



# **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Financial Statements and Required Supplementary Information

December 31, 2021 and 2020

(With Independent Auditors' Report Thereon)

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**  
Financial Statements and Required Supplementary Information  
December 31, 2021 and 2020

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## **Independent Auditors' Report**

City of Cambridge  
Retirement System Board:

### **Report on the Audit of the Financial Statements**

#### *Opinion*

We have audited the financial statements of the City of Cambridge Retirement System (the System), as of and for the years ended December 31, 2021 and 2020 and the related notes to the financial statements, which collectively comprise the System's basic financial statements for the years then ended as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System as of December 31, 2021 and 2020, and the changes in fiduciary net position for the years then ended in accordance with U.S. generally accepted accounting principles.

#### *Basis for Opinion*

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. 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 audits. 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*

Management is responsible for the preparation and fair presentation of the financial statements in accordance with U.S. generally accepted accounting principles, 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.

#### *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 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 and *Government Auditing Standards* 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 and *Government Auditing Standards*, 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*

U.S. generally accepted accounting principles require that the management's discussion and analysis, and the required supplementary information as listed in the accompanying table of contents 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 GAAS, 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 audits 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.

#### **Other Reporting Required by *Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated September 7, 2022 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.

**KPMG LLP**

Boston, Massachusetts  
September 7, 2022

## **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

### **Management's Discussion and Analysis**

December 31, 2021 and 2020

(Unaudited)

This section presents Management's Discussion and Analysis (MD&A) of the City of Cambridge Retirement System's (the System or the Plan) financial activity and performance as of and for the years ended December 31, 2021 and 2020. The MD&A is unaudited and is intended to serve as an introduction to the Plan's basic financial statements, as well as to offer readers of the Plan's financial statements a narrative view and analysis of System's financial activities.

#### **Financial Highlights**

The fiduciary net position of the Plan as of December 31, 2021 totaled \$1.842 billion, a \$249.1 million, or 15.64% increase, due to positive returns in several asset classes. Fiduciary net position is the residual of the Plan's assets in excess of the Plan's liabilities as of the date of the Statements of Fiduciary Net Position. The Plan's assets are held in trust to meet future benefit payments.

Total Plan "additions" of \$352.0 million, comprised of \$83.6 million in contributions, and \$268.4 million in investment gains, were reported for the year ended December 31, 2021. In comparison, the Plan reported total additions of \$238.9 million and \$274.4 million for the years ended December 31, 2020 and 2019, respectively. The increase in 2021 is due to larger investment returns in 2021 compared with 2020, and the decrease in 2020 from 2019 is due to smaller investment returns in 2020 compared with 2019.

For the year ended December 31, 2021, total Plan deductions were \$102.9 million, an increase of \$6.4 million, or 6.58% over the prior year, and are comprised of \$95.4 million in benefit payments, \$6.2 million in transfers and withdrawals and \$1.3 million in administrative expenses. This \$6.4 million increase is due to new retirements and an increase in refunds and transfers. This is as compared to total deductions of \$96.6 million and \$92.4 million for the years ended December 31, 2020, and 2019, respectively.

The Plan's fiduciary net position as a percentage of the total pension liability was 99.80%.

#### **Overview of the Financial Statements**

The basic financial statements consist of the: (1) Statements of Fiduciary Net Position; (2) Statements of Changes in Fiduciary Net Position; and (3) Notes to the Financial Statements; and (4) Required Supplementary Information.

The Statements of Fiduciary Net Position report the Plan's assets, liabilities, and net position restricted for pensions at the end of the year calculated using the following formula:  $\text{Assets} - \text{Liabilities} = \text{Net position restricted for pensions}$ . The Statements of Fiduciary Net Position report the financial position of the Plan at a given point in time, in this case, December 31. Over time, the increase or decrease in fiduciary net position serves as a useful indicator of the Plan's financial health.

The Statements of Changes in Fiduciary Net Position report additions to and deductions from the Plan during the year. The formula here is:  $\text{Additions} - \text{Deductions} = \text{Net Increase (Decrease) in Plan Fiduciary Net Position}$ . The Statements of Changes in Fiduciary Net Position report activity occurring over a specific period of time, in this case, the year beginning January 1 and ending December 31.

The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the Plan's financial statements.

## CITY OF CAMBRIDGE RETIREMENT SYSTEM

### Management's Discussion and Analysis

December 31, 2021 and 2020

(Unaudited)

This report also includes Required Supplementary Information following the Notes to the Financial Statements that consists of the schedules of changes in net pension liability and related ratios, investment returns, and contributions and notes to schedule of contributions.

These statements and schedules are prepared in conformity with U.S. generally accepted accounting principles, including the accounting and financial reporting requirements found in GASB Statement No. 67.

### Financial Analysis

Total assets as of December 31, 2021 and 2020 were \$1.8 billion and \$1.6 billion, respectively, and were comprised of cash and cash equivalents; due from brokers for securities sold; investments; cash collateral on securities lending, accrued interest and accrued dividends receivables; and contributions due from Plan members, the Plan sponsor and other systems. Total assets increased by \$248.1 million or 15.5% from \$1.6 billion as of December 31, 2020, due to investment gains in several asset classes. Total assets increased by \$135.0 million or 9.2% between 2019 and 2020 due to investment gains in several asset classes. As of December 31, 2021 the System had fully liquidated the fixed income international manager.

Total liabilities as of December 31, 2021 were approximately \$2.7 million and total liabilities as of December 31, 2020 were approximately \$3.7 million. Total liabilities for 2021 and 2020 were primarily comprised of payables for investment management fees, and cash collateral on securities lending. Decreases in total liabilities since 2019 are primarily due to decreases in cash collateral on securities lending.

Total fiduciary net position held in trust for pension benefits totaled \$1.842 billion at December 31, 2021 which represents an increase of \$249.1 million or 15.64% over 2020. Fiduciary net position increased by \$142.4 million or 9.8% between 2019 and 2020. The increase in 2021 is due to investment gains in several asset classes.

