ESSEX REGIONAL RETIREMENT SYSTEM

FINANCIAL STATEMENTS

YEAR ENDED DECEMBER 31, 2020

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Financial Section

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Powers & Sullivan, LLC

Certified Public Accountants



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

Independent Auditor's Report

To the Honorable Essex Regional 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, 2020, 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, 2020, 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 August 30, 2021, 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.

August 30, 2021

Paners & Sellivan LLC

Management's Discussion and Analysis

As management of the Essex Regional Retirement System, we offer readers of these financial statements this narrative overview and analysis of the financial activities for the year ended December 31, 2020. 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 \$588.8 million (net position).
- The System's net position increased by \$64.2 million for the year ended December 31, 2020.
- Total investment income was \$64.1 million; investment expenses were \$2.5 million; and net investment income was \$61.6 million.
- Total contributions were \$59.5 million including \$38.6 million from employers, \$15.2 million from members, and \$5.7 million from other contributions.
- Retirement benefits, refunds and transfers amounted to \$55.9 million.
- Administrative expenses were \$899,000.
- The total pension liability was \$985.7 million as of December 31, 2020, while the net pension liability was \$396.9 million.
- The Plan fiduciary net position as a percentage of the total pension liability was 59.73%.
- On March 10, 2020, the Massachusetts Governor declared a state of emergency in response to the
 coronavirus outbreak. The World Health Organization officially declared the novel Coronavirus (COVID19) a pandemic the following day. The System was closed to the public for a period of time. The System
 remained operational, and employees continued to perform their daily duties with a hybrid approach of
 working remote and on site. Retirements increased as a result of the Pandemic from 91 in 2019, to 111 in
 2020, a 22% increase.

Overview of the Financial Statements

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

Fiduciary Financial Statements

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

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

Notes to the financial statements

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

Required Supplementary Information

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

Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of the System's financial position. The System's assets exceeded liabilities by \$588.8 million at the close of 2020.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year-end, the System's net position includes investments of \$582.1 million, cash of \$3.8 million, accounts receivable of \$4.1 million, and capital assets of \$144,000.

In 2020, the System's contributions totaled \$59.5 million while deductions totaled \$56.8 million, which resulted in a current surplus of \$2.7 million before investment income. For 2019, there was a (\$2.3) million deficiency and in 2019, investment income supported operations.

The main difference of the increase (decrease) in net position between years was the change in net investment income and accounts payable between years. In 2019, the System had net investment income of \$71.1 million, which decreased to \$61.6 in 2020. The annual money weighted rate of return was 12.14% and 16.13% in 2020, and 2019, respectively. Fluctuations in the System's annual investment returns are expected. Accounts payable increased from \$301,000 in 2019 to \$1.4 million in 2020. This was due to an increase in the 3(8)c payments owed to the state.

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 \$3,180,476 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.

	2020		2019
Statement of Fiduciary Net Position			
Assets:	2 022 542	ф	2 600 452
Cash and cash equivalents\$ Investments	3,833,543 582,083,062	\$	3,609,452 517,180,811
Receivables	4,106,424		3,919,155
Capital assets, net of accumulated depreciation	144,461		155,719
capital accord, flot of accumulated acproduction	111,101	į.	100,7 10
Total assets	590,167,490		524,865,137
Liabilities:			
Accounts payable	1,365,043		300,933
Abandoned property	1,282		1,282
Total liabilities	1,366,325		302,215
Net Position Restricted for Pension Benefits \$	588,801,165	\$	524,562,922
	2020		2019
Statement of Changes in Fiduciary Net Position			
Additions:			
Contributions:			
Member contributions\$	15,213,826	\$	14,270,165
Employer contributions	38,624,587		36,090,030
Other contributions	5,632,862		3,590,760
Total contributions	59,471,275		53,950,955
Net investment income:			
Total investment income	64,090,663		73,618,293
Less, investment expenses	(2,529,780)		(2,499,157)
	(=,0=0,100)		(=, :00, :0:)
Net investment income	61,560,883		71,119,136
Total additions	121,032,158		125,070,091
Deductions:			
Administration	899,416		990,011
Retirement benefits, refunds and transfers	55,894,499		55,254,260
Total deductions	56,793,915		56,244,271
Net increase (decrease) in fiduciary net position	64,238,243		68,825,820
Fiduciary net position at beginning of year	524,562,922		455,737,102
Fiduciary net position at end of year\$	588,801,165	\$	524,562,922

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, 2020

Assets CURRENT:		
Cash and cash equivalentsInvestments:	\$	3,833,543
Investments in Pension Reserve Investment Trust		576,636,301
Pooled alternative investments		5,409,816
Pooled real estate funds	-	36,945
Total investments	_	582,083,062
Receivables, net of allowance for uncollectibles:		
Member contributions		803,490
Employer pension appropriation		122,458
Essex Agricultural and Technical High School	_	167,561
Total receivables	_	1,093,509
Total current assets	-	587,010,114
NONCURRENT:		
Receivables, net of allowance for uncollectibles:		
Essex Agricultural and Technical High School		3,012,915
Capital assets, net of accumulated depreciation	-	144,461
Total noncurrent assets	-	3,157,376
Total Assets	-	590,167,490
Liabilities		
Accounts payable		1,365,043
Other liabilities		1,282
Total Liabilities	-	1,366,325
Net Position Restricted for Pensions	\$_	588,801,165

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See notes to financial statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

YEAR ENDED DECEMBER 31, 2020

Additions: Contributions:		
Employer pension appropriation	\$	38,624,587
Member contributions	Ψ	15,213,826
Transfers from other systems		3,187,395
3(8)(c) contributions from other systems		1,940,112
Workers' compensation settlements		9,600
Federal grant reimbursements		21,910
State COLA reimbursements		216,870
Members' makeup payments and redeposits		199,302
Interest not refunded		21,386
Retirement benefits - reimbursement of 91A overearnings		36,287
3		
Total contributions		59,471,275
Net investment income:		
Investment income		64,090,663
Less: investment expense		(2,529,780)
Net investment income		61,560,883
Total additions		121,032,158
Deductions:		
Administration		899,416
Retirement benefits and refunds		50,998,900
Transfers to other systems		1,634,341
3(8)(c) transfer to other systems		3,250,000
Depreciation		11,258
Total deductions		56,793,915
Net increase (decrease) in fiduciary net position		64,238,243
Fiduciary net position at beginning of year		524,562,922
Fiduciary net position at end of year	\$	588,801,165

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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). As of December 31, 2020, the System had 46 participating employers.

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

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

As of December 31, 2020, the System had 1,510 retirees and beneficiaries, 2,420 active participants and 1,146 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.

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

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

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

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

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

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

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

Cash and Investments

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

Fair Value Measurements

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

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

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

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

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

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

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

Accounts Receivable

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

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	Andrew Sheehan	Term Expires:	12/1/2023
Second Member	Kevin A. Merz	Term Expires:	12/1/2021
Third Member	Susan J. Yaskell	Term Expires:	12/1/2022
Fourth Member	H. Joseph Maney	Term Expires:	12/1/2022
Fifth Member	Vincent R. Malgeri	Term Expires:	12/12/2025

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, 2020, the carrying amount of the System's deposits totaled \$3,833,543; this is comprised of \$1,833,260 of cash deposited with banks along with \$2,000,283 in the PRIT Cash Fund. Of the \$1,833,260, the bank balance totaled \$2,374,230, which was covered by Federal Deposit Insurance. The \$2,000,283 of the PRIT Cash Fund is uninsured and uncollateralized.

