



READING CONTRIBUTORY RETIREMENT SYSTEM

ACTUARIAL VALUATION as of

July 1, 2013

Prepared by:

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Enrolled Actuary
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March 10, 2014

Reading Contributory Retirement Board
16 Lowell Street
Reading, MA 01867

Dear Board Members:

We are pleased to present the enclosed report summarizing the results of our actuarial valuation of the Reading Contributory Retirement System as of July 1, 2013.

Our valuation was performed in accordance with the provisions contained in Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of July 1, 2013 and GASB Statement No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans (GASB 25) and GASB Statement No. 27, Accounting for Pensions by State and Local Governmental Employers (GASB 27).

The principal results of our valuation are summarized in Section 2. The summary of Plan provisions and actuarial methods and assumptions are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members, retired plan members and beneficiaries and disabled plan members. Asset information and actuarial liabilities are presented in Section 2. The development of the required appropriations pursuant to Chapter 32 of the M.G.L. is shown in Section 3. The required disclosures under GASB 25, GASB 27 and PERAC are presented in Section 4.

We also provide a 30-year forecast of the required appropriations and cash flows in Section 3.

Our actuarial valuation is based on an investment return rate of 7.75%, compounded annually. Our calculations were based on participant census and asset data and other information provided by the Reading Contributory Retirement System and the benefit provisions of Chapter 32 of the M.G.L. as of July 1, 2013.

K M S A C T U A R I E S

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Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

We appreciate this opportunity to be of service to the Reading Contributory Retirement Board. We are available to answer any questions with respect to our valuation.

Respectfully submitted,

A handwritten signature in black ink that reads "Linda Bournival". The signature is written in a cursive style with a large, looped "O" at the end.

Linda L. Bournival, FSA

Member, American Academy of Actuaries

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ACTUARIAL CERTIFICATION

This report presents the results of the Actuarial Valuation for the Reading Contributory Retirement System as of July 1, 2013. The report presents the funding schedule contribution amounts for the fiscal years beginning 2015 and accounting and financial reporting information in accordance with Statement Numbers 25 and 27 of the Governmental Accounting Standards Board.

This valuation is based upon member data and asset information provided by the Reading Contributory Retirement System. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the System and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the System.

This report is intended for the sole use of the Reading Contributory Retirement System and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,



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SECTION 1 - SUMMARY

Background

We have completed the Actuarial Valuation of the Reading Contributory Retirement System as of July 1, 2013. This valuation is based upon census data and asset information provided by the Retirement Board. Information for the prior valuation completed as of July 1, 2011 was obtained from the valuation report prepared by The Segal Company.

Massachusetts General Laws

The valuation was prepared in accordance with Chapter 32 of the Massachusetts General Laws ("M.G.L.").

The valuation does not take into consideration:

- Changes in the law after the valuation date,
- Transfers between retirement systems pursuant to Section 3(8)(c) of Chapter 32,
- State-mandated benefits and
- Cost-of-living increases granted to members in pay status between 1982 and 1997.

GASB Statement Numbers 25 and 27

The Governmental Accounting Standards Board (**GASB**) is responsible for establishing accounting standards for governmental entities. Calculations developed in accordance with GASB standards are required when providing financial statements.

GASB Statement Number 25 (**GASB 25**) establishes financial reporting standards for defined benefit pension plans of state and local governmental entities. The Statement establishes a framework that distinguishes between two categories of information: current financial information about plan assets and financial activities and actuarially determined information about the funded status of the plan and the progress being made in accumulating sufficient assets to pay benefits when due.

GASB Statement Number 27 (**GASB 27**) establishes standards for the measurement, recognition, and display of pension expense and related liabilities, assets, note disclosures, and, if applicable, required supplementary information in the financial reports of state and local governmental employers. Employers are required to measure and disclose an amount for annual pension cost on the accrual basis of accounting, regardless of the amount recognized as pension expense on the accrual basis. Annual pension cost should be equal to the employer's Annual Required Contribution (ARC) to the plan.

The required disclosures under the GASB Statements are presented in Section 4.

SECTION 1 - SUMMARY

Actuarial Valuation

During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease from \$43,080,899 as of July 1, 2011 to \$42,436,405 as of July 1, 2013, for a total decrease of \$644,494. The actual unfunded actuarial accrued liability, before any assumption or plan changes, was \$38,890,068, resulting in an actuarial gain of \$3,546,337. The actuarial gain was primarily made up of an asset loss of \$1,715,251 and a demographic experience gain of \$5,261,588. The details of the gain and loss analysis are provided in Exhibit 2.6.

Appropriations

The funding appropriation for each year is computed as the sum of the normal cost and an amortization payment to pay off the Unfunded Actuarial Liability, adjusted for semi-annual payments of the appropriation made August 1 and December 31 of each fiscal year. The appropriation calculated as of the July 1, 2013 valuation is \$4,610,556, and is made up of a normal cost payment of \$1,379,443 and an amortization payment of \$3,231,113. The amortization method is an increasing amortization of the unfunded actuarial accrued liability at 4.50% over 15 years and is expected to fully pay the unfunded actuarial accrued liability by the year 2028. The development of the appropriation as of July 1, 2013 is presented in Exhibit 3.1.

For fiscal year 2014, we show the actual appropriation developed under the previous funding schedule and reported on the PERAC "Required Fiscal Year 2014 Appropriation" letter dated November 26, 2012 of \$4,747,889. The Board has opted to retain the funding schedule developed in the July 1, 2011 valuation. The payments toward reducing the unfunded actuarial accrued liability reflect the 2011 schedule and as a result, the unfunded actuarial accrued liability is expected to be fully paid by 2028. The current funding schedule is shown in Exhibit 3.2.

The funding schedule shown in Exhibit 3.2 has been modified slightly from the schedule adopted by the Board to reflect a minor change to the Employee Contributions. The Employer Normal Cost and the Amortization Payment of UAL has changed but the total appropriation for years 2014 through 2027 remain the same. This change results in minor decreases in the Total Employer Cost shown in the original schedule for years 2028 and beyond.

SECTION 1 - SUMMARY

A summary of principal valuation results from the current valuation and the prior valuation follows. Changes in actuarial assumptions and methods and Plan provisions are discussed below, as well as changes in census data and asset information.

