

ANDOVER CONTRIBUTORY RETIREMENT SYSTEM

***AUDIT OF SPECIFIC ELEMENTS, ACCOUNTS
AND ITEMS OF FINANCIAL STATEMENTS***

YEAR ENDED DECEMBER 31, 2017

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



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Independent Auditor's Report

To the Honorable Andover Retirement Board
Andover Contributory Retirement System
Andover, Massachusetts

We have audited the accompanying schedule of employer allocations of the Andover Contributory Retirement System (ACRS) as of and for the year ended December 31, 2017, and the related notes. We have also audited the total for all entities of the rows titled total net pension liability, total deferred outflows of resources, total deferred inflows of resources, total covered payroll, total pension expense and total contributions included in the accompanying schedule of pension amounts by employer of the ACRS Pension Plan as of and for the year ended December 31, 2017 and the beginning net pension liability as of December 31, 2016, and the related notes.

Management's Responsibility for the Schedules

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

Auditor's Responsibility

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

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

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

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and total net pension liability, total deferred outflows of resources, total deferred inflows of resources, total covered payroll, total pension expense and total contributions for the total of all participating entities for the Andover Contributory Retirement System as of and for the year ended December 31, 2017 and the beginning net pension liability as of December 31, 2016, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the Town of Andover, Massachusetts, which includes the Andover Contributory Retirement System reported as fiduciary component unit, as of and for the year ended June 30, 2018 (except for the Andover Contributory Retirement System which is as of and for the year ended December 31, 2017), and our report thereon, dated February 7, 2019, expressed an unmodified opinion on those financial statements.

Restriction on Use

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



February 7, 2019

SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2017

<u>Employer</u>	<u>FY2018 Pension Fund Appropriation</u>	<u>Percent of Pension Fund Appropriation</u>
Town of Andover.....	\$ 9,428,488	99.11%
Andover Housing Authority.....	<u>84,752</u>	<u>0.89%</u>
Total.....	<u>\$ 9,513,240</u>	<u>100.00%</u>

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

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	<u>Town of Andover</u>	<u>Andover Housing Authority</u>	<u>Totals</u>
<u>Net Pension Liability</u>			
Beginning net pension liability.....	\$ 163,674,229	\$ 1,272,212	\$ 164,946,441
Ending net pension liability.....	\$ 161,518,798	\$ 1,451,881	\$ 162,970,679
<u>Deferred Outflows of Resources</u>			
Differences between expected and actual experience.....	\$ 4,584,510	\$ 41,210	\$ 4,625,720
Net difference between projected and actual investment earnings on pension plan investments.....	-	-	-
Changes of assumptions.....	24,032,953	216,031	24,248,984
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	<u>1,506,583</u>	<u>151,207</u>	<u>1,657,790</u>
Total Deferred Outflows of Resources.....	<u>\$ 30,124,046</u>	<u>\$ 408,448</u>	<u>\$ 30,532,494</u>
<u>Deferred Inflows of Resources</u>			
Differences between expected and actual experience.....	\$ 1,696,802	\$ 15,252	\$ 1,712,054
Net difference between projected and actual investment earnings on pension plan investments.....	8,176,932	73,502	8,250,434
Changes of assumptions.....	-	-	-
Changes in proportion and differences between employer contributions and proportionate share of contributions.....	<u>1,643,822</u>	<u>13,968</u>	<u>1,657,790</u>
Total Deferred Inflows of Resources.....	<u>\$ 11,517,556</u>	<u>\$ 102,722</u>	<u>\$ 11,620,278</u>
<u>Pension Expense</u>			
Proportionate share of plan pension expense.....	\$ 20,928,679	\$ 188,125	\$ 21,116,804
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions.....	<u>(29,085)</u>	<u>29,085</u>	<u>-</u>
Total Employer Pension Expense.....	<u>\$ 20,899,594</u>	<u>\$ 217,210</u>	<u>\$ 21,116,804</u>

(Continued)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

FOR THE YEAR ENDED DECEMBER 31, 2017

	<u>Town of Andover</u>	<u>Andover Housing Authority</u>	<u>Totals</u>
Contributions			
Statutory required contribution.....	\$ 9,428,488	\$ 84,752	\$ 9,513,240
Contribution in relation to statutory required contribution.....	<u>(9,449,449)</u>	<u>(68,028)</u>	<u>(9,517,477)</u>
Contribution deficiency/(excess).....	\$ <u>(20,961)</u>	\$ <u>16,724</u>	\$ <u>(4,237)</u>
Contributions as a percentage of covered payroll.....	24.65%	13.59%	24.51%
Deferred (Inflows)/Outflows Recognized in Future Pension Expense			
June 30, 2019.....	\$ 6,910,707	\$ 91,467	\$ 7,002,174
June 30, 2020.....	6,851,003	90,930	6,941,933
June 30, 2021.....	5,283,773	76,841	5,360,614
June 30, 2022.....	(1,557,709)	12,609	(1,545,100)
June 30, 2023.....	<u>1,118,716</u>	<u>33,879</u>	<u>1,152,595</u>
Total Deferred Inflows/(Outflows) Recognized in Future Pension Expense.....	\$ <u>18,606,490</u>	\$ <u>305,726</u>	\$ <u>18,912,216</u>
Discount Rate Sensitivity			
1% decrease (5.25%).....	\$ 199,296,316	\$ 1,791,461	\$ 201,087,777
Current discount rate (6.25%).....	\$ 161,518,798	\$ 1,451,881	\$ 162,970,679
1% increase (7.25%).....	\$ 129,842,106	\$ 1,167,142	\$ 131,009,248
Covered Payroll.....	\$ 38,327,526	\$ 500,640	\$ 38,828,166
			(Concluded)

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

**Notes to Schedule of Employer Allocations
and Schedule of Pension Amounts by Employer**

Year Ended December 31, 2017

NOTE 1 – Plan Description

The Andover Contributory Retirement System (System) is a multiple-employer, cost-sharing, contributory defined benefit pension plan covering all employees of the governmental member units deemed eligible by the Andover Contributory Retirement Board (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. The System has two participating employers.

