

**CITY OF GROSSE POINTE WOODS**  
**NOTICE OF REGULAR MEETING**  
**Pension Retirement System Board of Trustees**  
**Thursday, February 2, 2023**  
**6:00 PM**

**City Hall Conference Room at 20025 Mack Plaza, Grosse Pointe Woods, MI**

**AGENDA**

1. Call to order
2. Roll call
3. Acceptance of the meeting agenda.
4. Meeting minutes dated November 3, 2022
5. Meeting minutes dated January 5, 2023
6. Trial Balance through December 31, 2022
7. Retirement Application
  - a. Elizabeth Smith-October 28, 2022
8. June 30, 2022 Actuarial Reports-Foster & Foster Actuaries and Consultants
  - a. Actuarial Valuation as of June 30, 2022
  - b. June 30, 2022 Summary Annual Report
9. Excerpt from City of Grosse Pointe Woods Annual Comprehensive Financial Report for Fiscal Year End June 30, 2022. Required Supplemental Information-Pension Plan and Supplemental Annuity
10. 4th Quarter 2022 Fund Evaluation Group Report
  - a. December 31, 2022 Performance Review
  - b. 2023 Capital Market Assumptions-Shift in Expectations
11. Payment of Invoices -
  - a. FEG- \$ 14,425.00
  - b. Comerica quarterly invoice \$ 1,500.00
  - c. Rosati, Schultz, Joppich & Amtsbuechler, P.C. \$ 130.50
  - d. Foster & Foster Actuaries and Consultants \$ 1,000.00
12. Discussion to Increase Annual Administration Fee
13. New Business/Public Comment
14. Adjournment

**Next Regular Board Meeting – May 4, 2023**

**6:00 PM**

**Submitted by:** Shawn Murphy, Pension Administrator

In accordance with Public Act 267 of 1976 (Open Meetings Act), all members of the above Commission/Committee, as well as the general public, are invited to attend this meeting.

Necessary, reasonable auxiliary aids and services to aid individuals with disabilities will be provided. All such requests must be made at least five (5) days prior to a meeting. Individuals with disabilities requiring auxiliary aids or services should contact the City of Grosse Pointe Woods by writing or call the Pension Administrator at (313) 343-2604 or Telecommunications Device for the Deaf (TDD) (313) 343-9249.

MINUTES OF A REGULAR MEETING OF THE BOARD OF TRUSTEES FOR THE RETIREMENT SYSTEM (i.e. The Board) OF THE CITY OF GROSSE POINTE WOODS, HELD ON THURSDAY, NOVEMBER 3, 2022, IN THE CONFERENCE ROOM OF THE MUNICIPAL BUILDING, 20025 MACK PLAZA, GROSSE POINTE WOODS, MICHIGAN.

The meeting was called to order at 6:07 p.m. by Chairperson Mayor Arthur Bryant.

The following members were present:

Chairperson Mayor Arthur Bryant  
Council Representative Victoria Granger  
Citizen Representative Gary Zarb  
General Employee Representative Matt Crook  
Public Safety Representative Brian Conigliaro

Also present:

Pension Administrator, Shawn Murphy  
Fund Evaluation Group (FEG), Jeffrey Davis  
Recording Secretary, Tina Hoenicke

Motion by Granger, supported by Crook that all items on today's agenda be received and placed on file.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

Motion by Granger, supported by Zarb to accept and place on file the minutes of the pension board meeting dated August 4, 2022 as presented.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

Motion by Crook, supported by Granger to receive and place on file the trial balance report as presented through September 30, 2022.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

Pension Board Meeting

11/3/2022

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Motion by Granger, supported by Crook to accept and place on file the retirement applications received from Mr. Gary Guidas, Operator II-DPW, Mr. Michael Lapansie, Crew Chief-DPW, Officer Scott Nota-DPS & Mr. Eugene Tutag-Building Official.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,

NO: None

ABSENT: None

Motion by Granger, supported by Crook to acknowledge receipt of the correspondence received from the City of Highland Park regarding Public Safety Officer Scott Nota's prior service of 2 years, 11 months under Reciprocal Act 88 of 1961 for vesting purposes.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,

NO: None

ABSENT: None

Motion by Granger, supported by Crook to refund unvested pension contributions, with interest, to the following individuals: Mr. Jeremy Collins in the amount of \$2,676.33, Mr. Jonathan Terey in the amount of \$3,869.08 & Mr. Michael Verbruggen in the amount of \$11,162.30.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,

NO: None

ABSENT: None

Mr. Jeffrey Davis provided a presentation of the 3<sup>rd</sup> Quarter Investment Report ending September 30, 2022. Most major equity index levels showed year to date lows and interest rates ascending to the highest level in over a decade. Policy actions by the Federal Reserve during the quarter included a doubling of the pace of quantitative tightening and a 75 basis points hike to the federal funds rate. Global Equity returns were overwhelmingly negative. However, a slight quarterly decline in high yield credit spreads provided a modest bright spot. Mr. Davis did not recommend any changes to the portfolio at this time. Mr. Davis assured the board that if they requested a special meeting in the future, he would be available between regularly scheduled meetings to discuss and or make changes to the portfolio if needed.

Motion by Crook, supported by Zarb to receive and place on file the 3<sup>rd</sup> Quarter Investment Report ending September 30, 2022.

Pension Board Meeting  
11/03/2022  
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Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

Motion by Crook, supported by Zarb to approve payment for invoices 9a through 9e; Fund Evaluation Group in the amount of \$14,433.00, Comerica in the amount of \$1,500.00, Rosati, Schultz, Joppich & Amtsbuechler, PC for the following amounts: \$320.76 & \$58.00 and Foster & Foster Actuaries and Consultants in the amount of \$15,900.00.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

Motion by Granger, supported by Crook to authorize the Pension Administrator to pay the annual administrative fee to the City of Grosse Pointe Woods in the amount of \$10,000.00.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

New Business:

Motion by Crook, supported by Granger to authorize payment of the \$200 renewal fee for the 2023 MAPERS membership.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

The Pension Administrator provided notification regarding the Department of Public Safety union contract effective July 1, 2022 and the Employee Retention Option Plan (EROP). Notification is for informational purposes only.

Public Comment: None

Motion by Crook, supported by Zarb to adjourn at 6:49 pm.

Pension Board Meeting  
11/03/2022  
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Motion CARRIED by the following vote:

YES: Bryant, Granger, Zarb, Crook, Conigliaro,  
NO: None  
ABSENT: None

Minutes recorded by: Tina Hoenicke  
Approved by the Pension Board:

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Shawn Murphy, Pension Administrator

DRAFT

MINUTES OF A SPECIAL MEETING OF THE BOARD OF TRUSTEES FOR THE RETIREMENT SYSTEM (i.e. The Board) OF THE CITY OF GROSSE POINTE WOODS, HELD ON THURSDAY, JANUARY 5, 2023, IN THE CONFERENCE ROOM OF THE MUNICIPAL BUILDING, 20025 MACK PLAZA, GROSSE POINTE WOODS, MICHIGAN.

The meeting was called to order at 6:00 p.m. by Chairperson Mayor Arthur Bryant.

The following members were present:

Chairperson Mayor Arthur Bryant  
Council Representative Victoria Granger  
General Employee Representative Matt Crook  
Citizen Representative Gary Zarb  
Public Safety Representative, Brian Conigliaro

Also present:

Pension Administrator, Shawn Murphy  
City Administrator, Frank Schulte  
City Attorney, Debra Walling  
Pension Attorney, Michael VanOverbeke  
Recording Secretary, Tina Hoenicke

Motion by Granger, supported by Zarb that all items on today's agenda be received and placed on file.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Granger, supported by Crook to approve payment of the invoice from Foster & Foster Actuaries and Consultants in the amount of \$14,700.00.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Granger, supported by Zarb that the Pension Board recess the specially scheduled Pension Board Meeting at 6:03 pm and convene in Closed Session to consider a written attorney letter exempt from disclosure under Section 13(1)(g) of the Freedom of Information Act, at which time this body may or may not reconvene in regular session to address additional items as necessary.

Pension Board Meeting  
1/5/2023  
Page 2

Motion carried by the following roll call vote:

Chairperson Mayor Arthur Bryant:	Yes
Council Representative Victoria Granger:	Yes
General Employee Representative Matt Crook:	Yes
Public Safety Representative Brian Conigliaro:	Yes
Citizen Representative Gary Zarb:	Yes

The Pension Board moved to a closed session at 6:03 pm and re-convened the open meeting at 6:54 pm.

New Business/Public Comment: None

Motion by Crook, supported by Zarb to adjourn at 6:56 pm.

Motion CARRIED by the following vote:

YES:	Bryant, Granger, Conigliaro, Crook, Zarb
NO:	None
ABSENT:	None

Minutes recorded by: Tina Hoenicke

Approved by the Pension Board:

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Shawn Murphy, Pension Administrator



Fund 731 PENSION FUND

GL Number	Description	Balance
*** Assets ***		
731-000-001.000	CASH	0.00
731-000-004.100	PENSION PETTY CASH	0.00
731-000-005.000	CASH	183,857.40
731-000-005.001	SCHWAB CASH	203,057.35
731-000-017.000	CASH -MERRILL LYNCH	0.00
731-000-018.000	MUTUAL FUNDS	0.00
731-000-040.000	ACCOUNT RECEIVABLE	0.00
731-000-050.000	CONTRIBUTIONS RECEIVABLE-ER	0.00
731-000-050.100	CONTRIBUTION RECEIVABLE-EE	0.00
731-000-050.200	MEDICARE CONTRIB RECEIVABLE	0.00
731-000-056.000	INTEREST REC	963.68
731-000-084.101	DUE F/GENERAL FUND	0.00
731-000-119.000	PREMIUM ON PURCHASE	0.00
731-000-120.000	US GOVT SECURTIES	0.00
731-000-121.000	BONDS	6,155,829.34
731-000-122.000	STOCKS	14,670,852.96
731-000-123.000	PREPAID EXPENSE	0.00
731-000-124.000	INDEXES	16,293,992.68
731-000-125.000	REAL ESTATE INV.	0.00
<b>Total Assets</b>		<b>37,508,553.41</b>
*** Liabilities ***		
731-000-202.000	ACCOUNTS PAYABLE	0.00
731-000-202.100	WEEKLY A/P	0.00
<b>Total Liabilities</b>		<b>0.00</b>
*** Fund Balance ***		
731-000-378.299	EMPLOYER RES-PS	0.00
731-000-390.000	CURRENT FUND BALANCE	0.00
731-000-390.100	PRIOR FUND BALANCE	4,964,534.50
731-000-390.200	RETIREE BENEFITS RES	33,151,402.56
<b>Total Fund Balance</b>		<b>38,115,937.06</b>
<b>Beginning Fund Balance</b>		<b>38,115,937.06</b>
<b>Net of Revenues VS Expenditures</b>		<b>(607,383.65)</b>
<b>Ending Fund Balance</b>		<b>37,508,553.41</b>
<b>Total Liabilities And Fund Balance</b>		<b>37,508,553.41</b>

Fund 734 SUPPLEMENTAL ANNUITY FUND

GL Number	Description	Balance
*** Assets ***		
734-000-001.000	CASH	0.00
734-000-005.000	CASH	10,793.67
734-000-005.001	SCHWAB CASH	365,677.29
734-000-006.000	CASH-TRUST	0.00
734-000-016.000	CASH	0.00
734-000-017.000	CASH -MERRILL LYNCH	0.00
734-000-056.000	INTEREST RECEIVABLE	10.89
734-000-058.000	CONTRIBUTIONS RECEIVABLE	0.00
734-000-084.101	DUE F/GENERAL FD	0.00
734-000-120.000	US GOVT SEC	0.00
734-000-121.100	BONDS	333,325.41
734-000-122.000	STOCKS	884,174.33
734-000-123.000	PREPAID EXPENSE	0.00
734-000-124.000	INDEXES	1,050,146.93
<b>Total Assets</b>		<b>2,644,128.52</b>
*** Liabilities ***		
734-000-202.000	ACCOUNTS PAYABLE	0.00
734-000-202.100	WEEKLY A/P	0.00
<b>Total Liabilities</b>		<b>0.00</b>
*** Fund Balance ***		
734-000-390.000	CURRENT FUND BALANCE	1,460,744.52
734-000-390.100	PRIOR FUND BALANCE	65,928.00
734-000-390.300	SUPPLEMENTAL ANNUITY RESERVE	788,255.00
<b>Total Fund Balance</b>		<b>2,314,927.52</b>
<b>Beginning Fund Balance</b>		<b>2,314,927.52</b>
<b>Net of Revenues VS Expenditures</b>		<b>329,201.00</b>
<b>Ending Fund Balance</b>		<b>2,644,128.52</b>
<b>Total Liabilities And Fund Balance</b>		<b>2,644,128.52</b>

**EMPLOYEES RETIREMENT SYSTEM  
APPLICATION FOR SERVICE RETIREMENT**

Pension Membership No. 613

To the Board of Trustees, City of Grosse Pointe Woods Employees Retirement System:

I, Elizabeth Smith a member of the Retirement System, hereby apply (select one).

- 1. Service & Age Retirement
- 2. Disability Retirement

Date of birth: [REDACTED] I request my retirement be effective: 10-28-22

My title on the payroll is: Administrative Clerk I Department: Department of Public Service

Dated at Grosse Pointe Woods, MI this 24 day of OCTOBER, 2022

Shawn Murphy  
Signature of Witness

Elizabeth R Smith  
Signature of Member

I elect to receive my retirement allowance in the following manner. (Place an X next to the option requested.) **PLEASE NOTE:** This is an irrevocable selection.

- Regular service retirement
- Option I cash refund annuity
- Option II joint and last survivorship annuity
- Option III modified joint & last survivorship annuity

Write plan of retirement elected OPTION II, JOINT AND LAST SURVIVORSHIP ANNUITY

- I wish to withdraw my accumulative contribution in the amount of \$ \_\_\_\_\_
- I do not wish to withdraw my accumulated contribution
- I certify that my (wife) (husband) at this date of retirement is: SCOTT R. SMITH

Supplemental annuity payment (if applicable) per month will be: \$ 250-

Shawn Murphy 10-24-22  
Signature of Witness & Date

Elizabeth R Smith 10-24-22  
Signature of Member & Date

**NOMINATION OF BENEFICIARY**

I nominate as my beneficiary:

SCOTT R. SMITH

Beneficiary's date of birth: [REDACTED]

Beneficiary's relationship to me: HUSBAND

Sex: m

Beneficiary's address: [REDACTED]

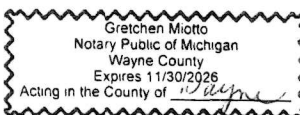
Beneficiary's place of birth: GROSSE POINTE

Dated at Grosse Pointe Woods, MI this 24<sup>th</sup> day of October, 2022

Signed: Elizabeth R Smith

Subscribed and sworn to before me this 24<sup>th</sup> day of October 2022  
My commission expires on: 11/30/2026

Notary Public Gretchen Miotto



CITY OF GROSSE POINTE WOODS  
EMPLOYEES RETIREMENT SYSTEM

ACTUARIAL VALUATION  
AS OF JUNE 30, 2022

CONTRIBUTIONS APPLICABLE TO THE  
PLAN/FISCAL YEAR BEGINNING JULY 1, 2023

P.A. 202 VALUATION  
AS OF JUNE 30, 2022

GASB 67/68 DISCLOSURE INFORMATION  
AS OF JUNE 30, 2022



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS



October 26, 2022

Board of Trustees  
City of Grosse Pointe Woods Employees Retirement System

Re: Actuarial Valuation Report (including revised GASB Statements No. 67 and No. 68) – City of GrossePointe Woods Employees Retirement System

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the City of Grosse Pointe Woods Employees Retirement System. Included are the related results for GASB Statements No. 67 and No. 68. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No 68. Use of the results for other purposes may not be applicable and could produce significantly different results.

The valuations have been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflect laws and regulations issued to date pursuant to the Retirement System, as well as applicable federal laws and regulations. In our opinion, the assumptions used in this valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuations, we did not perform an analysis of the potential range of such future measurements.

The funding percentages and unfunded accrued liability as measured based on the actuarial value of assets will differ from similar measures based on the market value of assets. These measures, as provided, are appropriate for determining the adequacy of future contributions, but may not be appropriate for the purpose of settling a portion or all of its liabilities.

In conducting the valuations, we have relied on personnel, plan design, and asset information supplied by the Board, financial reports prepared by the custodian bank and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

The total pension liability, net pension liability, and certain sensitivity information shown in the GASB results are based on an actuarial valuation performed as of the valuation date.

In performing the analysis, we used third-party software to model (calculate) the underlying liabilities and costs. These results are reviewed in the aggregate and for individual sample lives. The output from the software is either used directly or input into internally developed models to generate the costs. All internally developed models are reviewed as part of the process. As a result of this review, we believe that the models have produced reasonable results. We do not believe there are any material inconsistencies among assumptions or unreasonable output produced due to the aggregation of assumptions.

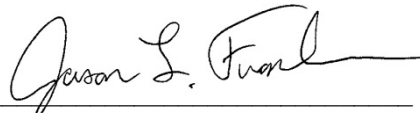
The undersigned are familiar with the immediate and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in the City of Grosse Pointe Woods, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the City of Grosse Pointe Woods Employees Retirement System. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 630-620-0200.

Respectfully submitted,

Foster & Foster, Inc.

By:   
Jason L. Franken, FSA, EA, MAAA

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SUMMARY OF REPORT

The regular annual actuarial valuation of the City of Grosse Pointe Woods Employees Retirement System, performed as of June 30, 2022, has been completed and the results are presented in this Report. The contribution amounts set forth herein are applicable to the plan/fiscal year beginning July 1, 2023.

The contribution requirements, compared with those set forth in the June 30, 2021 actuarial report, are as follows:

Valuation Date	6/30/2022	6/30/2021
Applicable to Fiscal Year Beginning	<u>7/1/2023</u>	<u>7/1/2022</u>
Total Recommended Contribution	\$2,205,664	\$2,318,511
% of Projected Annual Payroll	38.91%	41.28%
Member Contributions (Est.)	(326,695)	(325,220)
% of Projected Annual Payroll	(5.76%)	(5.79%)
City Recommended Contribution	1,878,969	1,993,291
% of Projected Annual Payroll	33.15%	35.49%

As you can see, the Total Recommended Contribution shows a decrease from the June 30, 2021 actuarial valuation report. The decrease is attributable to the plan changes.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. Sources of unfavorable experience included an investment return of 4.70% (Actuarial Asset Basis) which fell short of the 7.50% assumption and more retirements than expected. These losses were offset in part by a gain associated with higher than expected inactive mortality.



## CHANGES SINCE THE PRIOR VALUATION

The valuation reflects the following plan changes:

- The pension multiplier for Public Safety Officers hired after July 1, 2011, was changed from 2.0% to 2.5%.
- Effective September 12, 2022, the plan implemented the Employee Retention Option Program (EROP) program for both Command and Public Safety Officers.

The valuation reflects no assumption or method changes.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

Valuation Date	New Benefits <u>6/30/2022</u>	Old Benefits <u>6/30/2022</u>	<u>6/30/2021</u>
A. Participant Data			
Number Included			
Actives	79	79	78
Service Retirees	86	86	86
Beneficiaries	17	17	16
Disability Retirees	0	0	0
Terminated Vested	<u>16</u>	<u>16</u>	<u>13</u>
Total	198	198	193
Total Projected Annual Payroll	\$5,668,368	\$5,668,368	\$5,616,709
Payroll Under Assumed Ret. Age	5,668,369	5,668,369	5,616,709
Annual Rate of Payments to:			
Service Retirees	3,013,205	3,013,205	2,912,997
Beneficiaries	513,185	513,185	494,303
Disability Retirees	0	0	0
Terminated Vested	148,317	148,317	148,979
B. Assets			
Actuarial Value	41,703,710	41,703,710	41,121,607
Market Value	38,115,937	38,115,937	45,943,628
C. Liabilities			
Present Value of Benefits (PVB)			
Actives			
Retirement Benefits	20,957,181	23,090,287	23,467,261
Disability Benefits	1,739,611	1,682,999	1,696,845
Death Benefits	285,755	279,547	280,339
Vested Benefits	649,688	639,493	624,104
Service Retirees	39,273,933	39,273,933	37,735,035
Beneficiaries	4,830,917	4,830,917	4,745,522
Disability Retirees	0	0	0
Terminated Vested	<u>1,280,240</u>	<u>1,280,240</u>	<u>1,192,327</u>
Total	69,017,325	71,077,416	69,741,433

C. Liabilities - (Continued)	New Benefits <u>6/30/2022</u>	Old Benefits <u>6/30/2022</u>	<u>6/30/2021</u>
Present Value of Future Salaries	48,053,737	48,053,737	46,823,263
Normal Cost (Retirement)	638,282	683,078	683,244
Normal Cost (Disability)	80,269	77,092	76,585
Normal Cost (Death)	15,744	15,405	15,058
Normal Cost (Vesting)	<u>53,018</u>	<u>52,428</u>	<u>47,505</u>
Total Normal Cost (EAN)	787,313	828,003	822,392
Present Value of Future Normal Costs	6,500,055	6,756,773	6,655,766
Accrued Liability (Retirement)	15,569,871	17,396,293	17,853,421
Accrued Liability (Disability)	1,074,738	1,057,302	1,075,164
Accrued Liability (Death)	171,391	169,249	171,866
Accrued Liability (Vesting)	316,180	312,709	312,332
Accrued Liability (Inactives) <sup>1</sup>	<u>45,385,090</u>	<u>45,385,090</u>	<u>43,672,884</u>
Total Actuarial Accrued Liability	62,517,270	64,320,643	63,085,667
Unfunded Actuarial Accrued Liability (UAAL)	20,813,560	22,616,933	21,964,060
Funded Ratio (AVA / AL)	66.7%	64.8%	65.2%

<sup>1</sup> Includes reserve for EROP balances. \$0 as of 6/30/2022.

	New Benefits <u>6/30/2022</u>	Old Benefits <u>6/30/2022</u>	<u>6/30/2021</u>
D. Actuarial Present Value of Accrued Benefits			
Vested Accrued Benefits			
Inactives <sup>1</sup>	45,385,090	45,385,090	43,672,884
Actives	4,250,204	4,483,883	5,634,279
Member Contributions	<u>4,226,004</u>	<u>4,226,004</u>	<u>4,396,347</u>
Total	53,861,298	54,094,977	53,703,510
Non-vested Accrued Benefits	<u>3,396,747</u>	<u>4,471,875</u>	<u>3,661,772</u>
Total Present Value Accrued Benefits	57,258,045	58,566,852	57,365,282
Funded Ratio (MVA / PVAB)	66.6%	65.1%	80.1%
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:			
Plan Amendments	(1,308,807)	0	
Assumption Changes	0	0	
Plan Experience	0	620,343	
Benefits Paid	0	(3,586,669)	
Interest	0	4,167,896	
Other	<u>0</u>	<u>0</u>	
Total	0	1,201,570	

<sup>1</sup> Includes reserve for EROP balances. \$0 as of 6/30/2022.

	New Benefits	Old Benefits	
Valuation Date	6/30/2022	6/30/2022	6/30/2021
Applicable to Fiscal Year Beginning	<u>7/1/2023</u>	<u>7/1/2023</u>	<u>7/1/2022</u>

E. Pension Cost

Normal Cost <sup>1</sup>	\$846,361	\$890,103	\$884,071
% of Total Annual Payroll <sup>1</sup>	14.93	15.70	15.74
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 25 years (as of 6/30/2022) <sup>1</sup>	1,359,303	1,477,079	1,434,440
% of Total Annual Payroll <sup>1</sup>	23.98	26.06	25.54
Total Recommended Contribution	2,205,664	2,367,182	2,318,511
% of Total Annual Payroll <sup>1</sup>	38.91	41.76	41.28
Expected Member Contributions <sup>1</sup>	(326,695)	(337,463)	(325,220)
% of Total Annual Payroll <sup>1</sup>	(5.76)	(5.95)	(5.79)
Expected City Contribution	1,878,969	2,029,719	1,993,291
% of Total Annual Payroll <sup>1</sup>	33.15	35.81	35.49

F. Past Contributions

Plan Years Ending:	<u>6/30/2022</u>
Total Recommended Contribution	2,284,178
City Requirement	1,993,291
Actual Contributions Made:	
Members (excluding buyback)	290,887
City	<u>2,044,344</u>
Total	2,335,231

G. Net Actuarial (Gain)/Loss 566,742

<sup>1</sup> Contributions developed as of 6/30/2022 displayed above have been adjusted to account for assumed interest.

H. Schedule Illustrating the Amortization of the Total Unfunded Actuarial Accrued Liability as of:

<u>Year</u>	<u>Projected Unfunded Accrued Liability</u>
2022	20,813,560
2023	21,015,274
2024	21,218,942
2030	22,483,081
2036	23,822,531
2041	24,999,499
2047	26,488,866

I. (i) 3 Year Comparison of Actual and Assumed Salary Increases

		<u>Actual</u>	<u>Assumed</u>
Year Ended	6/30/2022	2.73%	4.55%
Year Ended	6/30/2021	12.40%	4.48%
Year Ended	6/30/2020	N/A	N/A

(ii) 3 Year Comparison of Investment Return on Actuarial Value

		<u>Actual</u>	<u>Assumed</u>
Year Ended	6/30/2022	4.66%	7.50%
Year Ended	6/30/2021	9.99%	7.50%
Year Ended	6/30/2020	0.42%	7.50%

PENSION COST BY DIVISION

	<u>General</u>	<u>Public Safety</u>	<u>Total</u>
Projected Payroll	2,946,177	2,722,192	5,668,369
Total Normal Cost <sup>1</sup>	398,124	448,237	846,361
% of Total Annual Payroll <sup>1</sup>	13.52	16.47	14.93
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 25 years (as of 6/30/2022) <sup>1</sup>			
	706,508	652,795	1,359,303
% of Total Annual Payroll <sup>1</sup>	23.98	23.98	23.98
Total Recommended Contribution <sup>1</sup>	1,104,632	1,101,032	2,205,664
% of Total Annual Payroll <sup>1</sup>	37.49	40.45	38.91
Expected Member Contributions <sup>1</sup>	(159,307)	(167,387)	(326,695)
% of Total Annual Payroll <sup>1</sup>	(5.41)	(6.15)	(5.76)
Expected City Contribution	945,325	933,645	1,878,969
% of Total Annual Payroll <sup>1</sup>	32.09	34.30	33.15

<sup>1</sup> Contributions developed as of 6/30/2022 displayed above have been adjusted to account for assumed interest.

DEVELOPMENT OF JUNE 30, 2022 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of June 30, 2021	\$21,964,060
(2)	Sponsor Normal Cost developed as of June 30, 2021	520,775
(3)	Expected administrative expenses for the year ended June 30, 2022	0
(4)	Expected interest on (1), (2) and (3)	1,686,363
(5)	Sponsor contributions to the System during the year ended June 30, 2022	2,044,344
(6)	Expected interest on (5)	76,663
(7)	Expected Unfunded Actuarial Accrued Liability as of June 30, 2022, (1)+(2)+(3)+(4)-(5)-(6)	22,050,191
(8)	Change to UAAL due to Benefits Change	(1,803,373)
(9)	Change to UAAL due to Actuarial (Gain)/Loss	566,742
(10)	Unfunded Accrued Liability as of June 30, 2022	20,813,560
(11)	UAAL Subject to Amortization (100% AAL less Actuarial Assets)	20,813,560

<u>Date</u> <u>Established</u>	<u>Years</u> <u>Remaining</u>	<u>6/30/2022</u> <u>Amount</u>	<u>Amortization</u> <u>Amount</u>
6/30/2022	25	20,813,560	1,264,468



## DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of June 30, 2021	\$21,964,060
(2) Expected UAAL as of June 30, 2022	22,050,191
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	1,148,897
Salary Increases	(127,938)
Active Decrements	814,995
Inactive Mortality	(758,829)
Other	<u>(510,383)</u>
Change in UAAL due to (Gain)/Loss	566,742
Change to UAAL due to Benefits Change	<u>(1,803,373)</u>
(4) Actual UAAL as of June 30, 2022	\$20,813,560

## RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of June 30, 2021	\$ 1,993,291
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	6,032
Change in Assumed Administrative Expense	-
Investment Return (Actuarial Asset Basis)	75,033
Salary Increases	(8,355)
New Entrants	-
Active Decrements	53,226
Inactive Mortality	(49,558)
Contributions (More) or Less than Recommended	(3,459)
Increase in Amortization Payment Due to Payroll Growth Assumption	50,205
Change in Expected Member Contributions	12,243
Benefits Change	(150,750)
Other	<u>(98,939)</u>
Total Change in Contribution	(114,322)
(3) Contribution Determined as of June 30, 2022	\$1,878,969

P.A. 202 REPORTING  
AS OF JUNE 30, 2022

Michigan Public Act 202 of 2017 requires municipal retirement systems in the state to submit information concerning their actuarial accrued liabilities and funded status based on uniform assumptions. The information is to be furnished by the municipality on Form 5572.

Form 5572

Line

24	Actuarial Value of Assets	41,703,710
25	Actuarial Accrued Liabilities	84,764,731
26	Funded Ratio	49.2%
27	Actuarially Determined Contribution	4,617,875

The information was calculated based on the following assumptions, in compliance with the Uniform Assumptions pursuant to PA 202, applicable for fiscal year 2022. All other assumptions are as described in the Actuarial Assumptions and Methods section of this report.

Investment Rate of Return	6.85%
Discount Rate (equivalent single rate used)	4.91%
Periods with sufficient assets	6.85%
Periods without sufficient assets	2.16%
Salary Increase	Experience-based rates
Mortality Table	Pub-2010 with MP-2020
Amortization Period for Unfunded	
Actuarial Accrued Liability	17 years
Cost Method	Entry Age Normal
Amortization Method	Level percent of pay
Payroll Growth Assumption	3.50%

## FUNDING HISTORY

				General		Public Safety	
Valuation Date	Applicable Fiscal Year Beginning	Valuation Assets <sup>1</sup>	Actuarial Accrued Liabilities <sup>1</sup>	Funded Ratio	Unfunded Actuarial Accrued Liabilities <sup>1</sup>	Recommended Employer Contribution - as a% of Payroll	Recommended Employer Contribution - as a% of Payroll
6/30/2003	7/1/2004	35,745	32,137	111.2%	(3,608)	1.40%	5.74%
6/30/2004	7/1/2005	34,404	33,804	101.8%	(600)	8.12%	12.64%
6/30/2005	7/1/2006	33,329	36,141	92.2%	2,812	12.54%	15.50%
6/30/2006	7/1/2007	33,549	36,846	91.1%	3,297	15.21%	18.59%
6/30/2007	7/1/2008	35,801	38,744	92.4%	2,943	14.65%	17.98%
6/30/2008	7/1/2009	37,728	36,310	103.9%	(1,418)	6.22%	7.98%
6/30/2009	7/1/2010	37,149	40,417	91.9%	3,268	10.56%	12.26%
6/30/2010	7/1/2011	36,074	41,541	86.8%	5,467	12.64%	14.28%
6/30/2011	7/1/2012	37,667	42,738	88.1%	5,071	12.55%	14.25%
6/30/2012	7/1/2013	37,369	44,747	83.5%	7,378	15.29%	16.99%
6/30/2013	7/1/2014	37,171	44,950	82.7%	7,779	16.12%	18.14%
6/30/2014	7/1/2015	37,751	45,453	83.1%	7,702	16.82%	19.24%
6/30/2015	7/1/2016	39,363	49,481	79.6%	10,118	20.28%	23.57%
6/30/2016	7/1/2017	39,271	51,299	76.6%	12,028	23.55%	26.03%
6/30/2017	7/1/2018	40,087	50,976	78.6%	10,889	22.31%	24.18%
6/30/2018	7/1/2019	40,347	53,727	75.1%	13,380	25.39%	28.75%
6/30/2019	7/1/2020	39,610	55,232	71.7%	15,622	27.56%	31.19%
6/30/2020	7/1/2021	39,021	59,469	65.6%	20,448	33.85%	38.46%
6/30/2021	7/1/2022	41,122	63,086	65.2%	21,964	33.64%	37.54%
6/30/2022	7/1/2023	41,704	62,517	66.7%	20,814	32.09%	34.30%

<sup>1</sup>Dollar values reported in thousands.

PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2022	132,615	3,545,784	3,678,399
2023	223,089	3,566,599	3,789,688
2024	271,831	3,614,605	3,886,436
2025	368,816	3,664,455	4,033,271
2026	433,946	3,691,124	4,125,070
2027	742,433	3,723,846	4,466,279
2028	741,729	3,760,335	4,502,064
2029	939,632	3,804,441	4,744,073
2030	874,076	3,807,591	4,681,667
2031	1,601,942	3,804,048	5,405,990
2032	1,899,131	3,793,836	5,692,967
2033	1,715,761	3,776,998	5,492,759
2034	2,141,662	3,758,001	5,899,663
2035	2,371,928	3,737,175	6,109,103
2036	3,073,369	3,709,040	6,782,409
2037	3,098,708	3,662,797	6,761,505
2038	2,874,193	3,608,101	6,482,294
2039	2,923,053	3,546,181	6,469,234
2040	2,954,001	3,476,118	6,430,119
2041	2,958,520	3,401,849	6,360,369
2042	3,085,118	3,320,926	6,406,044
2043	3,059,143	3,229,368	6,288,511
2044	3,082,817	3,134,665	6,217,482
2045	3,286,101	3,033,333	6,319,434
2046	3,269,403	2,911,282	6,180,685
2047	3,435,809	2,776,877	6,212,686
2048	4,102,749	2,647,922	6,750,671
2049	3,940,857	2,501,728	6,442,585
2050	3,899,247	2,334,681	6,233,928
2051	3,962,046	2,174,408	6,136,454
2052	4,150,451	2,032,869	6,183,320
2053	4,053,820	1,897,565	5,951,385
2054	4,026,184	1,765,281	5,791,465
2055	4,022,666	1,632,027	5,654,693
2056	3,998,354	1,499,762	5,498,116
2057	3,946,846	1,368,661	5,315,507
2058	3,908,186	1,239,957	5,148,143
2059	3,864,349	1,123,511	4,987,860
2060	3,826,989	1,015,831	4,842,820
2061	3,746,678	915,914	4,662,592

SUPPLEMENTAL ANNUITY VALUATION

Valuation Date	6/30/2022	6/30/2021
Applicable to Fiscal Year Beginning	<u>7/1/2023</u>	<u>7/1/2022</u>
Total Actuarial Accrued Liability	3,885,922	3,849,603
Market Value of Assets	<u>2,314,927</u>	<u>2,605,835</u>
Unfunded Actuarial Accrued Liability	1,570,995	1,243,768
Pension Cost		
Total Normal Cost (EAN) <sup>1</sup>	48,336	48,535
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 10 years (as of 6/30/2022) <sup>1</sup>	228,872	181,199
Total Recommended Contribution	277,208	229,734

<sup>1</sup> Contributions developed as of 6/30/2022 displayed above have been adjusted to account for assumed interest.

SUPPLEMENTAL ANNUITY VALUATION  
BY DIVISION

	<u>General</u>	<u>Public Safety</u>	<u>Total</u>
Total Actuarial Accrued Liability	3,578,798	307,124	3,885,922
Market Value of Assets	<u>2,131,967</u>	<u>182,960</u>	<u>2,314,927</u>
Unfunded Actuarial Accrued Liability	1,446,831	124,164	1,570,995
 Pension Cost - Total			
Total Normal Cost	48,336	0	48,336
UAAL Amortization	<u>210,783</u>	<u>18,089</u>	<u>228,872</u>
Total Recommended Contribution	259,119	18,089	277,208
 Pension Cost - Dollars Per Active Member			
Total Normal Cost	967	0	
UAAL Amortization	<u>4,216</u>	<u>624</u>	
Total Recommended Contribution	5,182	624	
 Participant Summary			
Counts			
Actives	50	29 <sup>1</sup>	79
Retirees and Beneficiaries	49	8	57
 Supplemental Annuities			
Total Annuities	239,987	39,505	279,492
Average Annuities	4,898	4,938	4,903

<sup>1</sup> Summarized for cost per active member only. Currently no Public Safety members are eligible.

ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	7.50% per year compounded annually, net of investment related expenses.
Mortality Rate	<i>Active Lives</i> PubS-2010 and PubG-2010 Employee mortality tables, with generational improvements using Scale MP-2018.  <i>Inactive Lives</i> PubS-2010 and PubG-2010 Healthy Retiree mortality tables, with generational improvements using Scale MP-2018.
Retirement Age	See table later in this section.
Disability Rate	See table later in this section. 100% of disabilities are assumed to be in the non-duty.
Termination Rate	See table later in this section.
Inflation	2.50%.
Salary Increases	See table below.

