READING

Retirement System Audit Report

JAN. 1, 2017 - DEC. 31, 2021

PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION
COMMONWEALTH OF MASSACHUSETTS

TABLE OF CONTENTS

Letter from the Executive Director 1

Supplementary Information:

Schedule of Allocation of Investments Owned 3

Administration of the System 4

Board Regulations 4

Actuarial Valuation and Assumptions 5

Membership Exhibit 6

Leased Premesis 7

Independent Audit Reports:

Melanson, Year Ended December 31, 2021 8

Melanson, Year Ended December 31, 2020 38

Melanson, Year Ended December 31, 2019 65

MelansonHeath, Year Ended December 31, 2018 93

MelansonHeath, Year Ended December 31, 2017 120

PERAC
COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION
PHILIP Y. BROWN, ESQ., *Chair* WILLIAM T. KEEFE, *Executive Director*
Auditor DIANA DIZOGLIO | KATHLEEN M. FALLON | KATE FITZPATRICK | JAMES J. GUIDO | RICHARD MACKINNON, JR. | JENNIFER F. SULLIVAN, ESQ.

November 5, 2024

The Public Employee Retirement Administration Commission (PERAC) has completed a review of the audits of the Reading Retirement System conducted by the firm of Melanson, Certified Public Accountants. Melanson conducted these audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits in *Government Auditing Standards*, issued by the Comptroller General of the United States. The audits covered the period from January 1, 2017, to December 31, 2021. Melanson was subsequently acquired by the firm of Marcum, LLP.

We conducted an inspection of the work papers prepared by Melanson. We determined that the audits were conducted in a competent professional manner and the work papers demonstrated that audit tests and procedures were performed in sufficient detail to allow us to accept the final audit reports as issued.

We identified specific differences between these financial audits designed to provide an opinion on financial statements and our compliance audits performed in accordance with the accounting and management standards established by PERAC in regulation 840 CMR 25.00 and in compliance with the provisions specified in PERAC Memo #18/2019.

Accordingly, we supplemented the field work conducted in the audits by Melanson with certain limited procedures designed to provide additional assurance that the accounting and management standards established by PERAC were adhered to and complied with. The specific objectives of our review were to determine: 1) that the Board is exercising appropriate fiduciary oversight, 2) that cash balances are accurately stated, 3) that travel expenses were properly documented and accounted for, 4) that retirement contributions are accurately deducted, 5) that retirement allowances were correctly calculated, and 6) that required member documentation is maintained.

To achieve these objectives, we inspected certain records of the Reading Retirement Board in the above areas. Specifically, we reviewed the minutes of the Board meetings for compliance with fiduciary oversight, verified cash balances, and tested a sample of travel expenses for Board approvals, supporting documentation and proper accounting. We tested the payroll records of a sample of active members to confirm that the correct percentage of regular compensation is being deducted, including the additional two percent over $30,000. We tested a sample of members who

retired during our audit period to verify that their retirement allowance was calculated in accordance with the statute. We also reviewed a sample of member files for accuracy and completeness.

In our opinion, the financial records are being maintained and the management functions are being performed in conformity with the standards established by PERAC.

We commend the Reading Retirement Board for the exemplary operation of the system.

It should be noted that the financial statements included in this audit report were based on the work performed by Melanson and the tests conducted for the periods referenced in their opinion. These audits were not performed by employees or representatives of PERAC. It should also be noted that the opinions expressed in these audit reports were based on the laws and regulations in effect at the time.

The financial statements and footnotes presented in this report were limited to the express results as of and for the years ended December 31, 2021, December 31, 2020, December 31, 2019, December 31, 2018, and December 31, 2017.

In closing, I wish to acknowledge the work of Melanson, who conducted these examinations, and the PERAC examiners who conducted limited procedures to supplement the field work and express my appreciation to the Reading Retirement Board and staff for their courtesy and cooperation.

Sincerely,



William T. Keefe.
Executive Director

SUPPLEMENTARY INFORMATION

SCHEDULE OF ALLOCATION OF INVESTMENTS OWNED

(percentages by category)

	AS OF DECEMBER 31, 2021	
	MARKET VALUE	PERCENTAGE OF TOTAL ASSETS
Cash	$5,356,050	2.7%
Pooled Alternative Investment Funds	4,896,299	2.5%
PRIT Cash Fund	31	0.0%
PRIT Core Fund	188,867,007	94.9%
Grand Total	$199,119,387	100.0%

For the year ending December 31, 2021, the rate of return for the investments of the Reading Retirement System was 20.70%. For the ten-year period ending December 31, 2021, the rate of return for the investments of the Reading Retirement System averaged 10.99%. For the 37-year period ending December 31, 2021, since PERAC began evaluating the returns of the retirement systems, the rate of return on the investments of the Reading Retirement System was 9.66%.

The composite rate of return for all retirement systems for the year ending December 31, 2021 was 19.51%. For the ten-year period ending December 31, 2021, the composite rate of return for the investments of all retirement systems averaged 10.86%. For the 37-year period ending December 31, 2021, since PERAC began evaluating the returns of the retirement systems, the composite rate of return on the investments of all retirement systems averaged 9.58%.

ADMINISTRATION OF THE SYSTEM

The System is administered by a five-person Board of Retirement consisting of the Town Accountant who shall be a member ex-officio, a second member appointed by the governing authority, 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 appointed by the other four board members.

Ex-officio Member:	Sharon Angstrom		
Appointed Member:	Richard Abate	Term Expires	12/31/2026
Elected Member:	David Gentile, Chairperson	Term Expires:	03/31/2026
Elected Member:	Robert Beck	Term Expires:	03/31/2025
Appointed Member:	William Sweeney	Term Expires:	03/31/2027

The 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 two persons designated by the Board.

Retirement board members and employees are bonded by an authorized agent representing a company licensed to do business in Massachusetts. Fidelity insurance is the only required policy coverage under Ch. 32 §21 and §23 as well as 840 CMR 17.01. The policy is designed to cover specific intentional acts such as theft, fraud or embezzlement and also specify who commits such acts, most commonly employees of the system. This coverage reimburses the system for the losses it suffers as a result of its employees' actions. It does not insure the employees for their illegal acts. Statutorily required coverage is provided by the current fidelity insurance policy to a limit of $1,000,000 with a $10,000 deductible issued through Travelers Casualty and Surety Company. The system also has Fiduciary coverage to a limit of $50,000,000 under a blanket policy issued through the Massachusetts Association of Contributory Retirement Systems.

BOARD REGULATIONS

The Reading Retirement Board has adopted Supplemental Regulations which are available on the PERAC website at https://mass.gov/Reading-retirement-board-regulations.

ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by KMS Actuaries as of January 1, 2023.

The actuarial liability for active members was	$84,434,772
The actuarial liability for retired members was	148,924,538
The actuarial liability for inactive members was	2,783,871
The total actuarial liability was	$236,143,181
System assets as of that date were (actuarial value)	183,076,216
The unfunded actuarial liability was	$53,066,965
The ratio of system's assets to total actuarial liability was	77.5%
As of that date the total covered employee payroll was	$31,726,675

The normal cost for employees on that date was	10.0% of payroll
The normal cost for the employer including administrative expenses was	8.7% of payroll

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

Investment Return:	6.75% per annum
Rate of Salary Increase:	Varies by group and service.

SCHEDULE OF FUNDING PROGRESS AS OF JANUARY 1, 2023

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 % of Cov. Payroll ((b-a)/c)
1/1/2023	$183,076,216	$236,143,181	$53,066,965	77.5%	$31,726,675	167.3%
1/1/2021	$160,717,539	$212,889,398	$52,171,859	75.5%	$29,612,763	176.2%
1/1/2019	$142,056,825	$189,428,337	$47,371,512	75.0%	$27,381,485	173.0%
1/1/2017	$127,768,425	$173,147,741	$45,379,316	73.8%	$24,883,071	182.4%
1/1/2015	$116,227,245	$159,188,784	$42,961,539	73.0%	$22,793,551	188.5%

MEMBERSHIP EXHIBIT

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Retirement in Past Years										
Superannuation	11	16	12	11	18	19	22	16	8	17
Ordinary Disability	0	0	0	0	0	0	0	0	0	0
Accidental Disability	0	1	1	1	1	0	1	0	0	1
Total Retirements	11	17	13	12	19	19	23	16	8	18
Total Retirees, Beneficiaries and Survivors	320	327	330	333	341	352	360	374	373	381
Total Active Members	345	341	334	340	341	350	353	359	358	349
Pension Payments										
Superannuation	$5,004,487	$5,301,647	$5,733,934	$6,045,313	$6,503,241	$7,031,307	$7,582,802	$7,940,608	$8,044,341	$8,706,686
Survivor/Beneficiary Payments	278,808	285,392	296,871	314,286	316,983	323,382	363,840	378,873	441,209	451,639
Ordinary Disability	38,921	39,641	40,361	41,081	41,801	42,521	43,241	25,733	24,482	83,050
Accidental Disability	969,712	838,512	1,002,730	1,051,800	1,282,789	1,226,716	1,235,905	1,289,585	1,223,199	1,266,710
Other	689,853	688,239	674,595	663,390	668,395	825,681	742,220	781,980	813,876	760,899
Total Payments for Year	$6,981,781	$7,153,431	$7,748,491	$8,115,870	$8,813,209	$9,449,607	$9,968,007	$10,416,779	$10,547,107	$11,268,984

SUPPLEMENTARY INFORMATION (Continued)

LEASED PREMISES

The Reading Retirement Board leases approximately 1,350 square feet of space for its offices located at 2 Haven Street, Suite 307 in Reading MA. The original 5-year lease expired on January 31, 2021. A new five-year lease was signed on February 1, 2021, which expires on January 31, 2026. The landlord is GWT Realty Trust.

The following schedule displays the minimum lease obligations on non-cancelable operating leases as of December 31, 2021:

For the year ending	Annual Rent
2022	$36,967
2023	37,459
2024	37,927
2025	38,402
2026 (one month's rent due on January 31, 2026)	3,045
Total future minimum lease payments required	$153,830



READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Financial Statements and Other Information
For the Year Ended December 31, 2021

(With Independent Auditor's Report Thereon)

TABLE OF CONTENTS

	Page
INDEPENDENT AUDITOR'S REPORT	1
MANAGEMENT'S DISCUSSION AND ANALYSIS	4
BASIC FINANCIAL STATEMENTS	
Statement of Fiduciary Net Position	8
Statement of Changes in Fiduciary Net Position	9
Notes to Financial Statements	10
REQUIRED SUPPLEMENTARY INFORMATION	
Schedule of Changes in the Net Pension Liability	22
Schedules of the Net Pension Liability, Contributions, and Investment Returns	23
OTHER INFORMATION	
Independent Auditor's Report	24
Schedule of Employer Allocations	27
Schedule of Pension Amounts by Employer	28

MELANSON

INDEPENDENT AUDITOR'S REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

Opinion

We have audited the accompanying financial statements of the Reading Contributory Retirement System (the System), as of and for the year ended December 31, 2021, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the fiduciary net position of the Reading Contributory Retirement System, as of December 31, 2021, and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the System and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

The System's management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America; and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for twelve months beyond the financial

statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgement made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgement and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit 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 System's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgement, there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

MELANSON

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 the Schedules of the Net Pension Liability, Contributions, and Investment Returns, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic 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 basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with evidence sufficient to express an opinion or provide any assurance.

Melanson

Andover, Massachusetts
December 14, 2022

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Reading Contributory Retirement System (the System), we offer readers this narrative overview and analysis of the financial activities of the System for the year ended December 31, 2021.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of two components: (1) fund financial statements and (2) notes to financial statements. This report also contains required supplementary information in addition to the basic financial statements themselves.

Fund Financial Statements

A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. Fund accounting is used to ensure and demonstrate compliance with finance-related legal requirements.

The Statement of Fiduciary Net Position presents information on the System's assets and liabilities with the resulting net position restricted for pensions. This statement reflects the System's investments at fair value, as well as cash, receivables, and liabilities.

The Statement of Changes in Fiduciary Net Position presents information showing how the System's net position restricted for pensions changed during the year ended December 31, 2021. It reflects contributions by participating employers, active members, external parties, investment activity, along with deductions for retirement benefits, refunds, transfers, and administrative expenses.

Notes to Financial Statements

The Notes to Financial Statements provide additional information that is essential for the reader to gain a full understanding of the data provided in the financial statements.

The Required Supplementary Information includes this Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and the Schedules of Net Pension Liability, Contributions, and Investment Returns.

Financial Highlights

- The System's total net position restricted for pensions was $199,321,745 at December 31, 2021, an increase of $30,997,764, or 18.42%, over the prior year. This change is primarily due to favorable returns on System investments in calendar year 2021.
- Employer and employee contributions to the plan were $11,789,850, which represents an increase of $1,078,285, or 10.07%, over the prior year. The employer share of contributions represents 65.64% of the total contributions made to the System.
- Benefit payments to plan members and beneficiaries increased by $936,456 or 7.37%, totaling $13,645,244. At December 31, 2021, there were 381 retirees and beneficiaries in receipt of pension benefits, as further discussed on page 10.
- The System's funded ratio (based on the System's GASB 68 valuation) as of the January 1, 2021 actuarial valuation was 90.81%, with the remaining liability reducing to zero on or before June 30, 2031.

Financial Statement Analysis

The following is a summary of financial statement data for the current and prior fiscal years:

FIDUCIARY NET POSITION

	2021	2020
Assets		
Cash and receivables	$ 5,559,882	$ 5,716,418
Investments	193,763,306	162,609,288
Total Assets	199,323,188	168,325,706
Liabilities		
Accounts payable	1,443	1,725
Total Liabilities	1,443	1,725
Net Position		
Restricted for pensions	$ 199,321,745	$ 168,323,981

The System's total assets as of December 31, 2021 were $199,323,188 and were mostly comprised of cash and investments. Total assets increased $30,997,482, or 18.42%, from the prior year primarily due to favorable returns on System investments in calendar year 2021.

CHANGES IN FIDUCIARY NET POSITION

	2021	2020
Additions		
Contributions	$ 12,278,943	$ 11,229,409
Investment income	33,125,157	17,639,123
Total Additions	45,404,100	28,868,532
Deductions		
Benefit payments	13,645,244	12,708,788
Refunds to plan members	218,792	75,643
Transfers to other systems	257,584	389,892
Administrative expenses	284,716	278,272
Total Deductions	14,406,336	13,452,595
Net Increase	30,997,764	15,415,937
Net Position Restricted for Pensions		
Beginning of year	168,323,981	152,908,044
End of year	$ 199,321,745	$ 168,323,981

The amount needed to finance benefits is accumulated through the collection of employers' and employee's contributions, reimbursements from the Commonwealth of Massachusetts for pre-1998 COLA and through earnings on investments. Contributions and net investment income for calendar year 2021 resulted in total additions of $45,404,100. Employers' contributions increased by $456,191, or 6.00%, in calendar year 2021. The System had net investment income of $33,125,157, primarily due to favorable market conditions during the calendar year.

The primary deductions of the System include the payment of pension benefits to plan members and beneficiaries, refunds of member contributions, reimbursement payments in accordance with Massachusetts General Laws, Chapter 32, Section 3(8)c, more commonly referred to as 3(8)c reimbursements, and the costs of administering the System. Total deductions for calendar year 2021 were $14,406,336, which represents an increase of $953,741, or 7.09%, over deductions of $13,452,595 in calendar year 2020. The payment of pension benefits increased by $936,456, or 7.37%, over the previous year.

Return on Investment and Funding

The Reading Contributory Retirement System Board continuously monitors investment performance at its monthly meetings. The money-weighted rate of return for the System's investments, as of December 31, 2021, was 20.09%.

Requests for Information

This financial report is designed to provide a general overview of the Reading Contributory Retirement System's finances. Questions concerning any of the information provided in this report, or requests for additional financial information, should be addressed to:

Reading Contributory Retirement System
2 Haven Street, Unit 307
Reading, Massachusetts 01867

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Statement of Fiduciary Net Position
December 31, 2021

Assets	
Cash and short-term investments	$ 5,356,081
Investments:	
State investment pool (PRIT)	188,867,007
Pooled alternative investments	4,896,299
Accounts receivable	203,801
Total Assets	199,323,188
Liabilities	
Accounts payable	1,443
Total Liabilities	1,443
Net Position	
Restricted for pensions	199,321,745
Total Net Position	$ 199,321,745

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Statement of Changes in Fiduciary Net Position
For the Year Ended December 31, 2021

Additions	
Contributions:	
Employers	$ 8,059,372
Plan members	3,730,478
Other systems and Commonwealth of Massachusetts	489,093
Total contributions	12,278,943
Investment income:	
Increase in fair value of investments	34,105,425
Less: management fees	(980,268)
Net investment income	33,125,157
Total Additions	45,404,100
Deductions	
Benefit payments to plan members and beneficiaries	13,645,244
Refunds to plan members	218,792
Transfers to other systems	257,584
Administrative expenses	284,716
Total Deductions	14,406,336
Net Increase	30,997,764
Net Position Restricted for Pensions	
Beginning of year	168,323,981
End of year	$ 199,321,745

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

Notes to Financial Statements

1. Description of Plan

Substantially all employees of the Town of Reading (except teachers and administrators under contract employed by the School Department) and the Reading Housing Authority are members of the Reading Contributory Retirement System (the System), a cost sharing, multiple employer public employee retirement system (PERS). Eligible employees must participate in the System. The pension plan provides pension benefits, deferred allowances, and death and disability benefits. Chapter 32 of the Massachusetts General Laws establishes the authority of the System, contribution percentages, and benefits paid. The Reading Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at December 31, 2021:

Retirees and beneficiaries receiving benefits	381
Inactive plan members entitled to but not yet receiving benefits	72
Active plan members	347
Total	800
Number of participating employers	2

Participant Contributions

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of the Massachusetts General Laws. The employee's individual contribution percentage is determined by their date of entry into the system. In addition, all employees hired on or after January 1, 1979 contribute an additional 2.00% on all gross regular compensation over the rate of $30,000 per year. The percentages are as follows:

Before January 1, 1975	5.00%
January 1, 1975 – December 31, 1983	7.00%
January 1, 1984 – June 30, 1996	8.00%
July 1, 1996 – present	9.00%

For those members entering a Massachusetts System on or after April 2, 2012 in Group 1, the contribution rate will be reduced to 6.00% when at least 30 years of creditable service has been attained.

Employer Contributions
Employers are required to contribute at actuarially determined rates as accepted by the Public Employee Retirement Administration Commission (PERAC).

Participant Retirement Benefits
A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and a portion of the interest they generate constitute the annuity. The difference between the total retirement allowance and the annuity is the pension. The average retirement benefit is approximately 80 - 85% pension and 15 - 20% annuity.

The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest 3-year average annual rate of regular compensation for those hired prior to April 2, 2012 and the highest 5-year average annual rate of regular compensation for those first becoming members of the Massachusetts System on or after that date. However, per Chapter 176 of the Acts of 2011, for members who retire on or after April 2, 2012, if in the 5 years of creditable service immediately preceding retirement, the difference in the annual rate of regular compensation between any 2 consecutive years exceeds 100%, the normal yearly amount of the retirement allowance shall be based on the average annual rate of regular compensation received by the member during the period of 5 consecutive years preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are 4 classes of membership in the retirement system, but one of these classes, Group 3, is made up exclusively of the Massachusetts State Police. The other three classes are as follows:

- Group 1 – General employees, including clerical, administrative, technical, and all other employees not otherwise classified.
- Group 2 – Certain specified hazardous duty positions.
- Group 4 – Police officers, firefighters, and other specified hazardous positions.