Valuation Date	<u>7/1/2013</u>	<u>7/1/2011</u>	<u>Increase/ (Decrease)</u>
Summary of Member Data			
Active Members	344	333	3.3%
Average Age	48.4	48.6	(0.4%)
Average Service	15.2	15.0	1.3%
Salary	\$20,915,728	\$19,937,502	4.9%
Average Salary	\$60,802	\$59,872	1.6%
Valuation Salary	\$22,546,502	\$20,934,378	7.7%
Retired Members and Beneficiaries	286	287	(0.3%)
Average Age*	74.8	73.6	1.6%
Total Annual Pension*	\$7,032,171	\$5,892,216	19.3%
Average Annual Pension	\$24,588	\$24,348	1.0%
Disabled Members	45	42	7.1%
Average Age	70.1	67.0	4.6%
Total Annual Pension	\$1,203,717	\$1,082,088	11.2%
Average Annual Pension	\$26,749	\$25,764	3.8%
Inactive Members	31	29	6.9%
Annuity Savings Fund	807,939	\$1,200,248	(32.7%)
Actuarial Accrued Liability (AAL)	\$140,807,141	\$134,440,050	4.7%
Assets			
Market Value of Assets	\$100,175,591	\$92,219,308	8.6%
Actuarial Value of Assets	101,349,437	91,359,151	10.9%
Unfunded Accrued Liability (Surplus)	\$39,457,704	\$43,080,899	(8.4%)
Funded Status	72.0%	68.0%	5.9%
Normal Cost			
Employer	\$1,292,443	\$1,239,848	4.2%
Employee	1,978,814	1,914,813	3.3%
Administrative Expenses	87,000	87,000	0.0%
Total Normal Cost	\$3,358,257	\$3,241,661	3.6%

* 2011 counts include 45 beneficiaries, but annual pension information does not include amounts for beneficiaries as these were not provided in prior report.

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 1 - SUMMARY

Valuation Date	<u>7/1/2013</u>	<u>7/1/2011</u>	<u>Increase/ (Decrease)</u>
Appropriations			
Fiscal Year 2014	\$4,747,889	\$4,747,889	0.0%
Fiscal Year 2015	\$4,961,544	\$4,961,544	0.0%
Fiscal Year 2016	\$5,184,813	\$5,184,813	0.0%

Actuarial Assumptions and Methods

All Actuarial Assumptions and Methods used in this valuation are the same as those used in the prior valuation, except the mortality improvement applied to the RP-2000 Mortality Table was changed to project 12 years (previously projected 10 years). Changing this assumption resulted in a net increase in the unfunded actuarial accrued liability of \$567,636 and an increase in the employer normal cost of \$8,480. The Actuarial Assumptions and Methods utilized in this valuation are detailed in Section 6, Actuarial Assumptions and Methods.

Plan Provisions

Chapter 176 of the Acts of 2011 was incorporated in this valuation, which changes many of the benefit features for members hired on or after April 2, 2012. The Plan provisions utilized in this valuation are detailed in Section 5, Summary of Plan Provisions.

Census Data

As of July 1, 2013, there are 344 active members who may be eligible for benefits in the future, 286 retirees and beneficiaries, 31 inactives and 45 disabled retirees. Summaries of the active, retired and disabled employees are included in Section 7, Demographic Information.

Assets

This valuation is based upon asset information provided by the Reading Contributory Retirement Board. The market value of assets increased from \$92,219,308 as of July 1, 2011 to \$100,175,591 as of July 1, 2013. During the plan years ended 2012 and 2013, the rates of return on the market value of assets were -0.47% and 12.46%, respectively.

The actuarial value of assets increased from \$91,359,151 as of July 1, 2011 to \$101,349,437 as of July 1, 2013. During the plan years ended 2012 and 2013, the rates of return on the actuarial value of assets were 6.30% and 7.45%, respectively.

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Asset information is reported annually to the Public Employee Retirement Administration Commission by the Reading Contributory Retirement System. The Market Value of Assets for the two most recent calendar years are as follows:

Calendar Year Ended December 31	2012	2011
Trust Fund Composition at Year-End		
Cash	\$1,212,886	\$285,524
Short-Term Investments	0	0
Fixed Income Securities	0	0
Equities	0	0
Pooled Short Term Funds	0	0
Pooled Domestic Equity Funds	0	0
Pooled International Equity Funds	0	0
Pooled Global Equity Funds	0	0
Pooled Domestic Fixed Income Funds	0	0
Pooled International Fixed Income Funds	0	0
Pooled Global Fixed Income Funds	0	0
Pooled Alternative Investments	0	0
Pooled Real Estate Funds	0	0
Pooled Domestic Balanced Funds	0	0
Pooled International Balanced Funds	0	0
PRIT Absolute	0	0
PRIT Cash	530,071	1,230,065
PRIT Fund	97,282,278	86,995,931
Interest Due & Accrued	0	0
Prepaid Expenses	612	138
Accounts Receivable	91,315	229,403
Land	0	0
Buildings	0	0
Accumulated Depreciation - Buildings	0	0
Accounts Payable	(164,565)	(191,969)
Total Market Value of Assets	\$98,952,597	\$88,549,092

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Calendar Year Ended December 31	2012	2011
Funds		
Annuity Savings Fund	\$23,175,236	\$22,250,192
Annuity Reserve Fund	6,863,746	6,639,092
Military Service Fund	33,023	32,990
Pension Fund	0	0
Expense Fund	0	0
Pension Reserve Fund	68,880,592	59,626,818
Total Market Value of Assets	\$98,952,597	\$88,549,092

Asset Activity		
Market value as of January 1	\$88,549,092	\$90,040,188
Contributions and Receipts	6,994,892	6,834,452
Benefit Payments and Expenses	(8,233,664)	(8,165,741)
Investment Return	11,642,277	(159,807)
Market Value as of December 31	\$98,952,597	\$88,549,092

Estimated Rate of Return	13.25%	-0.18%
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Plan Year Ended June 30	2013	2012
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Asset Activity		
Market value as of Beginning of Year	\$90,424,492	\$92,219,308
Contributions and Receipts	7,055,231	6,807,536
Benefit Payments and Expenses	(8,476,792)	(8,172,027)
Investment Return	11,172,660	(430,325)
Market Value as of End of Year	\$100,175,591	\$90,424,492

Estimated Rate of Return	12.46%	-0.47%
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PERAC Rates of Return

Returns and annualized past returns developed by PERAC are shown below. Information is obtained from the Annual Investment Reports published by PERAC for the years shown.

Year	1-Year Return	5-Year Return	Return (Since 1985)
2012	14.15%	1.57%	9.34%
2011	0.19%	1.21%	9.17%
2010	13.61%	4.37%	9.53%
2009	17.85%	4.21%	9.37%

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Valuation Date	7/1/2013	7/1/2012
1. Actuarial Value of Assets, prior year	\$95,702,594	\$91,359,151
a. Prior Year Contributions and Receipts	7,055,231	6,807,536
b. Prior Year Benefit Payments and Expenses	(8,476,792)	(8,172,027)
c. Average Actuarial Value of Assets	94,991,814	90,676,906
d. Expected Investment Return Rate	7.75%	7.75%
e. Expected Investment Income	7,361,866	7,027,460
f. Preliminary Actuarial Value of Assets	\$101,642,899	\$97,022,120
g. Market Value of Assets as of end of year	\$100,175,591	\$90,424,492
h. Adjustment toward Market Value ¹	(293,462)	(1,319,526)
i. Actuarial Value of Assets, before corridor	\$101,349,437	\$95,702,594
2. Actuarial Value of Assets		
a. Actuarial Value of Assets, before corridor	\$101,349,437	\$95,702,594
b. 80% of Market Value of Assets	80,140,473	72,339,594
c. 120% of Market Value of Assets	120,210,709	108,509,390
d. Actuarial Value of Assets, a., but not less than b. and not greater than c.	\$101,349,437	\$95,702,594
e. Ratio of Actuarial Value of Assets to Market Value of Assets	101.2%	105.8%
3. Rate of Return on Actuarial Value of Assets for Prior Plan Year	7.45%	6.30%

¹ 20% of g. - f.