Ages	Inflation	Merit and Longevity	
		General	Public Safety
20	3.50%	3.84%	2.99%
25	3.50%	3.13%	2.99%
30	3.50%	2.69%	2.60%
35	3.50%	2.37%	1.10%
40	3.50%	2.14%	0.20%
45	3.50%	1.68%	0.20%
50	3.50%	1.14%	0.20%
55	3.50%	0.66%	0.10%
60	3.50%	0.16%	0.00%

Marital Status	90% of Members are assumed to be married.
Spouse's Age	Males are assumed to be three years older than females.
Member Contribution Interest	2.00%.
Cost-of-Living Adjustment	2.50%



Annuity Withdrawal Assumptions	100% of members are assumed to elect a lump sum of member contributions in exchange for a reduced annuity benefit at retirement. The annuity offset is equal to the annuitized value of the member contributions using a 7.50% assumed interest rate.
EROP Assumptions	<p>100% of eligible members elect to enter EROP according to the assumed retirement rates.</p> <p>Members are assumed to remain in EROP for 5 years and take their balance at the end of the EROP period.</p> <p>The EROP is assumed to continue beyond the six-year sunset provision. Members who become eligible to enter EROP after the six-year sunset are assumed to elect EROP when eligible.</p>
Funding Method	Entry Age Normal.
Actuarial Asset Method	Investment gains and losses are smoothed over a five-year period. In the first year, 20% of the gain or loss is recognized. In the second year 40%, in the third year 60%, in the fourth year 80%, and in the fifth year 100% of the gain or loss is recognized. The actuarial investment gain or loss is defined as the actual return on investments minus the actuarial assumed investment return. Actuarial Assets shall not be less than 80% nor greater than 120% of the Market Value of Assets.
Funding Policy Amortization Method	The unfunded present value of benefits is amortized according to a level percentage of payroll method over an open 25 year period.
Payroll Growth	3.50%.

Decrement Tables

General - % Terminating During the Year							Public Safety - % Terminating During the Year						
	Service							Service					
Age	0	1	2	3	4	5+	Age	0	1	2	3	4	5+
< 27	20%	15%	12%	10%	8%	6.0%	< 27	12%	9%	8%	7%	6%	4.5%
30	20%	15%	12%	10%	8%	6.0%	30	12%	9%	8%	7%	6%	3.9%
35	20%	15%	12%	10%	8%	5.0%	35	12%	9%	8%	7%	6%	2.3%
40	20%	15%	12%	10%	8%	3.0%	40	12%	9%	8%	7%	6%	0.9%
45	20%	15%	12%	10%	8%	2.0%	45	12%	9%	8%	7%	6%	0.5%
50	20%	15%	12%	10%	8%	2.0%	50	12%	9%	8%	7%	6%	0.5%
55+	20%	15%	12%	10%	8%	1.0%	55+	12%	9%	8%	7%	6%	1.0%

% Becoming Disabled  
During the Year

Age	General Rate	Public Safety Rate
20	0.039%	0.088%
25	0.039%	0.144%
30	0.039%	0.296%
35	0.039%	0.488%
40	0.101%	0.680%
45	0.133%	0.872%
50	0.246%	1.064%
55	0.447%	1.264%
60	0.707%	1.464%
65+	0.829%	0.000%

% Retiring  
During the Year

Age	General Rate	Public Safety Rate
50	30%	40%
51	25%	40%
52 - 54	20%	30%
55	30%	40%
56	30%	30%
57 - 59	25%	30%
60	30%	40%
61	15%	15%
62	35%	20%
63 - 64	15%	15%
65	60%	60%
66	30%	30%
67	40%	40%
68	50%	50%
69	90%	70%
70+	100%	100%

## GLOSSARY

Total Annual Payroll is the projected annual rate of pay for the fiscal year following the valuation date of all covered members.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Normal (Current Year's) Cost is the current year's cost for benefits yet to be funded.

Unfunded Accrued Liability is the excess of the Accrued Actuarial Liability over the Actuarial Value of Assets.

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability over open period (25 years as of June 30, 2022). The recommended amount is adjusted for interest according to the timing of contributions during the year.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

- (a) The normal cost accrual rate equals:
  - (i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by
  - (ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.
- (b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.
- (c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits. The unfunded accrued liability equals the total accrued liability less the actuarial value of assets.
- (d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

## DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Payroll Growth: The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization payment can increase significantly as a percentage of payroll even if all assumptions other than the payroll growth assumption are realized.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

- **Contribution Risk:** This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board’s funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

### Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled “Plan Maturity Measures and Other Risk Metrics”. Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has stayed about the same from June 30, 2020 to June 30, 2022, indicating that the plan's maturity level has not significantly changed during the period.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan, to the Total Accrued Liability, is 72.6%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has stayed approximately the same from June 30, 2020 to June 30, 2022, due to sufficient plan contributions.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, increased from -5.1% on June 30, 2020 to -3.6% on June 30, 2022. The current Net Cash Flow Ratio of -3.6% indicates that contributions are not currently covering the plan's benefit payments and administrative expenses.

It is important to note that the actuary has identified the risks above as the most significant risks based on the characteristics of the plan and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the audience addressed on page 2 of this report.

PLAN MATURITY MEASURES AND OTHER RISK METRICS

	<u>6/30/2022</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
<u>Support Ratio</u>			
Total Actives	79	78	77
Total Inactives	119	115	113
Actives / Inactives	66.4%	67.8%	68.1%

Asset Volatility Ratio

Market Value of Assets (MVA)	38,115,937	45,943,628	35,546,210
Total Annual Payroll	5,668,368	5,616,709	5,003,657
MVA / Total Annual Payroll	672.4%	818.0%	710.4%

Accrued Liability (AL) Ratio

Inactive Accrued Liability	45,385,090	43,672,884	42,863,926
Total Accrued Liability	62,517,270	63,085,667	59,468,968
Inactive AL / Total AL	72.6%	69.2%	72.1%

Funded Ratio

Actuarial Value of Assets (AVA)	41,703,710	41,121,607	39,020,573
Total Accrued Liability	62,517,270	63,085,667	59,468,968
AVA / Total Accrued Liability	66.7%	65.2%	65.6%

Net Cash Flow Ratio

Net Cash Flow <sup>1</sup>	(1,303,740)	(1,712,263)	(1,805,866)
Market Value of Assets (MVA)	38,115,937	45,943,628	35,546,210
Ratio	-3.4%	-3.7%	-5.1%

<sup>1</sup> Determined as total contributions minus benefit payments and administrative expenses.

STATEMENT OF FIDUCIARY NET POSITION  
June 30, 2022

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents	778,313
Receivables:	
Accrued Interest and Dividends	179
Total Receivable	179
Investments:	
Fixed Income	6,347,601
Domestic and International Equities	14,558,181
Other Investments	16,431,663
Total Investments	37,337,445
Total Assets	38,115,937
 <u>LIABILITIES</u>	
Total Liabilities	0
Net Assets:	
Active and Retired Members' Equity	38,115,937
NET POSITION RESTRICTED FOR PENSIONS	38,115,937
TOTAL LIABILITIES AND NET ASSETS	38,115,937



STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
 FOR THE YEAR ENDED June 30, 2022  
 Market Value Basis

ADDITIONS

Contributions:		
Member	290,887	
City	2,044,344	
 Total Contributions		 2,335,231
 Investment Income:		
Net Increase in Fair Value of Investments		(6,751,573)
Interest & Dividends		299,295
Less Expenses <sup>1</sup>		(71,200)
 Net Investment Income		 (6,523,478)
 Total Additions		 (4,188,247)

DEDUCTIONS

Distributions to Members:		
Benefit Payments	3,586,669	
 Total Distributions		 3,586,669
 Administrative Expenses		 52,302
 Other		 473
 Total Deductions		 3,639,444
 Net Increase in Net Position		 (7,827,691)

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year		45,943,628
End of the Year		38,115,937

<sup>1</sup> Expenses include investment advisory, custodial and performance monitoring fees

ACTUARIAL ASSET VALUATION  
June 30, 2022

Development of Actuarial Value of Assets

Market Value of Assets, 6/30/2022	38,115,937
(Gains)/Losses Not Yet Recognized	3,587,773
Preliminary Actuarial Value of Assets, 6/30/2022	41,703,710
6/30/2022 Limited Actuarial Assets, Total	41,703,710

Development of Investment Gain/Loss

Market Value of Assets, 6/30/2021	45,943,628
Actuarial Value of Assets, 6/30/2021	41,121,607
Contributions Less Benefit Payments and Administrative Expenses	(1,304,213)
Expected Investment Earnings <sup>1</sup>	3,035,213
Actual Net Investment Earnings	(6,523,478)
2022 Actuarial Investment Gain/(Loss)	(9,558,691)

<sup>1</sup> Expected Investment Earnings = 7.50% x (41,121,607 + 0.5 x -1,304,213)

Gains/(Losses) Not Yet Recognized

Plan Year Ending	Gain/(Loss)	Amounts Not Yet Recognized by Valuation Year				
		2022	2023	2024	2025	2026
6/30/2019	(1,760,767)	(352,153)	0	0	0	0
6/30/2020	(2,842,690)	(1,137,076)	(568,538)	0	0	0
6/30/2021	9,247,348	5,548,409	3,698,939	1,849,470	0	0
6/30/2022	(9,558,691)	(7,646,953)	(5,735,215)	(3,823,476)	(1,911,738)	0
Total		(3,587,773)	(2,604,814)	(1,974,006)	(1,911,738)	0

Development of Asset Returns

(A) 6/30/2021 Actuarial Assets:	41,121,607
(I) Net Investment Income:	
1. Interest and Dividends	299,295
2. Change in Actuarial Value	1,658,221
3. Investment Expenses	(71,200)
Total	1,886,316
(B) 6/30/2022 Preliminary Actuarial Assets:	41,703,710
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	4.66%
Market Value of Assets Rate of Return:	-14.40%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(1,148,897)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
 June 30, 2022  
 Actuarial Asset Basis

INCOME		
Contributions:		
Member	290,887	
City	2,044,344	
Total Contributions		2,335,231
Earnings from Investments		
Interest & Dividends	299,295	
Change in Actuarial Value	1,658,221	
Total Earnings and Investment Gains		1,957,516
EXPENSES		
Administrative Expenses:		
Investment Related <sup>1</sup>	71,200	
Other	52,775	
Total Administrative Expenses		123,975
Distributions to Members:		
Benefit Payments	3,586,669	
Total Distributions		3,586,669
Change in Net Assets for the Year		582,103
Net Assets Beginning of the Year		41,121,607
Net Assets End of the Year <sup>2</sup>		41,703,710
Excess Earnings Reserve		

<sup>1</sup> Investment Related expenses include investment advisory, custodial and performance monitoring fees.

<sup>2</sup> Net Assets may be limited for actuarial consideration.

## STATISTICAL DATA

Valuation Date	<u>6/30/2022</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
<u>Actives</u>			
Number	79	78	77
Average Current Age	44.4	45.1	45.8
Average Age at Employment	33.2	33.0	33.5
Average Past Service	11.2	12.1	12.3
Average Annual Salary	\$68,679	\$68,880	\$62,222
<u>Service Retirees</u>			
Number	86	86	86
Average Current Age	69.1	69.4	N/A
Average Annual Benefit	\$35,037	\$33,872	\$33,262 <sup>1</sup>
<u>Beneficiaries</u>			
Number	17	16	13
Average Current Age	74.6	74.8	N/A
Average Annual Benefit	\$30,187	\$30,894	N/A
EDROs incl. in Beneficiaries	3	2	2
<u>Disability Retirees</u>			
Number	0	0	0
Average Current Age	N/A	N/A	N/A
Average Annual Benefit	N/A	N/A	N/A
<u>Terminated Vested</u>			
Number	16	13	14
Average Current Age	50.7	N/A	N/A
Average Annual Benefit <sup>2</sup>	\$11,409	\$11,460	\$11,513

<sup>1</sup> 6/30/2020 Retiree average annual benefit amount includes retirees, beneficiaries and disableds.

<sup>2</sup> Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan.

STATISTICAL DATA BY DIVISION

	<u>6/30/2022</u>	<u>6/30/2021</u>	<u>6/30/2020</u>	<u>6/30/2019</u>
<u>Actives - General</u>				
Number	50	49	48	N/A
Average Current Age	45.1	46.3	47.6	N/A
Average Age at Employment	35.9	35.8	36.6	N/A
Average Past Service	9.2	10.6	11.0	N/A
Average Annual Salary	\$56,213	\$57,476	\$51,583	N/A
<u>Actives - Public Safety</u>				
Number	29	29	29	N/A
Average Current Age	43.3	43.1	42.7	N/A
Average Age at Employment	28.6	28.5	28.3	N/A
Average Past Service	14.6	14.6	14.4	N/A
Average Annual Salary	\$90,172	\$88,148	\$79,832	N/A

AGE AND SERVICE DISTRIBUTION  
TOTAL

AGE	PAST SERVICE											Total	Total Pay <sup>1</sup>
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+		
20 - 24	1	0	1	0	0	0	0	0	0	0	0	2	\$ 93,637
25 - 29	2	3	0	0	1	0	0	0	0	0	0	6	\$ 342,687
30 - 34	2	0	0	0	0	3	0	0	0	0	0	5	\$ 340,747
35 - 39	2	3	2	0	2	2	2	0	0	0	0	13	\$ 733,555
40 - 44	0	0	0	1	0	1	1	10	0	0	0	13	\$ 1,086,867
45 - 49	1	0	0	0	0	1	0	3	6	0	0	11	\$ 842,114
50 - 54	2	0	0	2	1	3	0	2	8	0	0	18	\$ 1,303,618
55 - 59	0	0	0	0	0	2	0	0	1	0	0	3	\$ 235,815
60 - 64	1	0	1	0	0	2	0	0	1	0	0	5	\$ 251,785
65+	0	0	0	0	0	1	0	1	1	0	0	3	\$ 194,825
Total	11	6	4	3	4	15	3	16	17	0	0	79	\$ 5,425,650

<sup>1</sup> Total Pay is salaries for the period ending 6/30/2022.

AGE AND SERVICE DISTRIBUTION  
GENERAL

AGE	PAST SERVICE											Total	Total Pay <sup>1</sup>
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+		
20 - 24	1	0	1	0	0	0	0	0	0	0	0	2	\$ 93,637
25 - 29	2	2	0	0	0	0	0	0	0	0	0	4	\$ 193,064
30 - 34	1	0	0	0	0	1	0	0	0	0	0	2	\$ 99,094
35 - 39	2	3	0	0	2	2	2	0	0	0	0	11	\$ 590,383
40 - 44	0	0	0	1	0	1	0	1	0	0	0	3	\$ 172,449
45 - 49	1	0	0	0	0	1	0	2	3	0	0	7	\$ 424,756
50 - 54	2	0	0	2	1	1	0	1	5	0	0	12	\$ 747,180
55 - 59	0	0	0	0	0	2	0	0	0	0	0	2	\$ 131,037
60 - 64	1	0	1	0	0	2	0	0	0	0	0	4	\$ 164,243
65+	0	0	0	0	0	1	0	1	1	0	0	3	\$ 194,825
Total	10	5	2	3	3	11	2	5	9	0	0	50	\$ 2,810,667

<sup>1</sup> Total Pay is salaries for the period ending 6/30/2022.

AGE AND SERVICE DISTRIBUTION  
PUBLIC SAFETY

AGE	PAST SERVICE											Total	Total Pay <sup>1</sup>	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+			
20 - 24	0	0	0	0	0	0	0	0	0	0	0	0	0	\$ 0
25 - 29	0	1	0	0	1	0	0	0	0	0	0	2	\$ 149,623	
30 - 34	1	0	0	0	0	2	0	0	0	0	0	3	\$ 241,653	
35 - 39	0	0	2	0	0	0	0	0	0	0	0	2	\$ 143,172	
40 - 44	0	0	0	0	0	0	1	9	0	0	0	10	\$ 914,418	
45 - 49	0	0	0	0	0	0	0	1	3	0	0	4	\$ 417,358	
50 - 54	0	0	0	0	0	2	0	1	3	0	0	6	\$ 556,438	
55 - 59	0	0	0	0	0	0	0	0	1	0	0	1	\$ 104,778	
60 - 64	0	0	0	0	0	0	0	0	1	0	0	1	\$ 87,542	
65+	0	0	0	0	0	0	0	0	0	0	0	0	\$ 0	
Total	1	1	2	0	1	4	1	11	8	0	0	29	\$2,614,983	

<sup>1</sup> Total Pay is salaries for the period ending 6/30/2022.



AGE DISTRIBUTION  
RETIREES, DISABLEDS AND BENEFICIARIES

AGE	<u>General</u>		<u>Public Safety</u>		<u>Total</u>	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
< 45	0	\$ 0	0	\$ 0	0	\$ 0
45 - 49	0	\$ 0	2	\$ 87,747	2	\$ 87,747
50 - 54	3	\$ 89,134	0	\$ 0	3	\$ 89,134
55 - 59	4	\$ 117,417	7	\$ 317,483	11	\$ 434,900
60 - 64	9	\$ 174,665	7	\$ 351,111	16	\$ 525,775
65 - 69	9	\$ 236,672	8	\$ 386,617	17	\$ 623,289
70 - 74	12	\$ 245,515	11	\$ 520,616	23	\$ 766,131
75 - 79	2	\$ 38,311	9	\$ 330,706	11	\$ 369,017
80 - 84	8	\$ 209,832	6	\$ 291,896	14	\$ 501,728
85 - 89	4	\$ 55,440	2	\$ 73,228	6	\$ 128,668
90 - 94	0	\$ 0	0	\$ 0	0	\$ 0
95 - 99	0	\$ 0	0	\$ 0	0	\$ 0
100 +	0	\$ 0	0	\$ 0	0	\$ 0
Total	51	\$ 1,166,986	52	\$ 2,359,404	103	\$ 3,526,390

AGE DISTRIBUTION  
INACTIVE VESTED MEMBERS

AGE	Count	<u>Total</u> Annual Pensions
< 45	1	\$ 7,739
45 - 49	2	\$ 22,314
50 - 54	5	\$ 63,838
55 - 59	2	\$ 34,437
60 - 64	2	\$ 13,748
65+	1	\$ 6,240
Total	13	\$ 148,317

## VALUATION PARTICIPANT RECONCILIATION

### 1. Active lives

a. Number in prior valuation 6/30/2021	78
b. Terminations	
i. Vested (partial or full) with deferred benefits	0
ii. Non-vested, due refund	(3)
iii. Refunded	(2)
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	(5)
f. DROP	<u>0</u>
g. Continuing participants	68
h. New entrants	<u>11</u>
i. Total active life participants in valuation	79

### 2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, Vested Receiving <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Vested <u>Deferred</u>	<u>Total</u>
a. Number prior valuation	86	16	0	13	115
Retired	5	0	0	0	5
DROP	0	0	0	0	0
Vested Deferred	0	0	0	0	0
Death, With Survivor	(2)	2	0	0	0
Death, No Survivor	(3)	(2)	0	0	(5)
Disabled	0	0	0	0	0
Terminated, Due Refund	0	0	0	3	3
Rehires	0	0	0	0	0
New EDROs	0	1	0	0	1
Data Corrections	0	0	0	0	0
Hired/Termed in Same Year	0	0	0	0	0
b. Number current valuation	86	17	0	16	119

## SUMMARY OF CURRENT PLAN PROVISIONS

Plan Administration	<p>The Plan is a single employer defined benefit pension plan administered by a Board of Trustees comprised of five members:</p> <ul style="list-style-type: none"><li>a.) The Mayor,</li><li>b.) A member of the City Council,</li><li>c.) A resident appointed by the Mayor, and</li><li>d.) Two employees (one general and one public safety).</li></ul>
Final Average Compensation (FAC)	<p>General members: Highest 4 years.</p> <p>Communications Dispatcher: Highest 4 years.</p> <p>Public Safety Officers: Highest 4 years.</p> <p>Public Safety Command Officers: Highest 3 calendar years of compensation out of the last eight calendar years prior to retirement.</p>
Regular Retirement	
Eligibility	<p>Age 50 with 25 years of service, age 55 with 20 years of service, or age 60 with 10 or more years of service.</p>
Annual Benefit	<p><b>General members hired before March 30, 2011:</b> FAC times sum of 2.00% times the first 25 years of service plus 1.00% times years of service in excess of 25 years.</p> <p><b>General members hired after March 30, 2011:</b> 1.75% times FAC times years of service.</p> <p><b>Dispatchers/Communications Dispatcher hired before July 1, 2011:</b> 2.125% times FAC times years of service.</p> <p><b>Dispatchers/Communications Dispatcher hired after July 1, 2011:</b> 1.75% times FAC times years of service.</p> <p><b>Public Safety Officers and Command:</b> 2.50% times FAC times years of service, maximum of 75% of FAC.</p>

## Duty Disability Retirement

Eligibility	No age or service requirements.
Benefit	Computed as regular retirement with additional service credit granted to the earlier of the date the member would attain age 55 years or the date the member would have satisfied regular retirement eligibility conditions had the member continued in City employment.  General/Communications Dispatcher members have worker's compensation offsets.  Public Safety members, depending upon whether or not they are eligible for a service retirement at the time of injury, may elect to choose between worker's compensation benefits or a disability pension.

## Non-Duty Disability Retirement

Eligibility	10 or more years of credited service.
Benefit	Computed as a regular retirement.

## Deferred Retirement

Eligibility	10 or more years of service.
Annual Benefit	Computed as regular retirement but based on service and final average compensation at time of termination. Benefits begin at age 60.

## Duty Death in Service Survivor's Pension

Eligibility	No age or service requirements. Must be in receipt of worker's compensation.
Benefit	Upon termination of worker's compensation a benefit equal to the worker's compensation amount shall be paid to the widow, unmarried children under 18 and dependent parents. Maximum benefit to the widow: 50% of final average compensation, to the children: 20% of final average compensation, and to the parents: 16-2/3% of final average compensation.

## Non-Duty Death in Service Survivor's Pension

Eligibility	10 years of service.
Benefit	Computed as a regular retirement but actuarially reduced in accordance with a 100% joint and survivor election.

Employee Retention Option Plan (EROP)

Eligibility	<p>Command and Public Safety Officers:                  Age 50 with 25 years of service, or                  Age 55 with 20 years of service.                  5-year maximum period of participation.</p>										
Benefit	<p>85% of participant's regular monthly accrued retirement benefit deposited into EROP account earning 3.00% interest.</p> <p>Not subject to COLA increases.</p> <p>Member contributions cease upon EROP entry.</p>										
Member Contributions	<p><b>General members:</b> 5.00% of annual compensation.</p> <p><b>Communications Dispatcher hired before July 1 2008:</b>                  6.00% of annual compensation.</p> <p><b>Communications Dispatcher hired after July 1 2008:</b> 5.00% of annual compensation.</p> <p><b>Public Safety Members hired before July 1 2007:</b> 6.00% of annual compensation.</p> <p><b>Public Safety Members hired on or after after July 1 2007:</b>                  5.00% of annual compensation.</p>										
Annuity Withdrawal	<p>A member may withdraw accumulated member contributions in a lump sum at retirement. The retirement allowance is reduced by the actuarial equivalent of the annuity withdrawn, based on actuarial assumptions concerning interest and mortality used in the annual actuarial valuation.</p>										
Pop-Up Provision	<p>Upon the death of the beneficiary, a retiree who had previously selected either Option II or Option III will have the retirement allowance recomputed as a straight life allowance.</p>										
Supplemental Annuities											
Eligibility	<p>Age 50 with 25 years of service, age 55 with 20 years of service, or age 60 with 20 years of service. General members who qualify for a disability retirement are also eligible. Public Safety members with retirements effective after December 31, 1994 are not eligible.</p>										
Amount	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Years of Service</th> <th style="text-align: left; border-bottom: 1px solid black;">Monthly Benefit</th> </tr> </thead> <tbody> <tr> <td>10-14</td> <td>\$250</td> </tr> <tr> <td>15-19</td> <td>300</td> </tr> <tr> <td>20-24</td> <td>350</td> </tr> <tr> <td>25+</td> <td>400</td> </tr> </tbody> </table>	Years of Service	Monthly Benefit	10-14	\$250	15-19	300	20-24	350	25+	400
Years of Service	Monthly Benefit										
10-14	\$250										
15-19	300										
20-24	350										
25+	400										

Post-Retirement Cost-of-Living

Eligibility

Hired before July 1, 2016.

Amount

Annual adjustments based upon changes in the Consumer Price Index subject to a maximum increase of 2.5% of the adjusted retirement allowance. The cost-of-living adjustment shall be paid on both the base pensions and, for retirements on or after 7/1/90, supplemental annuity distributions.

## SUMMARY

Valuation Date	6/30/2022	6/30/2021
Measurement Date	6/30/2022	6/30/2021
Plan Membership:		
Inactives Currently Receiving Benefits <sup>1</sup>	103	102
Inactives Not Yet Receiving Benefits	16	13
Active Plan Members	<u>79</u>	<u>78</u>
Total	198	193
Covered Payroll	\$ 5,425,650	\$ 5,372,630
Net Pension Liability		
Total Pension Liability	\$ 69,496,137	\$ 70,648,274
Plan Fiduciary Net Position	<u>38,115,937</u>	<u>45,943,628</u>
Net Pension Liability	\$ 31,380,200	\$ 24,704,646
Plan Fiduciary Net Position		
As a Percentage of Total Pension Liability	54.85%	65.03%
Net Pension Liability		
As a Percentage of Covered Payroll	578.37%	459.82%
Total Pension Expense	\$ (1,826,286)	\$ 2,255,154
Development of Single Discount Rate		
Single Discount Rate	6.79%	6.46%
Long-Term Expected Rate of Return	7.50%	7.50%
High-quality Municipal Bond Rate	4.09%	2.18%
Number of Years Future Benefit Payments		
Are Expected to be Paid	41	48

<sup>1</sup> Includes members with EDRO (3 for the 06/30/2022 and 2 for the 06/30/2021 measurement date).



SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
PLAN AND CITY REPORTING

GASB 68 Reporting Period Ending	06/30/2022	06/30/2021
Measurement Date	<u>06/30/2022</u>	<u>06/30/2021</u>
Total Pension Liability		
Service Cost	1,080,806	1,459,769
Interest	4,517,849	4,149,881
Changes of Benefit Terms	196,683	-
Differences Between Expected and Actual Experience	(630,363)	(219,966)
Changes of Assumptions	(2,730,443)	(13,509,818)
Benefit Payments, Including Refunds of Employee Contributions	<u>(3,586,669)</u>	<u>(3,570,576)</u>
Net Change in Total Pension Liability	(1,152,137)	(11,690,710)
Total Pension Liability - Beginning	<u>70,648,274</u>	<u>82,338,984</u>
Total Pension Liability - Ending (a)	\$ 69,496,137	\$ 70,648,274
 Plan Fiduciary Net Position		
Contributions - Employer	2,044,344	1,623,076
Contributions - Employee	290,887	282,203
Net Investment Income	(6,523,478)	12,109,682
Benefit Payments, Including Refunds of Employee Contributions	(3,586,669)	(3,570,576)
Administrative Expense	(52,302)	(46,967)
Other	<u>(473)</u>	<u>-</u>
Net Change in Plan Fiduciary Net Position	(7,827,691)	10,397,418
Plan Fiduciary Net Position - Beginning	<u>45,943,628</u>	<u>35,546,210</u>
Plan Fiduciary Net Position - Ending (b)	\$ 38,115,937	\$ 45,943,628
 Net Pension Liability - Ending (a) - (b)	\$ 31,380,200	\$ 24,704,646
 Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	54.85%	65.03%
 Covered Payroll	\$ 5,425,650	\$ 5,372,630
Net Pension Liability as a Percentage of Covered Payroll	578.37%	459.82%

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
CITY REPORTING

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a)-(b)
Balances at June 30, 2021	\$ 70,648,274	\$ 45,943,628	\$ 24,704,646
Changes for a Year:			
Service Cost	1,080,806	-	1,080,806
Interest	4,517,849	-	4,517,849
Differences Between Expected and Actual Experience	(630,363)	-	(630,363)
Changes of Assumptions	(2,730,443)	-	(2,730,443)
Changes of Benefit Terms	196,683	-	196,683
Contributions - Employer	-	2,044,344	(2,044,344)
Contributions - Employee	-	290,887	(290,887)
Net Investment Income	-	(6,523,478)	6,523,478
Benefit Payments, Including Refunds of Employee Contributions	(3,586,669)	(3,586,669)	-
Administrative Expense	-	(52,302)	52,302
Other Changes	-	(473)	473
Net Changes	(1,152,137)	(7,827,691)	6,675,554
Balances at June 30, 2022	\$ 69,496,137	\$ 38,115,937	\$ 31,380,200

*Sensitivity of Net Pension Liability to changes in the Discount Rate:*

	Current Discount		
	1% Decrease 5.79%	Rate 6.79%	1% Increase 7.79%
Sponsor's Net Pension Liability	\$ 40,229,343	\$ 31,380,200	\$ 24,073,474

*Pension Plan Fiduciary Net Position*

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF  
RESOURCES RELATED TO PENSIONS  
YEAR-END JUNE 30, 2022

For the year ended June 30, 2022, the Sponsor will recognize a pension expense of (\$1,826,286).

On June 30, 2022, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	0	1,093,253
Changes of assumptions	343,232	8,802,743
Net difference between projected and actual earnings on pension plan investments	3,606,847	0
Total	\$3,950,079	\$9,895,996

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended June 30:

2023	(\$3,513,210)
2024	(\$3,659,064)
2025	(\$757,715)
2026	\$1,984,072
2027	\$0
Thereafter	\$0

COMPONENTS OF PENSION EXPENSE  
YEAR-END JUNE 30, 2022

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 24,704,646	\$ 19,554,817	\$ 3,062,716	
Total Pension Liability Factors:				
Service Cost	1,080,806	-	-	1,080,806
Interest	4,517,849	-	-	4,517,849
Changes in Benefit Terms	196,683	-	-	196,683
Differences Between Expected and Actual Experience With Regard to Economic or Current Year Amortization	(630,363)	630,363	-	-
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs Current Year Amortization	(2,730,443)	2,730,443	-	-
Benefit Payments, Including Refunds of Employee Contributions	-	(723,080)	(14,167)	(708,913)
Net Change	(3,586,669)	-	-	-
	<u>(1,152,137)</u>	<u>(2,052,483)</u>	<u>(357,399)</u>	<u>739,448</u>
Plan Fiduciary Net Position:				
Contributions - Employer	2,044,344	-	-	-
Contributions - Employee	290,887	-	-	(290,887)
Projected Net Investment Income	3,396,882	-	-	(3,396,882)
Difference Between Projected and Actual Earnings on Pension Plan Investments Current Year Amortization	(9,920,360)	-	9,920,360	-
Benefit Payments, Including Refunds of Employee Contributions	-	(1,901,585)	(2,970,845)	1,069,260
Administrative Expenses	(3,586,669)	-	-	-
Other	(52,302)	-	-	52,302
Net Change	(473)	-	-	473
	<u>(7,827,691)</u>	<u>(1,901,585)</u>	<u>6,949,515</u>	<u>(2,565,734)</u>
Ending Balance	<u>\$ 31,380,200</u>	<u>\$ 15,600,749</u>	<u>\$ 9,654,832</u>	<u>\$ (1,826,286)</u>

AMORTIZATION SCHEDULE – EXPERIENCE

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year Base Established	Differences Between Expected and Actual Experience	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2022	\$ (630,363)	4	\$ (157,590)	\$ (157,591)	\$ (157,591)	\$ (157,591)	\$ -	\$ -
2021	\$ (219,966)	4	\$ (54,992)	\$ (54,992)	\$ (54,992)	\$ -	\$ -	\$ -
2020	\$ (2,041,992)	4	\$ (510,498)	\$ (510,496)	\$ -	\$ -	\$ -	\$ -
2019	\$ 61,369	3.9	\$ 14,167	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			(708,913)	(723,079)	(212,583)	(157,591)	-	-

AMORTIZATION SCHEDULE – CHANGES OF ASSUMPTIONS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Year Base Established	Effects of Changes in Assumptions	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2022	\$ (2,730,443)	4	\$ (682,610)	\$ (682,611)	\$ (682,611)	\$ (682,611)	\$ -	\$ -
2021	\$ (13,509,818)	4	\$ (3,377,455)	\$ (3,377,455)	\$ (3,377,455)	\$ -	\$ -	\$ -
2020	\$ 1,372,928	4	\$ 343,232	\$ 343,232	\$ -	\$ -	\$ -	\$ -
2019	\$ (2,730,629)	3.9	\$ (630,144)	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ (4,346,977)	\$ (3,716,834)	\$ (4,060,066)	\$ (682,611)	\$ -	\$ -

AMORTIZATION SCHEDULE – INVESTMENTS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments

Year Base Established	Differences		Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments						
	Between Projected and Actual Earnings	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter	
2022	\$ 9,920,360	5	\$ 1,984,072	\$ 1,984,072	\$ 1,984,072	\$ 1,984,072	\$ 1,984,072	\$ -	
2021	\$ (9,507,925)	5	\$ (1,901,585)	\$ (1,901,585)	\$ (1,901,585)	\$ (1,901,585)	\$ -	\$ -	
2020	\$ 2,655,490	5	\$ 531,098	\$ 531,098	\$ 531,098	\$ -	\$ -	\$ -	
2019	\$ 1,565,588	5	\$ 313,118	\$ 313,118	\$ -	\$ -	\$ -	\$ -	
2018	\$ 712,784	5	\$ 142,557	\$ -	\$ -	\$ -	\$ -	\$ -	
Net Increase (Decrease) in Pension Expense			\$ 1,069,260	\$ 926,703	\$ 613,585	\$ 82,487	\$ 1,984,072	\$ -	

SCHEDULE OF CONTRIBUTIONS

Plan Year-End	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
06/30/2022	1,833,259	2,044,344	(211,085)	5,425,650	37.68%
06/30/2021	1,623,075	1,623,076	(1)	5,372,630	30.21%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending June 30, 2022:

Calculation Timing	The Actuarially Determined Contribution is calculated using a June 30, 2020 valuation date.
Interest Rate	7.50%
Mortality Rate	<p><b>Active Lives</b>                      PubS-2010 and PubG-2010 Employee mortality tables, with generational improvements using Scale MP-2018.</p> <p><b>Inactive Lives</b>                      PubS-2010 and PubG-2010 Healthy Retiree mortality tables, with generational improvements using Scale MP-2018.</p>
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the June 30, 2020 Actuarial Valuation Report for the City of Grosse Pointe Woods Employees Retirement System prepared by Rodwan Consulting Company.



## ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE

The GASB 67/GASB 68 Pension Liability as of June 30, 2022 and GASB 68 Pension Expense were determined as follows:

Valuation Date	June 30, 2022
Measurement Date	June 30, 2022
GASB 68 Expense Measurement Period	July 1, 2021 - June 30, 2022
Reporting Period	July 1, 2021 - June 30, 2022
Discount Rate	6.79%
Inflation	2.50%
Salary Increases	Age-based rates
Other Assumptions	A summary of complete assumptions can be found in the accompanying Actuarial Valuation as of June 30, 2022 for the City of Grosse Pointe Woods Employees Retirement System prepared by Foster & Foster Actuaries and Consultants.

The GASB 67/GASB 68 Total Pension Liability and GASB 68 Pension Expense reflect the following assumption changes:

- The discount rate was updated from 6.46% to 6.79%.

## NOTES TO THE FINANCIAL STATEMENTS

*Discount Rate*

The Discount Rate used to measure the Total Pension Liability was 6.79 percent.

The projection of cash flows used to determine the Discount Rate assumed that current Plan Member and Sponsor contributions will be made at the current contribution rate. Future Member's contributions in excess of their normal cost were also included.

Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to provide future benefit payments for 41 years. These payments were discounted using a Discount Rate equal to the Long-Term Expected Rate of return of 7.50 percent.

Future benefit payments beyond 41 years were discounted using a high-quality municipal bond rate of 4.09 percent. The high-quality municipal bond rate was based on the daily rate closest to, but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index.

The single equivalent Discount Rate was 6.79 percent.

## SUMMARY OF CURRENT PLAN

Plan Administration

The Plan is a single employer defined benefit pension plan administered by a Board of Trustees comprised of five members:

- a.) The Mayor,
- b.) A member of the City Council,
- c.) A resident appointed by the Mayor, and
- d.) Two employees (one general and one public safety).

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the accompanying Actuarial Valuation as of June 30, 2022 for the City of Grosse Pointe Woods Employees Retirement System prepared by Foster & Foster Actuaries and Consultants.

The following plan change was reflected in the 06/30/2022 GASB results:

Effective July 1, 2022, the pension multiplier for Public Safety Officers hired after July 1, 2011 was changed from 2.0% to 2.5%.