A retirement allowance may be received at any age, upon attaining 20 years of service. The plan also provides for retirement at age 55 if the participant was a member prior to January 1, 1978, with no minimum vesting requirements. If the participant was a member on or after January 1, 1978 and a member of Groups 1 or 2, then a retirement allowance may be received if the participant (1) has at least 10 years of creditable service, (2) is age 55, (3) voluntarily left employment on or after that date, and (4) left accumulated annuity deductions in the fund. Members of Group 4 have no minimum vesting requirements, however, must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

A participant who became a member on or after April 2, 2012 is eligible for a retirement allowance upon 10 years creditable service and reaching ages 60 or 55 for Groups 1 and 2, respectively. Participants in Group 4 must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

Methods of Payment

A member may elect to receive his or her retirement allowance in one of three forms of payment as follows:

- Option A – Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the member's death.
- Option B – A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.
- Option C – A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, 2/3 of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who has not remarried, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up" to Option A) based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" to Option A in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

Participant Refunds

Employees who resign from service and who are not eligible to receive a retirement allowance are entitled to request a refund of their accumulated total deductions. Members voluntarily withdrawing with at least 10 years of service or involuntarily withdrawing, receive 100% of the regular interest that has accrued on those accumulated total deductions. Members voluntarily withdrawing with less than 10 years of service get credited interest each year at a rate of 3.00%.

2. Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

The System is a member of the Massachusetts Contributory Retirement Systems and is governed by Chapter 32 of the Massachusetts General Laws. Because of the significance of its operational and financial relationship with the Town, the System is included as a pension trust fund in the Town's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the town, two elected by the members and retirees, and a fifth member chosen by the other four members with the approval of PERAC.

Summary of Significant Accounting Policies

The accounting policies of the System as reflected in the accompanying financial statements for the year ended December 31, 2021 conform to generally accepted accounting principles for public employee retirement systems (PERS). The more significant accounting policies of the System are summarized below:

Basis of Accounting

The System follows accounting policies mandated by the Commonwealth of Massachusetts. The accounting records are maintained on the accrual basis of accounting. Contributions from the Town of Reading and the Reading Housing Authority employees are recognized as revenue in the period in which employees provide services to the respective member unit.

Investments

Investment Policy

Investments are reported at fair value in accordance with PERAC requirements. System 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.

Rate of Return

For the year ended December 31, 2021, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was 20.09%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested throughout the year.

3. Cash and Short-Term Investments

Custodial Credit Risk – Deposits

Custodial credit risk is the risk that in the event of a bank failure, the System's deposits may not be returned. Massachusetts General Laws Chapter 32, Section 23, limits the System's deposits "in a bank or trust company to an amount not exceeding ten percent

of the capital and surplus of such bank or trust company." The System does not have formal deposit policies for custodial credit risk.

As of December 31, 2021, $5,345,714 of the System's bank balance of $5,505,106 was exposed to custodial credit risk as uninsured or uncollateralized. However, the entirety of the System's uninsured or uncollateralized bank balance was invested in the Commonwealth's Local Government Investment Pool (MMDT).

4. Investments

The following is a summary of the System's investments as of December 31, 2021:

Investment Type	Amount
State investment pool (PRIT)*	$ 188,867,007
Pooled alternative investments	4,896,299
Total investments	$ 193,763,306

** Fair value is the same as the value of the pool share. The Pension Reserves Investment Trust (PRIT) was created under Massachusetts General Laws, Chapter 32, Section 22, in December 1983. The Pension Reserves Investment Trust is operated under contract with a private investment advisor, approved by the Pension Reserves Investment Management Board. The Pension Reserves Investment Management Board shall choose an investment advisor by requesting proposals from advisors and reviewing such proposals based on criteria adopted under Massachusetts General Laws, Chapter 30B.*

Credit Risk – Investments in Debt Securities

Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. Massachusetts General Laws, Chapter 32, Section 23, limits the investment of System funds, to the extent not required for current disbursements, in the PRIT Fund or in securities, other than mortgages or collateral loans, which are legal for the investment of funds in savings banks under the laws of the Commonwealth of Massachusetts, provided that no more than the established percentage of assets, is invested in any one security. The System does not have formal investment policies related to credit risk.

As of December 31, 2021, all of the System's investments of $193,763,306 were unrated by nationally recognized statistical rating organizations.

Custodial Credit Risk

The custodial credit risk for investments is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, the System will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The System does not have formal investment policies related to custodial credit risk.

As of December 31, 2021, the System did not have any investments exposed to custodial credit risk disclosure as investments in external investment pools are not exposed to custodial credit risk because their existence is not evidenced by securities that exist in physical or book entry form.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributable to the magnitude of the System's investment in a single issuer. Massachusetts General Laws Chapter 32, Section 23 limits the amount the System may invest in any one issuer or security type, with the exception of the PRIT Fund. The System does not have formal investment policies related to concentration of credit risk.

As of December 31, 2021, the System did not have any investments subject to concentration of credit risk exposure as investments in external investment pools are excluded from concentration of credit risk disclosure.

Interest Rate Risk – Investments in Debt Securities

Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The System does not have formal investment policies limiting investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

As of December 31, 2021, all of the System's investments had maturities of less than one year.

Foreign Currency Risk

Foreign currency risk is the risk that changes in foreign exchange rates will adversely affect the fair value of an investment. The System does not have formal investment policies related to foreign currency risk.

Fair Value

The System categorizes its fair value measurements within the fair value hierarchy established by Governmental Accounting Standards Board Statement No. 72, *Fair Value Measurement and Application* (GASB 72).

The hierarchy is based on the valuation inputs used to measure the fair value of the asset. The hierarchy categorizes the inputs to valuation techniques used for fair value measurement into three levels as follows:

- Level 1 – Inputs that reflect quoted prices (unadjusted) in active markets for identical assets or liabilities that the fund has the ability to access at the measurement date.
- Level 2 – Inputs other than quoted prices that are observable for an asset or liability either directly or indirectly, including inputs in markets that are not considered to be

active. Because they must often be priced on the basis of transactions involving similar but not identical securities or do not trade with sufficient frequency, certain directly held securities are categorized as level 2.

- Level 3 – Unobservable inputs based on the best information available, using assumptions in determining the fair value of investments and derivative instruments.

The net asset value (NAV) per share is the amount of net assets attributable to each share of capital stock outstanding at the close of the period. Investments measured at the NAV for fair value are not subject to level classification.

The System has the following fair value measurements as of December 31, 2021:

Description	Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Investments measured at the net asset value (NAV):				
State Investment Pool (PRIT)	$ 188,867,007	$ -	Monthly	30 Days
Private Equity Vintage Year 2019	2,746,167	991,798	Not Eligible	N/A
Private Equity Vintage Year 2020	1,470,129	1,746,471	Not Eligible	N/A
Private Equity Vintage Year 2021	680,003	2,481,264	Not Eligible	N/A
Total	$ 193,763,306	$ 5,219,533		

5. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2021 rolled forward to the measurement date of December 31, 2021.

Net Pension Liability of Employers

The components of the net pension liability of the participating employers at December 31, 2021 were as follows:

Total pension liability	$ 219,498,597
Plan fiduciary net position	(199,321,745)
Employers' net pension liability	$ 20,176,852
Plan fiduciary net position as a percentage of total pension liability	90.81%

Actuarial Assumptions

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below:

Valuation date	January 1, 2021 rolled forward to the measurement date of December 31, 2021
Actuarial cost method	Entry Age Normal
Remaining amortization period	10 years from June 30, 2021
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases:	
Groups 1 and 2	6.00% - 4.25%, based on service
Group 4	7.00% - 4.75%, based on service
Inflation rate	2.40%
Post-retirement cost-of-living adjustment	3.00% of first $14,000

Actuarial valuations of the ongoing Systems involve estimates of the reported amounts and assumptions about probability of occurrence of events far into the future. Examples include assumptions about future employment mortality and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision, as actual results are compared with past expectations and new estimates are made about the future.

Mortality rates were based on the following:

Pre-retirement and beneficiary mortality: RP-2014 Blue Collar Mortality table, with full generational mortality improvement using Scale MP-2018.

Disabled members: RP-2014 Blue Collar Mortality table, set forward one year with full generational mortality improvement using Scale MP-2018.

Target Allocations

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimates 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 System's targeted asset allocation as of December 31, 2021, are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Global equity	38.00%	4.22%
Core fixed income	15.00%	0.70%
Private equity	15.00%	7.70%
Portfolio completion (PCS)	10.00%	3.00%
Real estate	10.00%	3.60%
Value-added fixed income	8.00%	4.00%
Timberland	4.00%	4.20%
Total	100.00%	

Discount Rate

The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be made based on the actuarially determined rates based on the Board's funding policy, which establishes the contractually required rates by Statute. Based on those assumptions, the System's fiduciary net position was projected to be available to make all the 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 Discount Rate

The following presents the net pension liability (asset) of the participating employers calculated using the discount rate of 7.00%, as well as what the participating employers' net pension liability would be if it were calculated using a discount rate that is one percentage-point lower or one percentage-point higher than the current rate:

1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
$ 44,780,930	$ 20,176,852	$ (654,374)

Deferred Outflows/Inflows of Resources

The following schedule reflects the deferred outflows/inflows of resources for the System for the year ended December 31, 2021:

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Differences between expected and actual experience	$ 2,936,057	$ (298,618)
Changes of assumptions	6,907,579	(1,411,582)
Net difference between projected and actual investment earnings on pension plan investments	-	(22,416,201)
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,661,208	(1,661,208)
Total	$ 11,504,844	$ (25,787,609)

The following summarizes changes in deferred outflows/inflows of resources:

	Measurement Year	Amortization Period	Beginning Balance on Prior Measurement Period Deferrals	Current Measurement Period Additions	Amortization of Amounts Recognized in Current Period Pension Expense	End of Year Balance
Deferred Outflows of Resources						
Differences between expected and actual experience	2017	5.64	$ 1,776,505	$ -	$ (1,083,236)	$ 693,269
	2018	5.42	3,822,215	-	(1,579,427)	2,242,788
Changes of assumptions	2020	5.23	9,046,149	-	(2,138,570)	6,907,579
Changes in proportion and differences between employer contributions and proportionate share of contributions	2018	5.42	485,295	-	(200,535)	284,760
	2019	5.42	2,201	-	(643)	1,558
	2020	5.23	1,672,200	-	(395,319)	1,276,881
	2021	5.23	-	121,178	(23,169)	98,009
Total Deferred Outflows of Resources			16,804,565	121,178	(5,420,899)	11,504,844
Deferred Inflows of Resources						
Differences between expected and actual experience	2020	5.23	(391,069)	-	92,451	(298,618)
Changes of assumptions	2018	5.42	(2,405,653)	-	994,071	(1,411,582)
Net difference between projected and actual investment earnings on pension plan investments	2017	5	(2,242,065)	-	2,242,065	-
	2018	5	5,359,288	-	(2,679,644)	2,679,644
	2019	5	(6,075,424)	-	2,025,142	(4,050,282)
	2020	5	(5,086,899)	-	1,271,725	(3,815,174)
	2021	5	-	(21,537,986)	4,307,597	(17,230,389)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2018	5.42	(485,295)	-	200,535	(284,760)
	2019	5.42	(2,201)	-	643	(1,558)
	2020	5.23	(1,672,200)	-	395,319	(1,276,881)
	2021	5.23	-	(121,178)	23,169	(98,009)
Total Deferred Inflows of Resources			(13,001,518)	(21,659,164)	8,873,073	(25,787,609)
Total Collective Deferred Outflows (Inflows) of Resources			$ 3,803,047	$ (21,537,986)	$ 3,452,174	$ (14,282,765)

The following schedule reflects the amortization of the balance of deferred outflows/ inflows of resources:

Fiscal Year*	Total
2022	$ (1,600,075)
2023	(5,312,494)
2024	(3,533,203)
2025	(3,836,993)
	$ (14,282,765)

** Presented by member units' fiscal year to fairly present the fiduciary impact of related deferred outflows/inflows in the fiscal year affecting the member unit.*

6. Commitments and Contingencies

COVID-19

The COVID-19 pandemic in the United States (and across the globe) has resulted in economic uncertainties. There is considerable uncertainty around the duration and scope of the economic disruption. The extent of the impact of COVID-19 on our operational and financial performance will depend on certain developments, including the duration and spread of the pandemic, impact on individuals served by the System, employees, and vendors, all of which are uncertain and cannot be predicted. At this point, the extent to which COVID-19 may impact our financial condition or results of operations is uncertain.

Outstanding Legal Issues

On an ongoing basis, there are typically pending legal issues in which the System is involved. The System's management is of the opinion that the potential future settlement of these issues would not materially affect its financial statements taken as a whole.

Unfunded Capital Commitments - Investments

As of December 31, 2021, the System had $5,219,533 in outstanding capital commitments.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Changes in the Net Pension Liability
Required Supplementary Information

(Unaudited)

	2021	2020	2019	2018	2017	2016	2015
Total Pension Liability							
Service cost	$ 5,186,923	$ 4,493,993	$ 4,287,030	$ 3,735,655	$ 3,712,591	$ 3,569,799	$ 3,661,364
Interest	14,797,219	14,534,058	13,941,218	13,529,729	12,782,532	12,379,709	11,468,655
Changes of benefit terms	-	-	1,797,291	-	(1,615,834)	-	-
Differences between expected and actual experience	-	(483,520)	-	8,560,496	6,109,449	-	(3,800,039)
Changes of assumptions	-	11,184,719	-	(5,387,866)	-	-	12,620,424
Benefit payments, including refunds of member contributions[1]	(13,374,943)	(12,266,587)	(12,389,360)	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)
Net change in total pension liability	6,609,199	17,462,663	7,636,179	8,895,998	10,041,713	5,243,252	14,626,242
Total pension liability - beginning	212,889,398	195,426,735	187,790,556	178,894,558	168,852,845	163,609,593	148,983,351
Total pension liability - ending (a)	219,498,597	212,889,398	195,426,735	187,790,556	178,894,558	168,852,845	163,609,593
Plan Fiduciary Net Position[1]							
Contributions - employer	8,059,372	7,603,181	6,282,942	5,964,366	5,661,945	5,418,129	5,184,813
Contributions - member	3,472,894	2,718,492	2,931,130	2,801,575	2,835,739	2,799,067	2,421,626
Net investment income (loss)	33,125,157	17,639,123	20,103,742	(2,656,717)	20,593,232	8,640,548	882,425
Benefit payments, including refunds of member contributions	(13,374,943)	(12,266,587)	(12,389,361)	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)
Administrative expense	(284,716)	(278,272)	(281,455)	(212,080)	(230,215)	(237,043)	(106,848)
Net change in plan fiduciary net position	30,997,764	15,415,937	16,646,998	(5,644,872)	17,913,676	5,914,445	(942,146)
Plan fiduciary net position - beginning	168,323,981	152,908,044	136,261,046	141,905,918	123,992,242	118,077,797	119,019,943
Plan fiduciary net position - ending (b)	199,321,745	168,323,981	152,908,044	136,261,046	141,905,918	123,992,242	118,077,797
Net Pension Liability - Ending (a-b)	$ 20,176,852	$ 44,565,417	$ 42,518,691	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796

[1] *Amounts may differ from those presented on page 9 due to classification differences between System and actuary*

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditor's Report.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedules of the Net Pension Liability, Contributions, and Investment Returns
Required Supplementary Information

(Unaudited)

	2021	2020	2019	2018	2017	2016	2015
Schedule of Net Pension Liability							
Total pension liability	$ 219,498,597	$ 212,889,398	$ 195,426,735	$ 187,790,556	$ 178,894,558	$ 168,852,845	$ 163,609,593
Plan fiduciary net position	(199,321,745)	(168,323,981)	(152,908,044)	(136,261,046)	(141,905,918)	(123,992,242)	(118,077,797)
Net pension liability	$ 20,176,852	$ 44,565,417	$ 42,518,691	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796
Plan fiduciary net position as a percentage of the total pension liability	90.81%	79.07%	78.24%	72.56%	79.32%	73.43%	72.17%
Covered payroll	$ 27,323,678	$ 27,373,694	$ 27,585,913	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551
Participating employer net pension liability as a percentage of covered payroll	73.84%	162.80%	154.13%	204.83%	148.08%	189.24%	199.76%
Schedule of Contributions							
Actuarially determined contribution	$ 8,059,372	$ 7,603,181	$ 6,282,942	$ 5,964,366	$ 5,661,945	$ 5,418,129	$ 5,184,813
Contributions in relation to the actuarially determined contribution	(8,059,372)	(7,603,181)	(6,282,942)	(5,964,366)	(5,661,945)	(5,418,129)	(5,184,813)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 27,323,678	$ 27,373,694	$ 27,585,913	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551
Contributions as a percentage of covered payroll	29.50%	27.78%	22.78%	23.71%	22.67%	22.86%	22.75%
Schedule of Investment Returns							
Annual money weighted rate of return, net of investment expense	20.09%	11.74%	15.10%	(2.15)%	17.24%	7.50%	0.75%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditor's Report.

MELANSON

INDEPENDENT AUDITOR'S REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

Opinions

We have audited the accompanying schedule of employer allocations of the Reading Contributory Retirement System (the System), as of and for the year ended December 31, 2021. We have also audited the total for all entities of the net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense included in the accompanying schedule of pension amounts by employer of the Reading Contributory Retirement System as of and for the year ended December 31, 2021.

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for the Reading Contributory Retirement System as of and for the year ended December 31, 2021, in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Schedule section of our report. We are required to be independent of the Reading Contributory Retirement System and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management 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.

MELANSON

Auditor's Responsibilities for the Audit of the Schedules

Our objectives are to obtain reasonable assurance about whether the schedules as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and, therefore, is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as a fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the schedules.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the schedules, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the schedules.
- Obtain an understanding of internal control relevant to the audit 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 System's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the schedules.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

MELANSON

Restriction on Use

Our report is intended solely for the information and use of Reading Contributory Retirement System management, the Retirement Board, System employers and their auditors as of and for the year ended December 31, 2021 and is not intended to be and should not be used by anyone other than these specified parties.