### Condensed financial information

	<u>2021</u>	<u>2020</u>	<u>Total \$ change</u>	<u>Total % change</u>
Assets:				
Cash and cash equivalents	\$ 18,823,470	4,477,345	14,346,125	320.42 %
Receivables and other assets	42,288,037	814,294	41,473,743	5,093.21
Investments	1,783,090,004	1,589,029,865	194,060,139	12.21
Cash collateral on securities lending	<u>700,673</u>	<u>2,513,792</u>	<u>(1,813,119)</u>	<u>(72.13)</u>
Total assets	<u>1,844,902,184</u>	<u>1,596,835,296</u>	<u>248,066,888</u>	<u>15.53</u>

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

## Management's Discussion and Analysis

December 31, 2021 and 2020

(Unaudited)

### Condensed financial information

	<u>2021</u>	<u>2020</u>	<u>Total \$ change</u>	<u>Total % change</u>
Liabilities:				
Payables	1,999,303	1,220,964	778,339	63.75
Cash collateral on securities lending	<u>700,673</u>	<u>2,513,792</u>	<u>(1,813,119)</u>	<u>(72.13)</u>
Total liabilities	<u>2,699,976</u>	<u>3,734,756</u>	<u>(1,034,780)</u>	<u>(27.71)</u>
Fiduciary net position	\$ <u>1,842,202,208</u>	<u>1,593,100,540</u>	<u>249,101,668</u>	<u>15.64 %</u>

### Condensed financial information

	<u>2020</u>	<u>2019</u>	<u>Total \$ change</u>	<u>Total % change</u>
Assets:				
Cash and cash equivalents	\$ 4,477,345	9,234,999	(4,757,654)	(51.52)%
Receivables and other assets	814,294	914,918	(100,624)	(11.00)
Investments	1,589,029,865	1,441,437,559	147,592,306	10.24
Cash collateral on securities lending	<u>2,513,792</u>	<u>10,226,733</u>	<u>(7,712,941)</u>	<u>(75.42)</u>
Total assets	<u>1,596,835,296</u>	<u>1,461,814,209</u>	<u>135,021,087</u>	<u>9.24</u>
Liabilities:				
Payables	1,220,964	848,016	372,948	43.98
Cash collateral on securities lending	<u>2,513,792</u>	<u>10,226,733</u>	<u>(7,712,941)</u>	<u>(75.42)</u>
Total liabilities	<u>3,734,756</u>	<u>11,074,749</u>	<u>(7,339,993)</u>	<u>(66.28)</u>
Fiduciary net position	\$ <u>1,593,100,540</u>	<u>1,450,739,460</u>	<u>142,361,080</u>	<u>9.81 %</u>

### Revenues – Additions to Plan Fiduciary Net Position

Additions to the System's Fiduciary net position include plan member and plan sponsor contributions, transfers from other retirement systems and investment income. Contributions, net transfers and net investment income for plan year 2021 totaled approximately \$352.0 million as compared to additions of approximately \$238.9 million in 2020.

## CITY OF CAMBRIDGE RETIREMENT SYSTEM

### Management's Discussion and Analysis

December 31, 2021 and 2020

(Unaudited)

In 2021, member contributions increased by approximately \$319.3 thousand or 1.3% due to the addition of new employees and the accrual of outstanding prior service buybacks. In 2020, member contributions increased by approximately \$901.6 thousand or 3.8% due to the addition of new employees and the accrual of outstanding prior service buybacks.

Employers and nonemployer contributions of \$54.1 million in 2021 increased by \$5.8 million or 12.0%, compared to an increase of \$2.7 million or 5.8% in 2020. The increase in 2021 and 2020 is due to an increase in the actuarial determined contributions (ADC) as determined by the Plan's actuary.

Net investment income for the year ending December 31, 2021 was \$268.4 million representing a \$106.1 million or 65.4% increase from 2020. The increase in net investment income in 2021 is the result of larger investment returns compared to 2020. Net investment income for the year ending December 31, 2020 was \$162.3 million representing a \$38.7 million or 19.3% decrease from 2019.

#### Condensed financial information

Additions	2021	2020	Total \$ change	Total % change
Plan member contributions	\$ 25,030,544	24,711,247	319,297	1.29 %
Employers and nonemployer contributions	54,148,316	48,335,964	5,812,352	12.02
Transfers	4,382,410	3,523,137	859,273	24.39
Net investment income	268,450,250	162,343,552	106,106,698	65.36
Total additions	\$ 352,011,520	238,913,900	113,097,620	47.34 %

#### Condensed financial information

Additions	2020	2019	Total \$ change	Total % change
Plan member contributions	\$ 24,711,247	23,809,697	901,550	3.79 %
Employers and nonemployer contributions	48,335,964	45,681,166	2,654,798	5.81
Transfers	3,523,137	3,796,690	(273,553)	(7.21)
Net investment income	162,343,552	201,086,610	(38,743,058)	19.27
Total additions	\$ 238,913,900	274,374,163	(35,460,263)	(12.92)%

#### Expenses – Deductions from Plan Fiduciary Net Position

Deductions to the Plan include the payment of pension benefits to members and beneficiaries, refunds of contributions to inactive members, transfers of member contributions to other Massachusetts public retirement plans and the cost of administration. For plan year 2021, the total deductions were \$102.9 million, an increase



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## Management's Discussion and Analysis

December 31, 2021 and 2020

(Unaudited)

of \$6.4 million or 6.6% over 2020. For plan year 2020, the total deductions were \$96.6 million, an increase of \$4.2 million or 4.6% over 2019.

Retirement benefit payments totaled \$95.4 million, an increase of approximately \$4.7 million or 5.2%. In 2020 retirement benefit payments totaled \$90.7 million, an increase of approximately \$5.1 million or 6.0% from the previous year. The increases in 2021 and 2020 are due to new retirements and pension increases also known as cost-of-living adjustments in those respective years.

For plan year 2021, refunds of contributions totaled approximately \$2.3 million, an increase of approximately \$730 thousand or 45.4% from 2020. For plan year 2020, refunds of contributions totaled approximately \$1.6 million, a decrease of \$327.3 thousand or 16.9% over 2019. The increase in 2021 is due to an increase in inactive members requesting withdrawals for their contributions from the Plan. The decrease in 2020 is due to a decrease in inactive members requesting withdrawals for their contributions from the Plan. Transfers to other Massachusetts public retirement systems totaled approximately \$3.9 million, an increase of approximately \$1.1 million or 38.8% from 2020. This is compared to a \$844 thousand or 23.2% decrease from 2019 to 2020. Year to year changes in transfer rates can be attributed to variations in public sector workforce movement between Cambridge and other government employers.

In 2021, administrative expenses totaled approximately \$1.3 million, a decrease of approximately \$160.9 thousand or 10.9%, and in 2020, administrative expenses totaled approximately \$1.5 million, an increase of approximately \$249.5 thousand or 20.4%. The decrease in administrative expenses for 2021 is primarily attributable to miscellaneous expenses. The increase in administrative expenses for 2020 is primarily attributable to personnel and miscellaneous expenses.

