

***MIDDLESEX COUNTY RETIREMENT SYSTEM***

***FINANCIAL STATEMENTS***

***YEAR ENDED DECEMBER 31, 2015***



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# ***Financial Section***



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## **Independent Auditor's Report**

To the Honorable Middlesex County Retirement Board  
Middlesex County Retirement System  
Billerica, Massachusetts

## **Report on the Financial Statements**

We have audited the accompanying financial statements of Middlesex County Retirement System (MCRS) as of and for the year ended December 31, 2015, and the related notes to the financial statements, which collectively comprise the Middlesex County 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 Middlesex County Retirement System as of December 31, 2015 and the results of its operations and changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

## Other Matters

### *Required Supplementary Information*

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

### **Other Reporting Required by Government Auditing Standards**

In accordance with *Government Auditing Standards*, we have also issued our report dated August 22, 2016, on our consideration of the Middlesex County 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 Middlesex County Retirement System's internal control over financial reporting and compliance.

### **Restriction on Use**

This report is intended solely for the information and use of the Middlesex County 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 29, 2016

## ***Management's Discussion and Analysis***

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

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

### **Financial Highlights**

- The System's assets exceeded its liabilities at the close of the most recent year by \$1.1 billion (net position).
- The System's net position increased by \$10.9 million for the year ended December 31, 2015.
- Total investment income was \$13.2 million; investment expenses were \$5.5 million; and net investment income was \$7.7 million.
- Total contributions were \$148.7 million, primarily consisting of \$99.8 million from employers and \$45.9 from members.
- Retirement benefits, refunds and transfers amounted to \$142.3 million.
- Administrative expenses were \$2.8 million or 2% of total deductions.
- The Total Pension Liability is \$2.4 billion as of December 31, 2015 while the Net Pension Liability is \$1.3 billion.
- The Plan fiduciary net position as a percentage of the total pension liability is 46.13%.

### ***Overview of the Financial Statements***

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

### **Fiduciary Financial Statements**

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

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

### **Notes to the financial statements**

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

**Required Supplementary Information**

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

**Financial Analysis**

As noted earlier, net position may serve over time as a useful indicator of the System’s financial position. The System’s net position exceeded liabilities by \$1.1 billion at the close of 2015.

The assets accumulated are held to provide pension benefits for qualified retirees along with active and inactive employees of the member units. At year end the system’s net position include investments of \$1.0 billion, cash of \$48.4 million and current accounts receivable of \$4.7 million. The system also had capital assets, net of accumulated depreciation of \$5.6 million at year-end primarily consisting of land, an office building, and building improvements.

In 2015 the System’s contributions were \$148.7 million while retirement benefit payments, refunds, transfers and administration expenses were \$145.6 million which resulted in a current surplus of \$3.1 million. In 2014 the System’s contributions were \$138.8 million while retirement benefit payments, refunds, transfers and administration expenses were \$134.2 million which resulted in a prior year surplus of \$4.6 million. Therefore for these two years the System was able to sustain operations independent of investment income.

The main change between 2014 in the increase in net position relates to each year’s investment performance. Net investment income was \$7.6 million and \$74.9 million in 2015 and 2014 respectively. The annual money weighted rate of return was 0.61% and 7.54% in 2015 and 2014 respectively. The system’s investment policy is designed to achieve a long-term rate of return of 7.875% and fluctuation in annual investment returns is expected.

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

**Condensed Statement of Fiduciary Net Position**

	2015	2014
<b>Assets:</b>		
Cash.....	\$ 48,386,377	\$ 52,174,629
Investments.....	1,045,843,118	1,028,497,567
Receivables.....	4,685,100	7,522,121
Prepaid assets.....	61,415	61,077
Capital assets, net of accumulated depreciation.....	5,646,331	5,488,201
<b>Total assets.....</b>	<b>1,104,622,341</b>	<b>1,093,743,595</b>
<b>Liabilities:</b>		
Accounts payable.....	121,604	165,081
Other.....	17,840	17,840
<b>Total liabilities.....</b>	<b>139,444</b>	<b>182,921</b>
<b>Net Position Restricted for Pensions.....</b>	<b>\$ 1,104,482,897</b>	<b>1,093,560,674</b>



**Condensed Statement of Changes in Fiduciary Net Position**

	<u>2015</u>	<u>2014</u>
<b>Additions:</b>		
Contributions:		
Member contributions.....	\$ 45,941,291	\$ 43,532,020
Employer contributions.....	99,820,481	93,400,946
Other contributions.....	<u>2,954,865</u>	<u>1,868,141</u>
Total contributions.....	<u>148,716,637</u>	<u>138,801,107</u>
Net investment income (loss):		
Total investment income (loss).....	13,362,645	80,449,082
Less, investment expenses.....	<u>(5,545,390)</u>	<u>(5,522,439)</u>
Net investment income (loss).....	<u>7,817,255</u>	<u>74,926,643</u>
<b>Total additions.....</b>	<b><u>156,533,892</u></b>	<b><u>213,727,750</u></b>
Deductions:		
Administration.....	2,824,804	2,996,390
Retirement benefits, refunds and transfers.....	142,321,498	130,639,608
Building operations and maintenance.....	302,773	381,899
Depreciation.....	<u>162,594</u>	<u>162,594</u>
<b>Total deductions.....</b>	<b><u>145,611,669</u></b>	<b><u>134,180,491</u></b>
Net increase (decrease) in fiduciary net position.....	10,922,223	79,547,259
<b>Fiduciary net position at beginning of year.....</b>	<b><u>1,093,560,674</u></b>	<b><u>1,014,013,415</u></b>
<b>Fiduciary net position at end of year.....</b>	<b><u>\$ 1,104,482,897</u></b>	<b><u>\$ 1,093,560,674</u></b>

***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 Chief Administrative Officer, 25 Linnell Circle, Billerica, Massachusetts 01865.

## STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2015

### Assets

Cash.....	\$	<u>48,386,377</u>
Investments:		
PRIT funds.....		1,029,977,238
Pooled alternative investments.....		6,453,186
Pooled real estate funds.....		<u>9,412,694</u>
Total investments.....		<u>1,045,843,118</u>
Receivables:		
Member deductions.....		3,716,072
Members contributions.....		3,816
Member make-up payments and redeposits.....		169,690
Reimbursements from other systems.....		571,032
Other.....		<u>224,490</u>
Total receivables.....		<u>4,685,100</u>
Prepaid expenses.....		<u>61,415</u>
Capital assets, net of accumulated depreciation.....		<u>5,646,331</u>
Total assets.....		<u>1,104,622,341</u>

### Liabilities

Accounts payable.....		121,604
Other.....		<u>17,840</u>
Total liabilities.....		<u>139,444</u>

**Net Position Restricted for Pensions** \$ 1,104,482,897

See notes to financial statements.

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION**

FOR THE YEAR ENDED DECEMBER 31, 2015

Additions:	
Contributions:	
Member contributions.....	\$ 40,340,741
Member contributions - transfers from other systems.....	5,071,128
Retirement benefits - 3(8)c contributions from other systems.....	2,902,580
Members' makeup payments and redeposits.....	529,422
Workers compensation settlements.....	52,285
Employer - federal grant contributions.....	27,839
Employer contributions.....	<u>99,792,642</u>
Total contributions.....	<u>148,716,637</u>
Net investment income (loss):	
Investment income.....	13,362,645
Less, investment expenses.....	<u>(5,545,390)</u>
Net investment income (loss).....	<u>7,817,255</u>
Total additions.....	<u>156,533,892</u>
Deductions:	
Administration.....	2,824,804
Member contributions - transfers to other systems.....	3,739,939
Retirement benefits - 3(8)c payments to other systems.....	7,392,583
Retirement benefits and refunds.....	131,188,976
Building operations and maintenance.....	302,773
Depreciation.....	<u>162,594</u>
Total deductions.....	<u>145,611,669</u>
Net increase (decrease) in fiduciary net position.....	10,922,223
Fiduciary net position at beginning of year.....	<u>1,093,560,674</u>
Fiduciary net position at end of year.....	<u>\$ 1,104,482,897</u>

See notes to financial statements.

**NOTE 1 – PLAN DESCRIPTION**

The Middlesex County Retirement System is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of the governmental member units deemed eligible by the Middlesex County 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 System is mandatory immediately upon the commencement of employment for all permanent employees working a minimum of 20 hours per week. As of January 1, 2014, the System had 71 participating employers.

Instituted in 1937, the System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. Membership in the Plan is mandatory immediately upon the commencement of employment for all permanent, full-time employees.

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 those hired prior to April 2, 2012 and the highest five-year average for members hired after that date. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

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. 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.

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

MCRS 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.