## SUMMARY

Valuation Date	6/30/2022	6/30/2021
Measurement Date	6/30/2022	6/30/2021
Plan Membership:		
Inactives Currently Receiving Benefits	57	56
Inactives Not Yet Receiving Benefits	0	0
Active Plan Members	<u>50</u>	<u>49</u>
Total	107	105
Covered Payroll	\$ 2,810,667	\$ 2,816,325
Net Pension Liability		
Total Pension Liability	\$ 3,878,998	\$ 3,841,331
Plan Fiduciary Net Position	<u>2,314,927</u>	<u>2,605,835</u>
Net Pension Liability	\$ 1,564,071	\$ 1,235,496
Plan Fiduciary Net Position		
As a Percentage of Total Pension Liability	59.68%	67.84%
Net Pension Liability		
As a Percentage of Covered Payroll	55.65%	43.87%
Total Pension Expense	\$ 148,596	\$ 226,510
Development of Single Discount Rate		
Single Discount Rate	7.50%	7.50%
Long-Term Expected Rate of Return	7.50%	7.50%
High-quality Municipal Bond Rate	4.09%	2.18%
Number of Years Future Benefit Payments		
Are Expected to be Paid	99	99

SCHEDULE OF CHANGES IN NET PENSION LIABILITY  
PLAN AND CITY REPORTING

GASB 68 Reporting Period Ending	06/30/2022	06/30/2021
Measurement Date	<u>06/30/2022</u>	<u>06/30/2021</u>
Total Pension Liability		
Service Cost	45,787	43,432
Interest	281,506	275,505
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	(22,217)	21,271
Changes of Assumptions	-	(15,148)
Benefit Payments, Including Refunds of Employee Contributions	<u>(267,409)</u>	<u>(266,789)</u>
Net Change in Total Pension Liability	37,667	58,271
Total Pension Liability - Beginning	<u>3,841,331</u>	<u>3,783,060</u>
Total Pension Liability - Ending (a)	\$ 3,878,998	\$ 3,841,331
 Plan Fiduciary Net Position		
Contributions - Employer	349,494	318,174
Net Investment Income	(368,012)	649,743
Benefit Payments, Including Refunds of Employee Contributions	(267,409)	(266,789)
Administrative Expense	(7,005)	(2,520)
Other	2,024	-
Net Change in Plan Fiduciary Net Position	<u>(290,908)</u>	698,608
Plan Fiduciary Net Position - Beginning	<u>2,605,835</u>	<u>1,907,226</u>
Plan Fiduciary Net Position - Ending (b)	\$ 2,314,927	\$ 2,605,835
 Net Pension Liability - Ending (a) - (b)	\$ 1,564,071	\$ 1,235,496
 Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	59.68%	67.84%
 Covered Payroll	\$ 2,810,667	\$ 2,816,325
Net Pension Liability as a Percentage of Covered Payroll	55.65%	43.87%

STATEMENT OF CHANGES IN NET PENSION LIABILITY  
CITY REPORTING

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Balances at June 30, 2021	\$ 3,841,331	\$ 2,605,835	\$ 1,235,496
Changes for a Year:			
Service Cost	45,787	-	45,787
Interest	281,506	-	281,506
Differences Between Expected and Actual Experience	(22,217)	-	(22,217)
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	349,494	(349,494)
Contributions - Employee	-	-	-
Net Investment Income	-	(368,012)	368,012
Benefit Payments, Including Refunds of Employee Contributions	(267,409)	(267,409)	-
Administrative Expense	-	(7,005)	7,005
Other Changes	-	2,024	(2,024)
Net Changes	37,667	(290,908)	328,575
Balances at June 30, 2022	\$ 3,878,998	\$ 2,314,927	\$ 1,564,071

*Sensitivity of Net Pension Liability to changes in the Discount Rate:*

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.50%	7.50%	8.50%
Sponsor's Net Pension Liability	\$ 1,977,111	\$ 1,564,071	\$ 1,216,095

*Pension Plan Fiduciary Net Position*

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF  
RESOURCES RELATED TO PENSIONS  
YEAR-END JUNE 30, 2022

For the year ended June 30, 2022, the Sponsor will recognize a pension expense of \$148,596.

On June 30, 2022, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	22,260	64,336
Changes of assumptions	0	73,094
Net difference between projected and actual earnings on pension plan investments	220,466	0
Total	\$242,726	\$137,430

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended June 30:

2023	(\$23,190)
2024	\$12,839
2025	\$9,800
2026	\$109,550
2027	(\$3,703)
Thereafter	\$0

COMPONENTS OF PENSION EXPENSE  
YEAR-END JUNE 30, 2022

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 1,235,496	\$ 620,560	\$ 196,383	
Total Pension Liability Factors:				
Service Cost	45,787	-	-	45,787
Interest	281,506	-	-	281,506
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	(22,217)	22,217	-	-
Current Year Amortization	-	(38,948)	(39,857)	909
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	(62,508)	(13,851)	(48,657)
Benefit Payments, Including Refunds of Employee Contributions	(267,409)	-	-	-
Net Change	<u>37,667</u>	<u>(79,239)</u>	<u>(53,708)</u>	<u>279,545</u>
Plan Fiduciary Net Position:				
Contributions - Employer	349,494	-	-	-
Projected Net Investment Income	198,253	-	-	(198,253)
Difference Between Projected and Actual Earnings on Pension Plan Investments	(566,265)	-	566,265	-
Current Year Amortization	-	(100,974)	(163,297)	62,323
Benefit Payments, Including Refunds of Employee Contributions	(267,409)	-	-	-
Administrative Expenses	(7,005)	-	-	7,005
Other	2,024	-	-	(2,024)
Net Change	<u>(290,908)</u>	<u>(100,974)</u>	<u>402,968</u>	<u>(130,949)</u>
Ending Balance	<u>\$ 1,564,071</u>	<u>\$ 440,347</u>	<u>\$ 545,643</u>	<u>\$ 148,596</u>



AMORTIZATION SCHEDULE – EXPERIENCE

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year Base Established	Differences Between Expected and Actual Experience	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2022	\$ (22,217)	6	\$ (3,702)	\$ (3,703)	\$ (3,703)	\$ (3,703)	\$ (3,703)	\$ (3,703)
2021	\$ 21,271	5	\$ 4,254	\$ 4,254	\$ 4,254	\$ 4,254	\$ -	\$ -
2020	\$ (151,559)	4.3	\$ (35,246)	\$ (35,246)	\$ (10,575)	\$ -	\$ -	\$ -
2019	\$ 136,155	4.3	\$ 31,664	\$ 9,498	\$ -	\$ -	\$ -	\$ -
2018	\$ 161,463	4.1	\$ 3,939	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			909	(25,197)	(10,024)	551	(3,703)	(3,703)

AMORTIZATION SCHEDULE – CHANGES OF ASSUMPTIONS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Year Base Established	Effects of Changes in Assumptions	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2021	\$ (15,148)	5	\$ (3,030)	\$ (3,030)	\$ (3,030)	\$ (3,030)	\$ -	\$ -
2020	\$ (198,496)	4.3	\$ (46,162)	\$ (46,162)	\$ (13,848)	\$ -	\$ -	\$ -
2019	\$ (57,257)	4.3	\$ (13,316)	\$ (3,994)	\$ -	\$ -	\$ -	\$ -
2018	\$ 567,907	4.1	\$ 13,851	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ (48,657)	\$ (53,186)	\$ (16,878)	\$ (3,030)	\$ -	\$ -

AMORTIZATION SCHEDULE – INVESTMENTS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences  
Between Projected and Actual Earnings on Pension Plan Investments

Year Base Established	Differences Between Projected and Actual Earnings	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2022	\$ 566,265	5	\$ 113,253	\$ 113,253	\$ 113,253	\$ 113,253	\$ 113,253	\$ -
2021	\$ (504,869)	5	\$ (100,974)	\$ (100,974)	\$ (100,974)	\$ (100,974)	\$ -	\$ -
2020	\$ 137,309	5	\$ 27,462	\$ 27,462	\$ 27,462	\$ -	\$ -	\$ -
2019	\$ 77,259	5	\$ 15,452	\$ 15,452	\$ -	\$ -	\$ -	\$ -
2018	\$ 35,650	5	\$ 7,130	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 62,323	\$ 55,193	\$ 39,741	\$ 12,279	\$ 113,253	\$ -

SCHEDULE OF CONTRIBUTIONS

Plan Year-End	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
06/30/2022	304,370	349,494	(45,124)	2,527,773	13.83%
06/30/2021	318,174	318,174	-	2,816,325	11.30%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending June 30, 2022:

Calculation Timing	The Actuarially Determined Contribution is calculated using a June 30, 2020 valuation date.
Interest Rate	7.50%
Mortality Rate	<p><b>Active Lives</b>                      PubS-2010 and PubG-2010 Employee mortality tables, with generational improvements using Scale MP-2018.</p> <p><b>Inactive Lives</b>                      PubS-2010 and PubG-2010 Healthy Retiree mortality tables, with generational improvements using Scale MP-2018.</p>
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the June 30, 2020 Actuarial Valuation Report for the City of Grosse Pointe Woods Employees Retirement System prepared by Rodwan Consulting Company.

## ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE

The GASB 67/GASB 68 Pension Liability for Plan reporting as of June 30, 2022 and GASB 68 Pension Expense were determined as follows:

Valuation Date	June 30, 2022
Measurement Date	June 30, 2022
GASB 68 Expense Measurement Period	July 1, 2021 - June 30, 2022
Reporting Period	July 1, 2021 - June 30, 2022
Discount Rate	7.50%
Inflation	2.50%
Salary Increases	Age-based rates
Other Assumptions	A summary of complete assumptions can be found in the accompanying Actuarial Valuation as of June 30, 2022 for the City of Grosse Pointe Woods Employees Retirement System prepared by Foster & Foster Actuaries and Consultants.

## NOTES TO THE FINANCIAL STATEMENTS

*Discount Rate*

The Discount Rate used to measure the Total Pension Liability was 7.50 percent.

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 Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. 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 (7.50 percent) was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50 percent. The municipal bond rate is 4.09 percent (based on the daily rate closest to, but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index). The resulting single discount rate is 7.50 percent.

## SUMMARY OF CURRENT PLAN

Plan Administration

The Plan is a single employer defined benefit pension plan administered by a Board of Trustees comprised of five members:

- a.) The Mayor,
- b.) A member of the City Council,
- c.) A resident appointed by the Mayor, and
- d.) Two employees (one general and one public safety).

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the accompanying Actuarial Valuation as of June 30, 2022 for the City of Grosse Pointe Woods Employees Retirement System prepared by Foster & Foster Actuaries and Consultants.

# City of Grosse Pointe Woods Employees' Retirement System

## Summary Annual Report

### June 30, 2022

Dear Member:

The following is a summary of your retirement System. Each year, an actuarial valuation is prepared to compare assets to liabilities. Assets are held and invested in a trust separate from other City assets. The only disbursements from this trust are to members who are retired or disabled, beneficiaries of members, members who receive contribution refunds, and for Retirement System expenses.

As Retirement Board Members, our tasks include making sure trust assets are invested prudently, required City and member contributions are received and that benefits are paid in accordance with the Retirement System's provisions.

Various professionals are hired to help in the administration of the System. They are listed in the column to the right.

The City is funding Retirement System benefits as they accrue in accordance with a sound level percent of payroll funding objective.

Respectfully submitted,

**Board of Trustees**  
**City of Grosse Pointe Woods Retirement System**

**Board Members**

Arthur W. Bryant  
*Chairman*

Brian Conigliaro  
*Trustee*

Matthew Crook,  
*Trustee*

Victoria Granger,  
*Trustee*

Gary Zarb,  
*Trustee*

Shawn Murphy  
*Pension Administrator*

Tina Hoenicke  
*Board Secretary*

**Actuarial Information Used for this Report:**

1. 79 active members
2. 103 retirees/beneficiaries (and 16 deferred retirees)
3. Plan is open to new hires
4. \$35,037 average annual pension benefit
5. \$3,586,669 annual pension benefits paid
6. \$5,425,650 valuation payroll used (Combined General and Public Safety)
7. Employer's normal cost of benefits **effective July 1, 2023** is 8.11% General Employees and 10.32% for Public Safety employees.
8. Employer's actual total contribution rate **effective July 1, 2023** is 32.09% General employees and 34.30% for Public Safety employees
9. Weighted average member contribution rate **effective July 1, 2023** is 5.41% General employees and 6.15% for Public Safety employees.
10. The required employer contribution for the fiscal year was received
11. 7.50% assumed rate of investment return (net of expenses)
12. 3.5% assumed rate of long-term wage inflation
13. 5-year smoothing method used
14. 25-year amortization period used
15. Method used is level percent of payroll
16. Cost method is individual entry-age
17. Current funding value of assets is 66.7% of accrued liability

**Professional Advisors**

*Investment Fiduciaries*  
Fund Evaluation Group (FEG)

**Service Providers**

Rosati, Schultz, Joppich & Amtsbuechler, P.C.  
*City Attorney*

Foster & Foster Actuaries & Consultants,  
*Actuary*

Michael VanOverbeke,  
*Special Pension Attorney*

**Investment Performance\***

	1	3	5	7	10
Combined	Year	Year	Year	Year	Year
Account	-14.5%	5.1%	5.0%	4.8%	6.3%

\*Calendar year ending June 30, 2022 (net of fees)

**2021-2022 Actual Expenditures**

Pension Payments/ Withdrawals:	\$ 3,583,481
Refund of Member Contributions:	\$ 3,188
Investment Fees:	\$ 75,458
Memberships/Training/Education:	\$ 473
Administrative Expenses:	<u>\$ 48,043</u>
<b>Total:</b>	<b><u>\$ 3,710,643</u></b>



## City of Grosse Pointe Woods Employees' Retirement System Summary Annual Report (cont.)

### Actuarial Valuation Summary

Foster & Foster Actuaries and Consultants were hired to prepare the June 30, 2022 Actuarial Valuation. The funding objective of the System is to contribute an amount as a percent of payroll that remains level from year to year. The actual level of contribution is dependent on past and assumed future experience, including investment performance, and benefit provisions.

Below is a summary of the results:

<b>Contribution Requirements</b>	<b><u>General</u></b>	<b><u>Public Safety</u></b>
Normal Cost of Benefits		
Total	13.52%	16.47%
Member portion	5.41%	6.15%
Employer portion	8.11%	10.32%
Amortization of unfunded liability (25 years)	23.98%	23.98%
Computed Employer Rate	32.09%	34.30%

*Contribution rates are expressed as percents of eligible member payroll. \*Weighted average.*

### **Assets & Liabilities**

#### **Funded Status**

Market Value of Assets	\$ 38,115,937
Valuation Assets	\$ 41,703,710
Actuarial Accrued Liability	\$ 62,517,270
Funded Ratio	66.70%

**Actuary's Statement** – The System is being funded based on sound actuarial assumption, methods, and level percent of payroll funding objective. For a complete analysis, please review the June 30, 2022 actuarial valuation.

#### **Revenues & Expenditures**

Beginning Balance (Market Value) – July 1, 2021	\$ 45,943,628
<b>Revenues</b>	
Employees' contributions	\$ 290,887
Employer contribution	\$ 2,044,344
Investment income	\$ (6,822,773)
Other Income	\$ 299,295
Total	\$ (4,188,247)
<b>Expenditures</b>	
Pension payments	\$ 3,583,481
Refund of member contributions	\$ 3,188
Administrative Expenses	\$ 52,775
Total	\$ 3,639,444
Ending Balance (Market Value) – June 30, 2022	\$ 38,115,937
Recognized Return on Smoothed Funding Value of Assets	4.66%

# City of Grosse Pointe Woods, Michigan

## Required Supplemental Information Schedule of Changes in the Net Pension Liability and Related Ratios Pension Plan

**Last Nine Fiscal Years**

	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total Pension Liability</b>									
Service cost	\$ 1,080,805	\$ 1,459,769	\$ 1,381,734	\$ 1,419,981	\$ 872,705	\$ 812,794	\$ 893,380	\$ 692,961	\$ 675,799
Interest	4,517,849	4,149,881	4,160,628	4,115,769	3,739,452	3,713,413	3,802,189	3,521,128	3,499,326
Changes in benefit terms	196,683	-	-	-	-	-	-	-	-
Differences between expected and actual experience	(630,363)	(219,966)	(2,041,992)	61,396	1,898,141	(1,943,674)	(509,341)	501,262	(579,977)
Changes in assumptions	(2,730,443)	(13,509,818)	1,372,928	(2,730,629)	17,877,664	(3,946,934)	7,000,034	5,686,156	-
Benefit payments, including refunds	(3,586,669)	(3,570,576)	(3,403,902)	(3,346,109)	(3,354,997)	(3,215,776)	(3,187,512)	(3,315,548)	(3,092,014)
<b>Net Change in Total Pension Liability</b>	<b>(1,152,138)</b>	<b>(11,690,710)</b>	<b>1,469,396</b>	<b>(479,592)</b>	<b>21,032,965</b>	<b>(4,580,177)</b>	<b>7,998,750</b>	<b>7,085,959</b>	<b>503,134</b>
<b>Total Pension Liability - Beginning of year</b>	<b>70,648,274</b>	<b>82,338,984</b>	<b>80,869,588</b>	<b>81,349,180</b>	<b>60,316,215</b>	<b>64,896,392</b>	<b>56,897,642</b>	<b>49,811,683</b>	<b>49,308,549</b>
<b>Total Pension Liability - End of year</b>	<b>\$ 69,496,136</b>	<b>\$ 70,648,274</b>	<b>\$ 82,338,984</b>	<b>\$ 80,869,588</b>	<b>\$ 81,349,180</b>	<b>\$ 60,316,215</b>	<b>\$ 64,896,392</b>	<b>\$ 56,897,642</b>	<b>\$ 49,811,683</b>
<b>Plan Fiduciary Net Position</b>									
Contributions - Employer	\$ 2,044,344	\$ 1,623,076	\$ 1,406,409	\$ 1,215,450	\$ 1,230,649	\$ 1,076,052	\$ 925,683	\$ 889,829	\$ 888,696
Contributions - Member	290,887	282,203	262,296	263,799	249,835	243,096	252,579	258,967	275,808
Net investment (loss) income	(6,523,478)	12,109,682	157,140	1,291,520	2,128,175	3,992,724	(1,359,930)	15,073	6,669,874
Administrative expenses	(52,775)	(46,967)	(70,669)	(58,125)	(62,843)	(37,168)	(51,765)	(69,537)	(44,753)
Benefit payments, including refunds	(3,586,669)	(3,570,576)	(3,403,902)	(3,346,109)	(3,354,997)	(3,215,776)	(3,187,512)	(3,315,548)	(3,092,015)
Other	-	-	-	-	22,728	12,254	-	-	-
<b>Net Change in Plan Fiduciary Net Position</b>	<b>(7,827,691)</b>	<b>10,397,418</b>	<b>(1,648,726)</b>	<b>(633,465)</b>	<b>213,547</b>	<b>2,071,182</b>	<b>(3,420,945)</b>	<b>(2,221,216)</b>	<b>4,697,610</b>
<b>Plan Fiduciary Net Position - Beginning of year</b>	<b>45,943,628</b>	<b>35,546,210</b>	<b>37,194,936</b>	<b>37,828,401</b>	<b>37,614,854</b>	<b>35,543,672</b>	<b>38,964,617</b>	<b>41,185,833</b>	<b>36,488,223</b>
<b>Plan Fiduciary Net Position - End of year</b>	<b>\$ 38,115,937</b>	<b>\$ 45,943,628</b>	<b>\$ 35,546,210</b>	<b>\$ 37,194,936</b>	<b>\$ 37,828,401</b>	<b>\$ 37,614,854</b>	<b>\$ 35,543,672</b>	<b>\$ 38,964,617</b>	<b>\$ 41,185,833</b>
<b>City's Net Pension Liability - Ending</b>	<b>\$ 31,380,199</b>	<b>\$ 24,704,646</b>	<b>\$ 46,792,774</b>	<b>\$ 43,674,652</b>	<b>\$ 43,520,779</b>	<b>\$ 22,701,361</b>	<b>\$ 29,352,720</b>	<b>\$ 17,933,025</b>	<b>\$ 8,625,850</b>
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	<b>54.85 %</b>	<b>65.03 %</b>	<b>43.17 %</b>	<b>45.99 %</b>	<b>46.50 %</b>	<b>62.36 %</b>	<b>55.02 %</b>	<b>68.48 %</b>	<b>82.69 %</b>
<b>Covered Payroll</b>	<b>\$ 5,425,650</b>	<b>\$ 5,372,630</b>	<b>\$ 4,791,109</b>	<b>\$ 4,716,600</b>	<b>\$ 4,544,155</b>	<b>\$ 4,493,845</b>	<b>\$ 4,592,611</b>	<b>\$ 4,651,563</b>	<b>\$ 4,411,702</b>
<b>City's Net Pension Liability as a Percentage of Covered Payroll</b>	<b>578.37 %</b>	<b>459.82 %</b>	<b>976.66 %</b>	<b>925.98 %</b>	<b>957.73 %</b>	<b>505.17 %</b>	<b>632.60 %</b>	<b>385.53 %</b>	<b>195.50 %</b>

Required Supplemental Information  
Schedule of Changes in the Net Pension Liability and Related Ratios  
Pension Plan (Continued)

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**Last Nine Fiscal Years**

GASB Statement No. 67 was implemented for the FYE June 30, 2014 and does not require retroactive implementation. The required supplemental information is intended to show information for 10 years, and additional years' information will be displayed as it becomes available.

**Assumption Changes**

Assumption changes were made for each year as follows:

- 2015: Changed from the 1994 uninsured pension mortality table to the RP-2014 Healthy Annuitant Mortality Table and the discount rate from 8.0 to 6.82 percent
- 2016: Changed the investment rate of return from 8.0 to 7.8 percent, inflation from 4.0 to 3.5 percent, and the discount rate to 5.83 percent
- 2017: Changed the discount rate to 6.33 percent
- 2018: Changed the investment rate of return to 7.75 percent, inflation to 2.5 percent, the mortality table to the RP-2014 Mortality Table with MP-2017, and the discount rate to 5.12 percent
- 2019: Changed the discount rate to 5.21 percent
- 2020: Changed the investment rate of return to 7.50 percent, mortality table to the Pub-2010 Mortality Table with MP-2018 improvement scale, and the discount rate to 5.06 percent
- 2021: Changed the discount rate to 6.46 percent
- 2022: Changes the discount rate to 6.79 percent

**City of Grosse Pointe Woods, Michigan**

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Required Supplemental Information  
Schedule of Pension Investment Returns  
Pension Plan and Pension Plan Supplemental Annuity

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**Last Nine Fiscal Years  
Years Ended June 30**

	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual money-weighted rate of return - Net of investment expense	(16.99)%	36.24 %	1.52 %	4.89 %	4.84 %	11.60 %	(3.50)%	0.10 %	8.00 %

GASB Statement No. 67 was implemented for the FYE June 30, 2014 and does not require retroactive implementation. The required supplemental information is intended to show information for 10 years, and additional years' information will be displayed as it becomes available.

**City of Grosse Pointe Woods, Michigan**

**Required Supplemental Information  
Schedule of Pension Contributions  
Pension Plan**

**Last Ten Fiscal Years  
Years Ended June 30**

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Actuarially determined contribution	\$ 2,044,000	\$ 1,623,000	\$ 1,406,000	\$ 1,215,000	\$ 1,231,000	\$ 1,076,000	\$ 926,000	\$ 890,000	\$ 889,000	\$ 768,000
Contributions in relation to the actuarially determined contribution	<u>2,044,000</u>	<u>1,623,000</u>	<u>1,406,000</u>	<u>1,215,000</u>	<u>1,231,000</u>	<u>1,076,000</u>	<u>926,000</u>	<u>890,000</u>	<u>889,000</u>	<u>768,000</u>
<b>Contribution Deficiency</b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>	<b><u>\$ -</u></b>
<b>Covered Payroll</b>	<b>\$ 5,425,650</b>	<b>\$ 5,372,630</b>	<b>\$ 4,791,109</b>	<b>\$ 4,716,600</b>	<b>\$ 4,544,155</b>	<b>\$ 4,493,845</b>	<b>\$ 4,592,611</b>	<b>\$ 4,651,563</b>	<b>\$ 4,411,702</b>	<b>\$ 5,003,250</b>
<b>Contributions as a Percentage of Covered Payroll</b>	<b>37.67 %</b>	<b>30.21 %</b>	<b>29.35 %</b>	<b>25.76 %</b>	<b>27.09 %</b>	<b>23.94 %</b>	<b>20.17 %</b>	<b>19.13 %</b>	<b>17.06 %</b>	<b>14.63 %</b>

**Notes to Schedule of Pension Contributions - Pension Plan**

Actuarial valuation information relative to the determination of contributions:

Valuation date    Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which the contributions are reported. Covered payroll is as of June 30 of the current fiscal year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll- open
Remaining amortization period	25 years
Asset valuation method	5-year smoothed market
Inflation	2.50 percent
Salary increase	3.50 - 7.30 percent, including inflation
Investment rate of return	7.50 percent - Net of expense
Mortality	PubS-2010 mortality tables, with generational improvements using Scale MP-2018

City of Grosse Pointe Woods, Michigan

Required Supplemental Information  
Schedule of Changes in the Net Pension Liability and Related Ratios  
Supplemental Annuity

**Last Nine Fiscal Years**

	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total Pension Liability</b>									
Service cost	\$ 45,787	\$ 43,432	\$ 51,793	\$ 47,748	\$ 59,640	\$ 39,299	\$ 37,233	\$ 28,387	\$ 33,212
Interest	281,506	275,505	272,594	259,909	239,740	254,061	269,224	234,285	236,533
Differences between expected and actual experience	(22,217)	21,271	(151,559)	136,155	161,463	(227,980)	(232,788)	(399,452)	(42,908)
Changes in assumptions	-	(15,148)	(198,496)	(57,257)	567,907	-	86,953	831,276	-
Benefit payments, including refunds	(267,409)	(266,789)	(278,103)	(275,592)	(242,921)	(257,534)	(263,715)	(247,158)	(257,888)
<b>Net Change in Total Pension Liability</b>	<b>37,667</b>	<b>58,271</b>	<b>(303,771)</b>	<b>110,963</b>	<b>785,829</b>	<b>(192,154)</b>	<b>(103,093)</b>	<b>447,338</b>	<b>(31,051)</b>
<b>Total Pension Liability - Beginning of year</b>	<b>3,841,331</b>	<b>3,783,060</b>	<b>4,086,831</b>	<b>3,975,868</b>	<b>3,190,039</b>	<b>3,382,193</b>	<b>3,485,286</b>	<b>3,037,948</b>	<b>3,068,999</b>
<b>Total Pension Liability - End of year</b>	<b>\$ 3,878,998</b>	<b>\$ 3,841,331</b>	<b>\$ 3,783,060</b>	<b>\$ 4,086,831</b>	<b>\$ 3,975,868</b>	<b>\$ 3,190,039</b>	<b>\$ 3,382,193</b>	<b>\$ 3,485,286</b>	<b>\$ 3,037,948</b>
<b>Plan Fiduciary Net Position</b>									
Contributions - Employer	\$ 349,494	\$ 318,174	\$ 335,830	\$ 311,792	\$ 298,389	\$ 290,000	\$ 297,360	\$ 286,439	\$ 277,776
Net investment (loss) income	(368,012)	649,743	7,796	59,811	91,098	159,415	3,963	(9,093)	230,642
Administrative expenses	(7,005)	(2,519)	(3,506)	(2,693)	(5,768)	(995)	-	(22,140)	-
Benefit payments, including refunds	(267,409)	(266,789)	(278,103)	(275,592)	(242,921)	(257,534)	(263,715)	(247,158)	(257,888)
Other	2,024	-	-	-	960	-	-	-	-
<b>Net Change in Plan Fiduciary Net Position</b>	<b>(290,908)</b>	<b>698,609</b>	<b>62,017</b>	<b>93,318</b>	<b>141,758</b>	<b>190,886</b>	<b>37,608</b>	<b>8,048</b>	<b>250,530</b>
<b>Plan Fiduciary Net Position - Beginning of year</b>	<b>2,605,835</b>	<b>1,907,226</b>	<b>1,845,209</b>	<b>1,751,891</b>	<b>1,610,133</b>	<b>1,419,247</b>	<b>1,381,639</b>	<b>1,373,591</b>	<b>1,123,061</b>
<b>Plan Fiduciary Net Position - End of year</b>	<b>\$ 2,314,927</b>	<b>\$ 2,605,835</b>	<b>\$ 1,907,226</b>	<b>\$ 1,845,209</b>	<b>\$ 1,751,891</b>	<b>\$ 1,610,133</b>	<b>\$ 1,419,247</b>	<b>\$ 1,381,639</b>	<b>\$ 1,373,591</b>
<b>City's Net Pension Liability - Ending</b>	<b>\$ 1,564,071</b>	<b>\$ 1,235,496</b>	<b>\$ 1,875,834</b>	<b>\$ 2,241,622</b>	<b>\$ 2,223,977</b>	<b>\$ 1,579,906</b>	<b>\$ 1,962,946</b>	<b>\$ 2,103,647</b>	<b>\$ 1,664,357</b>
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	<b>59.68 %</b>	<b>67.84 %</b>	<b>50.41 %</b>	<b>45.15 %</b>	<b>44.06 %</b>	<b>50.47 %</b>	<b>41.96 %</b>	<b>39.64 %</b>	<b>45.21 %</b>
<b>Covered Payroll</b>	<b>\$ 2,810,667</b>	<b>\$ 2,816,325</b>	<b>\$ 2,475,978</b>	<b>\$ 2,525,337</b>	<b>\$ 2,231,884</b>	<b>\$ 2,258,831</b>	<b>\$ 2,347,151</b>	<b>\$ 2,358,679</b>	<b>\$ 2,196,932</b>
<b>City's Net Pension Liability as a Percentage of Covered Payroll</b>	<b>55.65 %</b>	<b>43.87 %</b>	<b>75.76 %</b>	<b>88.77 %</b>	<b>99.65 %</b>	<b>69.94 %</b>	<b>83.63 %</b>	<b>89.19 %</b>	<b>75.76 %</b>

Required Supplemental Information  
Schedule of Changes in the Net Pension Liability and Related Ratios  
Supplemental Annuity (Continued)

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**Last Nine Fiscal Years**

GASB Statement No. 67 was implemented for the FYE June 30, 2014 and does not require retroactive implementation. The required supplemental information is intended to show information for 10 years, and additional years' information will be displayed as it becomes available.

***Assumption Changes***

Assumption changes were made for each year as follows:

- 2015:** Changed from the 1994 uninsured pension mortality table to the RP-2014 Healthy Annuitant Mortality Table, inflation from 0.0 to 4.0 percent, and the discount rate from 8.0 to 7.98 percent
- 2016:** Changed the investment rate of return from 8.0 to 7.8 percent, inflation to 3.5 percent, and the discount rate to 7.71 percent
- 2018:** Changed the investment rate of return to 7.75 percent, inflation to 2.5 percent, the mortality table to the RP-2014 Mortality Table with MP-2017, and the discount rate to 6.73 percent
- 2019:** Changed the discount rate to 6.86 percent
- 2020:** Changed the investment rate of return to 7.50 percent, mortality table to the Pub-2010 Mortality Table with MP-2018 improvement scale, and the discount rate to 7.46 percent
- 2021:** Changed the discount rate to 7.50 percent

**City of Grosse Pointe Woods, Michigan**

Required Supplemental Information  
Schedule of Pension Contributions  
Supplemental Annuity

**Last Ten Fiscal Years  
Years Ended June 30**

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Actuarially determined contribution	\$ 349,494	\$ 318,174	\$ 335,830	\$ 311,792	\$ 298,000	\$ 290,000	\$ 297,360	\$ 286,439	\$ 277,776	\$ 245,862
Contributions in relation to the actuarially determined contribution	<u>349,494</u>	<u>318,174</u>	<u>335,830</u>	<u>311,792</u>	<u>298,000</u>	<u>290,000</u>	<u>297,360</u>	<u>286,439</u>	<u>277,776</u>	<u>245,862</u>
<b>Contribution Deficiency</b>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
<b>Covered Payroll</b>	\$ 2,810,667	\$ 2,816,325	\$ 2,475,978	\$ 2,525,337	\$ 2,231,884	\$ 2,258,831	\$ 2,347,151	\$ 2,358,679	\$ 2,196,932	\$ 2,376,609
<b>Contributions as a Percentage of Covered Payroll</b>	12.43 %	11.30 %	13.56 %	12.35 %	13.35 %	12.84 %	12.67 %	12.14 %	12.64 %	10.35 %

**Notes to Schedule of Pension Contributions - Supplemental Annuity**

Actuarial valuation information relative to the determination of contributions:

Valuation date                      Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported. Covered payroll is as of June 30 of the current fiscal year. Public safety members retiring after December 31, 1994 are not covered.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age
Amortization method	Level dollar
Remaining amortization period	10 years open
Asset valuation method	Market
Inflation	2.50 percent
Salary increase	0.0 percent
Investment rate of return	7.50 percent - Net of expense
Mortality	PubS-2010 mortality tables, with generational improvements using Scale MP-2018





# COMPOSITE PERFORMANCE REVIEW

Report for Periods Ending December 31, 2022

## City of Grosse Pointe Woods Employees Retirement System



*Presented by:*

Jeffrey A. Davis, CFA, CAIA  
Senior Vice President



# City of Grosse Pointe Woods Employees Retirement System

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# FOURTH QUARTER 2022 MARKET SUMMARY

*The remarkably strong fourth quarter rebound witnessed through November, in which most major asset classes and categories enjoyed positive performance, reversed course in the year's final month, resembling much of the same weakness investors endured throughout 2022. Cooling inflationary data, moderating interest rates, a declining U.S. dollar (USD), and the potential for a slower pace of Federal Reserve (Fed) tightening helped underpin the rally across the financial markets during the entire quarter. Evidence of the "stickiness" of the current inflationary regime, however, helped weigh on performance in December.*

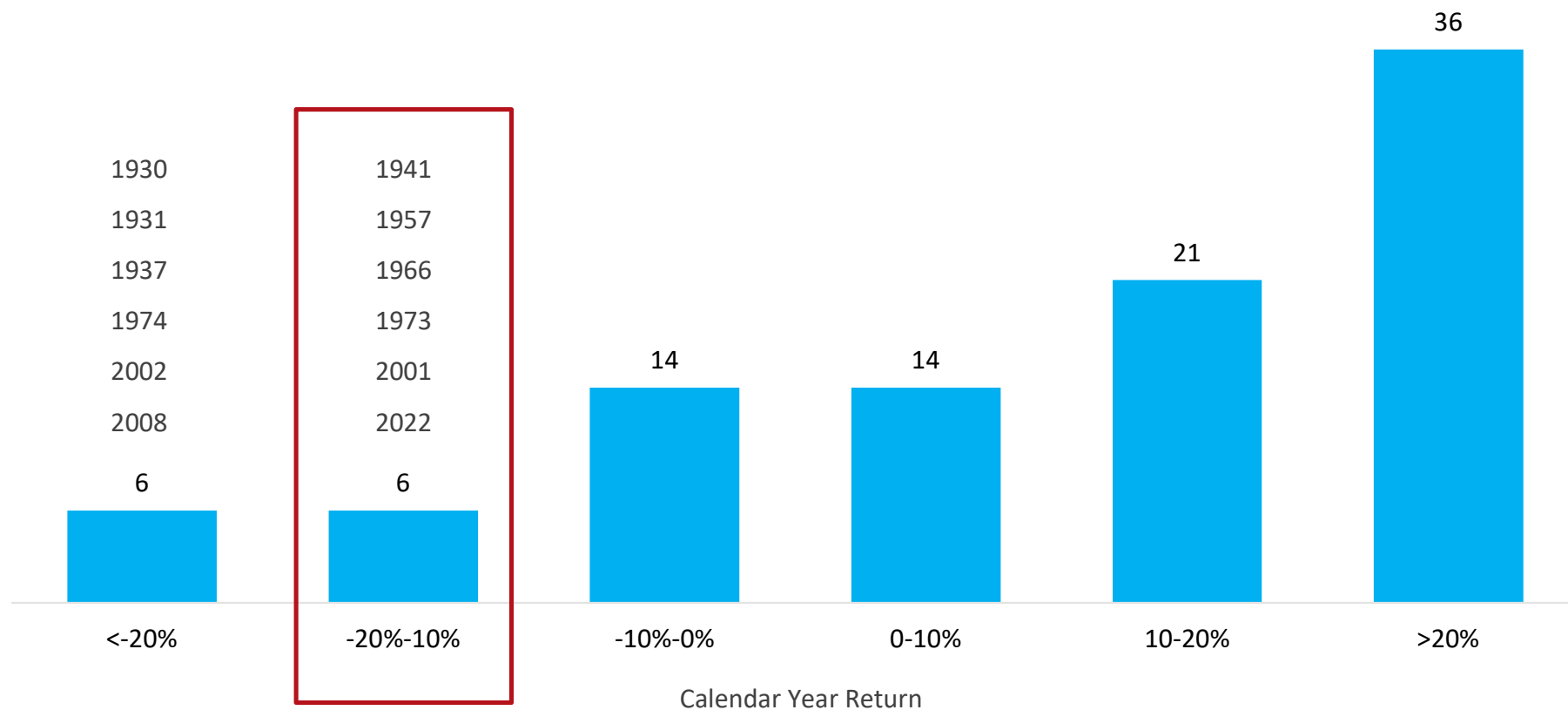
*International developed stocks – as measured by the MSCI EAFE Index – materially outperformed U.S. equities for both the quarter and the year. Emerging market equities also enjoyed a solid rally in the fourth quarter, outperforming domestic equities. Bond returns were positive in the fourth quarter, as increased interest rates were predominantly at the short end of the yield curve, and credit-sensitive sectors benefited from the risk rally. Performance across real assets was similarly positive for the quarter, although headwinds such as deteriorating global economic fundamentals and rising interest rates weighed on the asset category at the end of the year.*

# MARKET INSIGHTS

- Although many years have periods of negative performance, profoundly negative calendar year performance has been the exception. There have been only six years in correction territory (-10% to -20%) and only six instances of performance in bear market territory, lower than -20%, with half of those associated with the Great Depression.
- The only periods of concurrent years with severely negative performance have been in the early 1970s and following the bursting of the technology bubble.