Melanson

Andover, Massachusetts
December 14, 2022

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2022 / CY 2021 Actual Employer Contributions	Allocation Percentage
Town of Reading Governmental	$ 5,566,349	69.07%
Reading Municipal Light Department	2,140,461	26.56%
Town of Reading Water Enterprise	216,244	2.68%
Town of Reading Nonmajor Enterprise	54,917	0.68%
Reading Housing Authority	81,401	1.01%
Total	$ 8,059,372	100.00%

See actuarial assumptions in the Reading Contributory Retirement System's audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Pension Amounts by Employer
As of and for the Year Ended December 31, 2021

	Town of Reading Governmental	Reading Municipal Light Department	Town of Reading Water Enterprise	Town of Reading Nonmajor Enterprise	Reading Housing Authority	Total
Net Pension Liability	$ 13,935,502	$ 5,358,701	$ 541,373	$ 137,486	$ 203,790	$ 20,176,852
Deferred Outflows of Resources						
Differences between expected and actual experience	$ 2,027,841	$ 779,777	$ 78,778	$ 20,006	$ 29,655	$ 2,936,057
Changes of assumptions	4,770,842	1,834,560	185,340	47,069	69,768	6,907,579
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,551,303	-	41,810	316	67,779	1,661,208
Total Deferred Outflows of Resources	$ 8,349,986	$ 2,614,337	$ 305,928	$ 67,391	$ 167,202	$ 11,504,844
Deferred (Inflows) of Resources						
Differences between expected and actual experience	$ (206,246)	$ (79,309)	$ (8,012)	$ (2,035)	$ (3,016)	$ (298,618)
Changes of assumptions	(974,934)	(374,897)	(37,875)	(9,619)	(14,257)	(1,411,582)
Net difference between projected and actual investment earnings on pension plan investments	(15,482,150)	(5,953,442)	(601,457)	(152,745)	(226,407)	(22,416,201)
Changes in proportion and differences between employer contributions and proportionate share of contributions	(837,196)	(545,285)	(222,692)	(42,401)	(13,634)	(1,661,208)
Total Deferred (Inflows) of Resources	$ (17,500,526)	$ (6,952,933)	$ (870,036)	$ (206,800)	$ (257,314)	$ (25,787,609)
Pension Expense						
Proportionate share of pension expense	$ 1,213,241	$ 466,534	$ 47,132	$ 11,970	$ 17,742	$ 1,756,619
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	236,912	(189,829)	(39,405)	(20,482)	12,804	-
Total Pension Expense	$ 1,450,153	$ 276,705	$ 7,727	$ (8,512)	$ 30,546	$ 1,756,619
Contributions						
Actuarially determined contribution	$ 5,566,349	$ 2,140,461	$ 216,244	$ 54,917	$ 81,401	$ 8,059,372
Contributions made	(5,566,349)	(2,140,461)	(216,244)	(54,917)	(81,401)	(8,059,372)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -
Contributions as a percentage of covered payroll	28.89%	30.80%	33.91%	27.29%	30.08%	29.50%
Deferred Outflows (Inflows) Recognized in Future Pension Expense						
June 30, 2022	$ (868,209)	$ (614,787)	$ (82,337)	$ (31,385)	$ (3,357)	$ (1,600,075)
June 30, 2023	(3,456,176)	(1,572,398)	(198,517)	(48,845)	(36,558)	(5,312,494)
June 30, 2024	(2,244,345)	(1,079,283)	(163,074)	(31,075)	(15,426)	(3,533,203)
June 30, 2025	(2,587,139)	(1,067,375)	(119,841)	(28,025)	(34,613)	(3,836,993)
June 30, 2026	5,329	(4,753)	(339)	(79)	(158)	-
Total Deferred Outflows (Inflows) Recognized in Future Pension Expense	$ (9,150,540)	$ (4,338,596)	$ (564,108)	$ (139,409)	$ (90,112)	$ (14,282,765)
Discount Rate Sensitivity						
1% decrease (6.00%)	$ 30,928,747	$ 11,893,214	$ 1,201,534	$ 305,140	$ 452,295	$ 44,780,930
Current discount rate (7.00%)	13,935,502	5,358,701	541,373	137,486	203,790	20,176,852
1% increase (8.00%)	(451,955)	(173,793)	(17,558)	(4,459)	(6,609)	(654,374)
Covered Payroll	$ 19,264,683	$ 6,949,555	$ 637,654	$ 201,201	$ 270,585	$ 27,323,678

See actuarial assumptions in the Reading Contributory Retirement System's audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Financial Statements and Other Information
For the Year Ended December 31, 2020

(With Independent Auditors' Report Thereon)

CONTENTS

	Page
INDEPENDENT AUDITORS' REPORT	1
MANAGEMENT'S DISCUSSION AND ANALYSIS	3
BASIC FINANCIAL STATEMENTS	
Statement of Fiduciary Net Position	7
Statement of Changes in Fiduciary Net Position	8
Notes to Financial Statements	9
REQUIRED SUPPLEMENTARY INFORMATION	
Schedule of Changes in the Net Pension Liability	20
Schedules of the Net Pension Liability, Contributions, and Investment Returns	21
OTHER INFORMATION	
Independent Auditors' Report	22
Schedule of Employer Allocations	24
Schedule of Pension Amounts by Employer	25

MELANSON

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

We have audited the accompanying financial statements of the Reading Contributory Retirement System (the System), a component unit of the Town of Reading, Massachusetts, as of and for the year ended December 31, 2020, and the related notes to the financial statements, which collectively comprise the basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements
The System's 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.

Auditors' 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. 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 auditors' 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 System'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 System'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.

Merrimack, New Hampshire
Andover, Massachusetts
Greenfield, Massachusetts
Ellsworth, Maine

800.282.2440 | melansoncpas.com

MELANSON

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 fiduciary net position of the Reading Contributory Retirement System as of December 31, 2020, and the respective changes in fiduciary net 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 the Schedules of the Net Pension Liability, Contributions, and Investment Returns, listed in the foregoing table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the *Governmental Accounting Standards Board*, who considers it to be an essential part of financial reporting for placing the basic 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 basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with evidence sufficient to express an opinion or provide any assurance.

Melanson

Andover, Massachusetts
December 2, 2021

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Reading Contributory Retirement System (the System), we offer readers this narrative overview and analysis of the financial activities of the System for the year ended December 31, 2020.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of two components: (1) fund financial statements and (2) notes to financial statements. This report also contains other required supplementary information in addition to the basic financial statements themselves.

Fund Financial Statements

A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. Fund accounting is used to ensure and demonstrate compliance with finance-related legal requirements.

The Statement of Fiduciary Net Position presents information on the System's assets and liabilities with the resulting net position restricted for pensions. This statement reflects the System's investments at fair value, as well as cash, receivables, and liabilities.

The Statement of Changes in Fiduciary Net Position presents information showing how the System's net position restricted for pensions changed during the year ended December 31, 2020. It reflects contributions by participating employers, active members, external parties, investment activity, along with deductions for retirement benefits, refunds, transfers, and administrative expenses.

Notes to Financial Statements

The Notes to Financial Statements provide additional information that is essential for the reader to gain a full understanding of the data provided in the financial statements.

The Required Supplementary Information includes this Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and the Schedules of Net Pension Liability, Contributions, and Investment Returns.

Financial Highlights

- The System's total net position restricted for pensions was $168,323,981 at December 31, 2020, an increase of $15,415,937, or 10.08%, over the prior year. This change is primarily due to favorable returns on System investments in calendar year 2020.

- Employer and employee contributions to the plan were $10,711,565, which represents an increase of $1,163,288, or 12.18%, over the prior year. The employer share of contributions represents 67.71% of the total contributions made to the System.
- Benefit payments to plan members and beneficiaries increased by $196,565 or 1.57%, totaling $12,708,788. At December 31, 2020, there were 366 retirees and beneficiaries in receipt of pension benefits, as further discussed on page 9.
- The System's funded ratio (based on the System's GASB 68 valuation) as of the January 1, 2021 actuarial valuation was 79.07%, with the remaining liability reducing to zero on or before June 30, 2031.

Financial Statement Analysis

The following is a summary of financial statement data for the current and prior fiscal years:

FIDUCIARY NET POSITION

	2020	2019
Assets		
Cash and receivables	$ 5,716,418	$ 5,144,777
Investments	162,609,288	147,763,267
Total Assets	168,325,706	152,908,044
Liabilities		
Accounts payable	1,725	-
Total Liabilities	1,725	-
Net Position		
Restricted for pensions	$ 168,323,981	$ 152,908,044

The System's total assets as of December 31, 2020 were $168,325,706 and were mostly comprised of cash and investments. Total assets increased $15,417,662, or 10.08%, from the prior year primarily due to favorable returns on System investments in calendar year 2020.

CHANGES IN FIDUCIARY NET POSITION

	2020	2019
Additions		
Contributions	$ 11,229,409	$ 9,986,117
Investment income	17,639,123	20,103,742
Total Additions	28,868,532	30,089,859
Deductions		
Benefit payments	12,708,788	12,512,223
Refunds to plan members	75,643	314,978
Transfers to other systems	389,892	334,205
Administrative expenses	278,272	281,455
Total Deductions	13,452,595	13,442,861
Net Increase	15,415,937	16,646,998
Net Position Restricted for Pensions		
Beginning of year	152,908,044	136,261,046
End of year	$ 168,323,981	$ 152,908,044

The amount needed to finance benefits is accumulated through the collection of employers' and employee's contributions, reimbursements from the Commonwealth of Massachusetts for pre-1998 COLA and through earnings on investments. Contributions and net investment income for calendar year 2020 resulted in total additions of $28,868,532. Employers' contributions increased by $1,320,239, or 21.01%, in calendar year 2020. The System had net investment income of $17,639,123, primarily due to favorable market conditions during the calendar year.

The primary deductions of the System include the payment of pension benefits to plan members and beneficiaries, refunds of member contributions, reimbursement payments in accordance with Massachusetts General Law, Chapter 32, Section 3(8)c, more commonly referred to as 3(8)c reimbursements, and the costs of administering the System. Total deductions for calendar year 2020 were $13,452,595, which represents an increase of $9,734, or 0.07%, over deductions of $13,442,861 in calendar year 2019. The payment of pension benefits increased by $196,565, or 1.57%, over the previous year.

Return on Investment and Funding

The Reading Contributory Retirement System Board continuously monitors investment performance at its monthly meetings. The money-weighted rate of return for the System's investments, as of December 31, 2020, was 11.74%.

Requests for Information

This financial report is designed to provide a general overview of the Reading Contributory Retirement System's finances. Questions concerning any of the information provided in this report, or requests for additional financial information, should be addressed to:

Reading Contributory Retirement System

2 Haven Street, Unit 307

Reading, Massachusetts 01867

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Statement of Fiduciary Net Position
December 31, 2020

Assets	
Cash and short-term investments	$ 5,643,973
Investments:	
State investment pool (PRIT)	161,456,988
Pooled alternative investments	1,152,300
Accounts receivable	72,445
Total Assets	168,325,706
Liabilities	
Accounts payable	1,725
Total Liabilities	1,725
Net Position	
Restricted for pensions	168,323,981
Total Net Position	$ 168,323,981

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Statement of Changes in Fiduciary Net Position
For the Year Ended December 31, 2020

Additions	
Contributions:	
Employers	$ 7,603,181
Plan members	3,108,384
Other systems and Commonwealth of Massachusetts	500,583
Other	17,261
Total contributions	11,229,409
Investment income:	
Increase in fair value of investments	18,411,492
Less: management fees	(772,369)
Net investment income	17,639,123
Total Additions	28,868,532
Deductions	
Benefit payments to plan members and beneficiaries	12,708,788
Refunds to plan members	75,643
Transfers to other systems	389,892
Administrative expenses	278,272
Total Deductions	13,452,595
Net Increase	15,415,937
Net Position Restricted for Pensions	
Beginning of year	152,908,044
End of year	$ 168,323,981

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

Notes to Financial Statements

1. Description of Plan

Substantially all employees of the Town of Reading (except teachers and administrators under contract employed by the School Department) and the Reading Housing Authority are members of the Reading Contributory Retirement System (the System), a cost sharing, multiple employer public employee retirement system (PERS). Eligible employees must participate in the System. The pension plan provides pension benefits, deferred allowances, and death and disability benefits. Chapter 32 of the Massachusetts General Laws establishes the authority of the System, contribution percentages, and benefits paid. The Reading Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at December 31, 2020:

Retirees and beneficiaries receiving benefits	366
Inactive plan members entitled to but not yet receiving benefits	56
Active plan members	355
Total	777
Number of participating employers	2

Participant Contributions

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of the Massachusetts General Laws. The employee's individual contribution percentage is determined by their date of entry into the system. In addition, all employees hired on or after January 1, 1979 contribute an additional 2.00% on all gross regular compensation over the rate of $30,000 per year. The percentages are as follows:

Before January 1, 1975	5.00%
January 1, 1975 – December 31, 1983	7.00%
January 1, 1984 – June 30, 1996	8.00%
July 1, 1996 – present	9.00%

For those members entering a Massachusetts System on or after April 2, 2012 in Group 1, the contribution rate will be reduced to 6.00% when at least 30 years of creditable service has been attained.

Employer Contributions
Employers are required to contribute at actuarially determined rates as accepted by the Public Employee Retirement Administration Commission (PERAC).

Participant Retirement Benefits
A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and a portion of the interest they generate constitute the annuity. The difference between the total retirement allowance and the annuity is the pension. The average retirement benefit is approximately 80 - 85% pension and 15 - 20% annuity.

The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest 3-year average annual rate of regular compensation for those hired prior to April 2, 2012 and the highest 5-year average annual rate of regular compensation for those first becoming members of the Massachusetts System on or after that date. However, per Chapter 176 of the Acts of 2011, for members who retire on or after April 2, 2012, if in the 5 years of creditable service immediately preceding retirement, the difference in the annual rate of regular compensation between any 2 consecutive years exceeds 100%, the normal yearly amount of the retirement allowance shall be based on the average annual rate of regular compensation received by the member during the period of 5 consecutive years preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are 4 classes of membership in the retirement system, but one of these classes, Group 3, is made up exclusively of the Massachusetts State Police. The other three classes are as follows:

- Group 1 – General employees, including clerical, administrative, technical, and all other employees not otherwise classified.
- Group 2 – Certain specified hazardous duty positions.
- Group 4 – Police officers, firefighters, and other specified hazardous positions.

A retirement allowance may be received at any age, upon attaining 20 years of service. The plan also provides for retirement at age 55 if the participant was a member prior to January 1, 1978, with no minimum vesting requirements. If the participant was a member on or after January 1, 1978 and a member of Groups 1 or 2, then a retirement allowance may be received if the participant (1) has at least 10 years of creditable service, (2) is age 55, (3) voluntarily left employment on or after that date, and (4) left accumulated annuity deductions in the fund. Members of Group 4 have no minimum vesting requirements, however, must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

A participant who became a member on or after April 2, 2012 is eligible for a retirement allowance upon 10 years creditable service and reaching ages 60 or 55 for Groups 1 and 2, respectively. Participants in Group 4 must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

Methods of Payment

A member may elect to receive his or her retirement allowance in one of three forms of payment as follows:

- Option A – Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the member's death.
- Option B – A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.
- Option C – A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, 2/3 of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who has not remarried, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up" to Option A) based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" to Option A in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

Participant Refunds

Employees who resign from service and who are not eligible to receive a retirement allowance are entitled to request a refund of their accumulated total deductions. Members voluntarily withdrawing with at least 10 years of service or involuntarily withdrawing, receive 100% of the regular interest that has accrued on those accumulated total deductions. Members voluntarily withdrawing with less than 10 years of service get credited interest each year at a rate of 3.00%.

2. Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

The System is a member of the Massachusetts Contributory Retirement Systems and is governed by Chapter 32 of the Massachusetts General Laws. Because of the significance of its operational and financial relationship with the Town, the System is included as a pension trust fund in the Town's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the town, two elected by the members and retirees, and a fifth member chosen by the other four members with the approval of PERAC.

Summary of Significant Accounting Policies

The accounting policies of the System as reflected in the accompanying financial statements for the year ended December 31, 2020 conform to generally accepted accounting principles for public employee retirement systems (PERS). The more significant accounting policies of the System are summarized below:

Basis of Accounting

The System follows accounting policies mandated by the Commonwealth of Massachusetts. The accounting records are maintained on the accrual basis of accounting. Contributions from the Town of Reading and the Reading Housing Authority employees are recognized as revenue in the period in which employees provide services to the respective member unit.

Investments

Investment Policy

Investments are reported at fair value in accordance with PERAC requirements. System 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.

Rate of Return

For the year ended December 31, 2020, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was 11.74%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested throughout the year.

3. Cash and Short-Term Investments

Custodial Credit Risk – Deposits

Custodial credit risk is the risk that in the event of a bank failure, the System's deposits may not be returned. Massachusetts General Law Chapter 32, Section 23, limits the System's deposits "in a bank or trust company to an amount not exceeding ten percent

of the capital and surplus of such bank or trust company." The System does not have formal deposit policies for custodial credit risk.

As of December 31, 2020, $5,520,935 of the System's bank balance of $5,831,318 was exposed to custodial credit risk as uninsured or uncollateralized. However, the entirety of the System's uninsured or uncollateralized bank balance was invested in the Commonwealth's Local Government Investment Pool (MMDT).

4. Investments

The following is a summary of the System's investments as of December 31, 2020:

Investment Type	Amount
State investment pool (PRIT)*	$ 161,456,988
Pooled alternative investments	1,152,300
Total investments	$ 162,609,288

** Fair value is the same as the value of the pool share. The Pension Reserves Investment Trust (PRIT) was created under Massachusetts General Law, Chapter 32, Section 22, in December 1983. The Pension Reserves Investment Trust is operated under contract with a private investment advisor, approved by the Pension Reserves Investment Management Board. The Pension Reserves Investment Management Board shall choose an investment advisor by requesting proposals from advisors and reviewing such proposals based on criteria adopted under Massachusetts General Law, Chapter 30B.*

Credit Risk – Investments of Debt Securities

Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. Massachusetts General Law, Chapter 32, Section 23, limits the investment of System funds, to the extent not required for current disbursements, in the PRIT Fund or in securities, other than mortgages or collateral loans, which are legal for the investment of funds in savings banks under the laws of the Commonwealth, provided that no more than the established percentage of assets, is invested in any one security. The System does not have formal investment policies related to credit risk.

As of December 31, 2020, all of the System's investments of $162,609,288 were unrated by nationally recognized statistical rating organizations.

Custodial Credit Risk

The custodial credit risk for investments is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, the System will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The System does not have formal investment policies related to custodial credit risk.

As of December 31, 2020, the System did not have any investments exposed to custodial credit risk disclosure as investments in external investment pools are not exposed to custodial credit risk because their existence is not evidenced by securities that exist in physical or book entry form.

Concentration of Credit Risk
Concentration of credit risk is the risk of loss attributable to the magnitude of the System's investment in a single issuer. Massachusetts General Law Chapter 32, Section 23 limits the amount the System may invest in any one issuer or security type, with the exception of the PRIT Fund. The System does not have formal investment policies related to concentration of credit risk.

As of December 31, 2020, the System did not have any investments subject to concentration of credit risk exposure as investments in external investment pools are excluded from concentration of credit risk disclosure.

Interest Rate Risk – Investments of Debt Securities
Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The System does not have formal investment policies limiting investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

As of December 31, 2020, all of the System's investments had maturities of less than one year.

Foreign Currency Risk
Foreign currency risk is the risk that changes in foreign exchange rates will adversely affect the fair value of an investment. The System does not have formal investment policies related to foreign currency risk.

Fair Value
The System categorizes its fair value measurements within the fair value hierarchy established by Governmental Accounting Standards Board Statement No. 72 *Fair Value Measurement and Application* (GASB 72).

The hierarchy is based on the valuation inputs used to measure the fair value of the asset. The hierarchy categorizes the inputs to valuation techniques used for fair value measurement into three levels as follows:

- Level 1 – Inputs that reflect quoted prices (unadjusted) in active markets for identical assets or liabilities that the fund has the ability to access at the measurement date.
- Level 2 – Inputs other than quoted prices that are observable for an asset or liability either directly or indirectly, including inputs in markets that are not considered to be

active. Because they must often be priced on the basis of transactions involving similar but not identical securities or do not trade with sufficient frequency, certain directly held securities are categorized as level 2.

- Level 3 – Unobservable inputs based on the best information available, using assumptions in determining the fair value of investments and derivative instruments.

The net asset value (NAV) per share is the amount of net assets attributable to each share of capital stock outstanding at the close of the period. Investments measured at the NAV for fair value are not subject to level classification.

The System has the following fair value measurements as of December 31, 2020:

Description	Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Investments measured at the net asset value (NAV):				
State Investment Pool (PRIT)	$ 161,456,988	$ -	Monthly	30 Days
Private Equity Vintage Year 2019	1,005,139	1,747,785	Not Eligible	N/A
Private Equity Vintage Year 2020	147,161	2,920,527	Not Eligible	N/A
Total	$ 162,609,288	$ 4,668,312		

5. Commitments and Contingencies

COVID-19

The COVID-19 pandemic in the United States (and across the globe) has resulted in economic uncertainties. There is considerable uncertainty around the duration and scope of the economic disruption. The extent of the impact of COVID-19 on our operational and financial performance will depend on certain developments, including the duration and spread of the outbreak, impact on individuals served by the System, employees, and vendors, all of which are uncertain and cannot be predicted. At this point, the extent to which COVID-19 may impact our financial condition or results of operations is uncertain.

Outstanding Legal Issues

On an ongoing basis, there are typically pending legal issues in which the System is involved. The System's management is of the opinion that the potential future settlement of these issues would not materially affect its financial statements taken as a whole.

Unfunded Capital Commitments - Investments

As of December 31, 2020, the System had $4,668,312 in outstanding capital commitments.

6. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2021.

Net Pension Liability of Employers

The components of the net pension liability of the participating employers at December 31, 2020 were as follows:

Total pension liability	$ 212,889,398
Plan fiduciary net position	(168,323,981)
Employers' net pension liability	$ 44,565,417
Plan fiduciary net position as a percentage of total pension liability	79.07%

Actuarial Assumptions

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below:

Valuation date	January 1, 2021
Actuarial cost method	Entry Age Normal
Remaining amortization period	11 years from June 30, 2020
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases:	
Groups 1 and 2	6.00% - 4.25%, based on service
Group 4	7.00% - 4.75%, based on service
Inflation rate	2.30%
Post-retirement cost-of-living adjustment	3.00% of first $14,000

Actuarial valuations of the ongoing Systems involve estimates of the reported amounts and assumptions about probability of occurrence of events far into the future. Examples include assumptions about future employment mortality and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision, as actual results are compared with past expectations and new estimates are made about the future.