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Actuarial Present Value of Future Benefits** is the present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money. Below is the Actuarial Present Value of Future Benefits from the current valuation:

Exhibit 2.2 - Actuarial Present Value of Future Benefits

Valuation Date	<u>7/1/2013</u>	<u>7/1/2011</u>
Actives		
Superannuation	77,988,050	Not Available
Termination	1,484,704	
Death	3,972,845	
Disability	10,273,144	
Total Actives	\$93,718,743	
Retired Members and Inactives		
Retired Members and Beneficiaries	64,806,405	
Disabled Members	10,310,556	
Inactive Members	807,939	
Total Retired Members and Inactives	\$75,924,900	
Total Present Value of Future Benefits	\$169,643,643	

The **Actuarial Accrued Liability** is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability from the current valuation and the prior valuation:

Exhibit 2.3 - Actuarial Accrued Liability

Valuation Date	<u>7/1/2013</u>	<u>7/1/2011</u>
Actives		
Superannuation	58,203,188	Not Available
Termination	687,637	by source
Death	1,831,471	
Disability	4,159,945	
Total Actives	\$64,882,241	\$62,705,752
Retired Members and Inactives		
Retired Members and Beneficiaries	\$64,806,405	Not Available
Disabled Members	10,310,556	by source
Inactive Members	807,939	
Total Retired Members and Inactives	\$75,924,900	\$71,734,298
Total Actuarial Accrued Liability	\$140,807,141	\$134,440,050

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Normal Cost** is the portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year. Only active employees who have not reached Normal Retirement Age incur a Normal Cost. Below is the Normal Cost from the current valuation and the prior valuation:

Exhibit 2.4 - Normal Cost

Valuation Date	<u>7/1/2013</u>	<u>7/1/2011</u>
Actives		
Superannuation	2,279,565	Not Available
Termination	196,318	by source
Death	222,915	
Disability	572,459	
Total Actives	\$3,271,257	\$3,154,661
 Administrative Expenses	 \$87,000	 \$87,000
 Total Normal Cost		
Normal Cost	\$3,358,257	\$3,241,661
As a Percentage of Salary	14.9%	15.5%
 Employee Normal Cost		
Employee Contributions	1,978,814	\$1,914,813
As a Percentage of Salary	8.8%	9.1%
 Employer Normal Cost		
Employer Normal Cost	\$1,379,443	\$1,326,848
As a Percentage of Salary	6.1%	6.3%

Exhibit 2.5 - Unfunded Actuarial Accrued Liability

Valuation Date	<u>7/1/2013</u>	<u>7/1/2011</u>
Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$140,807,141	\$134,440,050
b. Actuarial Value of Assets	101,349,437	91,359,151
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$39,457,704	\$43,080,899
d. Funded Ratio (b. divided by a.)	72.0%	68.0%

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.6 - Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding mortality, retirement, disability and withdrawal rates as well as salary increases and investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease by \$644,494. Below is the development of the Actuarial Gain or Loss for the current 2-year period:

Plan Year Ending	<u>6/30/2013</u>	<u>6/30/2012</u>
Expected Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability, beginning of year	\$42,819,248	\$43,080,899
b. Normal cost, beginning of year	\$3,387,536	3,241,661
c. Total contributions	(7,055,231)	(6,807,536)
d. Interest (full year on a. and b., monthly on c.)	3,284,853	3,304,224
e. Expected Unfunded Actuarial Accrued Liability	\$42,436,405	\$42,819,248
f. Unfunded Actuarial Accrued Liability (before changes)	\$38,890,068	
g. (Gain)/Loss	(\$3,546,337)	
Asset (Gain)/Loss		
a. Actuarial value of assets, beginning of year	\$95,702,594	\$91,359,151
b. Contributions and Receipts	7,055,231	6,807,536
c. Benefit Payments and Expenses	(8,476,792)	(8,172,027)
d. Assumed rate of return	7.75%	7.75%
e. Expected return	7,361,866	7,027,460
f. Actuarial value of assets, end of year	101,349,437	95,702,594
g. Actual return	7,068,404	5,707,934
h. Actual rate of return	7.45%	6.30%
i. Asset (gain)/loss	\$293,462	\$1,319,526
j. Total (gain)/loss over 2-year period	\$1,715,251	
Actual Unfunded Actuarial Accrued Liability		
a. Changes due to:		
i) Asset (gain)/loss	\$1,715,251	
ii) (Gain)/loss from demographic experience	(5,261,588)	
iii) Total (Gain)/loss prior to changes	(3,546,337)	
iv) Unfunded Actuarial Accrued Liability (before changes)	38,890,068	
v) Assumption and Plan changes	567,636	
b. Unfunded Actuarial Accrued Liability, end of year	39,457,704	

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.1 - Annual Appropriations

The **Annual Appropriation** is determined in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability. Below are the details of the annual appropriation for the current valuation.

Amortization Payment	Outstanding Balance at 7/1/2013	Period (in years)	Payment Increase Rate	Annual Payment
a. Assumption Change	\$567,636	15	4.50%	\$46,483
b. Unfunded Actuarial Accrued Liability	\$38,890,068	15	4.50%	\$3,184,630
c. Total	\$39,457,704			\$3,231,113
Normal Cost				\$1,379,443
Total Appropriation at Valuation Date				\$4,610,556

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibits 3.2 and 3.3, are based on the assumptions below:

- Total Normal Cost is expected to increase 4.50% per year.
- Employee Contributions are expected to increase by 4.50% per year.
- Employer Normal Cost is the difference between Total Normal Cost and Employee Contributions.
- The Unfunded Actuarial Accrued Liability ("UAL") is computed as of July 1 of each year assuming no future gains or losses.
- Total Employer Cost is the sum of the Employer Normal Cost and the Amortization of the UAL, both computed as of July 1 of each year and adjusted for semi-annual payments made on August 1 and December 31.
- For fiscal year 2014, we show the actual appropriation developed under the previous funding schedule of \$4,747,889. The Board has opted to retain the funding schedule developed in the July 1, 2011 valuation. The payments reflect the 2011 schedule and as a result, the unfunded actuarial accrued liability is expected to be fully paid by 2028.
- Expected benefit payments include payments expected to be made to retired members, beneficiaries, disabled members and active members expected to retire. In addition, expected benefit payments include distribution of the annuity savings fund attributed to inactive members.
- Benefit payments exclude cost-of-living increases granted to members in pay status between 1982 and 1997. In addition, benefit payments are as expected for the first ten years of the forecast, then increase by the greater of 4.50% per year thereafter or the expected future payments for the current population projected by our computer model.

