Fitchburg
Retirement System
Audit Report
JAN. 1, 2018 - DEC. 31, 2022

PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION
COMMONWEALTH OF MASSACHUSETTS

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PERAC
COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

April 3, 2025

The Public Employee Retirement Administration Commission (PERAC) has completed a review of the audits of the Fitchburg Retirement System conducted by independent Certified Public Accountants. These audits were conducted in accordance with auditing standards generally accepted in the United States of America. The audits covered the period from January 1, 2018, to December 31, 2022. Melanson Heath conducted the 2018 audit. The firm then became Melanson and was subsequently acquired by the firm Marcum, LLP which was then acquired by CBIZ, Inc.

We conducted an inspection of the work papers prepared by Melanson Heath, Melanson, and Marcum (the firms). 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 the firms 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 retirement contributions are accurately deducted, 4) that retirement allowances were correctly calculated, and 5) that required member documentation is maintained.

To achieve these objectives, we inspected certain records of the Fitchburg Retirement Board in the above areas. Specifically, we reviewed the minutes of the Board meetings for compliance with fiduciary oversight and verified cash balances. 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.

It should be noted that the financial statements included in this audit report were based on the work performed by the firms 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, 2022, December 31, 2021, December 31, 2020, December 31, 2019, and December 31, 2018.

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

Sincerely,

Bill Keefe

William T. Keefe.
Executive Director

SUPPLEMENTARY INFORMATION

SCHEDULE OF ALLOCATION OF INVESTMENTS OWNED

(percentages by category)

	AS OF DECEMBER 31, 2022	
	MARKET VALUE	PERCENTAGE OF TOTAL ASSETS
Cash	($66,915)	0.0%
PRIT Core Fund	157,347,071	100.0%
Grand Total	$157,280,157	100.0%

For the year ending December 31, 2022, the rate of return for the investments of the Fitchburg Retirement System was -11.12%. For the ten-year period ending December 31, 2022, the rate of return for the investments of the Fitchburg Retirement System averaged 8.15%. For the 38-year period ending December 31, 2022, since PERAC began evaluating the returns of the retirement systems, the rate of return on the investments of the Fitchburg Retirement System was 7.68%.

The composite rate of return for all retirement systems for the year ending December 31, 2022 was -10.84%. For the ten-year period ending December 31, 2022, the composite rate of return for the investments of all retirement systems averaged 8.18%. For the 38-year period ending December 31, 2022, since PERAC began evaluating the returns of the retirement systems, the composite rate of return on the investments of all retirement systems averaged 8.99%.

SUPPLEMENTARY INFORMATION (Continued)

ADMINISTRATION OF THE SYSTEM

The System is administered by a five-person Board of Retirement consisting of the City Auditor 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:	Jacquelyn Cronin		
Appointed Member:	Mary E. Cringan	Serves until successor is appointed	
Elected Member:	Thomas A. Dateo, Jr., Chairperson	Term Expires:	10/31/2025
Elected Member:	Anna M. Farrell	Term Expires:	10/31/2026
Appointed Member:	John Brown	Term Expires:	10/31/2027

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

SUPPLEMENTARY INFORMATION (Continued)

MEMBERSHIP EXHIBIT

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Retirement in Past Years										
Superannuation	33	17	24	18	29	25	14	23	27	27
Ordinary Disability	0	0	0	0	0	1	0	1	0	1
Accidental Disability	1	0	0	6	0	2	3	2	1	1
Total Retirements	34	17	24	24	29	28	17	26	28	29
Total Retirees, Beneficiaries and Survivors	555	560	564	568	584	588	593	597	607	614
Total Active Members	610	644	650	671	674	670	701	661	694	785
Pension Payments										
Superannuation	$7,410,703	$7,622,236	$8,077,287	$7,880,129	$8,319,892	$10,784,909	$10,896,878	$11,132,268	$11,665,025	$12,479,056
Survivor/Beneficiary Payments	329,877	352,996	438,841	569,010	601,492	631,749	682,469	656,469	635,596	619,626
Ordinary Disability	92,769	82,271	70,788	139,725	92,118	92,619	111,182	102,966	101,251	137,188
Accidental Disability	1,377,140	1,403,429	368,053	569,010	601,492	1,802,850	1,868,574	2,020,088	2,040,022	2,087,594
Other	2,412,249	2,582,277	3,585,849	3,802,158	4,101,246	1,005,995	1,024,897	1,084,801	1,089,381	1,061,480
Total Payments for Year	$11,622,738	$12,043,209	$12,540,818	$12,960,032	$13,716,240	$14,318,122	$14,584,000	$14,996,591	$15,531,276	$16,384,944

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

FINANCIAL STATEMENTS, REQUIRED SUPPLEMENTARY INFORMATION, AND OTHER INFORMATION

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2022

CITY OF FITCHBURG
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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

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FINANCIAL SECTION

MARCUM
ACCOUNTANTS ▲ ADVISORS

INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Opinion

We have audited the financial statements of the Fitchburg Contributory Retirement System (the System), as of and for the year ended December 31, 2022, and the related notes to the financial statements, which collectively comprise the Fitchburg Contributory Retirement 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 Fitchburg Contributory Retirement System, as of December 31, 2022, and the 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 Auditors' 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 opinion.

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.

Marcum LLP / 101 Munson Street / Suite 120 / Greenfield, MA 01301 / **Phone** 413.773.5405 / **marcumllp.com**

Auditors' 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 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 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 financial statements.

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 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 judgment, 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.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and 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 sufficient evidence to express an opinion or provide any assurance.

Marcum LLP

Greenfield, Massachusetts
October 26, 2023

As management of the Fitchburg 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, 2022.

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 and the resulting net position held in trust restricted for pension benefits. 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 pension changed during the year ended December 31, 2022. It reflects contributions by participating employers, active members, and external parties, investment activity, along with deductions for retirement benefits, refunds, transfers, and administrative expenses.

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

Required Supplementary Information
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 pension was \$157,636,487 at December 31, 2022, a change of \$(20,543,565), or (11.53)%, over the prior year. This change is primarily due to investment losses during the year.
- Employer and employee contributions to the plan were \$20,365,629, which represents a \$914,231 change over the prior year. The employer share of contributions represents 77.29% of the total contributions made to the System.
- Benefits paid to plan participants increased by \$1,002,584 or 5.34%, totaling \$19,773,416. At December 31, 2022, there were 601 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, 2022 actuarial valuation was 52.13%, with 9 years remaining in its amortization period.

Financial Statement Analysis

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

	2022	2021
Assets		
Cash and receivables	\$ 558,551	\$ 1,637,171
Investments	157,347,071	176,547,732
Total Assets	157,905,622	178,184,903
Liabilities		
Accounts payable	269,135	4,851
Net Position		
Restricted for pension	\$ 157,636,487	\$ 178,180,052

The System's total assets as of December 31, 2022 were \$157,905,622, and were mostly comprised of cash and investments. Total assets decreased by \$(20,279,281), or 11.38%, from the prior year primarily due to a decrease in investment value.

CHANGES IN FIDUCIARY NET POSITION

	2022	2021
Additions		
Contributions	$ 20,831,106	$ 19,852,417
Net investment income (loss)	(20,199,459)	28,905,011
Total Additions	631,647	48,757,428
Deductions		
Benefit payments	19,773,416	18,770,832
Other	1,401,796	1,540,278
Total Deductions	21,175,212	20,311,110
Changes in Net Position	(20,543,565)	28,446,318
Net Position Restricted for Pension		
Beginning of Year	178,180,052	149,733,734
End of Year	157,636,487	178,180,052

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 2022 resulted in a net gain of $631,647. Employers' contributions increased by $757,267, or 4.94% in calendar year 2022. The System had net investment losses of $(20,199,459) versus investment income of $28,905,011 in 2021, primarily due to less favorable market results in 2022.

The primary deductions of the System include the payment of pension benefits to participants and beneficiaries, refunds and transfers 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 2022 were $21,175,212, which represents an increase of $864,102, or 4.25%, over deductions of $20,311,110 in calendar year 2021. The payment of pension benefits changed by $1,002,584 or 5.34% over the previous year.

The Fitchburg 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, 2022, was (11.85)%.

Requests for Information

This financial report is designed to provide a general overview of the Fitchburg 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:

Fitchburg Contributory Retirement System
Ms. Tina Schneider, Retirement Administrator
718 Main Street, Suite 310
Fitchburg, Massachusetts 01420

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

STATEMENT OF FIDUCIARY NET POSITION

DECEMBER 31, 2022

Assets	
Cash and short-term investments	$ 202,220
Investments in external investment pool	157,347,071
Accounts receivable	356,331
Total Assets	157,905,622
Liabilities	
Accounts payable	269,135
Net Position	
Restricted for pension	157,636,487
Total Net Position	$ 157,636,487

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

DECEMBER 31, 2022

Additions	
Contributions:	
Employers	$ 16,100,340
Plan members	4,265,289
Other systems and Commonwealth of Massachusetts	432,200
Other	33,277
Total Contributions	20,831,106
Investment (loss):	
Decrease in fair value of investments	(19,386,477)
Less: Management fees	(812,982)
Net investment (loss)	(20,199,459)
Total Additions	631,647
Deductions	
Benefit payments to plan members, beneficiaries, and other systems	19,773,416
Refunds to plan members	421,098
Transfers to other systems	694,365
Administrative expenses	286,333
Total Deductions	21,175,212
Net (Decrease)	(20,543,565)
Net Position Restricted for Pension	
Beginning of Year	178,180,052
End of Year	$ 157,636,487

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

NOTE 1 - DESCRIPTION OF PLAN

Substantially all employees of the City of Fitchburg (except teachers and administrators under contract employed by the School Department), the Fitchburg Housing Authority, and the Fitchburg Redevelopment Authority are members of the Fitchburg 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 Fitchburg Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at January 1, 2022:

Retirees and beneficiaries receiving benefits	601
Inactive members entitled to a return of employee contributions	223
Active plan members	643
Total	1,467
Number of participating employers	3

PARTICIPANT CONTRIBUTIONS

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of 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 the 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.

NOTE 1 - DESCRIPTION OF PLAN (CONTINUED)

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 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.

NOTE 1 - DESCRIPTION OF PLAN (CONTINUED)

PARTICIPANT RETIREMENT BENEFITS (CONTINUED)

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 City 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.

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.

NOTE 1 - DESCRIPTION OF PLAN (CONTINUED)

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%.

NOTE 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 Massachusetts General Laws. Because of the significance of its operational and financial relationship with the City, the System is included as a fiduciary component unit in the City's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the City, 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, 2022 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 City of Fitchburg, Fitchburg Housing Authority, and Fitchburg Redevelopment Authority employees are recognized as revenue in the period in which employees provide services to the respective member unit.

NOTE 2 - NATURE OF OPERATIONS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

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, 2022, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was -11.85%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested throughout the year.

NOTE 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 a deposit policy for custodial credit risk.

As of December 31, 2022, none of the System's bank balance of $285,597 was exposed to custodial credit risk as uninsured and/or uncollateralized.

NOTE 4 - INVESTMENTS

All of the System's investments totaling $157,347,071 are in an external investment pool, the Pension Reserves Investment Trust (the PRIT Fund).*

** Fair value is the same as the value of the pool share. The Pension Reserves Investment Trust (PRIT) was created under Massachusetts General Laws (MGL), Chapter 32, Section 22, in December 1983. PRIT 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 MGL, 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 pension 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.

Due to their nature, none of the System's investments are subject to credit risk disclosure.

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, investments or collateral securities that are in the possession of another party will not be recovered. The System does not have policies for custodial credit risk.

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. As a result, all of the System's investments of $157,347,071 are exempt from the custodial risk disclosure.

NOTE 4 – INVESTMENTS (CONTINUED)

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.

Investments issued or explicitly guaranteed by the external investment pools are excluded from concentration of credit disclosure.

All of the System's investments are exempt 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 a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Information about the sensitivity of the fair values of the System's investments to market interest rate fluctuations is not applicable as all of the System's investments are immediately liquid.

Foreign Currency Risk

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

At December 31, 2022, none of the System's investments were exposed 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.*

NOTE 4 – INVESTMENTS (CONTINUED)

Fair Value (Continued)

Due to the nature of the System's investments, they are measured at net asset value (NAV).

The 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.

Description	Value	Unfunded Commitments	Redemption Frequency (If currently eligible)	Redemption Notice Period
External investment pool	$ 157,347,071	$ --	Monthly	30 Days

NOTE 5 - ACCOUNTS RECEIVABLE

Annually the Public Employee Retirement Administration (PERAC) determines the amount of employer contributions (pension appropriations) to be made to the System. The accounts receivable balance primarily represents legal amounts due from employers for pension appropriation not received until after December 31, 2022.