Mortality rates were based on the following:

Pre-retirement and beneficiary mortality: RP-2014 Blue Collar Mortality table, with full generational mortality improvement using Scale MP-2018.

Disabled members: RP-2014 Blue Collar Mortality table, set forward one year with full generational mortality improvement using Scale MP-2018.

Changes of Assumptions
Some actuarial assumptions and methods used have changed since the last measurement date, including reducing the investment return rate from 7.50% to 7.00% and updating the mortality and mortality improvement rates.

Target Allocations
The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimates 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 System's targeted asset allocation as of December 31, 2020, are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Global equity	39.00%	4.43%
Core fixed income	15.00%	0.40%
Private equity	14.00%	7.90%
Portfolio completion (PCS)	10.00%	2.90%
Real estate	10.00%	3.70%
Value-added fixed income	8.00%	3.90%
Timberland	4.00%	4.30%
Total	100.00%	

Discount Rate
The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be made based on the actuarially determined rates based on the Board's funding policy, which establishes the contractually required rates by Statute. Based on those assumptions, the System's fiduciary net position was projected to be available to make all the 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 Discount Rate

The following presents the net pension liability of the participating employers calculated using the discount rate of 7.00%, as well as what the participating employers' net pension liability would be if it were calculated using a discount rate that is one percentage-point lower or one percentage-point higher than the current rate:

1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
$ 68,550,681	$ 44,565,417	$ 24,259,793

Deferred Outflows/Inflows of Resources

The following schedule reflects the deferred outflows/inflows of resources for the System for the year ended December 31, 2020:

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Differences between expected and actual experience	$ 5,598,720	$ (391,069)
Changes of assumptions	9,046,149	(2,405,653)
Net difference between projected and actual investment earnings on pension plan investments	-	(8,045,100)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2,159,696	(2,159,696)
Total	$ 16,804,565	$ (13,001,518)

The following summarizes changes in deferred outflows/inflows of resources:

	Measurement Year	Amortization Period	Beginning Balance on Prior Measurement Period Deferrals	Current Measurement Period Additions	Amortization of Amounts Recognized in Current Period Pension Expense	End of Year Balance
Deferred Outflows of Resources						
Differences between expected and actual experience	2017	5.64	$ 2,859,741	$ -	$ (1,083,236)	$ 1,776,505
	2018	5.42	5,401,642	-	(1,579,427)	3,822,215
Changes of assumptions	2015	5.64	1,432,104	-	(1,432,104)	-
	2020	5.23	-	11,184,719	(2,138,570)	9,046,149
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	85,591	-	(85,591)	-
	2018	5.42	685,830	-	(200,535)	485,295
	2019	5.42	2,844	-	(643)	2,201
	2020	5.23	-	2,067,519	(395,319)	1,672,200
Total Deferred Outflows of Resources			10,467,752	13,252,238	(6,915,425)	16,804,565
Deferred Inflows of Resources						
Differences between expected and actual experience	2015	5.64	(431,209)	-	431,209	-
	2020	5.23	-	(483,520)	92,451	(391,069)
Changes of assumptions	2018	5.42	(3,399,724)	-	994,071	(2,405,653)
Net difference between projected and actual investment earnings on pension plan investments	2016	5	57,626	-	(57,626)	-
	2017	5	(4,484,128)	-	2,242,063	(2,242,065)
	2018	5	8,038,933	-	(2,679,645)	5,359,288
	2019	5	(8,100,566)	-	2,025,142	(6,075,424)
	2020	5	-	(6,358,625)	1,271,726	(5,086,899)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	(85,591)	-	85,591	-
	2018	5.42	(685,830)	-	200,535	(485,295)
	2019	5.42	(2,844)	-	643	(2,201)
	2020	5.23	-	(2,067,519)	395,319	(1,672,200)
Total Deferred Inflows of Resources			(9,093,333)	(8,909,664)	5,001,479	(13,001,518)
Total Collective Deferred Outflows (Inflows) of Resources			$ 1,374,419	$ 4,342,574	$ (1,913,946)	$ 3,803,047

The following schedule reflects the amortization of the balance of deferred outflows/ inflows of resources:

Fiscal Year*	Total
2021	$ 855,424
2022	2,707,522
2023	(1,004,897)
2024	774,394
2025	470,604
	$ 3,803,047

** Presented by member units' fiscal year to fairly present the fiduciary impact of related deferred outflows/inflows in the fiscal year affecting the member unit.*

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Changes in the Net Pension Liability
Required Supplementary Information

(Unaudited)

	2020	2019	2018	2017	2016	2015
Total Pension Liability						
Service cost	$ 4,493,993	$ 4,287,030	$ 3,735,655	$ 3,712,591	$ 3,569,799	$ 3,661,364
Interest	14,534,058	13,941,218	13,529,729	12,782,532	12,379,709	11,468,655
Changes of benefit terms	-	1,797,291	-	(1,615,834)	-	-
Differences between expected and actual experience	(483,520)	-	8,560,496	6,109,449	-	(3,800,039)
Changes of assumptions	11,184,719	-	(5,387,866)	-	-	12,620,424
Benefit payments, including refunds of member contributions[1]	(12,266,587)	(12,389,360)	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)
Net change in total pension liability	17,462,663	7,636,179	8,895,998	10,041,713	5,243,252	14,626,242
Total pension liability - beginning	195,426,735	187,790,556	178,894,558	168,852,845	163,609,593	148,983,351
Total pension liability - ending (a)	212,889,398	195,426,735	187,790,556	178,894,558	168,852,845	163,609,593
Plan Fiduciary Net Position[1]						
Contributions - employer	7,603,181	6,282,942	5,964,366	5,661,945	5,418,129	5,184,813
Contributions - member	2,718,492	2,931,130	2,801,575	2,835,739	2,799,067	2,421,626
Net investment income (loss)	17,639,123	20,103,742	(2,656,717)	20,593,232	8,640,548	882,425
Benefit payments, including refunds of member contributions	(12,266,587)	(12,389,361)	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)
Administrative expense	(278,272)	(281,455)	(212,080)	(230,215)	(237,043)	(106,848)
Net change in plan fiduciary net position	15,415,937	16,646,998	(5,644,872)	17,913,676	5,914,445	(942,146)
Plan fiduciary net position - beginning	152,908,044	136,261,046	141,905,918	123,992,242	118,077,797	119,019,943
Plan fiduciary net position - ending (b)	168,323,981	152,908,044	136,261,046	141,905,918	123,992,242	118,077,797
Net Pension Liability - Ending (a-b)	$ 44,565,417	$ 42,518,691	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796

[1] *Amounts may differ from those presented on page 8 due to classification differences between System and actuary*

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditors' Report.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedules of the Net Pension Liability, Contributions, and Investment Returns
Required Supplementary Information

(Unaudited)

	2020	2019	2018	2017	2016	2015
Schedule of Net Pension Liability						
Total pension liability	$ 212,889,398	$ 195,426,735	$ 187,790,556	$ 178,894,558	$ 168,852,845	$ 163,609,593
Plan fiduciary net position	(168,323,981)	(152,908,044)	(136,261,046)	(141,905,918)	(123,992,242)	(118,077,797)
Net pension liability	$ 44,565,417	$ 42,518,691	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796
Plan fiduciary net position as a percentage of the total pension liability	79.07%	78.24%	72.56%	79.32%	73.43%	72.17%
Covered payroll	$ 27,373,694	$ 27,585,913	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551
Participating employer net pension liability as a percentage of covered payroll	162.80%	154.13%	204.83%	148.08%	189.24%	199.76%
Schedule of Contributions						
Actuarially determined contribution	$ 7,603,181	$ 6,282,942	$ 5,964,366	$ 5,661,945	$ 5,418,129	$ 5,184,813
Contributions in relation to the actuarially determined contribution	(7,603,181)	(6,282,942)	(5,964,366)	(5,661,945)	(5,418,129)	(5,184,813)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 27,373,694	$ 27,585,913	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551
Contributions as a percentage of covered payroll	27.78%	22.78%	23.71%	22.67%	22.86%	22.75%
Schedule of Investment Returns						
Annual money weighted rate of return, net of investment expense	11.74%	15.10%	(2.15)%	17.24%	7.50%	0.75%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditors' Report.

MELANSON

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Reading Contributory Retirement System as of and for the year ended December 31, 2020. We have also audited the total for all entities of the titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense (specified totals) included in the accompanying schedule of pension amounts by employer of the Reading Contributory Retirement System as of and for the year ended December 31, 2020.

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.

Auditors' Responsibility
Our responsibility is to express opinions on the schedule of employer allocations and the specified 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 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 specified 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 specified 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 Town's preparation and fair presentation of the schedule of employer allocations and specified 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 Town'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 specified totals included in the schedule of pension amounts by employer.

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

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for the Reading Contributory Retirement System as of and for the year ended December 31, 2020, in accordance with accounting principles generally accepted in the United States of America.

Restriction on Use

Our report is intended solely for the information and use of Reading Contributory Retirement System management, the Retirement Board, System employers and their auditors as of and for the year ended December 31, 2020 and is not intended to be and should not be used by anyone other than these specified parties.

Melanson

Andover, Massachusetts
December 2, 2021

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2021 / CY 2020 Actual Employer Contributions	Allocation Percentage
Town of Reading Governmental	$ 5,228,670	68.77%
Reading Municipal Light Department	2,039,462	26.82%
Town of Reading Water Enterprise	205,442	2.70%
Town of Reading Nonmajor Enterprise	52,143	0.69%
Reading Housing Authority	77,464	1.02%
Total	$ 7,603,181	100.00%

See actuarial assumptions in the Reading Contributory Retirement System's audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Pension Amounts by Employer
As of and for the Year Ended December 31, 2020

	Town of Reading Governmental	Reading Municipal Light Department	Town of Reading Water Enterprise	Town of Reading Nonmajor Enterprise	Reading Housing Authority	Total
Net Pension Liability	$ 30,647,417	$ 11,954,138	$ 1,204,181	$ 305,632	$ 454,049	$ 44,565,417
Deferred Outflows of Resources						
Differences between expected and actual experience	$ 3,850,213	$ 1,501,789	$ 151,280	$ 38,396	$ 57,042	$ 5,598,720
Changes of assumptions	6,220,992	2,426,521	244,432	62,039	92,165	9,046,149
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,999,593	-	70,893	447	88,763	2,159,696
Total Deferred Outflows of Resources	$ 12,070,798	$ 3,928,310	$ 466,605	$ 100,882	$ 237,970	$ 16,804,565
Deferred (Inflows) of Resources						
Differences between expected and actual experience	$ (268,936)	$ (104,900)	$ (10,567)	$ (2,682)	$ (3,984)	$ (391,069)
Changes of assumptions	(1,654,355)	(645,288)	(65,002)	(16,498)	(24,510)	(2,405,653)
Net difference between projected and actual investment earnings on pension plan investments	(5,532,576)	(2,158,001)	(217,383)	(55,174)	(81,966)	(8,045,100)
Changes in proportion and differences between employer contributions and proportionate share of contributions	(1,169,755)	(627,032)	(283,469)	(61,221)	(18,219)	(2,159,696)
Total Deferred (Inflows) of Resources	$ (8,625,622)	$ (3,535,221)	$ (576,421)	$ (135,575)	$ (128,679)	$ (13,001,518)
Pension Expense						
Proportionate share of pension expense	$ 4,966,038	$ 1,937,021	$ 195,123	$ 49,524	$ 73,573	$ 7,221,279
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	131,542	(130,065)	(3,311)	(18,138)	19,972	-
Total Pension Expense	$ 5,097,580	$ 1,806,956	$ 191,812	$ 31,386	$ 93,545	$ 7,221,279
Contributions						
Actuarially determined contribution	$ 5,228,670	$ 2,039,462	$ 205,442	$ 52,143	$ 77,464	$ 7,603,181
Contributions made	(5,228,670)	(2,039,462)	(205,442)	(52,143)	(77,464)	(7,603,181)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -
Contributions as a percentage of covered payroll	26.84%	30.17%	30.14%	16.80%	53.72%	27.78%
Deferred Outflows (Inflows) Recognized in Future Pension Expense						
June 30, 2021	$ 802,013	$ 60,293	$ (14,817)	$ (14,272)	$ 22,207	$ 855,424
June 30, 2022	2,075,692	557,096	35,228	(1,571)	41,077	2,707,522
June 30, 2023	(501,239)	(410,358)	(81,655)	(19,194)	7,549	(1,004,897)
June 30, 2024	705,301	87,475	(45,874)	(1,346)	28,838	774,394
June 30, 2025	363,409	98,583	(2,698)	1,690	9,620	470,604
Total Deferred Outflows (Inflows) Recognized in Future Pension Expense	$ 3,445,176	$ 393,089	$ (109,816)	$ (34,693)	$ 109,291	$ 3,803,047
Discount Rate Sensitivity						
1% decrease (6.00%)	$ 47,141,964	$ 18,387,897	$ 1,852,276	$ 470,124	$ 698,420	$ 68,550,681
Current discount rate (7.00%)	30,647,417	11,954,138	1,204,181	305,632	454,049	44,565,417
1% increase (8.00%)	16,683,339	6,507,398	655,513	166,375	247,168	24,259,793
Covered Payroll	$ 19,478,614	$ 6,758,995	$ 681,521	$ 310,355	$ 144,209	$ 27,373,694

See actuarial assumptions in the Reading Contributory Retirement System's audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Financial Statements, Required Supplementary Information, and Other Information

For the Year Ended December 31, 2019

CONTENTS

	Page
INDEPENDENT AUDITORS' REPORT	1
MANAGEMENT'S DISCUSSION AND ANALYSIS	1
BASIC FINANCIAL STATEMENTS:	
Statement of Fiduciary Net Position	5
Statement of Changes in Fiduciary Net Position	6
Notes to Financial Statements	7
REQUIRED SUPPLEMENTARY INFORMATION:	
Schedule of Changes in the Net Pension Liability	19
Schedules of Net Pension Liability, Contributions, and Investment Returns	20
OTHER INFORMATION:	
Independent Auditors' Report	21
Schedule of Employer Allocations	23
Schedule of Pension Amounts by Employer	24

MELANSON

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

We have audited the accompanying financial statements of the Reading Contributory Retirement System (the System), a component unit of the Town of Reading, Massachusetts, as of and for the year ended December 31, 2019, and the related notes to the financial statements, which collectively comprise the basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

The System's 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.

Auditors' 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. 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 auditors' 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

Nashua, New Hampshire
Manchester, New Hampshire
Andover, Massachusetts
Greenfield, Massachusetts
Ellsworth, Maine

800.282.2440 | melansoncpas.com

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 fiduciary net position of the Reading Contributory Retirement System as of December 31, 2019, and the respective changes in fiduciary net 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 the Schedules of Net Pension Liability, Contributions, and Investment Returns, listed in the foregoing table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the *Governmental Accounting Standards Board*, who considers it to be an essential part of financial reporting for placing the basic 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 basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with evidence sufficient to express an opinion or provide any assurance.

Melanson

Andover, Massachusetts
October 29, 2020

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Reading Contributory Retirement System (the System), we offer readers this narrative overview and analysis of the financial activities of the System for the year ended December 31, 2019.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of two components: (1) fund financial statements and (2) notes to financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Fund Financial Statements

A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. Fund accounting is used to ensure and demonstrate compliance with finance-related legal requirements.

The Statement of Fiduciary Net Position presents information on the System's assets and net position restricted for pensions as of December 31, 2019. This statement reflects the System's investments at fair value, cash, and receivables. As of December 31, 2019, the System did not have any outstanding liabilities.

The Statement of Changes in Fiduciary Net Position presents information showing how the System's net position restricted for pensions changed during the year ended December 31, 2019. This statement reflects contributions by plan members and participating employers, investment activity, deductions for benefit payments to plan members and beneficiaries, and administrative expenses.

Notes to Financial Statements

The Notes to Financial Statements provide additional information that is essential for the reader to gain a full understanding of the data provided in the financial statements.

The Required Supplementary Information includes this Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and the Schedules of Net Pension Liability, Contributions, and Investment Returns.

Financial Highlights

- The System's total net position restricted for pensions was $152,908,044 at December 31, 2019, which represents a change of $16,646,998, or 12.22%, over the prior year. This change is primarily due to favorable returns on System investments in calendar year 2019.

- Employer and employee contributions to the plan were $9,214,072, which represents an increase of $448,131, or 5.11%, over the prior year. The employer share of contributions represents 68.19% of the total contributions made to the System.
- Benefit payments to plan members and beneficiaries increased by $847,345, or 7.34%, totaling $12,389,361. At December 31, 2019, there were 374 retirees and beneficiaries in receipt of pension benefits, as further discussed on page 9.
- The System's funded ratio (based on the System's GASB 68 valuation), as of the January 1, 2019 actuarial valuation (rolled forward to December 31, 2019), was 78.24%, with 10 years remaining in its amortization period.

Financial Statement Analysis

The following is a summary of financial statement data for the current and prior fiscal years:

FIDUCIARY NET POSITION

	2019	2018
Assets		
Cash and receivables	$ 5,144,777	$ 13,101,656
Investments	147,763,267	123,159,975
Total Assets	152,908,044	136,261,631
Liabilities		
Accounts payable	-	585
Net Position		
Restricted for pensions	$ 152,908,044	$ 136,261,046

The System's total assets as of December 31, 2019 were $152,908,044 and were mostly comprised of cash and investments. Total assets increased by $16,646,413, or 12.22%, from the prior year primarily due to favorable returns on System investments in calendar year 2019.

CHANGES IN FIDUCIARY NET POSITION

	2019	2018
Additions		
Contributions	$ 9,214,072	$ 8,765,941
Investment income (loss)	20,103,742	(2,656,717)
Total Additions	29,317,814	6,109,224
Deductions		
Benefit payments	12,389,361	11,542,016
Administrative expenses	281,455	212,080
Total Deductions	12,670,816	11,754,096
Net Increase (Decrease)	16,646,998	(5,644,872)
Net Position Restricted for Pensions		
Beginning of year	136,261,046	141,905,918
End of year	$ 152,908,044	$ 136,261,046

The amount needed to finance benefits is accumulated through the collection of employers' and employee's contributions and through earnings on investments. Employers' contributions increased by $318,576, or 5.34%, in calendar year 2019. The System had net investment income of $20,103,742 in calendar year 2019 versus a loss of $(2,656,717) in calendar year 2018, primarily due to favorable market conditions during calendar year 2019.