<u>Investments</u>

The System's investments are as follows:

Investment Type	Fair Value
Other Investments:	
	E76 626 201
PRIT Pooled Funds\$	576,636,301
Pooled Alternative Investments	5,409,816
Pooled Real Estate Funds	36,945
_	
Total Investments\$_	582,083,062

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

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

The Administration's annual money-weighted rate of return on pension plan investments was 12.14%. 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, 2020:

			Fair Value Measurements			is Using		
Investment Type	12/31/20	-	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)		
Investments by fair value level								
Pooled Alternative Investments\$ Pooled Real Estate Funds	5,409,816 36,945	\$	-	\$ - 	\$	5,409,816 36,945		
Total Investments by fair value level	5,446,761	\$		\$	\$	5,446,761		
Investments measured at the net asset value (NAV)								
PRIT Investments	576,636,301	_						
Total Investments\$	582,083,062	=						

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, 2020, receivables for the System are as follows:

	Gross Amount	Allowance for Uncollectibles	Net Amount
Receivables:			
Member contributions\$	803,490	\$ - :	\$ 803,490
Essex Agricultural and Technical High School	3,180,476	-	3,180,476
Employer pension appropriation	122,458		122,458
Total\$_	4,106,424	\$	\$ 4,106,424

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

NOTE 6 - CAPITAL ASSETS

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

The capital assets owned by the System consist of two condominiums in Danvers, Massachusetts that were purchased for the administrative offices of the System. Both units were purchased in fiscal year 2000 for a total of \$375,250. Total capital asset activity for the year ended December 31, 2020, was as follows:

	Beginning Balance	Increases	Decreases		Ending Balance
Capital assets being depreciated: Buildings\$	375,250	S	\$	\$_	375,250
Less accumulated depreciation for: Buildings	(219,531)	(11,258)		. <u>-</u>	(230,789)
Total governmental activities capital assets, net \$	155,719	(11,258)	\$	\$	144,461

NOTE 7 - MEMBERSHIP

The following table represents the System's membership at December 31, 2020:

Active members	2,420
Inactive members entitled to a return of contributions	1,146
Retired, Beneficiary, and Survivor	1,510
Total	5,076

NOTE 8 – ACTUARIAL VALUATION

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

Valuation date	January 1, 2020
Salary increases	Based on years of service, ranging from 7.50% at 0 years of service decreasing to 3.75% after 5 years of service.
Net investment return/Discount rate	7.30%
Wage Inflation rate	2.75%
Cost of living adjustments	2% of first \$14,000 for fiscal 2021 and 3% of first \$14,000 thereafter.
Mortality Rates:	
Pre-Retirement	RP-2014 Employee Mortality Table projected generationally with Scale MP-2019.
Healthy Retiree	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale MP-2019.
Disabled Retiree	RP-2014 Healthy Annuitant Mortality Table set forward two years projected generationally with Scale MP-2019.

Components of the net pension liability as of December 31, 2020, were as follows:

Total pension liability\$	985,721,054
The pension plan's fiduciary net position	(588,801,165)
The net pension liability\$	396,919,889
The pension plan's fiduciary net position as a percentage of the total pension liability	59.73%

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

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

	Long-Term Expected	Long-Term Expected
Asset Class	Real Rate of Return	Asset Allocation
Domestic equity	6.40%	23.10%
International developed markets equity	6.60%	14.40%
International emerging markets equity	8.40%	5.80%
Core fixed income	2.70%	15.80%
Value added fixed income	6.20%	7.40%
Private Equity	10.20%	12.40%
Real estate	6.00%	8.30%
Timberland	6.60%	3.30%
Hedge funds, PCS	5.20%	8.80%
Liquidating portfolios	0.00%	0.10%
Overlay	0.00%	0.60%
Total Fund Expected Return/Total		100.00%

Discount Rate. The discount rates used to measure the total pension liability was 7.30% as of December 31, 2020, and as of December 31, 2019. 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, 2020, and December 31, 2019.

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

		Current		
	1.0% Decrease	Discount Rate		1.0% Increase
	(6.30%)	(7.30%)		(8.30%)
Essex Regional Retirement System's net			_	_
pension liability as of December 31, 2020\$	508.239.564	\$ 396.919.889	\$	303.354.686

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 \$3,180,476 present value of these payments has been recorded as a receivable by ERRS as of December 31, 2020.

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, 2020 cannot be ascertained, management believes any resulting liability should not materially affect the financial position at December 31, 2020.

NOTE 11 - COVID-19

On March 10, 2020, the Massachusetts Governor declared a state of emergency in response to the coronavirus outbreak. The World Health Organization officially declared the novel Coronavirus (COVID-19) a pandemic the following day. In an attempt to slow the spread of COVID-19, governments issued various stay at home orders that caused global economic shutdowns and substantial financial market impact. Starting in March 2020, the Governor continued to issue orders allowing governments to operate and carry out essential functions safely. These included modifying the state's Open Meeting Law, issuing a stay-at-home order, and introducing a phased approach to reopening State businesses.

ERRS was closed from the public for a period of time. ERRS remained operational and employees continued to perform their daily duties with a hybrid approach of working remote and on site. The pandemic has caused an increase in retirements. In 2020, the system has experienced an influx of inquiries on retirement options, and retirements increased as a result of the Pandemic. In 2019, there were 91 retirements, and in 2020, there were 111 retirements, a 22% increase. Retirement interviews were performed either in person or remote.

The full extent of the financial impact cannot be determined as of the date of the financial statements.

NOTE 12 - IMPLEMENTATION OF NEW GASB PRONOUNCEMENTS

There were no GASB pronouncements required to be implemented in 2020 that impacted the System's financial statements.

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

NOTE 13 – SUBSEQUENT EVENTS

Management has evaluated subsequent events through August 30, 2021, 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	(38,353,266)		(39,994,008)	-	(42,130,566)	(44,959,784)
Net change in total pension liability	26,471,467		30,944,764		46,540,048	55,611,912
Total pension liability - beginning	684,261,436		710,732,903	-	741,677,667	788,217,715
Total pension liability - ending (a)\$	710,732,903	\$	741,677,667	\$	788,217,715 \$	843,829,627
Plan fiduciary net position:						
Employer pension appropriation\$	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	(14,374)		(14,374)	-	(14,374)	(15,554)
Net increase (decrease) in fiduciary net position	26,478,961		6,868,051		24,591,121	64,544,406
Fiduciary net position - beginning of year	344,991,750		371,470,711	-	378,338,762	402,929,883
Fiduciary net position - end of year (b)\$	371,470,711	\$	378,338,762	\$	402,929,883 \$	467,474,289
Net pension liability - ending (a)-(b)\$	339,262,192	\$	363,338,905	\$	385,287,832 \$	376,355,338
Plan fiduciary net position as a percentage of the total pension liability	52.27%		51.01%		51.12%	55.40%
Covered payroll\$	123,190,220	\$	128,258,043	\$	133,089,526 \$	130,743,710
Net pension liability as a percentage of						
covered payroll	275.40%		283.29%		289.50%	287.86%

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

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

See notes to required supplementary information.

