

**MASSACHUSETTS HOUSING FINANCE AGENCY
EMPLOYEES' RETIREMENT SYSTEM**

**FINANCIAL STATEMENTS AND
REQUIRED SUPPLEMENTARY INFORMATION**

YEAR ENDED DECEMBER 31, 2017

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
TABLE OF CONTENTS
YEAR ENDED DECEMBER 31, 2017**

INDEPENDENT AUDITORS' REPORT	1
MANAGEMENT'S DISCUSSION AND ANALYSIS	3
FINANCIAL STATEMENTS	
STATEMENT OF FIDUCIARY NET POSITION	7
STATEMENT OF CHANGES IN FIDUCIARY NET POSITION	8
NOTES TO FINANCIAL STATEMENTS	9
REQUIRED SUPPLEMENTARY INFORMATION	
SCHEDULE OF CHANGES IN EMPLOYER NET PENSION LIABILITY AND RELATED RATIOS	20
SCHEDULE OF EMPLOYER CONTRIBUTIONS	21
SCHEDULE OF INVESTMENT RETURNS	21
NOTES TO REQUIRED SUPPLEMENTARY INFORMATION	22

INDEPENDENT AUDITORS' REPORT

Honorable Retirement Board
Massachusetts Housing Finance Agency Employees' Retirement System
Boston, Massachusetts

Report on the Financial Statements

We have audited the accompanying financial statements of the Massachusetts Housing Finance Agency Employees' Retirement System (the System), as of and for the year ended December 31, 2017, and the related notes to the financial statements, as listed in the table of contents.

Management's Responsibility for the Financial Statements

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

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 and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

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

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the net position of the System as of December 31, 2017, and the respective change in net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

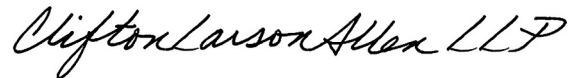
Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis (located on pages 3 through 6), schedule of changes in employer net pension liability and related ratios, schedule of employer contributions and schedule of investment returns (located on pages 20 and 21) be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated August 28, 2018 on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.



CliftonLarsonAllen LLP

Boston, Massachusetts
August 28, 2018

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED DECEMBER 31, 2017**

As management of the Massachusetts Housing Finance Agency Employees' Retirement System (System), we offer readers of these financial statements this narrative overview and analysis of the System's financial activities for the year ended December 31, 2017.

The management's discussion and analysis (MD&A) is presented in the following sections:

1. Financial Highlights
2. Overview of the Financial Statements
3. Financial Statement Analysis

Please refer to the audited *Financial Statements* when reading the MD&A.

Financial Highlights

The System's funding objective is to meet long-term benefit obligations through contributions and investment income. As of January 1, 2017, the latest actuarial valuation, the funded ratio was 77.0% based on the actuarial value of assets at that date. As of December 31, 2017, the plan fiduciary net position was 86.7% of the total pension liability.

The System's net position increased by \$20,883,822, or 16.27%, when compared to the prior year's net position. Net position is the residual of the System's assets in excess of the System's liabilities as of the statement date. The System's assets are restricted to meet future benefit payments.

Overview of the Financial Statements

The financial statements are comprised of a Statement of Fiduciary Net Position, Statement of Changes in Fiduciary Net Position, Notes to Financial Statements and Required Supplementary Information.

The **statement of fiduciary net position** presents information on the System's assets and liabilities and the resulting net position restricted for pensions. This is calculated using the following formula: Assets – Liabilities = Net Position restricted for pensions. This statement reflects the System's investments at fair value, as well as cash, receivables and other assets and liabilities. The Statement of Fiduciary Net Position reports the financial position of the System at December 31, 2017. Over time, the increase or decrease in net position serves as a useful indicator of the System's financial health.

The **statement of changes in fiduciary net position** presents information showing how the System's net position changed during the year ended December 31, 2017. It reflects contributions by its individual members and participating employer along with deductions for retirement benefits, refunds, withdrawals, and administrative expenses. Investment income during the period is also presented showing income from investing activities.

