

ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2017

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Financial Section



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

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.

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.

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

	2017	2016
Statement of Changes in Fiduciary Net Position		
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
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

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.

STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2017

Assets	
Cash and cash equivalents.....	\$ 2,894,889
Investments:	
Investments in Pension Reserve Investment Trust.....	450,210,889
Individually owned short term investments.....	48
Pooled alternative investments.....	9,833,162
Pooled real estate funds.....	224,655
Fixed income investments.....	<u>2,497</u>
Total investments.....	<u>460,271,251</u>
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.....	<u>175,497</u>
Total Assets.....	<u>467,564,778</u>
Liabilities	
Accounts payable.....	<u>90,489</u>
Net Position Restricted for Pensions.....	\$ <u>467,474,289</u>

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.

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).

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.

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

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.

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.

Investments

The System's investments are as follows:

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

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

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:

Investment Type	12/31/2017	Fair Value Measurements Using		
		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				
<u>Debt Securities</u>				
Fixed Income.....	\$ 2,497	\$ 2,497	\$ -	\$ -
<u>Other Investments</u>				
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 Amount	Allowance for Uncollectibles	Net Amount
<u>Receivables:</u>			
Member contributions.....	\$ 611,413	\$ -	\$ 611,413
Essex Agricultural and Technical High School..	3,611,647	-	3,611,647
Total.....	<u>\$ 4,223,060</u>	<u>\$ -</u>	<u>\$ 4,223,060</u>

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

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.....	<u>1,768</u>
Total.....	<u><u>5,536</u></u>

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/Discount rate.....	7.50%
Inflation rate.....	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, 2017 were as follows:

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

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.

	1.0% Decrease (6.50%)	Current Discount Rate (7.50%)	1.0% Increase (8.50%)
Essex Regional Retirement System's net pension liability as of December 31, 2017.... \$	473,500,765 \$	376,355,338 \$	294,642,498

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.

- 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**

	December 31, 2014	December 31, 2015	December 31, 2016	December 31, 2017
Total pension liability:				
Service cost.....	\$ 10,581,511	\$ 14,484,797	\$ 15,597,356	\$ 16,877,715
Interest.....	54,243,222	56,453,975	57,096,460	60,670,085
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.....	<u>(38,353,266)</u>	<u>(39,994,008)</u>	<u>(42,130,566)</u>	<u>(44,959,784)</u>
Net change in total pension liability.....	26,471,467	30,944,764	46,540,048	55,611,912
Total pension liability - beginning.....	<u>684,261,436</u>	<u>710,732,903</u>	<u>741,677,667</u>	<u>788,217,715</u>
Total pension liability - ending (a).....	<u>\$ 710,732,903</u>	<u>\$ 741,677,667</u>	<u>\$ 788,217,715</u>	<u>\$ 843,829,627</u>
Plan fiduciary net position:				
Employer pension appropriation.....	\$ 26,066,222	\$ 27,893,676	\$ 29,420,144	\$ 31,239,783
Member contributions.....	12,168,827	12,491,708	12,864,434	13,077,844
Other contributions.....	3,940,038	7,805,125	4,208,413	3,575,613
Net investment income (loss).....	29,322,861	4,103,832	26,406,996	66,258,516
Administrative expenses.....	(922,351)	(934,672)	(961,143)	(981,979)
Retirement benefits and refunds.....	(38,353,266)	(39,994,008)	(42,130,565)	(44,959,784)
Other retirement deductions.....	(5,728,996)	(4,483,236)	(5,202,784)	(3,650,033)
Depreciation.....	<u>(14,374)</u>	<u>(14,374)</u>	<u>(14,374)</u>	<u>(15,554)</u>
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.....	<u>344,991,750</u>	<u>371,470,711</u>	<u>378,338,762</u>	<u>402,929,883</u>
Fiduciary net position - end of year (b).....	<u>\$ 371,470,711</u>	<u>\$ 378,338,762</u>	<u>\$ 402,929,883</u>	<u>\$ 467,474,289</u>
Net pension liability - ending (a)-(b).....	<u>\$ 339,262,192</u>	<u>\$ 363,338,905</u>	<u>\$ 385,287,832</u>	<u>\$ 376,355,338</u>
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.

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.....	<u>(26,066,222)</u>		<u>(32,123,557)</u>		<u>(29,463,314)</u>		<u>(31,663,092)</u>
Contribution deficiency (excess).....	\$ <u>-</u>	\$	<u>(73,125)</u>	\$	<u>(42,976)</u>	\$	<u>(48,680)</u>
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.