The primary deductions of the System include the payment of pension benefits to plan members and beneficiaries, reimbursement payments in accordance with Massachusetts General Law, Chapter 32, Section 3(8)c, more commonly referred to as 3(8)c reimbursements, and the costs of administering the System. Total deductions for calendar year 2019 were $12,670,816, which represents an increase of $916,720, or 7.80%, over deductions of $11,754,096 in calendar year 2018. The payment of pension benefits to plan members and beneficiaries increased by $847,345, or 7.34%, over the previous year. Significant factors in the change in deductions are illustrated in the table below:

Retirement benefit payments paid to new retirees in 2019	$ 414,294
Increase in benefit payments to calendar year 2018 retirees	287,111
Other	145,940
Total	$ 847,345

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the Reading Contributory Retirement System's finances. Questions concerning any of the information provided in this report, or requests for additional financial information, should be addressed to:

Reading Contributory Retirement System

2 Haven Street, Unit 307

Reading, Massachusetts 01867

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Statement of Fiduciary Net Position
December 31, 2019

Assets	
Cash and short-term investments	$ 5,099,961
Investments:	
State investment pool (PRIT)	147,763,267
Accounts receivable	44,816
Total Assets	152,908,044
Net Position	
Restricted for pensions	$ 152,908,044

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Statement of Changes in Fiduciary Net Position
For the Year Ended December 31, 2019

Additions	
Contributions:	
Employers	$ 6,282,942
Plan members	2,931,130
Total contributions	9,214,072
Investment income:	
Appreciation in fair value of investments	20,828,168
Less: management fees	(724,426)
Net investment income	20,103,742
Total Additions	29,317,814
Deductions	
Benefit payments to plan members and beneficiaries	12,389,361
Administrative expenses	281,455
Total Deductions	12,670,816
Net Increase	16,646,998
Net Position Restricted for Pensions	
Beginning of year	136,261,046
End of year	$ 152,908,044

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

Notes to Financial Statements

1. Description of Plan

Substantially all employees of the Town of Reading (except teachers and administrators under contract employed by the School Department) and Reading Housing Authority are members of the Reading Contributory Retirement System (the System), a cost sharing, multiple employer public employee retirement system (PERS). Eligible employees must participate in the System. The pension plan provides pension benefits, deferred allowances, and death and disability benefits. Chapter 32 of the Massachusetts General Laws establishes the authority of the System, contribution percentages, and benefits paid. The Reading Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at December 31, 2019:

Retirees and beneficiaries receiving benefits	374
Inactive members entitled to a return of employee contributions	53
Active plan members	359
Total	786
Number of participating employers	2

Participant Contributions

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of the Massachusetts General Laws. The employee's individual contribution percentage is determined by their date of entry into the system. In addition, all employees hired on or after January 1, 1979 contribute an additional 2.00% on all gross regular compensation over the rate of $30,000 per year. The percentages are as follows:

Before January 1, 1975	5.00%
January 1, 1975 – December 31, 1983	7.00%
January 1, 1984 – June 30, 1996	8.00%
July 1, 1996 – present	9.00%

For those members entering a Massachusetts System on or after April 2, 2012 in Group 1, the contribution rate will be reduced to 6.00% when at least 30 years of creditable service has been attained.

Employer Contributions
Employers are required to contribute at actuarially determined rates as accepted by the Public Employee Retirement Administration Commission (PERAC).

Participant Retirement Benefits
A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and a portion of the interest they generate constitute the annuity. The difference between the total retirement allowance and the annuity is the pension. The average retirement benefit is approximately 80 - 85% pension and 15 - 20% annuity.

The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest 3-year average annual rate of regular compensation for those hired prior to April 2, 2012 and the highest 5-year average annual rate of regular compensation for those first becoming members of the Massachusetts System on or after that date. However, per Chapter 176 of the Acts of 2011, for members who retire on or after April 2, 2012, if in the five years of creditable service immediately preceding retirement, the difference in the annual rate of regular compensation between any two consecutive years exceeds 100%, the normal yearly amount of the retirement allowance shall be based on the average annual rate of regular compensation received by the member during the period of five consecutive years preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are four classes of membership in the retirement system, but one of these classes, Group 3, is made up exclusively of the Massachusetts State Police. The other three classes are as follows:

- Group 1 – General employees, including clerical, administrative, technical, and all other employees not otherwise classified.
- Group 2 – Certain specified hazardous duty positions.
- Group 4 – Police officers, firefighters, and other specified hazardous positions.

A retirement allowance may be received at any age, upon attaining 20 years of service. The plan also provides for retirement at age 55 if the participant was a member prior to January 1, 1978, with no minimum vesting requirements. If the participant was a member on or after January 1, 1978 and a member of Groups 1 or 2, then a retirement allowance may be received if the participant (1) has at least 10 years of creditable service, (2) is age 55, (3) voluntarily left employment on or after that date, and (4) left accumulated annuity deductions in the fund. Members of Group 4 have no minimum vesting requirements, however, must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

A participant who became a member on or after April 2, 2012 is eligible for a retirement allowance upon 10 years creditable service and reaching ages 60 or 55 for Groups 1 and 2, respectively. Participants in Group 4 must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

Methods of Payment

A member may elect to receive his or her retirement allowance in one of three forms of payment as follows:

- Option A – Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the members death.
- Option B – A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.
- Option C – A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, two-thirds of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who has not remarried, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up" to Option A) based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" to Option A in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

Participant Refunds

Employees who resign from service and who are not eligible to receive a retirement allowance are entitled to request a refund of their accumulated total deductions. Members voluntarily withdrawing with at least 10 years of service or involuntarily withdrawing, receive 100% of the regular interest that has accrued on those accumulated total deductions. Members voluntarily withdrawing with less than 10 years of service get credited interest each year at a rate of 3.00%.

2. Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

The System is a member of the Massachusetts Contributory Retirement Systems and is governed by Chapter 32 of the Massachusetts General Laws. Because of the significance of its operational and financial relationship with the Town, the System is included as a pension trust fund in the Town's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the town, two elected by the members and retirees, and a fifth member chosen by the other four members with the approval of PERAC.

Summary of Significant Accounting Policies

The accounting policies of the System as reflected in the accompanying financial statements for the year ended December 31, 2019 conform to generally accepted accounting principles for public employee retirement systems (PERS). The more significant accounting policies of the System are summarized below:

Basis of Accounting

The System follows accounting policies mandated by the Commonwealth of Massachusetts. The accounting records are maintained on the accrual basis of accounting. Contributions from the Town of Reading and Reading Housing Authority employees are recognized as revenue in the period in which employees provide services to the respective member unit.

Investments

Investment Policy

Investments are reported at fair value in accordance with PERAC requirements. System 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.

Rate of Return

For the year ended December 31, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was 15.10%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested throughout the year.

3. Deposits and Investments

Custodial Credit Risk

Deposits. Custodial credit risk is the risk that in the event of a bank failure, the System's deposits may not be returned. Massachusetts General Law Chapter 32, Section 23, limits the System's deposits "in a bank or trust company to an amount not exceeding ten

percent of the capital and surplus of such bank or trust company." The System does not have formal policies related to custodial credit risk.

As of December 31, 2019, $5,037,388 of the System's bank balances of $5,278,439 were exposed to custodial credit risk as uninsured or uncollateralized. However, the entirety of the System's uninsured or uncollateralized bank balance was invested in the Commonwealth's Local Government Investment Pool (MMDT).

Investment Summary
The following is a summary of the System's investments as of December 31, 2019:

Investment Type	Amount
State investment pool (PRIT)*	$ 147,763,267

* Fair value is the same as the value of the pool share. The Pension Reserves Investment Trust (PRIT) was created under Massachusetts General Law, Chapter 32, Section 22, in December 1983. The Pension Reserves Investment Trust is operated under contract with a private investment advisor, approved by the Pension Reserves Investment Management Board. The Pension Reserves Investment Management Board shall choose an investment advisor by requesting proposals from advisors and reviewing such proposals based on criteria adopted under Massachusetts General Law, Chapter 30B.

Credit Risk – Investments of Debt Securities
Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. Massachusetts General Law, Chapter 32, Section 23, limits the investment of System funds, to the extent not required for current disbursements, in the PRIT Fund or in securities, other than mortgages or collateral loans, which are legal for the investment of funds in savings banks under the laws of the Commonwealth, provided that no more than the established percentage of assets, is invested in any one security. The System does not have formal investment policies related to credit risk.

As of December 31, 2019, all of the System's investments of $147,763,267 were invested in PRIT and unrated by national credit rating organizations.

Custodial Credit Risk - Investments
The custodial credit risk for investments is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, a government will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The System does not have formal investment policies related to custodial credit risk.

As of December 31, 2019, the System did not have any investments exposed to custodial credit risk disclosure as investments in external investment pools are not exposed to custodial credit risk because their existence is not evidenced by securities that exist in physical or book entry form.

Concentration of Credit Risk - Investments
Massachusetts General Law Chapter 32, Section 23 limits the amount the System may invest in any one issuer or security type, with the exception of the PRIT Fund. The System does not have formal investment policies related to concentration of credit risk.

As of December 31, 2019, the System did not have any investments subject to concentration of credit risk as investments in external investment pools are excluded from concentration of credit risk disclosure.

Interest Rate Risk – Investments of Debt Securities
Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The System does not have formal investment policies that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

As of December 31, 2019, all of the System's investments of $147,763,267 were invested in PRIT with maturities less than one year.

Foreign Currency Risk - Investments
Foreign currency risk is the risk that changes in foreign exchange rates will adversely affect the fair value of an investment. The System does not have formal investment policies related to foreign currency risk.

Fair Value
The System categorizes its fair value measurements within the fair value hierarchy established by Governmental Accounting Standards Board Statement No. 72 *Fair Value Measurement and Application* (GASB 72).

The hierarchy is based on the valuation inputs used to measure the fair value of the asset. The hierarchy categorizes the inputs to valuation techniques used for fair value measurement into three levels as follows:

- Level 1 – Inputs that reflect quoted prices (unadjusted) in active markets for identical assets or liabilities that the fund has the ability to access at the measurement date.
- Level 2 – Inputs other than quoted prices that are observable for an asset or liability either directly or indirectly, including inputs in markets that are not considered to be active. Because they must often be priced on the basis of transactions involving similar but not identical securities or do not trade with sufficient frequency, certain directly held securities are categorized as level 2.
- Level 3 – Unobservable inputs based on the best information available, using assumptions in determining the fair value of investments and derivative instruments.

The net asset value (NAV) per share is the amount of net assets attributable to each share of capital stock outstanding at the close of the period. Investments measured at the NAV for fair value are not subject to level classification.

The System has the following fair value measurements as of December 31, 2019:

Description	Amount	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Investments measured at the net asset value (NAV):				
State investment pool (PRIT)	$ 147,763,267	$ -	Monthly	30 Days

4. Accounts Receivable

The accounts receivable balance primarily represents make up payments and redeposits due to the System on December 31, 2019.

5. Contingencies

There are various pending claims arising in the ordinary course of operations; however, management believes that the probable liability resulting from such claims and litigation would not materially affect the System's financial position.

6. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2019 and rolled forward to December 31, 2019.

Net Pension Liability of Employers

The components of the net pension liability of the participating employers at December 31, 2019 were as follows:

Total pension liability	$ 195,426,735
Plan fiduciary net position	(152,908,044)
Employers' net pension liability	$ 42,518,691
Plan fiduciary net position as a percentage of total pension liability	78.24%

Actuarial Assumptions

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below:

Valuation date	January 1, 2019 rolled forward to December 31, 2019
Actuarial cost method	Entry Age Normal
Remaining amortization period	10 years from June 30, 2019
Investment rate of return	7.50%
Projected salary increases:	
Groups 1 and 2	6.00% - 4.25%, based on service
Fire and Police	7.00% - 4.75%, based on service
Inflation rate	2.40%
Post-retirement cost-of-living adjustment	3.00% of first $12,000

Actuarial valuations of the ongoing System involves estimates of the reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment mortality and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision, as actual results are compared with past expectations and new estimates are made about the future.

Mortality rates were based on the following:

Pre-retirement and beneficiary mortality: RP-2000 Mortality table, base year 2009, projected with fully generational mortality improvement using Scale BB.

Disabled members: RP-2000 Mortality table, base year 2012, projected with fully generational mortality improvement using Scale BB.

Target Allocations

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimates 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 System's targeted asset allocation as of December 31, 2019, are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Global equity	39.00%	4.68%
Core fixed income	15.00%	0.59%
Private equity	13.00%	8.50%
Portfolio completion	11.00%	3.40%
Real estate	10.00%	3.70%
Value-added fixed income	8.00%	4.40%
Timberland	4.00%	4.30%
Total	100.00%	

Discount Rate

The discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be made based on the actuarially determined rates based on the Board's funding policy, which establishes the contractually required rates by Statute. Based on those assumptions, the System's fiduciary net position was projected to be available to make all the 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 Discount Rate

The following presents the net pension liability of the participating employers calculated using the discount rate of 7.50%, as well as what the participating employers' net pension liability would be if it were calculated using a discount rate that is one percentage-point lower or one percentage-point higher than the current rate:

1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
$ 63,974,883	$ 42,518,691	$ 24,301,587

Deferred Outflows/(Inflows) of Resources

The following schedule reflects the deferred outflows and (inflows) of resources for the System for the year ended December 31, 2019:

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Differences between expected and actual experience	$ 8,261,383	$ (431,209)
Changes of assumptions	1,432,104	(3,399,724)
Net difference between projected and actual investment earnings on pension plan investments	-	(4,488,135)
Changes in proportion and differences between employer contributions and proportionate share of contributions	774,265	(774,265)
Total	$ 10,467,752	$ (9,093,333)

The following summarizes changes in deferred outflows and (inflows) of resources:

	Measurement Year	Amortization Period	Beginning Balance on Prior Measurement Period Deferrals	Current Measurement Period Additions	Amortization of Amounts Recognized in Current Period Pension Expense	End of Year Balance
Deferred Outflows of Resources						
Differences between expected and actual experience	2017	5.64	$ 3,942,977	$ -	$ (1,083,236)	$ 2,859,741
	2018	5.42	6,981,069	-	(1,579,427)	5,401,642
Changes of assumptions	2015	5.64	3,669,768	-	(2,237,664)	1,432,104
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	219,329	-	(133,738)	85,591
	2018	5.42	886,367	-	(200,537)	685,830
	2019	5.42	-	3,487	(643)	2,844
Total Deferred Outflows of Resources			15,699,510	3,487	(5,235,245)	10,467,752
Deferred (Inflows) of Resources						
Differences between expected and actual experience	2015	5.64	(1,104,975)	-	673,766	(431,209)
Changes of assumptions	2018	5.42	(4,393,795)	-	994,071	(3,399,724)
Net difference between projected and actual investment earnings on pension plan investments	2015	5	1,654,182	-	(1,654,182)	-
	2016	5	115,252	-	(57,626)	57,626
	2017	5	(6,726,191)	-	2,242,063	(4,484,128)
	2018	5	10,718,578	-	(2,679,645)	8,038,933
	2019	5	-	(10,125,708)	2,025,142	(8,100,566)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	(219,329)	-	133,738	(85,591)
	2018	5.42	(886,367)	-	200,537	(685,830)
	2019	5.42	-	(3,487)	643	(2,844)
Total Deferred (Inflows) of Resources			(842,645)	(10,129,195)	1,878,507	(9,093,333)
Total Collective Deferred Outflows (Inflows) of Resources			$ 14,856,865	$ (10,125,708)	$ (3,356,738)	$ 1,374,419

The following schedule reflects the amortization of the balance of deferred outflows/(inflows) of resources:

Fiscal Year*	Amount
2021	$ 1,139,552
2022	81,030
2023	1,933,128
2024	(1,779,291)
Total	$ 1,374,419

*Presented by member units' fiscal year to fairly present the fiduciary impact of related deferred outflows/(inflows) in the fiscal year affecting the member unit.

7. Subsequent Events

COVID-19

The COVID-19 outbreak in the United States and across the globe has resulted in economic uncertainities. The disruption is expected to be temporary, but there is considerable uncertainty around the duration and scope. The extent of the impact of COVID-19 on our operational and financial performance will depend on certain developments, inluding the duration and spread of the outbreak, special acts or legislation by the state or federal government, and the impact on our active members, employees, retirees, and vendors, all of which are uncertain and cannot be predicted. At this point, the extent to which COVID-19 may impact our financial condition or results of operations is uncertain.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Changes in the Net Pension Liability
Required Supplementary Information
For the Year Ended December 31, 2019

(Unaudited)

	2019	2018	2017	2016	2015
Total Pension Liability					
Service cost	$ 4,287,030	$ 3,735,655	$ 3,712,591	$ 3,569,799	$ 3,661,364
Interest on unfunded liability - time value of money	13,941,218	13,529,729	12,782,532	12,379,709	11,468,655
Changes of benefit terms	1,797,291	-	(1,615,834)	-	-
Differences between expected and actual experience	-	8,560,496	6,109,449	-	(3,800,039)
Changes of assumptions	-	(5,387,866)	-	-	12,620,424
Benefit payments, including refunds of member contributions	(12,389,360)	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)
Net change in total pension liability	7,636,179	8,895,998	10,041,713	5,243,252	14,626,242
Total pension liability - beginning	187,790,556	178,894,558	168,852,845	163,609,593	148,983,351
Total pension liability - ending (a)	195,426,735	187,790,556	178,894,558	168,852,845	163,609,593
Plan Fiduciary Net Position					
Contributions - employer	6,282,942	5,964,366	5,661,945	5,418,129	5,184,813
Contributions - member	2,931,130	2,801,575	2,835,739	2,799,067	2,421,626
Net investment income (loss)	20,103,742	(2,656,717)	20,593,232	8,640,548	882,425
Benefit payments, including refunds of member contributions	(12,389,361)	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)
Administrative expense	(281,455)	(212,080)	(230,215)	(237,043)	(106,848)
Net change in plan fiduciary net position	16,646,998	(5,644,872)	17,913,676	5,914,445	(942,146)
Plan fiduciary net position - beginning	136,261,046	141,905,918	123,992,242	118,077,797	119,019,943
Plan fiduciary net position - ending (b)	152,908,044	136,261,046	141,905,918	123,992,242	118,077,797
Net pension liability - ending (a-b)	$ 42,518,691	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditor's Report.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedules of Net Pension Liability, Contributions, and Investment Returns
Required Supplementary Information
For the Year Ended December 31, 2019

(Unaudited)

	2019	2018	2017	2016	2015
Schedule of Net Pension Liability					
Total pension liability	$ 195,426,735	$ 187,790,556	$ 178,894,558	$ 168,852,845	$ 163,609,593
Plan fiduciary net position	(152,908,044)	(136,261,046)	(141,905,918)	(123,992,242)	(118,077,797)
Net pension liability	$ 42,518,691	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796
Plan fiduciary net position as a percentage of the total pension liability	78.24%	72.56%	79.32%	73.43%	72.17%
Covered payroll	$ 27,585,913	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551
Participating employer net pension liability as a percentage of covered payroll	154.13%	204.83%	148.08%	189.24%	199.76%
Schedule of Contributions					
Actuarially determined contribution	$ 6,282,942	$ 5,964,366	$ 5,661,945	$ 5,418,129	$ 5,184,813
Contributions in relation to the actuarially determined contribution	(6,282,942)	(5,964,366)	(5,661,945)	(5,418,129)	(5,184,813)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 27,585,913	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551
Contributions as a percentage of covered payroll	22.78%	23.71%	22.67%	22.86%	22.75%
Schedule of Investment Returns					
Annual money weighted rate of return, net of investment expense	15.10%	(2.15)%	17.24%	7.50%	0.75%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditor's Report.

MELANSON

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Reading Contributory Retirement System as of and for the year ended December 31, 2019. We have also audited the total for all entities of the net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense (specified totals) included in the accompanying schedule of pension amounts by employer of the Reading Contributory Retirement System as of and for the year ended December 31, 2019.

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.

Auditors' Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified 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 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 specified 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 specified 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 specified 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 specified totals included in the schedule of pension amounts by employer.

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

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for the Reading Contributory Retirement System as of and for the year ended December 31, 2019, in accordance with accounting principles generally accepted in the United States of America.

Restriction on Use

Our report is intended solely for the information and use of Reading Contributory Retirement System management, the Retirement Board, System employers and their auditors as of and for the year ended December 31, 2019 and is not intended to be and should not be used by anyone other than these specified parties.