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 a schedule of changes in employer net pension liability and related ratios, a schedule of employer contributions and a schedule of investment returns.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED DECEMBER 31, 2017**

Financial Statement Analysis

The System's total assets as of December 31, 2017 were \$149,488,283 and were comprised of cash and cash equivalents, investments, accrued interest and dividends, and receivables.

Total liabilities as of December 31, 2017 were \$207,882 and represent amounts owed for accounts payable and to MassHousing for reimbursement of the System's payroll, payroll related costs, rent and other operating costs for the period July 1, 2017 through December 31, 2017.

The following tables present current and prior year data on the System's financial statements.

Fiduciary Net Position

As noted earlier, net position may serve over time as a useful indicator of a government's financial position. The System's net position was \$149,280,401 at the close of the year and is summarized as follows:

	<u>2017</u>	<u>2016</u>
Assets		
Cash and cash equivalents	\$ 5,334,533	\$ 607,019
Investments	143,904,896	127,684,545
Other assets	<u>248,854</u>	<u>307,748</u>
Total assets	<u>149,488,283</u>	<u>128,599,312</u>
Liabilities		
Accounts payable and payable for securities purchased	64,667	61,053
Due to MassHousing	<u>143,215</u>	<u>141,680</u>
Total liabilities	<u>207,882</u>	<u>202,733</u>
Net Position		
Restricted for pensions	<u>\$ 149,280,401</u>	<u>\$ 128,396,579</u>

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED DECEMBER 31, 2017**

Changes in Fiduciary Net Position

For the year ended December 31, 2017, the System's total fiduciary net position increased by \$20,883,822. In the prior year, fiduciary net position increased by \$14,115,336. These amounts are summarized as follows:

	<u>2017</u>	<u>2016</u>
Additions		
<i>Contributions:</i>		
Employer	\$ 6,490,693	\$ 6,092,564
Plan members	3,477,064	3,273,801
Reimbursements and transfers from other systems	679,639	447,475
<i>Net investment income:</i>		
Net realized and unrealized gains/(losses)	17,324,225	10,588,302
Interest and dividends	1,754,545	1,525,517
Less investment expense	<u>(941,612)</u>	<u>(1,029,334)</u>
Total additions	<u>28,784,554</u>	<u>20,898,325</u>
Deductions		
Retirement benefits and refunds	7,085,018	5,993,731
Reimbursements and transfers to other systems	440,388	411,820
Administration	<u>375,326</u>	<u>377,438</u>
Total deductions	<u>7,900,732</u>	<u>6,782,989</u>
Change in plan net position	20,883,822	14,115,336
Plan net position - beginning of year	<u>128,396,579</u>	<u>114,281,243</u>
Plan net position - end of year	<u>\$ 149,280,401</u>	<u>\$ 128,396,579</u>

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
MANAGEMENT'S DISCUSSION AND ANALYSIS
YEAR ENDED DECEMBER 31, 2017**

Additions to Fiduciary Net Position

The amount needed to finance benefits is accumulated through the collection of employer and employee contributions, earnings on investments and reimbursements and transfers from other systems. These additions resulted in an increase to net position totaling \$28,784,554. Employer contributions and plan member contributions increased by approximately \$398,000 and \$203,000, respectively, in 2018 while reimbursements and transfers from other systems increased by approximately \$232,000 when compared to the prior year. The employer contribution increased as a result of the annual actuarially determined contribution to meet the System's funding schedule. The System had net investment income of approximately \$18,137,000 in 2018 due to market conditions; compared to approximately \$11,084,000 in 2017.

Deductions from Fiduciary Net Position

The primary deductions of the System include the payment of pension benefits to participants and beneficiaries, refunds of contributions, and the costs of administering the System. Total deductions to net position totaled \$7,900,732 during the current year versus \$6,782,989 in the previous year. The payment of pension benefits increased by \$1,091,287 or 18.2%, over the previous year. The increase in these expenses resulted from an increase in benefit payments to newer retirees with higher average compensation.

Requests for Information

This financial report is designed to provide the Board, our membership, taxpayers, investors, and creditors with a general overview of the System's financial results and to demonstrate the System's accountability for the funding it receives. If you have any questions about this report or need additional financial information, contact the Executive Secretary at One Beacon Street, 6th floor, Boston, Massachusetts 02108.

MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
STATEMENT OF FIDUCIARY NET POSITION
DECEMBER 31, 2017

Assets

Cash and Cash Equivalents	\$ 5,334,533
Investments:	
Fixed Income	19,894,343
Pooled Equities	78,811,871
Pooled Fixed Income	17,111,273
Real Estate	15,099,204
Private Equity	12,988,205
Total Investments	143,904,896
Accrued Interest and Dividends	127,577
Receivables:	
Members Make Up and Redeposits	48,682
Securities Sold	72,595
Total Assets	149,488,283

Liabilities

Accounts Payable	64,667
Due to MassHousing	143,215
Total Liabilities	207,882

Fiduciary Net Position

Restricted for Pensions	\$ 149,280,401
-------------------------	----------------

See accompanying Notes to Financial Statements.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
YEAR ENDED DECEMBER 31, 2017**

Additions:

Contributions	
Employer	\$ 6,490,693
Plan members	3,477,064
Reimbursements and transfers from other systems	<u>679,639</u>
Total contributions	10,647,396
Investment income	
Net appreciation in fair value of investments	17,324,225
Interest	1,754,545
Less: investment fees	<u>(941,612)</u>
Net investment income	<u>18,137,158</u>
Total additions	28,784,554

Deductions:

Retirement benefits and refunds	7,085,018
Reimbursements and transfers to other systems	440,388
Administration	<u>375,326</u>
Total deductions	<u>7,900,732</u>
Change in plan net position	20,883,822

Plan net position restricted for pensions:

Beginning of year	<u>128,396,579</u>
End of year	<u><u>\$ 149,280,401</u></u>

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

General

The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The Governmental Accounting Standards Board (GASB) is the standard-setting body for establishing governmental accounting and financial reporting principles. The significant accounting policies are described herein.

Reporting Entity

The Massachusetts Housing Finance Agency Employees' Retirement System (System) was established to provide retirement benefits to MassHousing employees and their beneficiaries. The System is governed by a five-member board comprised of MassHousing's Treasurer (ex-officio), two members elected by the System's participants, one member appointed by MassHousing's Board and one member appointed by the System's Board members.

Measurement Focus and Basis of Accounting

The System's financial statements are presented using the flow of economic resources measurement focus and use the accrual basis of accounting.

Cash and Investments

Cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with an original maturity of three months or less from the date of acquisition.

Investments are reported at fair value. Fair value is based on quotations from a national securities exchange except for pooled funds, private equity and real estate investments, for which fair values are estimated as detailed below.

Pooled Funds

The fair value of shares in managed investment pools is based on unit value reported by the funds.

Private Equity and Real Estate

The fair values of these types of investments have been determined by the third party investment managers using the Net Asset Value (NAV) per share (or its equivalent) on the System's ownership interest in partner's capital.

Basis of Investment Transactions

Purchases and sales of investments are recorded on the trade date. Transactions remaining unsettled as of year-end are recorded as payables for securities purchased and as a receivable for securities sold.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Due to MassHousing

MassHousing pays the System's employees' weekly payroll. In addition, MassHousing charges the System for payroll related benefits, rent and other operating expenses. At December 31, 2017, \$143,215 is owed to MassHousing for these costs.

Revenue Recognition

Contributions are recognized as additions in the period when they become due pursuant to formal commitments, statutory or contractual requirements. Investment income is recognized when earned.

Benefits and Refunds

Benefits and refunds are recognized as deductions when incurred.

Administrative Expenses

Administrative expenses are financed by investment income.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions during the reporting period. Fair values of real estate funds and private equity investments have been estimated in the absence of readily available market values, and these estimates may be materially different than values that would have been used had a ready market existed.

NOTE 2 PLAN DESCRIPTION

General

The System is a single employer public employee retirement system established by MassHousing on June 12, 1974, under Massachusetts General Laws (MGL), Chapter 32, and is regulated by the Massachusetts Public Employee Retirement Administration Commission (PERAC). The System is a defined benefit pension plan that covers eligible employees of MassHousing.