NOTE 6 - COMMITMENTS AND CONTINGENCIES

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, 2022, the System did not have any outstanding capital commitments.

NOTE 7 - NET PENSION LIABILITY OF PARTICIPATING EMPLOYERS

The net pension liability was based on an actuarial valuation dated January 1, 2022.

NET PENSION LIABILITY OF EMPLOYERS

The components of the net pension liability of the participating employers at December 31, 2022 were as follows:

Total pension liability	$ 302,396,803
Plan fiduciary net position	(157,636,487)
Employers' net pension liability*	$ 144,760,315
Plan fiduciary net position as a percentage of total pension liability	52.13%

**Total may not add due to rounding.*

ACTUARIAL ASSUMPTIONS

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

Valuation date	1/1/2022
Actuarial cost method	Entry Age Normal Cost Method
Remaining amortization period	9 years
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases:	
Group 1 and 2	4.75%
Fire	9.75%
Police	8.00%
Inflation rate	2.60%
Post-retirement cost-of-living adjustment	5% on first $12,000 base in 2022; 3% on first $14,000 thereafter
Mortality rates:	
Pre-retirement and beneficiary mortality	Rates reflect the RP-2014 employees table projected generationally using MP-2021 and a base year of 2006 (gender distinct). Post-retirement rates reflected the healthy annuitant table.
Mortality for disabled members	Rates reflect the RP-2014 healthy annuitant table with a base year of 2006, set forward by 2 years (gender distinct).

NOTE 7 - NET PENSION LIABILITY OF PARTICIPATING EMPLOYERS (CONTINUED)

ACTUARIAL ASSUMPTIONS (CONTINUED)

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.

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 geometric real rates of return for each major asset class included in the System's targeted asset allocation as of December 31, 2022, are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
U.S. equity	21.20%	4.39%
International equities	12.20%	4.19%
Emerging equities	4.70%	6.82%
Core bonds	13.80%	2.05%
Value-added fixed income	7.00%	5.07%
Private equity	17.70%	7.41%
Real estate	11.20%	3.02%
Timberland	3.20%	4.29%
Portfolio completion (PCS)	8.60%	8.09%
Overlay	0.40%	0.00%
Total	100.00%	

NOTE 7 - NET PENSION LIABILITY OF PARTICIPATING EMPLOYERS (CONTINUED)

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%)
$ 177,662,790	$ 144,760,315	$ 112,241,651

DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES

The following schedule reflects the deferred outflows and inflows of resources for the System for the year ended December 31, 2022:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 3,259,522	$ (127,838)
Changes of assumptions	289,243	(504,246)
Net difference between projected and actual investment earnings on pension plan investments	10,480,340	--
Changes in proportion and differences between employer contributions and proportionate share of contributions	2,088,841	(2,088,841)
Total	$ 16,117,946	$ (2,720,925)

NOTE 7 - NET PENSION LIABILITY OF PARTICIPATING EMPLOYERS (CONTINUED)

DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES (CONTINUED)

The following summarizes changes in deferred outflows and inflows for the year ended December 31, 2022:

	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	2021	4.9	$ 4,383,496	$ --	$ (1,123,974)	$ 3,259,522
	2017	5.1	26,014	--	(26,014)	--
Changes of assumptions	2019	5.1	552,190	--	(262,947)	289,243
	2017	5.1	228,729	--	(228,729)	--
Net difference between projected and actual investment earnings on pension plan investments	2022	5.0	--	32,660,019	(6,532,003)	26,128,016
	2021	5.0	(14,751,764)	--	3,687,940	(11,063,824)
	2020	5.0	(3,897,568)	--	1,299,191	(2,598,377)
	2019	5.0	(3,970,948)	--	1,985,473	(1,985,475)
	2018	5.0	2,313,526	--	(2,313,526)	--
Changes in proportion and differences between employer contributions and proportionate share of contributions	2022	4.9	--	526,799	(107,510)	419,289
	2021	4.9	1,235,689	--	(332,188)	903,501
	2020	5.1	836,076	--	(269,703)	566,373
	2019	5.1	389,630	--	(177,622)	212,008
	2018	5.1	39,958	--	(17,772)	22,186
	2017	5.1	2,575	--	(37,091)	(34,516)
Total Deferred Outflows of Resources			(12,612,397)	33,186,818	(4,456,475)	16,117,946
Deferred Inflows of Resources						
Differences between expected and actual experience	2019	5.1	(244,054)	--	116,216	(127,838)
Changes of assumptions	2021	4.9	(678,124)	--	173,878	(504,246)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2022	4.9	--	(526,799)	107,510	(419,289)
	2021	4.9	(1,235,689)	--	332,188	(903,501)
	2020	5.1	(836,076)	--	269,703	(566,373)
	2019	5.1	(389,630)	--	177,622	(212,008)
	2018	5.1	(39,958)	--	17,772	(22,186)
	2017	5.1	(2,575)	--	37,091	34,516
Total Deferred Inflows of Resources			(3,426,106)	(526,799)	1,231,980	(2,720,925)
Total Collective Deferred Outflows and Inflows of Resources			$ (16,038,503)	$ 32,660,019	$ (3,224,495)	$ 13,397,021

NOTE 7 - NET PENSION LIABILITY OF PARTICIPATING EMPLOYERS (CONTINUED)

DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES (CONTINUED)

The following schedule reflects the amortization of the balance of deferred outflows and inflows of resources as increases (decreases) in pension expense:

Fiscal Year*	Total
2024	$ 656,226
2025	2,509,642
2026	3,699,149
2027	6,532,004
	$ 13,397,021

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

COLLECTIVE PENSION EXPENSE

The calculation of collective pension expense for the year ended December 31, 2022 is presented in the following table:

Service cost	$ 4,813,717
Interest of the total pension liability	20,152,492
Differences between expected and actual experience	1,033,771
Changes of assumptions	317,799
Changes to benefit provisions	4,435,818
Employee contributions	(3,987,142)
Projected earnings on pension plan investments	(12,460,560)
Differences between projected and actual earnings on plan investments	1,872,926
Pension plan administrative expense	286,332
	$ 16,465,153

Each member unit's proportionate share of the collective pension expense is equal to the collective pension expense multiplied by the member unit's proportionate share percentage of the year ended December 31, 2022.

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

(Unaudited)

(Amounts expressed in thousands)

	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability									
Service cost	$ 4,814	$ 5,102	$ 4,906	$ 4,795	$ 4,611	$ 4,433	$ 3,995	$ 3,677	$ 3,527
Interest	20,152	19,500	19,104	19,253	18,795	17,462	17,294	17,215	16,740
Differences between expected and actual experience	4,436	5,507	--	(593)	--	1,327	7,131	--	--
Changes of assumptions	--	(852)	--	1,341	--	11,665	4,135	--	--
Benefit payments, including refunds of member contributions	(20,168)	(19,136)	(17,934)	(17,171)	(17,384)	(15,965)	(14,609)	(14,609)	(14,282)
Net Change in Total Pension Liability	9,234	10,121	6,076	7,625	6,022	18,922	17,946	6,283	5,985
Total Pension Liability - Beginning	293,163	283,042	276,966	269,341	263,319	244,397	226,451	220,168	214,183
Total Pension Liability - Ending (a)	302,397	293,163	283,042	276,966	269,341	263,319	244,397	226,451	220,168
Plan Fiduciary Net Position									
Contributions - employer	16,124	15,369	14,429	13,613	12,524	11,522	10,604	10,003	9,503
Contributions - member	3,987	3,578	3,590	3,380	3,318	3,229	2,974	2,949	3,201
Net investment income (loss)	(20,199)	28,905	15,871	18,329	(2,879)	17,443	6,994	500	7,042
Benefit payments, including refunds of member contributions	(20,168)	(19,136)	(17,934)	(17,171)	(17,384)	(15,964)	(14,609)	(14,609)	(14,282)
Administrative expense	(288)	(270)	(231)	(225)	(231)	(229)	(186)	(169)	(181)
Net Change in Plan Fiduciary Net Position	(20,544)	28,446	15,725	17,926	(4,652)	16,001	5,777	(1,326)	5,283
Plan Fiduciary Net Position - Beginning	178,180	149,734	134,009	116,083	120,735	104,734	98,957	100,283	95,000
Plan Fiduciary Net Position - Ending (b)	157,636	178,180	149,734	134,009	116,083	120,735	104,734	98,957	100,283
Net Pension Liability - Ending (a-b)*	$ 144,760	$ 114,983	$ 133,308	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885

**Total may not add due to rounding.*

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

See notes to the System's financial statements for summary of significant actuarial methods and assumptions.

See independent auditors' report.

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULES OF THE NET PENSION LIABILITY, CONTRIBUTIONS, AND INVESTMENT RETURNS
(Unaudited)

(Amounts expressed in thousands)

	2022	2021	2020	2019	2018	2017	2016	2015	2014
Schedule of Net Pension Liability									
Total pension liability	$ 302,397	$ 293,163	$ 283,042	$ 276,966	$ 269,341	$ 263,319	$ 244,397	$ 226,451	$ 220,168
Plan fiduciary net position	(157,636)	(178,180)	(149,734)	(134,009)	(116,083)	(120,735)	(104,734)	(98,957)	(100,283)
Net pension liability*	$ 144,760	$ 114,983	$ 133,308	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885
Plan fiduciary net position as a percentage of the total pension liability	52.13%	60.78%	52.90%	48.38%	43.10%	45.85%	42.85%	43.70%	45.55%
Covered payroll	$ 35,971	$ 34,534	$ 36,089	$ 34,695	$ 33,886	$ 32,583	$ 31,903	$ 30,071	$ 28,776
Participating employer net pension liability as a percentage of covered payroll	402.44%	332.96%	369.39%	412.04%	452.28%	437.60%	437.77%	423.98%	416.61%
Schedule of Contributions									
Actuarially determined contribution	$ 16,180	$ 15,264	$ 14,400	$ 13,585	$ 12,497	$ 11,497	$ 10,577	$ 9,978	$ 9,413
Contributions in relation to the actuarially determined contribution	(16,203)	(15,370)	(14,429)	(13,613)	(12,524)	(11,522)	(10,604)	(10,003)	(9,436)
Contribution deficiency (excess)	$ (23)	$ (106)	$ (29)	$ (28)	$ (27)	$ (25)	$ (27)	$ (25)	$ (23)
Covered payroll	36,697	35,252	36,803	35,392	34,564	33,235	32,541	30,710	29,387
Contributions as a percentage of covered payroll	44.15%	43.60%	39.21%	38.46%	36.23%	34.67%	32.59%	32.57%	32.11%
Schedule of Investment Returns									
Annual money weighted rate of return, net of investment expense	-11.85%	19.51%	11.90%	15.84%	-2.50%	16.82%	6.89%	0.57%	7.53%

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

See notes to the System's financial statements for summary of significant actuarial methods and assumptions.

See independent auditors' report.

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MARCUM
ACCOUNTANTS ▲ ADVISORS

INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Opinion

We have audited the accompanying schedule of employer allocations of the Fitchburg Contributory Retirement System (the System) as of and for the year ended December 31, 2022. 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 Fitchburg Contributory Retirement System as of and for the year ended December 31, 2022.

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 Fitchburg Contributory Retirement System as of and for the year ended December 31, 2022, 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 Auditors' Responsibilities for the Audit of the Schedule section of our report. We are required to be independent of the Fitchburg 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.

Marcum LLP / 101 Munson Street / Suite 120 / Greenfield, MA 01301 / **Phone** 413.773.5405 / **marcumllp.com**

Auditors' 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 auditors' 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 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.

Other Matters

We have audited, in accordance with auditing standards generally accepted in the United States of America (GAAS), the financial statements of the Fitchburg Contributory Retirement System as of and for the year ended December 31, 2022, and our report thereon dated October 26, 2023, expressed an unmodified opinion of those financial statements.

Restriction on Use

Our report is intended solely for the information and use of Fitchburg Contributory Retirement System management, the Retirement Board, System employers and their auditors as of and for the year ended December 31, 2022 and is not intended to be and should not be used by anyone other than these specified parties.