## THE S&P 500 HAS ONLY SEEN DOUBLE-DIGIT NEGATIVE PERFORMANCE IN 12 YEARS, INCLUDING 2022

Number of Years with S&P 500 Index Annual Returns by Cohort



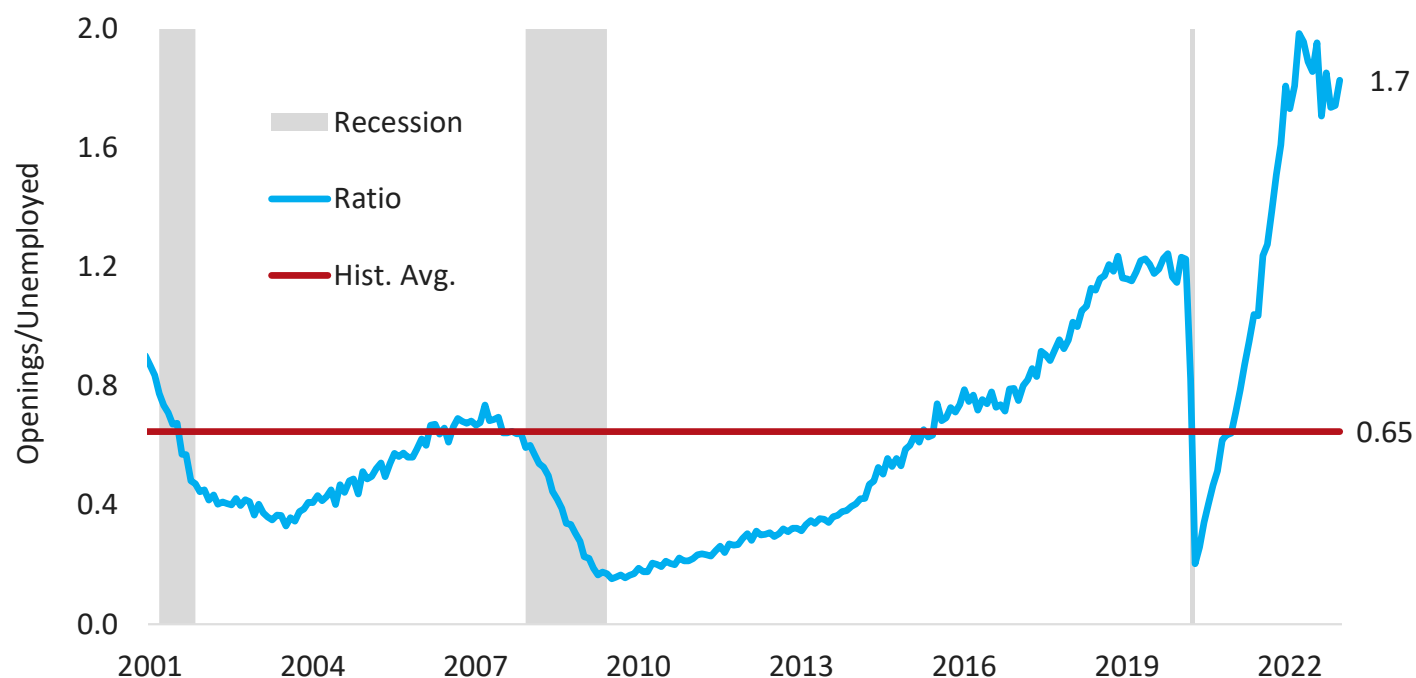
Data source: Strategas

# ECONOMIC INSIGHTS

- A persistent complicating factor in the Fed's efforts to combat inflation remains the resilience of the U.S. labor market, which ended 2022 with the lowest unemployment rate (3.5%) in more than 50 years.
- The number of job openings, measuring just under 10.5 million, continues to exceed available labor, with less than 6 million unemployed. Consequently, nominal wages have been increasing at an elevated pace but still below the rate of inflation, which adds to inflationary pressures as employers attempt to add to and maintain their labor force.
- Until this labor market imbalance approaches a state of equilibrium, the Fed may find its job of engineering a soft landing a difficult procedure, resulting in further financial market volatility and economic hardship for a broad swath of the general populace.

## THE LABOR MARKET ILLUSTRATES INFLATIONARY PRESSURE CONCERNS

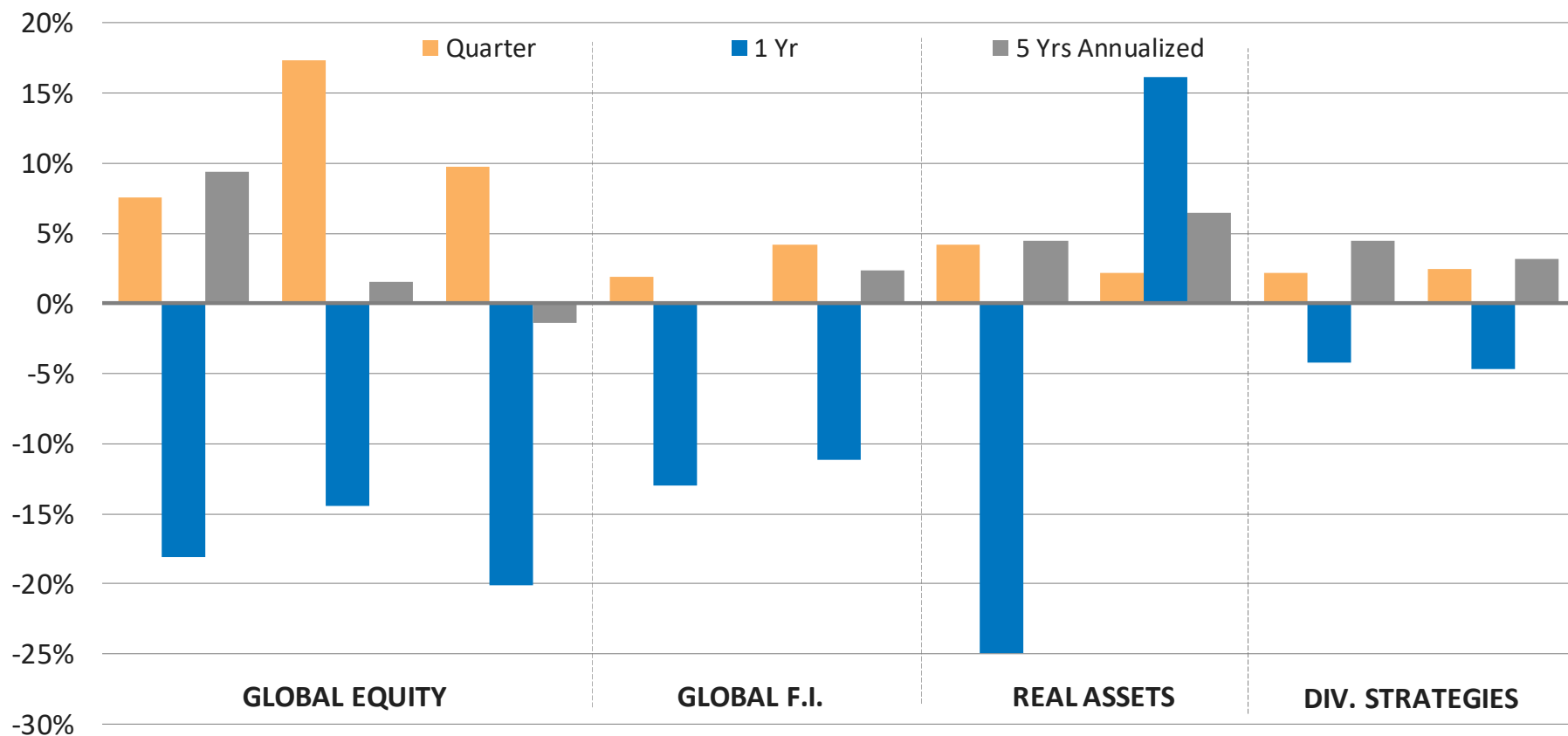
Number of Job Openings per Unemployed Persons



Data sources: Bureau of Labor Statistics and NBER; Data as of November 2022

# MARKET RETURNS

## MAJOR ASSET CLASS RETURNS



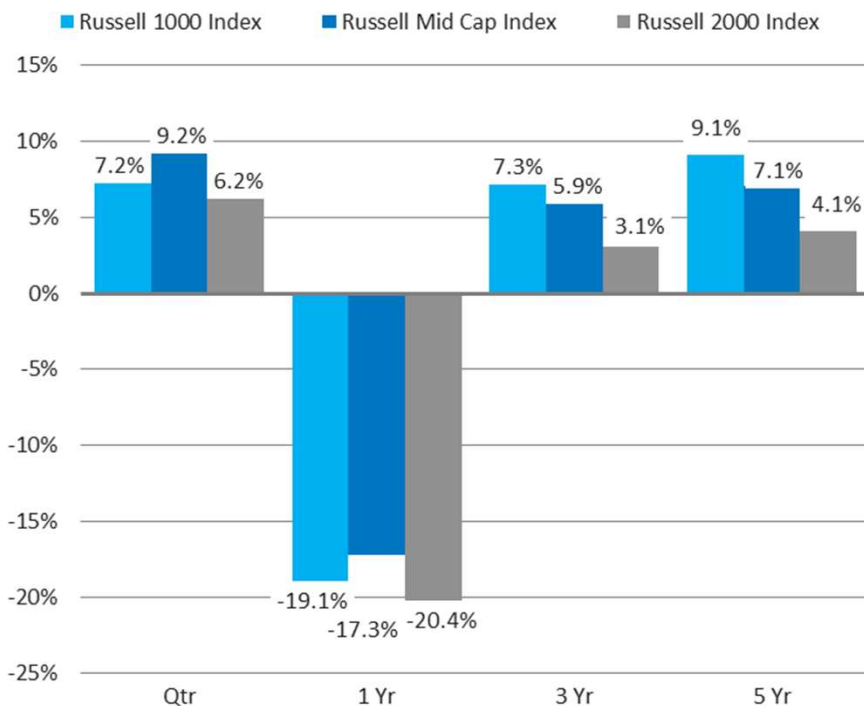
	S&P 500 Index	MSCI EAFE Index	MSCI Emerging Mkts Index	Blmbrg U.S. Agg Index	Blmbrg HY Index	FTSE NAREIT All Equity Index	Blmbrg Cmnty Index	HFRI Fund Wtd Comp. Index	HFRI Fund of Fund Index
Quarter	7.6%	17.3%	9.7%	1.9%	4.2%	4.1%	2.2%	2.2%	2.4%
1 Yr	-18.1%	-14.5%	-20.1%	-13.0%	-11.2%	-24.9%	16.1%	-4.3%	-4.7%
5 Yrs Annualized	9.4%	1.5%	-1.4%	0.0%	2.3%	4.4%	6.4%	4.4%	3.2%

Data sources: Lipper and Hedge Fund Research, data as of 5th business day following quarter-end

# GLOBAL EQUITY, U.S.

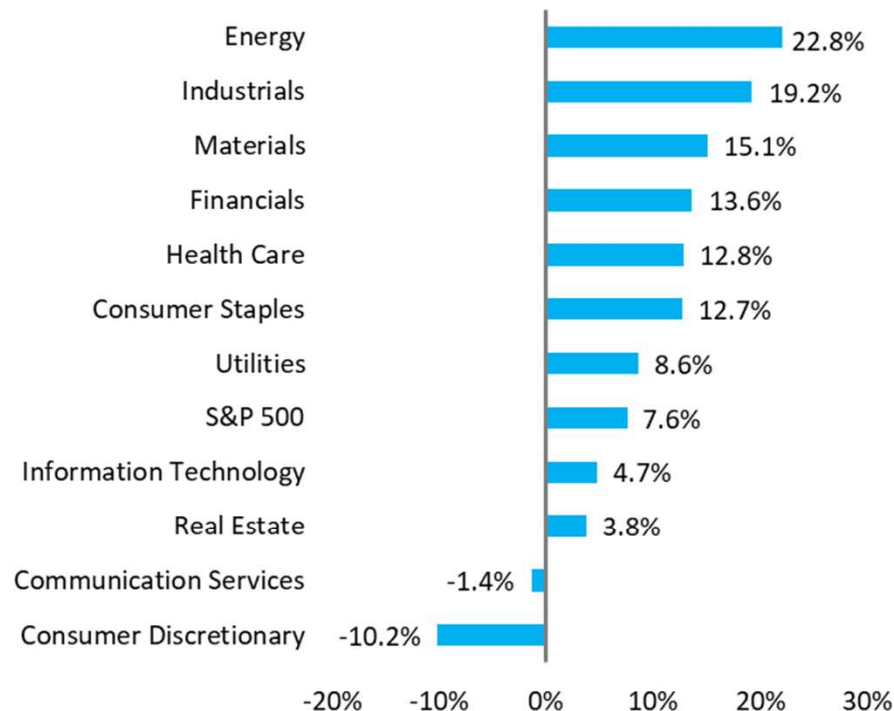
- U.S. equities finished a volatile year with positive returns in the fourth quarter, yet still provided the worst calendar year performance since 2008. U.S. equities rallied to start the quarter but sold off in December in response to the Fed's steadfast positioning to curb inflation.
- A repricing of assets amid rising interest rates and inflation levels not witnessed in four decades drove the year's declines. Corporate earnings have been steady and have yet to reflect deterioration as economic indicators have weakened, although forward guidance has resulted in lowered earnings estimates for 2023.
- Value equity returns outperformed growth equity returns across all market capitalizations for the quarter and substantially for the entire year. Cyclical sectors like energy, industrials, materials, and financials led the market's fourth-quarter rally. Communication services and consumer discretionary sectors lagged in the quarter.

## LARGE CAP, MID CAP, AND SMALL CAP



Data source: Russell

## S&P 500 SECTOR PERFORMANCE

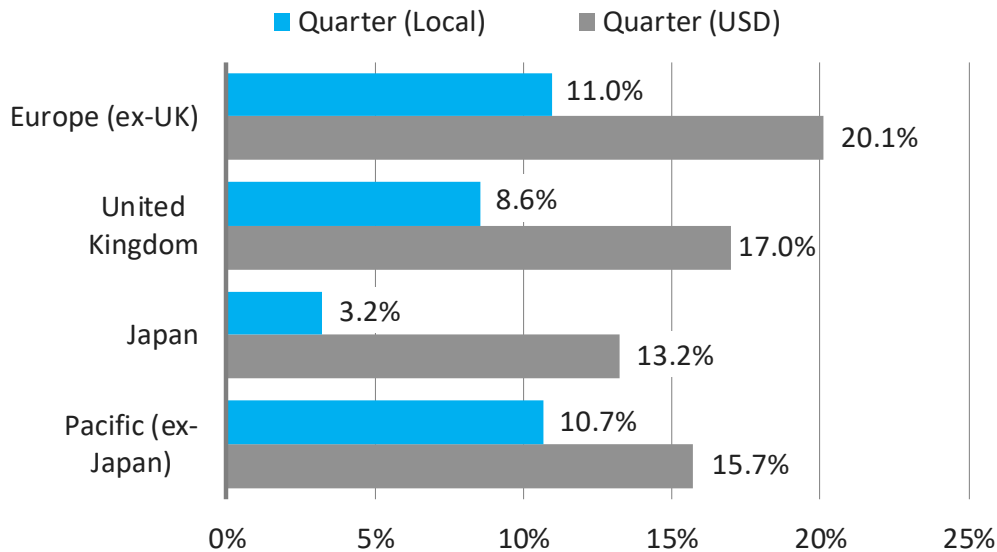


Data source: Factset

# GLOBAL EQUITY, NON-U.S.

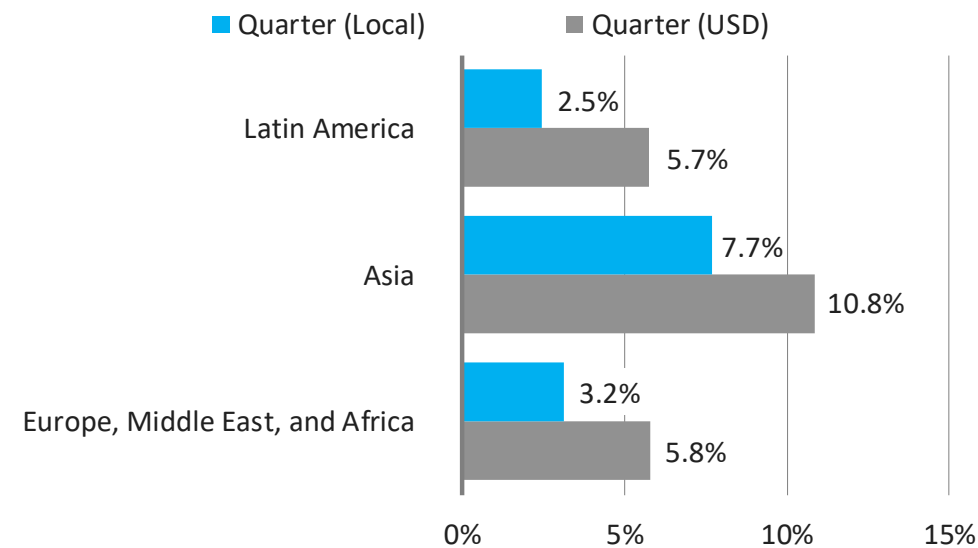
- European (ex-UK) equities, followed closely by Pacific (ex-Japan) equities, were the strongest-performing in local currency terms. The U.S. dollar sell-off augmented those returns and aided U.S. investors in all international equity markets. European markets benefited as cold weather subsided, partially alleviating consumers' burden of steep energy prices.
- Cyclical sectors, like energy and consumer discretionary, drove the European equity market in the year's final quarter. U.K. equities were the best-performing region in 2022, declining only 4.8% in U.S. dollar terms, driven by the significant weight of value industries like oil and gas and pharmaceuticals.
- Japanese equities rallied in the fourth quarter as companies reported another round of strong earnings. Large exporting companies continue to benefit from the yen's weakness. The record level of share buybacks announced this year also helped to boost Japanese equities.
- Emerging market (EM) equities posted positive returns aided by a weakening U.S. dollar. The region struggled throughout the year as China sold off and the Russia-Ukraine War wreaked havoc on the surrounding developing countries. However, Chinese equity returns rebounded in Q4 amid government plans to relax zero COVID policies.

## MSCI EAFE REGIONAL QUARTERLY RETURNS



Data source: MSCI Barra

## MSCI EM REGIONAL QUARTERLY RETURNS



Data source: MSCI Barra

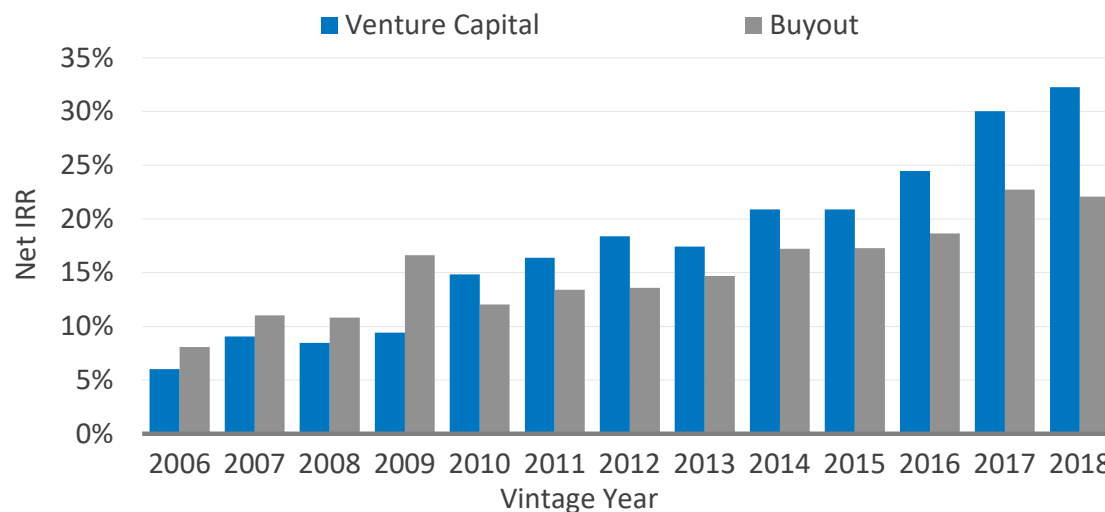


# GLOBAL EQUITY, PRIVATE

- Private equity reports performance on a lag; the latest data available are through June 30, 2022.
- The public market volatility during 2022 has not yet been fully reflected in private equity return data. We expect industry performance to return to more normalized levels if public market valuations remain under pressure.
- Median private equity returns for venture capital and buyout funds have generally been 15% or better since the 2013 vintage year, with venture returns for recent vintage years over 25%.
- Median buyout fund performance exceeded that of venture funds for most of the 2000s through the 2009 vintage year. This dynamic reversed in the subsequent decade's vintage years, with venture funds generally performing better than buyout funds.
- Fundraising activity for venture capital and buyout funds was strong to start the year. Fundraising is expected to moderate if performance remains under pressure.

## MEDIAN VENTURE CAPITAL AND BUYOUT VINTAGE YEAR IRR

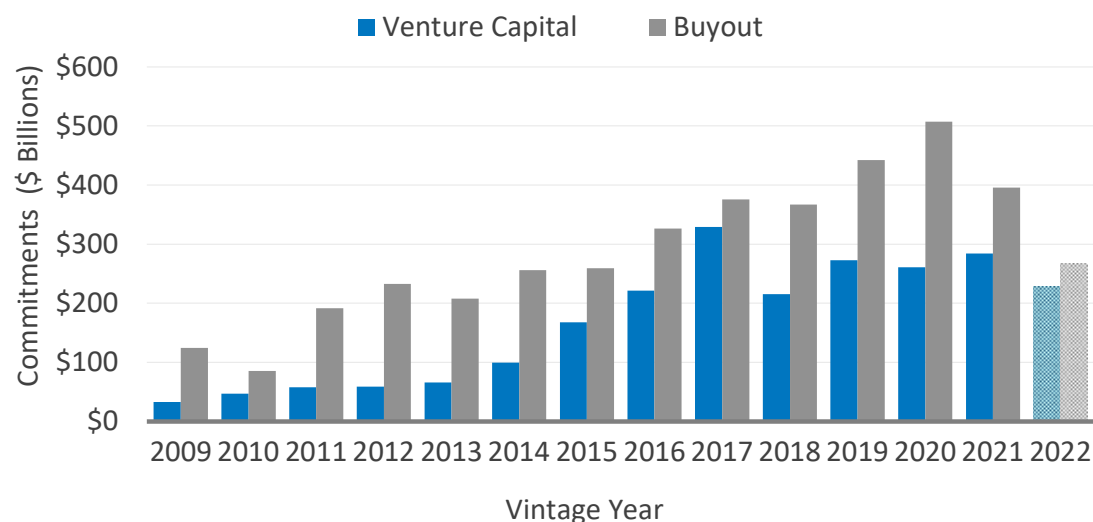
As of June 30, 2022



Data source: Thomson One; the most recent private equity return information available is through June 30, 2022

## VENTURE CAPITAL AND BUYOUT FUNDRAISING ACTIVITY

As of December 31, 2022

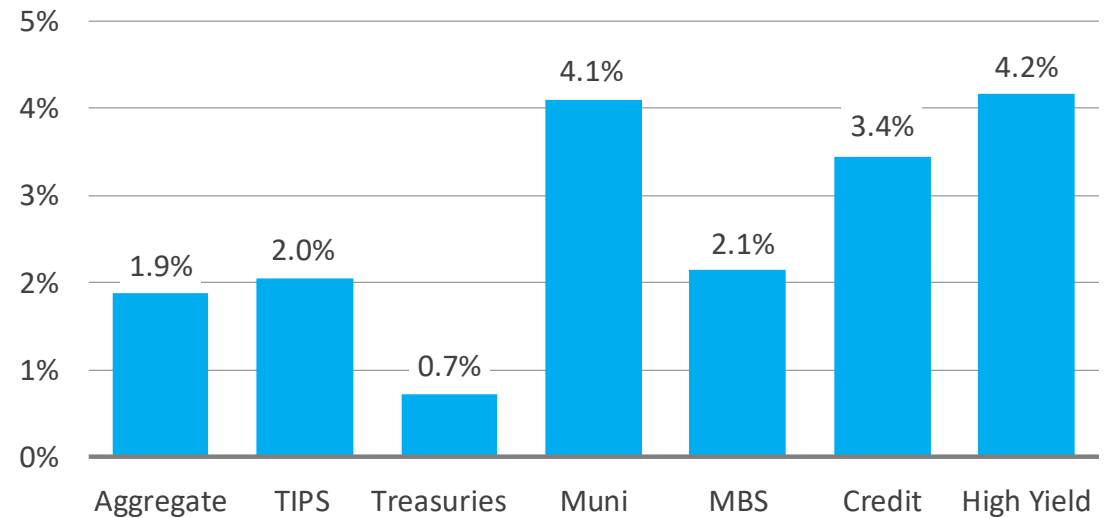


Data source: Pitchbook

# GLOBAL FIXED INCOME

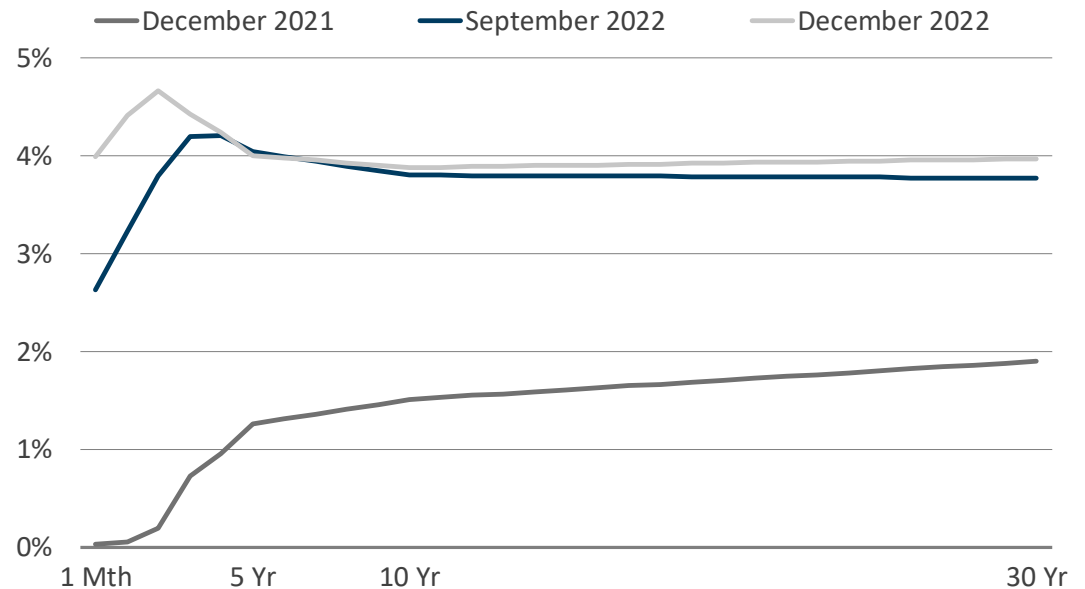
- 2022 ended with another volatile quarter for rates, with rate volatility persisting across the curve.
- The yield curve remained inverted across nearly all term structures as investors balanced hawkish Fed rhetoric against cooling inflation prints.
- Corporate credit participated in the broader risk rally as investment grade and below investment grade sectors outperformed Treasuries.
- The Fed's December Summary of Economic Projections (SEP) showed the median expectation for the terminal rate of over 5%; however, the market is pricing in rate cuts in 2023. Elsewhere, the SEP showed an upwardly revised 2023 expectation for both core inflation and the unemployment rate as rate hikes impact the economy.
- Mortgage rates continued to rise during the quarter, putting pressure on prepayment rates and affordability.

## BLOOMBERG U.S. FIXED INCOME INDEX RETURNS



Data source: FactSet

## U.S. TREASURY YIELD CURVE

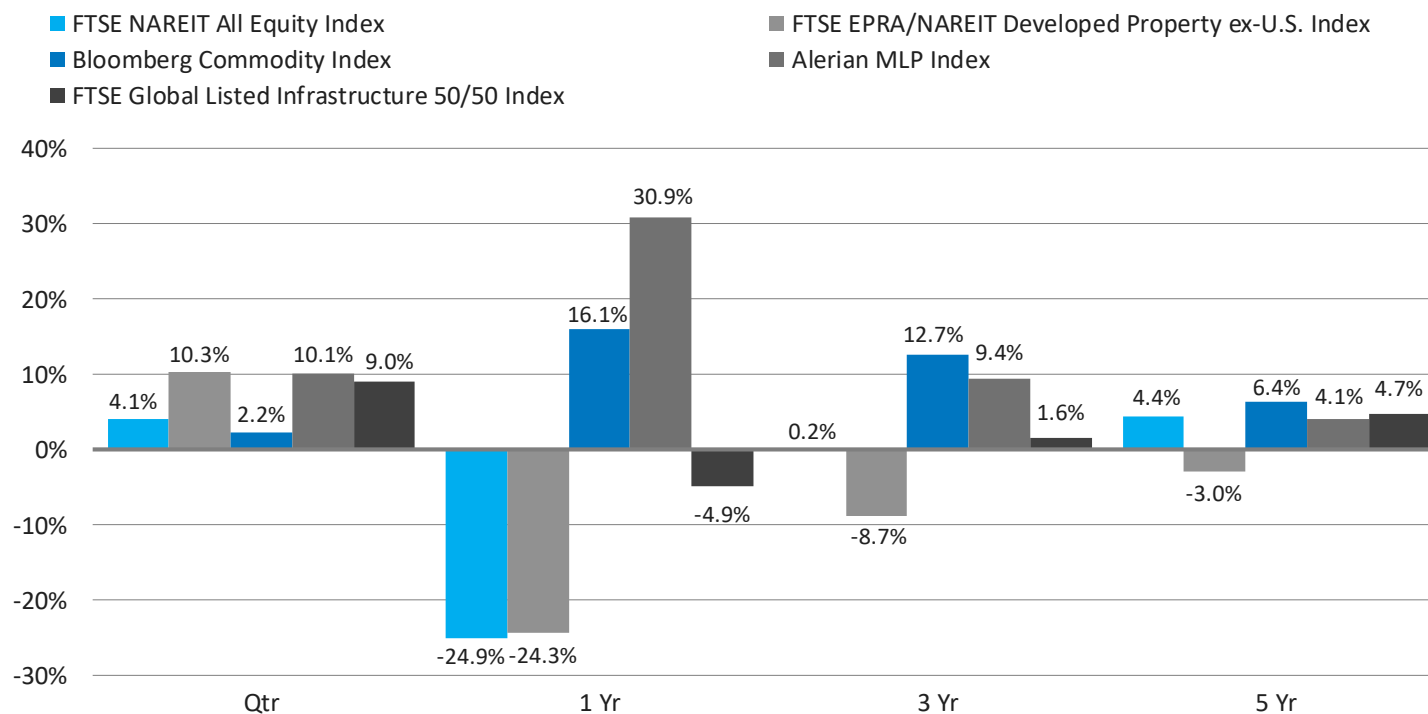


Data source: FactSet

# REAL ASSETS

- Although real estate investment trusts (REITs) performance improved in the fourth quarter of 2022, U.S. REITs underperformed the broad equity market, with 2022 being the worst year for REITs since 2008. Underperformance was driven primarily by the rising interest rates, leading to higher borrowing costs and decreasing demand from investors.
- The energy markets declined in the fourth quarter and were nearly flat for 2022. While volatility and global energy insecurity drove pricing to decade-long highs due to several factors, including the Russian Ukrainian War, a lack of capital spending, and rising inflation, prices fell near year-end as recession concerns materialized and the U.S. and Europe experienced warmer than anticipated winter weather.
- Infrastructure ended the quarter modestly positive after a strong performance in November gave way to negative performance in December. As a result, only energy-related infrastructure returned positive performance during 2022 as energy prices and strong balance sheets helped face the headwind of rising rates that pressured infrastructure broadly.

## PUBLIC REAL ASSETS – REAL ESTATE, COMMODITIES, MLPs, AND INFRASTRUCTURE

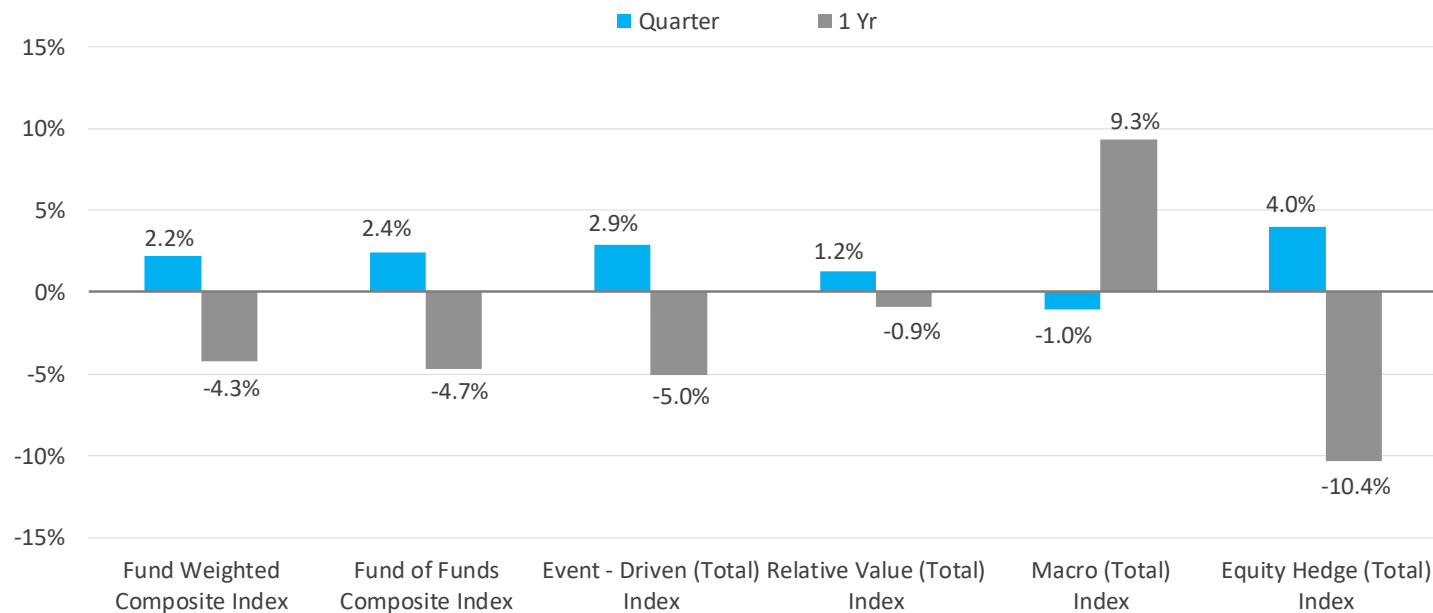


Data sources: NAREIT, FactSet, and Alerian

# DIVERSIFYING STRATEGIES, HEDGE FUNDS

- Hedge funds slightly outperformed traditional equity and fixed income markets, which continued to face headwinds and heightened volatility. The HFRI Fund Weighted Index gained 2.2%, which was the first positive quarter for the index since the first quarter of 2022. Global macro was the only strategy with performance in negative territory over the quarter, following two consecutive quarters being the only strategy in positive territory.
- Hedged equity performed well in the last quarter of 2022, up 4%, rebounding from losses in previous quarters. Event-driven and relative value strategies ended the fourth quarter on a solid note, with gains of 2.9% and 1.2%, respectively. Within hedged equity, fundamental value and energy/basic materials were the best-performing strategies. Equity market neutral and fundamental growth strategies finished 2022 with strong performance.
- The common themes across hedged equity of de-levering portfolios and remaining bearishly positioned persisted throughout the fourth quarter. The themes that changed included an increase in investment in China, decreases in long and increases in short positions in energy, and a sell-off in aerospace and defense. Many strategies became net buyers of health care and staples.