(Continued)

	December 31,	December 31,		December 31,
_	2018	2019		2020
\$	17,892,023 \$	18,590,358	\$	22,061,390
	62,939,560	65,501,353		68,779,712
	-	(2,382,236)		-
	-	72,274		-
	-	35,268,329		-
_	(46,458,490)	(49,373,946)	_	(50,998,900)
	34,373,093	67,676,132		39,842,202
-	843,829,627	878,202,720	-	945,878,852
\$_	878,202,720 \$	945,878,852	\$	985,721,054
_			-	
\$	33,969,088 \$	36,090,030	\$	38,624,587
	13,636,998	14,270,165		15,213,826
	4,291,824	3,590,760		5,632,862
	(10,723,393)	71,119,136		61,560,883
	(955,252)	(990,011)		(899,416)
	(46,458,490)	(49,373,946)		(50,998,900)
	(5,489,442)	(5,869,056)		(4,884,341)
_	(8,520)	(11,258)		(11,258)
	(11,737,187)	68,825,820		64,238,243
_	467,474,289	455,737,102	_	524,562,922
\$	455,737,102 \$	524,562,922	\$	588,801,165
Ф	422,465,618 \$	421 315 030	¢	396,919,889
\$_	422,403,010 φ	421,315,930	Ψ	390,919,009
	51.89%	55.46%		59.73%
\$	136,111,184 \$	144,695,269	\$	150,467,625
	310.38%	291.17%		263.79%

(Concluded)

SCHEDULE OF CONTRIBUTIONS

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

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

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

See notes to required supplementary information.

(Continued)

-	December 31, 2018	December 31, 2019	•	December 31, 2020
\$	33,969,088	\$ 36,150,577	\$	38,624,587
•	(33,993,920)	(36,174,754)	,	(38,646,497)
\$	(24,832)	\$ (24,177)	\$	(21,910)
\$	136,111,184	\$ 144,695,269	\$	150,467,625
	24.98%	25.00%		25.68%

(Concluded)

SCHEDULE OF INVESTMENT RETURNS

Annual money-weighted rate of return,

Year	rate of return, _net of investment expense
December 31, 2020	12.14%
December 31, 2019	16.13%
December 31, 2018	-2.43%
December 31, 2017	17.11%
December 31, 2016	7.80%
December 31, 2015	1.04%
December 31, 2014	8.48%

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

See notes to required supplementary information.

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

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

NOTE B - CONTRIBUTIONS

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

NOTE C - MONEY-WEIGHTED RATE OF RETURN

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

NOTE D - CHANGES IN ACTUARIAL ASSUMPTIONS AND PLAN PROVISIONS

Actuarial Assumptions.	
None.	
Plan Provisions.	
None.	

Audit of Specific Elements, Accounts and Items of Financial Statements

Powers & Sullivan, LLC

Certified Public Accountants



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

Independent Auditor's Report

To the Honorable Essex Regional 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, 2020, 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, 2020, 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, 2020, 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, 2020, and our report thereon, dated August 30, 2021, expressed an unmodified opinion on those financial statements.

Restriction on Use

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

August 30, 2021

Powers & Sullivan LLC

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2020

Employer	2021 Pension Fund Appropriation	Current Direct E.R.I./CRAB Appropriation	FY2021 Total Appropriation	Remaining Direct E.R.I./CRAB 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	\$ 127,264 \$	-	\$ 127,264	\$ -	\$ 1,308,329	\$ 1,308,329	0.330%
Town of Boxford	1,423,044	-	1,423,044	-	14,629,494	14,629,494	3.686%
Town of Essex	644,034	-	644,034	-	6,620,942	6,620,942	1.668%
Town of Georgetown	1,982,235	-	1,982,235	-	20,378,214	20,378,214	5.134%
Town of Groveland	871,566	8,679	880,245	58,238	8,960,067	9,018,305	2.272%
Town of Hamilton	1,052,821	-	1,052,821	-	10,823,445	10,823,445	2.727%
Town of Ipswich	4,045,456	-	4,045,456	-	41,588,999	41,588,999	10.478%
Town of Lynnfield	2,988,778	-	2,988,778	-	30,725,902	30,725,902	7.741%
Town of Manchester-by-the-Sea	1,330,489		1,330,489	-	13,677,990	13,677,990	3.446%
Town of Merrimac	994,974	-	994,974	-	10,228,754	10,228,754	2.577%
Town of Middleton	2,032,369		2,032,369		20,893,613	20,893,613	5.264%
Town of Nahant	886,992		886,992		9,118,653	9,118,653	2.297%
Town of Newbury	813,719	_	813,719	_	8,365,376	8,365,376	2.108%
Town of North Andover	5,861,862	_	5,861,862	_	60,262,421	60,262,421	15.183%
Town of Rockport	1,889,679	_	1,889,679	_	19,426,699	19,426,699	4.894%
Town of Rowley	1,060,534	_	1,060,534	_	10,902,738	10,902,738	2.747%
Town of Salisbury	1,716,137	_	1,716,137	_	17,642,614	17,642,614	4.445%
Town of Topsfield	1,365,197	_	1,365,197	_	14,034,803	14,034,803	3.536%
Town of Wenham	821,432	_	821,432	_	8,444,668	8,444,668	2.128%
Town of West Newbury	736,589	_	736,589	_	7,572,446	7,572,446	1.908%
East Essex Veterans District	38,565	_	38,565	_	396,465	396,465	0.100%
Byfield Water District	26,995	_	26,995	_	277,520	277,520	0.070%
Lynnfield Center Water District	127,264	_	127,264	_	1.308.328	1.308.328	0.330%
Lynnfield Water District	88,699		88,699		911,863	911,863	0.230%
NE Massachusetts Mosquito Control District	208,250		208,250		2.140.898	2,140,898	0.539%
Hamilton-Wenham Regional School	1,048,965		1,048,965		10,783,804	10,783,804	2.717%
Manchester-Essex Regional School	559,191	19,124	578,315	181,302	5,748,720	5,930,022	1.494%
Masconomet Regional School	748,159	10,124	748.159	101,002	7,691,391	7,691,391	1.938%
Pentucket Regional School	1,191,655	_	1,191,655		12,250,717	12,250,717	3.086%
Triton Regional School	1,195,511		1,195,511		12,290,359	12,290,359	3.096%
Essex Housing Authority	15,426	_	15.426		158,586	158,586	0.040%
Georgetown Housing Authority	84,843	-	84,843	-	872,222	872,222	0.220%
Groveland Housing Authority	23,139	-	23,139		237,879	237,879	0.060%
Hamilton Housing Authority	19.283	-	19.283	-	198.237	198.237	0.050%
Ipswich Housing Authority	154,260	-	154,260	-	1,585,858	1,585,858	0.400%
Lynnfield Housing Authority	19,283	-	19.283	-	198.237	198,237	0.050%
Manchester Housing Authority	30,852	-	30,852	-	317,172	317,172	0.080%
9 ,	11,569	-	11,569	-	118,934	118,934	0.030%
Merrimac Housing Authority	19,283	-	19,283	-	198,237	198,237	0.050%
Nahant Housing Authority	11,570	9,345	20,915	62,709	118,944	181,653	0.030%
	150,403	9,345	150,403	62,709	1,546,206	1,546,206	0.390%
North Andover Housing Authority	65,560	-	65,560	-	673,985	673,985	0.390%
		16.070		154 220			
Rowley Housing Authority	15,426	16,279	31,705	154,330	158,586	312,916	0.079%
Salisbury Housing Authority	15,426	-	15,426	-	158,586	158,586	0.040%
Topsfield Housing Authority Wenham Housing Authority	19,283 30,852	-	19,283 30,852	-	198,237 317,172	198,237 317,172	0.050% 0.080%
	\$ 38,564,883 \$	53,427		\$ 456,579	-		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, 2020