Membership in the System is mandatory immediately upon the commencement of employment for all permanent full-time employees working at least 18 ¾ hours weekly. The System has one classification of members (general).

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
 NOTES TO FINANCIAL STATEMENTS
 YEAR ENDED DECEMBER 31, 2017**

NOTE 2 PLAN DESCRIPTION (CONTINUED)

Membership in the System was as follows at December 31, 2017:

Active Members	346
Inactive Members	50
Retirees and Beneficiaries Currently Receiving Benefits	153
Total	549

Significant Plan Provisions and Requirements

Pursuant to MGL, Chapter 32, the System provides retirement, disability, and death benefits to plan members and their beneficiaries up to a maximum of 80% of a member's final three-year or five-year average salary. In addition to compensation, benefits are based upon a member's age and length of creditable service.

Members of the System become vested after 10 years of creditable service. Normal retirement occurs at age 65 or age 67 (if hired on or after April 2, 2012).

For employees hired prior to April 2, 2012, the annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by (1) the number of years and full months of creditable service at the time of retirement and (2) a percentage based on age at retirement in accordance with a schedule provided by state law. Assuming normal retirement at age 65, this percentage is 2.5%, which is reduced for individuals who retire prior to age 65 to reflect the longer pay out period. A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement.

For employees hired on or after April 2, 2012, the annual amount of the retirement allowance is based on the member's final five-year average salary multiplied by (1) the number of years and full months of creditable service at the time of retirement and (2) a percentage based on age at retirement in accordance with a schedule provided by state law. Assuming normal retirement at age 67, this percentage is 2.5%. A member's final five-year average salary is defined as the greater of the highest consecutive five-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last five years of creditable service prior to retirement.

Employees may elect early retirement after 20 years of service or at any time after attaining age 55 or age 60 with 10 years of eligible service. Plan members who become permanently and totally disabled may be eligible to receive a disability retirement allowance. The amount of benefits to be received depends on several factors, including the member's age, compensation, veteran status, years of service and whether or not the disability is work-related. In addition, certain death benefits exist for beneficiaries of employees who die in active service.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 2 PLAN DESCRIPTION (CONTINUED)

Pursuant to MGL, Chapter 32, Section 3(8)(c), for members leaving the System's employment to work for other Massachusetts governmental units, the System transfers their accumulated account balances and creditable service to the retirement system of their new employer. Other such retirement systems are in turn required to make comparable transfers to the System for employees coming to work for a participating employer. Liability for the service transfer is not calculated until the member's actual retirement date. Per statute, the actuary considers length of service as well as acceptance of military service credit and salary cap provisions (if applicable) in calculating the liability.

NOTE 3 DEPOSITS AND INVESTMENTS

Deposits and investments made by the System are governed by Chapter 32 of the MGL. The System has the ability to invest in equity securities, corporate bonds, real estate and other specified investments in accordance with state laws and regulations.

The Board has the authority for establishing and amending investment policy decisions. Based on the investment objectives and constraints of the System, and based on an annual review of the asset allocation and asset classes, the Board will specify a long-term target allocation for each class of permissible assets. These targets will be expressed as a percentage of the total portfolio, and will have ranges surrounding them, allowing for the portfolio to maintain policy through market fluctuations.

The long-term target allocations are intended as strategic goals. Thus, it is permissible for the overall System's asset allocation to deviate from the long-term target, as would likely occur during manager transitions, asset class restructurings, and other temporary changes in the System. Surplus cash flows are utilized to maintain the asset management structure. Should these cash flows not be sufficient to reallocate the plan according to policy, the transfer of assets may occur between managers. At least annually, the Board reevaluates the portfolio weightings by asset class and adjustments are made accordingly. The following identifies the asset allocation policy as of December 31, 2017:

Asset Class	Target	Range
Pooled Domestic Equity	25%	20-30%
Public Foreign Equity (Large Dev.)	7%	6-14%
Public Foreign Equity (Small Dev.)	3%	6-14%
Public Emerging Market Equity	10%	6-14%
Investment Grade Bonds	10%	6-14%
High Yield Bonds	6%	3-9%
TIPS	6%	4-8%
Emerging Market Debt	5%	3-7%
Real Estate	10%	7-13%
Private Equity	10%	6-14%
Natural Resources and Commodities	3%	1-5%
Core Infrastructure	5%	0-8%