SCHEDULE OF INVESTMENT RETURNS

<u>Year</u>	<u>Annual money-weighted rate of return, net of investment expense</u>
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 Provisions:

None.

Audit of Specific Elements, Accounts and Items of Financial Statements



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 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, 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.

Powers & Sullivan LLC

September 24, 2018

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	-	1,076,261	-	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	-	31,655	-	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	-	18,993	-	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	-	37,986	-	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.....	-	-	-	-	-	-	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.

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
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.....	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
Deferred Inflows of Resources				
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	207,468	150,147	335,513
June 30, 2021.....	(2,362)	27,140	55,931	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
See notes to schedule of employer allocations and schedule of pension amounts by employer.				

(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

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
Deferred Inflows of Resources				
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
Contributions				
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)	\$ -
Contributions as a percentage of covered payroll.....	25.06%	21.84%	23.43%	24.81%
Deferred (Inflows)/Outflows Recognized in 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)	(330,658)	31,764
June 30, 2022.....	(17,435)	(186,407)	(302,780)	(121,142)
Total Deferred (Inflows)/Outflows Recognized in 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)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Town of Manchester- by-the-Sea	Town of Merrimac	Town of Middleton	Town of Nahant
Net 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
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.....	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
Deferred 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.....	\$ 967,800	\$ 580,772	\$ 1,186,103	\$ 1,152,032
Pension 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
Contributions				
Statutory required contribution.....	\$ 1,047,225	\$ 806,361	\$ 1,628,327	\$ 786,196
Contribution in relation to statutory required contribution.....	(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%
Deferred (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.....	(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
Discount 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
Covered Payroll.....	\$ 4,387,209	\$ 3,079,919	\$ 7,387,882	\$ 3,290,819
See notes to schedule of employer allocations and schedule of pension amounts by employer.				

(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Town of Newbury	Town of North Andover	Town of Rockport	Town of Rowley
Net Pension Liability				
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
Deferred Inflows of Resources				
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	\$ 3,408,481	\$ 1,223,611	\$ 917,757
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
See notes to schedule of employer allocations and schedule of pension amounts by employer.				

(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Town of Salisbury	Town of Topsfield	Town of Wenham	Town of West Newbury
Net Pension Liability				
Beginning net pension liability.....	\$ 14,397,953	\$ 13,593,536	\$ 7,833,563	\$ 7,273,721
Ending net pension liability.....	\$ 14,179,744	\$ 12,768,498	\$ 8,074,199	\$ 6,862,708
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.....	1,164,199	1,048,331	662,915	563,448
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	590,534	222,057	387,279	95,476
Total Deferred Outflows of Resources.....	\$ 1,754,733	\$ 1,270,388	\$ 1,050,194	\$ 658,924
Deferred Inflows of Resources				
Differences between expected and actual experience.....	\$ 200,670	\$ 180,698	\$ 114,265	\$ 97,120
Net difference between projected and actual investment earnings on pension plan investments.....	624,306	562,172	355,491	302,151
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	300,225	401,362	50,077	311,212
Total Deferred Inflows of Resources.....	\$ 1,125,201	\$ 1,144,232	\$ 519,833	\$ 710,483
Pension Expense				
Proportionate share of plan pension expense.....	\$ 1,506,871	\$ 1,356,900	\$ 858,039	\$ 729,294
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	38,531	(23,804)	95,032	(74,641)
Total Employer Pension Expense.....	\$ 1,545,402	\$ 1,333,096	\$ 953,071	\$ 654,653
Contributions				
Statutory required contribution.....	\$ 1,265,738	\$ 1,056,547	\$ 668,111	\$ 594,396
Contribution in relation to statutory required contribution.....	(1,273,581)	(1,058,923)	(668,111)	(594,396)
Contribution deficiency/(excess).....	\$ (7,843)	\$ (2,376)	\$ -	\$ -
Contributions as a percentage of covered payroll.....	23.18%	24.25%	23.96%	23.82%
Deferred (Inflows)/Outflows Recognized in Future Pension Expense				
June 30, 2019.....	\$ 231,487	\$ 149,948	\$ 204,905	\$ 18,746
June 30, 2020.....	245,285	162,373	212,762	25,424
June 30, 2021.....	161,870	(29,333)	79,449	(21,880)
June 30, 2022.....	(9,110)	(156,832)	33,245	(73,849)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense.....	\$ 629,532	\$ 126,156	\$ 530,361	\$ (51,559)
Discount Rate Sensitivity				
1% decrease (6.50%).....	\$ 17,839,842	\$ 16,064,323	\$ 10,158,324	\$ 8,634,121
Current discount rate (7.50%).....	\$ 14,179,744	\$ 12,768,498	\$ 8,074,199	\$ 6,862,708
1% increase (8.50%).....	\$ 11,101,092	\$ 9,996,251	\$ 6,321,160	\$ 5,372,703
Covered Payroll.....	\$ 5,495,084	\$ 4,366,319	\$ 2,788,482	\$ 2,495,211
See notes to schedule of employer allocations and schedule of pension amounts by employer.				(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