Marcum LLP

Greenfield, Massachusetts
October 26, 2023

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

SCHEDULE OF EMPLOYER ALLOCATIONS

Employer	FY 2023 Actual Employer Contributions	Allocation Percentage
City of Fitchburg	$ 15,399,762	95.18%
Fitchburg Housing Authority	700,578	4.33%
Fitchburg Redevelopment Authority	79,280	0.49%
Total	$ 16,179,620	100.00%

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A COMPONENT UNIT OF THE CITY OF FITCHBURG, MASSACHUSETTS)

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2022

	City of Fitchburg	Fitchburg Housing Authority	Fitchburg Redevelopment Authority	Total
Net Pension Liability	$ 137,782,868	$ 6,268,122	$ 709,325	$ 144,760,315
Deferred Outflows of Resources				
Differences between expected and actual experience	3,102,413	141,137	15,972	3,259,522
Changes of assumptions	275,301	12,524	1,418	289,243
Net difference between projected and actual investment earnings on pension plan investments	9,975,188	453,799	51,353	10,480,340
Changes in proportion and differences between employer contributions and proportionate share of contributions	536,913	1,295,958	255,970	2,088,841
Total Deferred Outflows of Resources	13,889,815	1,903,418	324,713	16,117,946
Deferred Inflows of Resources				
Differences between expected and actual experience	121,676	5,535	627	127,838
Changes of assumptions	479,942	21,834	2,470	504,246
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,534,197	459,061	95,583	2,088,841
Total Deferred Inflows of Resources	2,135,815	486,430	98,680	2,720,925
Pension Expense				
Proportionate share of pension expense	15,671,533	712,941	80,679	16,465,153
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(350,790)	294,142	56,648	--
Total Pension Expense	15,320,743	1,007,083	137,327	16,465,153
Contributions				
Actuarially determined contribution	15,399,762	700,578	79,280	16,179,620
Contributions made	(15,421,885)	(701,584)	(114)	(16,123,583)
Contribution deficiency (excess)	(22,123)	(1,006)	79,166	56,037
Contributions as a percentage of covered payroll	45.05%	45.58%	0.06%	44.82%
Deferred Outflows and Inflows Recognized in Future Pension Expense				
June 30, 2024	$ 285,981	$ 302,890	$ 67,355	$ 656,226
June 30, 2025	1,892,040	545,401	72,201	2,509,642
June 30, 2026	3,279,982	345,393	73,774	3,699,149
June 30, 2027	6,295,997	223,303	12,704	6,532,004
Total Deferred Outflows and Inflows Recognized in in Future Pension Expense	11,754,000	1,416,987	226,034	13,397,021
Discount Rate Sensitivity				
1% decrease (6.00%)	169,099,444	7,692,799	870,547	177,662,790
Current discount rate (7.00%)	137,782,868	6,268,122	709,325	144,760,315
1% increase (8.00%)	106,831,603	4,860,063	549,985	112,241,651
Covered Payroll	$ 34,232,028	$ 1,539,074	$ 199,846	$ 35,970,948

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

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

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

(With Independent Auditor's Report Thereon)

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INDEPENDENT AUDITOR'S REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Opinion

We have audited the financial statements of the Fitchburg 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 Fitchburg Contributory Retirement 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 Fitchburg 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 opinion.

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

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

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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 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 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 financial statements.

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 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 judgment, 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.

Required Supplementary Information
Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis, the Schedule of Changes in the Net Pension Liability, and 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 sufficient evidence to express an opinion or provide any assurance.

Melanson

Greenfield, Massachusetts
December 21, 2022

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Fitchburg 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 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 and the resulting net position held in trust restricted for pension benefits. 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 pension changed during the year ended December 31, 2021. It reflects contributions by participating employers, active members, and external parties, investment activity, along with deductions for retirement benefits, refunds, transfers, and administrative expenses.

Notes to Financial Statements

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

Required Supplementary Information

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 pension was $178,180,052 at December 31, 2021, a change of $28,446,318, or 19.00%, over the prior year. This change is primarily due to investment gains during the year.
- Employer and employee contributions to the plan were $19,451,398, which represents a $1,225,299 change over the prior year. The employer share of contributions represents 77.29% of the total contributions made to the System.
- Benefits paid to plan participants increased by $793,496 or 4.41%, totaling $18,770,832. At December 31, 2021, there were 601 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, 2022 actuarial valuation was 55%, 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 year:

FIDUCIARY NET POSITION

	2021	2020
Assets		
Cash and receivables	$ 1,637,171	$ 2,176,183
Investments	176,547,732	147,557,551
Total Assets	178,184,903	149,733,734
Liabilities		
Accounts payable	4,851	-
Net Position		
Restricted for pension	$ 178,180,052	$ 149,733,734

The System's total assets as of December 31, 2021 were $178,184,903, and were mostly comprised of cash and investments. Total assets increased by $28,451,169, or 19.00%, from the prior year primarily due to an increase in investment value.

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CHANGES IN FIDUCIARY NET POSITION

	2021	2020
Additions		
Contributions	$ 19,852,417	$ 18,662,408
Net investment income	28,905,011	15,871,453
Total Additions	48,757,428	34,533,861
Deductions		
Benefit payments	18,770,832	17,977,336
Other	1,540,278	832,039
Total Deductions	20,311,110	18,809,375
Changes in Net Position	28,446,318	15,724,486
Net Position Restricted for Pension		
Beginning of Year	149,733,734	134,009,248
End of Year	$ 178,180,052	$ 149,733,734

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 a net gain of $48,757,428. Employers' contributions increased by $943,269, or 6.55% in calendar year 2021. The System had net investment income of $28,905,011 versus $15,871,453 in 2020, primarily due to more favorable market results in 2021.

The primary deductions of the System include the payment of pension benefits to participants and beneficiaries, refunds and transfers 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 $20,311,110, which represents an increase of $1,501,735, or 7.98%, over deductions of $18,809,375 in calendar year 2020. The payment of pension benefits changed by $793,496 or 4.41% over the previous year.

The Fitchburg 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 19.51%.

Requests for Information

This financial report is designed to provide a general overview of the Fitchburg 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:

Fitchburg Contributory Retirement System
Ms. Tina Schneider, Retirement Administrator
718 Main Street, Suite 310
Fitchburg, Massachusetts 01420

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

Statement of Fiduciary Net Position
December 31, 2021

Assets	
Cash and short-term investments	$ 1,279,951
Investments in external investment pool	176,547,732
Accounts receivable	357,220
Total Assets	178,184,903
Liabilities	
Accounts payable	4,851
Net Position	
Restricted for pension	178,180,052
Total Net Position	$ 178,180,052

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

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

Additions	
Contributions:	
Employers	$ 15,343,073
Plan members	4,108,325
Other systems and Commonwealth of Massachusetts	373,111
Other	27,908
Total Contributions	19,852,417
Investment income:	
Increase in fair value of investments	29,701,459
Less: Management fees	(796,448)
Net investment income	28,905,011
Total Additions	48,757,428
Deductions	
Benefit payments to plan members, beneficiaries, and other systems	18,770,832
Refunds to plan members	446,763
Transfers to other systems	823,191
Administrative expenses	270,324
Total Deductions	20,311,110
Net Increase	28,446,318
Net Position Restricted for Pension	
Beginning of Year	149,733,734
End of Year	$ 178,180,052

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

1. Description of Plan

Substantially all employees of the City of Fitchburg (except teachers and administrators under contract employed by the School Department), the Fitchburg Housing Authority, and the Fitchburg Redevelopment Authority are members of the Fitchburg 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 Fitchburg Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at January 1, 2022 (the latest actuarial valuation):

Retirees and beneficiaries receiving benefits	601
Inactive members entitled to a return of employee contributions	223
Active plan members	643
Total	1,467
Number of participating employers	3

Participant Contributions

Participants contribute a set percentage of their gross regular compensation annually. Employee contribution percentages are specified in Chapter 32 of 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 the 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
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 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 City 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.

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%.

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 City, the System is included as a

pension trust fund in the City's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the City, 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 City of Fitchburg, Fitchburg Housing Authority, and Fitchburg Redevelopment 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 19.51%. 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 a deposit policy for custodial credit risk.

As of December 31, 2021, none of the System's bank balance of $1,599,155 was exposed to custodial credit risk as uninsured or uncollateralized.

4. Investments

All of the System's investments totaling $176,547,732 are in an external investment pool, the Pension Reserves Investment Trust (the PRIT Fund).*

** Fair value is the same as the value of the pool share. The Pension Reserves Investment Trust (PRIT) was created under Massachusetts General Laws (MGL), Chapter 32, Section 22, in December 1983. PRIT 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 MGL, 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 pension 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.

Due to their nature, none of the System's investments are subject to credit risk disclosure.

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, investments or collateral securities that are in the possession of another party will not be recovered. The System does not have policies for custodial credit risk.

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. As a result, all of the System's investments of $176,547,732 are exempt from the custodial risk disclosure.

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 limit the amount the System may invest in any one issuer or security type, with the exception of the PRIT Fund.

Investments issued or explicitly guaranteed by the external investment pools are excluded from concentration of credit disclosure.

All of the System's investments are exempt 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 a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Information about the sensitivity of the fair values of the System's investments to market interest rate fluctuations is not applicable as all of the System's investments are immediately liquid.

Foreign Currency Risk

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

At December 31, 2021, none of the System's investments were exposed 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*.

Due to the nature of the System's investments, they are measured at net asset value.

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.

Description	Value	Unfunded Commitments	Redemption Frequency (If currently eligible)	Redemption Notice Period
External investment pool	$ 176,547,732	$ -	Monthly	30 Days

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5. Accounts Receivable

Annually the Public Employee Retirement Administration (PERAC) determines the amount of employer contributions (pension appropriations) to be made to the System. The accounts receivable balance primarily represents legal amounts due from employers for pension appropriation not received until after December 31, 2021.

6. Commitments and Contingencies

COVID-19

The COVID-19 outbreak 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 the System's 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 the System's financial condition or results of operations remains 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 did not have any outstanding capital commitments.

7. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2022.

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	$ 293,163,274
Plan fiduciary net position	(178,180,052)
Employers' net pension liability	$ 114,983,222
Plan fiduciary net position as a percentage of total pension liability	60.78%

Actuarial Assumptions

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

Valuation date	1/1/2022
Actuarial cost method	Entry Age Normal Cost Method
Remaining amortization period	10 years
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases:	
Group 1 and 2	4.75%
Fire	15.75%
Police	7.30%
Inflation rate	2.60%
Post-retirement cost-of-living adjustment	5% on first $12,000 base in 2022; 3% on first $14,000 thereafter
Mortality rates:	
Pre-retirement and beneficiary mortality	Rates reflect the RP-2014 employees table projected generationally using MP-2021 and a base year of 2006 (gender distinct). Post-retirement rates reflected the healthy annuitant table.
Mortality for disabled members	Rates reflect the RP-2014 healthy annuitant table with a base year of 2006, set forward by 2 years (gender distinct).

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.

Change of Assumptions

An update to the mortality assumption reduced the liability by approximately $848,000. In addition, a change of the COLA base from $12,000 to $14,000 (including a 5% increase on $12,000 in the first year) increased the liability by approximately $4.1 million.

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

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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 geometric 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
U.S. equity	24.00%	3.61%
International equities	12.70%	3.70%
Emerging equities	5.00%	5.95%
Hedged equity	7.80%	3.02%
Core bonds	15.10%	0.49%
Short-term fixed income	0.00%	-0.19%
Treasury STRIPS	0.00%	-0.49%
TIPS/ILBs	0.00%	-0.29%
Value-added fixed income	6.50%	3.70%
Private equity	16.60%	7.31%
Real estate	8.70%	3.31%
Timberland	2.90%	3.90%
Portfolio completion (PCS)	0.60%	2.73%
Total	99.90% *	

*Total may not add due to rounding

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.