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 3 DEPOSITS AND INVESTMENTS (CONTINUED)

Rate of Return

For the year ended December 31, 2017, the annual money-weighted rate of return on investments, net of investment expense, was 18.16%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Deposits - Custodial Credit Risk

Custodial credit risk for deposits is the risk that, in the event of a bank failure, the System's deposits may not be recovered. The System's policy for custodial credit risk of deposits is to rely on FDIC insurance coverage. As of December 31, 2017, the System was not exposed to custodial credit risk. The carrying value of the System's deposits at December 31, 2017 totaled \$202,696.

Investments Summary

The System's investments at December 31, 2017 are presented below. All investments are presented by investment type, with debt securities presented by maturity (using segmented-time distribution).

Investment Type	Total Amount	Investment Maturities (in Years)			
		Less Than 1	1 - 5	6 - 10	More Than 10
<u>Debt Securities:</u>					
U.S. Treasuries	\$ 3,881,883	\$ 117,734	\$ 898,365	\$ 705,769	\$ 2,160,015
U.S. Agencies	7,257,059	507,341	906,824	586,788	5,256,106
Corporate Bonds	8,755,401	773,640	2,727,532	3,678,594	1,575,635
Money Market Mutual Funds	5,207,883	5,207,883	-	-	-
Pooled Fixed Income	17,111,273	17,111,273	-	-	-
Total Debt Securities	<u>42,213,499</u>	<u>\$ 23,717,871</u>	<u>\$ 4,532,721</u>	<u>\$ 4,971,151</u>	<u>\$ 8,991,756</u>
<u>Other Investments:</u>					
Pooled Equities	78,811,871				
Real Estate	15,099,204				
Private Equity	12,988,205				
Total Other Investments	<u>106,899,280</u>				
Total Investments	<u>\$ 149,112,779</u>				

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 3 DEPOSITS AND INVESTMENTS (CONTINUED)

Investments – Interest Rate Risk of Debt Securities

Interest rate risk for debt securities is the risk that changes in interest rates of debt securities will adversely affect the fair value of an investment. The System's policy for interest rate risk of debt securities is to use diversification to minimize the exposure to interest rate risks in the aggregate investment portfolio.

Investments – Custodial Credit Risk

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty, the System will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. The System does not have a policy for custodial credit risk of investments. As of December 31, 2017, the System was not exposed to custodial credit risk.

Investments – Credit Risk of Debt Securities

Credit risk for debt securities is the risk that an issuer or other counterparty to a debt security will not fulfill its obligations. The System's policy for credit risk of debt securities is to use diversification to minimize the exposure to credit risks in the aggregate investment portfolio. As of December 31, 2017, the credit quality ratings of the System's debt securities are as follows:

Quality Ratings*	Total Amount	Investment Type			
		U.S. Agencies	Corporate Bonds	Money Market Mutual Funds	Pooled Fixed Income
AAA	\$ 1,605,810	\$ 583,884	\$ 1,021,926	\$ -	\$ -
AA+	1,820,767	1,736,247	84,520	-	-
AA	150,708	-	150,708	-	-
AA-	871,132	109,171	761,961	-	-
A+	462,177	137,146	325,031	-	-
A	1,169,201	135,259	1,033,942	-	-
A-	1,433,287	-	1,433,287	-	-
BBB+	1,704,774	-	1,704,774	-	-
BBB	918,779	189,428	729,351	-	-
Unrated	27,702,876	4,365,924	1,017,796	5,207,883	17,111,273
Total	<u>\$ 38,331,616</u>	<u>\$ 7,257,059</u>	<u>\$ 8,755,401</u>	<u>\$ 5,207,883</u>	<u>\$ 17,111,273</u>

* Per the rating scale of Standard and Poor's (a nationally recognized statistical rating organization).