### Accounts Receivable

Accounts receivable consist of member deductions, pension fund appropriations, and other miscellaneous reimbursements. These receivables are considered 100% collectible and therefore do not report an allowance for uncollectibles.

### Deferred Outflows/Inflows of Resources

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, *deferred outflows of resources*, represents a consumption of fiduciary net position that applies to a future period(s) and so will not be recognized as an outflow of resources (deduction) until then. The MCRS 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 MCRS 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 consisting of a first member, who shall serve as Chairman/Treasurer, who shall be appointed by the other four members, a second member elected by the Advisory Council consisting of representatives from the member units, a third and fourth member who shall be

elected by the members in or retired from the service of such system, and a fifth member who shall be chosen by the other four members.

Chairman	Thomas F. Gibson	Term Expires:	12/31/2020
Advisory Council Member	Brian P. Curtin	Term Expires:	12/31/2019
Elected Member	John Brown	Term Expires:	12/31/2017
Elected Member	Edgar W. McLean, Jr.	Term Expires:	12/31/2016
Appointed Member	Robert W. Healy	Term Expires:	12/17/2020

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

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

The following retirement board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts as follows:

Treasurer-Custodian:	)	\$10,000,000 Fiduciary
Ex-Officio Member:	)	RLI Insurance Company
Elected Members:	)	
Appointed Members:	)	\$1,000,000 Fidelity
Staff Employees:	)	National Union Fire Insurance

**NOTE 4 – OFFICE BUILDING**

The MCRS owns an office building that was purchased as an investment and for the administrative offices of the System. The building is a two story, 1986-built office building consisting of 62,307 square feet of net rentable area. The property is situated on a 4.23 acre site in Billerica, Middlesex County, Massachusetts

**NOTE 5 – CASH AND INVESTMENTS**

Custodial Credit Risk - Deposits

At December 31, 2015, the carrying amount of the System's deposits totaled \$6,653,851 and the bank balance totaled \$8,169,271, all of which was covered by Federal Depository Insurance.

Investments

The System's investments are as follows:

<u>Other Investments</u>	
PRIT Pooled Funds.....	\$ 1,029,977,238
Money Market Mutual Funds.....	41,732,526
Pooled Alternative Investments.....	6,453,186
Pooled Real Estate Funds.....	<u>9,412,694</u>
 Total Investments.....	 \$ <u><u>1,087,575,644</u></u>

Approximately 95% of the Retirement System's investments are in Pension Reserve Investment Trust (PRIT). 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 1.5% of the System's funds are invested in pooled alternative investments and pooled real estate funds. The market values of assets in those funds are based on the quoted values obtained from each pool.

The Administration's annual money-weighted rate of return on pension plan investments was 0.61%. The money-weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested, measured monthly.

**NOTE 6 – CAPITAL ASSETS**

Capital assets are depreciated on a straight-line basis. The estimated useful lives of capital assets are as follows:

<u>Capital Asset Type</u>	<u>Estimated Useful Life (in years)</u>
Building.....	40
Building improvements.....	40
Ford Pick-up truck with plow.....	5

Capital asset activity for the year ended December 31, 2015, was as follows:

	Beginning Balance	Increases	Decreases	Ending Balance
<u>Capital assets not being depreciated:</u>				
Land.....	\$ 672,657	\$ -	\$ -	\$ 672,657
Construction in progress.....	267,270	320,724	-	587,994
Total capital assets not being depreciated.....	939,927	320,724	-	1,260,651
<u>Capital assets being depreciated:</u>				
Buildings.....	5,417,136	-	-	5,417,136
Building improvements.....	1,086,623	-	-	1,086,623
Ford Pick-up truck with plow.....	19,603	-	-	19,603
Total capital assets being depreciated.....	6,523,362	-	-	6,523,362
<u>Less accumulated depreciation for:</u>				
Buildings.....	(1,629,498)	(135,428)	-	(1,764,926)
Building improvements.....	(325,987)	(27,166)	-	(353,153)
Ford Pick-up truck with plow.....	(19,603)	-	-	(19,603)
Total accumulated depreciation.....	(1,975,088)	(162,594)	-	(2,137,682)
Total capital assets being depreciated, net.....	4,548,274	(162,594)	-	4,385,680
Total capital assets, net.....	\$ 5,488,201	\$ 158,130	\$ -	\$ 5,646,331

**NOTE 7 – MEMBERSHIP**

The following table represents the System's membership at December 31, 2015:

Active members.....	10,306
Inactive members.....	1,748
Disabled members.....	429
Retirees and beneficiaries currently receiving benefits.....	4,859
Total.....	17,342



**NOTE 8 – ACTUARIAL VALUATION**

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

Total pension liability.....	\$ 2,394,501,842
The pension plan's fiduciary net position.....	<u>1,104,482,897</u>
The net pension liability.....	\$ <u>1,290,018,945</u>
The pension plan's fiduciary net position as a percentage of the total pension liability.....	46.13%

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

Valuation date.....	January 1, 2014
Actuarial cost method.....	Entry Age Normal Cost Method.
Amortization method.....	Prior year's total contribution increased by 6.5% for fiscal 2016 through fiscal 2020, and thereafter the remaining unfunded liability will be amortized on a 4.0% annual increasing basis; ERI liability amortized in level payments.
Remaining amortization period.....	As of July 1, 2014, 5 years remaining for 2002 ERI liability, 6 years remaining for 2003 ERI liability, 8 years remaining for 2010 ERI liability, and 21 years for remaining unfunded liability.
Asset valuation method.....	The difference between the expected return and the actual investment return on a market value basis is recognized over a five year period. Asset value is adjusted as necessary to be within 20% of the market value.
Inflation rate.....	4.00%
Projected salary increases.....	Varies by length of service with ultimate rates of 4.25% for Group 1, 4.50% for Group 2 and 4.75% for Group 4 (previously, 4.75% for group 1 and 5.25% for group 4).
Cost of living adjustments.....	3.0% of the first \$14,000 of retirement income.
Rates of retirement.....	Varies based upon age for general employees, police and fire employees.
Rates of disability.....	For general employees, it was assumed that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).
Mortality Rates:	
Pre-Retirement.....	The RP-2000 Employee Mortality Table projected 22 years with Scale AA.
Post-Retirement.....	The RP-2000 Employee Mortality Table projected 17 years with Scale AA.
Disabled Retiree.....	The RP-2000 Healthy Annuitant Mortality Table set forward three years projected 17 years with Scale AA.
Investment rate of return/Discount rate.....	7.875%, net of pension plan investment expense, including inflation previously 8.0%

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

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

Asset Class	Long-Term Expected Real Rate of Return	Long-Term Expected Asset Allocation
Domestic equity.....	6.49%	19.60%
International developed markets equity.....	7.16%	15.60%
International emerging markets equity.....	9.46%	6.50%
Core fixed income.....	1.68%	15.30%
High-yield fixed income.....	4.76%	8.30%
Real estate.....	4.37%	9.90%
Commodities.....	4.13%	3.90%
Short-term government money market.....	1.11%	0.00%
Hedge fund, GTAA, Risk parity.....	3.60%	9.80%
Private equity.....	11.04%	11.10%
		100.00%

*Discount rate:* The discount rate used to measure the total pension liability was 7.875%. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that contributions will be made at rates equal to the actuarially determined contribution rate. Based on those assumptions, the pension plan’s fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

*Sensitivity of the net position liability to changes in the discount rate.* The following presents the net position liability, calculated using the discount rate of 7.875%, as well as what the net position liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.875%) or 1-percentage-point higher (8.875%) than the current rate:

	1% Decrease (6.875%)	Current Discount (7.875%)	1% Increase (8.875%)
Middlesex County Retirement System's net pension liability as of December 31, 2015.....	\$ 1,549,069,449	\$ 1,290,018,945	\$ 1,069,419,459

*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 the actuarial valuation.

**NOTE 9 – TOWN OF ACTON SETTLEMENT**

In March of 2011 the Town of Acton and the MCRS reached a settlement regarding a civil suit filed by the Town of Acton. The Town of Acton sought relief relating to increased assessments due to investment losses incurred by the System. The MCRS agreed to credit against (i.e. to reduce) Acton's annual assessment by a total credit of \$300,000, which is to be credited, at a minimum, in installments of \$37,500 per year for a period of eight years or in larger installments until the total credit of \$300,000 is paid in full to Acton, whichever is earlier. Without limiting the foregoing, the MCRS intends to fund the credit through the System's operating budget and will not increase assessments to members of the System (including Acton) to fund the credit. The Parties agree that Acton shall receive the credit for each year that Acton is a member of the MCRS so that if Acton ceases to be a member of the MCRS, any remaining amount of the credit then outstanding will be forfeited. The Parties further agree that the MCRS may, at its discretion, credit all or a part of this obligation in one year. If the MCRS credits more than \$37,500 in any given year, the remaining years' obligations will be ratably and proportionally reduced. As of December 31, 2015, the Town of Acton has been credited \$225,000.