	_	Retirement Board	-	Town of Boxford	_	Town of Essex		Town of Georgetown
Net Pension Liability								
Beginning net pension liability	\$	1,432,033	\$	15,710,208	\$	7,328,622	\$	20,553,835
Ending net pension liability	\$	1,308,329	\$	14,629,494	\$	6,620,942	\$	20,378,214
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	142	\$	1,598	\$	723	\$	2,227
Changes of assumptions		87,528		978,688		442,930		1,363,268
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	-	21,660	-	167,410	-	77,150		857,548
Total Deferred Outflows of Resources	\$ _	109,330	\$	1,147,696	\$ _	520,803	\$	2,223,043
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	1,117	\$	12,544	\$	5,677	\$	17,474
Net difference between projected and actual investment earnings on pension plan investments		97,338		1,088,442		492,602		1,516,148
Changes in proportion and differences between employer contributions and proportionate		107 100		200 205		200 926		200 425
share of contributions	-	121,130	-	299,395	-	300,836		388,425
Total Deferred Inflows of Resources	\$ _	225,593	\$	1,400,381	\$ _	799,115	\$	1,922,047
Pension Expense Proportionate share of plan pension expense	\$	138,371	\$	1,547,340	\$	700,289	\$	2,155,378
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(35,242)		(1,603)		(29,400)		127,516
Total Employer Pension Expense	\$	103,129	\$	1,545,737	\$_	670,889	\$	2,282,894
Contributions Statutory required contribution	¢	127 264	æ	1,423,044	¢	644,034	¢	1,982,235
				(1,424,484)		(644,034)	·	(1,982,235)
Contribution in relation to statutory required contribution	_						,	,
Contribution deficiency/(excess)	_	26.10%			Φ =	27.36%	\$	24.91%
Contributions as a percentage of covered payroll		26.10%		23.49%		21.30%		24.91%
Deferred (Inflows)/Outflows Recognized in <u>Future Pension Expense</u>								
June 30, 2022		(19,823)		85,498	\$	(9,991)	\$	149,928
June 30, 2023 June 30, 2024		(17,771)		138,592		(9,241)		232,742
June 30, 2025		(55,200) (23,469)		(271,631) (205,144)		(124,929) (134,151)		(46,030) (35,644)
Total Deferred (Inflows)/Outflows Recognized in	-	(20,400)	-	(200, 144)	-	(104,101)	,	(55,044)
Future Pension Expense	\$ _	(116,263)	\$	(252,685)	\$ _	(278,312)	\$	300,996
<u>Discount Rate Sensitivity</u> 1% decrease (6.30%)	\$	1,675,263	\$	18,732,464	\$	8,477,843	\$	26,093,464
Current discount rate (7.30%)	\$	1,308,329	\$	14,629,494	\$	6,620,942	\$	20,378,214
1% increase (8.30%)	\$	999,916	\$	11,180,910	\$	5,060,199	\$	15,574,496
Covered Payroll	\$	487,598	\$	6,065,303	\$	2,353,626	\$	7,958,644
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, 2020

		Town of Groveland		Town of Hamilton		Town of Ipswich		Town of Lynnfield
	-			_	-			_
Net Pension Liability Beginning net pension liability	\$	9,497,504	\$	11,582,591	\$	44,140,209	\$	32,936,686
Ending net pension liability	\$	9,018,305	\$	10,823,445	\$	41,588,999	\$	30,725,902
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	985	\$	1,183	\$	4,544	\$	3,357
Changes of assumptions		603,309		724,070		2,782,234		2,055,511
Changes in proportion and differences between employer contributions and proportionate share of contributions		169,441		336,490		533,957		346,172
Total Deferred Outflows of Resources	\$	773,735	\$	1,061,743	\$	3,320,735	\$	2,405,040
Deferred Inflows of Resources Differences between expected and actual experience	\$	7,733	\$	9,280	\$	35,659	\$	26,345
Net difference between projected and actual			•		•		Ť	
investment earnings on pension plan investments Changes in proportion and differences between		670,967		805,270		3,094,243		2,286,023
employer contributions and proportionate share of contributions	_	19,433		246,735	_	184,837		1,000,440
Total Deferred Inflows of Resources	\$	698,133	\$	1,061,285	\$	3,314,739	\$	3,312,808
Pension Expense Proportionate share of plan pension expense	\$	953,846	\$	1,144,776	\$	4,398,797	\$	3,249,816
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(13.206)		39,134		(234,943)		(157,906)
Total Employer Pension Expense	_				-			3,091,910
Contributions								
Statutory required contribution	\$	880,245	\$	1,052,821	\$	4,045,456	\$	2,988,778
Contribution in relation to statutory required contribution	-			(1,052,821)	-	(4,054,231)		(2,988,778)
Contribution deficiency/(excess)	=		\$		\$		\$	<u> </u>
Contributions as a percentage of covered payroll		25.65%		25.95%		26.65%		26.51%
<u>Deferred (Inflows)/Outflows Recognized in</u> <u>Future Pension Expense</u>								
June 30, 2022	\$	111,891	\$	58,242	\$	264,078	\$	46,531
June 30, 2023		130,296		248,461		570,632		162,669
June 30, 2024		(75,781)		(161,872)		(344,626)		(696,624)
June 30, 2025	-	(90,804)		(144,373)	-	(484,088)		(420,344)
Future Pension Expense	\$ _	75,602	\$	458	\$	5,996	\$	(907,768)
Discount Rate Sensitivity 1% decrease (6.30%)	\$	11,547,568	\$	13,858,975	\$	53,253,000	\$	39,343,252
Current discount rate (7.30%)	\$	9,018,305	\$	10,823,445	\$	41,588,999	\$	30,725,902
1% increase (8.30%)	\$	6,892,436	\$	8,272,054	\$	31,785,300	\$	23,482,941
Covered Payroll	\$	3,432,016	\$	4,056,484	\$	15,214,809	\$	11,273,319
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, 2020

	_	Town of Manchester- by-the-Sea		Town of Merrimac		Town of Middleton		Town of Nahant
Net Pension Liability								
Beginning net pension liability	\$	14,699,357	\$	10,529,627	\$	21,354,095	\$	10,276,923
Ending net pension liability	\$	13,677,990	\$	10,228,754	\$	20,893,613	\$	9,118,653
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	1,494	\$	1,118	\$	2,283	\$	996
Changes of assumptions		915,034		684,286		1,397,747		610,023
Changes in proportion and differences between employer contributions and proportionate share of contributions	_	189,894		571,269		751,560		278,635
Total Deferred Outflows of Resources	\$	1,106,422	\$	1,256,673	\$	2,151,590	\$	889,654
Deferred Inflows of Resources								
Differences between expected and actual experience	\$	11,728	\$	8,770	\$	17,915	\$	7,819
Net difference between projected and actual investment earnings on pension plan investments		1,017,650		761,025		1,554,496		678,432
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	219,871		131,804		375,430		671,293
Total Deferred Inflows of Resources	\$_	1,249,249	\$	901,599	\$	1,947,841	\$	1,357,544
Pension Expense Proportionate share of plan pension expense	\$	1,446,712	\$	1,081,883	\$	2,209,874	\$	964,460
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	21,576		125,534		223,590		(85,009)
Total Employer Pension Expense	\$_	1,468,288	\$	1,207,417	\$	2,433,464	\$	879,451
Contributions Statutory required contribution	\$	1,330,489	\$	994,974	\$	2,032,369	\$	886,992
Contribution in relation to statutory required contribution	-	(1,330,489)		(994,974)		(2,033,809)		(886,992
Contribution deficiency/(excess)	\$	-	\$	<u>-</u>	\$	(1,440)	\$	_
Contributions as a percentage of covered payroll		26.92%		26.39%		25.56%		26.45%
Deferred (Inflows)/Outflows Recognized in Future Pension Expense								
June 30, 2022	\$	69.748	\$	163,701	\$	271,045	\$	110,634
June 30, 2023	Ψ.	195,796	*	209,553	•	244,096	Ť	(85,684)
June 30, 2024		(214,237)		39,786		(222,309)		(273,490)
June 30, 2025	_	(194,134)		(57,966)		(89,083)		(219,350)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$_	(142,827)	\$	355,074	\$	203,749	\$	(467,890)
D	-				-			
Discount Rate Sensitivity 1% decrease (6.30%)	\$	17,514,103	\$	13,097,498	\$	26,753,411	\$	11,676,059
Current discount rate (7.30%)	\$	13,677,990	\$	10,228,754	\$	20,893,613	\$	9,118,653
1% increase (8.30%)	\$	10,453,702	\$	7,817,548	\$	15,968,400	\$	6,969,130
Covered Payroll	\$	4,942,593	\$	3,769,921	\$	7,957,015	\$	3,353,504
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