**HFRI INDICES PERFORMANCE RETURNS IN U.S. DOLLARS**



Data source: HFRI

# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending December 31, 2022

	Annualized							Since Inception	Date	Market Value
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<b>Total Composite</b>	<b>7.6%</b>	<b>1.4%</b>	<b>-16.5%</b>	<b>3.4%</b>	<b>3.9%</b>	<b>6.0%</b>	<b>5.8%</b>	<b>5.4%</b>	1/05	\$39,957,058
Target Weighted Index <sup>1</sup>	7.6	2.0	-14.9	2.8	3.6	5.9	5.5	5.7		
Broad Policy Index <sup>2</sup>	7.4	0.8	-16.6	2.3	3.9	6.1	6.1	5.7		
Actuarial Rate <sup>3</sup>	1.8	3.7	7.5	7.6	7.6	7.7	7.7	7.7		
<b>Domestic Equity</b>										
<b>iShares S&amp;P 500 Index</b>	<b>7.6</b>	<b>2.3</b>	<b>-18.1</b>	<b>7.6</b>	<b>9.4</b>	<b>11.4</b>	-	<b>10.1</b>	8/14	12,144,494
S&P 500 Index	7.6	2.3	-18.1	7.7	9.4	11.5	-	10.2		
S&P 500 Equal Weighted Index	11.1	5.2	-13.1	7.0	7.0	9.1	-	7.4		
<b>iShares Russell Midcap Index</b>	<b>9.1</b>	<b>5.4</b>	<b>-17.4</b>	<b>5.7</b>	<b>6.9</b>	<b>9.4</b>	-	<b>8.4</b>	9/14	1,997,397
Russell Midcap Index	9.2	5.4	-17.3	5.9	7.1	9.6	-	8.5		
<b>Small Cap Equity</b>										
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>9.2</b>	<b>3.5</b>	<b>-16.2</b>	<b>5.8</b>	-	-	-	<b>8.7</b>	8/19	3,202,249
S&P SmallCap 600 Index	9.2	3.5	-16.1	5.8	-	-	-	8.8		
<b>International Equity</b>										
<b>EuroPacific Growth Fund</b>	<b>13.8</b>	<b>3.1</b>	<b>-22.8</b>	<b>-0.3</b>	<b>1.4</b>	<b>5.1</b>	-	<b>4.1</b>	9/14	3,757,510
MSCI AC World Index ex-US	14.3	3.0	-16.0	0.1	0.9	4.8	-	2.8		
<b>Templeton Inst'l Foreign Smaller Co.</b>	<b>15.2</b>	<b>1.1</b>	<b>-23.3</b>	<b>-2.5</b>	<b>-1.5</b>	<b>3.0</b>	-	<b>2.5</b>	9/14	972,109
MSCI Small Cap EAFE Index	15.8	4.4	-21.4	-0.9	0.0	4.4	-	4.6		
<b>Brown International Small Company</b>	<b>14.5</b>	<b>3.9</b>	<b>-31.4</b>	-	-	-	-	<b>-17.6</b>	5/21	936,261
MSCI Small Cap EAFE Index	15.8	4.4	-21.4	-	-	-	-	-14.4		
MSCI ACWI ex-U.S. Small Cap Index	13.3	3.8	-20.0	-	-	-	-	-13.0		
<b>Redwheel Global Emerging Equity Fund</b>	<b>8.6</b>	<b>-4.0</b>	<b>-24.5</b>	<b>-1.2</b>	-	-	-	<b>-3.6</b>	2/18	1,169,937
<b>DFA Emerging Markets Fund</b>	<b>10.1</b>	<b>-2.6</b>	<b>-16.9</b>	<b>-1.0</b>	<b>-0.6</b>	<b>5.9</b>	-	<b>2.2</b>	9/14	2,553,428
MSCI Emerging Markets Index	9.7	-3.0	-20.1	-2.7	-1.4	5.2	-	1.8		

# City of Grosse Pointe Woods Employees Retirement System

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	Annualized							Since Inception	Date	Market Value
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<b>Fixed Income</b>										
<b>Dodge &amp; Cox Income Fund</b>	<b>2.8%</b>	<b>-1.3%</b>	<b>-10.9%</b>	<b>-1.1%</b>	-	-	-	<b>1.0%</b>	2/19	\$2,273,418
Bloomberg IG Credit Index	3.3	-2.1	-15.2	-2.9	-	-	-	0.3		
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	-	-	-	-0.2		
<b>DoubleLine Total Return Bond Fund</b>	<b>-0.1</b>	<b>-4.3</b>	<b>-12.6</b>	<b>-3.0</b>	-	-	-	<b>-1.1</b>	2/19	2,019,354
Bloomberg U.S. MBS Index	2.1	-3.3	-11.8	-3.2	-	-	-	-1.1		
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	-	-	-	-0.2		
<b>Vanguard Total Bond Fund</b>	<b>1.7</b>	<b>-3.1</b>	<b>-13.2</b>	<b>-2.7</b>	-	-	-	<b>-0.2</b>	2/19	2,196,383
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	-	-	-	-0.2		
<b>Low Volatility</b>										
<b>Gateway Fund</b>	<b>4.7</b>	<b>0.7</b>	<b>-11.8</b>	<b>1.8</b>	-	-	-	<b>2.0</b>	8/18	1,623,840
<b>PIMCO All Asset Fund</b>	<b>7.3</b>	<b>0.7</b>	<b>-11.5</b>	<b>3.5</b>	-	-	-	<b>5.2</b>	11/18	1,338,217
HFRX Equity Hedge Index	1.7	1.6	-3.2	4.3	-	-	-	4.7		
<b>Real Estate</b>										
<b>Principal Real Estate Securities Fund</b>	<b>2.3</b>	<b>-6.4</b>	<b>-25.2</b>	<b>0.4</b>	<b>4.9</b>	<b>5.6</b>	-	<b>7.1</b>	9/14	857,413
FTSE NAREIT Equity REIT Index	5.2	-5.2	-24.4	-0.1	3.7	4.6	-	6.0		
FTSE NAREIT All Equity Index	4.1	-7.1	-24.9	0.2	4.4	5.6	-	6.7		
<b>Natural Resources</b>										
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>9.4</b>	<b>10.9</b>	<b>22.1</b>	<b>6.6</b>	<b>4.0</b>	-	-	<b>4.5</b>	8/17	1,187,938
Alerian MLP Index	10.1	19.0	30.9	9.4	4.1	-	-	3.8		
Tortoise North American Pipeline Index	8.3	4.4	16.9	7.9	6.9	-	-	6.8		
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	<b>9.2</b>	<b>-0.8</b>	-	-	-	-	-	<b>-6.0</b>	5/22	1,158,375
FTSE Global Core Infrastructure 50/50	9.0	-0.8	-	-	-	-	-	-6.9		
DJ Brookfield Global Infrastructure Index	9.4	-1.8	-	-	-	-	-	-9.4		
<b>Cash</b>										
<b>Schwab Government Money Fund</b>	<b>0.8</b>	<b>1.2</b>	<b>1.3</b>	<b>0.5</b>	<b>0.9</b>	<b>0.7</b>	-	<b>0.6</b>	7/14	568,735
U.S. 91-Day Treasury Bills	1.0	1.6	2.0	0.8	1.3	1.1	-	0.9		

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	Annualized							Since Inception	Date	Market Value
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<b><u>Long Term Manager Performance</u></b>										
<b><u>Domestic Equity</u></b>										
<b>iShares S&amp;P 500 Index</b>	<b>7.6%</b>	<b>2.3%</b>	<b>-18.1%</b>	<b>7.6%</b>	<b>9.4%</b>	<b>11.4%</b>	<b>12.5%</b>	<b>8.9%</b>	<i>1/05</i>	
S&P 500 Index	7.6	2.3	-18.1	7.7	9.4	11.5	12.6	9.0		
S&P 500 Equal Weighted Index	11.1	5.2	-13.1	7.0	7.0	9.1	10.2	7.7		
<b>iShares Russell Midcap Index</b>	<b>9.1</b>	<b>5.4</b>	<b>-17.4</b>	<b>5.7</b>	<b>6.9</b>	<b>9.4</b>	<b>10.8</b>	<b>8.9</b>	<i>1/05</i>	
Russell Midcap Index	9.2	5.4	-17.3	5.9	7.1	9.6	11.0	9.1		
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>9.2</b>	<b>3.5</b>	<b>-16.2</b>	<b>5.8</b>	<b>5.8</b>	<b>9.6</b>	<b>10.7</b>	<b>11.5</b>	<i>9/10</i>	
S&P SmallCap 600 Index	9.2	3.5	-16.1	5.8	5.9	9.7	10.8	11.6		
<b><u>International Equity</u></b>										
<b>EuroPacific Growth Fund</b>	<b>13.8</b>	<b>3.1</b>	<b>-22.8</b>	<b>-0.3</b>	<b>1.4</b>	<b>5.1</b>	<b>5.2</b>	<b>4.5</b>	<i>8/08</i>	
MSCI AC World Index ex-U.S.	14.3	3.0	-16.0	0.1	0.9	4.8	3.8	3.0		
<b>Templeton Inst'l Foreign Smaller Co.</b>	<b>15.2</b>	<b>1.1</b>	<b>-23.3</b>	<b>-2.5</b>	<b>-1.5</b>	<b>3.0</b>	<b>4.0</b>	<b>6.1</b>	<i>1/05</i>	
MSCI Small Cap EAFE Index	15.8	4.4	-21.4	-0.9	0.0	4.4	6.2	5.5		
<b>Brown International Small Company</b>	<b>14.5</b>	<b>3.9</b>	<b>-31.4</b>	<b>4.0</b>	<b>6.7</b>	<b>10.0</b>	<b>-</b>	<b>10.7</b>	<i>9/15</i>	
MSCI Small Cap EAFE Index	15.8	4.4	-21.4	-0.9	0.0	4.4	-	5.2		
MSCI ACWI ex-U.S. Small Cap Index	13.3	3.8	-20.0	1.1	0.7	5.1	-	5.6		
<b>Redwheel Global Emerging Equity Fund</b>	<b>8.4</b>	<b>-3.6</b>	<b>-24.6</b>	<b>-0.9</b>	<b>-2.1</b>	<b>6.7</b>	<b>5.0</b>	<b>6.1</b>	<i>7/12</i>	
MSCI Emerging Markets Index	9.7	-3.0	-20.1	-2.7	-1.4	5.2	1.4	2.4		
<b>DFA Emerging Markets Fund</b>	<b>10.1</b>	<b>-2.6</b>	<b>-16.9</b>	<b>-1.0</b>	<b>-0.6</b>	<b>5.9</b>	<b>1.8</b>	<b>6.0</b>	<i>1/05</i>	
MSCI Emerging Markets Index	9.7	-3.0	-20.1	-2.7	-1.4	5.2	1.4	5.7		
<b><u>Fixed Income</u></b>										
<b>Dodge &amp; Cox Income Fund</b>	<b>2.8</b>	<b>-1.3</b>	<b>-10.9</b>	<b>-1.1</b>	<b>1.1</b>	<b>2.2</b>	<b>2.1</b>	<b>3.7</b>	<i>1/05</i>	
Bloomberg IG Credit Index	3.3	-2.1	-15.2	-2.9	0.2	1.7	1.8	3.5		
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	3.0		
<b>DoubleLine Total Return Bond Fund</b>	<b>-0.1</b>	<b>-4.3</b>	<b>-12.6</b>	<b>-3.0</b>	<b>-0.4</b>	<b>0.6</b>	<b>1.3</b>	<b>3.4</b>	<i>4/10</i>	
Bloomberg U.S. MBS Index	2.1	-3.3	-11.8	-3.2	-0.5	0.2	0.7	1.5		
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	2.1		
<b>Vanguard Total Bond Fund</b>	<b>1.7</b>	<b>-3.1</b>	<b>-13.2</b>	<b>-2.7</b>	<b>0.0</b>	<b>0.9</b>	<b>1.0</b>	<b>2.9</b>	<i>1/05</i>	
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	3.0		

# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending December 31, 2022

	Annualized							Since Inception	Date	Market Value
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<b><u>Low Volatility</u></b>										
<b>Gateway Fund</b>	<b>4.7%</b>	<b>0.7%</b>	<b>-11.8%</b>	<b>1.8%</b>	<b>2.3%</b>	<b>3.8%</b>	<b>4.2%</b>	<b>3.8%</b>	<i>1/05</i>	
<b>PIMCO All Asset Fund</b>	<b>7.3</b>	<b>0.7</b>	<b>-11.5</b>	<b>3.5</b>	<b>3.4</b>	<b>6.2</b>	<b>3.5</b>	<b>5.1</b>	<i>1/05</i>	
HFRX Equity Hedge Index	1.7	1.6	-3.2	4.3	2.6	3.3	3.3	1.4		
<b><u>Real Estate</u></b>										
<b>Principal Real Estate Securities Fund</b>	<b>2.3</b>	<b>-6.4</b>	<b>-25.2</b>	<b>0.4</b>	<b>4.9</b>	<b>5.6</b>	<b>7.7</b>	<b>8.3</b>	<i>1/05</i>	
FTSE NAREIT Equity REIT Index	5.2	-5.2	-24.4	-0.1	3.7	4.6	6.5	7.1		
FTSE NAREIT All Equity Index	4.1	-7.1	-24.9	0.2	4.4	5.6	7.1	7.5		
<b><u>Natural Resources</u></b>										
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>9.4</b>	<b>10.9</b>	<b>22.1</b>	<b>6.6</b>	<b>4.0</b>	<b>8.0</b>	<b>4.7</b>	<b>6.2</b>	<i>5/11</i>	
Alerian MLP Index	10.1	19.0	30.9	9.4	4.1	4.4	2.0	2.9		
Tortoise North American Pipeline Index	8.3	4.4	16.9	7.9	6.9	10.3	7.0	-		
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	<b>9.2</b>	<b>-0.8</b>	<b>-4.9</b>	<b>3.1</b>	<b>5.6</b>	<b>7.8</b>	<b>7.5</b>	<b>6.8</b>	<i>1/05</i>	
FTSE Global Core Infrastructure 50/50	9.0	-0.8	-4.9	1.6	4.7	7.4	7.0	-		
DJ Brookfield Global Infrastructure Index	9.4	-1.8	-4.9	1.1	3.7	6.0	5.9	8.0		
<b><u>Cash</u></b>										
<b>Schwab Government Money Fund</b>	<b>0.8</b>	<b>1.2</b>	<b>1.3</b>	<b>0.5</b>	<b>0.9</b>	<b>0.7</b>	<b>0.5</b>	<b>1.0</b>	<i>1/05</i>	
U.S. 91-Day Treasury Bills	1.0	1.6	2.0	0.8	1.3	1.1	0.8	1.2		



# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending December 31, 2022

### Footnotes:

\* Performance returns are net of investment management fees.

\* Calculated returns may differ from the manager's due to differences in security pricing and/or cash flows.

\* Manager and index data represent the most current available at the time of report publication.

\* For managers and indices that report returns on a lag, 0.0% is utilized for the most recent time period until the actual return data are reported.

\* The fiscal year ends in June.

<sup>1</sup> Target Weighted Index is currently comprised of: 30.0% Russell 1000 Index, 5.0% Russell Midcap Index, 7.0% Russell 2000 Index, 10.0% MSCI EAFE Index, 5.0% MSCI Small Cap EAFE Index, 10.0% MSCI Emerging Markets Index, 20.0% Bloomberg U.S. Aggregate Index, 3.0% Alerian MLP Index, 3.0% FTSE NAREIT All Equity Index, and 7.0% HFRI FOF: Conservative Index. Please see Appendix for benchmark history.

<sup>2</sup> Broad Policy Index is comprised of: 70.0% MSCI AC World Index and 30.0% Bloomberg U.S. Aggregate Index.

<sup>3</sup> Actuarial Rate is currently comprised of: 100.0% 7.5% Absolute Return. Please see Appendix for benchmark history.

<sup>A</sup> RWC Global Emerging Equity Fund (LT) uses longer term composite returns for performance evaluation rather than the shorter-term mutual fund returns.

## City of Grosse Pointe Woods Employees Retirement System

### Schedule of Asset and Style Allocation

Asset Class	Current Weight	Target Weight	Target Range
Large Cap Equity	30.4%	30.0%	5.0% - 35.0%
Mid Cap Equity	5.0%	5.0%	0.0% - 15.0%
Small Cap Equity	8.0%	7.0%	5.0% - 30.0%
International Equity	9.4%	10.0%	5.0% - 25.0%
International Small Cap Equity	4.8%	5.0%	0.0% - 15.0%
Emerging Markets	9.3%	10.0%	5.0% - 20.0%
Fixed Income	16.2%	20.0%	5.0% - 30.0%
Public Real Estate	2.1%	3.0%	0.0% - 10.0%
Public Natural Resources	5.9%	3.0%	0.0% - 10.0%
Low Volatility	7.4%	7.0%	0.0% - 20.0%
Cash	1.4%	0.0%	0.0% - 5.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	

# City of Grosse Pointe Woods Employees Retirement System

## Schedule of Asset and Style Allocation

Asset Class - Style	Manager	Portfolio Invested	Portfolio Cash	Market Value	Current Weight
Large Cap Equity - Broad	iShares S&P 500 Index	100.0%	0.0%	\$12,144,494	30.4%
Mid Cap Equity - Broad	iShares Russell Midcap Index	100.0%	0.0%	\$1,997,397	5.0%
Small Cap Equity - Broad	Vanguard S&P Small Cap 600 Index	100.0%	0.0%	\$3,202,249	8.0%
International Equity - Core	EuroPacific Growth Fund	100.0%	0.0%	\$3,757,510	9.4%
International Small Cap Equity - Core	Brown International Small Company	100.0%	0.0%	\$936,261	2.3%
International Small Cap Equity - Core	Templeton Inst'l Foreign Smaller Co.	100.0%	0.0%	\$972,109	2.4%
Emerging Markets - Core	DFA Emerging Markets Fund	100.0%	0.0%	\$2,553,428	6.4%
Emerging Markets - Growth	Redwheel Global Emerging Equity Fund	100.0%	0.0%	\$1,169,937	2.9%
Fixed Income - Core	Dodge & Cox Income Fund	100.0%	0.0%	\$2,273,418	5.7%
Fixed Income - Core	Vanguard Total Bond Fund	100.0%	0.0%	\$2,196,383	5.5%
Fixed Income - Core Plus	DoubleLine Total Return Bond Fund	100.0%	0.0%	\$2,019,354	5.1%
Public Real Estate - Equity	Principal Real Estate Securities Fund	100.0%	0.0%	\$857,413	2.1%
Public Natural Resources - Infrastructure	Cohen & Steers Global Listed Infrastructure	100.0%	0.0%	\$1,158,375	2.9%
Public Natural Resources - MLP	Tortoise MLP & Pipeline Fund	100.0%	0.0%	\$1,187,938	3.0%
Low Volatility - Liquid	Gateway Fund	100.0%	0.0%	\$1,623,840	4.1%
Low Volatility - Tactical	PIMCO All Asset Fund	100.0%	0.0%	\$1,338,217	3.3%
Cash - Cash	Schwab Government Money Fund	0.0%	100.0%	\$568,735	1.4%
<b>Total</b>				<b>\$39,957,058</b>	<b>100.0%</b>

# City of Grosse Pointe Woods Employees Retirement System

## Investment Metrics

Report for Periods Ending December 31, 2022

Statistical Measures	Sharpe Ratio	Standard Deviation	Tracking Error	Information Ratio
<b>Total Composite</b>	<b>0.2</b>	<b>15.3%</b>	<b>2.5%</b>	<b>0.0</b>
Target Weighted Index	0.2	14.4	1.9	0.2
Broad Policy Index	0.2	13.7	0.0	--

Asset Growth Summary (in thousands)	Qtr	FYTD
Beginning Market Value	\$ 37,708	\$ 40,242
Net Contributions/(Distributions)	\$ (603)	\$ (726)
<b>Market Appreciation/(Depreciation)</b>	<b>\$ 2,852</b>	<b>\$ 441</b>
<b>Ending Market Value</b>	<b>\$ 39,957</b>	<b>\$ 39,957</b>

\* Risk Statistics are based on monthly data.

\* Target Weighted Index is currently comprised of: 30.0% Russell 1000 Index, 5.0% Russell Midcap Index, 7.0% Russell 2000 Index, 10.0% MSCI EAFE Index, 5.0% MSCI Small Cap EAFE Index, 10.0% MSCI Emerging Markets Index, 20.0% Bloomberg U.S. Aggregate Index, 3.0% Alerian MLP Index, 3.0% FTSE NAREIT All Equity Index, and 7.0% HFRI FOF: Conservative Index. Please see Appendix for benchmark history.

\* Broad Policy Index is comprised of: 70.0% MSCI AC World Index and 30.0% Bloomberg U.S. Aggregate Index.

# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>iShares S&amp;P 500 Index</b>	<b>7.6%</b>	<b>2.3%</b>	<b>-18.1%</b>	<b>7.6%</b>	<b>9.4%</b>	<b>11.4%</b>	<b>12.5%</b>	<b>8.9%</b>	<b>1/05</b>
S&P 500 Index	7.6	2.3	-18.1	7.7	9.4	11.5	12.6	9.0	
S&P 500 Equal Weighted Index	11.1	5.2	-13.1	7.0	7.0	9.1	10.2	7.7	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>iShares S&amp;P 500 Index</b>	<b>1.00</b>	<b>0.0%</b>	<b>1.00</b>	<b>20.8%</b>	<b>0.0%</b>	<b>-1.6</b>
S&P 500 Index	1.00	0.0	1.00	20.8	0.0	--
S&P 500 Equal Weighted Index	1.05	-2.9	0.94	22.3	5.3	0.5

<b>Portfolio Statistics</b>	<b>Trailing P/E</b>	<b>Trailing P/B</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
<b>iShares S&amp;P 500 Index</b>	<b>19.1</b>	<b>3.6</b>	<b>417,497.0 M</b>	<b>1.7%</b>	<b>--%</b>
S&P 500 Index	19.1	3.6	417,497.0	1.7	--
S&P 500 Equal Weighted Index	--	--	--	--	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = 0.0%	No
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes

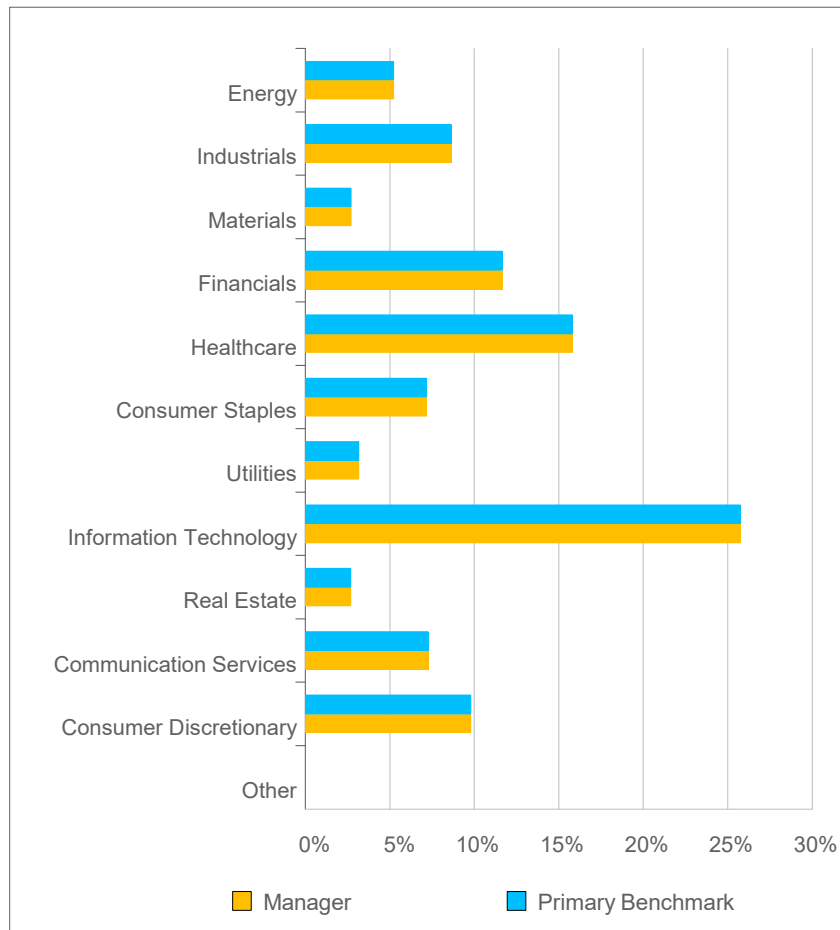
# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

### Equity Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	5%	5%	22.8%	65.7%
Industrials	9	9	19.2	-5.4
Materials	3	3	15.1	-12.3
Financials	12	12	13.6	-10.5
Healthcare	16	16	12.8	-2.0
Consumer Staples	7	7	12.7	-0.6
Utilities	3	3	8.6	1.5
Information Technology	26	26	4.8	-28.0
Real Estate	3	3	3.8	-26.1
Communication Services	7	7	-1.7	-40.4
Consumer Discretionary	10	10	-10.2	-37.0
Other	0	0	-	-

#### Top Five Holdings

	Weighting
Apple Inc.	6.1%
Microsoft Corporation	5.6
Amazon.com, Inc.	2.3
Berkshire Hathaway Inc. Class B	1.7
Alphabet Inc. Class A	1.6

Number of Holdings: 503

\* Sector weightings may not add up to 100% due to rounding.

\* Manager data represents the most current available at the time of report publication.

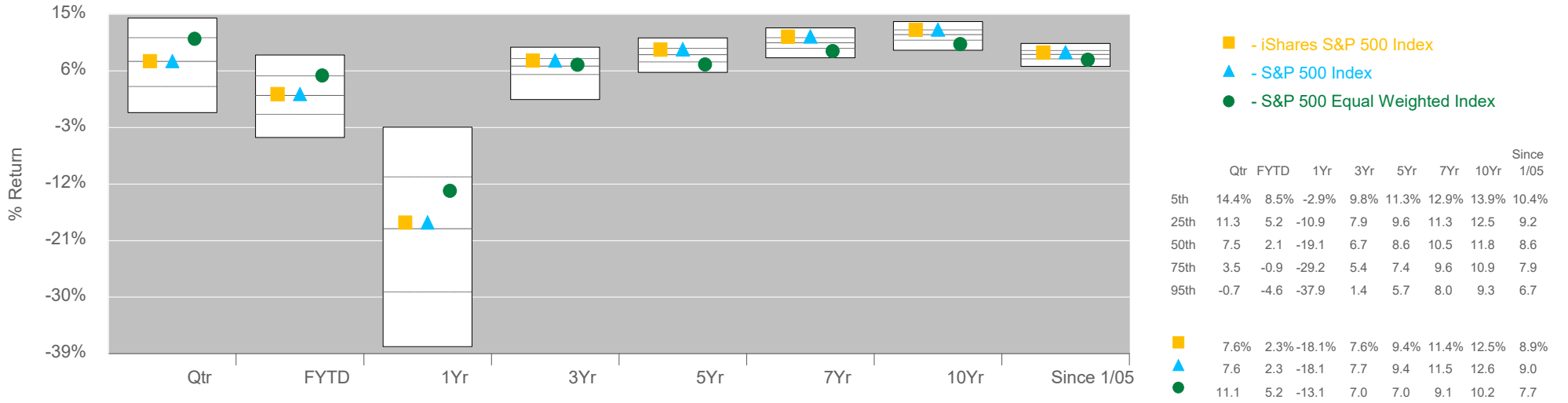
\* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

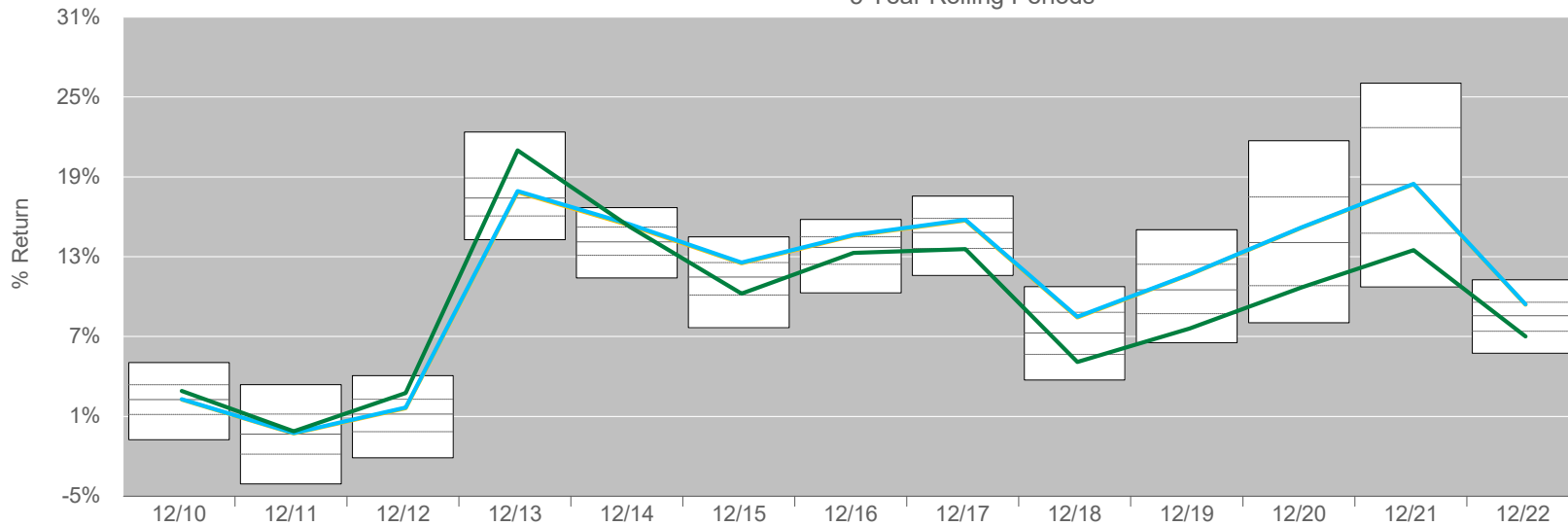
### Broad Large Cap Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods





# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>iShares Russell Midcap Index</b>	<b>9.1%</b>	<b>5.4%</b>	<b>-17.4%</b>	<b>5.7%</b>	<b>6.9%</b>	<b>9.4%</b>	<b>10.8%</b>	<b>8.9%</b>	<b>1/05</b>
Russell Midcap Index	9.2	5.4	-17.3	5.9	7.1	9.6	11.0	9.1	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>iShares Russell Midcap Index</b>	<b>1.00</b>	<b>-0.2%</b>	<b>1.00</b>	<b>22.9%</b>	<b>0.1%</b>	<b>-2.5</b>
Russell Midcap Index	1.00	0.0	1.00	23.0	0.0	--

<b>Portfolio Statistics</b>	<b>Trailing P/E</b>	<b>Trailing P/B</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
<b>iShares Russell Midcap Index</b>	<b>16.0</b>	<b>2.6</b>	<b>21,260.0 M</b>	<b>1.7%</b>	<b>--%</b>
Russell Midcap Index	16.0	2.6	21,260.0	1.7	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.2%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = -0.2%	No
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes

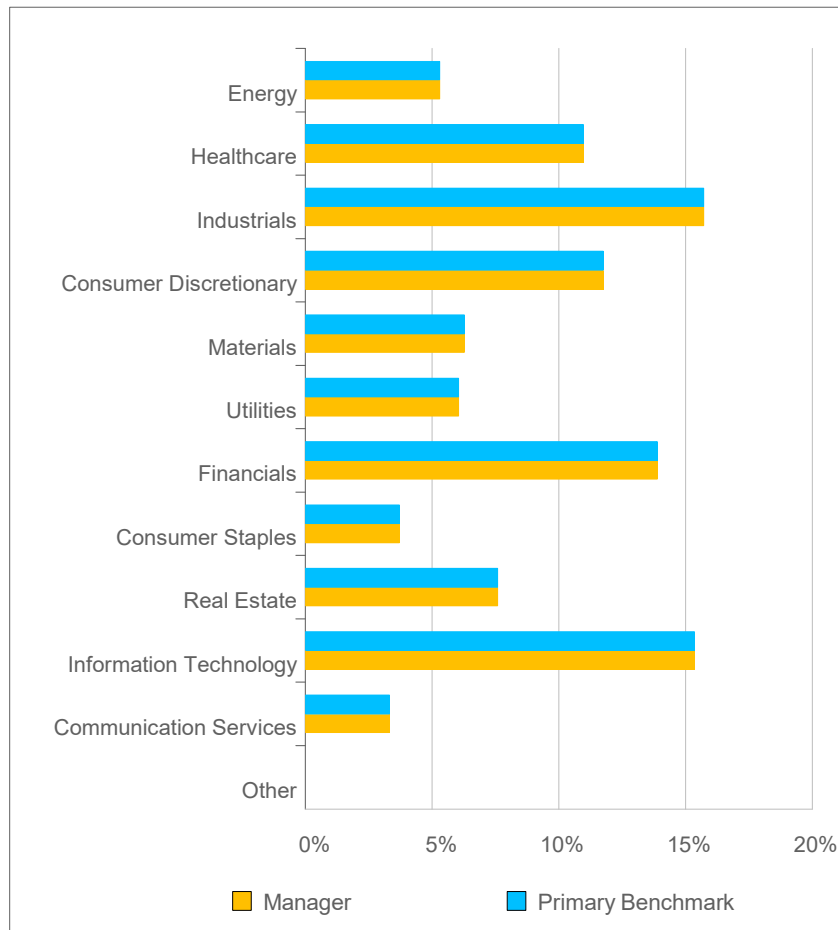
# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index

### Equity Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	5%	5%	16.4%	55.0%
Healthcare	11	11	14.1	-19.3
Industrials	16	16	12.5	-14.8
Consumer Discretionary	12	12	12.5	-25.2
Materials	6	6	11.8	-9.3
Utilities	6	6	10.9	2.6
Financials	14	14	9.6	-12.6
Consumer Staples	4	4	9.0	-1.0
Real Estate	8	8	3.9	-24.7
Information Technology	15	15	2.5	-29.9
Communication Services	3	3	-5.2	-45.6
Other	0	0	-	-

#### Top Five Holdings

	Weighting
O'Reilly Automotive, Inc.	0.6%
Phillips 66	0.5
Synopsys, Inc.	0.5
AutoZone, Inc.	0.5
Amphenol Corporation Class A	0.5

Number of Holdings: 818

\* Sector weightings may not add up to 100% due to rounding.

\* Manager data represents the most current available at the time of report publication.

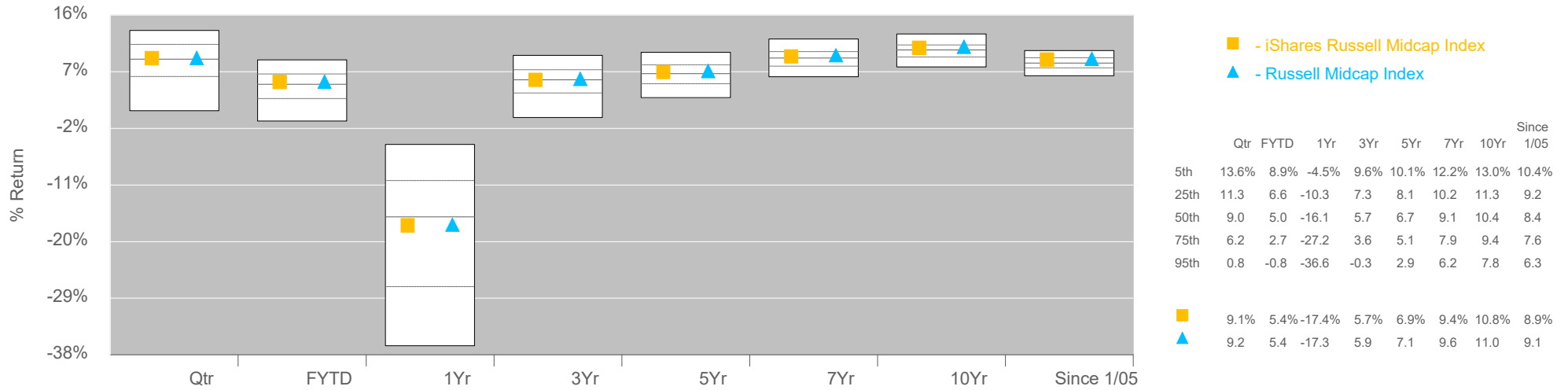
\* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index

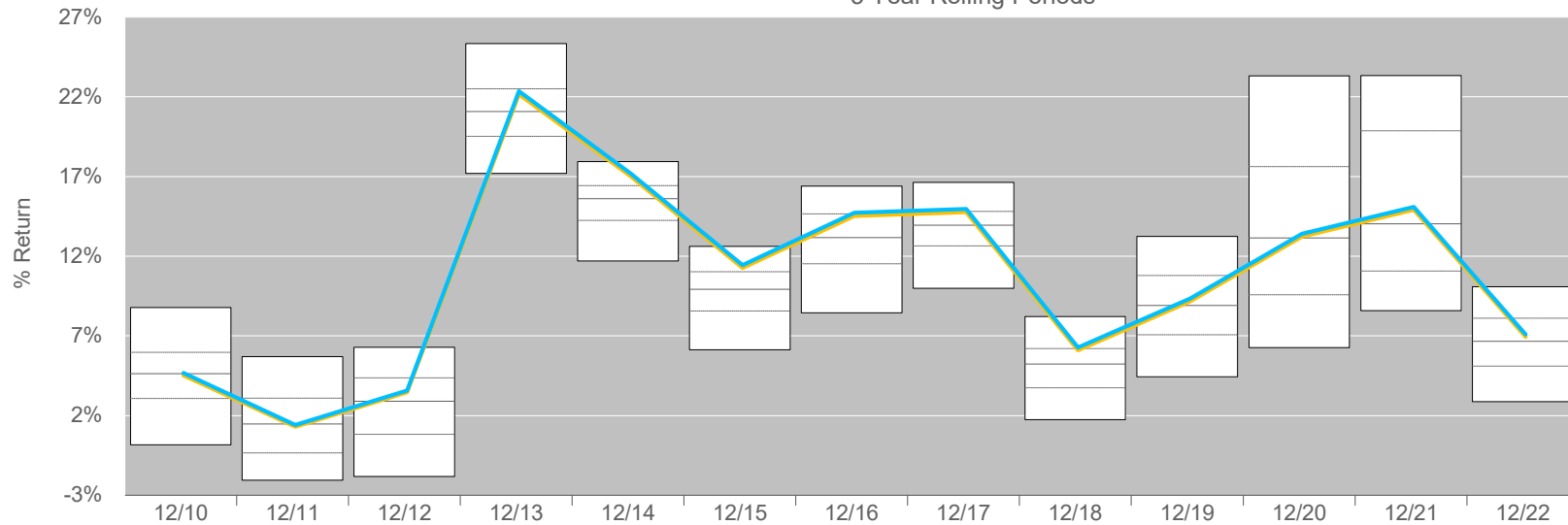
### Broad Mid Cap Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>9.2%</b>	<b>3.5%</b>	<b>-16.2%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>9.6%</b>	<b>10.7%</b>	<b>11.5%</b>	<i>9/10</i>
S&P SmallCap 600 Index	9.2	3.5	-16.1	5.8	5.9	9.7	10.8	11.6	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>1.00</b>	<b>-0.1%</b>	<b>1.00</b>	<b>25.9%</b>	<b>0.1%</b>	<b>-1.0</b>
S&P SmallCap 600 Index	1.00	0.0	1.00	25.9	0.0	--

<b>Portfolio Statistics</b>	<b>Trailing P/E</b>	<b>Trailing P/B</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>11.2</b>	<b>1.7</b>	<b>2,258.0 M</b>	<b>1.7%</b>	<b>--%</b>
S&P SmallCap 600 Index	11.2	1.7	2,258.0	1.7	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.1%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = -0.1%	No
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes

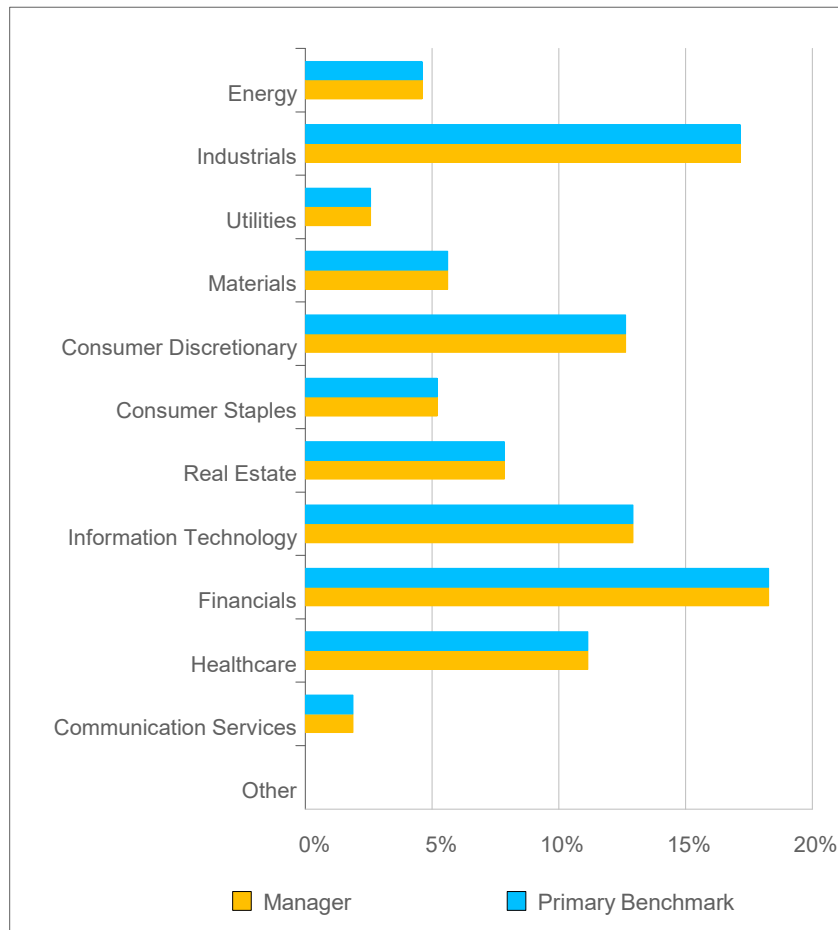
# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

### Equity Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	5%	5%	20.5%	48.3%
Industrials	17	17	14.6	-11.2
Utilities	3	3	12.6	-1.8
Materials	6	6	11.5	-4.2
Consumer Discretionary	13	13	10.9	-27.4
Consumer Staples	5	5	9.8	-6.5
Real Estate	8	8	9.0	-29.5
Information Technology	13	13	7.7	-21.4
Financials	18	18	7.2	-14.0
Healthcare	11	11	0.8	-26.6
Communication Services	2	2	-3.2	-33.8
Other	0	0	-	-

#### Top Five Holdings

	Weighting
Agree Realty Corporation	0.7%
Ensign Group, Inc.	0.6
Helmerich & Payne, Inc.	0.6
Exponent, Inc.	0.6
UFP Industries, Inc.	0.6

Number of Holdings: 601

\* Sector weightings may not add up to 100% due to rounding.