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.2 - 30-Year Forecast of Annual Appropriations

Fiscal Year Ending	Total Normal Cost	Employee Contributions	Employer Normal Cost	Amortization Payment of UAL	Amortization Payment of ERI 2002	Amortization Payment of ERI 2003	Total Employer Cost	Increase over Prior Year
2014	\$3,420,918	\$2,015,736	\$1,405,182	\$3,342,707	\$0	\$0	\$4,747,889	
2015	3,574,860	2,106,445	1,468,415	3,493,129	-	-	4,961,544	4.50%
2016	3,735,728	2,201,235	1,534,493	3,650,320	-	-	5,184,813	4.50%
2017	3,903,836	2,300,290	1,603,546	3,814,583	-	-	5,418,129	4.50%
2018	4,079,509	2,403,803	1,675,706	3,986,239	-	-	5,661,945	4.50%
2019	4,263,087	2,511,975	1,751,112	4,165,621	-	-	5,916,733	4.50%
2020	4,454,925	2,625,013	1,829,912	4,353,074	-	-	6,182,986	4.50%
2021	4,655,398	2,743,139	1,912,259	4,548,961	-	-	6,461,220	4.50%
2022	4,864,891	2,866,580	1,998,311	4,753,664	-	-	6,751,975	4.50%
2023	5,083,811	2,995,576	2,088,235	4,967,579	-	-	7,055,814	4.50%
2024	5,312,583	3,130,377	2,182,206	5,191,119	-	-	7,373,325	4.50%
2025	5,551,648	3,271,244	2,280,404	5,424,721	-	-	7,705,125	4.50%
2026	5,801,472	3,418,451	2,383,021	5,668,836	-	-	8,051,857	4.50%
2027	6,062,538	3,572,281	2,490,257	5,923,934	-	-	8,414,191	4.50%
2028	6,335,352	3,733,034	2,602,318	4,409,005	-	-	7,011,323	-16.67%
2029	6,620,443	3,901,021	2,719,422	-	-	-	2,719,422	-61.21%
2030	6,918,363	4,076,566	2,841,797	-	-	-	2,841,797	4.50%
2031	7,229,690	4,260,011	2,969,679	-	-	-	2,969,679	4.50%
2032	7,555,026	4,451,712	3,103,314	-	-	-	3,103,314	4.50%
2033	7,895,002	4,652,039	3,242,963	-	-	-	3,242,963	4.50%
2034	8,250,278	4,861,381	3,388,897	-	-	-	3,388,897	4.50%
2035	8,621,540	5,080,143	3,541,397	-	-	-	3,541,397	4.50%
2036	9,009,510	5,308,749	3,700,761	-	-	-	3,700,761	4.50%
2037	9,414,938	5,547,643	3,867,295	-	-	-	3,867,295	4.50%
2038	9,838,610	5,797,287	4,041,323	-	-	-	4,041,323	4.50%
2039	10,281,348	6,058,164	4,223,184	-	-	-	4,223,184	4.50%
2040	10,744,008	6,330,782	4,413,226	-	-	-	4,413,226	4.50%
2041	11,227,488	6,615,667	4,611,821	-	-	-	4,611,821	4.50%
2042	11,732,726	6,913,372	4,819,354	-	-	-	4,819,354	4.50%
2043	12,260,699	7,224,473	5,036,226	-	-	-	5,036,226	4.50%

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.3 - 30-Year Forecast of Cash Flow

Plan Year	Assets, BOY	Benefit Payments	Employee Contributions	Employer Contributions	Investment Return	Assets, EOY
2013	\$100,175,591	\$9,615,677	\$1,978,814	\$4,660,922	\$7,874,530	\$105,074,180
2014	105,074,180	9,247,613	2,067,861	4,870,664	8,292,778	111,057,870
2015	111,057,870	9,609,567	2,160,915	5,089,843	8,765,517	117,464,578
2016	117,464,578	9,981,032	2,258,156	5,318,885	9,271,730	124,332,317
2017	124,332,317	10,375,416	2,359,773	5,558,235	9,813,849	131,688,758
2018	131,688,758	10,798,751	2,465,963	5,808,357	10,393,816	139,558,143
2019	139,558,143	11,217,519	2,576,931	6,069,733	11,014,970	148,002,258
2020	148,002,258	11,694,377	2,692,893	6,342,870	11,679,526	157,023,170
2021	157,023,170	12,148,077	2,814,073	6,628,299	12,391,113	166,708,578
2022	166,708,578	12,631,175	2,940,706	6,926,573	13,154,383	177,099,065
2023	177,099,065	13,199,578	3,073,038	7,238,268	13,970,196	188,180,989
2024	188,180,989	13,793,559	3,211,325	7,563,991	14,840,072	200,002,818
2025	200,002,818	14,414,269	3,355,835	7,904,372	15,767,785	212,616,541
2026	212,616,541	15,062,911	3,506,848	8,260,069	16,757,390	226,077,937
2027	226,077,937	15,740,742	3,664,656	8,882,897	17,677,692	238,562,440
2028	238,562,440	16,449,075	3,829,566	9,669,611	18,601,757	246,914,299
2029	246,914,299	17,189,283	4,001,896	10,589,744	19,640,618	255,457,274
2030	255,457,274	17,962,801	4,181,981	11,665,283	20,793,913	264,185,650
2031	264,185,650	18,771,127	4,370,170	12,866,471	22,061,181	273,092,345
2032	273,092,345	19,615,828	4,566,828	14,163,562	23,501,856	282,168,763
2033	282,168,763	20,498,540	4,772,335	15,626,823	25,175,252	291,404,633
2034	291,404,633	21,420,974	4,987,090	17,306,530	27,065,555	300,787,834
2035	300,787,834	22,384,918	5,211,509	19,112,974	29,236,804	310,304,203
2036	310,304,203	23,392,239	5,446,027	21,106,458	31,742,882	319,937,331
2037	319,937,331	24,444,890	5,691,098	23,307,299	34,647,493	329,668,331
2038	329,668,331	25,544,910	5,947,197	25,782,828	38,051,151	339,475,597
2039	339,475,597	26,694,431	6,214,821	28,582,390	42,111,158	349,334,535
2040	349,334,535	27,895,680	6,494,488	31,867,347	46,986,581	359,217,271
2041	359,217,271	29,150,986	6,786,740	35,701,078	52,842,235	369,092,338
2042	369,092,338	30,462,780	7,092,143	39,993,977	59,956,653	378,924,331

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 4 - REQUIRED DISCLOSURES

Exhibit 4.1 - GASB 25 and GASB 27 Disclosures

The Governmental Accounting Standards Board (GASB) requires certain disclosures of pension liabilities for public employer financial statements in accordance with Statement Numbers 25 and 27. Footnote disclosures required by GASB Statement Numbers 25 and 27 include a description of the Plan, a summary of significant accounting policies and information about contributions, legally required reserves and investment concentrations. The Annual Required Contribution (ARC) shown is for the fiscal year beginning July 1.