FOR THE YEAR EI	NDED DECEMB	EK	31, 2020				
	Town of Newbury	_	Town of North Andover	_	Town of Rockport		Town of Rowley
Net Pension Liability							
Beginning net pension liability	8,887,005	\$	66,041,825	\$	21,143,493	\$	11,540,478
Ending net pension liability	8,365,376	\$	60,262,421	\$	19,426,699	\$	10,902,738
Deferred Outflows of Resources							
Differences between expected and actual experience	914	\$	6,584	\$	2,122	\$	1,191
Changes of assumptions	559,630		4,031,454		1,299,613		729,375
Changes in proportion and differences between employer contributions and proportionate share of contributions	330,984	_	795,556	-	95,972		92,202
Total Deferred Outflows of Resources	891,528	\$	4,833,594	\$	1,397,707	\$	822,768
Deferred Inflows of Resources							
Differences between expected and actual experience \$	7,173	\$	51,671	\$	16,657	\$	9,348
Net difference between projected and actual investment earnings on pension plan investments	622,388		4,483,555		1,445,356		811,169
Changes in proportion and differences between							
employer contributions and proportionate share of contributions	52,119	_	1,567,616	_	1,371,484		195,247
Total Deferred Inflows of Resources	681,680	\$	6,102,842	\$	2,833,497	\$	1,015,764
Descine Foresee							
Pension Expense Proportionate share of plan pension expense	884,793	\$	6,373,860	\$	2,054,733	\$	1,153,157
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	102,481	-	175,627	_	(337,795)		(20,766)
Total Employer Pension Expense	987,274	\$	6,549,487	\$	1,716,938	\$	1,132,391
Contributions							
Contributions Statutory required contribution.	813,719	\$	5,861,862	\$	1,889,679	\$	1,060,534
Contribution in relation to statutory required contribution	(813,719)	_	(5,862,993)	-	(1,896,328)		(1,060,534)
Contribution deficiency/(excess)	· <u> </u>	\$	(1,131)	\$	(6,649)	\$	_
Contributions as a percentage of covered payroll	26.81%		25.18%		25.36%		25.01%
Deferred (Inflows)/Outflows Recognized in							
Future Pension Expense							
June 30, 2022	152,790	\$	371,240	\$	(297,546)	\$	(12,452)
June 30, 2023	240,419		498,466		(296,547)		110,581
June 30, 2024	(84,040)		(1,042,831)		(517,161)		(169,614)
June 30, 2025	(99,321)	<u>_</u>	(1,096,123)		(324,536)		(121,511)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	209,848	\$	(1,269,248)	\$	(1,435,790)	\$	(192,996)
Discount Data Consitiuity						•	
Discount Rate Sensitivity 1% decrease (6.30%)	10,711,519	\$	77,163,547	\$	24,875,088	\$	13,960,507
Current discount rate (7.30%)	8,365,376	\$	60,262,421	\$	19,426,699	\$	10,902,738
1% increase (8.30%)	6,393,421	\$	46,056,870	\$	14,847,279	\$	8,332,655
Covered Payroll	3,035,436	\$	23,287,334	\$	7,477,140	\$	4,240,349
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued)

	_	Town of Salisbury	 Town of Topsfield		Town of Wenham		Town of West Newbury
Net Pension Liability							
Beginning net pension liability	\$	18,532,146	\$ 14,362,415	\$	8,929,130	\$	8,297,347
Ending net pension liability	\$	17,642,614	\$ 14,034,803	\$	8,444,668	\$	7,572,446
Deferred Outflows of Resources							
Differences between expected and actual experience	\$	1,928	\$ 1,533	\$	923	\$	827
Changes of assumptions		1,180,261	938,905		564,934		506,584
Changes in proportion and differences between							
employer contributions and proportionate		4 000 047	554.057		400 750		005.050
share of contributions	-	1,369,047	 551,857	-	103,753		225,259
Total Deferred Outflows of Resources	\$	2,551,236	\$ 1,492,295	\$	669,610	\$	732,670
<u>Deferred Inflows of Resources</u>							
Differences between expected and actual experience	\$	15,127	\$ 12,034	\$	7,241	\$	6,493
Net difference between projected and actual		4 242 622	1.044.407		600,000		502 204
investment earnings on pension plan investments		1,312,620	1,044,197		628,288		563,394
Changes in proportion and differences between							
employer contributions and proportionate			170 110		04.700		040.044
share of contributions	· -	-	 173,449	-	64,706	-	240,011
Total Deferred Inflows of Resources	\$	1,327,747	\$ 1,229,680	\$	700,235	\$	809,898
Pension Expense							
Proportionate share of plan pension expense	\$	1,866,032	\$ 1,484,439	\$	893,174	\$	800,926
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		668 062	68,059		54,497		31,951
contributions and proportionate snare or contributions	-	000,002	00,000	-	54,457		31,331
Total Employer Pension Expense	\$	2,534,094	\$ 1,552,498	\$	947,671	\$	832,877
Contributions							
Statutory required contribution	\$	1,716,137	\$ 1,365,197	\$	821,432	\$	736,589
Contribution in relation to statutory required contribution	-	(1,716,137)	 (1,367,672)	-	(821,432)	-	(736,589)
Contribution deficiency/(excess)	\$	-	\$ (2,475)	\$	-	\$	-
Contributions as a percentage of covered payroll		26.48%	27.17%		24.82%		26.95%
Deferred (Inflows)/Outflows Recognized in							
Future Pension Expense							
June 30, 2022		682,880	\$ 97,688	\$	105,293	\$	64,596
June 30, 2023		705,404	257,360		71,695		140,115
June 30, 2024 June 30, 2025		4,999	(29,447)		(115,287)		(144,424)
Total Deferred (Inflows)/Outflows Recognized in	-	(169,794)	 (62,986)	-	(92,326)		(137,515)
Future Pension Expense	\$_	1,223,489	\$ 262,615	\$	(30,625)	\$	(77,228)
<u>Discount Rate Sensitivity</u> 1% decrease (6.30%)	\$	22,590,640	\$ 17,970,987	\$	10,813,049	\$	9,696,205
Current discount rate (7.30%)	\$	17,642,614	\$ 14,034,803	\$	8,444,668	\$	7,572,446
1% increase (8.30%)	\$	13,483,753	\$ 10,726,404	\$	6,454,022	\$	5,787,407
Covered Payroll	\$	6,481,214	\$ 5,033,054	\$	3,309,820	\$	2,733,338
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued)