\* Manager data represents the most current available at the time of report publication.

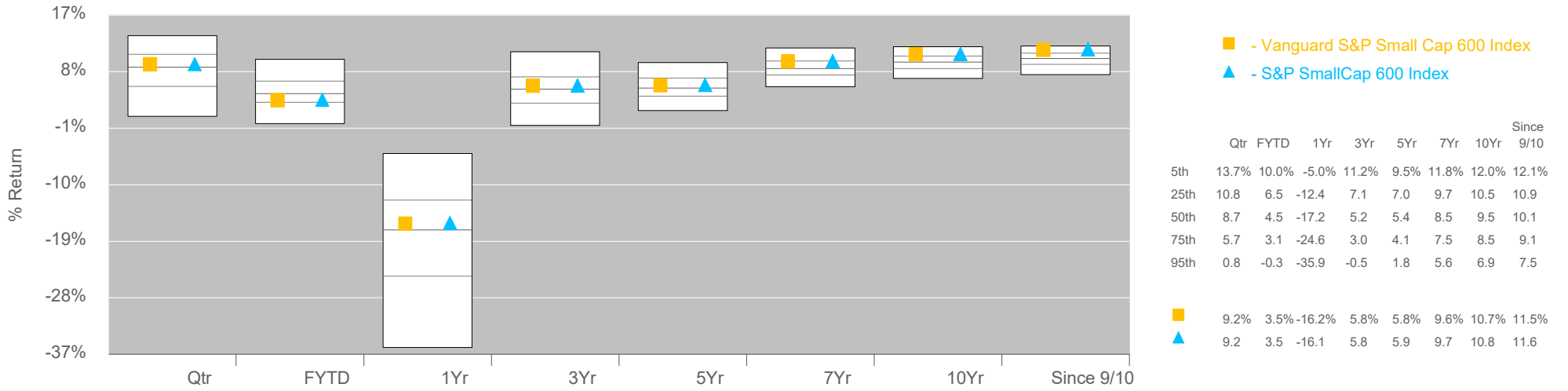
\* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

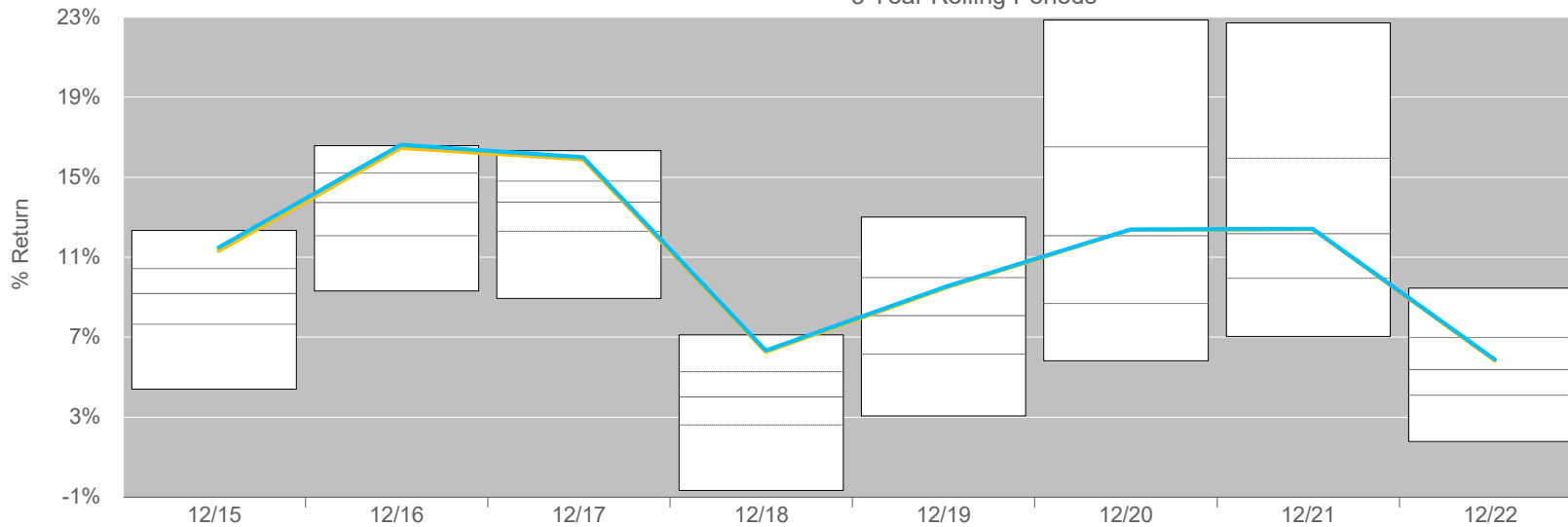
### Broad Small Cap Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2010 to December 31, 2022

### 5 Year Rolling Periods





# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>EuroPacific Growth Fund</b>	<b>13.8%</b>	<b>3.1%</b>	<b>-22.8%</b>	<b>-0.3%</b>	<b>1.4%</b>	<b>5.1%</b>	<b>5.2%</b>	<b>4.5%</b>	<i>8/08</i>
MSCI AC World Index ex-U.S.	14.3	3.0	-16.0	0.1	0.9	4.8	3.8	3.0	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>EuroPacific Growth Fund</b>	<b>1.06</b>	<b>0.6%</b>	<b>0.95</b>	<b>19.5%</b>	<b>4.4%</b>	<b>0.1</b>
MSCI AC World Index ex-U.S.	1.00	0.0	1.00	17.7	0.0	--

<b>Portfolio Statistics</b>	<b>Trailing P/E</b>	<b>Trailing P/B</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
<b>EuroPacific Growth Fund</b>	<b>16.9</b>	<b>2.8</b>	<b>95,332.0 M</b>	<b>2.0%</b>	<b>29.0%</b>
MSCI AC World Index ex-U.S.	11.6	1.6	79,449.0	3.3	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.5%	Yes
Beta < 1.20	Beta = 1.06	Yes
Alpha > 0.0%	Alpha = 0.6%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes

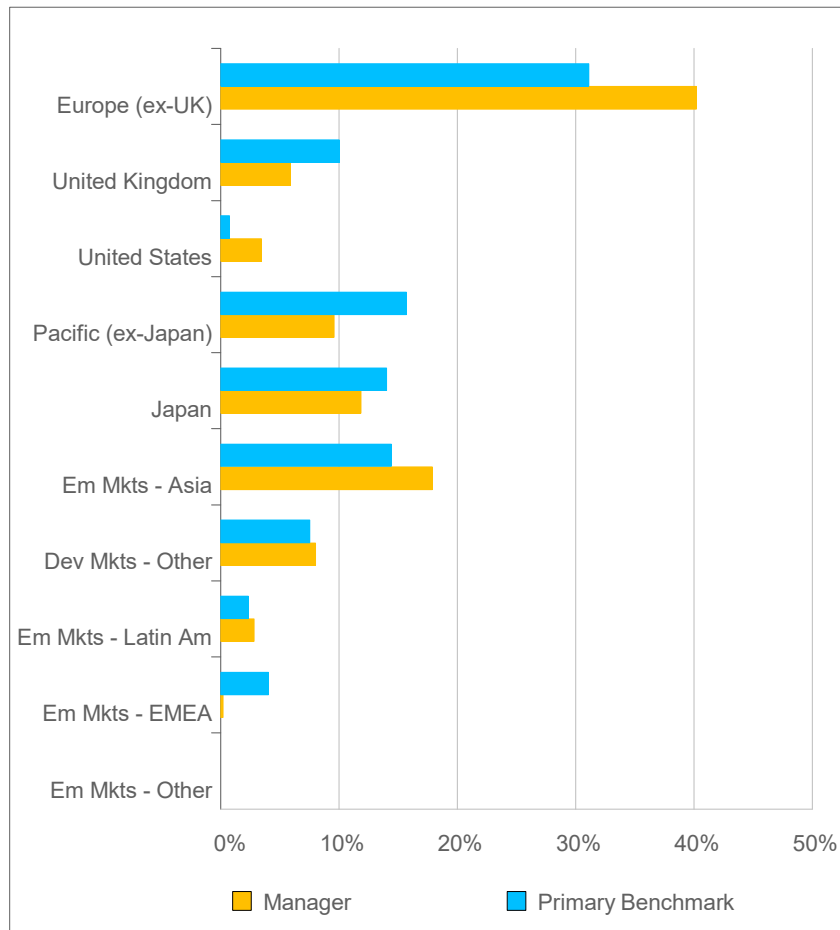
# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

### International Sector

Report For Periods Ending December 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Europe (ex-UK)	40%	31%	20.0%	-17.5%
United Kingdom	6	10	17.3	-5.0
United States	3	1	16.2	-49.4
Pacific (ex-Japan)	10	16	16.0	-15.1
Japan	12	14	13.2	-16.3
Em Mkts - Asia	18	14	8.9	-20.3
Dev Mkts - Other	8	8	7.3	-6.6
Em Mkts - Latin Am	3	2	5.6	9.5
Em Mkts - EMEA	0	4	5.4	-18.8
Em Mkts - Other	0	0	0.0	-71.2

#### Top Five Countries

	Weighting
France	12.3%
Japan	11.2
India	8.4
Canada	7.6
United Kingdom	5.6

Number of Holdings: 339

\* Sector weightings may not add up to 100% due to rounding.

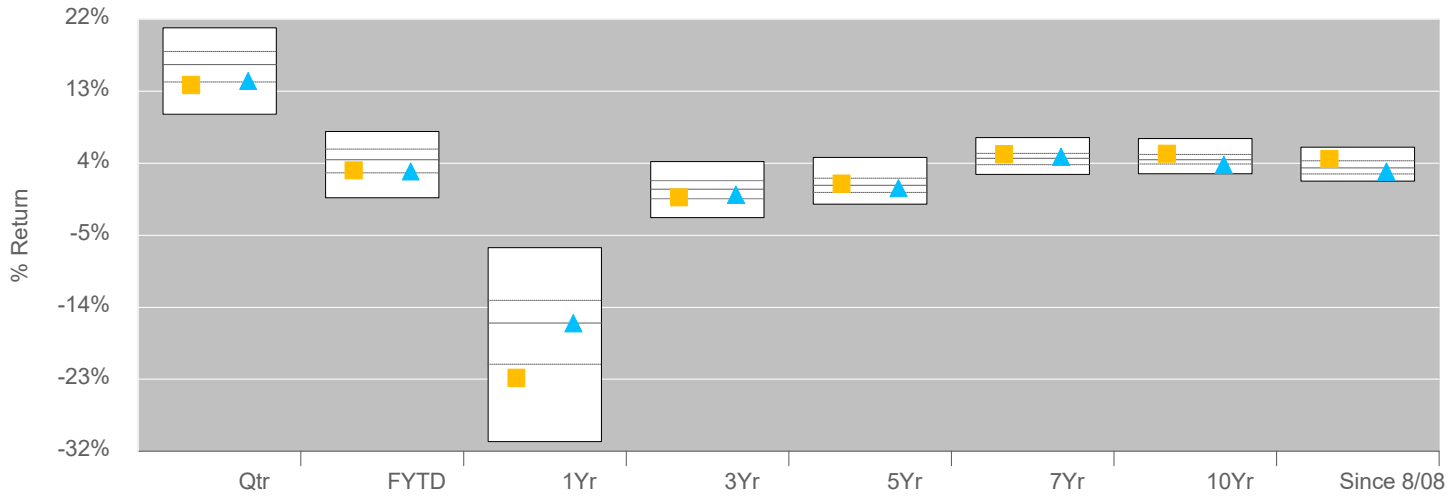
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

### International Equity Universe

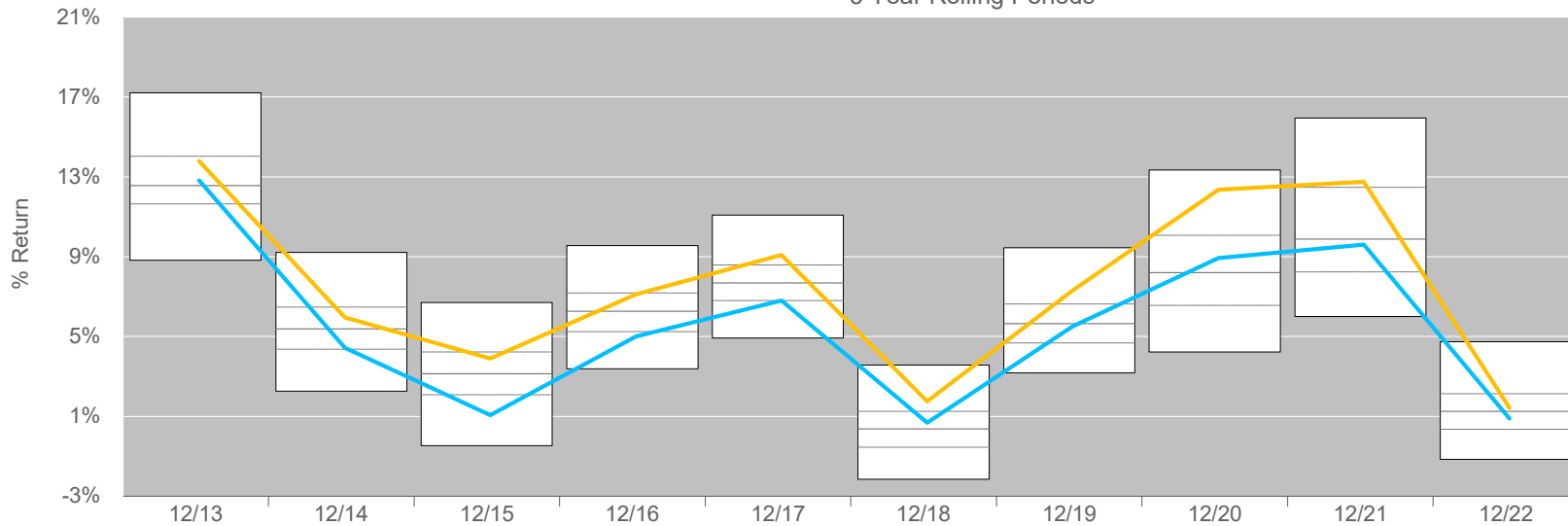
For Report Periods Ending December 31, 2022



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 8/08
5th	20.9%	8.0%	-6.5%	4.2%	4.7%	7.2%	7.1%	6.0%
25th	18.0	5.8	-13.1	1.8	2.1	5.2	5.1	4.3
50th	16.3	4.5	-16.0	0.8	1.3	4.6	4.4	3.4
75th	14.2	2.8	-21.1	-0.4	0.3	3.8	3.9	2.6
95th	10.1	-0.4	-30.8	-2.8	-1.2	2.6	2.7	1.7
■ - EuroPacific Growth Fund	13.8%	3.1%	-22.8%	-0.3%	1.4%	5.1%	5.2%	4.5%
▲ - MSCI AC World Index ex-U.S.	14.3	3.0	-16.0	0.1	0.9	4.8	3.8	3.0

Report From December 31, 2008 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
Templeton Inst'l Foreign Smaller Co.	15.2%	1.1%	-23.3%	-2.5%	-1.5%	3.0%	4.0%	6.1%	1/05
MSCI Small Cap EAFE Index	15.8	4.4	-21.4	-0.9	0.0	4.4	6.2	5.5	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
Templeton Inst'l Foreign Smaller Co.	1.00	-1.5%	0.93	20.7%	5.3%	-0.3
MSCI Small Cap EAFE Index	1.00	0.0	1.00	20.1	0.0	--

<b>Portfolio Statistics</b>	<b>Trailing P/E</b>	<b>Trailing P/B</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
Templeton Inst'l Foreign Smaller Co.	13.0	1.6	1,983.1 M	3.0%	31.1%
MSCI Small Cap EAFE Index	10.2	1.2	2,505.0	3.1	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -1.5%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = -1.5%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 25th Percentile	No

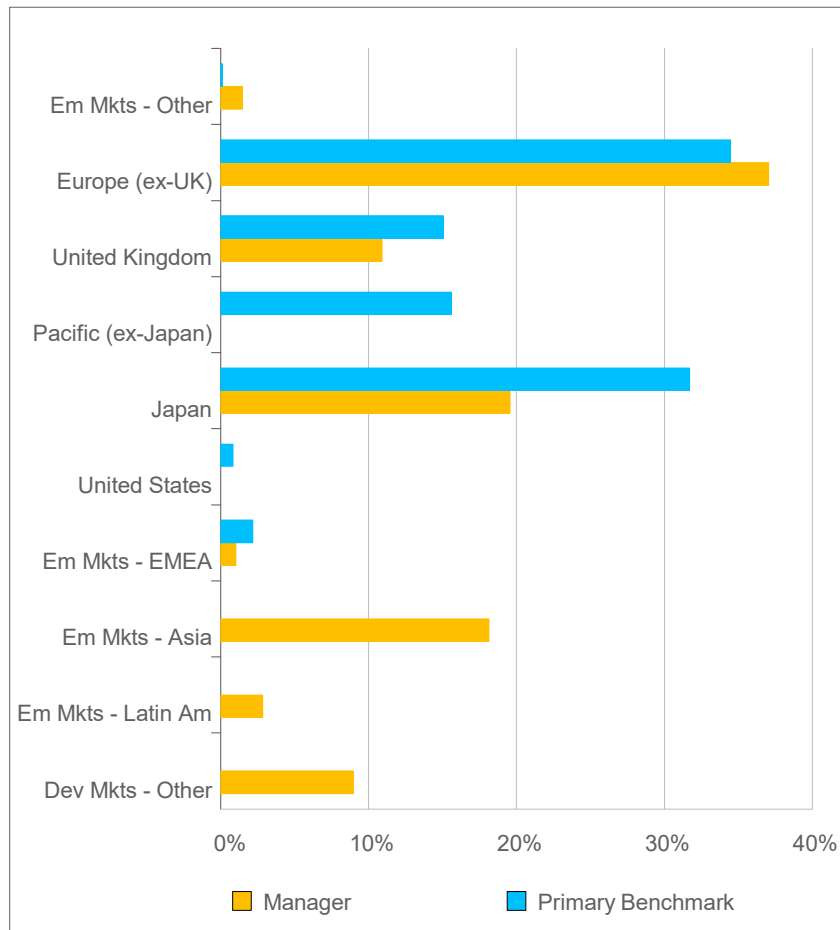
# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### International Sector

Report For Periods Ending December 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Other	1%	0%	38.1%	-11.7%
Europe (ex-UK)	37	34	21.8	-25.0
United Kingdom	11	15	19.1	-30.9
Pacific (ex-Japan)	0	16	13.2	-15.2
Japan	20	32	12.0	-11.7
United States	0	1	-0.7	-24.6
Em Mkts - EMEA	1	2	-6.8	-27.4
Em Mkts - Asia	18	0	-	-
Em Mkts - Latin Am	3	0	-	-
Dev Mkts - Other	9	0	-	-

Top Five Countries	Weighting
Japan	19.6%
United Kingdom	10.9
Italy	9.7
Taiwan	8.4
Germany	7.6

Number of Holdings: 105

\* Sector weightings may not add up to 100% due to rounding.

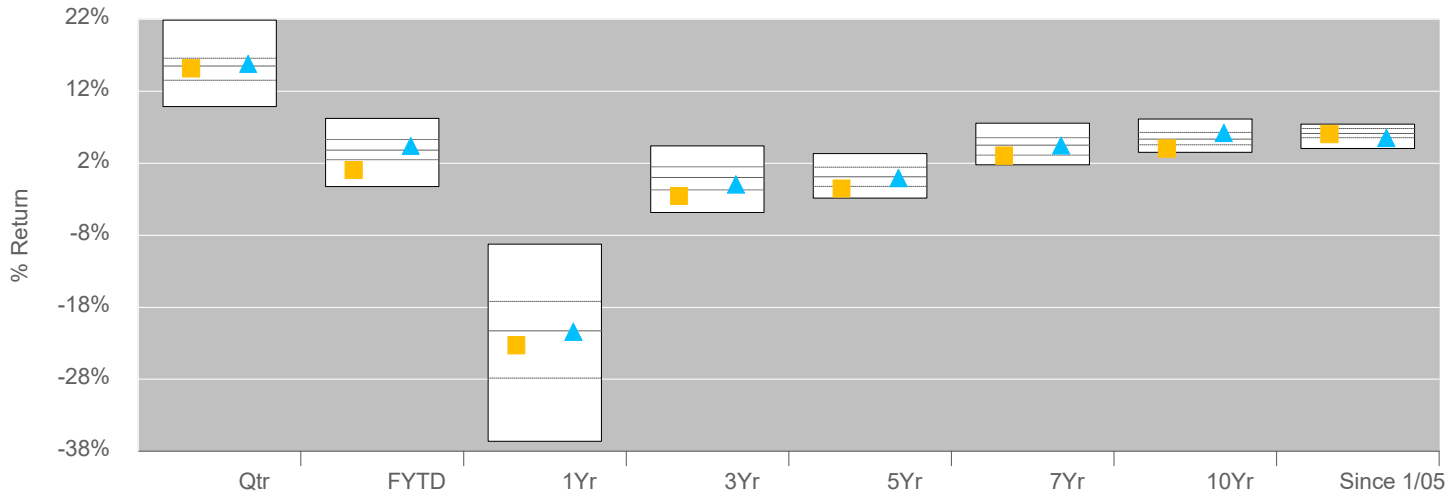
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### International Small Cap Universe

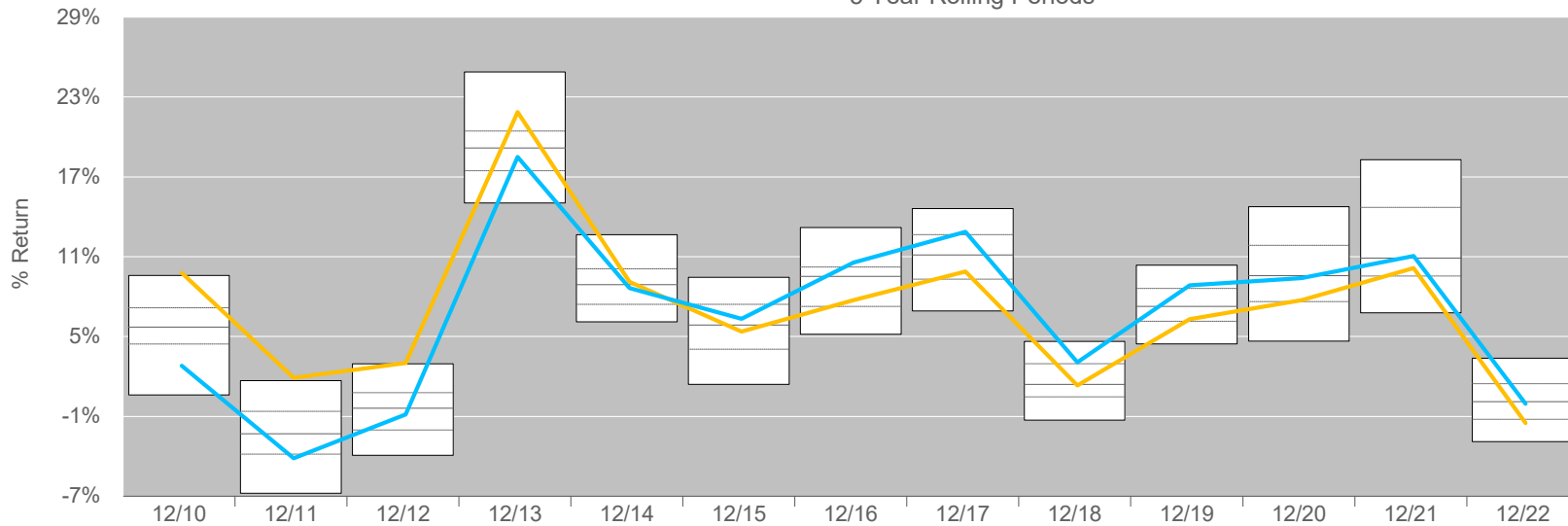
For Report Periods Ending December 31, 2022



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	21.9%	8.2%	-9.2%	4.4%	3.4%	7.6%	8.1%	7.5%
25th	16.6%	5.3%	-17.2%	1.5%	1.5%	5.5%	6.3%	6.8%
50th	15.5%	3.8%	-21.3%	0.0%	0.1%	4.5%	5.3%	6.1%
75th	13.5%	2.5%	-27.8%	-1.7%	-1.2%	3.1%	4.6%	5.5%
95th	9.8%	-1.3%	-36.6%	-4.9%	-2.9%	1.7%	3.5%	4.0%

Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods





# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
<b>Brown International Small Company</b>	<b>14.5%</b>	<b>3.9%</b>	<b>-31.4%</b>	<b>4.0%</b>	<b>6.7%</b>	<b>10.0%</b>	<b>10.7%</b>	<i>9/15</i>
MSCI Small Cap EAFE Index	15.8	4.4	-21.4	-0.9	0.0	4.4	5.2	
MSCI ACWI ex-U.S. Small Cap Index	13.3	3.8	-20.0	1.1	0.7	5.1	5.6	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Brown International Small Company</b>	<b>0.97</b>	<b>6.7%</b>	<b>0.78</b>	<b>23.5%</b>	<b>10.3%</b>	<b>0.6</b>
MSCI Small Cap EAFE Index	1.00	0.0	1.00	20.1	0.0	--
MSCI ACWI ex-U.S. Small Cap Index	0.99	0.7	0.98	20.3	10.9	0.6

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
<b>Brown International Small Company</b>	<b>47.7</b>	<b>8.5</b>	<b>4,111.6M</b>	<b>1.1%</b>	<b>10.8%</b>
MSCI Small Cap EAFE Index	10.2	1.2	2,505.0	3.1	--
MSCI ACWI ex-U.S. Small Cap Index	9.1	1.2	2,248.0	3.1	--

### Asset Growth Summary (in thousands)

Beginning Market Value	\$	0
Net Contributions/(Distributions)	\$	0
<b>Market Appreciation/(Depreciation)</b>	<b>\$</b>	<b>0</b>
<b>Ending Market Value</b>	<b>\$</b>	<b>0</b>

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 6.7%	Yes
Beta < 1.20	Beta = 0.97	Yes
Alpha > 0.0%	Alpha = 6.7%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 5th Percentile	Yes

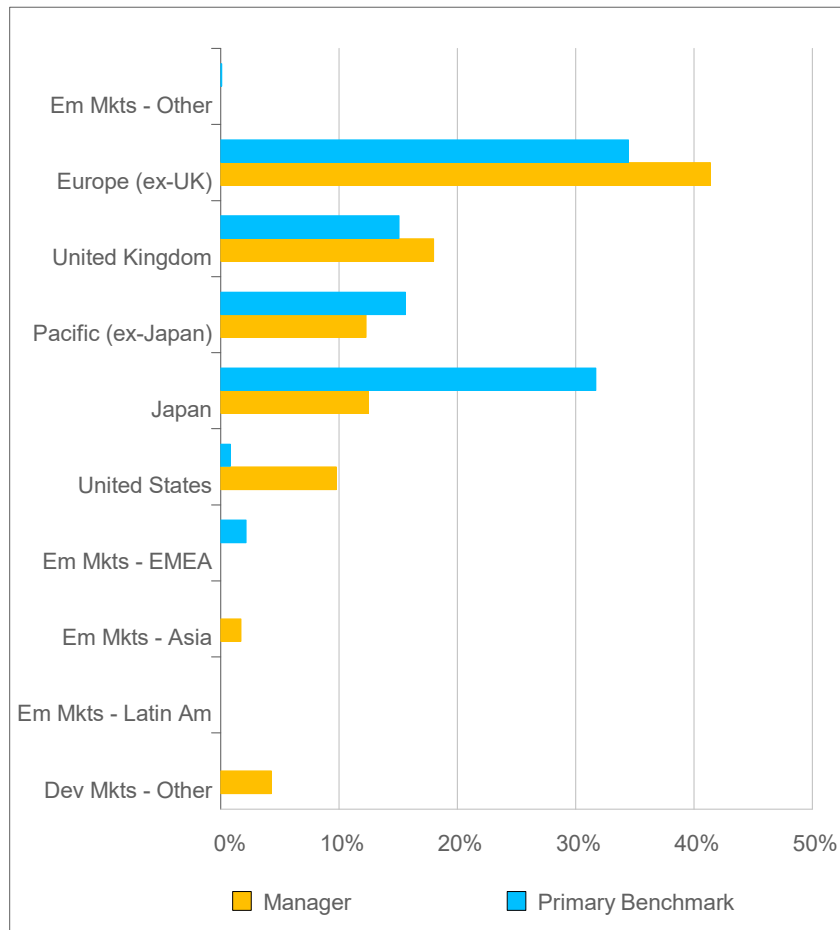
# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

International Sector

Report For Periods Ending December 31, 2022

### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Other	0%	0%	38.1%	-11.7%
Europe (ex-UK)	41	34	21.8	-25.0
United Kingdom	18	15	19.1	-30.9
Pacific (ex-Japan)	12	16	13.2	-15.2
Japan	13	32	12.0	-11.7
United States	10	1	-0.7	-24.6
Em Mkts - EMEA	0	2	-6.8	-27.4
Em Mkts - Asia	2	0	-	-
Em Mkts - Latin Am	0	0	-	-
Dev Mkts - Other	4	0	-	-

Top Five Countries	Weighting
United Kingdom	17.3%
France	14.0
Japan	12.0
Germany	11.0
Canada	9.5

Number of Holdings: 41

\* Sector weightings may not add up to 100% due to rounding.