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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%)
$ 146,321,207	$ 114,983,222	$ 88,447,383

Deferred Outflows and Inflows of Resources

The following schedule reflects the deferred outflows and 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	$ 4,409,510	$ (244,054)
Changes of assumptions	780,919	(678,124)
Net difference between projected and actual investment earnings on pension plan investments	-	(20,306,754)
Changes in proportion and differences between employer contributions and proportionate share of contributions	2,503,928	(2,503,928)
Total	$ 7,694,357	$ (23,732,860)

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The following summarizes changes in deferred outflows and inflows for the year ended December 31, 2021:

	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	2021	4.9	$ -	$ 5,507,469	$ (1,123,973)	$ 4,383,496
	2017	5.1	286,160	-	(260,146)	26,014
	2016	5.5	648,296	-	(648,296)	-
Changes of assumptions	2019	5.1	815,138	-	(262,948)	552,190
	2017	5.1	2,516,021	-	(2,287,292)	228,729
	2016	5.5	375,937	-	(375,937)	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	2021	4.9	-	1,567,877	(332,188)	1,235,689
	2020	5.1	1,105,779	-	(269,703)	836,076
	2019	5.1	567,252	-	(177,622)	389,630
	2018	5.1	57,730	-	(17,772)	39,958
	2017	5.1	39,666	-	(37,091)	2,575
	2016	5.5	38,560	-	(38,560)	-
Total Deferred Outflows of Resources			6,450,539	7,075,346	(5,831,528)	7,694,357
Deferred Inflows of Resources						
Differences between expected and actual experience	2019	5.1	(360,271)	-	116,217	(244,054)
Changes of assumptions	2021	4.9	-	(852,002)	173,878	(678,124)
Net difference between projected and actual investment earnings on pension plan investments	2021	5.0	-	(18,439,704)	3,687,940	(14,751,764)
	2020	5.0	(5,196,759)	-	1,299,191	(3,897,568)
	2019	5.0	(5,956,421)	-	1,985,473	(3,970,948)
	2018	5.0	4,627,052	-	(2,313,526)	2,313,526
	2017	5.0	(1,980,417)	-	1,980,417	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	2021	4.9	-	(1,567,877)	332,188	(1,235,689)
	2020	5.1	(1,105,779)	-	269,703	(836,076)
	2019	5.1	(567,252)	-	177,622	(389,630)
	2018	5.1	(57,730)	-	17,772	(39,958)
	2017	5.1	(39,666)	-	37,091	(2,575)
	2016	5.5	(38,560)	-	38,560	-
Total Deferred Inflows of Resources			(10,675,803)	(20,859,583)	7,802,526	(23,732,860)
Total Collective Deferred Outflows and Inflows of Resources			$ (4,225,264)	$ (13,784,237)	$ 1,970,998	$ (16,038,503)

The following schedule reflects the amortization of the balance of deferred outflows and inflows of resources as increases (decreases) in pension expense:

Fiscal Year*		Total
2023	$	(3,307,508)
2024		(5,875,777)
2025		(4,022,362)
2026		(2,832,856)
	$	(16,038,503)

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

Required Supplementary Information
Schedule of Changes in the Net Pension Liability

(Unaudited)
(Amounts expressed in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability								
Service cost	$ 5,102	$ 4,906	$ 4,795	$ 4,611	$ 4,433	$ 3,995	$ 3,677	$ 3,527
Interest	19,500	19,104	19,253	18,795	17,462	17,294	17,215	16,740
Differences between expected and actual experience	5,507		(593)	-	1,327	7,131	-	-
Changes of assumptions	(652)	-	1,341	-	11,665	4,135	-	-
Benefit payments, including refunds of member contributions	(19,136)	(17,934)	(17,171)	(17,384)	(15,965)	(14,609)	(14,609)	(14,282)
Net change in total pension liability	10,121	6,076	7,625	6,022	18,922	17,946	6,283	5,985
Total pension liability - beginning	283,042	276,966	269,341	263,319	244,397	226,451	220,168	214,183
Total pension liability - ending (a)	293,163	283,042	276,966	269,341	263,319	244,397	226,451	220,168
Plan Fiduciary Net Position								
Contributions - employer	15,369	14,429	13,613	12,524	11,522	10,604	10,003	9,503
Contributions - member	3,578	3,590	3,380	3,318	3,229	2,974	2,949	3,201
Net investment income (loss)	28,905	15,871	18,329	(2,879)	17,443	6,994	500	7,042
Benefit payments, including refunds of member contributions	(19,136)	(17,934)	(17,171)	(17,384)	(15,964)	(14,609)	(14,609)	(14,282)
Administrative expense	(270)	(231)	(225)	(231)	(229)	(186)	(169)	(181)
Net change in plan fiduciary net position	28,446	15,725	17,926	(4,652)	16,001	5,777	(1,326)	5,283
Plan fiduciary net position - beginning	149,734	134,009	116,083	120,735	104,734	98,957	100,283	95,000
Plan fiduciary net position - ending (b)	178,180	149,734	134,009	116,083	120,735	104,734	98,957	100,283
Net Pension Liability - Ending (a-b)*	$ 114,983	$ 133,308	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885

**Total may not add due to rounding*

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

See notes to the System's financial statements for summary of significant actuarial methods and assumptions.

See Independent Auditor's Report.

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

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

(Unaudited)
(Amounts expressed in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014
Schedule of Net Pension Liability								
Total pension liability	$ 293,163	$ 283,042	$ 276,966	$ 269,341	$ 263,319	$ 244,397	$ 226,451	$ 220,168
Plan fiduciary net position	(178,180)	(149,734)	(134,009)	(116,083)	(120,735)	(104,734)	(98,957)	(100,283)
Net pension liability	$ 114,983	$ 133,308	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885
Plan fiduciary net position as a percentage of the total pension liability	60.78%	52.90%	48.38%	43.10%	45.85%	42.85%	43.70%	45.55%
Covered payroll	$ 34,534	$ 36,089	$ 34,695	$ 33,886	$ 32,583	$ 31,903	$ 30,071	$ 28,776
Participating employer net pension liability as a percentage of covered payroll	332.96%	369.39%	412.04%	452.28%	437.60%	437.77%	423.98%	416.61%
Schedule of Contributions								
Actuarially determined contribution	$ 15,264	$ 14,400	$ 13,585	$ 12,497	$ 11,497	$ 10,577	$ 9,978	$ 9,413
Contributions in relation to the actuarially determined contribution	(15,370)	(14,429)	(13,613)	(12,524)	(11,522)	(10,604)	(10,003)	(9,436)
Contribution deficiency (excess)	$ (106)	$ (29)	$ (28)	$ (27)	$ (25)	$ (27)	$ (25)	$ (23)
Covered payroll	$ 35,252	$ 36,803	$ 35,392	$ 34,564	$ 33,235	$ 32,541	$ 30,710	$ 29,387
Contributions as a percentage of covered payroll	43.60%	39.21%	38.46%	36.23%	34.67%	32.59%	32.57%	32.11%
Schedule of Investment Returns								
Annual money weighted rate of return, net of investment expense	19.51%	11.90%	15.84%	2.50%	16.82%	6.89%	0.57%	7.53%

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

See notes to the System's financial statements for summary of significant actuarial methods and assumptions.

See Independent Auditor's Report.

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MELANSON

INDEPENDENT AUDITOR'S REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Opinion
We have audited the accompanying schedule of employer allocations of the Fitchburg 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 Fitchburg 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 Fitchburg 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 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 Schedule section of our report. We are required to be independent of the Fitchburg 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

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preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

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 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 Fitchburg 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

Greenfield, Massachusetts
December 21, 2022

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2022 Actual Employer Contributions	Allocation Percentage
City of Fitchburg	$ 14,486,866	94.91%
Fitchburg Housing Authority	699,082	4.58%
Fitchburg Redevelopment Authority	77,845	0.51%
Total	$ 15,263,793	100.00%

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

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

	City of Fitchburg	Fitchburg Housing Authority	Fitchburg Redevelopment Authority	Total
Net Pension Liability	$ 109,130,576	$ 5,266,232	$ 586,414	$ 114,983,222
Deferred Outflows of Resources				
Differences between expected and actual experience	$ 4,185,066	$ 201,956	$ 22,488	$ 4,409,510
Changes of assumptions	741,171	35,766	3,982	780,919
Changes in proportion and differences between employer contributions and proportionate share of contributions	376,510	1,842,691	284,727	2,503,928
Total Deferred Outflows of Resources	$ 5,302,747	$ 2,080,413	$ 311,197	$ 7,694,357
Deferred Inflows of Resources				
Differences between expected and actual experience	$ 231,632	$ 11,178	$ 1,244	$ 244,054
Changes of assumptions	643,608	31,058	3,458	678,124
Net difference between projected and actual investment earnings on pension plan investments	19,273,140	930,049	103,565	20,306,754
Changes in proportion and differences between employer contributions and proportionate share of contributions	2,093,912	384,641	25,375	2,503,928
Total Deferred Inflows of Resources	$ 22,242,292	$ 1,356,926	$ 133,642	$ 23,732,860
Pension Expense				
Proportionate share of pension expense	$ 8,407,731	$ 405,725	$ 45,179	$ 8,858,635
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(425,207)	392,863	32,344	-
Total Pension Expense	$ 7,982,524	$ 798,588	$ 77,523	$ 8,858,635
Contributions				
Actuarially determined contribution	$ 14,486,866	$ 699,082	$ 77,845	$ 15,263,793
Contributions made	(14,587,628)	(703,944)	(78,386)	(15,369,958)
Contribution deficiency (excess)	$ (100,762)	$ (4,862)	$ (541)	$ (106,165)
Contributions as a percentage of covered payroll	44.38%	47.81%	41.09%	44.51%
Deferred Outflows and Inflows Recognized in Future Pension Expense				
June 30, 2023	$ (3,562,184)	$ 209,546	$ 45,130	$ (3,307,508)
June 30, 2024	(5,987,555)	72,253	39,525	(5,875,777)
June 30, 2025	(4,386,500)	319,397	44,741	(4,022,362)
June 30, 2026	(3,003,306)	122,289	48,161	(2,832,856)
Total Deferred Outflows and Inflows Recognized in Future Pension Expense	$ (16,939,545)	$ 723,485	$ 177,557	$ (16,038,503)
Discount Rate Sensitivity				
1% decrease (6.00%)	$ 138,873,458	$ 6,701,511	$ 746,238	$ 146,321,207
Current discount rate (7.00%)	$ 109,130,576	$ 5,266,232	$ 586,414	$ 114,983,222
1% increase (8.00%)	$ 83,945,411	$ 4,050,890	$ 451,082	$ 88,447,383
Covered Payroll	$ 32,870,321	$ 1,472,495	$ 190,784	$ 34,533,600

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

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

(With Independent Auditors' Report Thereon)

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MELANSON

INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

We have audited the accompanying financial statements of the Fitchburg Contributory Retirement System (the System), a component unit of the City of Fitchburg, 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 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

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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 Fitchburg 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

Greenfield, Massachusetts
January 18, 2022

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Fitchburg 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 and the resulting net position held in trust restricted for pension benefits. 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, and external parties, investment activity, along with deductions for retirement benefits, refunds, transfers, and administrative expenses.

Notes to Financial Statements and Required Supplementary Information
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 $149,733,734 at December 31, 2020, a change of $15,724,486, or 11.73%, over the prior year. This change is primarily due to investment gains during the year.

- Employer and employee contributions to the plan were $18,226,099, which represents a $611,820 change over the prior year. The employer share of contributions represents 77.16% of the total contributions made to the System.
- Benefits paid to plan participants increased by $573,256 or 3.29%, totaling $17,977,336. At December 31, 2020, there were 588 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, 2020 actuarial valuation was 52.90%, with 11 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

	2020	2019
Assets		
Cash and receivables	$ 2,176,183	$ 1,796,380
Investments	147,557,551	132,259,242
Total Assets	149,733,734	134,055,622
Liabilities		
Accounts payable	-	46,374
Net Position		
Restricted for pensions	$ 149,733,734	$ 134,009,248

The System's total assets as of December 31, 2020 were $149,733,734 and were mostly comprised of cash and investments. Total assets increased by $15,678,112, or 11.70%, from the prior year primarily due to an increase in investment value.

CHANGES IN FIDUCIARY NET POSITION

	2020	2019
Additions		
Contributions	$ 18,662,408	$ 18,051,573
Net investment income	15,871,453	18,327,301
Total Additions	34,533,861	36,378,874
Deductions		
Benefit payments	17,977,336	17,404,080
Other	832,039	1,048,745
Total Deductions	18,809,375	18,452,825
Changes in Net Position	15,724,486	17,926,049
Net Position Restricted for Pensions		
Beginning of Year	134,009,248	116,083,199
End of Year	$ 149,733,734	$ 134,009,248

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 a net gain of $34,533,861. Employers' contributions increased by $815,085, or 6.00% in calendar year 2020. The System had net investment income of $15,871,453 versus $18,327,301 in 2019, primarily due to slightly less favorable market results in 2020.

The primary deductions of the System include the payment of pension benefits to participants and beneficiaries, refunds and transfers 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 $18,809,375, which represents an increase of $356,550, or 1.93%, over deductions of $18,452,825 in calendar year 2019. The payment of pension benefits changed by $573,256 or 3.29% over the previous year.

The Fitchburg 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 11.90%.