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 3 DEPOSITS AND INVESTMENTS (CONTINUED)

Deposits and Investments – Foreign Currency Risk

Foreign currency risk is the risk that fluctuations in exchange rates will adversely affect the fair value of an investment or a deposit. The System's policy for foreign currency risk is to diversify the foreign countries and currencies within its international investment portfolio. As of December 31, 2017, the System had indirect exposure to foreign currency risk for certain equity investments in the amount of approximately \$33,016,000.

Investments – Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. The System's policy for concentration of credit risk is to use extensive diversification to minimize exposure to company and industry specific risks in the aggregate investment portfolio. As of December 31, 2017, the System was not exposed to concentration of credit risk.

Investments – Fair Value

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. The System has the following recurring fair value measurements as of December 31, 2017:

Investment Type	Total Amount	Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<u>Debt Securities</u>				
U.S. Treasuries	\$ 3,881,883	\$ 3,881,883	\$ -	\$ -
U.S. Agencies	7,257,059	7,257,059	-	-
Corporate Bonds	8,755,401	-	8,755,401	-
Money Market Mutual Funds	5,207,883	5,207,883	-	-
Pooled Fixed Income Securities	17,111,273	-	17,111,273	-
<u>Equity Securities</u>				
Equity Mutual Funds	78,811,871	-	78,811,871	-
Total Investments measured at Fair Value	121,025,370	\$ 16,346,825	\$ 104,678,545	\$ -
<u>Investments measured at the Net Asset Value (NAV)</u>				
Private Equity	12,988,205			
Real Estate	15,099,204			
Total investments measured at NAV	28,087,409			
Total Investments measured at Fair Value	\$ 149,112,779			

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 3 DEPOSITS AND INVESTMENTS (CONTINUED)

The valuation methods for investments measured at the net asset value (NAV) per share or its equivalent are presented on the following table:

	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Private Equity (1)	\$ 12,988,205	14,670,721	N/A ⁽¹⁾	N/A ⁽¹⁾
Real Estate (2)	15,099,204	164,773	N/A ⁽²⁾	N/A ⁽²⁾
Total Investments measured at NAV	<u>\$ 28,087,409</u>			

(1) *Private equity* - This investment type includes investments in 14 private equity funds that invest primarily in private domestic and international companies of diversified industries. The fair value measurements of this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. Approximately 35 percent of the funds can be redeemed quarterly. The remaining 65 percent of the investments can never be redeemed from the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. For the investments in funds that cannot be redeemed, it is expected approximately 10 percent of the underlying assets of the funds will be liquidated over the next 1 to 5 years, with the remaining investments over the next 6 to 10 years.

(2) *Real estate* - This investment type includes investments in 5 funds that invest in real estate. The fair value measurements of this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. Approximately 71 percent of the funds can be redeemed quarterly. The remaining 29 percent of the investments can never be redeemed from the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. For the investments in funds that cannot be redeemed, it is expected that less than one percent of underlying assets of the funds will be liquidated over the next 1 to 5 years, with the remaining investments being liquidated over the next 6 to 10 years.

NOTE 4 FUNDING POLICY

Plan members are required to contribute to the System at rates ranging from 5% to 9% of annual compensation, depending on their employment date. Members hired after December 31, 1978 must contribute an additional 2% of regular compensation in excess of \$30,000. These deductions earn interest at a rate determined by PERAC that vest based upon years of service. MassHousing is required to pay into the System 100% of the actuarially determined contribution. For the year ended December 31, 2017, employer contributions totaled \$6,490,693 and plan member contributions totaled \$3,477,064.

Cost-of-living adjustments (COLA) must be granted by the Board and are the responsibility of the System. COLA cannot exceed 3% of the first \$13,000 in benefits, unless the System elects to increase the maximum base retirement allowance in multiples of \$1,000.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 5 NET PENSION LIABILITY

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

Total Pension Liability	\$ 172,134,417
Plan Fiduciary Net Position	<u>(149,280,401)</u>
Net Pension Liability	<u>\$ 22,854,016</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	<u>86.7%</u>

Actuarial Methods and Assumptions

The total pension liability was determined by performing update procedures to roll the liability forward from the January 1, 2017, actuarial valuation to the December 31, 2017 measurement date. The following actuarial methods and assumptions apply to all periods included in the measurement:

Methods:

Actuarial Cost Method	Entry Age Normal
Asset Valuation Method	Fair Value

Assumptions:

Inflation	3.00%
Salary Increases	5.0% grading down to 3.75% after 10 years of service
Investment Rate of Return	7.5% per year net of investment expenses
Cost of Living Adjustment	3% of the first \$13,000 of retirement income granted annually
Mortality	RP-2014 Healthy White Collar Mortability table projected generationally from the year 2006 using MP-2016 (sex-distinct). Disabled mortality is the healthy retiree table set forward 2 years. Death is assumed to be due to the same cause as the disability 40% of the time.
Retirement Rates	Ages 50-70
Overall Disability	75% ordinary disability; 25% accidental disability

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of the PERAC local experience study for the period 1995 through 2000 and was published in 2002.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 5 NET PENSION LIABILITY (CONTINUED)

The long-term expected real rate of return reflects the expected rate of return on plan assets minus the expected rate of inflation. The long-term real rate of return removes the effect of inflation on the return amounts. It is a long-term assumption and is meant to reflect a best estimate of future experience, based on the expected asset allocation. Best estimates of geometric rates of return for each major asset class included in the System's target asset allocation as of December 31, 2017 are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return (%)
Pooled Domestic Equity	4.5
Public Foreign Equity (Large Dev.)	4.3
Public Foreign Equity (Small Dev.)	3.5
Public Emerging Market Equity	6.5
Investment Grade Bonds	0.9
High Yield Bonds	2.6
TIPS	0.6
Emerging Market Debt	2.4
Real Estate	3.9
Private Equity	6.4
Natural Resources and Commodities	4.4
Core Infrastructure	3.8

Discount Rate

The discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that MassHousing's contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of MassHousing calculated using the discount rate of 7.50%, as well as what MassHousing's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.50%) or 1-percentage-point higher (8.50%) than the current rate:

	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Net Pension Liability	\$ 38,619,522	\$ 22,854,016	\$ 11,077,420

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
NOTES TO FINANCIAL STATEMENTS
YEAR ENDED DECEMBER 31, 2017**

NOTE 6 LEGALLY REQUIRED RESERVE ACCOUNTS

The balance in the System's legally required reserves as of December 31, 2017 are as follows:

Description	Amount	Purpose
Annuity Savings Fund	\$ 39,086,077	Active Members' Contribution Balance
Annuity Reserve Fund	9,400,150	Retired Members' Contribution Account
Pension Reserve Fund	11,980,682	Amounts Appropriated to Fund Future Retirement
Pension Fund	88,813,492	Remaining Net Position
Total	<u>\$ 149,280,401</u>	

All reserve accounts are funded at levels required by state law.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
REQUIRED SUPPLEMENTARY INFORMATION
YEAR ENDED DECEMBER 31, 2017**

Schedule of Changes in Employer Net Pension Liability and Related Ratios (1)