### Condensed financial information

<b>Deductions</b>	<b>2021</b>	<b>2020</b>	<b>Total \$ change</b>	<b>Total % change</b>
Retirement benefits	\$ 95,379,449	90,676,119	4,703,330	5.19 %
Refunds of contributions	2,337,400	1,607,442	729,958	45.41
Other systems	3,883,154	2,798,511	1,084,643	38.76
Administrative expenses	1,309,849	1,470,748	(160,899)	(10.94)
Total deductions	\$ 102,909,852	96,552,820	6,357,032	6.58 %

### Condensed financial information

<b>Deductions</b>	<b>2020</b>	<b>2019</b>	<b>Total \$ change</b>	<b>Total % change</b>
Retirement benefits	\$ 90,676,119	85,555,285	5,120,834	5.99 %
Refunds of contributions	1,607,442	1,934,722	(327,280)	(16.92)
Other systems	2,798,511	3,642,559	(844,048)	(23.17)
Administrative expenses	1,470,748	1,221,287	249,461	20.43
Total deductions	\$ 96,552,820	92,353,853	4,198,967	4.55 %

## CITY OF CAMBRIDGE RETIREMENT SYSTEM

### Management's Discussion and Analysis

December 31, 2021 and 2020

(Unaudited)

#### Change in Plan Fiduciary Net Position

Change in fiduciary net position for the year ended December 31, 2021 was \$249.1 million, which represents an increase of \$106.7 million or 75% from the previous year. This increase is primarily the result of larger investment returns. Change in fiduciary net position for the year ended December 31, 2020 was \$142.4 million, which represents a decrease of \$39.7 million or 21.8% from the previous year. This decrease is primarily the result of smaller investment returns.

#### Condensed financial information

Changes in System fiduciary net position	2021	2020	Total \$ change	Total % change
Total additions	\$ 352,011,520	238,913,900	113,097,620	47.34 %
Total deductions	<u>102,909,852</u>	<u>96,552,820</u>	<u>6,357,032</u>	<u>6.58</u>
Change in plan fiduciary net position	<u>\$ 249,101,668</u>	<u>142,361,080</u>	<u>106,740,588</u>	<u>74.98 %</u>

#### Condensed financial information

Changes in System fiduciary net position	2020	2019	Total \$ change	Total % change
Total additions	\$ 238,913,900	274,374,163	(35,460,263)	(12.92)%
Total deductions	<u>96,552,820</u>	<u>92,353,853</u>	<u>4,198,967</u>	<u>4.55</u>
Change in plan fiduciary net position	<u>\$ 142,361,080</u>	<u>182,020,310</u>	<u>(39,659,230)</u>	<u>(21.79)%</u>

#### Overall Financial Position of System

Due to investment gains in several asset classes the Plan has experienced an increase in its investment portfolio for the year ending December 31, 2021. Management believes the Plan remains well funded and able to meet its obligations.

#### Requests for Information

This financial report is designed to provide an overview of System's finances. Questions concerning any of the information provided in this report should be addressed to City of Cambridge Retirement System, 125 CambridgePark Drive, Suite 104, Cambridge, MA 02140.

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

## Statements of Fiduciary Net Position

December 31, 2021 and 2020

	<u>2021</u>	<u>2020</u>
Assets:		
Cash and cash equivalents	\$ 18,823,470	4,477,345
Dividend and interest receivable	291,819	255,242
Other assets	896,180	553,777
Due from Brokers for Securities sold	41,100,038	5,275
Investments, at fair value:		
Fixed income securities	52,499,548	46,695,007
Equities	23,994,718	17,881,924
Pooled investments:		
Fixed income	144,941,025	117,426,119
Real estate	269,244,940	226,170,125
Domestic equities	696,109,061	627,176,468
International equities	220,719,479	237,526,544
International fixed income	—	52,515,528
Alternative	375,581,233	263,638,150
Total investments	1,783,090,004	1,589,029,865
Cash collateral on securities lending	700,673	2,513,792
Total assets	<u>1,844,902,184</u>	<u>1,596,835,296</u>
Liabilities:		
Accrued liabilities	832,290	896,372
Due to brokers for securities purchased	1,167,013	324,592
Cash collateral on securities lending	700,673	2,513,792
Total liabilities	<u>2,699,976</u>	<u>3,734,756</u>
Net position restricted for pensions	<u>\$ 1,842,202,208</u>	<u>1,593,100,540</u>

See accompanying notes to financial statements.

# **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

## **Statements of Changes in Fiduciary Net Position**

Years ended December 31, 2021 and 2020

	<u><b>2021</b></u>	<u><b>2020</b></u>
Additions:		
Contributions:		
Employers	\$ 52,440,935	46,005,871
Nonemployer – City	1,707,381	2,330,093
Plan members	25,030,544	24,711,247
Other systems	3,890,352	3,310,192
Commonwealth of Massachusetts	492,058	212,945
Total contributions	<u>83,561,270</u>	<u>76,570,348</u>
Investment income:		
Interest and dividends	30,268,505	25,033,297
Securities lending income	1,769	51,027
Net appreciation (depreciation) in fair value of investments	248,704,163	145,980,402
Less:		
Management fees	(10,523,685)	(8,680,588)
Borrower rebates and fees under securities lending program	(502)	(40,586)
Net investment income	<u>268,450,250</u>	<u>162,343,552</u>
Total additions	<u>352,011,520</u>	<u>238,913,900</u>
Deductions:		
Benefits	95,379,449	90,676,119
Refunds of contributions	2,337,400	1,607,442
Other systems	3,883,154	2,798,511
Administrative expenses	1,309,849	1,470,748
Total deductions	<u>102,909,852</u>	<u>96,552,820</u>
Change in net position	249,101,668	142,361,080
Net position, beginning of year	<u>1,593,100,540</u>	<u>1,450,739,460</u>
Net position, end of year	<u><u>\$ 1,842,202,208</u></u>	<u><u>1,593,100,540</u></u>

See accompanying notes to financial statements.

## **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Notes to Financial Statements

December 31, 2021 and 2020

### **(1) Plan Description**

The City of Cambridge Retirement System (the System or the Plan) is a cost-sharing, multiple-employer defined benefit pension plan administered by a Retirement Board comprised of five members: the City Auditor who serves as ex officio; two individuals elected by participants in the System; a fourth member appointed by the City Manager and a fifth member chosen by the other members of the Retirement Board. As of December 31, 2021, the System provides pension benefits to the retired employees of four employers: the City of Cambridge, Cambridge Housing Authority, Cambridge Redevelopment Authority and Cambridge Health Alliance.

The System is a member of the Massachusetts Contributory System, which is governed by Chapter 32 of the Massachusetts General Laws (MGL).

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 2 is a limited category for specified hazardous occupations. Group 3 is for State Police only. Group 4 is mainly police and firefighters.

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 the number of years and full months of creditable service at the time of retirement and multiplied by a percentage based on the age of the member at retirement.

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 or the average annual rate of regular compensation received during the last three years of creditable service prior to retirement.

For employees hired on April 2, 2012 or later, the annual amount of the retirement allowance is based on the member's final five year average salary multiplied by the number of years and full months of creditable service at retirement and multiplied by a percentage based on the age and years of creditable service of the member at retirement.

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 or the average annual rate of regular compensation received during the last five years of creditable service prior to retirement.

For employees who became members after January 1, 2011, regular compensation is limited to 64% of the federal limit found in 26 U.S.C. 401(a) (17). In addition, regular compensation for members who retire after April 2, 2012 will be limited to prohibit "spiking" a member's salary to increase the retirement benefit.