The System is governed by a five-member board comprised of the Town Accountant (ex-officio), two members elected by the System's participants, one member appointed by the Board of Selectmen and one member appointed by the Board members.

The System is a component unit of the Town of Andover and is presented using the accrual basis of accounting and is reported as a pension trust fund in the fiduciary fund financial statements. That report may be obtained by contacting the Town Accountant located at 36 Bartlet Street, Andover, Massachusetts 01810.

NOTE 2 – Schedule of Employer Allocations

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

Massachusetts General Law (MGL) Chapter 32 Section 22 Paragraph 7c dictates that Massachusetts cost sharing defined benefit pension plans allocate the annual required pension fund appropriation to employer units based on their proportionate share of the aggregate of the annual rates of regular compensation of all members in service of the system who are employees of any government unit at the close of business on the September 30th immediately preceding the fiscal year unless another methodology is approved by the Board. The allocation of the net pension liability, deferred outflows, deferred inflows, and pension expense is based on each member's proportion of the actuarial accrued liability relative to the proportion of the actuarial accrued liability attributable to all participating members, which is the long-term expected contribution rate for the ACRS.

**Notes to Schedule of Employer Allocations
and Schedule of Pension Amounts by Employer**

Year Ended December 31, 2017

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. For employers that accept the ERIP, the increase in the liability attributable to each employer is amortized and separately identified in the System's actuarially determined funding schedule. Neither of the member units have accepted an ERIP.

NOTE 3 – 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, and pension expense for all participating employers including differences between expected and actual economic experience; differences between projected and actual investment earnings, net; changes in proportionate share of contributions, and changes of assumptions.

NOTE 4 – Pension Plan Information

Benefits Provided

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

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions. Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

Cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by the Commonwealth's 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 Board and are borne by the System.

Contributions

Chapter 32 of the MGL governs the contributions of plan members and member units. Active plan members are required to contribute at rates ranging from 5% to 9% of gross regular compensation with an additional 2% contribution required for compensation exceeding \$30,000. The percentage rate is keyed to the date upon which an employee's membership commences as mandated by statute. The member units are required to pay into the System 100% of the actuarially determined contribution that, when combined with plan member contributions, is expected to finance the costs of benefits earned by plan members during the year, with an additional amount to finance any unfunded accrued liability.

**Notes to Schedule of Employer Allocations
and Schedule of Pension Amounts by Employer**

Year Ended December 31, 2017

Pension Liabilities

The net pension liability was measured as of December 31, 2017, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of January 1, 2018. The proportion of the net pension liability was based on a projection of the long-term share of contributions to the pension plan relative to the projected contributions of all participating members.

Investment Policy

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

The long-term expected rate of return on pension plan investments was selected by the Town. This rate is within a reasonable range for a 10-year expected return calculated 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 less investment expense and a risk factor. The System's expected future real rate of return is added to the expected inflation rate to produce the long-term nominal expected rate of return. Best estimates of the arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2017 are summarized in the following table:

<u>Asset Class</u>	<u>Long-Term Expected Asset Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic equity.....	37.00%	5.63%
International developed markets equity.....	10.00%	6.59%
International emerging markets equity.....	6.00%	8.90%
Core fixed income.....	10.00%	1.17%
High-yield fixed income.....	10.00%	3.62%
Real estate.....	13.00%	4.39%
Commodities.....	2.00%	4.19%
Hedge fund GTAA, Risk parity.....	6.50%	3.43%
Private equity.....	5.50%	9.76%
Total.....	<u>100.00%</u>	

**Notes to Schedule of Employer Allocations
and Schedule of Pension Amounts by Employer**

Year Ended December 31, 2017

Actuarial Assumptions

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

Valuation date.....	January 1, 2018
Actuarial cost method.....	Individual Entry Age Normal Cost Method.
Inflation rate.....	3.50%
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.
Cost of living adjustments.....	3% of the first \$12,000 of retirement income.
Mortality Rates:	
Pre-Retirement.....	RP-2014 Blue Collar Employee Mortality Table set forward one year for female participants projected generationally with Scale MP-2017.
Healthy Retiree.....	RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for female participants projected generationally with Scale MP-2017.
Disabled Retiree.....	RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally with Scale MP-2017.
Investment rate of return/Discount rate.....	6.25%, net of pension plan investment expense, including inflation for the measurement periods ending 12/31/17 and 12/31/16.

Rate of Return

For the year ended December 31, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 17.63%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Discount Rate

The discount rate used to measure the total pension liability was 6.25%. 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.

**Notes to Schedule of Employer Allocations
and Schedule of Pension Amounts by Employer**

Year Ended December 31, 2017

Pension Plan Fiduciary Net Position

Detailed information about the pension plan's fiduciary net position is available in the separately issued Town of Andover, Massachusetts' comprehensive annual financial report.

Changes of Assumptions – The following changes of assumptions are effective for the January 1, 2018 actuarial valuation:

The mortality assumption for non-disabled participants was updated from the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally from 2009 with Scale BB2D to the RP-2014 Blue Collar Employee and Healthy Annuitant Mortality Tables set forward one year for female participants projected generationally with Scale MP-2017.

The mortality assumption for disabled participants was updated from the RP-2000 Healthy Annuitant Mortality Table projected generationally from 2015 with Scale BB2D to the RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally with Scale MP-2017.

Changes in plan provisions – None