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
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.....	30,833	21,583	83,250	64,750
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	71,136	239	111,387	47,304
Total Deferred Outflows of Resources.....	\$ 101,969	\$ 21,822	\$ 194,637	\$ 112,054
Deferred Inflows of Resources				
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.....	\$ 40,811	\$ 856	\$ 74,562	\$ 87,951
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).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	26.53%	24.12%	23.14%	23.89%
Deferred (Inflows)/Outflows Recognized in Future Pension Expense				
June 30, 2019.....	\$ 6,013	\$ (23,504)	\$ (19,393)	\$ 14,875
June 30, 2020.....	6,379	(23,248)	(18,406)	15,642
June 30, 2021.....	16,808	(26,220)	(41,118)	(4,570)
June 30, 2022.....	7,795	(6,658)	2,924	(17,184)
Total Deferred (Inflows)/Outflows Recognized in 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)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	NE MA Mosquito Control District	Hamilton- Wenham Regional School	Manchester- Essex Regional School	Masconomet Regional School
Net Pension Liability				
Beginning net pension liability.....	\$ 1,958,391	\$ 10,943,949	\$ 6,643,169	\$ 6,719,969
Ending net pension liability.....	\$ 1,990,385	\$ 10,477,680	\$ 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.....	-	-	-	-
Changes of assumptions.....	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	-
Total Deferred Outflows of Resources.....	\$ 245,065	\$ 961,579	\$ 537,817	\$ 527,249
Deferred Inflows of Resources				
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 employer contributions and proportionate share of contributions.....	86,209	173,809	226,176	316,082
Total Deferred Inflows of Resources.....	\$ 202,010	\$ 783,399	\$ 599,796	\$ 689,702
Pension Expense				
Proportionate share of plan pension expense.....	\$ 211,516	\$ 1,113,457	\$ 682,442	\$ 682,442
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(1,770)	2,411	(62,220)	(96,181)
Total Employer Pension Expense.....	\$ 209,746	\$ 1,115,868	\$ 620,222	\$ 586,261
Contributions				
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.....	(7,995)	(23,466)	(59,645)	(77,886)
June 30, 2022.....	(1,517)	(98,530)	(58,917)	(73,228)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense.....	\$ 43,055	\$ 178,180	\$ (61,979)	\$ (162,453)
Discount Rate Sensitivity				
1% decrease (6.50%).....	\$ 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)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

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
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.....	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.....	\$ 1,210,168	\$ 1,668,659	\$ 76,675	\$ 71,645
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	\$ 39,440	\$ 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				
June 30, 2019.....	\$ (29,204)	\$ 388,164	\$ 25,162	\$ 14,551
June 30, 2020.....	(17,324)	400,837	25,312	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 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
Covered Payroll.....	\$ 3,812,481	\$ 4,089,929	\$ 30,727	\$ 236,619
See notes to schedule of employer allocations and schedule of pension amounts by employer.				

(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Groveland Housing Authority	Hamilton Housing Authority	Ipswich Housing Authority	Lynnfield Housing Authority
Net 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
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.....	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
Deferred Inflows of Resources				
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
Pension 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
Contributions				
Statutory required contribution.....	\$ 21,753	\$ 15,827	\$ 140,961	\$ 18,645
Contribution in relation to statutory required contribution.....	(21,753)	(15,827)	(140,961)	(18,645)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	26.40%	26.40%	34.02%	20.79%
Deferred (Inflows)/Outflows Recognized in 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
Covered Payroll.....	\$ 82,391	\$ 59,952	\$ 414,348	\$ 89,686
See notes to schedule of employer allocations and schedule of pension amounts by employer.				