**NOTE 10 – DISPUTE WITH THE COMMONWEALTH AND STATE EMPLOYEES RETIREMENT SYSTEM**

The County of Middlesex was abolished on July 11, 1997, pursuant to Chapter 48 of the Acts of 1997. This Act required that active employees of Middlesex County be transferred to the Commonwealth. Therefore the MCRS was required to transfer the Annuity Savings Fund Balances of these transferred County employees to the State Employees Retirement System (SERS). This transfer, totaling approximately \$18 million, was made during calendar year 1998.

In December of 1999, the State Legislature enacted Massachusetts General Law, Chapter 34B (Abolition of County Government). This legislation, among other things, defines the components of determining the overall surplus or deficit of an abolished County upon transfer to the Commonwealth and how regional retirement systems will be affected. Sections 8 and 18 addressed how the abolished County's unfunded liabilities in regional retirement systems will be paid for. The MCRS believes, as a result of the abolishment of Middlesex County, that the Commonwealth of Massachusetts owed them \$9,501,680 for the Unfunded Liability for retirees of the former Middlesex County.

The Commonwealth and SERS did not agree with the assertion that the MCRS was owed \$9,501,680. As a result, the MCRS acted to stop 3(8)(c) reimbursements to the State Employees Retirement System and correspondingly the State System began to intercept all COLA reimbursements which were due the MCRS. In 2012 the MCRS reinstated payments for 3(8)(c) reimbursements to the SERS. The SERS and MCRS are currently working to determine the amount owed after accounting for the 3(8)(c) reimbursements and COLA reimbursements which were withheld. It is expected that all amounts except for the \$9.5 million will be resolved in 2016. The net amount of these transactions is not considered significant and has not been reported in these financial statements.

**NOTE 11 – IMPLEMENTATION OF GASB PRONOUNCEMENTS**

The following GASB pronouncements will be implemented in the future:

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

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

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

#### **NOTE 12 – SUBSEQUENT EVENTS**

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

# ***Required Supplementary Information***

**SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY  
AND RELATED RATIOS**

	2014	2015
<b>Total pension liability:</b>		
Service cost.....	\$ 52,132,389	\$ 54,217,685
Interest.....	172,094,226	179,703,272
Changes in benefit terms.....	-	-
Differences between expected and actual experience.....	-	-
Changes in assumptions.....	-	-
Benefit payments, including refunds of employee contributions.....	<u>(125,082,678)</u>	<u>(134,295,504)</u>
Net change in total pension liability.....	99,143,937	99,625,453
Total pension liability, beginning.....	<u>2,195,732,452</u>	<u>2,294,876,389</u>
Total pension liability, ending <b>(a)</b> .....	<u>\$ 2,294,876,389</u>	<u>\$ 2,394,501,842</u>
<b>Plan fiduciary net position:</b>		
Member contributions.....	\$ 39,806,980	40,870,163
Employer contributions.....	93,400,946	99,820,481
Net investment income (loss).....	74,962,895	7,817,255
Retirement benefits and refunds.....	(125,082,678)	(134,295,504)
Administrative expenses.....	<u>(3,540,884)</u>	<u>(3,290,172)</u>
Net increase (decrease) in fiduciary net position.....	79,547,259	10,922,223
Fiduciary net position at beginning of year.....	<u>1,014,013,415</u>	<u>1,093,560,674</u>
Fiduciary net position at end of year <b>(b)</b> .....	<u>\$ 1,093,560,674</u>	<u>\$ 1,104,482,897</u>
<b>Net pension liability - ending (a) - (b)</b> .....	<u>\$ 1,201,315,715</u>	<u>\$ 1,290,018,945</u>
Plan fiduciary net position as a percentage of the total pension liability.....	47.65%	46.13%
Covered-employee payroll (*).....	\$ 415,752,810	432,382,921
Net pension liability as a percentage of covered-employee payroll.....	288.95%	298.35%

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

See notes to required supplementary information.

**SCHEDULE OF CONTRIBUTIONS**

	<u>2014</u>	<u>2015</u>
Actuarially determined contribution.....	\$ 92,826,743	\$ 98,792,642
Contributions in relation to the actuarially determined contribution.....	<u>93,400,946</u>	<u>99,820,481</u>
Contribution deficiency (excess).....	<u>\$ (574,203)</u>	<u>\$ (1,027,839)</u>
Covered-employee payroll (*).....	\$ 415,752,810	\$ 432,382,921
Contributions as a percentage of covered- employee payroll.....	22.47%	23.09%

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

See notes to required supplementary information.

**SCHEDULE OF INVESTMENT RETURN**

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	2014	2015
Annual money-weighted rate of return, net of investment expense.....	7.54%	0.61%

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.

The annual money-weighted rate of return has been calculated by  
the Pension Reserves Investment Management Board (PRIM).

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.

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

## **NOTE B – CONTRIBUTIONS**

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

## **NOTE C – MONEY WEIGHTED RATE OF RETURN**

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

# ***Audit of Specific Elements, Accounts and Items of Financial Statements***



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## **Independent Auditor's Report**

To the Honorable Middlesex County Retirement Board  
Middlesex County Retirement System  
Billerica, Massachusetts

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

## **Management's Responsibility for the Schedules**

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

## **Auditor's Responsibility**

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

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

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

## **Opinions**

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

## **Other Matter**

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

## **Restriction on Use**

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

A handwritten signature in cursive script that reads "Powers & Sullivan, LLC".

August 29, 2016

**SCHEDULE OF EMPLOYER ALLOCATIONS**  
**FOR THE YEAR ENDED DECEMBER 31, 2015**

Employer	Share of Net Pension Liability	Percent of Total Net Pension Liability
Middlesex County Retirement Board.....	\$ -	0.000000%
Middlesex County.....	-	0.000000%
Middlesex Hospital.....	-	0.000000%
Town of Acton.....	44,369,446	3.439441%
Town of Ashby.....	1,611,292	0.124905%
Town of Ashland.....	26,910,611	2.086063%
Town of Ayer.....	17,086,573	1.324521%
Town of Bedford.....	47,296,776	3.666363%
Town of Billerica.....	127,076,615	9.850756%
Town of Boxborough.....	7,963,070	0.617283%
Town of Burlington.....	104,556,462	8.105033%
Town of Carlisle.....	8,912,755	0.690901%
Town of Chelmsford.....	93,051,442	7.213184%
Town of Dracut.....	52,368,527	4.059516%
Town of Dunstable.....	2,389,144	0.185202%
Town of Groton.....	20,586,198	1.595806%
Town of Holliston.....	23,403,449	1.814194%
Town of Hopkinton.....	19,499,185	1.511543%
Town of Hudson.....	56,963,462	4.415707%
Town of Lincoln.....	23,666,611	1.834594%
Town of Littleton.....	21,397,309	1.658682%
Town of North Reading.....	44,145,145	3.422054%
Town of Pepperell.....	12,706,598	0.984993%
Town of Sherborn.....	10,262,053	0.795496%
Town of Shirley.....	9,134,041	0.708055%
Town of Stow.....	9,234,186	0.715818%
Town of Sudbury.....	51,874,232	4.021199%
Town of Tewksbury.....	85,301,248	6.612403%
Town of Townsend.....	7,475,618	0.579497%
Town of Tyngsborough.....	17,982,560	1.393976%
Town of Wayland.....	53,154,605	4.120452%
Town of Westford.....	47,358,134	3.671119%
Town of Weston.....	58,678,679	4.548668%
Town of Wilmington.....	74,403,164	5.767602%
Acton-Boxborough Regional School District.....	23,515,180	1.822855%
Acton Water Supply.....	2,784,648	0.215861%
Bedford Housing Authority.....	263,833	0.020452%
Billerica Housing Authority.....	1,068,744	0.082847%
Chelmsford Housing Authority.....	1,138,990	0.088293%
Chelmsford Water District.....	1,402,613	0.108728%
Dracut Housing Authority.....	1,785,743	0.138428%
Dracut Water Supply.....	2,428,037	0.188217%
East Chelmsford Water District.....	286,759	0.022229%
East Middlesex Mosquito Control.....	496,144	0.038460%
Greater Lowell Regional Vocational Technical School District.....	14,784,348	1.146057%
Groton-Dunstable Regional School District.....	8,509,375	0.659632%
Hudson Housing Authority.....	1,399,262	0.108468%
Lincoln-Sudbury Regional School District.....	7,913,832	0.613466%
Nashoba Valley Technical High School District.....	3,156,315	0.244672%
North Chelmsford Water District.....	748,681	0.058036%
North Middlesex Regional School District.....	10,991,588	0.852049%
Shawsheen Valley Regional Vocational School.....	7,364,846	0.570910%
South Middlesex Regional Vocational Technical School.....	6,481,194	0.502411%
Sudbury Water District.....	1,446,469	0.112128%
Tewksbury Housing Authority.....	1,248,093	0.096750%
Wayland Housing Authority.....	447,164	0.034663%
Hopkinton Housing Authority.....	442,908	0.034333%
Sudbury Housing Authority.....	266,258	0.020640%
Wilmington Housing Authority.....	271,567	0.021051%
Acton Housing Authority.....	827,882	0.064176%
Burlington Housing Authority.....	119,574	0.009269%
Ayer Housing Authority.....	441,841	0.034251%
Holliston Housing Authority.....	214,474	0.016626%
Littleton Housing Authority.....	367,115	0.028458%
Westford Housing Authority.....	427,017	0.033102%
Shirley Water District.....	358,461	0.027787%
Tyngsborough Housing Authority.....	399,306	0.030953%
Pepperell Housing Authority.....	100,348	0.007779%
Groton Housing Authority.....	12,029	0.000932%
Tyngsborough Water District.....	372,014	0.028838%
North Reading Housing Authority.....	84,100	0.006519%
West Groton Water.....	24,760	0.001919%
Ayer-Shirley Regional School District.....	4,808,243	0.372727%
<b>Total.....</b>	<b>\$ 1,290,018,945</b>	<b>100.000%</b>