Melanson

Andover, Massachusetts
October 29, 2020

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2020 / CY 2019 Actual Employer Contributions	Allocation Percentage
Town of Reading:		
Governmental Funds	$ 4,182,630	66.57%
Municipal Light Department	1,781,345	28.35%
Water Enterprise Fund	223,289	3.55%
Nonmajor Enterprise Funds	48,424	0.77%
Reading Housing Authority	47,254	0.75%
Total	$ 6,282,942	100.00%

See actuarial assumptions in the Reading Contributory System audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Pension Amounts by Employer
As of and for the Year Ended December 31, 2019

	Town of Reading Governmental	Reading Municipal Light Department	Town of Reading Water Enterprise	Town of Reading Nonmajor Enterprise	Reading Housing Authority	Total
Net Pension Liability	$ 28,305,204	$ 12,054,935	$ 1,511,069	$ 327,700	$ 319,783	$ 42,518,691
Deferred Outflows of Resources						
Differences between expected and actual experience	$ 5,499,702	$ 2,342,274	$ 293,601	$ 63,672	$ 62,134	$ 8,261,383
Changes of assumptions	953,370	406,031	50,895	11,037	10,771	1,432,104
Changes in proportion and differences between employer contributions and proportionate share of contributions	588,121	39,099	134,595	5,970	6,480	774,265
Total Deferred Outflows of Resources	$ 7,041,193	$ 2,787,404	$ 479,091	$ 80,679	$ 79,385	$ 10,467,752
Deferred Inflows of Resources						
Differences between expected and actual experience	$ (287,060)	$ (122,257)	$ (15,325)	$ (3,324)	$ (3,243)	$ (431,209)
Changes of assumptions	(2,263,237)	(963,893)	(120,823)	(26,202)	(25,569)	(3,399,724)
Net difference between projected and actual investment earnings on pension plan investments	(2,987,806)	(1,272,480)	(159,503)	(34,591)	(33,755)	(4,488,135)
Changes in proportion and differences between employer contributions and proportionate share of contributions	(531,213)	(167,395)	-	(49,945)	(25,712)	(774,265)
Total Deferred Inflows of Resources	$ (6,069,316)	$ (2,526,025)	$ (295,651)	$ (114,062)	$ (88,279)	$ (9,093,333)
Pension Expense						
Proportionate share of pension expense	$ 7,159,447	$ 3,049,144	$ 382,206	$ 82,887	$ 80,885	$ 10,754,569
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(87,635)	12,158	83,176	(10,333)	2,634	-
Total Pension Expense	$ 7,071,812	$ 3,061,302	$ 465,382	$ 72,554	$ 83,519	$ 10,754,569
Contributions						
Actuarially determined contribution	$ 4,182,630	$ 1,781,345	$ 223,289	$ 48,424	$ 47,254	$ 6,282,942
Contributions made	(4,182,630)	(1,781,345)	(223,289)	(48,424)	(47,254)	(6,282,942)
Contribution deficiency / (excess)	$ -	$ -	$ -	$ -	$ -	$ -
Contributions as a percentage of covered payroll	21.41%	26.37%	29.80%	14.73%	21.99%	22.78%
Deferred Outflows (Inflows) of Resources Recognized in Future Pension Expense						
June 30, 2021	$ 717,216	$ 313,252	$ 104,201	$ (2,676)	$ 7,559	$ 1,139,552
June 30, 2022	94,745	(25,960)	31,963	(12,835)	(6,883)	81,030
June 30, 2023	1,327,709	499,148	97,784	1,440	7,047	1,933,128
June 30, 2024	(1,167,608)	(525,044)	(50,723)	(19,335)	(16,581)	(1,779,291)
June 30, 2025	(185)	(17)	215	23	(36)	-
Total Deferred Outflows (Inflows) of Resources Recognized in Future Pension Expense	$ 971,877	$ 261,379	$ 183,440	$ (33,383)	$ (8,894)	$ 1,374,419
Discount Rate Sensitivity						
1% decrease (6.50%)	$ 42,588,848	$ 18,138,213	$ 2,273,599	$ 493,068	$ 481,155	$ 63,974,883
Current discount rate (7.50%)	28,305,204	12,054,935	1,511,069	327,700	319,783	42,518,691
1% increase (8.50%)	16,177,859	6,890,006	863,652	187,298	182,772	24,301,587
Covered Payroll	19,539,114	6,754,079	749,191	328,648	214,881	27,585,913

See actuarial assumptions in the Reading Contributory System audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of
Reading, Massachusetts)

Financial Statements,
Required Supplementary Information,
and Other Information

For the Year Ended December 31, 2018

TABLE OF CONTENTS

	PAGE
INDEPENDENT AUDITORS' REPORT	1
MANAGEMENT'S DISCUSSION AND ANALYSIS	3
BASIC FINANCIAL STATEMENTS:	
Statement of Fiduciary Net Position	7
Statement of Changes in Fiduciary Net Position	8
Notes to Financial Statements	9
REQUIRED SUPPLEMENTARY INFORMATION:	
Schedule of Changes in the Net Pension Liability	20
Schedules of Net Pension Liability, Contributions, and Investment Returns	21
OTHER INFORMATION:	
Independent Auditors' Report	22
Schedule of Employer Allocations	24
Schedule of Pension Amounts by Employer	25

MELANSONHEATH
ACCOUNTANTS • AUDITORS

10 New England Business
Center Dr. • Suite 107
Andover, MA 01810
(978)749-0005
melansonheath.com

Additional Offices:
Nashua, NH
Manchester, NH
Greenfield, MA
Ellsworth, ME

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

We have audited the accompanying financial statements of the Reading Contributory Retirement System (the System), a component unit of the Town of Reading, Massachusetts, as of and for the year ended December 31, 2018, and the related notes to the financial statements, which collectively comprise the basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

The System's 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.

Auditors' 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. 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 auditors' 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 fiduciary net position of the Reading Contributory Retirement System as of December 31, 2018, and the respective changes in fiduciary net 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 the Schedules of Net Pension Liability, Contributions, and Investment Returns, listed in the foregoing table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the *Governmental Accounting Standards Board*, who considers it to be an essential part of financial reporting for placing the basic 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 basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with evidence sufficient to express an opinion or provide any assurance.

Melanson Heath

December 10, 2019

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Reading Contributory Retirement System (the System), we offer readers this narrative overview and analysis of the financial activities of the System for the year ended December 31, 2018.

A. OVERVIEW OF THE FINANCIAL STATEMENTS

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of two components: (1) fund financial statements and (2) notes to financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Fund financial statements. A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. Fund accounting is used to ensure and demonstrate compliance with finance-related legal requirements.

The Statement of Fiduciary Net Position presents information on the System's assets, liabilities, and net position restricted for pensions. This statement reflects the System's investments at fair value, as well as cash, receivables, and accounts payable.

The Statement of Changes in Fiduciary Net Position presents information showing how the System's net position restricted for pensions changed during the year ended December 31, 2018. This statement reflects contributions by plan members and participating employers, investment activity, deductions for benefit payments to plan members and beneficiaries, and administrative expenses.

Notes to financial statements. The Notes to Financial Statements provide additional information that is essential for the reader to gain a full understanding of the data provided in the financial statements.

The Required Supplementary Information includes this Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and the Schedules of Net Pension Liability, Contributions, and Investment Returns.

B. FINANCIAL HIGHLIGHTS

- The System's total net position restricted for pensions was $136,261,046 at December 31, 2018, which represents a change of $(5,644,872), or (3.98)%, over the prior year. This change is primarily due to unfavorable returns on System investments in calendar year 2018.
- Employer and employee contributions to the plan were $8,765,941, which represents an increase of $268,257, or 3.16%, over the prior year. The employer

share of contributions represents 68.04% of the total contributions made to the System.

- Benefit payments to plan members and beneficiaries increased by $594,991, or 5.44%, totaling $11,542,016. At December 31, 2018, there were 360 retirees and beneficiaries in receipt of pension benefits, as further discussed on page 9.
- The System's funded ratio (based on the System's GASB 68 valuation) as of the December 31, 2018 actuarial valuation was 72.56%, with 11 years remaining in its amortization period.

C. FINANCIAL STATEMENT ANALYSIS

The following is a summary of financial statement data for the current and prior fiscal years:

FIDUCIARY NET POSITION

	2018	2017
Assets		
Cash and receivables	$ 13,101,656	$ 6,933,728
Investments	123,159,975	134,972,190
Total assets	136,261,631	141,905,918
Liabilities		
Accounts payable	585	-
Net Position		
Restricted for pensions	$ 136,261,046	$ 141,905,918

The System's total assets as of December 31, 2018 were $136,261,631 and were mostly comprised of cash and investments. Total assets decreased by $5,644,287, or 3.98%, from the prior year primarily due to unfavorable returns on System investments in calendar year 2018.

CHANGES IN FIDUCIARY NET POSITION

	2018	2017
Additions		
Contributions	$ 8,765,941	$ 8,497,684
Investment income (loss)	(2,656,717)	20,593,232
Total additions	6,109,224	29,090,916
Deductions		
Benefit payments	11,542,016	10,947,025
Administrative expenses	212,080	230,215
Total deductions	11,754,096	11,177,240
Change in net position	(5,644,872)	17,913,676
Net Position Restricted for Pensions		
Beginning of year	141,905,918	123,992,242
End of year	$ 136,261,046	$ 141,905,918

The amount needed to finance benefits is accumulated through the collection of employers' and employee's contributions and through earnings on investments. Employers' contributions increased by $302,421, or 5.34%, in calendar year 2018. The System had a net investment loss of $2,656,717 in calendar year 2018 versus a gain of $20,593,232 in calendar year 2017, primarily due to unfavorable market conditions during calendar year 2018.

The primary deductions of the System include the payment of pension benefits to plan members and beneficiaries, reimbursement payments in accordance with Massachusetts General Law, Chapter 32, Section 3(8)c, more commonly referred to as 3(8)c reimbursements, and the costs of administering the System. Total deductions for calendar year 2018 were $11,754,096, which represents an increase of $576,856, or 5.16%, over deductions of $11,177,240 in calendar year 2017. The payment of pension benefits to plan members and beneficiaries increased by $594,991, or 5.44%, over the previous year. The increase in these expenses are primarily due to cost-of-living adjustments issued in the current year, as well as the pool of retirees receiving pension benefits increasing over the prior year.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the Reading Contributory Retirement System's finances. Questions concerning any of the information provided in this report, or requests for additional financial information, should be addressed to:

Reading Contributory Retirement System

2 Haven Street, Unit 307

Reading, Massachusetts 01867

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Statement of Fiduciary Net Position

December 31, 2018

Assets	
Cash and short-term investments	$ 13,042,964
Investments:	
State investment pool (PRIT)	123,159,975
Accounts receivable	58,692
Total assets	136,261,631
Liabilities	
Accounts payable	585
Net Position	
Restricted for pensions	136,261,046
Total liabilities and net position	$ 136,261,631

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Statement of Changes in Fiduciary Net Position

For the Year Ended December 31, 2018

Additions	
Contributions:	
Employers	$ 5,964,366
Plan members	2,801,575
Total contributions	8,765,941
Investment (loss):	
Depreciation in fair value of investments	(1,962,084)
Less: management fees	(694,633)
Net investment (loss)	(2,656,717)
Total additions	6,109,224
Deductions	
Benefit payments to plan members and beneficiaries	11,542,016
Administrative expenses	212,080
Total deductions	11,754,096
Net (decrease)	(5,644,872)
Net Position Restricted for Pensions	
Beginning of year	141,905,918
End of year	$ 136,261,046

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

Notes to Financial Statements

1. Description of Plan

Substantially all employees of the Town of Reading (except teachers and administrators under contract employed by the School Department) and Reading Housing Authority are members of the Reading Contributory Retirement System (the System), a cost sharing, multiple employer public employee retirement system (PERS). Eligible employees must participate in the System. The pension plan provides pension benefits, deferred allowances, and death and disability benefits. Chapter 32 of the Massachusetts General Laws establishes the authority of the System, contribution percentages, and benefits paid. The Reading Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at December 31, 2018:

Retirees and beneficiaries receiving benefits	360
Inactive members entitled to a return of employee contributions	45
Active plan members	353
Total	758
Number of participating employers	2

Participant Contributions

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of the Massachusetts General Laws. The employee's individual contribution percentage is determined by their date of entry into the system. In addition, all employees hired on or after January 1, 1979 contribute an additional 2.00% on all gross regular compensation over the rate of $30,000 per year. The percentages are as follows:

Before January 1, 1975	5.00%
January 1, 1975 – December 31, 1983	7.00%
January 1, 1984 – June 30, 1996	8.00%
July 1, 1996 – present	9.00%

For those members entering a Massachusetts System on or after April 2, 2012 in Group 1, the contribution rate will be reduced to 6.00% when at least 30 years of creditable service has been attained.

Employer Contributions

Employers are required to contribute at actuarially determined rates as accepted by the Public Employee Retirement Administration Commission (PERAC).

Participant Retirement Benefits

A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and a portion of the interest they generate constitute the annuity. The difference between the total retirement allowance and the annuity is the pension. The average retirement benefit is approximately 80 - 85% pension and 15 - 20% annuity.

The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest 3-year average annual rate of regular compensation for those hired prior to April 2, 2012 and the highest 5-year average annual rate of regular compensation for those first becoming members of the Massachusetts System on or after that date. However, per Chapter 176 of the Acts of 2011, for members who retire on or after April 2, 2012, if in the five years of creditable service immediately preceding retirement, the difference in the annual rate of regular compensation between any two consecutive years exceeds 100%, the normal yearly amount of the retirement allowance shall be based on the average annual rate of regular compensation received by the member during the period of five consecutive years preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

There are four classes of membership in the retirement system, but one of these classes, Group 3, is made up exclusively of the Massachusetts State Police. The other three classes are as follows:

- Group 1 – General employees, including clerical, administrative, technical, and all other employees not otherwise classified.
- Group 2 – Certain specified hazardous duty positions.
- Group 4 – Police officers, firefighters, and other specified hazardous positions.

A retirement allowance may be received at any age, upon attaining 20 years of service. The plan also provides for retirement at age 55 if the participant was a member prior to January 1, 1978, with no minimum vesting requirements. If the participant was a member on or after January 1, 1978 and a member of Groups 1 or 2, then a retirement allowance may be received if the participant (1) has at least 10 years of creditable service, (2) is age 55, (3) voluntarily left employment on or after that date, and (4) left accumulated annuity deductions in the fund. Members of Group 4 have no minimum vesting requirements, however, must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

A participant who became a member on or after April 2, 2012 is eligible for a retirement allowance upon 10 years creditable service and reaching ages 60 or 55 for Groups 1 and 2, respectively. Participants in Group 4 must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

Methods of Payment

A member may elect to receive his or her retirement allowance in one of three forms of payment as follows:

- Option A – Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the members death.
- Option B – A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.
- Option C – A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, two-thirds of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who has not remarried, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up" to Option A) based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" to Option A in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

Participant Refunds

Employees who resign from service and who are not eligible to receive a retirement allowance are entitled to request a refund of their accumulated total deductions. Members voluntarily withdrawing with at least 10 years of service or involuntarily withdrawing, receive 100% of the regular interest that has accrued on those accumulated total deductions. Members voluntarily withdrawing with less than 10 years of service get credited interest each year at a rate of 3.00%.

2. Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

The System is a member of the Massachusetts Contributory Retirement Systems and is governed by Chapter 32 of the Massachusetts General Laws. Because of the significance of its operational and financial relationship with the Town, the System is included as a pension trust fund in the Town's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the town, two elected by the members and retirees, and a fifth member chosen by the other four members with the approval of PERAC.

Summary of Significant Accounting Policies

The accounting policies of the System as reflected in the accompanying financial statements for the year ended December 31, 2018 conform to generally accepted accounting principles for public employee retirement systems (PERS). The more significant accounting policies of the System are summarized below:

Basis of Accounting

The System follows accounting policies mandated by the Commonwealth of Massachusetts. The accounting records are maintained on the accrual basis of accounting. Contributions from the Town of Reading and Reading Housing Authority employees are recognized as revenue in the period in which employees provide services to the respective member unit.

Investments

Investment Policy

Investments are reported at fair value in accordance with PERAC requirements. System 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.

Rate of Return

For the year ended December 31, 2018, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was (2.15)%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested throughout the year.

3. Cash and Short-Term Investments

Custodial Credit Risk - Deposits. Custodial credit risk is the risk that in the event of a bank failure, the System's deposits may not be returned. Massachusetts General Law Chapter 32, Section 23, limits the System's deposits "in a bank or trust company to an amount not exceeding ten percent of the capital and surplus of such bank or trust company." The System does not have formal policies related to custodial credit risk.

As of December 31, 2018, $12,965,130 of the System's bank balances of $13,126,397 were exposed to custodial credit risk as uninsured or uncollateralized. However, the entirety of the System's uninsured or uncollateralized bank balance was invested in the Commonwealth's Local Government Investment Pool (MMDT).

4. Investments

A. *Credit Risk*

Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. Massachusetts General Law, Chapter 32, Section 23, limits the investment of System funds, to the extent not required for current disbursements, in the PRIT Fund or in securities, other than mortgages or collateral loans, which are legal for the investment of funds in savings banks under the laws of the Commonwealth, provided that no more than the established percentage of assets, is invested in any one security. The System does not have formal investment policies related to credit risk.

As of December 31, 2018, all of the System's investments of $123,159,975 were invested in external investment pools and unrated by national credit rating organizations.

B. *Custodial Credit Risk*

The custodial credit risk for investments is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, a government will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The System does not have formal investment policies related to custodial credit risk.

As of December 31, 2018, the System did not have any investments exposed to custodial credit risk disclosure as investments in external investment pools are not exposed to custodial credit risk because their existence is not evidenced by securities that exist in physical or book entry form.

C. *Concentration of Credit Risk*

Massachusetts General Law Chapter 32, Section 23 limits the amount the System may invest in any one issuer or security type, with the exception of the PRIT Fund. The System does not have formal investment policies related to concentration of credit risk.

As of December 31, 2018, the System did not have any investments subject to concentration of credit risk as investments in external investment pools are excluded from concentration of credit risk disclosure.

D. *Interest Rate Risk*

Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The System does not have formal investment policies that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

E. *Foreign Currency Risk*

Foreign currency risk is the risk that changes in foreign exchange rates will adversely affect the fair value of an investment. The System does not have formal investment policies related to foreign currency risk.

F. *Fair Value*

The System categorizes its fair value measurements within the fair value hierarchy established by Governmental Accounting Standards Board Statement No. 72 *Fair Value Measurement and Application* (GASB 72).

The hierarchy is based on the valuation inputs used to measure the fair value of the asset. The hierarchy categorizes the inputs to valuation techniques used for fair value measurement into three levels as follows:

- Level 1 – Inputs that reflect quoted prices (unadjusted) in active markets for identical assets or liabilities that the fund has the ability to access at the measurement date.
- Level 2 – Inputs other than quoted prices that are observable for an asset or liability either directly or indirectly, including inputs in markets that are not considered to be active. Because they must often be priced on the basis of transactions involving similar but not identical securities or do not trade with sufficient frequency, certain directly held securities are categorized as level 2.
- Level 3 – Unobservable inputs based on the best information available, using assumptions in determining the fair value of investments and derivative instruments.

The net asset value (NAV) per share is the amount of net assets attributable to each share of capital stock outstanding at the close of the period. Investments measured at the NAV for fair value are not subject to level classification.

The System has the following fair value measurements as of December 31, 2018:

Description	Amount	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Investments measured at the net asset value (NAV):				
State investment pool (PRIT)	$ 123,159,975	$ -	Monthly	30 Days

5. Accounts Receivable

The accounts receivable balance primarily represents make up payments and redeposits due to the System on December 31, 2018.

6. Contingencies

There are various pending claims arising in the ordinary course of operations; however, management believes that the probable liability resulting from such claims and litigation would not materially affect the System's financial position.

7. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2019.

A. *Net Pension Liability of Employers*

The components of the net pension liability of the participating employers at December 31, 2018 were as follows:

Total pension liability	$ 187,790,556
Plan fiduciary net position	(136,261,046)
Employers' net pension liability	$ 51,529,510
Plan fiduciary net position as a percentage of total pension liability	72.56%

B. *Actuarial Assumptions*

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below:

Valuation date	January 1, 2019
Actuarial cost method	Entry Age Normal
Remaining amortization period	11 years from June 30, 2018
Investment rate of return	7.50%
Projected salary increases:	
Groups 1 and 2	6.00% - 4.25%, based on service
Fire & Police	7.00% - 4.75%, based on service
Inflation rate	3.00%
Post-retirement cost-of-living adjustment	3.00% of first $12,000

Actuarial valuations of the ongoing System involves estimates of the reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment mortality and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision, as actual results are compared with past expectations and new estimates are made about the future.

Mortality rates were based on the following:

Pre-retirement and beneficiary mortality: RP-2000 Mortality table, base year 2009, projected with fully generational mortality improvement using Scale BB.

Disabled members: RP-2000 Mortality table, base year 2012, projected with fully generational mortality improvement using Scale BB.

Changes of Assumptions

Changes of assumptions arose from updating the mortality tables and improvement scales from the prior period measurement date. Additional changes of assumptions are attributable to the investment rate of return changing from 7.65% to 7.50% as of the January 1, 2019 valuation.