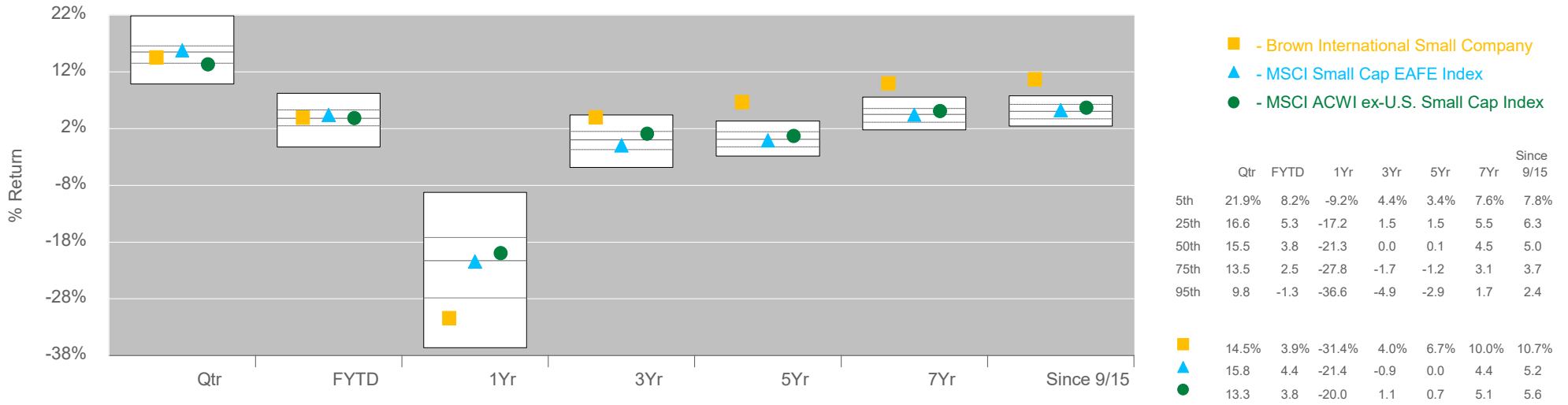
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

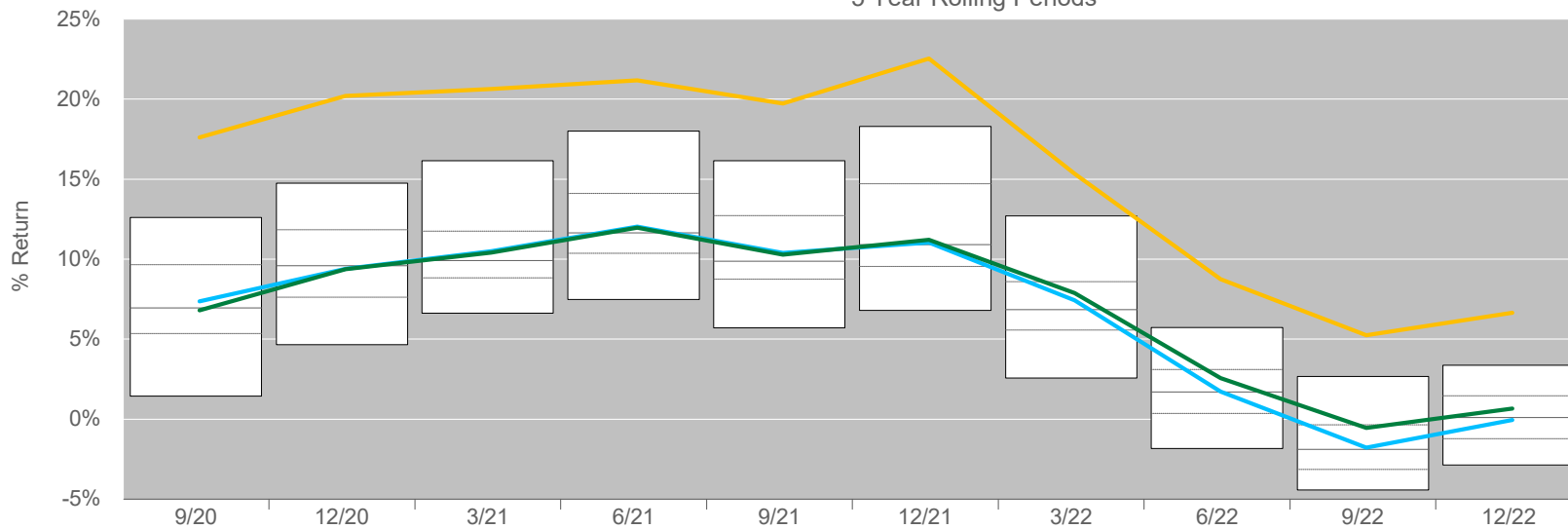
### International Small Cap Universe

For Report Periods Ending December 31, 2022



Report From September 30, 2015 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>Redwheel Global Emerging Equity Fund</b>	<b>8.4%</b>	<b>-3.6%</b>	<b>-24.6%</b>	<b>-0.9%</b>	<b>-2.1%</b>	<b>6.7%</b>	<b>5.0%</b>	<b>6.1%</b>	<i>7/12</i>
MSCI Emerging Markets Index	9.7	-3.0	-20.1	-2.7	-1.4	5.2	1.4	2.4	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>Redwheel Global Emerging Equity Fund</b>	<b>1.20</b>	<b>-0.2%</b>	<b>0.92</b>	<b>24.1%</b>	<b>7.8%</b>	<b>-0.1</b>
MSCI Emerging Markets Index	1.00	0.0	1.00	19.0	0.0	--

<b>Portfolio Statistics</b>	<b>Trailing P/E</b>	<b>Trailing P/B</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
<b>Redwheel Global Emerging Equity Fund</b>	<b>14.1</b>	<b>2.1</b>	<b>90,741.0 M</b>	<b>1.4%</b>	<b>111.8%</b>
MSCI Emerging Markets Index	10.5	1.8	93,627.0	3.4	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.7%	No
Beta < 1.20	Beta = 1.20	No
Alpha > 0.0%	Alpha = -0.2%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

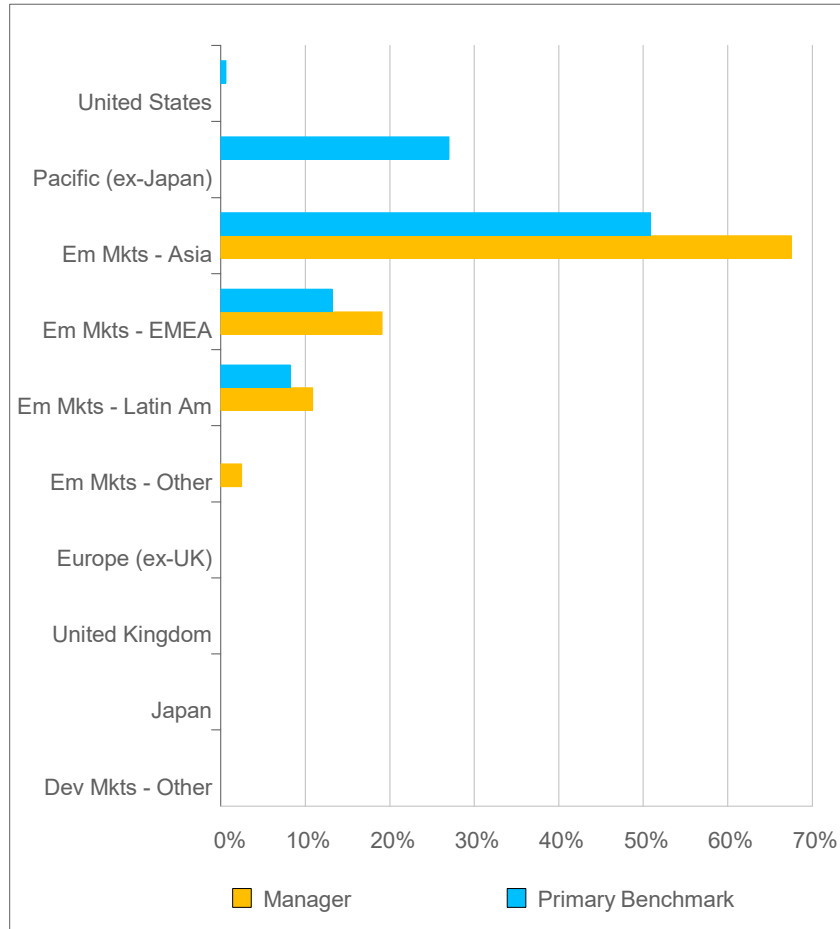
# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

### Emerging Markets Sector

Report For Periods Ending December 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
United States	0%	1%	16.7%	-19.8%
Pacific (ex-Japan)	0	27	16.4	-22.0
Em Mkts - Asia	68	51	8.9	-20.3
Em Mkts - EMEA	19	13	5.9	-19.0
Em Mkts - Latin Am	11	8	5.6	9.5
Em Mkts - Other	2	0	-	-71.2
Europe (ex-UK)	0	0	-	-64.2
United Kingdom	0	0	-	-62.2
Japan	0	0	-	-
Dev Mkts - Other	0	0	-	-

Top Five Countries	Weighting
China	40.9%
India	10.3
Taiwan	7.7
Brazil	6.3
Zambia	5.9

Number of Holdings: 66

\* Sector weightings may not add up to 100% due to rounding.

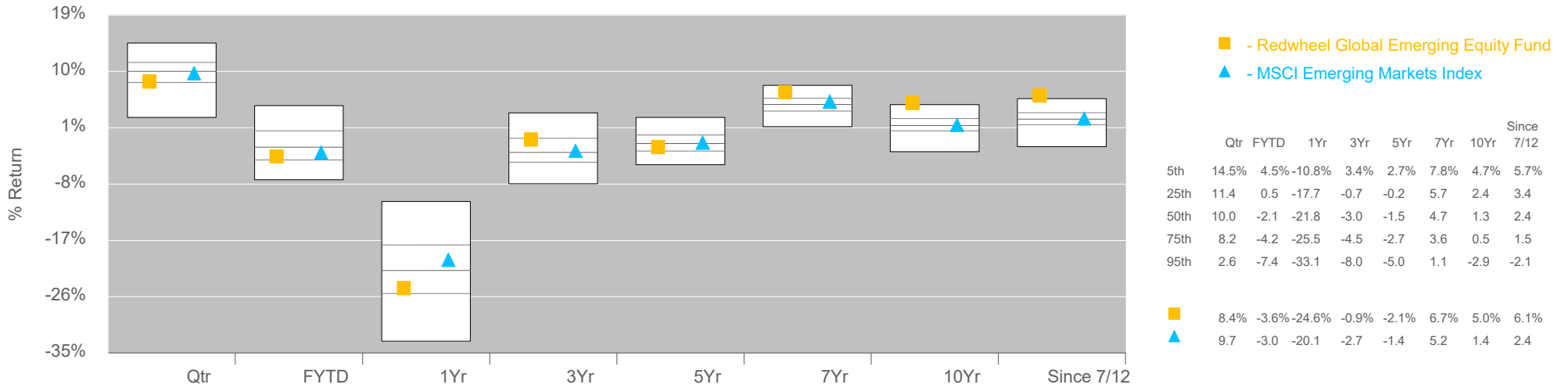
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

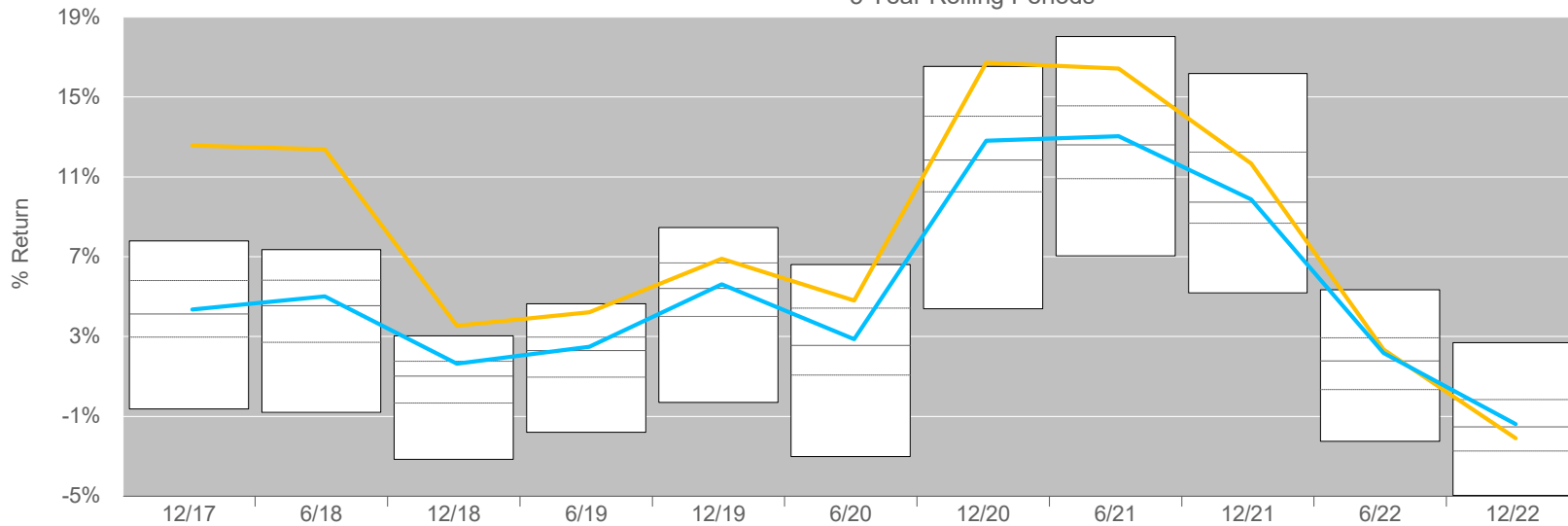
### Emerging Markets Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2012 to December 31, 2022

5 Year Rolling Periods





# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
DFA Emerging Markets Fund	10.1%	-2.6%	-16.9%	-1.0%	-0.6%	5.9%	1.8%	6.0%	1/05
MSCI Emerging Markets Index	9.7	-3.0	-20.1	-2.7	-1.4	5.2	1.4	5.7	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
DFA Emerging Markets Fund	1.00	0.8%	0.97	19.5%	3.4%	0.2
MSCI Emerging Markets Index	1.00	0.0	1.00	19.0	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
DFA Emerging Markets Fund	9.2	1.5	74,661.2M	3.3%	19.0%
MSCI Emerging Markets Index	10.5	1.8	93,627.0	3.4	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.8%	Yes
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = 0.8%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes

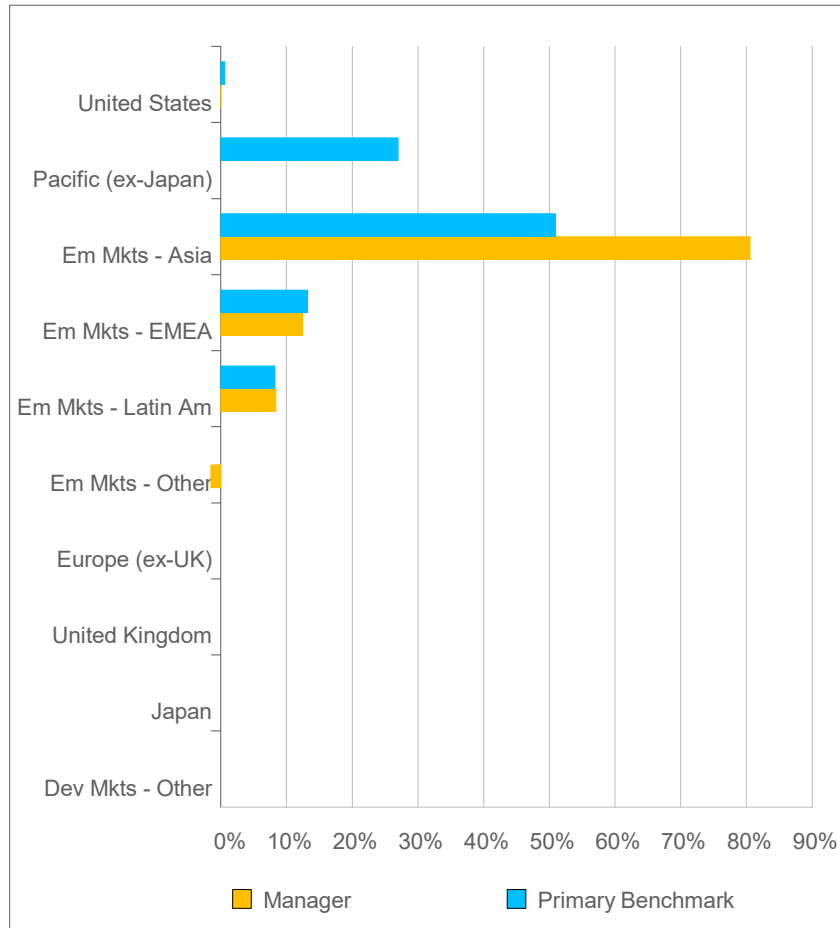
# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund

### Emerging Markets Sector

Report For Periods Ending December 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
United States	0%	1%	16.7%	-19.8%
Pacific (ex-Japan)	0	27	16.4	-22.0
Em Mkts - Asia	81	51	8.9	-20.3
Em Mkts - EMEA	12	13	5.9	-19.0
Em Mkts - Latin Am	8	8	5.6	9.5
Em Mkts - Other	-2	0	-	-71.2
Europe (ex-UK)	0	0	-	-64.2
United Kingdom	0	0	-	-62.2
Japan	0	0	-	-
Dev Mkts - Other	0	0	-	-

Top Five Countries	Weighting
China	27.8%
India	17.7
Taiwan	15.8
Korea, South	10.9
Brazil	5.2

Number of Holdings: 1848

\* Sector weightings may not add up to 100% due to rounding.

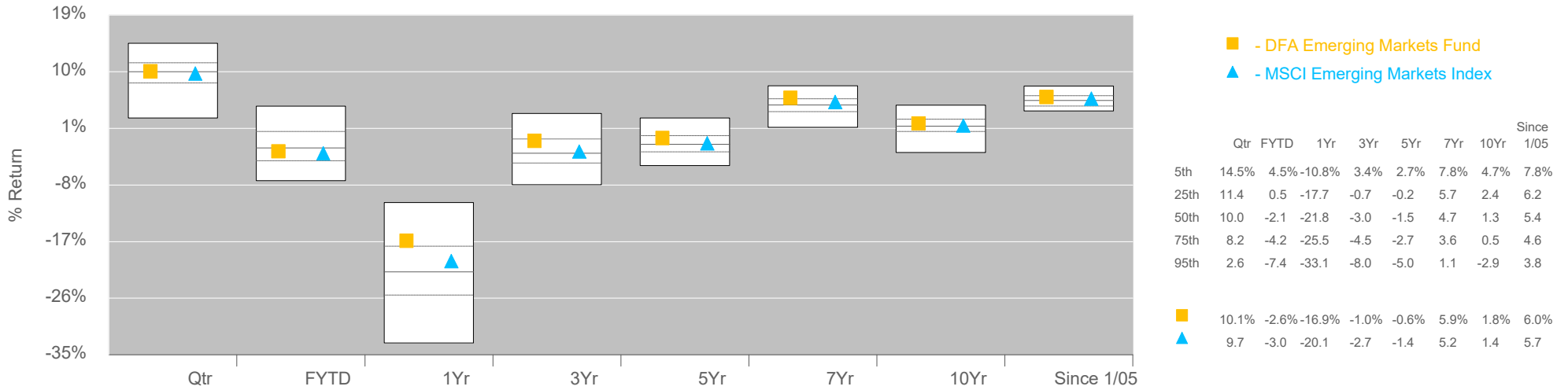
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund

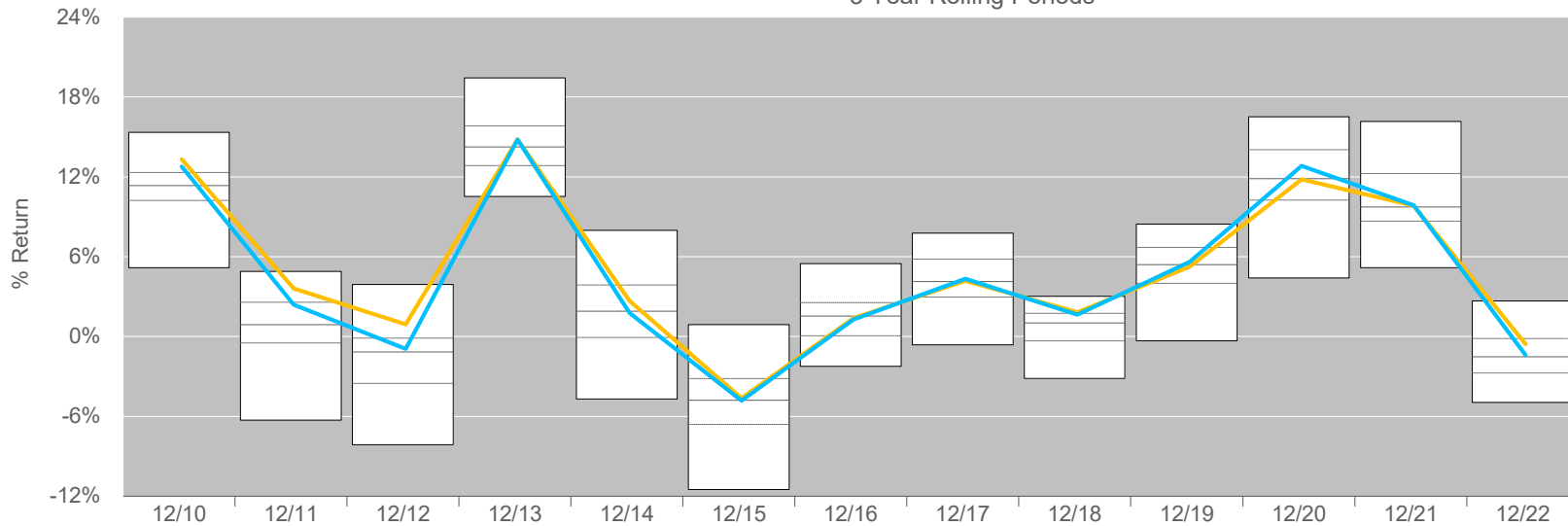
### Emerging Markets Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>Dodge &amp; Cox Income Fund</b>	<b>2.8%</b>	<b>-1.3%</b>	<b>-10.9%</b>	<b>-1.1%</b>	<b>1.1%</b>	<b>2.2%</b>	<b>2.1%</b>	<b>3.7%</b>	<i>1/05</i>
Bloomberg IG Credit Index	3.3	-2.1	-15.2	-2.9	0.2	1.7	1.8	3.5	
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	3.0	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>Dodge &amp; Cox Income Fund</b>	<b>0.70</b>	<b>0.6%</b>	<b>0.95</b>	<b>5.2%</b>	<b>2.4%</b>	<b>0.4</b>
Bloomberg IG Credit Index	1.00	0.0	1.00	7.1	0.0	--
Bloomberg U.S. Aggregate Index	0.67	-0.5	0.88	5.1	2.1	0.5

<b>Portfolio Statistics</b>	<b>Effective Duration</b>	<b>Wtd Avg Maturity</b>	<b>Wtd Avg Credit</b>	<b>Yield to Worst</b>	<b>FI Annl Turnover</b>
<b>Dodge &amp; Cox Income Fund</b>	<b>5.5yrs</b>	<b>10.5yrs</b>	<b>A</b>	<b>5.8%</b>	<b>74.0%</b>
Bloomberg IG Credit Index	--	--	--	--	--
Bloomberg U.S. Aggregate Index	6.2	8.4	AA	4.7	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.9%	Yes
Beta < 1.20	Beta = 0.70	Yes
Alpha > 0.0%	Alpha = 0.6%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 5th Percentile	Yes

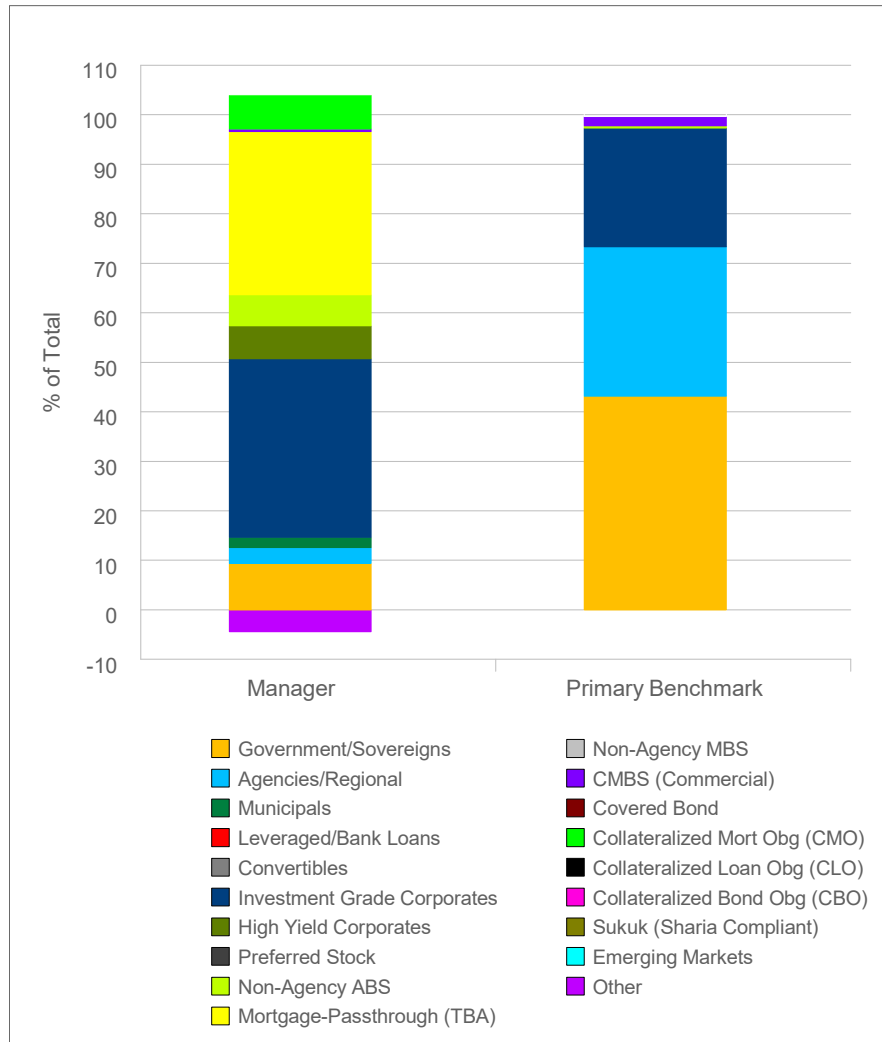
# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

### Fixed Income Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	1.9%	-13.0%
Government/Sovereigns	9	43	0.7	-3.7
Agencies/Regional	3	30	0.7	-3.9
Municipals	2	0	4.1	-4.5
Leveraged/Bank Loans	0	0	2.0	-1.4
Convertibles	0	0	1.6	-2.2
Investment Grade Corporates	36	24	3.6	-4.2
High Yield Corporates	7	0	4.2	-0.7
Preferred Stock	0	0	-2.1	-2.7
Non-Agency ABS	6	0	0.8	-3.1
Mortgage-Passthrough (TBA)	33	0	-6.5	-21.3
Non-Agency MBS	0	0	2.4	-4.9
CMBS (Commercial)	1	2	1.0	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	7	0	2.1	-4.9
Collateralized Loan Obg (CLO)	0	0	2.0	-1.4
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	8.1	-7.4
Other	-4	0	-	-

\*Sector weightings may not add up to 100% due to rounding.

\*Benchmark weightings are for the Bloomberg U.S. Aggregate Index.

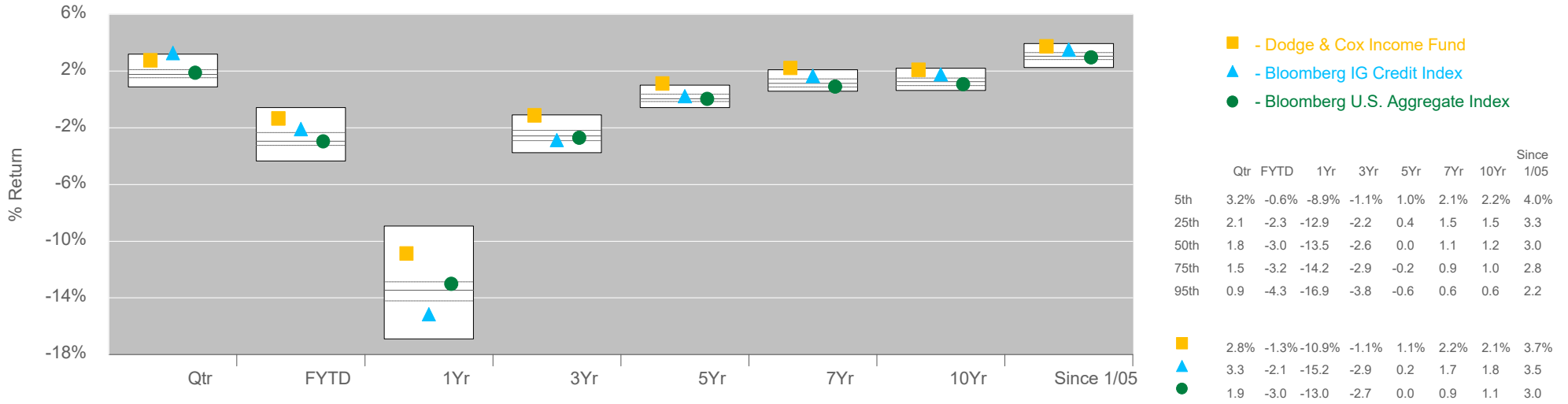
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

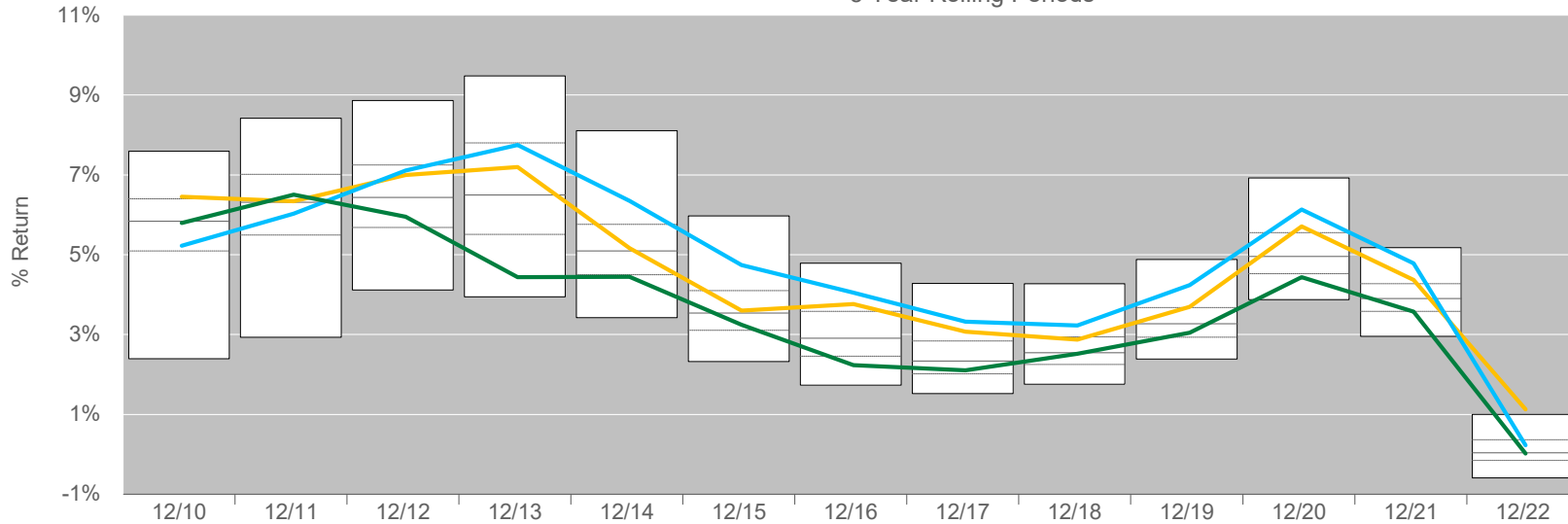
Core Fixed Income Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods





# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>DoubleLine Total Return Bond Fund</b>	<b>-0.1%</b>	<b>-4.3%</b>	<b>-12.6%</b>	<b>-3.0%</b>	<b>-0.4%</b>	<b>0.6%</b>	<b>1.3%</b>	<b>3.4%</b>	<i>4/10</i>
Bloomberg U.S. MBS Index	2.1	-3.3	-11.8	-3.2	-0.5	0.2	0.7	1.5	
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	2.1	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>DoubleLine Total Return Bond Fund</b>	<b>0.74</b>	<b>-0.3%</b>	<b>0.63</b>	<b>4.4%</b>	<b>3.0%</b>	<b>0.1</b>
Bloomberg U.S. MBS Index	1.00	0.0	1.00	4.7	0.0	--
Bloomberg U.S. Aggregate Index	0.98	0.5	0.84	5.1	2.2	-0.2

<b>Portfolio Statistics</b>	<b>Effective Duration</b>	<b>Wtd Avg Maturity</b>	<b>Wtd Avg Credit</b>	<b>Yield to Worst</b>	<b>FI Annl Turnover</b>
<b>DoubleLine Total Return Bond Fund</b>	<b>6.0yrs</b>	<b>7.5yrs</b>	<b>A-</b>	<b>6.3%</b>	<b>89.0%</b>
Bloomberg U.S. MBS Index	--	--	--	--	--
Bloomberg U.S. Aggregate Index	6.2	8.4	AA	4.7	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.2%	Yes
Beta < 1.20	Beta = 0.74	Yes
Alpha > 0.0%	Alpha = -0.3%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 25th Percentile	No

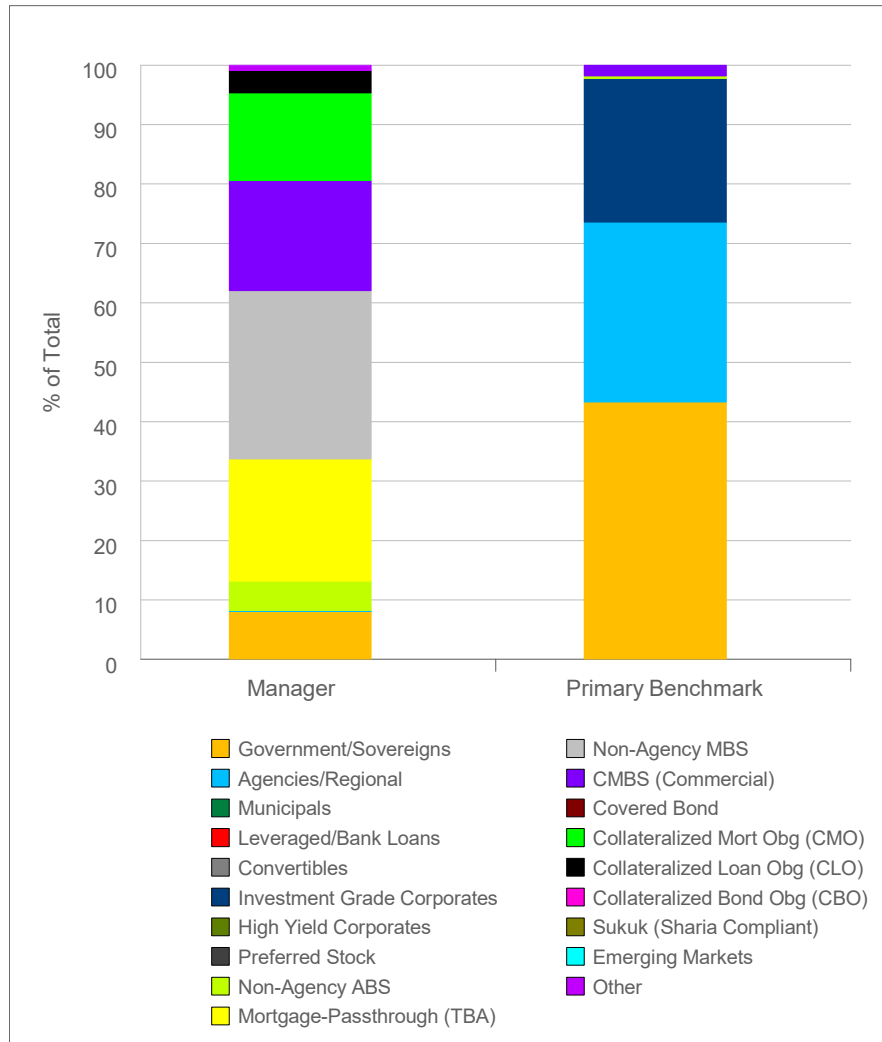
# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

### Fixed Income Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	1.9%	-13.0%
Government/Sovereigns	8	43	0.7	-3.7
Agencies/Regional	0	30	0.7	-3.9
Municipals	0	0	4.1	-4.5
Leveraged/Bank Loans	0	0	2.0	-1.4
Convertibles	0	0	1.6	-2.2
Investment Grade Corporates	0	24	3.6	-4.2
High Yield Corporates	0	0	4.2	-0.7
Preferred Stock	0	0	-2.1	-2.7
Non-Agency ABS	5	0	0.8	-3.1
Mortgage-Passthrough (TBA)	21	0	-6.5	-21.3
Non-Agency MBS	28	0	2.4	-4.9
CMBS (Commercial)	19	2	1.0	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	15	0	2.1	-4.9
Collateralized Loan Obg (CLO)	4	0	2.0	-1.4
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	8.1	-7.4
Other	1	0	-	-

\*Sector weightings may not add up to 100% due to rounding.

\*Benchmark weightings are for the Bloomberg U.S. Aggregate Index.