Requests for Information

This financial report is designed to provide a general overview of the Fitchburg 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:

Fitchburg Contributory Retirement System
Ms. Tina Schneider, Retirement Administrator
718 Main Street, Suite 310
Fitchburg, Massachusetts 01420

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

Statement of Fiduciary Net Position
December 31, 2020

Assets	
Cash and short-term investments	$ 1,833,532
Investments in external investment pool	147,557,551
Accounts receivable	342,651
Total Assets	149,733,734
Net Position	
Restricted for Pensions	149,733,734
Total Net Position	$ 149,733,734

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

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

Additions		
Contributions:		
Employers	$	14,399,804
Plan members		3,826,295
Other systems and Commonwealth of Massachusetts		389,479
Other		46,830
Total Contributions		18,662,408
Investment income:		
Increase in fair value of investments		16,508,946
Less: Management fees		(637,493)
Net investment income		15,871,453
Total Additions		34,533,861
Deductions		
Benefit payments to plan members, beneficiaries, and other systems		17,977,336
Refunds to plan members		389,671
Transfers to other systems		210,041
Administrative expenses		232,327
Total Deductions		18,809,375
Net Increase		15,724,486
Net Position Restricted for Pensions		
Beginning of Year		134,009,248
End of Year	$	149,733,734

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

1. Description of Plan

Substantially all employees of the City of Fitchburg (except teachers and administrators under contract employed by the School Department) and Fitchburg Housing Authority, and Fitchburg Redevelopment Authority are members of the Fitchburg 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 Fitchburg Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at January 1, 2020 (the latest actuarial valuation):

Retirees and beneficiaries receiving benefits	588
Inactive members entitled to a return of employee contributions	161
Active plan members	682
Total	1,431
Number of participating employers	3

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
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 City 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%.

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 City, the System is included as a pension trust fund in the City's basic financial statements. The System is governed by a

five-member board. The five members include two appointed by the City, 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 City of Fitchburg, Fitchburg Housing Authority, and Fitchburg Redevelopment 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 11.90%. 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 a deposit policy for custodial credit risk.

As of December 31, 2020, none of the System's bank balance of $1,992,111 was exposed to custodial credit risk as uninsured or uncollateralized.

4. Investments

All of the System's investments totaling $147,557,551 are in an external investment pool (PRIT).*

** 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.

Due to their nature, none of the System's investments are subject to credit risk disclosure.

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.

All of the System's investments of $147,557,551 are exempt from the custodial risk disclosure.

Investments in external investment pools and in open-end mutual funds 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.

Investments issued or explicitly guaranteed by the external investment pools are excluded from concentration of credit disclosure.

All of the System's investments are exempt 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 a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Information about the sensitivity of the fair values of the System's investments to market interest rate fluctuations is not applicable as all of the System's investments are immediately liquid.

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.

Due to the nature of the System's investments, they are measured at net asset value.

Description		Value		Unfunded Commitments	Redemption Frequency (If currently eligible)	Redemption Notice Period
External investment pool:	$	147,557,551	$	-	Monthly	30 Days

5. Accounts Receivable

Annually the Public Employee Retirement Administration (PERAC) determines the amount of employer contributions (pension appropriations) to be made to the System. The accounts receivable balance primarily represents legal amounts due from employers for pension appropriation not received until after December 31, 2020.

6. Commitments and Contingencies

COVID-19

The COVID-19 outbreak 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 did not have any outstanding capital commitments.

7. Net Pension Liability of Participating Employers

The net pension liability was based on an actuarial valuation dated January 1, 2020, and rolled forward to December 31, 2020.

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	$ 283,041,518
Plan fiduciary net position	(149,733,735)
Employers' net pension liability	$ 133,307,783
Plan fiduciary net position as a percentage of total pension liability	52.90%

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

Valuation date	1/1/2020
Actuarial cost method	Entry Age Normal Cost Method
Remaining amortization period	11 years
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases:	
Group 1 and 2	4.75%
Fire	15.75%
Police	7.30%
Inflation rate	2.50%
Post-retirement cost-of-living adjustment	3% on first $12,000
Mortality rates:	
Pre-retirement and beneficiary mortality	Rates reflect the RP-2014 employees table projected generationally using MP-2019 and a base year of 2006 (gender distinct). Post-retirement rates reflected the healthy annuitant table.
Mortality for disabled members	Rates reflect the RP-2014 healthy annuitant table with a base year of 2006, set forward by 2 years (gender distinct).

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.

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 geometric 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
U.S. equity	13.00%	4.11%
International equities	13.00%	4.31%
Emerging equities	5.00%	6.07%
Hedged equity	8.00%	3.42%
Core bonds	6.00%	0.49%
Short-term fixed income	2.00%	-0.20%
Treasury STRIPS	3.00%	-0.49%
TIPS/ILBs	4.00%	-0.10%
Value-added fixed income	8.00%	3.91%
Private equity	14.00%	7.83%
Real estate	10.00%	3.72%
Timberland	4.00%	4.31%
Portfolio completion (PCS)	10.00%	2.94%
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%)
$ 164,080,885	$ 133,307,783	$ 107,278,285

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	$ 934,455	$ (360,271)
Changes of assumptions	3,707,096	-
Net difference between projected and actual investment earnings on pension plan investments	-	(8,506,545)
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,808,987	(1,808,987)
Total	$ 6,450,538	$ (10,675,803)

The following summarizes changes in deferred outflows/inflows:

	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	5.1	$ 546,304	$	$ (260,145)	$ 286,159
	2016	5.5	1,944,886		(1,296,590)	648,296
Changes of assumptions	2019	5.1	1,078,086		(262,948)	815,138
	2017	5.1	4,803,312		(2,287,291)	2,516,021
	2016	5.5	1,127,813		(751,876)	375,937
Changes in proportion and differences between employer contributions and proportionate share of contributions	2020	5.1	-	1,375,482	(269,703)	1,105,779
	2019	5.1	744,874	-	(177,622)	567,252
	2018	5.1	75,502	-	(17,772)	57,730
	2017	5.1	76,757	-	(37,091)	39,666
	2016	5.5	115,681	-	(77,121)	38,560
	2015	5.4	7,889	-	(7,889)	-
Total Deferred Outflows of Resources			10,521,104	1,375,482	(5,446,048)	6,450,538
Deferred Inflows of Resources						
Differences between expected and actual experience	2019	5.1	(476,487)		116,216	(360,271)
Net difference between projected and actual investment earnings on pension plan investments	2020	5.0	-	(6,495,950)	1,299,191	(5,196,759)
	2019	5.0	(7,941,894)		1,985,473	(5,956,421)
	2018	5.0	6,940,578	-	(2,313,526)	4,627,052
	2017	5.0	(3,960,834)	-	1,980,417	(1,980,417)
	2016	5.0	125,581		(125,581)	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	2020	5.1		(1,375,482)	269,703	(1,105,779)
	2019	5.1	(744,874)		177,622	(567,252)
	2018	5.1	(75,502)		17,772	(57,730)
	2017	5.1	(76,757)		37,091	(39,666)
	2016	5.5	(115,681)		77,121	(38,560)
	2015	5.4	(7,889)		7,889	-
Total Deferred Inflows of Resources			(6,333,759)	(7,871,432)	3,529,388	(10,675,803)
Total Collective Deferred Outflows/Inflows of Resources			$ 4,187,345	$ (6,495,950)	$ (1,916,660)	$ (4,225,265)

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

Fiscal Year*	Total
2021	$ 766,846
2022	(569,662)
2023	(3,137,932)
2024	(1,284,517)
	$ (4,225,265)

** 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.*

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

Schedule of Changes in the Net Pension Liability
Required Supplementary Information

(Unaudited)
(Amounts expressed in thousands)

	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability							
Service cost	$ 4,906	$ 4,795	$ 4,611	$ 4,433	$ 3,995	$ 3,677	$ 3,527
Interest	19,104	19,253	18,795	17,462	17,294	17,215	16,740
Differences between expected and actual experience	-	(593)	-	1,327	7,131	-	-
Changes of assumptions	-	1,341	-	11,665	4,135	-	-
Benefit payments, including refunds of member contributions	(17,934)	(17,171)	(17,384)	(15,965)	(14,609)	(14,609)	(14,282)
Net change in total pension liability	6,076	7,625	6,022	18,922	17,946	6,283	5,985
Total pension liability - beginning	276,966	269,341	263,319	244,397	226,451	220,168	214,183
Total pension liability - ending (a)	283,042	276,966	269,341	263,319	244,397	226,451	220,168
Plan Fiduciary Net Position							
Contributions - employer	14,429	13,613	12,524	11,522	10,604	10,003	9,503
Contributions - member	3,590	3,380	3,318	3,229	2,974	2,949	3,201
Net investment income (loss)	15,871	18,329	(2,879)	17,443	6,994	500	7,042
Benefit payments, including refunds of member contributions	(17,934)	(17,171)	(17,384)	(15,964)	(14,609)	(14,609)	(14,282)
Administrative expense	(231)	(225)	(231)	(229)	(186)	(169)	(181)
Net change in plan fiduciary net position	15,725	17,926	(4,652)	16,001	5,777	(1,326)	5,283
Plan fiduciary net position - beginning	134,009	116,083	120,735	104,734	98,957	100,283	95,000
Plan fiduciary net position - ending (b)	149,734	134,009	116,083	120,735	104,734	98,957	100,283
Net Pension Liability - Ending (a-b)	$ 133,308	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885

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

See Independent Auditors' Report.

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

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

(Unaudited)
(Amounts expressed in thousands)

	2020	2019	2018	2017	2016	2015	2014
Schedule of Net Pension Liability							
Total pension liability	$ 283,042	$ 276,966	$ 269,341	$ 263,319	$ 244,397	$ 226,451	$ 220,168
Plan fiduciary net position	(149,734)	(134,009)	(116,083)	(120,735)	(104,734)	(98,957)	(100,283)
Net pension liability	$ 133,308	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885
Plan fiduciary net position as a percentage of the total pension liability	52.90%	48.38%	43.10%	45.85%	42.85%	43.70%	45.55%
Covered payroll	$ 36,089	$ 34,695	$ 33,886	$ 32,583	$ 31,903	$ 30,071	$ 28,776
Participating employer net pension liability as a percentage of covered payroll	369.39%	412.04%	452.28%	437.60%	437.77%	423.98%	416.61%
Schedule of Contributions							
Actuarially determined contribution	$ 14,400	$ 13,585	$ 12,497	$ 11,497	$ 10,577	$ 9,978	$ 9,413
Contributions in relation to the actuarially determined contribution	(14,429)	(13,613)	(12,524)	(11,522)	(10,604)	(10,003)	(9,436)
Contribution deficiency (excess)	$ (29)	$ (28)	$ (27)	$ (25)	$ (27)	$ (25)	$ (23)
Covered payroll	$ 36,803	$ 35,392	$ 34,564	$ 33,235	$ 32,541	$ 30,710	$ 29,367
Contributions as a percentage of covered payroll	39.21%	38.46%	36.23%	34.67%	32.59%	32.57%	32.11%
Schedule of Investment Returns							
Annual money weighted rate of return, net of investment expense	11.90%	15.84%	-2.50%	16.82%	6.89%	0.57%	7.53%

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

See Independent Auditors' Report.