	East Essex Veterans District		Byfield Water District	_	Lynnfield Center Water District	_	Lynnfield Water District
Net Pension Liability	.==	_		_		_	
Beginning net pension liability\$	379,067	\$	294,829	\$	1,221,441	\$	968,725
Ending net pension liability\$	396,465	\$	277,520	\$	1,308,328	\$	911,863
Deferred Outflows of Resources		_		_	4.40	_	404
Differences between expected and actual experience \$	43	\$	30	\$	143	\$	100
Changes of assumptions	26,523		18,566		87,525		61,002
Changes in proportion and differences between employer contributions and proportionate	44.040				404 700		47.00
share of contributions	41,216	-		-	184,739	-	47,00
Total Deferred Outflows of Resources\$	67,782	\$_	18,596	\$ _	272,407	\$ _	108,10
Deferred Inflows of Resources							
Differences between expected and actual experience \$	340	\$	238	\$	1,122	\$	78
Net difference between projected and actual investment earnings on pension plan investments	29,497		20,648		97,340		67,84
Changes in proportion and differences between							
employer contributions and proportionate share of contributions	14,733		5,534		13,159		15,08
Total Deferred Inflows of Resources\$		_		\$		\$	83,70
¥ =	,	· * =		* =	,	Ť =	
Pension Expense Proportionate share of plan pension expense\$	41,935	\$	29,349	\$	138,376	\$	96,44
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	16,935		(26,556)	_	4,244	_	9,67
Total Employer Pension Expense\$	58,870	\$_	2,793	\$ _	142,620	\$ _	106,11
Contributions							
Statutory required contribution\$	38,565	\$	26,995	\$	127,264	\$	88,69
Contribution in relation to statutory required contribution	(38,565)		(26,995)	-	(127,264)	_	(88,69
Contribution deficiency/(excess)\$	-	\$	-	\$_	-	\$	
Contributions as a percentage of covered payroll	27.21%		26.18%		18.39%		26.44
Deferred (Inflows)/Outflows Recognized in							
Future Pension Expense	40.454	•	(2.004)	•	04.000	•	7.04
June 30, 2022\$ June 30, 2023\$	12,454 4,662	\$	(3,821) 2,840	ф	61,829 60,096	\$	7,01 24,60
June 30, 2024	2,868		(3,547)		22,656		3,61
June 30, 2025	3,228		(3,296)		16,205		(10,82
Total Deferred (Inflows)/Outflows Recognized in		_	,	_		_	•
Future Pension Expense\$	23,212	\$_	(7,824)	\$ _	160,786	\$ _	24,39
Discount Rate Sensitivity 1% decrease (6.30%)\$	507,657	\$	355,353	\$	1,675,260	\$	1,167,60
Current discount rate (7.30%)\$	396,465		277,520	\$	1,308,328	\$	911,86
1% increase (8.30%)\$	303,007		212,101		999,918		696,91
Covered Payroll\$	141,709		103,103		691,876		335,51
See notes to schedule of employer allocations and schedule	, . 50	7	1.20, 1.00	•	23.,0.0	~	500,01

FOR THE YEAR		NE MA		Hamilton-		Manchester-		
	-	Mosquito Control District		Wenham Regional School		Essex Regional School	-	Masconomet Regional School
Net Pension Liability								
Beginning net pension liability	. \$	2,442,870	\$	11,456,239	\$	5,770,239	\$	8,170,995
Ending net pension liability	. \$	2,140,898	\$	10,783,804	\$	5,930,022	\$	7,691,391
Deferred Outflows of Resources	_		_	=0	_	0.40	_	0.40
Differences between expected and actual experience	. \$	234	\$	1,178	\$	648	\$	840
Changes of assumptions		143,222		721,418		396,708		514,541
Changes in proportion and differences between employer contributions and proportionate				0=				
share of contributions	-	403,245	-	87		395,808		368,691
Total Deferred Outflows of Resources	. \$ _	546,701	\$	722,683	\$	793,164	\$	884,072
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	. \$	1,836	\$	9,246	\$	5,085	\$	6,595
Net difference between projected and actual investment earnings on pension plan investments		159,284		802,321		441,197		572,243
Changes in proportion and differences between employer contributions and proportionate share of contributions		309,853		156,289		612,882		45,170
Total Deferred Inflows of Resources	\$	470,973	\$	967,856	\$	1,059,164	\$	624,008
Pension Expense Proportionate share of plan pension expense	. \$	226,439	\$	1,140,586	\$	627,213	\$	813,507
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions		(468)		(88,085)		(213,161)		83,513
Total Employer Pension Expense	. \$ <u>_</u>	225,971	\$	1,052,501	\$	414,052	\$	897,020
Contributions								
Statutory required contribution	. \$	208,250	\$	1,048,965	\$	578,315	\$	748,159
Contribution in relation to statutory required contribution		(208,250)		(1,048,965)		(578,315)		(748,159
Contribution deficiency/(excess)	. \$	_	\$	_	\$	-	\$	-
Contributions as a percentage of covered payroll	_	26.77%	-	25.55%		25.43%		24.09%
, ,								
Deferred (Inflows)/Outflows Recognized in Future Pension Expense								
June 30, 2022		30,246	\$	(38,239)	\$	(139,612)	\$	170,676
June 30, 2023		31,971		58,959		(84,898)		248,495
June 30, 2024		70,668		(137,859)		(71,145)		(67,788)
June 30, 2025 Total Deferred (Inflows)/Outflows Recognized in	-	(57,157)		(128,034)		29,655		(91,319)
Future Pension Expense	. \$ _	75,728	\$	(245,173)	\$	(266,000)	\$	260,064
Discount Rate Sensitivity 1% decrease (6.30%)	. \$	2,741,332	\$	13,808,217	\$	7,593,149	\$	9,848,509
Current discount rate (7.30%)	. \$	2,140,898	\$	10,783,804	\$	5,930,022	\$	7,691,391
1% increase (8.30%)	. \$	1,636,228	\$	8,241,758	\$	4,532,149	\$	5,878,313
Covered Payroll	. \$	778,034	\$	4,105,325	\$	2,274,404	\$	3,106,271
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

	_	Pentucket Regional School	-	Triton Regional School	_	Essex Housing Authority	 Georgetown Housing Authority
Net Pension Liability							
Beginning net pension liability	\$	12,677,680	\$	12,761,907	\$	168,477	\$ 716,010
Ending net pension liability	\$	12,250,717	\$	12,290,359	\$	158,586	\$ 872,222
Deferred Outflows of Resources							
Differences between expected and actual experience	\$	1,338	\$	1,343	\$	17	\$ 95
Changes of assumptions		819,552		822,204		10,609	58,350
Changes in proportion and differences between employer contributions and proportionate share of contributions	_	244,748		271,999	_	7,293	 175,857
Total Deferred Outflows of Resources	\$_	1,065,638	\$	1,095,546	\$_	17,919	\$ 234,302
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	10,504	\$	10,538	\$	136	\$ 748
Net difference between projected and actual investment earnings on pension plan investments		911,460		914,409		11,799	64,894
Changes in proportion and differences between employer contributions and proportionate share of contributions		622,986		656,978	_	170	 93
Total Deferred Inflows of Resources	\$_	1,544,950	\$	1,581,925	\$	12,105	\$ 65,735
Pension Expense Proportionate share of plan pension expense	\$	1,295,737	\$	1,299,933	\$	16,772	\$ 92,260
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	(375,176)	-	(144,944)	=	10,274	 54,142
Total Employer Pension Expense	\$_	920,561	\$	1,154,989	\$ _	27,046	\$ 146,402
<u>Contributions</u>							
Statutory required contribution	\$	1,191,655	\$	1,195,511	\$	15,426	\$ 86,391
Contribution in relation to statutory required contribution	_	(1,191,655)		(1,195,511)	_	(15,426)	 (86,391
Contribution deficiency/(excess)	\$	-	\$	-	\$	-	\$ -
Contributions as a percentage of covered payroll		25.18%	•	23.22%		14.01%	29.52%
Deferred (Inflows)/Outflows Recognized in							
Future Pension Expense							
	\$	(293,211)	\$	(136,892)	\$	8,056	\$ 53,627
June 30, 2023		19,381		(134,557)		1,669	56,471
June 30, 2024		(123,509)		(124,552)		(2,027)	28,842
June 30, 2025.	_	(81,973)		(90,378)	-	(1,884)	 29,627
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$	(479,312)	\$	(486,379)	\$	5,814	\$ 168,567
Discount Rate Sensitivity							
1% decrease (6.30%)	\$	15,686,538	\$	15,737,298	\$	203,063	\$ 1,116,844
Current discount rate (7.30%)	\$	12,250,717	\$	12,290,359	\$	158,586	\$ 872,222
1% increase (8.30%)	\$	9,362,878	\$	9,393,175	\$	121,203	\$ 666,615
Covered Payroll	\$	4,732,874	\$	5,149,541	\$	110,133	\$ 292,621
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued

FOR THE YEAR	_/ NL	JED DECENTED	_,,,	31, 2020				
	_	Groveland Housing Authority	· -	Hamilton Housing Authority	-	Ipswich Housing Authority	-	Lynnfield Housing Authority
Net Pension Liability								
Beginning net pension liability	\$	294,829	\$	210,590	\$	1,432,031	\$	336,954
Ending net pension liability	\$	237,879	\$	198,237	\$	1,585,858	\$	198,237
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	26	\$	22	\$	173	\$	22
Changes of assumptions		15,914		13,262		106,091		13,262
Changes in proportion and differences between employer contributions and proportionate share of contributions				14,789		202,402	_	37,820
Total Deferred Outflows of Resources	\$	15,940	\$	28,073	\$	308,666	\$_	51,104
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	204	\$	170	\$	1,360	\$	170
Net difference between projected and actual investment earnings on pension plan investments		17,698		14,749		117,989		14,749
Changes in proportion and differences between employer contributions and proportionate share of contributions		47,602		1,311	_	44,655	_	102,532
Total Deferred Inflows of Resources	\$	65,504	\$	16,230	\$	164,004	\$_	117,451
Pension Expense Proportionate share of plan pension expense	\$	25,158	\$	20,974	\$	167,739	\$	20,964
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	(28,928)		7,875	_	43,359	_	(16,012)
Total Employer Pension Expense	\$	(3,770)	\$	28,849	\$	211,098	\$_	4,952
Contributions Statutory required contribution	\$	23,139	\$	19,635	\$	157,074	\$	19,283
Contribution in relation to statutory required contribution	-	(23,139)	-	(19,635)	-	(157,074)	_	(19,283)
Contribution deficiency/(excess)	\$	-	\$		\$	_	\$	-
Contributions as a percentage of covered payroll		36.40%		29.55%		26.33%		30.99%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense								
June 30, 2022	\$	(22,329)	\$	14,292	\$	51,777	\$	(14,869)
June 30, 2023		(5,502)		2,230		50,458		(6,716)
June 30, 2024		(10,975)		(2,397)		13,085		(18,605)
June 30, 2025	_	(10,758)	_	(2,282)		29,342	_	(26,157)
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$	(49,564)	\$	11,843	\$	144,662	\$	(66,347)
Discount Rate Sensitivity								
1% decrease (6.30%)	\$	304,594	\$	253,834	\$	2,030,626	\$	253,834
Current discount rate (7.30%)	\$	237,879	\$	198,237	\$	1,585,858	\$	198,237
1% increase (8.30%)	\$	181,804	\$	151,507	\$	1,212,027	\$	151,507
Covered Payroll	\$	63,563	\$	66,442	\$	596,480	\$	62,214
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continued)

	Manchester Housing Authority		Merrimac Housing Authority	=	Middleton Housing Authority		Nahant Housing Authority
Net Pension Liability							
Beginning net pension liability \$	336,954	\$	126,352	\$	210,590	\$	194,140
Ending net pension liability\$	317,172	\$	118,934	\$	198,237	\$	181,653
Deferred Outflows of Resources							
Differences between expected and actual experience \$	35	\$	13	\$	22	\$	20
Changes of assumptions	21,218		7,956		13,262		12,152
Changes in proportion and differences between employer contributions and proportionate share of contributions	14,645		52,208	_	136		28,832
Total Deferred Outflows of Resources\$	35,898	\$	60,177	\$_	13,420	\$	41,004
Deferred Inflows of Resources							
Differences between expected and actual experience \$	272	\$	102	\$	170	\$	156
Net difference between projected and actual investment earnings on pension plan investments	23,598		8,849		14,749		13,515
Changes in proportion and differences between							
employer contributions and proportionate share of contributions	7,444		92		1,364		21,664
Total Deferred Inflows of Resources\$	31,314	\$	9,043	\$	16,283	\$	35,33
Dancies Funcies							
Pension Expense Proportionate share of plan pension expense\$	33,542	\$	12,583	\$	20,974	\$	19,22
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	41		22,266	-	(9,184)	· -	(10,868
Total Employer Pension Expense\$	33,583	\$	34,849	\$_	11,790	\$	8,350
Contributions							
Statutory required contribution\$	30,852	\$	11,569	\$	19,635	\$	20,915
Contribution in relation to statutory required contribution	(30,852)		(11,569)	_	(19,635)	_	(20,915
Contribution deficiency/(excess)\$		\$	_	\$	_	\$	
ψ		Ψ.		Ψ=		·	
Contributions as a percentage of covered payroll	54.23%		21.48%		26.70%		51.339
Deferred (Inflows)/Outflows Recognized in							
Future Pension Expense		_	00.040	_	(0.45)	_	(0.04
June 30, 2022\$,	\$	22,919	\$	(215)	\$	(6,819
June 30, 2023 June 30, 2024	10,574		23,515		2,097		15,752
June 30, 2025	(4,054) (3,765)		6,113 (1,413)		(2,463) (2,282)		(1,536 (1,728
Total Deferred (Inflows)/Outflows Recognized in	(0,700)	-	(1,410)	-	(2,202)	-	(1,720
Future Pension Expense\$	4,584	\$	51,134	\$_	(2,863)	\$	5,669
Discount Rate Sensitivity							
1% decrease (6.30%)\$	406,126	\$	152,290	\$	253,834	\$	232,599
Current discount rate (7.30%)	317,172	\$	118,934	\$	198,237	\$	181,653
1% increase (8.30%)\$	242,406	\$	90,898	\$	151,507	\$	138,832
Covered Payroll\$	56,890	\$	53,867	\$	73,536	\$	40,744
See notes to schedule of employer allocations and schedule of pension amounts by employer.							(continued