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, 2015

	Middlesex County Retirement Board	Middlesex County	Middlesex Hospital	Town of Acton
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ -	\$ -	\$ -	\$ 41,050,336
Ending net pension liability.....	\$ -	\$ -	\$ -	\$ 44,369,446
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	-	-	-	2,262,498
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	-	213,858
Total Deferred Outflows of Resources.....	\$ -	\$ -	\$ -	\$ 2,476,356
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	-	142,929
Total Deferred Inflows of Resources.....	\$ -	\$ -	\$ -	\$ 142,929
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 311,767	\$ -	\$ -	\$ 4,350,475
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	-	17,735
Total Employer Pension Expense.....	\$ 311,767	\$ -	\$ -	\$ 4,368,210
<b>Contributions</b>				
Statutory required contribution.....	\$ 311,767	\$ -	\$ -	\$ 3,243,883
Contribution in relation to statutory required contribution.....	(311,767)	-	-	(3,243,883)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	21.27%	0.00%	0.00%	24.86%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ -	\$ -	\$ -	\$ 592,081
June 30, 2018.....	-	-	-	592,081
June 30, 2019.....	-	-	-	592,082
June 30, 2020.....	-	-	-	557,183
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ -	\$ -	\$ -	\$ 2,333,427
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ -	\$ -	\$ -	\$ 53,279,358
Current discount rate (7.875%).....	\$ -	\$ -	\$ -	\$ 44,369,446
1% increase (8.875%).....	\$ -	\$ -	\$ -	\$ 36,782,072
Covered Payroll.....	\$ 1,465,931	\$ -	\$ -	\$ 13,048,335
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, 2015

	Town of Ashby	Town of Ashland	Town of Ayer	Town of Bedford
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 1,427,805	\$ 24,556,017	\$ 15,773,883	\$ 43,939,870
Ending net pension liability.....	\$ 1,611,292	\$ 26,910,611	\$ 17,086,573	\$ 47,296,776
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	82,164	1,372,234	871,284	2,411,771
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	89,441	590,599	130,087	83,497
Total Deferred Outflows of Resources.....	\$ 171,605	\$ 1,962,833	\$ 1,001,371	\$ 2,495,268
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	-	133,462
Total Deferred Inflows of Resources.....	\$ -	\$ -	\$ -	\$ 133,462
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 157,990	\$ 2,638,616	\$ 1,675,359	\$ 4,637,503
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	22,361	147,650	32,522	(12,492)
Total Employer Pension Expense.....	\$ 180,351	\$ 2,786,266	\$ 1,707,881	\$ 4,625,011
<b>Contributions</b>				
Statutory required contribution.....	\$ 163,640	\$ 2,283,740	\$ 1,343,292	\$ 3,481,523
Contribution in relation to statutory required contribution.....	(163,640)	(2,311,579)	(1,343,292)	(3,481,523)
Contribution deficiency/(excess).....	\$ -	\$ (27,839)	\$ -	\$ -
Contributions as a percentage of covered payroll.....	17.67%	19.56%	24.92%	20.65%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 43,219	\$ 495,998	\$ 253,701	\$ 599,747
June 30, 2018.....	43,219	495,998	253,701	599,747
June 30, 2019.....	43,219	495,998	253,701	599,747
June 30, 2020.....	41,948	474,839	240,268	562,565
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 171,605	\$ 1,962,833	\$ 1,001,371	\$ 2,361,806
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 1,934,865	\$ 32,314,565	\$ 20,517,750	\$ 56,794,509
Current discount rate (7.875%).....	\$ 1,611,292	\$ 26,910,611	\$ 17,086,573	\$ 47,296,776
1% increase (8.875%).....	\$ 1,335,758	\$ 22,308,764	\$ 14,164,685	\$ 39,208,799
Covered Payroll.....	\$ 926,336	\$ 11,676,182	\$ 5,391,242	\$ 16,858,665
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, 2015

	Town of Billerica	Town of Boxborough	Town of Burlington	Town of Carlisle
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 119,887,544	\$ 7,339,622	\$ 98,053,205	\$ 7,984,515
Ending net pension liability.....	\$ 127,076,615	\$ 7,963,070	\$ 104,556,462	\$ 8,912,755
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	6,479,929	406,055	5,331,574	454,482
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	73,033	-	318,346
Total Deferred Outflows of Resources.....	\$ 6,479,929	\$ 479,088	\$ 5,331,574	\$ 772,828
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	1,713,152	-	683,016	-
Total Deferred Inflows of Resources.....	\$ 1,713,152	\$ -	\$ 683,016	\$ -
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 12,460,010	\$ 780,788	\$ 10,251,881	\$ 873,906
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(428,288)	18,259	(170,754)	79,586
Total Employer Pension Expense.....	\$ 12,031,722	\$ 799,047	\$ 10,081,127	\$ 953,492
<b>Contributions</b>				
Statutory required contribution.....	\$ 9,204,554	\$ 629,903	\$ 7,895,297	\$ 771,117
Contribution in relation to statutory required contribution.....	(9,204,554)	(629,903)	(7,895,297)	(771,117)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	29.33%	21.77%	25.99%	16.32%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 1,216,672	\$ 121,338	\$ 1,182,691	\$ 194,958
June 30, 2018.....	1,216,672	121,338	1,182,691	194,958
June 30, 2019.....	1,216,672	121,338	1,182,691	194,958
June 30, 2020.....	1,116,761	115,074	1,100,485	187,954
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 4,766,777	\$ 479,088	\$ 4,648,558	\$ 772,828
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 152,595,052	\$ 9,562,142	\$ 125,552,590	\$ 10,702,536
Current discount rate (7.875%).....	\$ 127,076,615	\$ 7,963,070	\$ 104,556,462	\$ 8,912,755
1% increase (8.875%).....	\$ 105,345,902	\$ 6,601,345	\$ 86,676,800	\$ 7,388,630
Covered Payroll.....	\$ 31,382,222	\$ 2,893,796	\$ 30,378,636	\$ 4,723,787
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, 2015

	Town of Chelmsford	Town of Dracut	Town of Dunstable	Town of Groton
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 88,099,468	\$ 48,701,871	\$ 2,190,299	\$ 19,495,870
Ending net pension liability.....	\$ 93,051,442	\$ 52,368,527	\$ 2,389,144	\$ 20,586,198
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	4,744,907	2,670,392	121,828	1,049,738
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	52,409	52,403	119,901
Total Deferred Outflows of Resources.....	\$ 4,744,907	\$ 2,722,801	\$ 174,231	\$ 1,169,639
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	1,218,542	55,401	-	259,283
Total Deferred Inflows of Resources.....	\$ 1,218,542	\$ 55,401	\$ -	\$ 259,283
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 9,123,802	\$ 5,134,795	\$ 234,259	\$ 2,018,501
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(304,635)	(748)	13,101	(34,846)
Total Employer Pension Expense.....	\$ 8,819,167	\$ 5,134,047	\$ 247,360	\$ 1,983,655
<b>Contributions</b>				
Statutory required contribution.....	\$ 7,096,040	\$ 3,970,321	\$ 215,351	\$ 1,737,842
Contribution in relation to statutory required contribution.....	(7,096,040)	(3,970,321)	(215,351)	(1,737,842)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	29.49%	27.23%	19.51%	25.22%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 899,881	\$ 677,143	\$ 44,028	\$ 231,635
June 30, 2018.....	899,881	677,143	44,028	231,635
June 30, 2019.....	899,881	677,143	44,028	231,635
June 30, 2020.....	826,722	635,971	42,147	215,451
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 3,526,365	\$ 2,667,400	\$ 174,231	\$ 910,356
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 111,737,230	\$ 62,884,722	\$ 2,868,908	\$ 24,720,143
Current discount rate (7.875%).....	\$ 93,051,442	\$ 52,368,527	\$ 2,389,144	\$ 20,586,198
1% increase (8.875%).....	\$ 77,139,193	\$ 43,413,254	\$ 1,980,586	\$ 17,065,860
Covered Payroll.....	\$ 24,062,042	\$ 14,583,214	\$ 1,103,607	\$ 6,891,765
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, 2015