Below is the required disclosure information:

<u>Valuation Date</u>	<u>7/1/2013</u>	<u>7/1/2011</u>
1. Actuarial Accrued Liability	\$140,807,141	\$134,440,050
2. Actuarial Value of Assets	101,349,437	91,359,151
3. Unfunded Actuarial Accrued Liability (UAAL)	\$39,457,704	\$43,080,899
4. Funded Ratio = 2. ÷ 1.	72.0%	68.0%
5. Covered Payroll	\$22,546,502	\$20,934,376
6. UAAL as a Percentage of Covered Payroll = 3. ÷ 5.	175.0%	205.8%
7. Annual Required Contribution (ARC)	\$4,747,889	\$4,420,234
8. Net Pension Obligation	\$0	\$0

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
7/1/2013	101,349,437	140,807,141	39,457,704	71.98%	22,546,502	175.01%
7/1/2011	91,359,151	134,440,050	43,080,899	67.96%	20,934,376	205.79%
7/1/2010	85,931,546	127,407,021	41,475,475	67.45%	21,949,836	188.96%
7/1/2009	83,167,202	121,918,447	38,751,245	68.22%	21,004,628	184.49%
7/1/2008	90,968,135	116,726,918	25,758,783	77.93%	20,181,699	127.63%
7/1/2007	84,783,719	112,011,696	27,227,977	75.69%	19,312,631	140.99%
7/1/2006	77,151,279	106,238,442	29,087,163	72.62%	18,859,852	154.23%
7/1/2005	71,468,123	102,152,866	30,684,743	69.96%	18,047,705	170.02%
7/1/2004	66,580,174	95,961,256	29,381,082	69.38%	17,487,410	168.01%
7/1/2003	62,896,650	91,301,520	28,404,870	68.89%	16,734,364	169.74%
7/1/2002	60,933,080	86,888,108	25,955,028	70.13%	16,854,968	153.99%

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 4 - REQUIRED DISCLOSURES

Exhibit 4.2 - PERAC Disclosures

The most recent actuarial valuation of the System was prepared by KMS Actuaries, LLC as of July 1, 2013.

The normal cost for employees on that date was:	\$1,978,814	8.8% of payroll
The normal cost for the employer was:	\$1,379,443	6.1% of payroll

The actuarial liability for active members was:	\$64,882,241
The actuarial liability for retired and inactive members was:	75,924,900
Total actuarial liability:	\$140,807,141
System assets as of that date:	\$101,349,437
Unfunded actuarial accrued liability:	\$39,457,704

The ratio of System assets to total actuarial accrued liability was: 72.0%

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

Investment Return:	7.75%
Rate of Salary Increase:	Based on years of service, ranging from 7% decreasing to 4.75% after 9 years of service for Group 1 employees, and ranging from 8% decreasing to 5.25% after 8 years for Group 4 employees.

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
7/1/2013	101,349,437	140,807,141	39,457,704	72.0%	22,546,502	175.01%
7/1/2011	91,359,151	134,440,050	43,080,899	68.0%	20,934,376	205.79%
7/1/2010	85,931,546	127,407,021	41,475,475	67.5%	21,949,836	188.96%
7/1/2009	83,167,202	121,918,447	38,751,245	68.2%	21,004,628	184.49%
7/1/2008	90,968,135	116,726,918	25,758,783	77.9%	20,181,699	127.63%
7/1/2007	84,783,719	112,011,696	27,227,977	75.7%	19,312,631	140.99%
7/1/2006	77,151,279	106,238,442	29,087,163	72.6%	18,859,852	154.23%
7/1/2005	71,468,123	102,152,866	30,684,743	70.0%	18,047,705	170.02%
7/1/2004	66,580,174	95,961,256	29,381,082	69.4%	17,487,410	168.01%
7/1/2003	62,896,650	91,301,520	28,404,870	68.9%	16,734,364	169.74%
7/1/2002	60,933,080	86,888,108	25,955,028	70.1%	16,854,968	153.99%

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Administration

There are 105 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws and other applicable statutes. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

Participation

Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the local retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are four classes of membership in the Retirement System:

Group 1:	General employees, including clerical, administrative, technical and all other employees not otherwise classified.
Group 2:	Certain specified hazardous duty positions.
Group 3:	State police officers and inspectors.
Group 4:	Local police officers, firefighters and other specified hazardous positions.

For members in more than one group, participation will be proportional.

Member Contributions

Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of Salary
1975 – 1983:	7% of Salary
1984 – June 30, 1996:	8% of Salary
July 1, 1996 – present:	9% of Salary
1979 – present:	An additional 2% of Salary in excess of \$30,000.
Group 1 members hired on or after April 2, 2012:	6% with 30 or more years of creditable service.

Rate of Interest

Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least ten financial institutions.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Retirement Age	The mandatory retirement age for some Group 2 and Group 4 members is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for members in Group 1.
Salary	Gross regular compensation. This does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation.
Average Salary	<p>Membership before April 2, 2012: Average annual rate of regular compensation received during the three consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.</p> <p>Membership on or after April 2, 2012: 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.</p>
Creditable Service	The period during which a member contributes to the retirement system plus certain periods of military service and “purchased” service.
Benefit Rate	The benefit rate varies with the member's retirement age, Group, membership date and years of creditable service at retirement. Each year a member retires prior to the age at which the 2.5% maximum benefit rate applies, a reduction is applied to each year of age under the maximum age.

	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
2.5% for Membership before April 2, 2012:			
Maximum age:	65	60	55
Reduction:	0.1%	0.1%	0.1%
2.5% for Membership on or after April 2, 2012, less than 30 years:			
Maximum age:	67	62	57
Reduction:	0.15%	0.15%	0.15%
2.5% for Membership on or after April 2, 2012, 30 or more years of service:			
Maximum age:	67	62	57
Reduction:	0.125%	0.125%	0.125%

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Superannuation Retirement

Eligibility if membership before April 2, 2012:	<ul style="list-style-type: none"> • completion of 20 years of Creditable Service, or • attainment of age 55 if hired prior to 1978, or • attainment of age 55 with 10 years of Creditable Service, if hired after 1978.
Eligibility if membership on or after April 2, 2012:	<ul style="list-style-type: none"> • attainment of age 60 with 10 years of Creditable Service if classified in Group 1 • attainment of age 55 with 10 years of Creditable Service if classified in Group 2 • attainment of age 55 if hired prior to 1978, or if classified in Group 4
Benefit Amount	Product of the member's Benefit Rate, Average Salary and Creditable Service.
Maximum Benefit	80% of the member's Average Salary.
Veteran's Benefit	Additional benefit of \$15 per year of Creditable Service, up to a maximum of \$300.

Deferred Vested

Eligibility	<ul style="list-style-type: none"> • completion of ten or more years of Creditable Service. • elected officials hired prior to 1978, completion of six years of Creditable Service.
Benefit Amount	Accrued benefit payable commencing at age 55, or the completion of 20 years of Creditable Service, or may be deferred until later at the participant's option.