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
<u>Total Pension Liability (In Thousands)</u>				
Service Cost	\$ 3,437	\$ 3,247	\$ 3,129	\$ 2,695
Interest	11,895	11,623	10,444	9,984
Differences Between Expected and Actual Experience	(3,670)	-	(265)	-
Changes of Assumptions	8,772	-	7,362	-
Benefit Payments, Including Refunds of Member Contributions	<u>(6,920)</u>	<u>(5,958)</u>	<u>(5,161)</u>	<u>(5,134)</u>
Net Change in Total Pension Liability	13,514	8,912	15,509	7,545
Total Pension Liability - Beginning	<u>158,621</u>	<u>149,709</u>	<u>134,200</u>	<u>126,655</u>
Total Pension Liability - Ending (a)	<u>\$ 172,135</u>	<u>\$ 158,621</u>	<u>\$ 149,709</u>	<u>\$ 134,200</u>
<u>Plan Fiduciary Net Position (In Thousands)</u>				
Contributions - Employer	\$ 6,491	\$ 6,093	\$ 6,065	\$ 3,946
Contributions - Member	3,477	3,274	3,219	3,176
Net Investment Income	18,137	11,084	(3,354)	4,042
Benefit Payments, Including Refunds of Member Contributions	(7,085)	(5,994)	(5,479)	(5,351)
Reimbursements and Transfers from Other Systems, Net	239	36	319	538
Administrative Expense	<u>(375)</u>	<u>(377)</u>	<u>(364)</u>	<u>(347)</u>
Net Change in Plan Fiduciary Net Position	20,884	14,116	406	6,004
Plan Fiduciary Net Position - Beginning	<u>128,397</u>	<u>114,281</u>	<u>113,875</u>	<u>107,871</u>
Plan Fiduciary Net Position - Ending (b)	<u>\$ 149,281</u>	<u>\$ 128,397</u>	<u>\$ 114,281</u>	<u>\$ 113,875</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 22,854</u>	<u>\$ 30,224</u>	<u>\$ 35,428</u>	<u>\$ 20,325</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	86.7%	80.9%	76.3%	84.9%
Covered Payroll	\$ 33,250	\$ 33,641	\$ 32,430	\$ 28,044
Net Pension Liability as a Percentage of Covered Payroll	68.7%	89.8%	109.2%	72.5%

(1) Data is being accumulated annually to present 10 years of the reported information.

See accompanying independent auditors' report.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
REQUIRED SUPPLEMENTARY INFORMATION
YEAR ENDED DECEMBER 31, 2017**

**Schedule of Employer Contributions
(In Thousands)**

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>
Actuarially Determined Contribution	\$ 6,491	\$ 6,093	\$ 6,065	\$ 3,946	\$ 3,927
Contributions in Relation to the Actuarially Determined Contribution	<u>6,491</u>	<u>6,093</u>	<u>6,065</u>	<u>3,946</u>	<u>3,927</u>
Contribution Deficiency (Excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered Payroll	\$ 33,250	\$ 33,641	\$ 32,430	\$ 28,044	\$ 28,044
Contributions as a Percentage of Covered Payroll	19.5%	18.1%	18.7%	14.07%	14.00%
					(continued)
	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
Actuarially Determined Contribution	\$ 3,169	\$ 3,156	\$ 3,322	\$ 3,297	\$ 1,632
Contributions in Relation to the Actuarially Determined Contribution	<u>3,169</u>	<u>3,156</u>	<u>3,322</u>	<u>3,297</u>	<u>1,632</u>
Contribution Deficiency (Excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered Payroll	\$ 29,800	\$ 29,800	\$ 28,475	\$ 28,475	\$ 25,600
Contributions as a Percentage of Covered Payroll	10.63%	10.59%	11.67%	11.58%	6.38%
					(concluded)

Schedule of Investment Returns (1)

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual Money-Weighted Rate of Return, Net of Investment Expense	18.16%	9.64%	-4.04%	3.48%

(1) Data is being accumulated annually to present 10 years of the reported information.

See accompanying independent auditors' report.

**MASSACHUSETTS HOUSING FINANCE AGENCY EMPLOYEES' RETIREMENT SYSTEM
 NOTES TO REQUIRED SUPPLEMENTARY INFORMATION
 YEAR ENDED DECEMBER 31, 2017**

NOTE 1 ACTUARIALLY DETERMINED CONTRIBUTION – METHODS AND ASSUMPTIONS

The following actuarial methods and assumptions apply to the 2017 actuarially determined contributions:

Methods:

Actuarial Cost Method	Entry Age Normal
Asset Valuation Method	Fair Value

Assumptions:

Inflation	3.00%
Salary Increases	5.0% grading down to 3.75% after 10 years of service
Investment Rate of Return	7.5% per year net of investment expenses
Cost of Living Adjustment	3% of the first \$13,000 of retirement income granted annually
Mortality	RP-2014 Healthy White Collar Mortability table projected generationally from the year 2006 using MP-2016 (sex-distinct). Disabled mortality is the healthy retiree table set forward 2 years. Death is assumed to be due to the same cause as the disability 40% of the time.
Retirement Rates	Ages 50-70
Overall Disability	75% ordinary disability; 25% accidental disability