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INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Fitchburg Contributory Retirement System (the 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 Fitchburg 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

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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 Fitchburg 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 Fitchburg 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

Greenfield, Massachusetts
January 18, 2022

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2021 Actual Employer Contributions	Allocation Percentage
City of Fitchburg	$ 13,831,012	96.05%
Fitchburg Housing Authority	531,353	3.69%
Fitchburg Redevelopment Authority	37,439	0.26%
Total	$ 14,399,804	100.00%

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM
(A Component Unit of the City of Fitchburg, Massachusetts)

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

	City of Fitchburg	Fitchburg Housing Authority	Fitchburg Redevelopment Authority	Total
Net Pension Liability	$ 128,042,126	$ 4,919,057	$ 346,600	$ 133,307,783
Deferred Outflows of Resources				
Differences between expected and actual experience	$ 897,544	$ 34,481	$ 2,430	$ 934,455
Changes of assumptions	3,560,666	136,792	9,638	3,707,096
Changes in proportion and differences between employer contributions and proportionate share of contributions	590,862	1,201,791	16,334	1,808,987
Total Deferred Outflows of Resources	$ 5,049,072	$ 1,373,064	$ 28,402	$ 6,450,538
Deferred Inflows of Resources				
Differences between expected and actual experience	$ 346,040	$ 13,294	$ 937	$ 360,271
Net difference between projected and actual investment earnings on pension plan investments	8,170,536	313,892	22,117	8,506,545
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,165,594	574,923	68,470	1,808,987
Total Deferred Inflows of Resources	$ 9,682,170	$ 902,109	$ 91,524	$ 10,675,803
Pension Expense				
Proportionate share of pension expense	$ 12,671,493	$ 486,807	$ 34,301	$ 13,192,601
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(133,531)	173,728	(40,197)	-
Total Pension Expense	$ 12,537,962	$ 660,535	$ (5,896)	$ 13,192,601
Contributions				
Actuarially determined contribution	$ 13,831,012	$ 531,353	$ 37,439	$ 14,399,804
Contributions made	(13,859,097)	(532,432)	(37,515)	(14,429,044)
Contribution deficiency (excess)	$ (28,085)	$ (1,079)	$ (76)	$ (29,240)
Contributions as a percentage of covered payroll	40.23%	34.45%	39.79%	39.98%
Deferred Outflows/Inflows Recognized in Future Pension Expense				
June 30, 2021	$ 631,323	$ 171,355	$ (35,832)	$ 766,846
June 30, 2022	(650,214)	90,204	(9,652)	(569,662)
June 30, 2023	(3,104,863)	(24,231)	(8,838)	(3,137,932)
June 30, 2024	(1,482,680)	206,418	(8,255)	(1,284,517)
June 30, 2025	(26,666)	27,210	(544)	
Total Deferred Outflows/Inflows Recognized in Future Pension Expense	$ (4,633,100)	$ 470,956	$ (63,121)	$ (4,225,265)
Discount Rate Sensitivity				
1% decrease (6.00%)	$ 157,599,690	$ 6,054,585	$ 426,610	$ 164,080,885
Current discount rate (7.00%)	$ 128,042,126	$ 4,919,057	$ 346,600	$ 133,307,783
1% increase (8.00%)	$ 103,040,793	$ 3,958,569	$ 278,923	$ 107,278,285
Covered Payroll	$ 34,448,823	$ 1,545,539	$ 94,274	$ 36,088,636

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

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Financial Statements,
Required Supplementary Information,
and Other Information

For the Year Ended December 31, 2019

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INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

We have audited the accompanying financial statements of the Fitchburg Contributory Retirement System (the System), a component unit of the City of Fitchburg, 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 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

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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 Fitchburg 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

Greenfield, Massachusetts
March 1, 2021

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Fitchburg 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 liabilities and the resulting net position held in trust restricted for pension benefits. 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, 2019. It reflects contributions by members and participating employers, investment activity, along with deductions for retirement benefits, refunds, transfers, and administrative expenses.

Notes to Financial Statements
The notes 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 $134,009,248 at December 31, 2019.
- The System's net position increased by $17,926,049, which is primarily due to investment gains during the year.
- Employer and employee contributions to the plan were $17,614,279, which represents a $1,687,742 increase over the prior year. The employer share of contributions represents 75.28% of the total contributions made to the System.
- Benefits paid to plan participants increased by $344,083 or 2.02%, totaling $17,404,080. At December 31, 2019, there were 588 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, 2020 actuarial valuation was 48.38%, with 12 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 (in thousands):

FIDUCIARY NET POSITION

	2019	2018
Assets		
Cash and receivables	$ 1,796	$ 950
Investments	132,259	115,145
Total Assets	134,055	116,095
Liabilities		
Accounts payable	46	12
Net Position		
Restricted for pensions	$ 134,009	$ 116,083

The System's total assets as of December 31, 2019 were $134,055,622 and were mostly comprised of cash and investments. Total assets increased by $17,960,194, or 15.47%, from the prior year, primarily due to an increase in investment value.

CHANGES IN FIDUCIARY NET POSITION

	2019	2018
Additions		
Contributions	$ 18,045	$ 16,360
Investment income (loss), net	18,334	(2,877)
Total Additions	36,379	13,483
Deductions		
Benefit payments	17,404	17,060
Other	1,049	1,075
Total Deductions	18,453	18,135
Changes in Net Position	17,926	(4,652)
Net Position Restricted for Pensions		
Beginning of Year	116,083	120,735
End of Year	$ 134,009	$ 116,083

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 2019 resulted in total additions of $36,378,874. Employers' contributions increased by $1,087,273, or 8.70% in calendar year 2019. The System had net investment income of $18,333,709 versus a net investment loss of $(2,876,608) in 2018, primarily due to the market performing more favorably in calendar year 2019.

The primary deductions of the System include the payment of pension benefits to participants and beneficiaries, refunds and transfers 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 2019 were $18,452,825, which represents an increase of $318,044, or 1.75%, over deductions of $18,134,781 in calendar year 2018. The payment of pension benefits increased by $344,083 or 2.02% over the previous year.

Requests for Information

This financial report is designed to provide a general overview of the Fitchburg 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:

Fitchburg Contributory Retirement System

Ms. Tina Schneider, Retirement Administrator

718 Main Street, Suite 310A

Fitchburg, Massachusetts 01420

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)
Statement of Fiduciary Net Position
December 31, 2019

Assets		
Cash and short-term investments	$	1,700,666
Investments in external investment pool		132,259,242
Accounts receivable		95,714
Total Assets	$	134,055,622
Liabilities		
Accounts payable	$	46,374
Net Position		
Restricted for pension purposes		134,009,248
Total Liabilities and Net Position	$	134,055,622

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)
Statement of Changes in Fiduciary Net Position
For the Year Ended December 31, 2019

Additions		
Contributions:		
Employers	$	13,584,719
Plan members		4,029,560
Other systems and Commonwealth of Massachusetts		398,074
Other		32,812
Total Contributions		18,045,165
Investment income:		
Appreciation in fair value of investments		18,968,670
Less: Management fees		(634,961)
Net Investment Gain		18,333,709
Total Additions		36,378,874
Deductions		
Benefit payments to plan members and beneficiaries		17,404,080
Refunds to plan members		387,769
Transfers to other systems		436,243
Administrative expenses		224,733
Total Deductions		18,452,825
Net Increase		17,926,049
Net Position Restricted for Pensions		
Beginning of Year		116,083,199
End of Year	$	134,009,248

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

1. Description of Plan

Substantially all employees of the City of Fitchburg (except teachers and administrators under contract employed by the School Department), Fitchburg Housing Authority, and Fitchburg Redevelopment Authority are members of the Fitchburg 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 Fitchburg Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	588
Inactive members entitled to a return of employee contributions	161
Active plan members	682
Total	1,431
Number of participating employers	3

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.

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 City 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%.

Employer Contributions

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

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 City, the System is included as a pension trust fund in the City's basic financial statements. The System is governed by a 5-member board. The 5 members include 2 appointed by the City, 2 elected by the members and retirees, and a fifth member chosen by the other 4 members with the approval of Public Employee Retirement Administration Commission.

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 City of Fitchburg, Fitchburg Housing Authority and Fitchburg Redevelopment 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 15.84%. 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 a deposit policy for custodial credit risk.

As of December 31, 2019, none of the System's bank balances of $1,887,661 was exposed to custodial credit risk as uninsured or uncollateralized, and collateral held by pledging bank's trust department not in the System's name.

4. Investments

All of the System's investments totaling $132,259,242 are in an external State investment pool (PRIT).*

** 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.*

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 a formal policy for custodial credit risk but manages custodial risk through diversification and the "prudent person" principles outlines in PERAC guidelines.

The System's investments of $132,259,242 are held in the State investment pool which is exempt from custodial risk disclosure.

Investments in the State 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.

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.

Due to their nature, none of the System's investments are subject to credit risk disclosure.

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 State investment pool (PRIT).

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

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 a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Information about the sensitivity of the fair values of the System's investments to market interest rate fluctuations is not applicable as all of the System's investments are immediately liquid.

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 a formal investment policy 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).

All of the System's investments are in an external investment pool which are measured at net asset value (NAV), not fair market value. The 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 following are additional disclosures as of December 31, 2019:

Description	Amount	Unfunded Commitments	Redemption Frequency (If currently eligible)	Redemption Notice Period
External investment pool	$ 132,259,242	$ -	Monthly	30 Days

5. Accounts Receivable

Annually the Public Employee Retirement Administration (PERAC) determines the amount of employer contributions (pension appropriations) to be made to the System.

The accounts receivable balance primarily represents legal amounts due from employers for pension appropriation not received until after December 31, 2019.

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, 2020.

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	$ 276,966,084
Plan fiduciary net position	(134,009,248)
Employers' net pension liability	$ 142,956,836
Plan fiduciary net position as a percentage of total pension liability	48.38%

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

Valuation date	1/1/2020
Actuarial cost method	Entry Age Normal Cost Method
Remaining amortization period	12 years
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases:	
Group 1 and 2	4.75%
Police	7.3%
Fire	15.75%
Inflation rate	2.50%
Post-retirement cost-of-living adjustment	3% on first $12,000

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: Rates reflect the RP-2014 employees table projected generationally using MP-2019 and a base year of 2006 (gender distinct). Post-retirement rates reflected the healthy annuitant table.

Mortality for disabled members: Rates reflect the RP-2014 healthy annuitant table with a base year of 2006, set forward by 2 years (gender distinct).

Change of Assumptions
The January 1, 2020 actuarial valuation included changes of assumptions in mortality and salary increases, as well as a reduction of the discount rate from 7.25% to 7.00%. The net effect of these changes increased the System's total pension liability by approximately $1.3 million.

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 geometric 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
U.S. equity	13.00%	4.29%
International equities	13.00%	4.39%
Emerging equities	5.00%	6.54%
Hedged equity	8.00%	3.61%
Core bonds	6.00%	0.88%
Short-Term fixed income	2.00%	0.59%
Long duration treasury	3.00%	0.00%
Inflation-linked bonds	4.00%	0.20%
Value-added fixed income	8.00%	4.20%
Private equity	13.00%	8.20%
Real estate	10.00%	3.51%
Timberland	4.00%	4.10%
Portfolio completion (PCS)	11.00%	3.22%
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%)
$173,295,538	$142,956,836	$117,294,301

Deferred Outflows/(Inflows) of Resources

The following schedule reflects the deferred outflows/(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	$ 2,491,190	$ (476,487)
Changes of assumptions	7,009,211	-
Net difference between projected and actual earnings on pension plan investments	-	(4,836,569)
Changes in proportion and differences between employer contributions and proportionate share of contributions	1,020,703	(1,020,703)
Total	$ 10,521,104	$ (6,333,759)

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

	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						
Difference between expected and actual experience:	2017	5.1	$ 806,449	$	$ (260,145)	$ 546,304
	2016	5.5	3,241,476	-	(1,296,590)	1,944,886
Changes of assumptions:	2019	5.1		1,341,034	(262,948)	1,078,086
	2017	5.1	7,090,603	-	(2,287,291)	4,803,312
	2016	5.5	1,879,690	-	(751,877)	1,127,813
Change in proportion and difference between employer contributions and proportionate share of contributions:	2019	5.1		922,496	(177,622)	744,874
	2018	5.1	93,274		(17,772)	75,502
	2017	5.1	113,848	-	(37,091)	76,757
	2016	5.5	192,802	-	(77,121)	115,681
	2015	5.4	27,614	-	(19,725)	7,889
Total Deferred Outflows of Resources			13,445,756	2,263,530	(5,188,182)	10,521,104
Deferred (Inflows) of Resources						
Difference between expected and actual experience	2019	5.1	$ -	$ (592,703)	$ 116,216	$ (476,487)
Net difference between projected and actual earnings on pension plan investments:	2019	5.0		(9,927,367)	1,985,473	(7,941,894)
	2018	5.0	9,254,104	-	(2,313,526)	6,940,578
	2017	5.0	(5,941,251)	-	1,980,417	(3,960,834)
	2016	5.0	251,162	-	(125,581)	125,581
	2015	5.0	1,479,952		(1,479,952)	-
Change in proportion and difference between employer contributions and proportionate share of contributions:	2019	5.1	-	(922,496)	177,622	(744,874)
	2018	5.1	(93,274)		17,772	(75,502)
	2017	5.1	(113,848)	-	37,091	(76,757)
	2016	5.5	(192,802)	-	77,121	(115,681)
	2015	5.4	(27,614)	-	19,725	(7,889)
Total Deferred (Inflows) of Resources			4,616,429	(11,442,566)	492,378	(6,333,759)
Total Collective Deferred Outflows/(Inflows) of Resources			$ 18,062,185	$ (9,179,036)	$ (4,695,804)	$ 4,187,345

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

Fiscal Year	Total
2021	$ 3,215,851
2022	2,066,036
2023	729,528
2024	(1,838,742)
2025	14,672
	$ 4,187,345

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8. Subsequent Events

The COVID-19 outbreak in the United States (and across the globe) has resulted in economic uncertainties. 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, including the duration and spread of the outbreak, impact on our members, 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.