For all employees, the maximum annual amount of the retirement allowance is 80% of the member's final average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80% maximum.

## CITY OF CAMBRIDGE RETIREMENT SYSTEM

### Notes to Financial Statements

December 31, 2021 and 2020

Membership in the System consisted of the following at January 1, 2022, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	2,306
Terminated plan members entitled to, but not receiving benefits	497
Terminated plan members with a vested right to a deferred or immediate benefit	145
Active plan members	<u>3,156</u>
Total membership	<u>6,104</u>
Total number of participating employers	4

### (2) Contributions Required and Contributions Made

Plan members are required to contribute to the System. Depending on their employment date, active members must contribute a range of 5% to 9% of their regular gross compensation. Members hired after December 31, 1978 must contribute an additional 2% of regular compensation in excess of \$30,000. Participating employers are required to pay into the System their share of the remaining system wide actuarially determined contribution, which is apportioned among the employers based on active covered payroll. The contributions of plan members and the participating employers are governed by Chapter 32 of the MGL.

The Commonwealth is obligated to reimburse the System for a portion of the benefits payments for cost of living increases granted before July 1998.

### (3) Summary of Significant Accounting Policies

#### (a) Basis of Accounting

The System's financial statements are prepared using the full accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions to the plan are recognized when due and the employer is legally required to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

#### (b) Cash and Cash Equivalents

Cash and cash equivalents are considered to be cash on deposit, and highly liquid short-term investments with original maturities of three months or less from the date of acquisition.

#### (c) Investment and Valuation

The System participates in the segmentation program of the Pension Reserves Investment Trust (PRIT) Fund which allows Massachusetts retirement systems to invest only in individual asset classes of the PRIT Fund. The PRIT Fund is an external investment pool, as defined by the Government Accounting Standards Board, and it is not registered with the Securities and Exchange Commission, but is subject to oversight by the Pension Reserves Investment Management Board (the PRIM Board). The System's alternative investments include investments in the PRIT hedge and private equity segments of the PRIT Fund. The PRIT Fund issues separately available audited financial statements.

## **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

### **Notes to Financial Statements**

**December 31, 2021 and 2020**

Investments are reported at fair value. Securities traded on a national or international securities exchange are valued at the last reported sales price on the last business day of the plan year; investments traded on a national securities exchange for which no sale was reported on that date and investments in common and preferred stocks traded in over-the-counter markets are valued at the mean of the last reported bid and asked prices, or the last reported bid price. Mutual funds and commingled funds, including real estate and other alternative (including private equity and hedge) investments, are valued based on net asset value (NAV) or unit value at year-end. Changes in fair value are included in investment income (loss) in the statement of changes in fiduciary net position.

#### **(d) Use of Estimates**

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of additions and deductions during the reporting periods. Actual results could differ from estimates.

#### **(e) Other**

Purchases and sales of securities are reflected on a trade-date basis. Realized gain or loss on sales of securities is based on average cost.

Dividend income is recorded on the ex-dividend date. Interest income is recorded as earned on an accrual basis.

The System presents in its Statements of Changes in Fiduciary Net Position the net appreciation (depreciation) in the fair value of its investments, which consists of the net realized gains and losses during the year and the change in unrealized appreciation and depreciation during the year on those investments.

#### **(f) Investment Policy**

The provisions of Massachusetts General Laws (M.G.L.) Chapter 32, Section 23(2) and the Board approved investment policy govern the Plan's investment practice.

Diversification is attained through varied investment management styles that comply with Massachusetts state law. This is accomplished through the retention of investment managers that adhere to M.G.L. Chapter 32, Section 23(3), the "Prudent Person" rule.

The System has retained an investment consultant to work with the Board in a fiduciary capacity to assure that strategic investment diversification is attained, to employ investment managers with expertise in their respective asset classes, and to closely monitor the implementation and performance of the respective investment strategies.

The System is currently invested in equities (domestic and international), fixed income securities (domestic), real estate and other alternative (including private equity and hedge).

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2021 and 2020

The target allocation for each major asset class is summarized in the following table:

Asset class	2021 Target asset allocation	2020 Target asset allocation
Cash	— %	— %
Domestic equity	28.00	28.00
International developed markets equity	11.00	10.00
International emerging markets equity	10.00	10.00
Core fixed income	8.00	10.00
High yield fixed income	5.00	10.00
Real estate	10.00	11.00
Commodities	4.00	3.00
Hedge fund, GTAA, risk parity	3.00	5.00
Private equity	12.00	13.00
Emerging market debt	3.00	—
Short term govt money market	3.00	—
Infrastructure	3.00	—
Total	100.00 %	100.00 %

The Board's current rebalancing policy states that "The Board shall rebalance to the established targets during the quarter following the quarter ended whenever the asset class allocation falls outside the allowable ranges."

## (g) Commitments

At December 31, 2021 and 2020, the System had contractual commitments to provide approximately \$85 million and \$72 million, respectively, of additional funding for alternative investments and real estate.

## (4) Deposit and Investment Risks

### (a) Custodial Credit Risk

Custodial credit risk is the risk that, in the event of a failure of a depository financial institution, the System deposits may not be returned. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System and are held by either the depository financial institution or the depository financial institution's trust department or agent but not in the System's name. The System's cash and cash equivalent deposits that are not collateralized are subject to the Federal Deposit Insurance Corporation (FDIC) insurance limits. At December 31, 2021 and December 31, 2020, \$17,582,892 and \$4,013,986 of the System's cash and cash equivalent deposits, respectively, were uninsured and uncollateralized.



# CITY OF CAMBRIDGE RETIREMENT SYSTEM

## Notes to Financial Statements

December 31, 2021 and 2020

Although there is no System-wide policy for custodial credit risk associated with deposits, the System's investments are held by the System's custodian and registered in the System's name. All of the System's securities are held by the System's custodial bank in the System's name, except for investments in mutual and commingled funds, real estate properties, and limited partnerships, which by their nature, are not subject to custodial credit risk. Investments in the Short-Term Investment Funds (STIF) are held in an SEC-registered pooled fund that is managed by the master custodian bank. The fair value of the position in the pool equals the value of the pool shares.

### (b) Credit Risk

Credit risk exists when there is a possibility the issuer or other counterparty to an investment may be unable to fulfill its obligations.

There are no System – wide policy limitations for credit risk exposures within the portfolio. The System's fixed income investments are managed in accordance with an investment contract that is specific as to permissible credit quality ranges and the average credit quality of the overall portfolio.

The System allows investment managers to apply discretion under the "Prudent Person" rule. Investments are made, as a prudent person would be expected to act with discretion and intelligence, to seek reasonable income, preserve capital and, in general, avoid speculative investments.