(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Manchester Housing Authority	Middleton Housing Authority	Nahant Housing Authority	North Andover Housing Authority
<u>Net Pension Liability</u>				
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.....	\$ -	\$ -	\$ -	\$ -
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.....	\$ 21,622	\$ 15,587	\$ 10,672	\$ 141,805
<u>Deferred Inflows of Resources</u>				
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	89,531
Total Deferred Inflows of Resources.....	\$ 44,532	\$ 60,970	\$ 118,281	\$ 184,922
<u>Pension Expense</u>				
Proportionate share of plan pension expense.....	\$ 27,935	\$ 19,954	\$ 11,736	\$ 174,239
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)	(28,611)
Total Employer Pension Expense.....	\$ 20,521	\$ 279	\$ (20,200)	\$ 145,628
<u>Contributions</u>				
Statutory required contribution.....	\$ 21,753	\$ 15,537	\$ 11,297	\$ 146,927
Contribution in relation to statutory required contribution.....	(21,753)	(15,537)	(11,297)	(146,927)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	16.71%	23.13%	28.28%	27.32%
<u>Deferred (Inflows)/Outflows Recognized in Future Pension Expense</u>				
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)	(9,013)	(24,605)	(15,091)
June 30, 2022.....	(8,547)	(2,313)	(22,245)	(17,023)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense.....	\$ (22,910)	\$ (45,383)	\$ (107,609)	\$ (43,117)
<u>Discount Rate Sensitivity</u>				
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)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Rockport Housing Authority	Rowley Housing Authority	Salisbury Housing Authority	Topsfield Housing Authority
Net 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
Deferred Inflows of Resources				
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
Pension Expense				
Proportionate share of plan pension expense.....	\$ 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
Contributions				
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).....	\$ -	\$ -	\$ -	\$ -
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)	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
Covered Payroll.....	\$ 150,827	\$ 54,311	\$ 99,849	\$ 60,117
See notes to schedule of employer allocations and schedule of pension amounts by employer.				

(continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	Wenham Housing Authority	West Newbury Housing Authority	Totals
<u>Net Pension Liability</u>			
Beginning net pension liability.....	\$ 318,539	\$ -	\$ 385,287,832
Ending net pension liability.....	\$ 343,770	\$ -	\$ 376,355,338
<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.....	28,225	-	30,899,878
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	49,679	-	8,792,974
Total Deferred Outflows of Resources.....	\$ 77,904	\$ -	\$ 39,692,852
<u>Deferred Inflows of Resources</u>			
Differences between expected and actual experience.....	\$ 4,865	\$ -	\$ 5,326,131
Net difference between projected and actual investment earnings on pension plan investments.....	15,136	-	16,570,176
Changes of assumptions.....	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	11,401	14,013	8,792,974
Total Deferred Inflows of Resources.....	\$ 31,402	\$ 14,013	\$ 30,689,281
<u>Pension Expense</u>			
Proportionate share of plan pension expense.....	\$ 36,530	\$ -	\$ 39,995,022
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)	\$ 39,995,022
<u>Contributions</u>			
Statutory required contribution.....	\$ 33,960	\$ -	\$ 31,614,412
Contribution in relation to statutory required contribution.....	(33,960)	-	(31,663,092)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ (48,680)
Contributions as a percentage of covered payroll.....	30.96%	N/A	24.22%
<u>Deferred (Inflows)/Outflows Recognized in Future Pension Expense</u>			
June 30, 2019.....	\$ 13,214	\$ (6,370)	\$ 5,121,397
June 30, 2020.....	13,549	(6,370)	5,487,620
June 30, 2021.....	13,024	(1,273)	375,995
June 30, 2022.....	6,715	-	(1,981,441)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense.....	\$ 46,502	\$ (14,013)	\$ 9,003,571
<u>Discount Rate Sensitivity</u>			
1% decrease (6.50%).....	\$ 432,505	\$ -	\$ 473,500,765
Current discount rate (7.50%).....	\$ 343,770	\$ -	\$ 376,355,338
1% increase (8.50%).....	\$ 269,132	\$ -	\$ 294,642,498
Covered Payroll.....	\$ 109,676	\$ -	\$ 130,743,710
See notes to schedule of employer allocations and schedule of pension amounts by employer.			(concluded)

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. 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.

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 Provisions:

None.