	Town of Holliston	Town of Hopkinton	Town of Hudson	Town of Lincoln
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 21,225,487	\$ 16,828,857	\$ 52,755,296	\$ 21,739,395
Ending net pension liability.....	\$ 23,403,449	\$ 19,499,185	\$ 56,963,462	\$ 23,666,611
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	1,193,396	994,309	2,904,698	1,206,815
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	498,420	1,239,748	234,831	239,087
Total Deferred Outflows of Resources.....	\$ 1,691,816	\$ 2,234,057	\$ 3,139,529	\$ 1,445,902
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	-	18,138
Total Deferred Inflows of Resources.....	\$ -	\$ -	\$ -	\$ 18,138
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 2,294,735	\$ 1,911,919	\$ 5,585,333	\$ 2,320,538
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	124,605	309,936	58,708	55,238
Total Employer Pension Expense.....	\$ 2,419,340	\$ 2,221,855	\$ 5,644,041	\$ 2,375,776
<b>Contributions</b>				
Statutory required contribution.....	\$ 1,861,516	\$ 1,728,744	\$ 4,397,249	\$ 1,802,909
Contribution in relation to statutory required contribution.....	(1,861,516)	(1,728,744)	(4,397,249)	(1,802,909)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	18.27%	13.80%	20.93%	18.79%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 427,554	\$ 562,346	\$ 796,079	\$ 361,593
June 30, 2018.....	427,554	562,346	796,079	361,593
June 30, 2019.....	427,554	562,346	796,079	361,593
June 30, 2020.....	409,154	547,019	751,292	342,985
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 1,691,816	\$ 2,234,057	\$ 3,139,529	\$ 1,427,764
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 28,103,125	\$ 23,414,851	\$ 68,402,368	\$ 28,419,135
Current discount rate (7.875%).....	\$ 23,403,449	\$ 19,499,185	\$ 56,963,462	\$ 23,666,611
1% increase (8.875%).....	\$ 19,401,344	\$ 16,164,735	\$ 47,222,430	\$ 19,619,505
Covered Payroll.....	\$ 10,190,662	\$ 12,526,442	\$ 21,010,326	\$ 9,595,007
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, 2015

	Town of Littleton	Town of North Reading	Town of Pepperell	Town of Sherborn
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 19,021,595	\$ 41,397,005	\$ 11,580,175	\$ 9,464,261
Ending net pension liability.....	\$ 21,397,309	\$ 44,145,145	\$ 12,706,598	\$ 10,262,053
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	1,091,098	2,251,062	647,939	523,285
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	810,512	-	224,672	97,295
Total Deferred Outflows of Resources.....	\$ 1,901,610	\$ 2,251,062	\$ 872,611	\$ 620,580
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	326,609	-	-
Total Deferred Inflows of Resources.....	\$ -	\$ 326,609	\$ -	\$ -
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 2,098,031	\$ 4,328,482	\$ 1,245,897	\$ 1,006,205
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	202,629	(81,653)	56,167	24,323
Total Employer Pension Expense.....	\$ 2,300,660	\$ 4,246,829	\$ 1,302,064	\$ 1,030,528
<b>Contributions</b>				
Statutory required contribution.....	\$ 1,762,316	\$ 3,283,343	\$ 1,009,146	\$ 821,360
Contribution in relation to statutory required contribution.....	(1,762,316)	(3,283,343)	(1,009,146)	(821,360)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	16.34%	26.09%	22.63%	20.86%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 479,609	\$ 489,790	\$ 220,649	\$ 157,161
June 30, 2018.....	479,609	489,790	220,649	157,161
June 30, 2019.....	479,609	489,790	220,649	157,161
June 30, 2020.....	462,783	455,083	210,664	149,097
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 1,901,610	\$ 1,924,453	\$ 872,611	\$ 620,580
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 25,694,136	\$ 53,009,993	\$ 15,258,226	\$ 12,322,786
Current discount rate (7.875%).....	\$ 21,397,309	\$ 44,145,145	\$ 12,706,598	\$ 10,262,053
1% increase (8.875%).....	\$ 17,738,268	\$ 36,596,111	\$ 10,533,707	\$ 8,507,189
Covered Payroll.....	\$ 10,782,598	\$ 12,585,689	\$ 4,458,982	\$ 3,936,908
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, 2015

	Town of Shirley	Town of Stow	Town of Sudbury	Town of Tewksbury
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 8,549,600	\$ 8,519,238	\$ 48,635,848	\$ 81,064,434
Ending net pension liability.....	\$ 9,134,041	\$ 9,234,186	\$ 51,874,232	\$ 85,301,248
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	465,766	470,872	2,645,186	4,349,707
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	4,714	63,781	-	5,135
Total Deferred Outflows of Resources.....	\$ 470,480	\$ 534,653	\$ 2,645,186	\$ 4,354,842
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	34,781	8,114	494,383	1,298,478
Total Deferred Inflows of Resources.....	\$ 34,781	\$ 8,114	\$ 494,383	\$ 1,298,478
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 895,604	\$ 905,422	\$ 5,086,328	\$ 8,363,887
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(7,517)	13,917	(123,596)	(323,336)
Total Employer Pension Expense.....	\$ 888,087	\$ 919,339	\$ 4,962,732	\$ 8,040,551
<b>Contributions</b>				
Statutory required contribution.....	\$ 710,468	\$ 702,159	\$ 3,710,907	\$ 6,586,336
Contribution in relation to statutory required contribution.....	(710,468)	(702,159)	(3,710,907)	(6,586,336)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	35.21%	21.95%	24.96%	33.44%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 110,720	\$ 133,450	\$ 547,897	\$ 780,857
June 30, 2018.....	110,720	133,450	547,897	780,857
June 30, 2019.....	110,720	133,450	547,897	780,857
June 30, 2020.....	103,539	126,189	507,112	713,793
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 435,699	\$ 526,539	\$ 2,150,803	\$ 3,056,364
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 10,968,264	\$ 11,088,518	\$ 62,291,165	\$ 102,430,715
Current discount rate (7.875%).....	\$ 9,134,041	\$ 9,234,186	\$ 51,874,232	\$ 85,301,248
1% increase (8.875%).....	\$ 7,572,078	\$ 7,655,097	\$ 43,003,485	\$ 70,714,324
Covered Payroll.....	\$ 2,017,558	\$ 3,198,487	\$ 14,865,858	\$ 19,696,238
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, 2015

	Town of Townsend	Town of Tyngsborough	Town of Wayland	Town of Westford
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 6,742,808	\$ 16,343,894	\$ 49,341,309	\$ 42,997,563
Ending net pension liability.....	\$ 7,475,618	\$ 17,982,560	\$ 53,154,605	\$ 47,358,134
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	381,199	916,972	2,710,476	2,414,900
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	233,146	360,577	126,234	1,152,928
Total Deferred Outflows of Resources.....	\$ 614,345	\$ 1,277,549	\$ 2,836,710	\$ 3,567,828
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	102,577	-
Total Deferred Inflows of Resources.....	\$ -	\$ -	\$ 102,577	\$ -
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 732,993	\$ 1,763,210	\$ 5,211,871	\$ 4,643,520
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	58,286	90,144	5,915	288,232
Total Employer Pension Expense.....	\$ 791,279	\$ 1,853,354	\$ 5,217,786	\$ 4,931,752
<b>Contributions</b>				
Statutory required contribution.....	\$ 650,040	\$ 1,437,048	\$ 3,971,988	\$ 3,993,806
Contribution in relation to statutory required contribution.....	(650,040)	(1,437,048)	(3,971,988)	(3,993,806)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	21.68%	19.31%	21.95%	17.62%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 155,055	\$ 322,921	\$ 693,982	\$ 901,265
June 30, 2018.....	155,055	322,921	693,982	901,265
June 30, 2019.....	155,055	322,921	693,982	901,265
June 30, 2020.....	149,180	308,786	652,187	864,033
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 614,345	\$ 1,277,549	\$ 2,734,133	\$ 3,567,828
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 8,976,811	\$ 21,593,656	\$ 63,828,663	\$ 56,868,183
Current discount rate (7.875%).....	\$ 7,475,618	\$ 17,982,560	\$ 53,154,605	\$ 47,358,134
1% increase (8.875%).....	\$ 6,197,254	\$ 14,907,451	\$ 44,064,915	\$ 39,259,661
Covered Payroll.....	\$ 2,998,738	\$ 7,440,290	\$ 18,096,912	\$ 22,663,136
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, 2015