The System's fixed income investments as of December 31, 2021 and 2020, if rated, were rated by Standard and Poor's and/or an equivalent national rating organization. The ratings are presented below using the Standard and Poor's rating scale:

Investment type	Fair value	AAA	AA	A	BBB	BB	Less than BB	Not rated
System (as of December 31, 2021):								
U.S. Treasury notes and bonds	\$ 15,903,423	5,129,533	523,295	—	975,534	—	769,423	8,505,638
Municipal securities	1,811,744	—	1,074,561	291,789	—	—	201,776	243,618
U.S. agencies	4,036,790	8,259	—	—	—	—	—	4,028,531
Domestic corporate	23,042,672	861,022	912,246	9,212,915	11,047,650	—	267,916	740,923
Asset-backed:								
CDOs	5,999,386	4,928,894	—	186,270	—	—	—	884,222
Other	1,705,533	1,146,191	—	85,059	474,283	—	—	—
Pooled fixed-income investments	144,941,025	—	—	—	—	—	—	144,941,025
Total	\$ 197,440,573	12,073,899	2,510,102	9,776,033	12,497,467	—	1,239,115	159,343,957

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

## Notes to Financial Statements

December 31, 2021 and 2020

Investment type	Fair value	AAA	AA	A	BBB	BB	Less than BB	Not rated
System (as of December 31, 2020):								
U.S. Treasury notes and bonds	\$ 10,039,946	4,179,660	—	—	2,423,386	—	—	3,436,900
Municipal securities	1,738,689	—	1,249,955	146,491	140,855	—	201,388	—
U.S. agencies	4,321,320	1,192,823	—	—	—	—	—	3,128,497
Domestic corporate	21,875,172	510,972	935,948	6,475,269	12,237,907	107,991	—	1,607,085
Asset-backed:								
CMOs	4,905,252	3,520,743	—	225,102	—	—	—	1,159,407
Other	3,814,628	3,147,849	—	168,290	498,489	—	—	—
Pooled fixed-income investments	169,941,647	—	—	—	—	—	—	169,941,647
Total	\$ 216,636,654	12,552,047	2,185,903	7,015,152	15,300,637	107,991	201,388	179,273,536

### (c) Concentration of Credit Risk

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of a government's investment in a single issuer. The System has no investments, at fair value, that exceed 5% of the System's total investments as of December 31, 2021 and 2020 other than pooled investments. The System adheres to the provisions of M.G.L. c. 32, sec 23(2) when managing concentration risk.

### (d) Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. This risk is managed within the portfolio using the effective duration methodology. It is widely used in the management of fixed income portfolios in that it quantifies to a much greater degree the risk of interest rate changes.

The following is a listing of the System's fixed income investments and related maturity schedule (in years) as of December 31, 2021 and 2020:

Investment type	Fair value	Less than 1	1-5	6-10	More than 10
System (as of December 31, 2021):					
U.S. Treasury notes and bonds	\$ 15,903,423	—	6,958,679	2,249,893	6,694,851
Municipal Securities	1,811,744	—	1,003,878	604,256	203,610
U.S. agencies	4,036,790	—	15,623	270,829	3,750,338
Domestic corporate	23,042,672	—	8,011,831	4,332,152	10,698,689
Asset-backed:					
CMOs	5,999,386	—	—	—	5,999,386
Other	1,705,533	—	1,426,850	278,683	—
Pooled fixed-income investments	144,941,025	—	—	144,941,025	—
Total	\$ 197,440,573	—	17,416,861	152,676,838	27,346,874

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

## Notes to Financial Statements

December 31, 2021 and 2020

Investment type	Fair value	Less than 1	1–5	6–10	More than 10
System (as of December 31, 2020):					
U.S. Treasury notes and bonds	\$ 10,039,946	—	3,436,900	1,699,425	4,903,621
Municipal Securities	1,738,689	—	1,014,484	377,444	346,761
U.S. agencies	4,321,320	20,989	958,639	647,465	2,694,227
Domestic corporate	21,875,172	—	7,321,408	4,267,105	10,286,659
Asset-backed:					
CMOs	4,905,252	—	—	—	4,905,252
Other	3,814,628	—	3,356,488	458,140	—
Pooled fixed-income investments	169,941,647	—	—	169,941,647	—
Total	\$ 216,636,654	20,989	16,087,919	177,391,226	23,136,520

### (e) Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The System's asset allocation model which serves as a proxy for a foreign currency policy, limits the amount of foreign currency exposure to 21% of the System's total investments. Similar to the investments in domestic equities, the System employs or encourages its investment advisor to employ diversification, asset allocation, and quality strategies. Currency hedging is permitted for defensive purposes. Currency hedging shall be effected through the use of forward currency contracts. At December 31, 2021 and 2020, there were no open forward currency contracts.

Risk of loss arises from changes in currency exchange rates. The System's exposure to foreign currency risk is presented below at December 31, 2021 and 2020.

	2021	2020
Currency:		
International equity pooled funds (various currencies)	\$ 220,719,479	237,526,544
International fixed income pooled funds (various currencies)	—	52,515,528
	\$ 220,719,479	290,042,072

Although these investments are not denominated in a foreign currency, the underlying securities are denominated in various foreign currencies.

### (f) Rates of Return

For the years ended December 31, 2021 and 2020, the annual money weighted rate of return on plan investments, net of plan investment expense was 17.01% and 12.23%, respectively. The money weighted rate of return expresses investment performance net of investment expenses adjusted for the changing amounts actually invested.

## **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

### **Notes to Financial Statements**

**December 31, 2021 and 2020**

#### **(g) Securities Lending**

The Public Employment Retirement Administration Commission of Massachusetts (PERAC) has issued supplemental regulations that permit the System to engage in securities lending transactions. The System has entered into a Securities Lending Authorization Agreement (the Agreement) with a third party to act as the System's sub-custodian/agent for the purposes of managing a securities lending program.

The System lends fixed income, domestic equity, and international equity securities to approved broker/dealers. Collateral for securities loaned equals 102 percent of fair market value for domestic securities and 105 percent for international securities not denominated in U.S. dollars.

Types of collateral received from borrowers for securities loaned are cash and non-cash. The sub-custodian is authorized to invest the cash collateral in Approved Investments, as defined in the Agreement. Non-cash collateral received is not recorded in the accompanying financial statements as the System cannot pledge or sell the non-cash collateral except in the event of a borrower default.

As of December 31, 2021, the fair value of securities on loan was \$1.9 million. The associated collateral was \$1.9 million, of which \$.7 million was cash collateral and \$1.2 million was non-cash. The cash collateral has been reinvested in repurchase agreements (\$.7 million). The repurchase agreements are valued at amortized cost which approximates fair value.

As of December 31, 2020, the fair value of securities on loan was \$3.1 million. The associated collateral was \$3.2 million, of which \$2.5 million was cash collateral and \$.7 million was non-cash. The cash collateral has been reinvested in repurchase agreements (\$2.5 million). The repurchase agreements are valued at amortized cost which approximates fair value.