		North Andover Housing Authority		Rockport Housing Authority		Rowley Housing Authority		Salisbury Housing Authority
	-	•			_		-	
Net Pension Liability Beginning net pension liability	æ	1 769 074	æ	589,658	æ	160 477	œ	204 920
beginning het pension liability	Ф	1,768,974	Ф	509,050	Ф	168,477	Ф	294,829
Ending net pension liability	\$	1,546,206	\$	673,985	\$	312,916	\$	158,586
Deferred Outflows of Resources								
Differences between expected and actual experience	\$	169	\$	74	\$	34	\$	1
Changes of assumptions		103,439		45,088		20,934		10,60
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	_	795		167,301	_	141,264	_	8
Total Deferred Outflows of Resources	\$_	104,403	\$	212,463	\$_	162,232	\$	10,71
Deferred Inflows of Resources Differences between expected and actual experience	\$	1,326	\$	578	\$	268	\$	13
Net difference between projected and actual investment earnings on pension plan investments		115,039		50,145		23,281		11,79
Changes in proportion and differences between employer contributions and proportionate share of contributions		119,831		78,831		7		134,85
	-	·	•	129,554	Φ.		_	146,79
Total Deferred Inflows of Resources	Φ =	230,190	Ф	129,554	Φ =	23,556	Φ =	140,78
Pension Expense Proportionate share of plan pension expense	\$	163,546	\$	71,281	\$	33,093	\$	16,77
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	(48,089)		(2,831)	_	37,701	_	(50,28
Total Employer Pension Expense	\$_	115,457	\$	68,450	\$_	70,794	\$ _	(33,51
Contributions Statutory required contribution	\$	150,403	\$	65,560	\$	32,283	\$	15,70
Contribution in relation to statutory required contribution	_	(150,403)		(65,560)	_	(32,283)	_	(15,70
Contribution deficiency/(excess)	\$_	-	\$	_	\$_	-	\$	
Contributions as a percentage of covered payroll		25.08%		25.55%		53.57%		24.36
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	•	(04.050)	•	(47.440)	•	00.474	•	(40.04
June 30, 2022	\$	(31,253) (15,142)	\$	(17,413) 46,423	\$	39,471 41,032	\$	(40,21 (36,90
June 30, 2024		(43,235)		38,096		30,632		(33,32
June 30, 2025		(42,163)		15,803		27,541		(25,63
Total Deferred (Inflows)/Outflows Recognized in Future Pension Expense	\$	(131,793)	\$	82,909	\$	138,676	\$	(136,07
F	_	, - , 3/	7	- 1,3	-	,	-	,,
Discount Rate Sensitivity 1% decrease (6.30%)	\$	1,979,853	\$	863,010	\$	400,676	\$	203,06
Current discount rate (7.30%)	\$	1,546,206	\$	673,985	\$	312,916	\$	158,58
1% increase (8.30%)	\$	1,181,722	\$	515,108	\$	239,153	\$	121,20
Covered Payroll	\$	599,594	\$	256,574	\$	60,264	\$	64,48
See notes to schedule of employer allocations and schedule of pension amounts by employer.								(continue

		Topsfield Housing Authority		Wenham Housing Authority		West Newbury Housing Authority		Totals
	-	radionty		radionty	-	ridinority	_	rotalo
Net Pension Liability	•	040 500	•	000.054	•		•	404 045 000
Beginning net pension liability	\$	210,590	\$	336,954	\$	-	\$	421,315,930
Ending net pension liability	\$	198,237	\$	317,172	\$	-	\$	396,919,889
<u>Deferred Outflows of Resources</u> Differences between expected and actual experience	\$	22	\$	35	\$	-	\$	43,365
Changes of assumptions		13,262		21,218		-		26,553,271
Changes in proportion and differences between employer contributions and proportionate								
share of contributions	-	4,379		8,525	-	-	_	10,679,687
Total Deferred Outflows of Resources	\$	17,663	\$	29,778	\$	-	\$_	37,276,323
<u>Deferred Inflows of Resources</u> Differences between expected and actual experience	\$	170	\$	272	\$	-	\$	340,329
Net difference between projected and actual investment earnings on pension plan investments		14,749		23,598		-		29,531,045
Changes in proportion and differences between employer contributions and proportionate share of contributions		21,477		14,823		-		10,679,687
	_		•	38,693	•		-	40,551,061
Total Deferred Inflows of Resources	Φ=	30,390	Ф	36,093	Φ_		\$ _	40,551,001
Pension Expense Proportionate share of plan pension expense	\$	20,974	\$	33,542	\$	-	\$	41,981,570
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	_	(1,655)		5,337	. <u>-</u>	(1,273)	_	-
Total Employer Pension Expense	\$_	19,319	\$	38,879	\$_	(1,273)	\$_	41,981,570
Contributions								
Statutory required contribution	\$	19,635	\$	30,852	\$	-	\$	38,624,587
Contribution in relation to statutory required contribution	_	(19,635)		(30,852)	_	-	_	(38,646,497)
Contribution deficiency/(excess)	\$	-	\$		\$_		\$_	(21,910)
Contributions as a percentage of covered payroll		28.48%		25.69%		N/A		25.68%
Deferred (Inflows)/Outflows Recognized in								
Future Pension Expense	•	(40.004)	•	0.004	•		Φ.	2 4 9 4 9 0 9
June 30, 2022 June 30, 2023	\$	(16,284) 2,230	\$	2,924 (4,020)	\$	-	\$	2,181,908 4,163,349
June 30, 2024		(2,397)		(4,020)		-		(4,981,641)
June 30, 2025		(2,282)		(3,765)		-		(4,638,354)
Total Deferred (Inflows)/Outflows Recognized in	_	, , , ,		, , ,	_		_	, , , , , , ,
Future Pension Expense	\$_	(18,733)	\$	(8,915)	\$	-	\$ _	(3,274,738)
Discount Rate Sensitivity								
1% decrease (6.30%)	\$	253,834	\$	406,126	\$	-	\$	508,239,564
Current discount rate (7.30%)	\$	198,237	\$	317,172	\$	-	\$	396,919,889
1% increase (8.30%)	\$	151,507	\$	242,406	\$	-	\$	303,354,686
Covered Payroll	\$	68,947	\$	120,104	\$	-	\$	150,467,625
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 costsharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. Employers participating in cost-sharing plans are required to recognize their proportionate share of the plan's collective pension amounts for all benefits provided through the plan including the net pension liability, deferred outflows of resources, deferred inflows of resources, contributions and pension expense.

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

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the System who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year. Accordingly, the proportionate aggregate rates of regular compensation as of the close of business on September 30, 2019, were applied to allocate the System's fiscal year 2021 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 for Nahant Housing which is increasing at 4.5% per year ending in 2028. The 2003 ERI amortization is straight line for Groveland which is increasing at 4.5% per year ending in 2028.

Members of the Manchester-Essex Regional School District and the Rowley Housing Authority have been awarded years of credited service in addition to those which they received as contributing members of the System. This is a result of a decision by the Contributory Retirement Appeal Board (CRAB), as described in an order and memorandum, dated May 27, 2015, by the State Appeals Board, regarding a similar arrangement between the Merrimack Valley Regional Transit Authority and the Lawrence Retirement System. The effect of the decision grants additional service to members affected and requires reimbursement from the individual employers of each of the members.

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 2020 pension fund appropriation calculated by the actuary. (2) Current Direct E.R.I. and CRAB appropriation is a direct current charge calculated by PERAC for only the employers that accepted the ERIP and/or those employers effected by the CRAB decision. This direct charge backed out of the total pension fund appropriation to calculate the percentage to be allocated (3) Remaining Direct E.R.I. and CRAB liability is the future E.R.I. and/or CRAB liability associated directly to those employers that accepted the ERIP and/or those effected by the CRAB decision. This direct liability is added back to those employers once the non-ERIP and non-CRAB 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

NOTE III - CHANGES IN ACTUANIAE ACCOMIT HONG AND LEANT NOVISIONS
Actuarial Assumptions.
None.
Plan Provisions.
None.

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Powers & Sullivan, LLC

Certified Public Accountants



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

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

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

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to the financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Essex Regional Retirement System, as of and for the year ended December 31, 2020, and the related notes to the financial statements, which collectively comprise the Essex Regional Retirement System's financial statements, and have issued our report thereon dated August 30, 2021.

Internal Control Over Financial Reporting

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

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

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

Compliance and Other Matters

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

Purpose of this Report

Powers & Sullivan LLC

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

August 30, 2021