	Town of Weston	Town of Wilmington	Acton- Boxborough Regional School District	Acton Water Supply
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 54,939,016	\$ 69,798,925	\$ 21,781,913	\$ 2,562,079
Ending net pension liability.....	\$ 58,678,679	\$ 74,403,164	\$ 23,515,180	\$ 2,784,648
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	2,992,161	3,793,988	1,199,093	141,996
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	210,769	24,790
Total Deferred Outflows of Resources.....	\$ 2,992,161	\$ 3,793,988	\$ 1,409,862	\$ 166,786
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	440,189	725,683	-	39,208
Total Deferred Inflows of Resources.....	\$ 440,189	\$ 725,683	\$ -	\$ 39,208
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 5,753,513	\$ 7,295,316	\$ 2,305,690	\$ 273,038
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(110,047)	(181,421)	52,693	(3,604)
Total Employer Pension Expense.....	\$ 5,643,466	\$ 7,113,895	\$ 2,358,383	\$ 269,434
<b>Contributions</b>				
Statutory required contribution.....	\$ 4,270,242	\$ 5,342,251	\$ 1,961,424	\$ 165,791
Contribution in relation to statutory required contribution.....	(4,270,242)	(5,342,251)	(1,961,424)	(165,791)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	22.05%	25.32%	15.21%	16.35%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 649,527	\$ 781,700	\$ 357,088	\$ 32,442
June 30, 2018.....	649,527	781,700	357,088	32,442
June 30, 2019.....	649,527	781,700	357,088	32,442
June 30, 2020.....	603,391	723,205	338,598	30,252
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 2,551,972	\$ 3,068,305	\$ 1,409,862	\$ 127,578
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 70,462,026	\$ 89,344,161	\$ 28,237,290	\$ 3,343,837
Current discount rate (7.875%).....	\$ 58,678,679	\$ 74,403,164	\$ 23,515,180	\$ 2,784,648
1% increase (8.875%).....	\$ 48,644,341	\$ 61,679,858	\$ 19,493,966	\$ 2,308,460
Covered Payroll.....	\$ 19,366,732	\$ 21,102,836	\$ 12,897,778	\$ 1,013,745
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, 2015

	Bedford Housing Authority	Billerica Housing Authority	Chelmsford Housing Authority	Chelmsford Water District
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 243,648	\$ 1,012,365	\$ 1,002,070	\$ 2,106,325
Ending net pension liability.....	\$ 263,833	\$ 1,068,744	\$ 1,138,990	\$ 1,402,613
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	13,454	54,498	58,080	71,522
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	6,570	438	51,417	862,284
Total Deferred Outflows of Resources.....	\$ 20,024	\$ 54,936	\$ 109,497	\$ 933,806
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	13,642	-	637,965
Total Deferred Inflows of Resources.....	\$ -	\$ 13,642	\$ -	\$ 637,965
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 25,870	\$ 104,792	\$ 111,680	\$ 137,527
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	1,643	(3,301)	12,854	56,080
Total Employer Pension Expense.....	\$ 27,513	\$ 101,491	\$ 124,534	\$ 193,607
<b>Contributions</b>				
Statutory required contribution.....	\$ 26,527	\$ 82,988	\$ 93,720	\$ 186,049
Contribution in relation to statutory required contribution.....	(26,527)	(82,988)	(93,720)	(1,186,049)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ (1,000,000)
Contributions as a percentage of covered payroll.....	19.69%	26.87%	6.84%	15.22%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 5,058	\$ 10,533	\$ 27,598	\$ 74,236
June 30, 2018.....	5,058	10,533	27,598	74,236
June 30, 2019.....	5,058	10,533	27,598	74,236
June 30, 2020.....	4,850	9,695	26,703	73,133
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 20,024	\$ 41,294	\$ 109,497	\$ 295,841
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 316,816	\$ 1,283,358	\$ 1,367,720	\$ 1,684,272
Current discount rate (7.875%).....	\$ 263,833	\$ 1,068,744	\$ 1,138,990	\$ 1,402,613
1% increase (8.875%).....	\$ 218,718	\$ 885,982	\$ 944,223	\$ 1,162,758
Covered Payroll.....	\$ 134,739	\$ 308,835	\$ 1,369,463	\$ 1,222,528
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, 2015

	Dracut Housing Authority	Dracut Water Supply	East Chelmsford Water District	East Middlesex Mosquito Control
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 1,713,245	\$ 2,291,065	\$ 250,496	\$ 404,042
Ending net pension liability.....	\$ 1,785,743	\$ 2,428,037	\$ 286,759	\$ 496,144
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	91,059	123,811	14,622	25,299
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	-	15,180	46,230
Total Deferred Outflows of Resources.....	\$ 91,059	\$ 123,811	\$ 29,802	\$ 71,529
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	62,130	55,658	-	934
Total Deferred Inflows of Resources.....	\$ 62,130	\$ 55,658	\$ -	\$ 934
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 175,094	\$ 238,071	\$ 28,117	\$ 48,647
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(15,533)	(13,915)	3,796	11,324
Total Employer Pension Expense.....	\$ 159,561	\$ 224,156	\$ 31,913	\$ 59,971
<b>Contributions</b>				
Statutory required contribution.....	\$ 110,203	\$ 147,603	\$ 24,608	\$ 37,103
Contribution in relation to statutory required contribution.....	(110,203)	(147,603)	(24,608)	(37,103)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	30.25%	23.38%	12.88%	10.10%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 7,583	\$ 17,515	\$ 7,508	\$ 17,746
June 30, 2018.....	7,583	17,515	7,508	17,746
June 30, 2019.....	7,583	17,515	7,508	17,746
June 30, 2020.....	6,180	15,608	7,278	17,357
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 28,929	\$ 68,153	\$ 29,802	\$ 70,595
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 2,144,346	\$ 2,915,612	\$ 344,343	\$ 595,772
Current discount rate (7.875%).....	\$ 1,785,743	\$ 2,428,037	\$ 286,759	\$ 496,144
1% increase (8.875%).....	\$ 1,480,376	\$ 2,012,829	\$ 237,721	\$ 411,299
Covered Payroll.....	\$ 364,332	\$ 631,262	\$ 191,066	\$ 367,510
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, 2015

	Greater Lowell Regional Vocation Technical School District	Groton- Dunstable Regional School District	Hudson Housing Authority	Lincoln- Sudbury Regional School District
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 13,955,534	\$ 7,593,692	\$ 1,329,916	\$ 7,427,692
Ending net pension liability.....	\$ 14,784,348	\$ 8,509,375	\$ 1,399,262	\$ 7,913,832
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	753,888	433,913	71,351	403,544
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	304,843	-	-
Total Deferred Outflows of Resources.....	\$ 753,888	\$ 738,756	\$ 71,351	\$ 403,544
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	159,254	-	36,033	95,800
Total Deferred Inflows of Resources.....	\$ 159,254	\$ -	\$ 36,033	\$ 95,800
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 1,449,623	\$ 834,354	\$ 137,199	\$ 775,959
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(39,813)	76,211	(9,008)	(23,951)
Total Employer Pension Expense.....	\$ 1,409,810	\$ 910,565	\$ 128,191	\$ 752,008
<b>Contributions</b>				
Statutory required contribution.....	\$ 1,128,497	\$ 707,990	\$ 89,676	\$ 548,534
Contribution in relation to statutory required contribution.....	(1,128,497)	(707,990)	(89,676)	(548,534)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	22.10%	15.11%	31.66%	19.38%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 151,565	\$ 186,362	\$ 9,105	\$ 78,491
June 30, 2018.....	151,565	186,362	9,105	78,491
June 30, 2019.....	151,565	186,362	9,105	78,491
June 30, 2020.....	139,939	179,670	8,003	72,271
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 594,634	\$ 738,756	\$ 35,318	\$ 307,744
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 17,753,219	\$ 10,218,158	\$ 1,680,245	\$ 9,503,014
Current discount rate (7.875%).....	\$ 14,784,348	\$ 8,509,375	\$ 1,399,262	\$ 7,913,832
1% increase (8.875%).....	\$ 12,256,157	\$ 7,054,233	\$ 1,159,978	\$ 6,560,525
Covered Payroll.....	\$ 5,107,305	\$ 4,686,751	\$ 283,285	\$ 2,829,979
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, 2015