C. *Target Allocations*

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimates 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 System's targeted asset allocation as of December 31, 2018, are summarized in the following table.

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Global equity	39.00%	4.75%
Fixed income	15.00%	1.05%
Private equity	13.00%	8.15%
Hedge funds and portfolio completion	11.00%	3.76%
Real estate	10.00%	3.43%
Value-added fixed income	8.00%	4.58%
Timber/natural resources	4.00%	4.00%
Total	100.00%	

D. *Discount Rate*

The discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be made based on the actuarially determined rates based on the Board's funding policy, which establishes the contractually required rates by Statute. Based on those assumptions, the System's fiduciary net position was projected to be available to make all the 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.

E. *Sensitivity of Discount Rate*

The following presents the net pension liability of the participating employers calculated using the discount rate of 7.50%, as well as what the participating employers' net pension liability would be if it were calculated using a discount rate that is one percentage-point lower or one percentage-point higher than the current rate:

1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
$ 72,168,665	$ 51,529,510	$ 34,002,637

F. *Deferred Outflows/(Inflows) of Resources*

The following schedule reflects the deferred outflows/(inflows) of resources for the System for the year ended December 31, 2018:

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Differences between expected and actual experience	$ 10,924,046	$ (1,104,975)
Changes of assumptions	3,669,768	(4,393,795)
Net difference between projected and actual investment earnings on pension plan investments	5,761,821	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,105,696	(1,105,696)
Total	$ 21,461,331	$ (6,604,466)

The following summarizes changes in deferred outflows/(inflows) of resources:

	Measurement Year	Amortization Period	Beginning Balance on Prior Measurement Period Deferrals	Current Measurement Period Additions	Amortization of Amounts Recognized in Current Period Pension Expense	End of Year Balance
Deferred Outflows of Resources						
Differences between expected and actual experience	2017	5.64	$ 5,026,213	$ -	$ (1,083,236)	$ 3,942,977
	2018	5.42	-	8,560,496	(1,579,427)	6,981,069
Changes of assumptions	2015	5.64	5,907,432	-	(2,237,664)	3,669,768
Net difference between projected and actual investment earnings on pension plan investments	2014	5.0	42,313	-	(42,313)	-
	2015	5.0	3,308,366	-	(1,654,184)	1,654,182
	2016	5.0	172,878	-	(57,626)	115,252
	2017	5.0	(8,968,254)	-	2,242,063	(6,726,191)
	2018	5.0	-	13,398,223	(2,679,645)	10,718,578
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	353,067	-	(133,738)	219,329
	2018	5.42	-	1,086,898	(200,531)	886,367
Total deferred outflows of resources			5,842,015	23,045,617	(7,426,301)	21,461,331
Deferred (Inflows) of Resources						
Differences between expected and actual experience	2015	5.64	(1,778,741)	-	673,766	(1,104,975)
Changes of assumptions	2018	5.42	-	(5,387,866)	994,071	(4,393,795)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	(353,067)	-	133,738	(219,329)
	2018	5.42	-	(1,086,898)	200,531	(886,367)
Total deferred (inflows) of resources			(2,131,808)	(6,474,764)	2,002,106	(6,604,466)
Total Collective Deferred Outflows (Inflows) of Resources			$ 3,710,207	$ 16,570,853	$ (5,424,195)	$ 14,856,865

The following schedule reflects the amortization of the balance of deferred outflows/(inflows) of resources:

Fiscal Year*	Amount
2020	$ 5,381,880
2021	3,164,694
2022	2,106,172
2023	3,958,269
2024	245,850
Total	$ 14,856,865

* *Presented by member units' fiscal year to fairly present the fiduciary impact of related deferred outflows/(inflows) in the fiscal year affecting the member unit.*

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Changes in the Net Pension Liability

Required Supplementary Information

For the Year Ended December 31, 2018

(Unaudited)

	2018	2017	2016	2015	2014
Total Pension Liability					
Service cost	$ 3,735,655	$ 3,712,591	$ 3,569,799	$ 3,661,364	$ 3,661,364
Interest on unfunded liability - time value of money	13,529,729	12,782,532	12,379,709	11,468,655	10,776,373
Changes of benefit terms	-	(1,615,834)	-	-	-
Differences between expected and actual experience	8,560,496	6,109,449	-	(3,800,039)	-
Changes of assumptions	(5,387,866)	-	-	12,620,424	-
Benefit payments, including refunds of member contributions	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)	(9,008,745)
Net change in total pension liability	8,895,998	10,041,713	5,243,252	14,626,242	5,428,992
Total pension liability - beginning	178,894,558	168,852,845	163,609,593	148,983,351	143,554,359
Total pension liability - ending (a)	$ 187,790,556	$ 178,894,558	$ 168,852,845	$ 163,609,593	$ 148,983,351
Plan Fiduciary Net Position					
Contributions - employer	$ 5,964,366	$ 5,661,945	$ 5,418,129	$ 5,184,813	$ 4,961,545
Contributions - member	2,801,575	2,835,739	2,799,067	2,421,626	2,710,307
Net investment income (loss)	(2,656,717)	20,593,232	8,640,548	882,425	8,416,432
Benefit payments, including refunds of member contributions	(11,542,016)	(10,947,025)	(10,706,256)	(9,324,162)	(9,008,745)
Administrative expense	(212,080)	(230,215)	(237,043)	(106,848)	(114,170)
Net change in plan fiduciary net position	(5,644,872)	17,913,676	5,914,445	(942,146)	6,965,369
Plan fiduciary net position - beginning	141,905,918	123,992,242	118,077,797	119,019,943	112,054,574
Plan fiduciary net position - ending (b)	$ 136,261,046	$ 141,905,918	$ 123,992,242	$ 118,077,797	$ 119,019,943
Net pension liability - ending (a-b)	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796	$ 29,963,408

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditors' Report.

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Schedules of Net Pension Liability, Contributions, and Investment Returns

Required Supplementary Information

For the Year Ended December 31, 2018

(Unaudited)

	2018	2017	2016	2015	2014
Schedule of Net Pension Liability					
Total pension liability	$ 187,790,556	$ 178,894,558	$ 168,852,845	$ 163,609,593	$ 148,983,351
Plan fiduciary net position	(136,261,046)	(141,905,918)	(123,992,242)	(118,077,797)	(119,019,943)
Net pension liability	$ 51,529,510	$ 36,988,640	$ 44,860,603	$ 45,531,796	$ 29,963,408
Plan fiduciary net position as a percentage of the total pension liability	72.56%	79.32%	73.43%	72.17%	79.89%
Covered payroll	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551	$ 20,915,728
Participating employer net pension liability as a percentage of covered payroll	204.83%	148.08%	189.24%	199.76%	143.26%

	2018	2017	2016	2015	2014
Schedule of Contributions					
Actuarially determined contribution	$ 5,964,366	$ 5,661,945	$ 5,418,129	$ 5,184,813	$ 4,961,545
Contributions in relation to the actuarially determined contribution	(5,964,366)	(5,661,945)	(5,418,129)	(5,184,813)	(4,961,545)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 25,157,087	$ 24,979,076	$ 23,705,293	$ 22,793,551	$ 20,915,728
Contributions as a percentage of covered payroll	23.71%	22.67%	22.86%	22.75%	23.72%

	2018	2017	2016	2015	2014
Schedule of Investment Returns					
Annual money weighted rate of return, net of investment expense	(2.15)%	17.24%	7.50%	0.75%	7.66%

Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See Independent Auditors' Report.

MELANSONHEATH
ACCOUNTANTS • AUDITORS

10 New England Business
Center Dr. • Suite 107
Andover, MA 01810
(978)749-0005
melansonheath.com

Additional Offices:
Nashua, NH
Manchester, NH
Greenfield, MA
Ellsworth, ME

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Reading Contributory Retirement System as of and for the year ended December 31, 2018. We have also audited the total for all entities of the net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense (specified totals) included in the accompanying schedule of pension amounts by employer of the Reading Contributory Retirement System as of and for the year ended December 31, 2018.

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.

Auditors' Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified 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 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 specified 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 specified 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 specified 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 specified totals included in the schedule of pension amounts by employer.

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

Opinions

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for the Reading Contributory Retirement System as of and for the year ended December 31, 2018, in accordance with accounting principles generally accepted in the United States of America.

Restriction on Use

Our report is intended solely for the information and use of Reading Contributory Retirement System management, the Retirement Board, System employers and their auditors as of and for the year ended December 31, 2018 and is not intended to be and should not be used by anyone other than these specified parties.

Melanson Heath

December 10, 2019

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2019 / CY 2018 Actual Employer Contributions	Allocation Percentage
Town of Reading:		
Governmental Funds	$ 3,970,938	66.58%
Municipal Light Department	1,691,058	28.35%
Water Enterprise Fund	211,515	3.55%
Nonmajor Enterprise Funds	45,921	0.77%
Reading Housing Authority	44,934	0.75%
Total	$ 5,964,366	100.00%

See actuarial assumptions in the Reading Contributory Retirement System audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of Reading, Massachusetts)
Schedule of Pension Amounts by Employer
As of and for the Year Ended December 31, 2018

	Town of Reading Governmental	Reading Municipal Light Department	Town of Reading Water Enterprise	Town of Reading Nonmajor Enterprise	Reading Housing Authority	Total
Net Pension Liability	$ 34,307,165	$ 14,610,001	$ 1,827,397	$ 396,737	$ 388,210	$ 51,529,510
Deferred Outflows of Resources						
Differences between expected and actual experience	$ 7,272,979	$ 3,097,261	$ 387,401	$ 84,106	$ 82,299	$ 10,924,046
Changes of assumptions	2,443,248	1,040,478	130,141	28,254	27,647	3,669,768
Net difference between projected and actual investment earnings on pension plan investments	3,836,089	1,633,631	204,332	44,361	43,408	5,761,821
Changes in proportion and differences between employer contributions and proportionate share of contributions	760,087	100,192	214,992	13,819	16,606	1,105,696
Total deferred outflows of resources	$ 14,312,403	$ 5,871,562	$ 936,866	$ 170,540	$ 169,960	$ 21,461,331
Deferred Inflows of Resources						
Differences between expected and actual experience	$ (735,667)	$ (313,290)	$ (39,186)	$ (8,507)	$ (8,325)	$ (1,104,975)
Changes of assumptions	(2,925,287)	(1,245,759)	(155,818)	(33,829)	(33,102)	(4,393,795)
Changes in proportion and differences between employer contributions and proportionate share of contributions	(788,429)	(216,110)	-	(68,420)	(32,737)	(1,105,696)
Total deferred inflows of resources	$ (4,449,383)	$ (1,775,159)	$ (195,004)	$ (110,756)	$ (74,164)	$ (6,604,466)
Pension Expense						
Proportionate share of pension expense	$ 6,230,727	$ 2,653,408	$ 331,884	$ 72,054	$ 70,505	$ 9,358,578
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(87,195)	12,199	82,663	(10,387)	2,720	-
Total pension expense	$ 6,143,532	$ 2,665,607	$ 414,547	$ 61,667	$ 73,225	$ 9,358,578
Contributions						
Actuarially determined contribution	$ 3,970,938	$ 1,691,058	$ 211,515	$ 45,921	$ 44,934	$ 5,964,366
Contributions made	(3,970,938)	(1,691,058)	(211,515)	(45,921)	(44,934)	(5,964,366)
Contribution deficiency / (excess)	$ -	$ -	$ -	$ -	$ -	$ -
Contributions as a percentage of covered payroll	22.66%	25.96%	30.27%	19.41%	24.20%	23.71%
Deferred Outflows / (Inflows) of Resources Recognized in Future Pension Expense						
June 30, 2020	$ 3,495,937	$ 1,538,107	$ 273,521	$ 31,050	$ 43,265	$ 5,381,880
June 30, 2021	2,066,024	887,482	175,420	12,852	22,916	3,164,694
June 30, 2022	1,443,486	548,263	103,261	2,702	8,460	2,106,172
June 30, 2023	2,676,569	1,073,381	168,942	16,963	22,414	3,958,269
June 30, 2024	181,004	49,170	20,718	(3,783)	(1,259)	245,850
Total deferred outflows / (inflows) of resources recognized in future pension expense	$ 9,863,020	$ 4,096,403	$ 741,862	$ 59,784	$ 95,796	$ 14,856,865
Discount Rate Sensitivity						
1% decrease (6.50%)	$ 48,048,240	$ 20,461,756	$ 2,559,326	$ 555,643	$ 543,700	$ 72,168,665
Current discount rate (7.50%)	$ 34,307,165	$ 14,610,001	$ 1,827,397	$ 396,737	$ 388,210	$ 51,529,510
1% increase (8.50%)	$ 22,638,174	$ 9,640,661	$ 1,205,840	$ 261,795	$ 256,167	$ 34,002,637
Covered Payroll	$ 17,522,605	$ 6,513,347	$ 698,793	$ 236,644	$ 185,698	$ 25,157,087

See actuarial assumptions in the Reading Contributory Retirement System's audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the Town of
Reading, Massachusetts)

Financial Statements,
Required Supplementary Information,
and Other Information

For the Year Ended December 31, 2017

TABLE OF CONTENTS

	PAGE
INDEPENDENT AUDITORS' REPORT	1
MANAGEMENT'S DISCUSSION AND ANALYSIS	3
BASIC FINANCIAL STATEMENTS:	
Statement of Fiduciary Net Position	6
Statement of Changes in Fiduciary Net Position	7
Notes to Financial Statements	8
REQUIRED SUPPLEMENTAL INFORMATION	
Schedule of Changes in the Net Pension Liability	18
Schedules of Net Pension Liability, Contributions, and Investment Returns	19
OTHER INFORMATION	
Independent Auditors' Report	20
Schedule of Employer Allocations	22
Schedule of Pension Amounts by Employer	23

MELANSONHEATH
ACCOUNTANTS • AUDITORS

10 New England Business
Center Dr. • Suite 107
Andover, MA 01810
(978)749-0005
melansonheath.com

Additional Offices:
Nashua, NH
Manchester, NH
Greenfield, MA
Ellsworth, ME

INDEPENDENT AUDITORS' REPORT

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

We have audited the accompanying financial statements of the Reading Contributory Retirement System (the System), a component unit of the Town of Reading, Massachusetts, as of and for the year ended December 31, 2017, and the related notes to the financial statements, which collectively comprise the basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

The System's 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.

Auditors' 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. 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 auditors' 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 fiduciary net position of the Reading Contributory Retirement System as of December 31, 2017, and the respective changes in fiduciary net 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 State of America require that the Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and the Schedules of Net Pension Liability, Contributions, and Investment Returns, listed in the foregoing table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the *Governmental Accounting Standards Board*, who considers it to be an essential part of financial reporting for placing the basic 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 basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with evidence sufficient to express an opinion or provide any assurance.

Melanson Heath

December 4, 2018

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Reading Contributory Retirement System, we offer readers this narrative overview and analysis of the financial activities of the System for the year ended December 31, 2017.

A. OVERVIEW OF THE FINANCIAL STATEMENTS

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of two components: (1) fund financial statements and (2) notes to financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Fund financial statements. A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. Fund accounting is used to ensure and demonstrate compliance with finance-related legal requirements.

The Statement of Fiduciary Net Position presents information on the System's assets and liabilities and the resulting net position restricted for pensions. This statement reflects the System's investments at fair value, as well as cash and receivables.

The Statement of Changes in Fiduciary Net Position presents information showing how the System's net position restricted for pensions changed during the year ended December 31, 2017. It reflects contributions by members and participating employers, investment activity, along with deductions for retirement benefits, refunds, and transfers, and administrative expenses.

The Notes to Financial Statements provide additional information that is essential for the reader to gain a full understanding of the data provided in the financial statements.

The Required Supplemental Information includes this Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and the Schedules of Net Pension Liability, Contributions, and Investment Returns.

B. FINANCIAL HIGHLIGHTS

- The System's total net position restricted for pensions was $141,905,918 at December 31, 2017.
- The System's net position increased by $17,913,676, which is primarily due to favorable returns on investments and related income.

- Employer and employee contributions to the plan were $8,737,144, which represents a $818,660 increase over the prior year. The increase is primarily due to the transfer of new members, from other retirement systems in the Commonwealth, into the System. The employer share of contributions represents 61.97% of the total contributions.
- Benefits paid to plan members and beneficiaries increased by $804,497, or 7.73%, totaling $11,206,921 during 2017. At December 31, 2017, there were 352 retirees and beneficiaries in receipt of pension benefits compared to 341 in the prior year.
- The System's funded ratio as of the January 1, 2017 actuarial report (rolled forward to December 31, 2017) was 79.32%.

C. FINANCIAL STATEMENT ANALYSIS

The following is a summary of financial statement data for the current and prior fiscal years:

FIDUCIARY NET POSITION

	2017	2016
Assets		
Cash and receivables	$ 6,933,728	$ 2,495,461
Investments	134,972,190	121,496,781
Total assets	141,905,918	123,992,242
Liabilities		
Other liabilities	-	-
Net Position	$ 141,905,918	$ 123,992,242

The System's total assets as of December 31, 2017 were $141,905,918 and were mostly comprised of cash and investments. Total assets increased $17,913,676, or 14.45%, from the prior year primarily due to the favorable returns on investments and related income.

CHANGES IN FIDUCIARY NET POSITION

	2017	2016
Additions		
Contributions	$ 9,137,272	$ 8,357,247
Investment Income, net	20,593,232	8,640,548
Total additions	29,730,504	16,997,795
Deductions		
Benefit payments	11,206,921	10,402,424
Other	609,907	680,926
Total deductions	11,816,828	11,083,350
Changes in net position	17,913,676	5,914,445
Net position - beginning of year	123,992,242	118,077,797
Net position - end of year	$ 141,905,918	$ 123,992,242

The amount needed to finance benefits is accumulated through the collection of employers' and employee's contributions, reimbursements from the Commonwealth of Massachusetts for pre-1998 cost-of-living adjustments (COLA), and through earnings on investments. Contributions and net investment income for calendar year 2017 resulted in a net gain of $29,730,504. Employers' contributions increased by $243,816, or 4.50%. The System had net investment income of $20,593,232 versus $8,640,548 in 2016. This increase was due to favorable market conditions in 2017.

The primary deductions of the System include the payment of pension benefits to plan members and beneficiaries, refunds of contributions, and the costs of administering the System. Total deductions for 2017 were $11,816,828, which represents an increase of 6.62% over deductions of $11,083,350 in 2016. The payment of pension benefits increased by $804,497, or 7.73%, over the prior year. The increase in these expenses are primarily due to new retiree benefit payments totaling $461,401, as well as cost-of-living adjustments due to retirees and beneficiaries.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the Reading Contributory Retirement System's finances. Questions concerning any of the information provided in this report, or requests for additional financial information, should be addressed to:

Reading Contributory Retirement System
2 Haven Street, Unit 307
Reading, MA 01867

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2017

Assets	
Cash and short-term investments	$ 6,780,071
Investments	134,972,190
Accounts receivable	153,657
Total assets	$ 141,905,918
Net Position	
Net position restricted for pensions	$ 141,905,918
Total net position	$ 141,905,918

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the Town of Reading, Massachusetts)

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED DECEMBER 31, 2017

Additions	
Contributions:	
Employers	$ 5,661,945
Plan members	3,075,199
Other systems and Commonwealth of Massachusetts	397,128
Other	3,000
Total contributions	9,137,272
Investment income:	
Appreciation in fair value of investments	21,274,625
Less: management fees	(681,393)
Net investment gain	20,593,232
Total additions	29,730,504
Deductions	
Benefit payments to plan members and beneficiaries	11,206,921
Refunds to plan members	169,838
Transfers to other systems	209,854
Administrative expenses	230,215
Total deductions	11,816,828
Net increase	17,913,676
Net position restricted for pensions	
Beginning of year	123,992,242
End of year	$ 141,905,918

The accompanying notes are an integral part of these financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

Notes to Financial Statements

1. Description of Plan

Substantially all employees of the Town of Reading (except teachers and administrators under contract employed by the School Department) and Reading Housing Authority are members of the Reading Contributory Retirement System (the System), a cost sharing, multiple employer public employee retirement system (PERS). Eligible employees must participate in the System. The pension plan provides pension benefits, deferred allowances, and death and disability benefits. Chapter 32 of the Massachusetts General Laws establishes the authority of the System, contribution percentages, and benefits paid. The Reading Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at December 31, 2017:

Retirees and beneficiaries receiving benefits	352
Inactive plan members entitled to, but not yet receiving, benefits	40
Active plan members	350
Total	742
Number of participating employers	2

Participant Contributions

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of the Massachusetts General Laws. The employee's individual contribution percentage is determined by their date of entry into the System. In addition, all employees hired on or after January 1, 1979 contribute an additional 2% on all gross regular compensation over the rate of $30,000 per year. The percentages are as follows:

Before January 1, 1975	5%
January 1, 1975 - December 31, 1983	7%
January 1, 1984 - June 30, 1996	8%
July 1, 1996 - present	9%

For those members entering a Massachusetts System on or after April 2, 2012 in Group 1, the contribution rate will be reduced to 6% when at least 30 years of creditable service has been attained.