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)
Required Supplementary Information
Schedule of Changes in the Net Pension Liability
(Unaudited)
(Amounts expressed in thousands)

	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service cost	$ 4,795	$ 4,611	$ 4,433	$ 3,995	$ 3,677	$ 3,527
Interest on unfunded liability - time value of money	19,253	18,795	17,462	17,294	17,215	16,740
Differences between expected and actual experience	(593)	-	1,327	7,131	-	
Changes of assumptions	1,341	-	11,665	4,135		
Benefit payments, including refunds of member contributions	(17,171)	(17,384)	(15,965)	(14,609)	(14,609)	(14,282)
Net Change in Total Pension Liability	7,625	6,022	18,922	17,946	6,283	5,985
Total Pension Liability - Beginning	269,341	263,319	244,397	226,451	220,168	214,183
Total Pension Liability - Ending (a)	$ 276,966	$ 269,341	$ 263,319	$ 244,397	$ 226,451	$ 220,168
Plan Fiduciary Net Position *						
Contributions - employer	$ 13,613	$ 12,524	$ 11,522	$ 10,604	$ 10,003	$ 9,503
Contributions - member	3,380	3,318	3,229	2,974	2,949	3,201
Net investment income	18,329	(2,879)	17,443	6,994	500	7,042
Benefit payments, including refunds of member contributions	(17,171)	(17,384)	(15,964)	(14,609)	(14,609)	(14,282)
Administrative expense	(225)	(231)	(229)	(186)	(169)	(181)
Net Change in Plan Fiduciary Net Position	17,926	(4,652)	16,001	5,777	(1,326)	5,283
Plan Fiduciary Net Position - Beginning	116,083	120,735	104,734	98,957	100,283	95,000
Plan Fiduciary Net Position - Ending (b)	$ 134,009	$ 116,083	$ 120,735	$ 104,734	$ 98,957	$ 100,283
Net Pension Liability (Asset) - Ending (a-b)	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885

* May reflect classification differences from page 8.

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

See Independent Auditors' Report.

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)
Required Supplementary Information
Schedules of Net Pension Liability, Contributions, and Investment Returns
(Unaudited)
(Amounts expressed in thousands)

Schedule of Net Pension Liability	2019	2018	2017	2016	2015	2014
Total pension liability	$ 276,966	$ 269,341	$ 263,119	$ 244,397	$ 226,451	$ 220,168
Plan fiduciary net position	(134,009)	(116,083)	(120,735)	(104,734)	(98,957)	(100,283)
Net pension liability	$ 142,957	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885
Plan fiduciary net position as a percentage of the total pension liability	48.38%	43.10%	45.85%	42.85%	43.70%	45.55%
Covered payroll	$ 34,695	$ 33,886	$ 32,583	$ 31,903	$ 30,071	$ 28,776
Participating employer net pension liability as a percentage of covered payroll	412.04%	452.28%	437.60%	437.77%	423.98%	416.61%
Schedule of Contributions	2019	2018	2017	2016	2015	2014
Actuarially determined contribution	$ 13,585	$ 12,497	$ 11,497	$ 10,577	$ 9,978	$ 9,413
Contributions in relation to the actuarially determined contribution	(13,613)	(12,524)	(11,522)	(10,604)	(10,003)	(9,436)
Contribution deficiency (excess)	$ (28)	$ (27)	$ (25)	$ (27)	$ (25)	$ (23)
Covered payroll	$ 35,392	$ 34,564	$ 33,235	$ 32,541	$ 30,710	$ 29,387
Contributions as a percentage of covered payroll	38.46%	36.23%	34.67%	32.59%	32.57%	32.11%
Schedule of Investment Returns						
Year Ended December 31	2019	2018	2017	2016	2015	2014
Annual money weighted rate of return, net of investment expense	15.84%	(2.50%)	16.82%	6.89%	0.57%	7.53%

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

See Independent Auditors' Report.

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INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Fitchburg Contributory Retirement System (the 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 Fitchburg 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

Merrimack, New Hampshire
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Greenfield, Massachusetts
Ellsworth, Maine

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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 Fitchburg 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 Fitchburg 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

Greenfield, Massachusetts
March 1, 2021

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)
Schedule of Employer Allocations

Employer	FY 2020 Actual Employer Contributions	Allocation Percentage
City of Fitchburg	$ 12,905,352	97.03%
Fitchburg Housing Authority	357,780	2.69%
Fitchburg Redevelopment Authority	37,241	0.28%
Subtotal excluding ERI	13,300,373	100.00%
City of Fitchburg- ERI	284,348	
Total	$ 13,584,721	

See actuarial assumptions in the City of Fitchburg Contributory Retirement System's audited financial statements.

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)
Schedule of Pension Amounts by Employer
As of and for the Year Ended December 31, 2019

	City of Fitchburg	Fitchburg Housing Authority	Fitchburg Redevelopment Authority	Total
Net Pension Liability	$ 138,711,018	$ 3,845,539	$ 400,279	$ 142,956,836
Deferred Outflows of Resources				
Differences between expected and actual experience	$ 2,417,202	$ 67,013	$ 6,975	$ 2,491,190
Changes of assumptions	6,801,037	188,548	19,626	7,009,211
Changes in proportion and differences between employer contributions and proportionate share of contributions	812,228	185,995	22,480	1,020,703
Total Deferred Outflows of Resources	$ 10,030,467	$ 441,556	$ 49,081	$ 10,521,104
Deferred Inflows of Resources				
Differences between expected and actual experience	$ 462,335	$ 12,818	$ 1,334	$ 476,487
Net difference between projected and actual investment earnings on pension plan investments	4,692,923	130,104	13,542	4,836,569
Changes in proportion and differences between employer contributions and proportionate share of contributions	160,551	773,094	87,058	1,020,703
Total Deferred Inflows of Resources	$ 5,315,809	$ 916,016	$ 101,934	$ 6,333,759
Pension Expense				
Proportionate share of pension expense	$ 16,675,760	$ 462,309	$ 48,121	$ 17,186,190
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	143,644	(110,204)	(33,440)	-
Total Pension Expense	$ 16,819,404	$ 352,105	$ 14,681	$ 17,186,190
Contributions				
Actuarially determined contribution	$ 13,189,700	$ 357,780	$ 37,241	$ 13,584,721
Contributions made	(13,189,700)	(357,780)	(37,241)	(13,584,721)
Contribution deficiency / (excess)	$ -	$ -	$ -	$ -
Contributions as a percentage of covered payroll	39.81%	24.22%	41.38%	39.15%
Deferred Outflows / (Inflows) Recognized in Future Pension Expense				
June 30, 2021	$ 3,253,464	$ (11,862)	$ (25,751)	$ 3,215,851
June 30, 2022	2,166,097	(73,463)	(26,598)	2,066,036
June 30, 2023	871,463	(141,248)	(687)	729,528
June 30, 2024	(1,608,355)	(230,001)	(386)	(1,838,742)
June 30, 2025	31,990	(17,886)	568	14,672
Total Deferred Outflows / (Inflows) Recognized in Future Pension Expense	$ 4,714,659	$ (474,460)	$ (52,854)	$ 4,187,345
Discount Rate Sensitivity				
1% decrease (6.00%)	$ 168,148,660	$ 4,661,650	$ 485,228	$ 173,295,538
Current discount rate (7.00%)	$ 138,711,018	$ 3,845,539	$ 400,279	$ 142,956,836
1% increase (8.00%)	$ 113,810,660	$ 3,155,217	$ 328,424	$ 117,294,301
Covered Payroll	$ 33,127,467	$ 1,477,471	$ 89,999	$ 34,694,937

See actuarial assumptions in the City of Fitchburg Contributory Retirement System's audited financial statements.

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Financial Statements, Required Supplementary Information, and Other Information

For the Year Ended December 31, 2018

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INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

We have audited the accompanying financial statements of the Fitchburg Contributory Retirement System (the System), a component unit of the City of Fitchburg, 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 Fitchburg 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

January 27, 2020

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Fitchburg 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 and liabilities and the resulting net position held in trust restricted for pension benefits. 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, 2018. It reflects contributions by members and participating employers, 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.

B. FINANCIAL HIGHLIGHTS

- The System's total net position restricted for pensions was $116,083,199 at December 31, 2018.

- The System's net position decreased by $(4,652,141), which is primarily due to investment losses during the year.
- Employer and employee contributions to the plan were $15,926,537, which represents a $778,935 increase over the prior year. The employer share of contributions represents 75.90% of the total contributions made to the System.
- Benefits paid to plan participants increased by $786,229 or 4.83%, totaling $17,059,997. At December 31, 2018, there were 587 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, 2018 actuarial valuation was 43.10%, with 14 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 (in thousands):

FIDUCIARY NET POSITION

	2018	2017
Assets		
Cash and receivables	$ 950	$ 1,160
Investments	115,145	119,575
Total Assets	116,095	120,735
Liabilities		
Accounts payable	12	-
Net Position		
Restricted for Pensions	$ 116,083	$ 120,735

The System's total assets as of December 31, 2018 were $116,095,428 and were mostly comprised of cash and investments. Total assets decreased by $(4,639,912), or 3.84%, from the prior year, primarily due to decrease in investment value.

CHANGES IN FIDUCIARY NET POSITION

	2018	2017
Additions		
Contributions	$ 16,360	$ 15,567
Investment income (loss), net	(2,877)	17,457
Total Additions	13,483	33,024
Deductions		
Benefit payments	17,060	16,274
Other	1,075	749
Total Deductions	18,135	17,023
Changes in Net Position	(4,652)	16,001
Net Position Restricted for Pensions		
Beginning of Year	120,735	104,734
End of Year	$ 116,083	$ 120,735

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 loss for calendar year 2018 resulted in total additions of $13,482,640. Employers' contributions increased by $1,000,258, or 8.70% in calendar year 2018. The System had net investment loss of $(2,876,608) versus a net investment gain of $17,456,987 in 2017, primarily due to the market performing less favorable in calendar year 2018.

The primary deductions of the System include the payment of pension benefits to participants and beneficiaries, refunds and transfers 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 2018 were $18,134,781, which represents an increase of $1,112,278, or 6.53%, over deductions of $17,022,503 in calendar year 2017. The payment of pension benefits increased by $786,229 or 4.83% over the previous year.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the Fitchburg 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:

Fitchburg Contributory Retirement System
Ms. Tina Schneider, Retirement Administrator
780 Main Street, Suite 2
Fitchburg, Massachusetts 01420

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Statement of Fiduciary Net Position

December 31, 2018

Assets		
Cash and short-term investments	$	846,132
Investments:		
External investment pool		115,145,454
Accounts receivable		103,842
Total Assets	$	116,095,428
Liabilities		
Accounts payable	$	12,229
Net Position		
Restricted for pensions		116,083,199
Total Liabilities and Net Position	$	116,095,428

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

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Statement of Changes in Fiduciary Net Position

For the Year Ended December 31, 2018

Additions		
Contributions:		
Employers	$	12,497,446
Plan members		3,429,091
Other systems and Commonwealth of Massachusetts		401,411
Other		31,300
Total Contributions		16,359,248
Investment (loss):		
Appreciation (depreciation) in fair value of investments		(2,248,377)
Less: management fees		(628,231)
Net Investment (Loss)		(2,876,608)
Total Additions		13,482,640
Deductions		
Benefit payments to plan members and beneficiaries		17,059,997
Refunds to plan members		429,801
Transfers to other systems		413,908
Administrative expenses		231,075
Total Deductions		18,134,781
Net (Decrease)		(4,652,141)
Net Position Restricted for Pensions		
Beginning of Year		120,735,340
End of Year	$	116,083,199

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

1. Description of Plan

Substantially all employees of the City of Fitchburg (except teachers and administrators under contract employed by the School Department), Fitchburg Housing Authority, and Fitchburg Redevelopment Authority are members of the Fitchburg 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 Fitchburg Contributory Retirement Board does not have the authority to amend benefit provisions.

Membership of the plan consisted of the following at the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	587
Inactive members entitled to a return of employee contributions	155
Active plan members	665
Total	1,407
Number of participating employers	3

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

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 City 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, 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%.

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 City, the System is included as a pension trust fund in the City's basic financial statements. The System is governed by a five-member board. The five members include two appointed by the City, 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 City of Fitchburg, Fitchburg Housing Authority and Fitchburg Redevelopment 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 (2.50%). 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 a deposit policy for custodial credit risk.

As of December 31, 2018, none of the System's bank balances of $941,644 were exposed to custodial credit risk as uninsured or uncollateralized, and collateral held by pledging bank's trust department not in the System's name.