The Agreement limits the maturity value of any Approved Investment, as defined, to a maximum of 397 days, except U.S. government securities, which shall have a final maturity not exceeding 762 days.

At year-end, the System has no credit risk exposure to borrowers because the amounts the System owes the borrowers exceed the amounts the borrowers owe the System. The Agreement indemnifies the System if the borrowers fail to return the securities (and the collateral is inadequate to replace the securities lent) or fail to pay the System for income distributions by the securities' issuers while the securities are on loan.

As of December 31, 2021 and 2020, there were no violations of legal or contractual provisions. The System has not experienced any losses resulting from the default of a borrower or lending agent during the years ended December 31, 2021 and 2020.

#### **(h) Fair Value Hierarchy**

GAAP establishes a fair value hierarchy for investments that prioritizes inputs used to measure fair value into three levels:

Level 1 – quoted prices (unadjusted) for identical assets or liabilities in active markets that are accessible at the measurement date;

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

## Notes to Financial Statements

December 31, 2021 and 2020

Level 2 – observable inputs that are based on inputs not quoted in active markets, but corroborated by market data.

Level 3 – unobservable inputs that are used when little or no market data is available.

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs. In determining fair value, the System utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible.

Investments held through commingled funds for which fair value is estimated using net asset values (NAVs) as a practical expedient are not categorized in the fair value hierarchy.

The System uses an independent pricing source to determine the fair value of investments at quoted market prices.

The System has the following fair value measurements as of December 31, 2021 and 2020:

	<b>2021</b>		
	<b>Fair value</b>	<b>Level 1</b>	<b>Level 2</b>
Investments by fair value level:			
Fixed income	\$ 52,499,548	15,903,423	36,596,125
Equities	23,994,718	23,994,718	—
	<u>76,494,266</u>	<u>39,898,141</u>	<u>36,596,125</u>
Investments measured at NAV:			
Commingled equity funds:			
International	220,719,479	—	—
Domestic	696,109,061	—	—
Commingled fixed income funds:			
Domestic	144,941,025	—	—
Real estate	269,244,940	—	—
Other investments at fair value:			
Alternatives:			
PRIT hedge fund	66,863,949	—	—
PRIT private equity	227,705,725	—	—
Other non-PRIT alternatives	81,011,559	—	—
	<u>1,706,595,738</u>	<u>—</u>	<u>—</u>
Total investments	\$ <u>1,783,090,004</u>	<u>39,898,141</u>	<u>36,596,125</u>

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Notes to Financial Statements

December 31, 2021 and 2020

	<b>2020</b>		
	<b>Fair value</b>	<b>Level 1</b>	<b>Level 2</b>
Investments by fair value level:			
Fixed income	\$ 46,695,007	11,220,741	35,474,266
Equities	17,881,924	17,881,924	—
	<u>64,576,931</u>	<u>29,102,665</u>	<u>35,474,266</u>
Investments measured at NAV:			
Commingled equity funds:			
International	237,526,544	—	—
Domestic	627,176,468	—	—
Commingled fixed income funds:			
International	52,515,528	—	—
Domestic	117,426,119	—	—
Real estate	226,170,125	—	—
Other investments at fair value:			
Alternatives:			
PRIT hedge fund	61,089,883	—	—
PRIT private equity	125,544,179	—	—
Other non-PRIT alternatives	77,004,088	—	—
	<u>1,524,452,934</u>	<u>—</u>	<u>—</u>
Total investments	\$ <u>1,589,029,865</u>	<u>29,102,665</u>	<u>35,474,266</u>

## CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2021 and 2020

The following represents the significant investment strategies and terms on which the System may redeem investments for those investments measured at the NAV (or its equivalent) as a practical expedient:

	Investments measured at NAV			
	2021	2020	Redemption frequency	Redemption notice period
Commingled equity funds	\$ 916,828,540	864,703,012	Daily	1–30 days
Commingled fixed income funds	144,941,025	169,941,647	Daily	1–30 days
Real estate	269,244,940	226,170,125	Quarterly	1–30 days
Alternative	375,581,233	263,638,150	Quarterly	1–30 days

Commingled equity funds: This type includes 8 funds that invest primarily in U.S. large and small cap equity funds and international equity funds.

Commingled fixed income funds: This type includes 2 fixed income funds that invest in U.S. corporate bonds, U.S. government bonds, U.S. asset-backed securities and foreign bonds.

Real estate funds: This type includes 10 funds that invest primarily in real estate funds and global infrastructure.

Alternative funds: This type includes 17 funds that invest primarily in private equity and venture capital funds. The System is required to provide a 24 hour redemption notice for the PRIT hedge fund. The PRIT private equity fund is not redeemable until notified by the PRIM Board.

### (5) Operating Expenses

The System's administrative expenses as shown on the Statements of Changes in Fiduciary Net Position are borne by the System and financed with investment income. These expenses include personnel and professional services, member communication and education, and other miscellaneous administrative expenses.

# **CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Notes to Financial Statements

December 31, 2021 and 2020

## **(6) Legally Required Reserve Accounts**

The balances in the System's legally required reserves at December 31, 2021 and 2020 are as follows:

	<b>2021</b>	<b>2020</b>	<b>Purpose</b>
Annuity savings fund	\$ 273,610,308	270,857,909	Active members' contribution balance
Annuity reserve fund	86,819,853	82,845,564	Retired members' contribution account
Pension reserve fund	1,470,970,207	1,227,317,187	Amounts appropriated to fund future retirement benefits
Pension fund	10,797,211	12,075,256	Remaining net assets
Military service fund	4,629	4,624	Amounts appropriated to fund military service time
	<u>\$ 1,842,202,208</u>	<u>1,593,100,540</u>	

All reserve accounts are funded at levels required by State statute.

## **(7) Net Pension Liability**

The components of the net pension liability of the System as of December 31, 2021 and 2020, are as follows:

	<b>2021</b>	<b>2020</b>
Total pension liability	\$ 1,845,941,497	1,757,432,734
Fiduciary net position	<u>1,842,202,208</u>	<u>1,593,100,540</u>
System's net pension liability	<u>\$ 3,739,289</u>	<u>164,332,194</u>
Fiduciary net position as a percentage of the total pension liability	99.80 %	90.65 %



# CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2021 and 2020

## (a) Actuarial Assumptions

The total pension liability at December 31, 2021 was measured by an actuarial valuation as of January 1, 2022. Total pension liability at December 31, 2020 was determined by an actuarial valuation as of January 1, 2020, rolled forward to the December 31, 2020, measurement date. The following actuarial assumptions were applied to the measurement of the total pension liability at December 31, 2021 and 2020:

	2021	2020
Inflation	3.0%	3.0%
Salary increases	4.0%	4.0%
Investment rate of return	7.10%	7.25%
Cost of living adjustments	3% of first \$16,000	3% of first \$16,000
Pre-retirement mortality	Group 1 and 2: Pub-2010 General Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2021 Group 4: Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2021	Group 1 and 2: Pub-2010 General Employee Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 Group 4: Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2019
Healthy Retiree mortality	Group 1 and 2: Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2021 Group 4: Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2021	Group 1 and 2: Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019 Group 4: Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019
Disabled Retiree mortality	Group 1 and 2: Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2021 Group 4: Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2021	Group 1 and 2: Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 Group 4: Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2019

## CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2021 and 2020

- Long-term Expected Rate of Return:
  - The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The best estimates of arithmetic long-term expected real rates of return for each major asset class are summarized in the following table:

<b>Asset class</b>	<b>2021 Long-term expected real rate of return</b>	<b>2020 Long-term expected real rate of return</b>
Cash	(0.10)%	(0.19)%
Domestic equity	6.11	6.28
International developed markets equity	6.49	7.00
International emerging markets equity	8.12	8.82
Core fixed income	0.38	0.38
High yield fixed income	2.48	2.97
Real estate	3.72	3.50
Commodities	3.44	3.45
Hedge fund, GTAA, risk parity	2.63	2.35
Private equity	9.93	10.11
Emerging market debt	2.67	—
Infrastructure	5.16	—

### **(b) Discount Rate**

The discount rates used to measure the total pension liability were 7.10% and 7.25% as of December 31, 2021 and 2020, respectively. 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 employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the System'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 the plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

# CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2021 and 2020

## (c) *Sensitivity of the Net Pension Liability to Changes in the Discount Rate*

The following presents the net pension liability of the System as of December 31, 2021 and 2020, calculated using the current discount rates, as well as what the net pension liability/(asset) 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:

		<b>2021</b>		
		<b>1% decrease (6.10%)</b>	<b>Current discount rate (7.10%)</b>	<b>1% increase (8.10%)</b>
System's net pension liability/(asset)	\$	220,295,164	3,739,289	(177,939,984)
		<b>2020</b>		
		<b>1% decrease (6.25%)</b>	<b>Current discount rate (7.25%)</b>	<b>1% increase (8.25%)</b>
System's net pension liability/(asset)	\$	366,870,367	164,332,194	(5,563,588)

## (8) **Subsequent Events**

The System has evaluated subsequent events from the Statement of Fiduciary Net Position date of December 31, 2021 through September 7, 2022, the date on which the basic financial statements were issued, and determined there are no items to disclose.

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Required Supplementary Information

Schedule of Changes in the Net Pension Liability and Related Ratios

(Unaudited)

	2021	2020	2019	2018	2017	2,016	2015	2014
Total pension liability:								
Service cost	\$ 37,591,577	36,442,014	35,818,206	35,289,253	31,903,330	32,844,244	30,908,861	29,791,673
Interest	126,616,456	121,894,348	118,524,777	113,321,515	107,835,410	105,325,306	98,925,146	94,315,895
Changes of benefit terms	—	—	—	—	13,786,855	—	—	—
Differences between expected and actual experience	(29,621,312)	—	(21,185,206)	5,492,484	—	(29,237,110)	—	—
Changes of assumptions	51,102,912	—	56,581,172	—	43,565,250	—	42,033,481	—
Benefit payments, including refunds of member contributions	(97,180,870)	(91,525,935)	(87,257,596)	(83,253,157)	(78,642,592)	(72,563,588)	(69,354,414)	(64,034,766)
Net change in total pension liability	88,508,763	66,810,427	102,481,353	70,850,095	118,448,253	36,368,852	102,513,074	60,072,802
Total pension liability – beginning	1,757,432,734	1,690,622,307	1,588,140,954	1,517,290,859	1,398,842,606	1,362,473,754	1,259,960,680	1,199,887,878
Total pension liability – ending (a)	1,845,941,497	1,757,432,734	1,690,622,307	1,588,140,954	1,517,290,859	1,398,842,606	1,362,473,754	1,259,960,680
Plan fiduciary net position:								
Contributions – employers and nonemployer	54,148,316	48,335,964	45,681,166	43,173,090	40,831,840	40,047,891	37,851,149	35,775,814
Contributions – member	25,030,544	24,711,247	23,809,697	22,730,249	22,146,929	20,949,712	21,167,434	20,572,796
Net investments income/(loss)	268,413,527	162,343,552	201,086,610	(48,209,324)	190,247,348	90,299,489	(6,716,067)	64,639,098
Benefit payments, including refunds of member contributions, and other	(97,180,870)	(91,558,935)	(87,335,876)	(83,297,157)	(78,642,592)	(72,563,588)	(69,354,414)	(64,034,766)
Administrative expenses	(1,309,849)	(1,470,748)	(1,221,287)	(1,253,759)	(1,127,717)	(1,112,054)	(1,076,459)	(1,031,915)
Net change in plan fiduciary net position	249,101,668	142,361,080	182,020,310	(66,856,901)	173,455,808	77,621,450	(18,128,357)	55,921,027
Plan fiduciary net position – beginning	1,593,100,540	1,450,739,460	1,268,719,150	1,335,576,051	1,162,120,243	1,084,498,793	1,102,627,150	1,046,706,123
Plan fiduciary net position – ending (b)	1,842,202,208	1,593,100,540	1,450,739,460	1,268,719,150	1,335,576,051	1,162,120,243	1,084,498,793	1,102,627,150
Net pension liability – ending (a) – (b)	\$ 3,739,289	164,332,194	239,882,847	319,421,804	181,714,808	236,722,363	277,974,961	157,333,530
Fiduciary net position as a percentage of the total pension liability	99.8 %	90.6 %	85.8 %	79.9 %	88.0 %	83.1 %	80.0 %	87.5 %
Covered payroll	\$ 247,847,724	244,609,523	235,687,286	231,568,517	228,696,936	220,963,223	226,826,076	218,627,543
Plan net pension liability as a percentage of covered payroll	1.51 %	67.18 %	101.78 %	137.94 %	79.46 %	107.13 %	122.50 %	72.00 %

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

See accompanying independent auditors' report.