Employer Contributions

Employers are required to contribute at actuarially determined rates as accepted by the Public Employee Retirement Administration Commission (PERAC).

Participant Retirement Benefits

The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest 3-year average annual rate of regular compensation for those hired prior to April 2, 2012 and the highest 5-year average annual rate of regular compensation for those first becoming members of a Massachusetts System on or after that date. However, per Chapter 176 of the Acts of 2011, for members who retire on or after April 2, 2012, if in the 5 years of creditable service immediately preceding retirement, the difference in the annual rate of regular compensation between any 2 consecutive years exceeds 100%, the normal yearly amount of the retirement allowance shall be based on the average annual rate of regular compensation received by the member during the period of 5 consecutive years preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

A retirement allowance may be received at any age, upon attaining 20 years of service. The plan also provides for retirement at age 55 if the participant was a member prior to January 1, 1978, with no minimum vesting requirements. If the participant was a member on or after January 1, 1978 and a member of Groups 1 or 2, then a retirement allowance may be received if the participant (1) has at least 10 years of creditable service, (2) is age 55, (3) voluntarily left Town employment on or after that date, and (4) left accumulated annuity deductions in the fund. Members of Group 4, have no minimum vesting requirements, however, must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

A participant who became a member on or after April 2, 2012 is eligible for a retirement allowance upon 10 years creditable service and reaching ages 60 or 55 for Groups 1 and 2, respectively. Participants in Group 4 must be at least age 55. Groups 2 and 4 require that participants perform the duties of the Group position for at least 12 months immediately prior to retirement.

A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and a portion of the interest they generate constitute the annuity. The difference between the total retirement allowance and the annuity is the pension. The average retirement benefit is approximately 80-85% pension and 15-20% annuity.

Participant Refunds

Employees who resign from service and who are not eligible to receive a retirement allowance are entitled to request a refund of their accumulated total deductions. Members voluntarily withdrawing with at least 10 years of service or involuntarily withdrawing, receive 100% of the regular interest that has accrued on those accumulated total deductions. Members voluntarily withdrawing with less than 10 years of service get credited interest each year at a rate of 3%.

2. Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

The System is a member of the Massachusetts Contributory Retirement Systems and is governed by Chapter 32 of the Massachusetts General Laws. Because of the significance of its operational and financial relationship with the Town, the System is included as a pension trust fund in the Town's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the Town, two elected by the members and retirees, and a fifth member chosen by the other four members with the approval of PERAC.

Summary of Significant Accounting Policies

The accounting policies of the System as reflected in the accompanying financial statements for the year ended December 31, 2017 conform to generally accepted accounting principles for public employee retirement systems (PERS). The more significant accounting policies of the System are summarized below:

Basis of Accounting

The System follows accounting policies mandated by the Commonwealth of Massachusetts. The accounting records are maintained on the accrual basis of accounting. Contributions from the Town of Reading and Reading Housing Authority employees are recognized as revenue in the period in which employees provide services to the member employers.

Investments

Investment Policy

Investments are reported at fair value in accordance with PERAC requirements. System 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.

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 expenses, was 17.24%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested throughout the year.

3. Cash and Short-Term Investments

Custodial Credit Risk - Deposits. Custodial credit risk is the risk that in the event of a bank failure, the System's deposits may not be returned. Massachusetts General Law Chapter 32, Section 23, limits the System's deposits "in a bank or trust company to an amount not exceeding ten percent of the capital and surplus of such bank or trust company." The System does not have policies for custodial credit risk.

As of December 31, 2017, $6,579,618 of the System's bank balances of $6,828,927 was exposed to custodial credit risk as uninsured or uncollateralized. However, the entirety of the System's uninsured or uncollateralized bank balance was invested in Commonwealth Local Government Investment Pool (LGIP or State Investment Pool (PRIT)) Funds.

4. Investments

A. *Credit Risk*

Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. Massachusetts General Law, Chapter 32, Section 23, limits the investment of System funds, to the extent not required for current disbursements, in the PRIT Fund or in securities, other than mortgages or collateral loans, which are legal for the investment of funds in savings banks under the laws of the Commonwealth, provided that no more than the established percentage of assets, is invested in any one security.

As of December 31, 2017, the System's debt security investments were in external investment pools unrated by national credit rating organizations.

B. *Custodial Credit Risk*

The custodial credit risk for investments is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, the System will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The System does not have policies for custodial credit risk.

The System's investments are held in the State Investment Pool (PRIT) and are not subject to custodial credit risk as investments in external investment pools are not exposed to custodial credit risk because their existence is not evidenced by securities that exist in physical or book entry form.

C. *Concentration of Credit Risk*

Massachusetts General Law Chapter 32, Section 23 limits the amount the System may invest in any one issuer or security type, with the exception of the PRIT Fund. The System does not have an investment in any one issuer greater than 5% of total investments, other than PRIT.

D. *Interest Rate Risk*

Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. The System does not have formal investment policies limiting investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates; however, the System's investments consist of only pooled funds which do not have a specified maturity date. Consequently, none of the System's investments are subject to interest rate risk.

E. *Foreign Currency Risk*

Foreign currency risk is the risk that changes in foreign exchange rates will adversely affect the fair value of an investment. The System does not have polices for foreign currency risk.

F. *Fair Value*

The System categorizes its fair value measurements within the fair value hierarchy established by Governmental Accounting Standards Board Statement No. 72 *Fair Value Measurement and Application* (GASB 72).

The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs represent quoted prices in active markets for identical assets; Level 2 inputs represent significant other observable inputs; Level 3 inputs represent significant unobservable inputs.

The System has the following fair value measurements as of December 31, 2017:

Description	Value	Unfunded Commitments	Redemption Frequency (If currently eligible)	Redemption Notice Period
Investments measured at the net asset value (NAV):				
State Investment Pool (PRIT)*	$ 134,972,190	$ -	Quarterly	30 Days

**Fair value is the same as the value of the pooled share. The Pension Reserves Investment Trust (PRIT) was created under Massachusetts General Law, Chapter 32, Section 22, in December 1983. The PRIT is operated under contract with a private investment advisor, approved by the Pension Reserves Investment Management (PRIM) Board. The Pension Reserves Investment Management Board shall choose an investment advisor by requesting proposals from advisors and reviewing such proposals based on criteria adopted under Massachusetts General Law, Chapter 30B.*

5. Accounts Receivable

The accounts receivable balance represents primarily make-up payments and cost-of-living adjustments (COLA) reimbursements due to the System as of December 31, 2017.

6. Contingencies

There are various pending claims arising in the ordinary course of operations; however, management believes that the probable liability resulting from such claims and litigation would not materially affect the System's financial position.

7. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2017 and rolled forward to the December 31, 2017 measurement date.

The components of the net pension liability of the participating employers at December 31, 2017 were as follows:

A. *Net Pension Liability of Employers*

Total pension liability	$	178,894,558
Plan fiduciary net position		(141,905,918)
Employers' net pension liability	$	36,988,640
Plan fiduciary net position as a percentage of total pension liability		79.32%

B. *Actuarial Assumptions*

Actuarial valuations of the ongoing System involve estimates of the reported amounts and assumptions about probability of occurrence of events far into the future. Examples include assumptions about future employment mortality and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision, as actual results are compared with past expectations and new estimates are made about the future.

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below:

Valuation date	January 1, 2017 rolled forward to December 31, 2017
Actuarial cost method	Entry Age Normal Cost Method
Amortization Method	
UAAL:	Increasing dollar amount at 4.50% to reduce the Unfunded Actuarial Accrued Liability (UAAL) to zero on or before June 30, 2029. The annual increase in appropriation is further limited to 5.31%
Actuarial assumptions:	
Investment rate of return	7.65%, net of pension plan investment expense, including inflation
Projected salary increases	4.25% - 6.00% for Group 1 and 4.75% - 7.00% for Group 4
Inflation rate	3.00% Annually
Post-employment cost-of-living adjustment	3.00% of first $12,000

Mortality rates were based on the following:

Pre-retirement and beneficiary mortality	RP-2014 Mortality Table with full generational mortality improvement using Scale MP-2014
Mortality for disabled members	RP-2014 Mortality Table

C. *Target Allocations*

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimates 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 System's targeted asset allocation as of December 31, 2017 are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Global Equity	40.00%	4.91%
Hedge Funds & Portfolio Completion	13.00%	3.40%
Fixed Income	12.00%	0.71%
Private Equity	11.00%	6.50%
Value-Added Fixed Income	10.00%	3.64%
Real Estate	10.00%	3.70%
Timber/Natural Resources	4.00%	3.25%
Total	100.00%	

D. *Discount Rate*

The discount rate used to measure the total pension liability was 7.65%. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be made based on the actuarially determined rates based on the Board's funding policy, which establishes the contractually required rates by statute. Based on those assumptions, the System's fiduciary net position was projected to be available to make all the 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.

E. *Sensitivity of Discount Rate*

The following presents the net pension liability of the participating employers calculated using the discount rate of 7.65%, as well as what the participating employers' net pension liability would be if it were calculated using a discount rate that is one percentage-point lower (6.65%) or one percentage-point higher (8.65%) than the current rate:

Year Ended	1% Decrease (6.65%)	Current Discount Rate (7.65%)	1% Increase (8.65%)
12/31/2017	$ 57,093,787	$ 36,988,640	$ 19,935,994

F. *Deferred Outflows/Inflows of Resources*

The following schedule reflects the deferred outflows/(inflows) of resources for the System for the year ended December 31, 2017:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 5,026,213	$ (1,778,741)
Net difference between projected and actual investment earnings on pension plan investments	-	(5,444,697)
Changes of assumptions	5,907,432	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	353,066	(353,066)
Total	$ 11,286,711	$ (7,576,504)

The following summarizes collective changes in deferred outflows/(inflows) of resources:

	Measurement Year	Amortization Period	Beginning Balance on Prior Measurement Period Deferrals	Current Measurement Period Additions	Amortization of Amounts Recognized in Current Period Pension Expense	End of Year Balance
Deferred Outflows of Resources:						
Differences between expected and actual experience	2017	5.64	$ -	$ 6,109,449	$ (1,083,236)	$ 5,026,213
Changes of assumptions	2015	5.64	8,145,096	-	(2,237,664)	5,907,432
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	486,855	-	(133,789)	353,066
Total Deferred Outflows of Resources			8,631,951	6,109,449	(3,454,689)	11,286,711
Deferred (Inflows) of Resources:						
Differences between expected and actual experience	2015	5.64	(2,452,507)	-	673,766	(1,778,741)
Net difference between projected and actual investment earnings on pension plan investments	2017	5.00	-	(11,210,317)	2,242,063	(8,968,254)
	2016	5.00	230,504	-	(57,626)	172,878
	2015	5.00	4,962,550	-	(1,654,184)	3,308,366
	2014	5.00	84,627	-	(42,314)	42,313
Changes in proportion and differences between employer contributions and proportionate share of contributions	2016	4.64	(486,855)	-	133,789	(353,066)
Total Deferred (Inflows) of Resources			2,338,319	(11,210,317)	1,295,494	(7,576,504)
Total Collective Deferred Outflows (Inflows) of Resources			$ 10,970,270	$ (5,100,868)	$ (2,159,195)	$ 3,710,207

The following schedule reflects the amortization of the balance of deferred outflows/(inflows) of resources:

Fiscal Year*	Town of Reading Governmental	Reading Municipal Light Department	Town of Reading Water Enterprise	Town of Reading Nonmajor Enterprise	Reading Housing Authority	Total
2019	$ 1,294,601	$ 690,475	$ 120,618	$ 24,503	$ 28,997	$ 2,159,194
2020	1,266,713	678,142	119,314	24,082	28,628	2,116,879
2021	(148,306)	9,861	31,530	1,006	5,603	(100,306)
2022	(763,736)	(337,787)	(35,704)	(11,473)	(10,128)	(1,158,828)
2023	456,905	202,081	21,359	6,864	6,059	693,268
	$ 2,106,177	$ 1,242,772	$ 257,117	$ 44,982	$ 59,159	$ 3,710,207

** Presented by member unit(s) fiscal year to fairly present the fiduciary impact of related deferred outflows/(inflows) in the fiscal year effecting the member unit.*

READING CONTRIBUTORY RETIREMENT SYSTEM

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

(Unaudited)

	2017	2016	2015	2014
Total Pension Liability				
Service cost	$ 3,712,591	$ 3,569,799	$ 3,661,364	$ 3,661,364
Interest on unfunded liability - time value of money	12,782,532	12,379,709	11,468,655	10,776,373
Changes of benefit terms	(1,615,834)	-	-	-
Differences between expected and actual experience	6,109,449	-	(3,800,039)	-
Changes of assumptions	-	-	12,620,424	-
Benefit payments, including refunds of member contributions	(10,947,025)	(10,706,256)	(9,324,162)	(9,008,745)
Net change in total pension liability	10,041,713	5,243,252	14,626,242	5,428,992
Total pension liability - beginning	168,852,845	163,609,593	148,983,351	143,554,359
Total pension liability - ending (a)	$ 178,894,558	$ 168,852,845	$ 163,609,593	$ 148,983,351
Plan Fiduciary Net Position				
Contributions - employer	$ 5,661,945	$ 5,418,129	$ 5,184,813	$ 4,961,545
Contributions - member	2,835,739	2,799,067	2,421,626	2,710,307
Net investment income	20,593,232	8,640,548	882,425	8,416,432
Benefit payments, including refunds of member contributions	(10,947,025)	(10,706,256)	(9,324,162)	(9,008,745)
Administrative expense	(230,215)	(237,043)	(106,848)	(114,170)
Net change in plan fiduciary net position	17,913,676	5,914,445	(942,146)	6,965,369
Plan fiduciary net position - beginning	123,992,242	118,077,797	119,019,943	112,054,574
Plan fiduciary net position - ending (b)	$ 141,905,918	$ 123,992,242	$ 118,077,797	$ 119,019,943
Net pension liability (asset) - ending (a-b)	$ 36,988,640	$ 44,860,603	$ 45,531,796	$ 29,963,408

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

READING CONTRIBUTORY RETIREMENT SYSTEM

SCHEDULES OF NET PENSION LIABILITY, CONTRIBUTIONS, AND INVESTMENT RETURNS

(Unaudited)

Schedule of Net Pension Liability

	2017	2016	2015	2014
Total pension liability	$ 178,894,558	$ 168,852,845	$ 163,609,593	$ 148,983,351
Plan fiduciary net position	(141,905,918)	(123,992,242)	(118,077,797)	(119,019,943)
Net pension liability (asset)	$ 36,988,640	$ 44,860,603	$ 45,531,796	$ 29,963,408
Plan fiduciary net position as a percentage of the total pension liability	79.32%	73.43%	72.17%	79.89%
Covered payroll	$ 24,979,076	$ 23,705,293	$ 22,793,551	$ 20,915,728
Participating employer net pension liability (asset) as a percentage of covered payroll	148.08%	189.24%	199.76%	143.26%

Schedule of Contributions

	2017	2016	2015	2014
Actuarially determined contribution	$ 5,661,945	$ 5,418,129	$ 5,184,813	$ 4,961,545
Contributions in relation to the actuarially determined contribution	(5,661,945)	(5,418,129)	(5,184,813)	(4,961,545)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -
Covered payroll	$ 24,979,076	$ 23,705,293	$ 22,793,551	$ 20,915,728
Contributions as a percentage of covered payroll	22.67%	22.86%	22.75%	23.72%

Schedule of Investment Returns

Year Ended December 31

	2017	2016	2015	2014
Annual money weighted rate of return, net of investment expense	17.24%	7.50%	0.75%	7.66%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

MELANSONHEATH
ACCOUNTANTS • AUDITORS

10 New England Business Center Dr. • Suite 107
Andover, MA 01810
(978)749-0005
melansonheath.com

Additional Offices:
Nashua, NH
Manchester, NH
Greenfield, MA
Ellsworth, ME

Independent Auditors' Report

To the Honorable Reading Contributory Retirement Board
Reading Contributory Retirement System
Town of Reading, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Reading Contributory Retirement System as of and for the year ended December 31, 2017. We have also audited the total for all entities of the columns titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense included in the accompanying schedule of pension amounts by employer of the Reading Contributory Retirement System as of and for the year ended December 31, 2017.

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.

Auditors' Responsibility

Our responsibility is to express opinions on the schedule of employer allocations and the specified column 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 column 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 specified column totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and specified column 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 specified column 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 specified column totals included in the schedule of pension amounts by employer.

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

Opinions

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

Restriction on Use

Our report is intended solely for the information and use of Reading Contributory Retirement System management, the Retirement Board, System employers and their auditors as of and for the year ended December 31, 2017 and is not intended to be and should not be used by anyone other than these specified parties.

Melanson Heath

December 4, 2018

READING CONTRIBUTORY RETIREMENT SYSTEM

SCHEDULE OF EMPLOYER ALLOCATIONS

Employer	FY2018 Actual Employer Contributions	Employer Allocation Percentage
Town of Reading:		
Governmental Funds	$ 3,731,545	65.91%
Municipal Light Department	1,650,416	29.15%
Water Enterprise Fund	174,435	3.08%
Nonmajor Enterprise Funds	56,057	0.99%
Reading Housing Authority	49,492	0.87%
Total	$ 5,661,945	100.00%

See actuarial assumptions in the Reading Contributory Retirement System audited financial statements.

READING CONTRIBUTORY RETIREMENT SYSTEM

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2017

		Deferred Outflows of Resources					Deferred Inflows of Resources				Pension Expense		
Entity	Net Pension Liability	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization of Deferred Amounts From Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer Pension Expense
Town of Reading:													
Governmental Funds	$ 24,377,732	$ 3,312,576	$ -	$ 3,893,352	$ -	$ 7,205,928	$ (1,172,297)	$ (3,588,381)	$ (339,073)	$ (5,099,751)	$ 3,328,282	$ (128,438)	$ 3,199,844
Municipal Light Department	10,781,819	1,465,091	-	1,721,957	161,284	3,348,332	(518,485)	(1,587,075)	-	(2,105,560)	1,472,038	61,093	1,533,131
Water Enterprise Fund	1,139,620	154,858	-	182,008	142,805	479,671	(54,803)	(167,751)	-	(222,554)	155,592	54,094	209,686
Nonmajor Enterprise Funds	366,188	49,759	-	58,484	22,245	130,488	(17,610)	(53,903)	(13,993)	(85,506)	49,996	3,126	53,122
Reading Housing Authority	323,281	43,929	-	51,631	26,732	122,292	(15,546)	(47,587)	-	(63,133)	44,137	10,125	54,262
Total for All Entities	$ 36,988,640	$ 5,026,213	$ -	$ 5,907,432	353,066	$ 11,286,711	$ (1,778,741)	$ (5,444,697)	$ (353,066)	$ (7,576,504)	$ 5,050,045	$ -	$ 5,050,045

See actuarial assumptions in the Reading Contributory Retirement System audited financial statements.

COMMONWEALTH OF MASSACHUSETTS
Public Employee Retirement Administration Commission
Five Middlesex Avenue, Suite 304 | Somerville, MA 02145
Phone: 617-666-4446 | Fax: 617-628-4002
Web: www.mass.gov/perac