Net Pension Liability	_		_		•	
Beginning net pension liability	\$	261,572	\$	33,268	\$	339,262,192
Ending net pension liability	\$	269,510	\$	-	\$	363,338,905
Deferred Outflows of Resources						
Differences between expected and actual experience	\$	-	\$	-	\$	-
Net difference between projected and actual						
investment earnings on pension plan investments		13,543		-		19,347,829
Changes of assumptions		-		-		-
Changes in proportion and differences between employer contributions and proportionate						0.704.005
share of contributions	-	-	-	-		2,764,335
Total Deferred Outflows of Resources	\$_	13,543	\$_	-	\$	22,112,164
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	-	\$	-	\$	-
Changes of assumptions		-		-		
Changes in proportion and differences between employer contributions and proportionate						
share of contributions	_	21,765	_	26,753		2,764,335
Total Deferred Inflows of Resources	\$_	21,765	\$_	26,753	\$.	2,764,335
Pension Expense			_			
Proportionate share of plan pension expense	\$	45,941	\$	(290)	\$	35,387,549
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(5,182)		(6,370)		
			_			
Total Employer Pension Expense	\$ _	40,759	* -	(6,660)	\$.	35,387,549
Contributions						
Statutory required contribution	\$	25,626	\$	-	\$	32,050,432
Contribution in relation to statutory required contribution	_	(25,626)	_	-		(32,123,557
Contribution deficiency/(excess)	\$=		\$_		\$.	(73,125
Contributions as a percentage of covered payroll		26.55%		N/A		25.05%
Deferred Inflows/(Outflows) Recognized in						
Future Pension Expense June 30, 2017	\$	(1,860)	\$	(6,370)	\$	4,745,402
June 30, 2018	•	(1,860)	7	(6,370)	•	4,745,402
June 30, 2019		(1,860)		(6,370)		4,745,402
June 30, 2020		(1,605)		(6,370)		5,111,623
June 30, 2021	_	(1,037)	-	(1,273)		
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense	\$_	(8,222)	\$_	(26,753)	\$	19,347,829
Discount Rate Sensitivity						
1% decrease (7%)		327,575	\$	-	\$	446,289,310
Current discount rate (8%)	\$	269,510	\$	-	\$	363,338,905
1% increase (9%)	\$	224,632	\$	-	\$	299,228,489
Covered Payroll	\$	96,519	\$	-	\$	128,258,043
See notes to schedule of employer allocations and schedule of pension amounts by employer.						(concluded

Essex Regional Retirement System

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NOTE I - Schedule of Employer Allocations

Governmental Accounting Standards Board (GASB) Statement #68 requires employers participating in a costsharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. For the first time, employers participating in cost-sharing plans are required to recognize their proportionate share of the plan's collective pension amounts for all benefits provided through the plan including the net pension liability, deferred outflows of resources, deferred inflows of resources, contributions and pension expense.

GASB Statement #68 requires the allocation of the collective pension amounts be consistent with the manner in which contributions to the plan are determined. As permissible under GASB Statement #68, The Schedule of Employer Allocations is used to demonstrate the allocation of Essex Regional Retirement System's collective pension amounts.

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the system who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year. Accordingly, the proportionate aggregate rates of regular compensation as of the close of business on September 30, 2014 were applied to allocate the System's fiscal year 2016 pension fund appropriation by member unit.

The beginning net pension liability was updated to reflect the transfer of the active and inactive members of the Essex Agricultural and Technical School (the school) by excluding any members who were employed by the school at the end of the measurement period and were later transferred to the Salem Contributory Retirement System. The beginning net pension liability for the school's retired, disabled, or beneficiary members was allocated directly to the school, and the school's proportionate share of the total actuarial accrued liability was used to determine the school's portion of the fiduciary net position, net 3(8)c liability, administrative expense, and benefits paid during the prior measurement period. During fiscal year 2015, PERAC approved a funding schedule for Essex Tech, as the successor agency, to pay ERRS equal annual payments of \$421,947 from 2017 through 2033, which represents the actuarially determined net pension liability for the school's retired, disabled, or beneficiary members of ERRS. A receivable has been recorded for the present value of these future payments which offsets the future pension liability. Accordingly, there is no net pension liability reported for the Agricultural School Retirees as of December 31, 2015.

When a member unit accepts an Early Retirement Incentive Program (E.R.I. or ERIP), PERAC completes an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the ERIP. The accrued liability for the members who accept the ERIP as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. The net increase is amortized for each member unit accepting the ERIP, and is separately identified in the system's funding schedule. The 2002 ERIP amortization is straight line ending in fiscal 2019, except Nahant Housing which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012. The 2003 ERI amortization is straight line ending in fiscal 2020, except for Groveland which is increasing at 4.5% per year ending in 2028 and Essex Regional Retirement Board which was straight line and ended in fiscal 2012.

The allocation percentage of the total net pension liability is a blended rate of the following items. (1) The proportionate share of active employer's covered payroll is applied to the fiscal year 2016 pension fund appropriation calculated by the actuary. (2) Current Direct E.R.I. appropriation is a direct current charge

Essex Regional Retirement System

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calculated by PERAC for only the employers that accepted the ERIP. This direct charge backed out of the total pension fund appropriation to calculate the percentage to be allocated (3) Remaining Direct E.R.I. liability is the future E.R.I. liability associated directly to those employers that accepted the ERIP. This direct liability is added back to those employers once the non-ERIP liability has been allocated.

NOTE II - Schedule of Pension Amounts by Employer

The Schedule of Pension Amounts by Employer presents the net pension liability, the various categories of deferred outflows of resources and deferred inflows of resources, contributions and pension expense for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; and changes of assumptions. Since the system performs an actuarial valuation bi-annually, there are no reported differences between expected and actual experience or a change of assumptions as of December 31, 2015.

Essex Regional Retirement System

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