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**  
Required Supplementary Information  
Notes to Schedule of Changes in the Net Pension Liability and Related Ratios  
(Unaudited)

Benefit Changes	Amount of change TPL	Description
2017:	\$ 13,786,855	- The COLA base was changed from \$14,000 to \$16,000 effective July 1, 2018.
Changes of Assumptions	Amount of change TPL	Description
2021:	\$ 51,102,912	<ul style="list-style-type: none"> <li>- Discount rate decreased from 7.25% to 7.10%</li> <li>- The mortality assumptions for Pre-Retirement Group 1 and 2 was updated from Pub-10 General Employee Amount- Weighted Morality Table set forward one year projected generationally with Scale MP-2019 to Pub-2010 General Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2021</li> <li>- The mortality assumptions for Pre-Retirement Group 4 was updated from Pub-10 Saftey Employee Amount-Weighted Morality Table projected generationally using Scale MP-2019 to Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2021</li> <li>- The mortality assumptions for the Healthy Retirement Group 1 and 2 was updated from Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019 to Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2021</li> <li>- The mortality assumptions for the Healthy Retirement Group 4 was updated from Pub-10 Saftey Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally with Scale MP-2019 to Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2021</li> <li>- The mortality assumptions for Disabled participants in Group 1 and 2 was updated from Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally with Scale MP-2019 to Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2021</li> <li>- The mortality assumptions for Disabled participants in Group 4 was updated from Pub-210 Disabled Retiree Amount-Weigheted Mortality Table projected generationally using Scale MP-2019 to Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2021</li> <li>- The administrative expense assumption was decreased from \$1,500,000 for calendar 2020 to \$1,450,000 for calendar 2022, increasing 3% per year.</li> </ul>
2019:	\$ 56,581,172	<ul style="list-style-type: none"> <li>- Discount rate decreased from 7.50% to 7.25%</li> <li>- Salary Increases decreased from 4.50% to 4.00%</li> <li>- Wage Inflation decreased from 3.50% to 3.00%</li> <li>- The mortality assumptions for Pre-Retirement Group 1 and 2 was updated from RP-2014 Blue Collar Employee Morality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 General Employee Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019</li> <li>- The mortality assumptions for Pre-Retirement Group 4 was updated from RP-2014 Blue Collar Employee Morality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2019</li> <li>- The mortality assumptions for the Healthy Retirement Group 1 and 2 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019</li> <li>- The mortality assumptions for the Healthy Retirement Group 4 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019</li> <li>- The mortality assumptions for Disabled participants in Group 1 and 2 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017 to Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019</li> <li>- The mortality assumptions for Disabled participants in Group 4 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017 to Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2019</li> <li>- The administrative expense assumption was increased from \$1,300,000 for calendar 2018 to \$1,500,000 for calendar 2019.</li> </ul>
2017:	\$ 43,565,250	<ul style="list-style-type: none"> <li>- Discount rate decreased from 7.75% to 7.50%</li> <li>- The mortality assumption for nondisabled participants was updated from RP-2000 Employee Healthy Annuitant Mortality Tables projected generationally from 2009 using Scale BB2D to the RP-2014 Blue Collar Employee and Healthy Annuitant Mortality Tables set forward one year for females projected generationally with Scale MP-2017.</li> <li>- The mortality assumptions for disabled participants was updated from the RP-2000 Healthy Annuitant Mortality Table projected generationally from 2015 using Scale BB2D to the RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017.</li> <li>- The administrative expense assumption was increased from \$1,150,000 for calendar 2016 to \$1,300,000 for calendar 2018.</li> </ul>
2015:	\$ 42,033,481	<ul style="list-style-type: none"> <li>- Discount rate decreased from 7.875% to 7.75%</li> <li>- The mortality assumption for nondisabled participants was changed from the RP-2000 Combined Healthy Mortality Table projected 17 years using AA to the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally from 2009 using Scale BB2D.</li> <li>- The mortality assumption for disabled participants was changed from the RP-2000 Combined Healthy Mortality Table set forward five year projected 17 using Scale AA to the RP-2000 Healthy Annuitant Mortality Table projected generationally from 2015 using Scale BB2D.</li> <li>- The salary increase assumption was decreased from 4.75% to 4.5%.</li> <li>- The administrative expense assumption was increased from \$1,100,000 for calendar 2014 to \$1,150,000 for calendar 2016.</li> <li>- The asset valuation method was reset from an actuarial value of assets to a market value of assets.</li> </ul>

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Required Supplementary Information

Schedule of Investment Returns

(Unaudited)

	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2,016</b>	<b>2015</b>	<b>2014</b>
Annual money-weighted rate of return, net of investment expense	17.01 %	12.23 %	16.12 %	(3.56)%	16.49 %	8.40 %	(0.60)%	6.20 %

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

See accompanying independent auditors' report.

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Required Supplementary Information

Schedule of Contributions

(Unaudited)

	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>
Actuarially determined contribution	\$ 53,848,316	48,035,964	45,381,166	42,873,090	40,531,840	39,747,891	37,551,149	35,475,814	35,475,814	31,662,897
Contributions in relation to the actuarially determined contribution	<u>54,148,316</u>	<u>48,335,964</u>	<u>45,681,166</u>	<u>43,173,090</u>	<u>40,831,840</u>	<u>40,047,891</u>	<u>37,851,149</u>	<u>35,775,814</u>	<u>35,775,814</u>	<u>31,967,897</u>
Contribution deficiency (excess)	<u>\$ (300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(305,000)</u>
Covered payroll	\$ 247,847,724	244,609,523	235,687,286	231,568,517	228,696,936	220,963,223	226,826,076	218,627,543	217,086,299	217,086,299
Contributions as a percentage of covered payroll	21.85 %	19.76 %	19.38 %	18.64 %	17.85 %	18.12 %	16.69 %	16.36 %	16.34 %	14.59 %

See accompanying independent auditors' report.

**CITY OF CAMBRIDGE RETIREMENT SYSTEM**

Required Supplementary Information

Notes to Schedule of Contributions

(Unaudited)

Methods and assumptions used to determine contribution rates:

**Valuation date:**

Actuarially determined contribution rates for 2021 are determined with the January 1, 2020 actuarial valuation.

The following assumptions were used for the periods included in the funding for 2021:

<b>Actuarial cost method:</b>	Entry age normal
<b>Amortization method:</b>	Prior year's contributions increased 12.10% per year, plus an additional contribution of \$300,000 each year
<b>Asset valuation method:</b>	Market value of assets as of December 31, 2019 as reported in the System's Annual Statement
<b>Inflation:</b>	3.00%
<b>Salary increases:</b>	4.00%
<b>Investment rate of return:</b>	7.25%, net of plan investment expense lowered from 7.5%
<b>Retirement benefits:</b>	Depending on age at retirement and "Group" classification 0.1%–2.5% per year of service times highest three year average salary. A five year average salary is used for those hired after April 1, 2012
<b>Post-retirement cost of living increases:</b>	The cost-of-living base is \$16,000. Annual cost of living increases are assumed to be 3% of the lesser of the base or annual benefits.
<b>Mortality:</b>	<i>Pre-Retirement Group 1 and 2</i> : Pub-2010 General Employee Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 <i>Pre-Retirement Group 4</i> : Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2019 <i>Healthy Group 1 and 2 Retiree</i> : Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019 <i>Healthy Group 4 Retiree</i> : Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019 <i>Disabled Group 1 and 2 Retiree</i> : Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 <i>Disabled Group 4 Retiree</i> : Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2019
<b>Changes of Assumptions:</b>	Actuarial assumptions are revised periodically to more closely reflect actual, as well as anticipate future experience. When actuarial assumptions have changed in prior years, the Retirement Board formally adopted the change at a monthly meeting.

See accompanying independent auditors' report.