	Nashoba Valley Technical High School District	North Chelmsford Water District	North Middlesex Regional School District	Shawsheen Valley Regional Vocational Technical School
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 3,059,922	\$ 625,314	\$ 10,106,977	\$ 6,940,284
Ending net pension liability.....	\$ 3,156,315	\$ 748,681	\$ 10,991,588	\$ 7,364,846
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	160,948	38,177	560,487	375,550
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	57,312	102,710	-
Total Deferred Outflows of Resources.....	\$ 160,948	\$ 95,489	\$ 663,197	\$ 375,550
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	106,167	14,916	9,232	103,486
Total Deferred Inflows of Resources.....	\$ 106,167	\$ 14,916	\$ 9,232	\$ 103,486
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 309,480	\$ 73,409	\$ 1,077,739	\$ 722,131
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(26,542)	10,599	23,369	(25,871)
Total Employer Pension Expense.....	\$ 282,938	\$ 84,008	\$ 1,101,108	\$ 696,260
<b>Contributions</b>				
Statutory required contribution.....	\$ 230,992	\$ 39,106	\$ 836,323	\$ 520,323
Contribution in relation to statutory required contribution.....	(230,992)	(39,106)	(836,323)	(520,323)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	28.30%	7.79%	16.76%	19.19%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 14,315	\$ 20,290	\$ 165,651	\$ 69,464
June 30, 2018.....	14,315	20,290	165,651	69,464
June 30, 2019.....	14,315	20,290	165,651	69,464
June 30, 2020.....	11,836	19,703	157,012	63,672
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 54,781	\$ 80,573	\$ 653,965	\$ 272,064
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 3,790,139	\$ 899,018	\$ 13,198,831	\$ 8,843,792
Current discount rate (7.875%).....	\$ 3,156,315	\$ 748,681	\$ 10,991,588	\$ 7,364,846
1% increase (8.875%).....	\$ 2,616,570	\$ 620,648	\$ 9,111,978	\$ 6,105,423
Covered Payroll.....	\$ 816,229	\$ 502,236	\$ 4,990,136	\$ 2,710,777
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, 2015

	South Middlesex Regional Vocational Technical School	Sudbury Water District	Tewksbury Housing Authority	Wayland Housing Authority
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 6,035,168	\$ 1,332,112	\$ 1,170,186	\$ 388,273
Ending net pension liability.....	\$ 6,481,194	\$ 1,446,469	\$ 1,248,093	\$ 447,164
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	330,491	73,759	63,643	22,802
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	298	11,879	2,640	22,435
Total Deferred Outflows of Resources.....	\$ 330,789	\$ 85,638	\$ 66,283	\$ 45,237
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	7,715	23,553	6,309	3,323
Total Deferred Inflows of Resources.....	\$ 7,715	\$ 23,553	\$ 6,309	\$ 3,323
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 635,489	\$ 141,828	\$ 122,376	\$ 43,845
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	(1,854)	(2,918)	(917)	4,778
Total Employer Pension Expense.....	\$ 633,635	\$ 138,910	\$ 121,459	\$ 48,623
<b>Contributions</b>				
Statutory required contribution.....	\$ 490,299	\$ 82,136	\$ 99,575	\$ 30,339
Contribution in relation to statutory required contribution.....	(490,299)	(82,136)	(99,575)	(30,339)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	21.08%	10.20%	27.94%	11.62%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 82,043	\$ 15,806	\$ 15,239	\$ 10,566
June 30, 2018.....	82,043	15,806	15,239	10,566
June 30, 2019.....	82,043	15,806	15,239	10,566
June 30, 2020.....	76,945	14,667	14,257	10,216
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 323,074	\$ 62,085	\$ 59,974	\$ 41,914
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 7,782,695	\$ 1,736,941	\$ 1,498,725	\$ 536,954
Current discount rate (7.875%).....	\$ 6,481,194	\$ 1,446,469	\$ 1,248,093	\$ 447,164
1% increase (8.875%).....	\$ 5,372,881	\$ 1,199,119	\$ 1,034,663	\$ 370,693
Covered Payroll.....	\$ 2,325,406	\$ 805,254	\$ 356,427	\$ 260,997
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, 2015

	Hopkinton Housing Authority	Sudbury Housing Authority	Wilmington Housing Authority	Acton Housing Authority
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 390,851	\$ 228,202	\$ 253,992	\$ 753,333
Ending net pension liability.....	\$ 442,908	\$ 266,258	\$ 271,567	\$ 827,882
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	22,585	13,577	13,848	42,216
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	17,219	17,538	2,514	15,079
Total Deferred Outflows of Resources.....	\$ 39,804	\$ 31,115	\$ 16,362	\$ 57,295
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	4,218	-	879	-
Total Deferred Inflows of Resources.....	\$ 4,218	\$ -	\$ 879	\$ -
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 43,428	\$ 26,107	\$ 26,627	\$ 81,175
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	3,250	4,385	409	3,770
Total Employer Pension Expense.....	\$ 46,678	\$ 30,492	\$ 27,036	\$ 84,945
<b>Contributions</b>				
Statutory required contribution.....	\$ 28,891	\$ 22,778	\$ 24,091	\$ 65,147
Contribution in relation to statutory required contribution.....	(28,891)	(22,778)	(24,091)	(65,147)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	16.22%	23.27%	19.96%	18.91%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 8,983	\$ 7,832	\$ 3,924	\$ 14,487
June 30, 2018.....	8,983	7,832	3,924	14,487
June 30, 2019.....	8,983	7,832	3,924	14,487
June 30, 2020.....	8,637	7,619	3,711	13,834
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 35,586	\$ 31,115	\$ 15,483	\$ 57,295
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 531,842	\$ 319,728	\$ 326,095	\$ 994,131
Current discount rate (7.875%).....	\$ 442,908	\$ 266,258	\$ 271,567	\$ 827,882
1% increase (8.875%).....	\$ 367,164	\$ 220,728	\$ 225,123	\$ 686,311
Covered Payroll.....	\$ 178,070	\$ 97,892	\$ 120,677	\$ 344,529
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, 2015

	Burlington Housing Authority	Ayer Housing Authority	Holliston Housing Authority	Littleton Housing Authority
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 57,928	\$ 394,227	\$ 186,991	\$ 354,194
Ending net pension liability.....	\$ 119,574	\$ 441,841	\$ 214,474	\$ 367,115
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	6,097	22,531	10,937	18,720
Changes of assumptions.....	-	-		
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	47,368	13,742	13,007	978
Total Deferred Outflows of Resources.....	\$ 53,465	\$ 36,273	\$ 23,944	\$ 19,698
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	14,458	-	9,826
Total Deferred Inflows of Resources.....	\$ -	\$ 14,458	\$ -	\$ 9,826
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 11,724	\$ 43,323	\$ 21,030	\$ 35,996
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	11,841	(180)	3,251	(2,213)
Total Employer Pension Expense.....	\$ 23,565	\$ 43,143	\$ 24,281	\$ 33,783
<b>Contributions</b>				
Statutory required contribution.....	\$ 15,190	\$ 16,010	\$ 20,105	\$ 29,540
Contribution in relation to statutory required contribution.....	(15,190)	(16,010)	(20,105)	(29,540)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	5.85%	9.51%	14.35%	78.70%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 13,389	\$ 5,540	\$ 6,027	\$ 2,539
June 30, 2018.....	13,389	5,540	6,027	2,539
June 30, 2019.....	13,389	5,540	6,027	2,539
June 30, 2020.....	13,298	5,195	5,863	2,255
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 53,465	\$ 21,815	\$ 23,944	\$ 9,872
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 143,583	\$ 530,572	\$ 257,548	\$ 440,834
Current discount rate (7.875%).....	\$ 119,574	\$ 441,841	\$ 214,474	\$ 367,115
1% increase (8.875%).....	\$ 99,124	\$ 366,287	\$ 177,802	\$ 304,335
Covered Payroll.....	\$ 259,737	\$ 168,284	\$ 140,089	\$ 37,533
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, 2015