Withdrawal of Contributions

- Contributions may be withdrawn upon termination of employment.
- Members hired prior to 1984 receive contributions plus 100% of interest credited.
 - Members hired after 1983 with less than five years of Creditable Service receive contributions only.
 - Members hired after 1983 with more than five years of Creditable Service but less than ten years receive contributions plus 50% of interest credited.
 - Members hired after 1983 with more than ten years of Creditable Service receive contributions plus 100% of interest credited.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Ordinary Disability Retirement	Eligibility	Non-job related disability after completion of ten years of Creditable Service.
	Benefit Amount for Group 1 membership before April 2, 2012 or Group 2 or Group 4	Superannuation benefit determined if the member is age 55, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest.
	Benefit Amount for Group 1 membership on or after April 2, 2012	Superannuation benefit determined if the member is age 60, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest.
Accidental Disability Retirement	Eligibility	Disabled as a result of an accident in the performance of duties. There is no minimum age or service requirement.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of \$15 per year of Creditable Service, up to a maximum of \$300.
	Supplemental Dependent Allowance	Additional allowance of \$415 per year for each child.
Non-Occupational Death	Eligibility	For members with at least two years of creditable service who die while in active service, but not due to occupational injury.
	Benefit Amount	Benefit as if Option C had been elected. Minimum benefit of \$250 per month for surviving spouse, \$120 per month for first child and \$90 per month for each additional child.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Accidental Death	Eligibility	For members who die as a result of an occupational injury.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of \$15 per year of creditable service, up to a maximum of \$300.
	Supplemental Dependent Allowance	Additional allowance of \$708.60 per year for each child until age 18 (or age 22 if a full-time student).
Cost-of-Living Adjustment (COLA)	In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a Cost-of-Living Adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefit payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the Commonwealth of Massachusetts and are not the liability of the Retirement System.	
Optional Forms of Payment	A member may elect to receive his or her retirement allowance in one of three forms of payment: <ul style="list-style-type: none">• Option A – Life annuity.• Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member.• Option C – Life annuity with 66⅔% of benefit continued to designated joint annuitant upon death of member.	

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date: July 1, 2013

Investment Return: 7.75% per year.

Annuity Savings Fund Interest Rate: 3.00% per year

Amortization Method: *Unfunded Actuarial Accrued Liability (UAL):*
Increasing dollar amount at 4.50% to reduce the Unfunded Actuarial Accrued Liability to zero on or before June 30, 2028.

Salary Scale: The assumed annual rates for salary increases including longevity are illustrated by the following rates that vary by years of service:

<u>Years of Service</u>	<u>General Employees</u>	<u>Police and Fire</u>
0	7.00%	8.00%
1	6.50%	7.50%
2	6.50%	7.00%
3	6.00%	6.50%
4	6.00%	6.00%
5	5.50%	6.00%
6	5.50%	5.50%
7	5.00%	5.50%
8	5.00%	5.25%
9 and later	4.75%	5.25%

Cost-of-Living Allowance: Cost-of-Living Allowances (COLA) are assumed to be 3% of the pension amount, capped at \$360 per year.

Mortality Table: RP-2000 Mortality Table projected 12 years with Scale AA. RP-2000 Mortality Table projected 12 years with Scale AA set forward five years for disabled members. Previously, RP-2000 Mortality Table projected 10 years with Scale AA.

General Employees: 55% of deaths are job-related.

Police and Fire : 90% of deaths are job-related.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Turnover Rates:

Illustrative turnover rates are shown below:

<u>Years of Service</u>	<u>General Employees</u>	<u>Police and Fire</u>
0	15.0%	1.5%
1	12.0%	1.5%
2	10.0%	1.5%
3	9.0%	1.5%
4	8.0%	1.5%
5-9	7.6%	1.5%
10	5.4%	1.5%
11-14	5.4%	0.0%
15-19	3.3%	0.0%
20-24	2.0%	0.0%
25-29	1.0%	0.0%
30+	0.0%	0.0%

Disability Rates:

Illustrative disability rates are shown below:

<u>Age</u>	<u>General Employees</u>	<u>Police and Fire</u>
20	0.01%	0.10%
25	0.02%	0.20%
30	0.03%	0.30%
35	0.06%	0.30%
40	0.10%	0.30%
45	0.15%	1.00%
50	0.19%	1.25%
55	0.24%	1.20%
60	0.28%	0.85%

General Employees: 55% of disabilities are accidental and 45% are ordinary.

Police and Fire: 90% of disabilities are accidental and 10% are ordinary.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Retirement Rates: Illustrative retirement rates are shown below:

<u>Age</u>	<u>General Employees</u>		<u>Police and Fire</u>
	<u>Male</u>	<u>Female</u>	
50	1.0%	1.5%	1.0%
51	1.0%	1.5%	1.0%
52	1.0%	2.0%	1.0%
53	1.0%	2.5%	1.0%
54	2.0%	2.5%	1.0%
55	2.0%	5.5%	2.0%
56	2.5%	6.5%	2.0%
57	2.5%	6.5%	2.0%
58	5.0%	6.5%	5.0%
59	6.5%	6.5%	7.5%
60	12.0%	5.0%	15.0%
61	20.0%	13.0%	10.0%
62	30.0%	15.0%	10.0%
63	25.0%	12.5%	10.0%
64	22.0%	18.0%	15.0%
65	40.0%	15.0%	20.0%
66	25.0%	20.0%	20.0%
67	25.0%	20.0%	25.0%
68	30.0%	25.0%	25.0%
69	30.0%	20.0%	30.0%
70	100.0%	100.0%	100.0%

Actuarial Cost Method: Individual Entry Age Normal.

Actuarial Asset Method: The Actuarial Value of Assets is determined as follows:

- a) A preliminary Actuarial Value of Assets is developed and equals the Actuarial Value of Assets from the prior year plus contributions and receipts minus benefit payments and expenses plus expected investment earnings.
- b) An adjustment is added to a) that equals 20% of the excess of the Market Value at the end of the year over the preliminary Actuarial Value of Assets developed in a) above.
- c) The Actuarial Value of Assets is further constrained to be not less than 80% or more than 120% of Market Value.

Census Data: Census data as of the valuation date were submitted by the Retirement Board.