4. Investments

All of the System's investments totaling $115,145,454 are in an external State investment pool (PRIT).*

** 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.*

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.

Due to their nature, none of the System's investments are subject to credit risk disclosure.

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 a formal policy for custodial credit risk but manages custodial risk through diversification and the "prudent person" principles outlines in PERAC guidelines.

The System's investments of $115,145,454 are held in the State investment pool which are exempt from the custodial risk disclosure.

Investments in the State 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 State investment pool (PRIT).

As of December 31, 2018, the System did not have any investments subject to concentration of credit risk disclosure as all of the investments are in the State investment pool, which are excluded from concentration of credit 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 a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Information about the sensitivity of the fair values of the System's investments to market interest rate fluctuations is not applicable as all of the System's investments are immediately liquid.

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 a formal investment policy 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
Investments measured at the net asset value (NAV):	
External investment pool	$ 115,145,454
Total	$ 115,145,454

Description	Amount	Unfunded Commitments	Redemption Frequency (If currently eligible)	Redemption Notice Period
External investment pool	$ 115,145,454	$ -	Monthly	30 Days

5. Accounts Receivable

Annually the Public Employee Retirement Administration (PERAC) determines the amount of employer contributions (pension appropriations) to be made to the System. The accounts receivable balance primarily represents legal amounts due from employers for pension appropriation not received until after 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, 2018, rolled forward to December 2018.

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	$ 269,341,216
Plan fiduciary net position	(116,083,199)
Employers' net pension liability	$ 153,258,017
Plan fiduciary net position as a percentage of total pension liability	43.10%

B. *Actuarial Assumptions*

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

Valuation date	1/1/2018
Actuarial cost method	Entry Age Normal Cost Method
Remaining amortization period	14 years
Actuarial assumptions:	
Investment rate of return	7.25%
Projected salary increases	4.00%
Inflation rate	2.25%
Post-retirement cost-of-living adjustment	3% on first $12,000

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: Rates reflect the RP-2014 employees table projected generationally using MP-2016 and a base year of 2006 (gender distinct). Post-retirement rates reflected the healthy annuitant table.

Mortality for disabled members: Rates reflect the RP-2014 healthy annuitant table with a base year of 2006, set forward by 2 years (gender distinct).

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 geometric 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
U.S. equity	13.00%	5.25%
International equities	13.00%	5.43%
Emerging equities	5.00%	6.90%
Hedged equity	8.00%	4.54%
Core bonds	6.00%	2.07%
Short-Term fixed income	2.00%	1.72%
20+ yr. Treasury STRIPS	3.00%	1.22%
TIPS	4.00%	1.71%
Value-added fixed income	8.00%	5.21%
Private equity	13.00%	8.70%
Real estate	10.00%	4.09%
Timberland	4.00%	4.65%
Portfolio completion (PBC)	11.00%	4.41%
Total	100.00%	

D. *Discount Rate*

The discount rate used to measure the total pension liability was 7.25%. 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 7.25%, as well as what the participating employers' net pension liability would be if it were calculated using a discount rate that is 1 percentage-point lower or 1 percentage-point higher than the current rate:

1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
$182,639,431	$153,258,017	$128,366,870

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	$ 4,047,925	$ -
Changes of assumptions	8,970,293	-
Net difference between projected and actual earnings on pension plan investments	5,043,967	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	427,538	(427,538)
Total	$ 18,489,723	$ (427,538)

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

	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						
Difference between expected and actual experience:	2017	5.1	$ 1,066,594	$ -	$ (260,145)	$ 806,449
	2016	5.5	4,538,066	-	(1,296,590)	3,241,476
Changes of assumptions:	2017	5.1	9,377,894	-	(2,287,291)	7,090,603
	2016	5.5	2,631,567	-	(751,877)	1,879,690
Net difference between projected and actual earnings on pension plan investments:	2018	5.0	-	11,567,630	(2,313,526)	9,254,104
	2017	5.0	(7,921,668)	-	1,980,417	(5,941,251)
	2016	5.0	376,743	-	(125,581)	251,162
	2015	5.0	2,959,903	-	(1,479,951)	1,479,952
	2014	5.0	88,191	-	(88,191)	-
Change in proportion and difference between employer contributions and proportionate share of contributions:	2018	5.1	-	111,046	(17,772)	93,274
	2017	5.1	150,939	-	(37,091)	113,848
	2016	5.5	269,923	-	(77,121)	192,802
	2015	5.4	47,339	-	(19,725)	27,614
Total Deferred Outflows of Resources			13,585,491	11,678,676	(6,774,444)	18,489,723
Deferred (Inflows) of Resources						
Change in proportion and difference between employer contributions and proportionate share of contributions:	2018	5.1	-	(111,046)	17,772	(93,274)
	2017	5.1	(150,939)	-	37,091	(113,848)
	2016	5.5	(269,923)	-	77,121	(192,802)
	2015	5.4	(47,339)	-	19,725	(27,614)
Total Deferred (Inflows) of Resources			(468,201)	(111,046)	151,709	(427,538)
Total Collective Deferred Outflows/(Inflows) of Resources			$ 13,117,290	$ 11,567,630	$ (6,622,735)	$ 18,062,185

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

Fiscal Year*		Total
2020	$	6,534,544
2021		5,054,593
2022		3,904,778
2023		2,568,270
	$	18,062,185

* *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.*

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Required Supplementary Information

Schedule of Changes in the Net Pension Liability

For the Year Ended December 31,

(Unaudited)

(Amounts expressed in thousands)

	2018	2017	2016	2015	2014
Total Pension Liability					
Service cost	$ 4,611	$ 4,433	$ 3,995	$ 3,677	$ 3,527
Interest on unfunded liability - time value of money	18,795	17,462	17,294	17,215	16,740
Differences between expected and actual experience	-	1,327	7,131	-	-
Changes of assumptions	-	11,665	4,135	-	-
Benefit payments, including refunds of member contributions	(17,384)	(15,965)	(14,609)	(14,609)	(14,282)
Net Change in Total Pension Liability	6,022	18,922	17,946	6,283	5,985
Total Pension Liability - Beginning	263,319	244,397	226,451	220,168	214,183
Total Pension Liability - Ending (a)	$ 269,341	$ 263,319	$ 244,397	$ 226,451	$ 220,168
Plan Fiduciary Net Position					
Contributions - employer	$ 12,524	$ 11,522	$ 10,604	$ 10,003	$ 9,503
Contributions - member	3,318	3,229	2,974	2,949	3,201
Net investment income	(2,879)	17,443	6,994	500	7,042
Benefit payments, including refunds of member contributions	(17,384)	(15,964)	(14,609)	(14,609)	(14,282)
Administrative expense	(231)	(229)	(186)	(169)	(181)
Net Change in Plan Fiduciary Net Position	(4,652)	16,001	5,777	(1,326)	5,283
Plan Fiduciary Net Position - Beginning	120,735	104,734	98,957	100,283	95,000
Plan Fiduciary Net Position - Ending (b)	$ 116,083	$ 120,735	$ 104,734	$ 98,957	$ 100,283
Net Pension Liability (Asset) - Ending (a-b)	$ 153,258	$ 142,584	$ 139,663	$ 127,494	$ 119,885

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

See Independent Auditors' Report.

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FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Required Supplementary Information

Schedules of Net Pension Liability, Contributions, and Investment Returns

For the Year Ended December 31,

(Unaudited)

(Amounts expressed in thousands)

Schedule of Net Pension Liability	2018	2017	2016	2015
Total pension liability	$ 269,341	$ 263,319	$ 244,397	$ 226,451
Plan fiduciary net position	(116,083)	(120,735)	(104,734)	(98,957)
Net pension liability (asset)	$ 153,258	$ 142,584	$ 139,663	$ 127,494
Plan fiduciary net position as a percentage of the total pension liability	43.10%	45.85%	42.85%	43.70%
Covered payroll	$ 33,886	$ 32,583	$ 31,903	$ 30,071
Participating employer net pension liability (asset) as a percentage of covered payroll	452.28%	437.60%	437.77%	423.98%
Schedule of Contributions	2018	2017	2016	2015
Actuarially determined contribution	$ 12,497	$ 11,497	$ 10,577	$ 9,978
Contributions in relation to the actuarially determined contribution	(12,524)	(11,522)	(10,604)	(10,003)
Contribution deficiency (excess)	$ (27)	$ (25)	$ (27)	$ (25)
Covered payroll	$ 34,564	$ 33,235	$ 32,541	$ 30,710
Contributions as a percentage of covered payroll	36.23%	34.67%	32.59%	32.57%
Schedule of Investment Returns				
Year Ended December 31	2018	2017	2016	2015
Annual money weighted rate of return, net of investment expense	(2.50%)	16.82%	6.89%	0.57%

Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.
See Independent Auditors' Report.

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INDEPENDENT AUDITORS' REPORT

To the Retirement Board
Fitchburg Contributory Retirement System
City of Fitchburg, Massachusetts

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Fitchburg 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 Fitchburg 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 Fitchburg 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 Fitchburg 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

January 27, 2020

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Schedule of Employer Allocations

Employer	FY 2019 Actual Employer Contributions	Allocation Percentage
City of Fitchburg	$ 11,768,539	96.36%
Fitchburg Housing Authority	412,803	3.38%
Fitchburg Redevelopment Authority	31,754	0.26%
Subtotal excluding ERI	12,213,096	100.00%
City of Fitchburg- ERI	284,348	
Total	$ 12,497,444	

See actuarial assumptions in the City of Fitchburg Contributory Retirement System audited financial statements.

FITCHBURG CONTRIBUTORY RETIREMENT SYSTEM

(A Component Unit of the City of Fitchburg, Massachusetts)

Schedule of Pension Amounts by Employer

As of and for the Year Ended December 31, 2018

	City of Fitchburg	Fitchburg Housing Authority	Fitchburg Redevelopment Authority	Total
Net Pension Liability	$ 147,689,419	$ 5,170,841	$ 397,757	$ 153,258,017
Deferred Outflows of Resources				
Differences between expected and actual experience	$ 3,900,844	$ 136,575	$ 10,506	$ 4,047,925
Changes of assumptions	8,644,359	302,653	23,281	8,970,293
Net difference between projected and actual investment earnings on pension plan investments	4,860,695	170,181	13,091	5,043,967
Changes in proportion and differences between employer contributions and proportionate share of contributions	138,671	285,798	3,069	427,538
Total Deferred Outflows of Resources	$ 17,544,569	$ 895,207	$ 49,947	$ 18,489,723
Deferred Inflows of Resources				
Changes in proportion and differences between employer contributions and proportionate share of contributions	$ 248,791	$ 50,787	$ 127,960	$ 427,538
Total Deferred Inflows of Resources	$ 248,791	$ 50,787	$ 127,960	$ 427,538
Pension Expense				
Proportionate share of pension expense	$ 17,589,487	$ 615,836	$ 47,372	$ 18,252,695
Net amortization of deferred amounts from changes in proportion and differences between employer contributions and proportionate share of contributions	(33,894)	72,603	(38,709)	-
Total Pension Expense	$ 17,555,593	$ 688,439	$ 8,663	$ 18,252,695
Contributions				
Actuarially determined contribution	$ 12,052,887	$ 412,803	$ 31,754	$ 12,497,444
Contributions made	(12,078,232)	(413,692)	(31,822)	(12,523,746)
Contribution deficiency / (excess)	$ (25,345)	$ (889)	$ (68)	$ (26,302)
Contributions as a percentage of covered payroll	36.96%	37.21%	31.98%	36.96%
Deferred Outflows / (Inflows) Recognized in Future Pension Expense				
June 30, 2020	$ 6,263,219	$ 293,075	$ (21,750)	$ 6,534,544
June 30, 2021	4,826,522	254,977	(26,906)	5,054,593
June 30, 2022	3,746,784	185,513	(27,519)	3,904,778
June 30, 2023	2,461,016	108,587	(1,333)	2,568,270
June 30, 2024	(1,762)	2,268	(506)	-
Total Deferred Outflows / (Inflows) Recognized in Future Pension Expense	$ 17,295,779	$ 844,420	$ (78,014)	$ 18,062,185
Discount Rate Sensitivity				
1% decrease (6.25%)	$ 176,001,350	$ 6,163,932	$ 474,149	$ 182,639,431
Current discount rate (7.25%)	$ 147,689,419	$ 5,170,841	$ 397,757	$ 153,258,017
1% increase (8.25%)	$ 123,704,310	$ 4,329,520	$ 333,040	$ 128,366,870
Covered Payroll	$ 32,675,128	$ 1,111,831	$ 99,512	$ 33,886,471

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

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