	Westford Housing Authority	Shirley Water District	Tyngsborough Housing Authority	Pepperell Housing Authority
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 388,239	\$ 317,690	\$ 387,394	\$ 90,362
Ending net pension liability.....	\$ 427,017	\$ 358,461	\$ 399,306	\$ 100,348
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	21,775	18,279	20,361	5,117
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	9,723	12,853	746	3,400
Total Deferred Outflows of Resources.....	\$ 31,498	\$ 31,132	\$ 21,107	\$ 8,517
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	7,828	12,399	-
Total Deferred Inflows of Resources.....	\$ -	\$ 7,828	\$ 12,399	\$ -
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 41,870	\$ 35,147	\$ 39,151	\$ 9,840
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	2,431	1,256	(2,913)	849
Total Employer Pension Expense.....	\$ 44,301	\$ 36,403	\$ 36,238	\$ 10,689
<b>Contributions</b>				
Statutory required contribution.....	\$ 35,704	\$ 17,865	\$ 31,734	\$ 8,913
Contribution in relation to statutory required contribution.....	(35,704)	(17,865)	(31,734)	(8,913)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	17.79%	8.98%	23.01%	12.04%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 7,959	\$ 5,896	\$ 2,256	\$ 2,148
June 30, 2018.....	7,959	5,896	2,256	2,148
June 30, 2019.....	7,959	5,896	2,256	2,148
June 30, 2020.....	7,621	5,616	1,940	2,073
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 31,498	\$ 23,304	\$ 8,708	\$ 8,517
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 512,773	\$ 430,440	\$ 479,483	\$ 120,502
Current discount rate (7.875%).....	\$ 427,017	\$ 358,461	\$ 399,306	\$ 100,348
1% increase (8.875%).....	\$ 353,999	\$ 297,160	\$ 331,017	\$ 83,190
Covered Payroll.....	\$ 200,678	\$ 199,020	\$ 137,892	\$ 74,023
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, 2015

	Groton Housing Authority	Tyngsborough Water District	North Reading Housing Authority	West Groton Water
<b>Net Pension Liability</b>				
Beginning net pension liability.....	\$ 8,010	\$ 326,402	\$ 76,277	\$ 10,524
Ending net pension liability.....	\$ 12,029	\$ 372,014	\$ 84,100	\$ 24,760
<b>Deferred Outflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	613	18,970	4,288	1,262
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	3,596	15,972	4,803	12,944
Total Deferred Outflows of Resources.....	\$ 4,209	\$ 34,942	\$ 9,091	\$ 14,206
<b>Deferred Inflows of Resources</b>				
Differences between expected and actual experience.....	\$ -	\$ -	\$ -	\$ -
Changes of assumptions.....	-	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	546	-	-
Total Deferred Inflows of Resources.....	\$ -	\$ 546	\$ -	\$ -
<b>Pension Expense</b>				
Proportionate share of plan pension expense.....	\$ 1,179	\$ 36,477	\$ 8,246	\$ 2,427
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	899	3,857	1,200	3,236
Total Employer Pension Expense.....	\$ 2,078	\$ 40,334	\$ 9,446	\$ 5,663
<b>Contributions</b>				
Statutory required contribution.....	\$ 2,247	\$ 28,014	\$ 10,459	\$ 5,603
Contribution in relation to statutory required contribution.....	(2,247)	(28,014)	(10,459)	(5,603)
Contribution deficiency/(excess).....	\$ -	\$ -	\$ -	\$ -
Contributions as a percentage of covered payroll.....	8.33%	15.11%	12.43%	3.09%
<b>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</b>				
June 30, 2017.....	\$ 1,055	\$ 8,673	\$ 2,289	\$ 3,556
June 30, 2018.....	1,055	8,673	2,289	3,556
June 30, 2019.....	1,055	8,673	2,289	3,556
June 30, 2020.....	1,044	8,377	2,224	3,538
June 30, 2021.....	-	-	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ 4,209	\$ 34,396	\$ 9,091	\$ 14,206
<b>Discount Rate Sensitivity</b>				
1% decrease (6.875%).....	\$ 14,437	\$ 446,721	\$ 100,984	\$ 29,727
Current discount rate (7.875%).....	\$ 12,029	\$ 372,014	\$ 84,100	\$ 24,760
1% increase (8.875%).....	\$ 9,967	\$ 308,399	\$ 69,715	\$ 20,522
Covered Payroll.....	\$ 26,970	\$ 185,390	\$ 84,128	\$ 181,438
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, 2015

	Ayer-Shirley Regional School District	Totals
<u>Net Pension Liability</u>		
Beginning net pension liability.....	\$ 4,313,770	\$ 1,201,315,715
Ending net pension liability.....	\$ 4,808,243	\$ 1,290,018,945
<u>Deferred Outflows of Resources</u>		
Differences between expected and actual experience.....	\$ -	\$ -
Net difference between projected and actual investment earnings on pension plan investments.....	245,184	65,781,032
Changes of assumptions.....	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	154,285	9,080,216
Total Deferred Outflows of Resources.....	\$ <u>399,469</u>	\$ <u>74,861,248</u>
<u>Deferred Inflows of Resources</u>		
Differences between expected and actual experience.....	\$ -	\$ -
Changes of assumptions.....	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	-	9,080,216
Total Deferred Inflows of Resources.....	\$ <u>-</u>	\$ <u>9,080,216</u>
<u>Pension Expense</u>		
Proportionate share of plan pension expense.....	\$ 471,455	\$ 126,799,616
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	38,571	-
Total Employer Pension Expense.....	\$ <u>510,026</u>	\$ <u>126,799,616</u>
<u>Contributions</u>		
Statutory required contribution.....	\$ 400,447	\$ 98,792,642
Contribution in relation to statutory required contribution.....	(400,447)	(99,820,481)
Contribution deficiency/(excess).....	\$ -	\$ (1,027,839)
Contributions as a percentage of covered payroll.....	10.40%	22.85%
<u>Deferred Inflows/(Outflows) Recognized in Future Pension Expense</u>		
June 30, 2017.....	\$ 100,812	\$ 16,698,816
June 30, 2018.....	100,812	16,698,816
June 30, 2019.....	100,812	16,698,817
June 30, 2020.....	97,033	15,684,583
June 30, 2021.....	-	-
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ <u>399,469</u>	\$ <u>65,781,032</u>
<u>Discount Rate Sensitivity</u>		
1% decrease (6.875%).....	\$ 5,773,800	\$ 1,549,069,449
Current discount rate (7.875%).....	\$ 4,808,243	\$ 1,290,018,945
1% increase (8.875%).....	\$ 3,986,015	\$ 1,069,419,459
Covered Payroll.....	\$ 3,851,372	\$ 432,382,921
See notes to schedule of employer allocations and schedule of pension amounts by employer.		Concluded



**NOTE I – Schedule of Employer Allocations**

Governmental Accounting Standards Board (GASB) Statement #68 requires employers participating in a cost-sharing pension plan to recognize pension liabilities as employees provide services to the government and earn their pension benefits. 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, pension expense, and contributions.

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 Middlesex County 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. The Public Employee Retirement Administration Commission (PERAC) approves each system's proportionate share of the annual required contribution. PERAC can accept alternative allocation methodologies and as such the System has elected to use an actuarial based allocation methodology. Accordingly, the each member unit's proportionate share of the net pension liability has been calculated based on each member unit's actual current employees, retirees, inactive participants, and actual share of net position as of December 31, 2015.

The County of Middlesex was abolished on July 11, 1997, pursuant to Chapter 48 of the Acts of 1997. This Act required that active employees of Middlesex County and Hospital be transferred to the Commonwealth. The legislation required that County and Hospital retirees and beneficiaries remain with the County Retirement System. The Commonwealth provided a mechanism, in the legislation, that fully funded the actuarially determined liability of those retirees. At December 31, 2015, the remaining liabilities for Middlesex County and the Middlesex Hospital retirees and beneficiaries were actuarially determined and are separately identified in the System's funding schedule. No assets have been allocated to cover the remaining liability and therefore the liability has been allocated to the remaining member units.

The current employees, retirees, beneficiaries and inactive participants of the Middlesex County Retirement System have been identified and their total pension liability has been actuarially determined. For transparency purposes, the System has historically paid a contribution as an employer to itself. However with the implementation of GASB 67 & 68 the net pension liability is allocated to each member unit.

When a member unit accepts an Early Retirement Incentive Program (E.R.I. or ERIP), PERAC completes an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the ERIP. The accrued liability for the members who accept the ERIP as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. The net increase is amortized for each member unit accepting the ERIP, and is separately identified in the system's funding schedule. The 2002 ERIP amortization is straight line ending in fiscal 2019. The 2003 ERIP amortization is straight line ending in fiscal 2020. The 2010 ERIP amortization is straight line ending in fiscal 2022.

**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, covered payroll, pension expense, and contributions for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; and changes of assumptions. Since the system performs an actuarial valuation bi-annually, there are no reported differences between expected and actual experience or a change of assumptions as of December 31, 2015.