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

- Asset Data:** Asset information as of the Plan year is provided by the Board. Calendar year asset information is reported annually to the Public Employee Retirement Administration Commission by the Reading Contributory Retirement Board.
- Dependents:** 75% of all members will be survived by a spouse. Age assumption for spouses is that males are assumed to be three years older than females.
- Administrative Expenses:** For Fiscal Year 2014, the administrative expenses were assumed to be \$87,000 and are anticipated to increase at 4.5% per year.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service

Age	Years of Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 20	-	-	-	-	-	-	-	-	-	0
	-	-	-	-	-	-	-	-	-	0
20-24	6	-	-	-	-	-	-	-	-	6
	32,226	-	-	-	-	-	-	-	-	32,226
25 to 29	16	8	-	-	-	-	-	-	-	24
	40,887	60,064	-	-	-	-	-	-	-	47,279
30 to 34	5	15	8	-	-	-	-	-	-	28
	37,323	68,083	60,875	-	-	-	-	-	-	60,531
35 to 39	5	5	12	4	-	-	-	-	-	26
	48,702	56,252	71,071	71,817	-	-	-	-	-	64,034
40 to 44	5	10	15	12	3	-	-	-	-	45
	76,408	55,266	57,863	64,571	57,767	-	-	-	-	61,129
45 to 49	6	5	5	6	11	8	-	-	-	41
	36,107	69,138	73,115	52,741	78,791	77,844	-	-	-	66,678
50 to 54	9	16	6	2	3	12	8	1	-	57
	47,925	51,331	58,217	93,180	75,371	82,331	87,530	93,247	-	66,594
55 to 59	3	8	6	8	7	8	7	6	4	57
	54,526	62,126	56,552	64,827	72,575	66,941	66,230	67,181	83,119	65,987
60 to 64	4	4	6	5	5	5	4	4	3	40
	43,724	40,110	44,175	56,804	58,570	57,149	77,340	75,009	81,211	57,901
65 to 69	1	-	6	3	-	4	2	-	-	16
	41,594	-	43,966	44,884	-	44,335	46,726	-	-	44,427
70 & up	-	-	1	1	1	1	-	-	-	4
	-	-	76,759	40,684	16,404	25,514	-	-	-	39,840
Total	60	71	65	41	30	38	21	11	7	344
Average Salary	44,796	58,593	59,501	62,022	69,446	69,338	74,603	72,397	82,301	60,802
							Average Age:	48.4	Average Service:	15.2

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.2 - Retired Plan Members and Beneficiaries Annual Pensions

Attained Age	Male		Female		Total	
	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	1	9,000	1	9,000
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	2	39,990	2	42,289	4	82,279
55-59	8	326,344	3	101,593	11	427,937
60-64	24	1,171,774	10	256,452	34	1,428,227
65-69	23	970,978	24	463,900	47	1,434,879
70-74	29	1,004,145	19	254,228	48	1,258,374
75-79	23	794,520	25	336,676	48	1,131,196
80-84	17	339,851	26	321,458	43	661,309
85-89	17	286,434	13	115,939	30	402,372
90-94	7	58,931	9	100,302	16	159,233
95+	4	37,366	0	0	4	37,366
Total	154	5,030,334	132	2,001,838	286	7,032,171
Average Age	74.3		75.3		74.8	
Average Payment		32,665		15,165		24,588
	53.8%	71.5%	46.2%	28.5%	100.0%	100.0%

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.3 - Disabled Plan Members Annual Pensions

Attained Age	Male		Female		Total	
	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	1	43,450	1	43,450
45-49	2	82,988	0	0	2	82,988
50-54	1	41,824	2	89,161	3	130,984
55-59	3	124,734	0	0	3	124,734
60-64	9	221,466	0	0	9	221,466
65-69	3	84,351	0	0	3	84,351
70-74	7	185,466	0	0	7	185,466
75-79	5	104,759	0	0	5	104,759
80-84	7	139,015	0	0	7	139,015
85-89	3	48,400	0	0	3	48,400
90-94	1	27,853	0	0	1	27,853
95+	1	10,251	0	0	1	10,251
Total	42	1,071,106	3	132,611	45	1,203,717
Average Age	71.6		48.9		70.1	
Average Payment		25,503		44,204		26,749
	93.3%	89.0%	6.7%	11.0%	100.0%	100.0%

SECTION 8 - GLOSSARY OF TERMS

Actuarial Accrued Liability – That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

Actuarial Assumptions – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

Actuarial Cost Method (or Funding Method) – A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the current year (Normal Cost) and the past (Actuarial Accrued Liability).

Actuarial Gain or Loss (or Experience Gain or Loss) – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between the valuation date and the most recent immediately preceding valuation date.

Actuarial Present Value – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

Amortization Payment – That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

Annual Required Contribution (ARC) – The employer's periodic required contributions to a defined benefit pension plan, calculated in accordance with the rules required by the Governmental Accounting Standards Board (GASB).

Annual Statement – The statement submitted by the local retirement board to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

Annuity Reserve Fund – The fund into which total accumulated Member Contributions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

Annuity Savings Fund – The fund in which Member Contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

Assets – The total value of the investments held by the Plan trust that are for the payment of promised benefits.

SECTION 8 - GLOSSARY OF TERMS

Cost of Benefits – The estimated payment from the pension system for benefits for the fiscal year.

Expense Fund – The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

Funded Ratio – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

Funding Schedule – The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D of M.G.L. Chapter 32.

GASB – Governmental Accounting Standards Board.

Normal Cost – Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is expected to accrue in the current fiscal year. The Employee Normal Cost is the amount of the expected Member Contributions for the current fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

Pension Benefit Obligation – The portion of the Actuarial Present Value attributable to past service in accordance with the Projected Unit Credit cost method as stipulated by GASB Statement Number 5 (GASB 5). GASB 5 has been superseded by GASB Statements Number 25 and 27.

Pension Fund – The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

Pension Reserve Fund – The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

Present Value of Future Benefits – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

Special Fund for Military Service Credit – The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

Unfunded Actuarial Accrued Liability – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

SECTION 9 - RESULTS BY DEPARTMENT

Department	Storm Water Enterprise		Housing		Municipal Light		School		Sewer		Water		Retirement		Town		Total	
Summary of Member Data as of July 1, 2013																		
Active Members	3		4		72		58		3		12		1		191		344	
Average Age	45.2		55.9		49.7		54.3		34.6		45.2		42.0		46.5		48.4	
Average Service	5.6		11.2		16.9		11.9		10.9		21.7		8.3		15.5		15.2	
Salary	128,012		236,170		5,585,993		2,462,524		106,868		649,774		64,102		11,682,285		20,915,728	
Average Salary	42,671		59,042		77,583		42,457		35,623		54,148		64,102		61,164		60,802	
Retired Members and Survivors	0		4		63		85		2		5		0		127		286	
Annual Pensions	0		49,694		2,405,239		990,959		40,878		137,211		0		3,408,190		7,032,171	
Average Age	0.0		76.4		71.4		76.8		76.4		69.8		0.0		75.3		74.8	
Disabled Members	0		0		6		4		1		2		0		32		45	
Annual Pensions	0		0		169,963		64,135		27,348		48,528		0		893,742		1,203,717	
Average Age	0.0		0.0		63.4		80.1		70.4		56.0		0.0		71.0		70.1	
Inactive Members	0		1		4		5		1		0		0		20		31	
Annuity Savings Fund	0		62,882		92,881		132,649		33,197		0		0		486,329		807,939	
Normal Cost as of July 1, 2013																		
1.1 Total Normal Cost	19,740	14.58%	36,980	14.92%	899,686	14.96%	405,612	15.07%	13,668	10.51%	57,953	8.50%	8,651	12.85%	1,828,968	14.54%	3,271,257	14.51%
1.2 Administrative Expenses	525	0.39%	983	0.40%	23,927	0.40%	10,787	0.40%	363	0.28%	1,541	0.23%	230	0.34%	48,644	0.39%	87,000	0.39%
1.3 Total Normal Cost = 1.1 + 1.2	20,265	14.96%	37,963	15.31%	923,613	15.35%	416,399	15.47%	14,031	10.79%	59,494	8.73%	8,881	13.19%	1,877,612	14.93%	3,358,257	14.89%
1.4 Employee Normal Cost	13,095	9.67%	24,097	9.72%	523,740	8.71%	233,896	8.69%	8,891	6.83%	53,170	7.80%	6,804	10.11%	1,115,120	8.87%	1,978,813	8.78%
1.5 Employer Normal Cost = 1.3 - 1.4	7,170	5.29%	13,866	5.59%	399,873	6.65%	182,503	6.78%	5,140	3.95%	6,324	0.93%	2,077	3.09%	762,491	6.06%	1,379,443	6.12%
1.6 Adjusted for payment timing	7,303	5.39%	14,125	5.70%	407,334	6.77%	185,909	6.91%	5,236	4.02%	6,442	0.94%	2,116	3.14%	776,717	6.18%	1,405,182	6.23%
Actuarial Accrued Liability as of July 1, 2013																		
2.1 Active Employees	109,951		598,419		18,310,494		5,889,317		330,435		2,732,549		82,246		36,828,829		64,882,241	
2.2 Retired Members and Survivors	0		471,382		23,919,787		8,566,422		474,914		1,265,635		0		30,108,265		64,806,405	
2.3 Disabled Members	0		0		1,909,533		338,081		210,181		632,053		0		7,220,708		10,310,556	
2.4 Inactive Members	0		62,882		92,881		132,649		33,197		0		0		486,329		807,939	
2.5 Total = 2.1 + 2.2 + 2.3 + 2.4	109,951		1,132,684		44,232,695		14,926,470		1,048,727		4,630,237		82,246		74,644,131		140,807,141	
Actuarial Value of Plan Assets as of June 30, 2013																		
3.1 Actuarial Value of Assets	59,109		900,316		33,233,816		9,740,879		733,362		3,460,214		0		53,221,741		101,349,437	
Unfunded Actuarial Accrued Liability (UAL) as of July 1, 2013																		
4.1 UAL = 2.5 - 3.1	50,842		232,368		10,998,879		5,185,591		315,365		1,170,023		82,246		21,422,390		39,457,704	

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013

SECTION 9 - RESULTS BY DEPARTMENT

Department	Storm Water Enterprise		Housing		Municipal Light		School		Sewer		Water		Retirement		Town		Total	
Projected Payroll	135,414		247,909		6,015,204		2,692,324		130,092		681,799		67,307		12,576,453		22,546,502	
FY2014 Appropriation																		
5.1 Employer Normal Cost	7,303	5.39%	14,125	5.70%	407,334	6.77%	185,909	6.91%	5,236	4.02%	6,442	0.94%	2,116	3.14%	776,717	6.18%	1,405,182	6.23%
5.2 Amortization Payment of UAL*	(4,994)	-3.69%	13,989	5.64%	938,705	15.61%	364,342	13.53%	23,224	17.85%	69,975	10.26%	(2,116)	-3.14%	1,939,582	15.42%	3,342,707	14.83%
5.3 Total = 5.1 + 5.2	2,309	1.71%	28,114	11.34%	1,346,039	22.38%	550,251	20.44%	28,460	21.88%	76,417	11.21%	0	0.00%	2,716,299	21.60%	4,747,889	21.06%
FY2015 Appropriation																		
6.1 Employer Normal Cost	7,632	5.39%	14,761	5.70%	425,664	6.77%	194,275	6.91%	5,472	4.03%	6,732	0.94%	2,211	3.14%	811,668	6.18%	1,468,415	6.23%
6.2 Amortization Payment of UAL**	5,401	3.82%	21,122	8.15%	973,044	15.48%	466,323	16.57%	28,257	20.79%	106,399	14.93%	8,160	11.60%	1,884,424	14.34%	3,493,129	14.83%
6.3 Total = 6.1 + 6.2	13,033	9.21%	35,883	13.85%	1,398,708	22.25%	660,598	23.48%	33,729	24.81%	113,131	15.88%	10,371	14.74%	2,696,092	20.51%	4,961,544	21.06%
6.4 Retirement Dept Appropriation***	27		75		2,930		1,384		71		237		(10,371)		5,647		0	
6.5 Total = 6.3 + 6.4	13,060		35,958		1,401,638		661,982		33,800		113,368		0		2,701,739		4,961,544	
FY2016 Appropriation																		
7.1 Employer Normal Cost	7,975	5.39%	15,425	5.70%	444,819	6.77%	203,017	6.91%	5,718	4.02%	7,035	0.94%	2,310	3.14%	848,194	6.18%	1,534,493	6.23%
7.2 Amortization Payment of UAL	5,644	3.82%	22,073	8.15%	1,016,831	15.48%	487,307	16.57%	29,528	20.79%	111,187	14.93%	8,527	11.60%	1,969,223	14.34%	3,650,320	14.83%
7.3 Total = 7.1 + 7.2	13,619	9.21%	37,498	13.85%	1,461,650	22.25%	690,324	23.48%	35,246	24.81%	118,222	15.88%	10,837	14.74%	2,817,417	20.51%	5,184,813	21.06%
7.4 Retirement Dept Appropriation***	29		79		3,061		1,446		74		248		(10,837)		5,900		0	
7.5 Total = 7.3 + 7.4	13,648		37,577		1,464,711		691,770		35,320		118,470		0		2,823,317		5,184,813	

Notes:

1. Actuarial Value of Plan Assets (3.1) is derived from allocation of assets as shown on separate attachment.
2. FY2015 and FY2016 Appropriation is based on Funding Schedule D-Revised.
3. 2014 Employer Normal Cost (5.1) is the Employer Normal Cost as of July 1, 2013, adjusted for payment timing (1.6). 2015 Employer Normal Cost (6.1) is based on 2014 Employer Normal Cost (5.1) increased by 4.5%.
- *4. Amortization Payment of UAL (5.2) equals fiscal year 2014 budgeted appropriation (5.3) developed in the July 1, 2011 actuarial valuation less Employer Normal Cost (5.1).
- **5. Amortization Payment of UAL (6.2) is the total Amortization Payment of UAL (6.2) allocated to each department in the proportion that the UAL (4.1) less 2014 Amortization Payment of UAL (5.2) bears to the total UAL (4.1) less total 2014 Amortization Payment of UAL (5.2).
- ***6. The appropriation developed for the Retirement department is allocated to each remaining department in the proportion that the department's fiscal year appropriation bears to the total fiscal year appropriation.

Reading Contributory Retirement System
Actuarial Valuation as of July 1, 2013