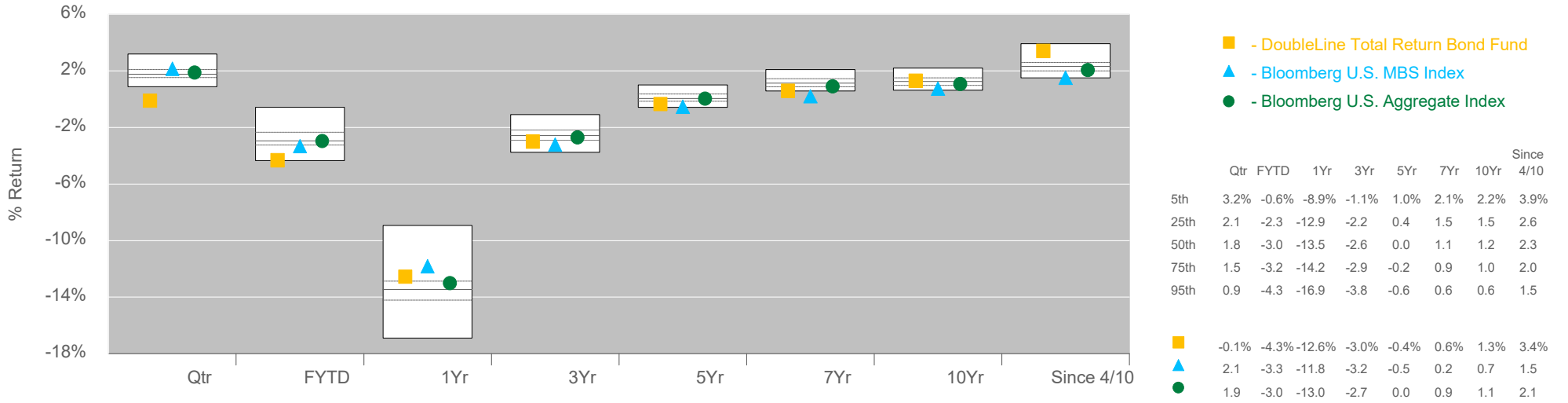
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

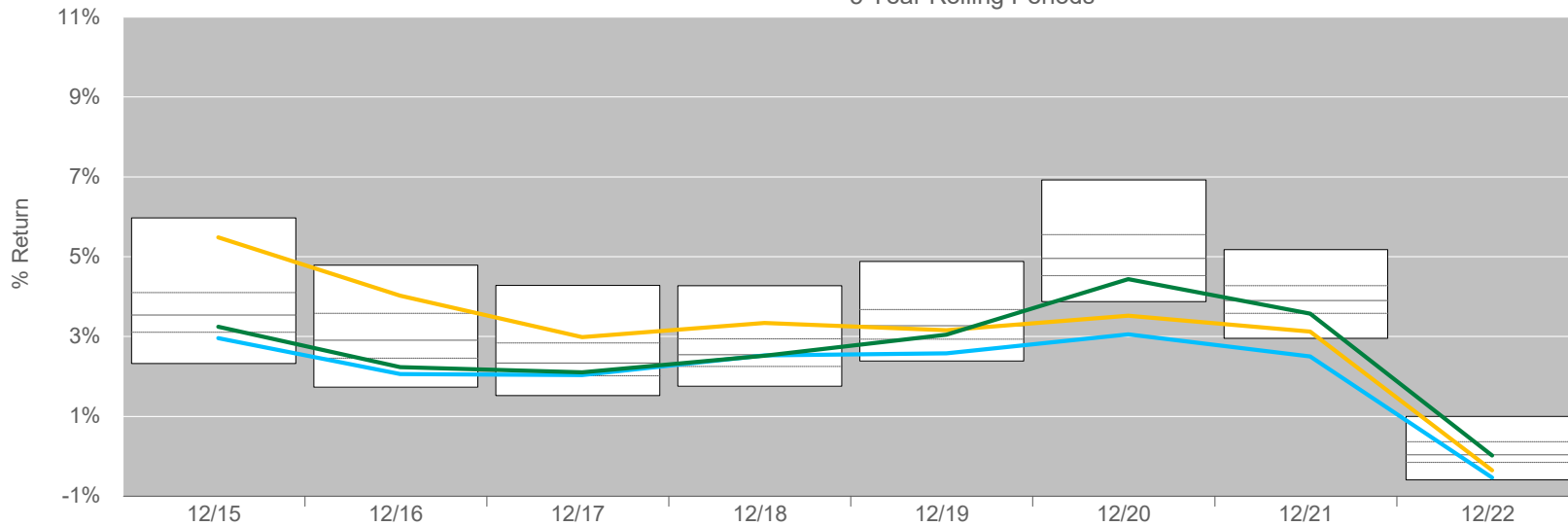
Core Fixed Income Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2010 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>Vanguard Total Bond Fund</b>	1.7%	-3.1%	-13.2%	-2.7%	0.0%	0.9%	1.0%	2.9%	1/05
Bloomberg U.S. Aggregate Index	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	3.0	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>Vanguard Total Bond Fund</b>	1.01	0.0%	1.00	5.1%	0.3%	-0.1
Bloomberg U.S. Aggregate Index	1.00	0.0	1.00	5.1	0.0	--

<b>Portfolio Statistics</b>	<b>Effective Duration</b>	<b>Wtd Avg Maturity</b>	<b>Wtd Avg Credit</b>	<b>Yield to Worst</b>	<b>FI Annl Turnover</b>
<b>Vanguard Total Bond Fund</b>	6.2yrs	8.4yrs	AA	4.7%	--%
Bloomberg U.S. Aggregate Index	6.2	8.4	AA	4.7	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	No
Beta < 1.20	Beta = 1.01	Yes
Alpha > 0.0%	Alpha = 0.0%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

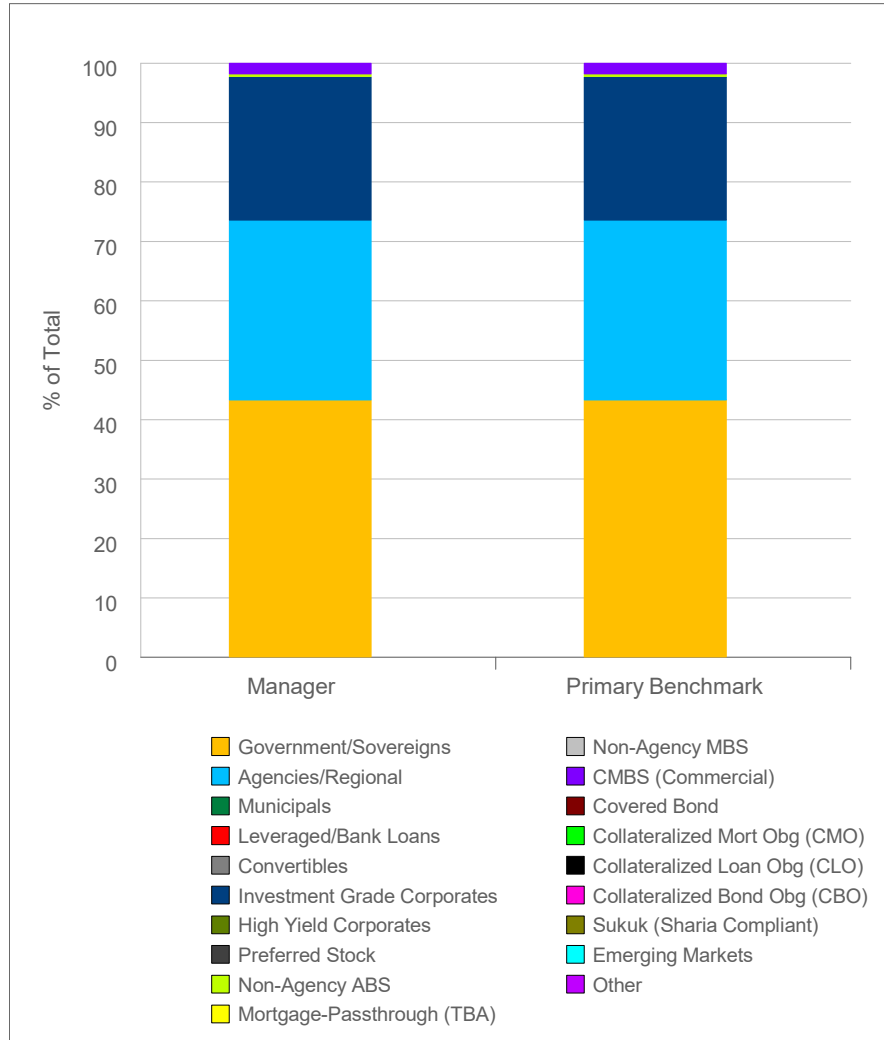
# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

### Fixed Income Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Total Weighting	100%	100%	1.9%	-13.0%
Government/Sovereigns	43	43	0.7	-3.7
Agencies/Regional	30	30	0.7	-3.9
Municipals	0	0	4.1	-4.5
Leveraged/Bank Loans	0	0	2.0	-1.4
Convertibles	0	0	1.6	-2.2
Investment Grade Corporates	24	24	3.6	-4.2
High Yield Corporates	0	0	4.2	-0.7
Preferred Stock	0	0	-2.1	-2.7
Non-Agency ABS	0	0	0.8	-3.1
Mortgage-Passthrough (TBA)	0	0	-6.5	-21.3
Non-Agency MBS	0	0	2.4	-4.9
CMBS (Commercial)	2	2	1.0	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	0	0	2.1	-4.9
Collateralized Loan Obg (CLO)	0	0	2.0	-1.4
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	8.1	-7.4
Other	0	0	-	-

\*Sector weightings may not add up to 100% due to rounding.

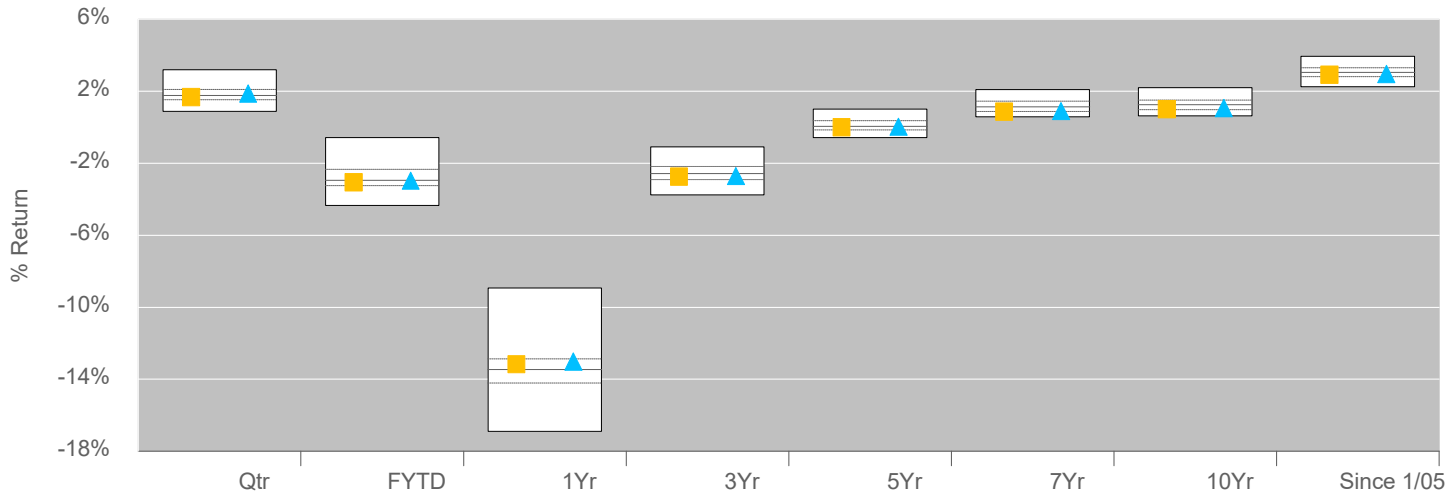
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

Core Fixed Income Universe

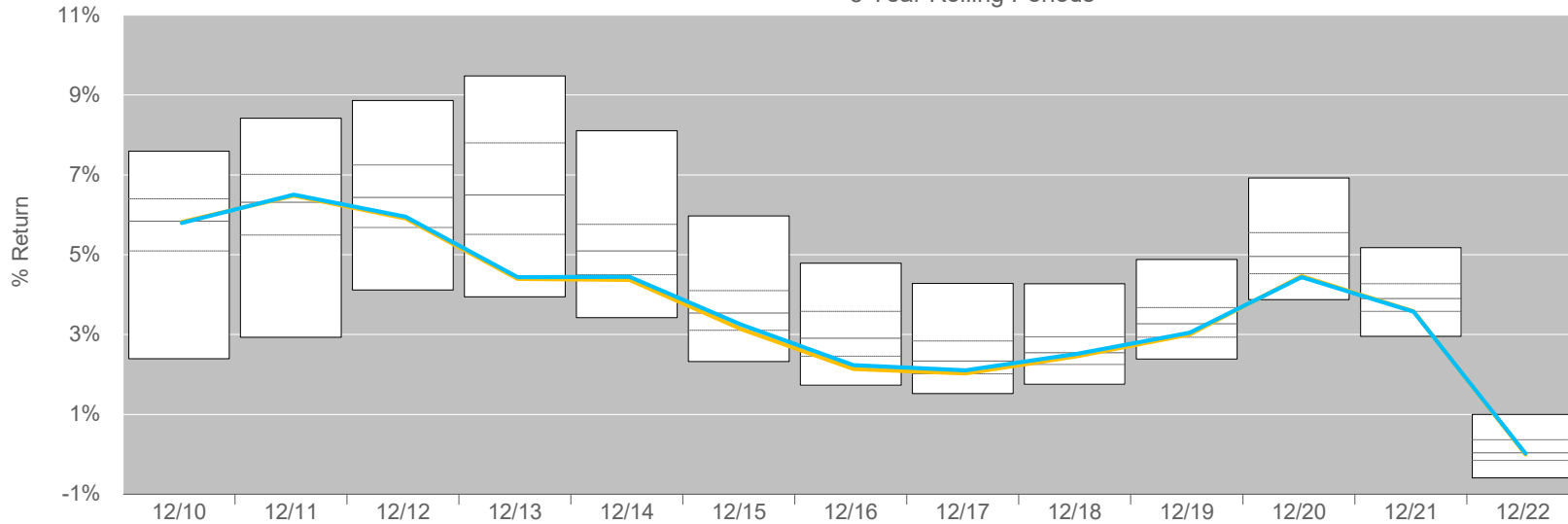
For Report Periods Ending December 31, 2022



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	3.2%	-0.6%	-8.9%	-1.1%	1.0%	2.1%	2.2%	4.0%
25th	2.1	-2.3	-12.9	-2.2	0.4	1.5	1.5	3.3
50th	1.8	-3.0	-13.5	-2.6	0.0	1.1	1.2	3.0
75th	1.5	-3.2	-14.2	-2.9	-0.2	0.9	1.0	2.8
95th	0.9	-4.3	-16.9	-3.8	-0.6	0.6	0.6	2.2
<b>■ - Vanguard Total Bond Fund</b>	1.7%	-3.1%	-13.2%	-2.7%	0.0%	0.9%	1.0%	2.9%
<b>▲ - Bloomberg U.S. Aggregate Index</b>	1.9	-3.0	-13.0	-2.7	0.0	0.9	1.1	3.0

Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods





# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>Principal Real Estate Securities Fund</b>	<b>2.3%</b>	<b>-6.4%</b>	<b>-25.2%</b>	<b>0.4%</b>	<b>4.9%</b>	<b>5.6%</b>	<b>7.7%</b>	<b>8.3%</b>	<i>1/05</i>
FTSE NAREIT Equity REIT Index	5.2	-5.2	-24.4	-0.1	3.7	4.6	6.5	7.1	
FTSE NAREIT All Equity Index	4.1	-7.1	-24.9	0.2	4.4	5.6	7.1	7.5	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>Principal Real Estate Securities Fund</b>	<b>0.90</b>	<b>1.4%</b>	<b>0.98</b>	<b>20.0%</b>	<b>3.4%</b>	<b>0.4</b>
FTSE NAREIT Equity REIT Index	1.00	0.0	1.00	21.8	0.0	--
FTSE NAREIT All Equity Index	0.94	0.9	0.98	20.8	2.5	0.2

<b>Portfolio Statistics</b>	<b>Current P/FFO</b>	<b>Growth in FFO</b>	<b>Wtd Avg Mkt Cap</b>	<b>Current Yield</b>	<b>Equity Annual Turnover</b>
<b>Principal Real Estate Securities Fund</b>	<b>16.4</b>	<b>11.3%</b>	<b>27,044.4M</b>	<b>3.7%</b>	<b>19.4%</b>
FTSE NAREIT Equity REIT Index	14.4	5.0	28,022.0	4.1	--
FTSE NAREIT All Equity Index	14.6	4.2	35,131.0	3.9	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 1.2%	Yes
Beta < 1.20	Beta = 0.90	Yes
Alpha > 0.0%	Alpha = 1.4%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

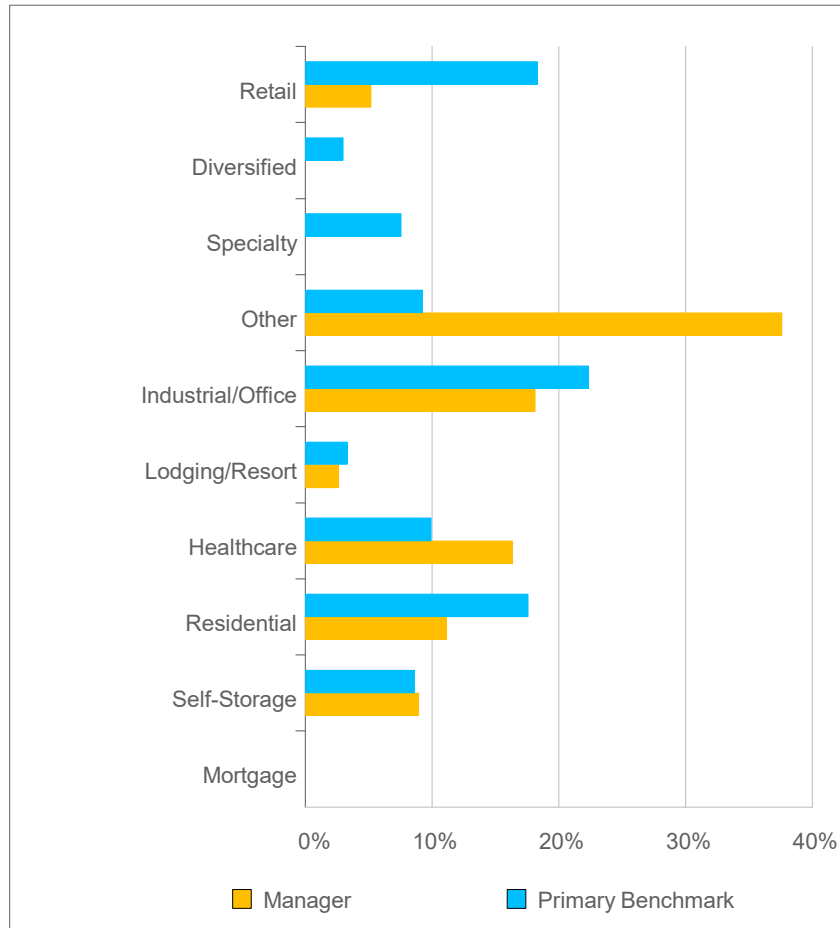
# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

### Real Estate Sector

Report For Periods Ending December 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Retail	5%	18%	17.6%	-13.3%
Diversified	0	3	13.5	-17.6
Specialty	0	8	12.8	-0.8
Other	38	9	10.8	-27.6
Industrial/Office	18	22	6.7	-31.5
Lodging/Resort	3	3	5.2	-15.3
Healthcare	16	10	3.4	-21.9
Residential	11	18	-6.1	-31.5
Self-Storage	9	9	-6.7	-26.7
Mortgage	0	0	-	

\* Sector weightings may not add up to 100% due to rounding.

\* Accrued income in total market value may not be available for all managers.

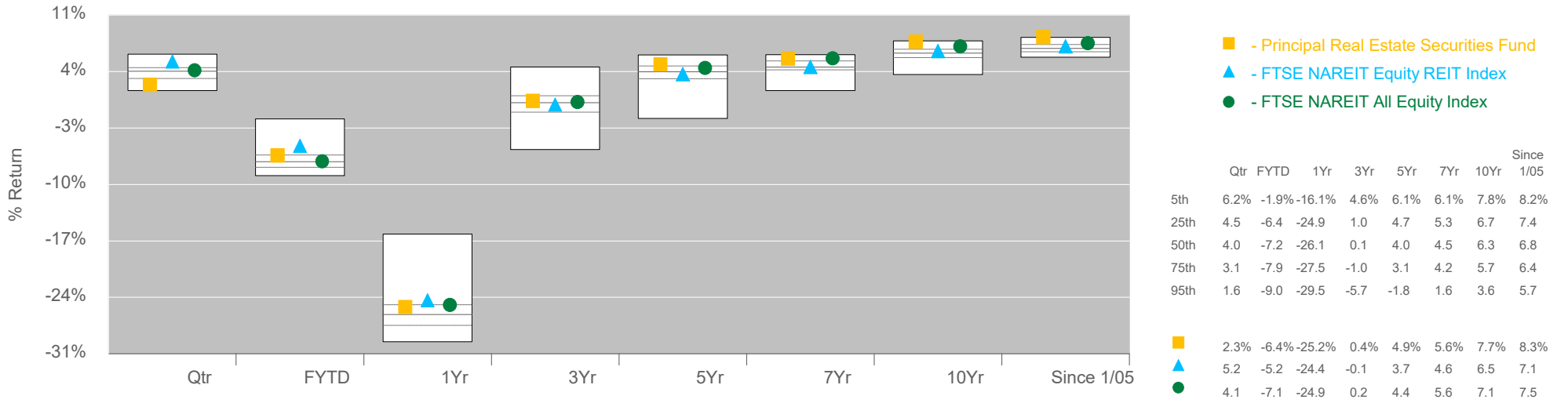
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

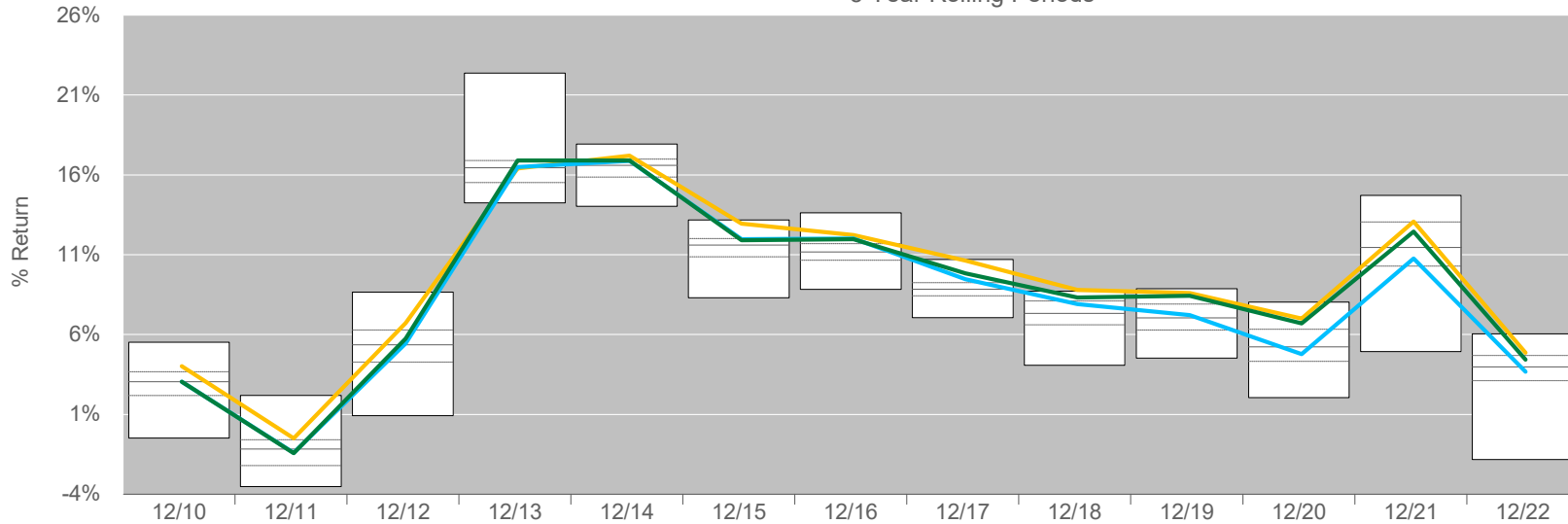
### REIT Manager Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2005 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Tortoise MLP & Pipeline Fund

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

<b>Performance Results</b>	<b>Qtr</b>	<b>FYTD</b>	<b>1Yr</b>	<b>3Yr</b>	<b>5Yr</b>	<b>7Yr</b>	<b>10Yr</b>	<b>Since Inception</b>	<b>Inception Date</b>
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>9.4%</b>	<b>10.9%</b>	<b>22.1%</b>	<b>6.6%</b>	<b>4.0%</b>	<b>8.0%</b>	<b>4.7%</b>	<b>6.2%</b>	<i>5/11</i>
Alerian MLP Index	10.1	19.0	30.9	9.4	4.1	4.4	2.0	2.9	
Tortoise North American Pipeline Index	8.3	4.4	16.9	7.9	6.9	10.3	7.0	--	

<b>Risk Statistics (5 years)</b>	<b>Beta</b>	<b>Alpha</b>	<b>R<sup>2</sup></b>	<b>Standard Deviation</b>	<b>Tracking Error</b>	<b>Information Ratio</b>
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>0.76</b>	<b>0.6%</b>	<b>0.93</b>	<b>35.1%</b>	<b>12.9%</b>	<b>0.0</b>
Alerian MLP Index	1.00	0.0	1.00	46.6	0.0	--
Tortoise North American Pipeline Index	0.63	3.8	0.89	29.8	6.3	-0.4

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Tortoise MLP & Pipeline Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

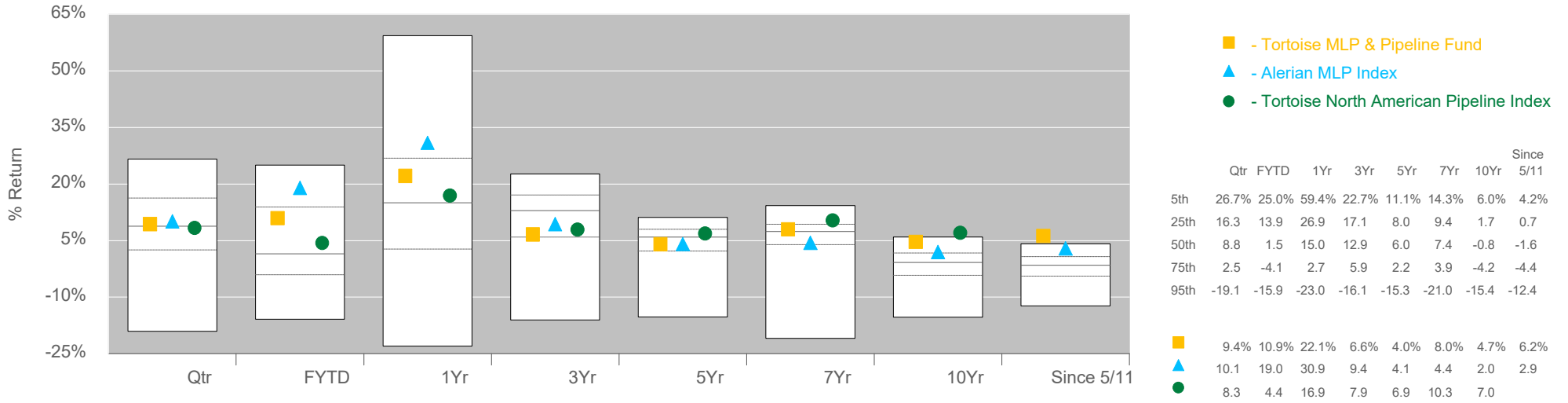
Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.1%	No
Beta < 1.20	Beta = 0.76	Yes
Alpha > 0.0%	Alpha = 0.6%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 33rd Percentile	No

# City of Grosse Pointe Woods Employees Retirement System

## Tortoise MLP & Pipeline Fund

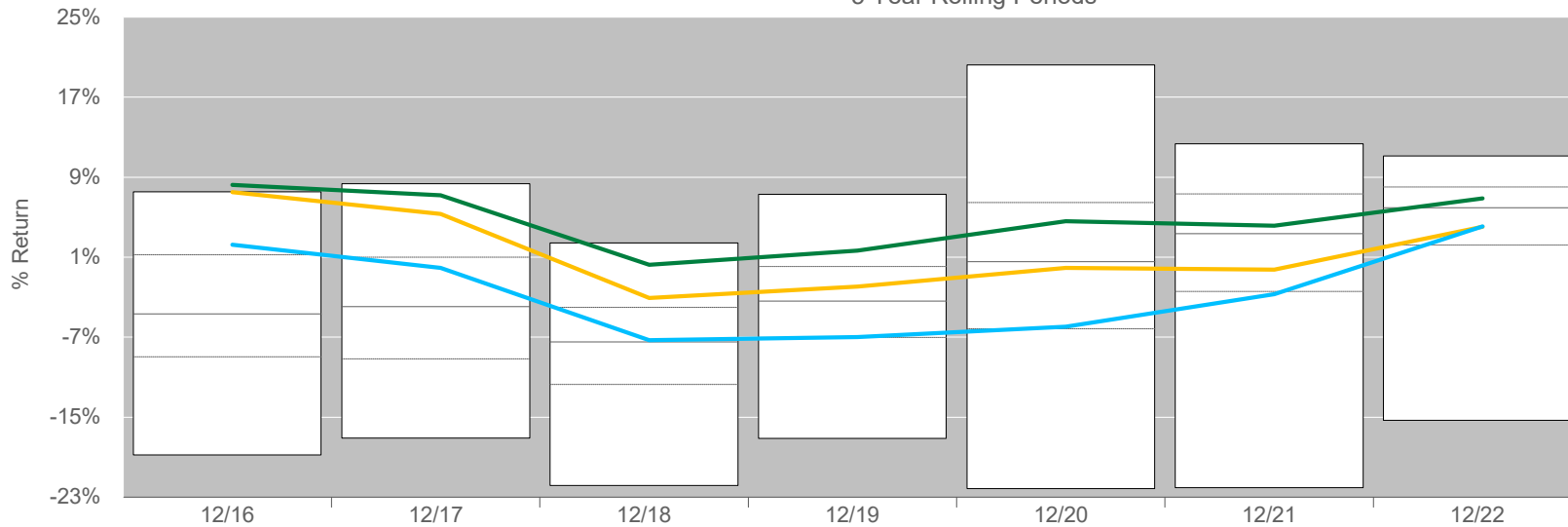
### Natural Resources Universe

For Report Periods Ending December 31, 2022



Report From December 31, 2011 to December 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Cohen & Steers Global Listed Infrastructure

### Summary of Performance and Statistics

Report For Periods Ending December 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	<b>9.2%</b>	<b>-0.8%</b>	<b>-4.9%</b>	<b>3.1%</b>	<b>5.6%</b>	<b>7.8%</b>	<b>7.5%</b>	<b>6.8%</b>	<i>1/05</i>
FTSE Global Core Infrastructure 50/50	9.0	-0.8	-4.9	1.6	4.7	7.4	7.0	--	
DJ Brookfield Global Infrastructure Index	9.4	-1.8	-4.9	1.1	3.7	6.0	5.9	8.0	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	<b>0.93</b>	<b>1.1%</b>	<b>0.97</b>	<b>15.6%</b>	<b>2.8%</b>	<b>0.3</b>
FTSE Global Core Infrastructure 50/50	1.00	0.0	1.00	16.5	0.0	--
DJ Brookfield Global Infrastructure Index	1.10	-1.4	0.95	18.5	5.3	0.4

### Asset Growth Summary (in thousands)

Beginning Market Value	\$	0
Net Contributions/(Distributions)	\$	0
<b>Market Appreciation/(Depreciation)</b>	<b>\$</b>	<b>0</b>
<b>Ending Market Value</b>	<b>\$</b>	<b>0</b>

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.



# City of Grosse Pointe Woods Employees Retirement System

## Cohen & Steers Global Listed Infrastructure

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending December 31, 2022

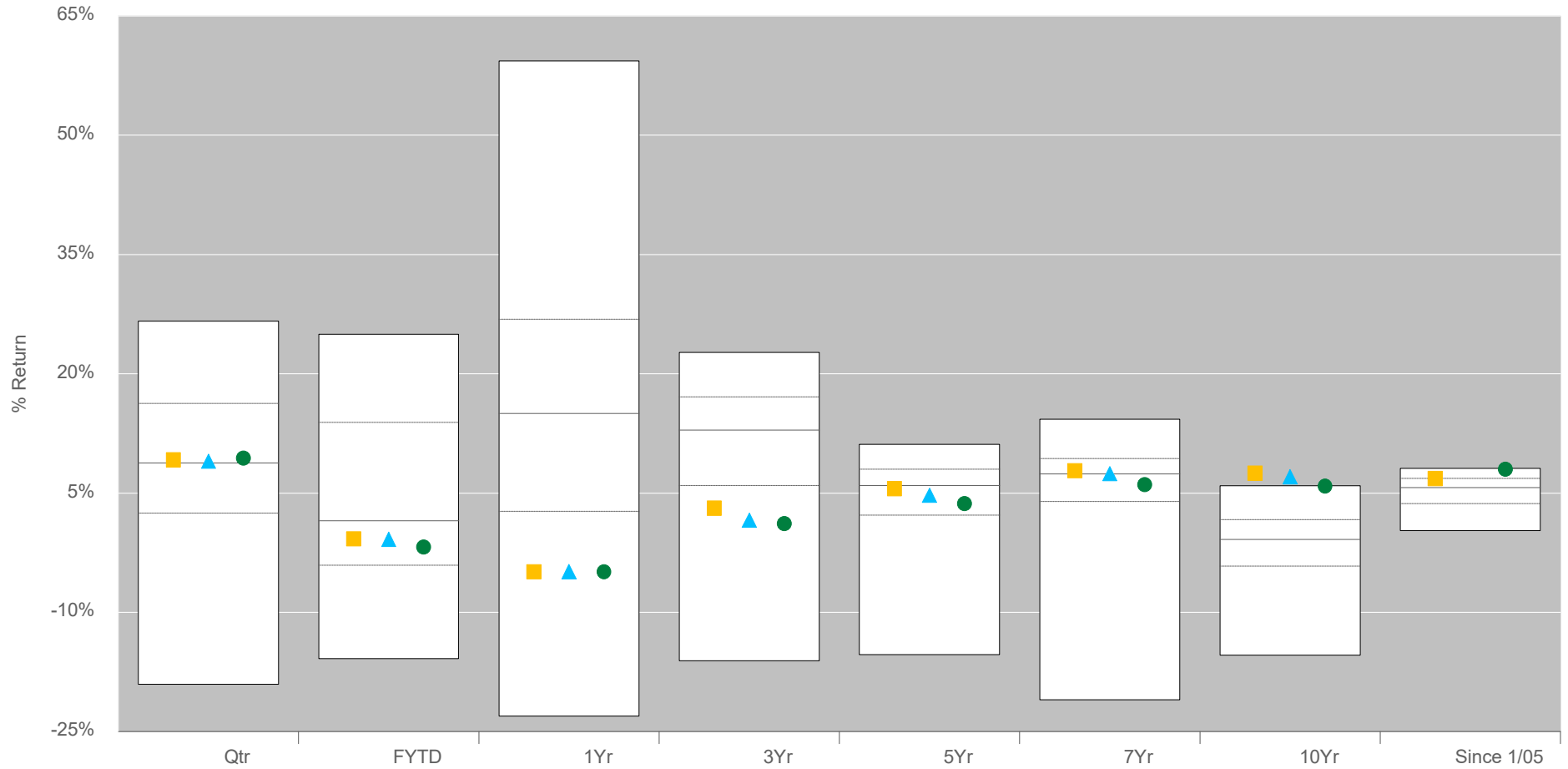
Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.8%	Yes
Beta < 1.20	Beta = 0.93	Yes
Alpha > 0.0%	Alpha = 1.1%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

# City of Grosse Pointe Woods Employees Retirement System

## Cohen & Steers Global Listed Infrastructure

Natural Resources Universe

For Report Periods Ending December 31, 2022



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th Percentile	26.7%	25.0%	59.4%	22.7%	11.1%	14.3%	6.0%	8.1%
25th Percentile	16.3	13.9	26.9	17.1	8.0	9.4	1.7	6.8
50th Percentile	8.8	1.5	15.0	12.9	6.0	7.4	-0.8	5.7
75th Percentile	2.5	-4.1	2.7	5.9	2.2	3.9	-4.2	3.7
95th Percentile	-19.1	-15.9	-23.0	-16.1	-15.3	-21.0	-15.4	0.2
■ - Cohen & Steers Global Listed Infrastructure	9.2%	-0.8%	-4.9%	3.1%	5.6%	7.8%	7.5%	6.8%
▲ - FTSE Global Core Infrastructure	9.0%	-0.8	-4.9	1.6	4.7	7.4	7.0	--
● - DJ Brookfield Global Infrastructure Index	9.4e	-1.8	-4.9	1.1	3.7	6.0	5.9	8.0

# City of Grosse Pointe Woods Employees Retirement System

## Breakdown of Fees

Report For Periods Ending December 31, 2022

	Annual Fee/ Expense Ratio	Market Value	Percent Allocation	Weighted Average Fee	Annualized Fee
iShares S&P 500 Index	0.04%	\$12,144,494	30.4%	0.01%	\$4,858
iShares Russell Midcap Index	0.20%	\$1,997,397	5.0%	0.01%	\$3,995
Vanguard S&P Small Cap 600 Index	0.10%	\$3,202,249	8.0%	0.01%	\$3,202
EuroPacific Growth Fund	0.57%	\$3,757,510	9.4%	0.05%	\$21,418
Templeton Inst'l Foreign Smaller Co.	1.04%	\$972,109	2.4%	0.03%	\$10,110
Brown International Small Company	1.08%	\$936,261	2.3%	0.03%	\$10,112
Redwheel Global Emerging Equity Fund	1.29%	\$1,169,937	2.9%	0.04%	\$15,092
DFA Emerging Markets Fund	0.36%	\$2,553,428	6.4%	0.02%	\$9,192
Dodge & Cox Income Fund	0.43%	\$2,273,418	5.7%	0.02%	\$9,776
DoubleLine Total Return Bond Fund	0.48%	\$2,019,354	5.1%	0.02%	\$9,693
Vanguard Total Bond Fund	0.05%	\$2,196,383	5.5%	0.00%	\$1,098
Gateway Fund	0.70%	\$1,623,840	4.1%	0.03%	\$11,367
PIMCO All Asset Fund	0.87%	\$1,338,217	3.3%	0.03%	\$11,642
Principal Real Estate Securities Fund	0.91%	\$857,413	2.1%	0.02%	\$7,802
Tortoise MLP & Pipeline Fund	0.97%	\$1,187,938	3.0%	0.03%	\$11,523
Cohen & Steers Global Listed Infrastructure	0.94%	\$1,158,375	2.9%	0.03%	\$10,889
Schwab Government Money Fund	0.23%	\$568,735	1.4%	0.00%	\$1,308
<b>Total Investment Management Fees</b>		<b>\$39,957,058</b>	<b>100.0%</b>	<b>0.38%</b>	<b>\$153,077</b>

\* Mutual Fund expense ratios are deducted from the NAV of the fund.

\* Annualized fee is an estimate based on market values as of December 31, 2022.

## Index Summary Sheet for Periods Ending December 31, 2022

	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
<b>Global Equity</b>						
MSCI AC World Index	9.8%	-18.4%	-18.4%	4.0%	5.2%	8.0%
MSCI World Index	9.8	-18.1	-18.1	4.9	6.1	8.9
S&P 500 Index	7.6	-18.1	-18.1	7.7	9.4	12.6
Russell 3000 Index	7.2	-19.2	-19.2	7.1	8.8	12.1
Russell 1000 Index	7.2	-19.1	-19.1	7.3	9.1	12.4
Russell 1000 Growth Index	2.2	-29.1	-29.1	7.8	11.0	14.1
Russell 1000 Value Index	12.4	-7.5	-7.5	6.0	6.7	10.3
Russell Midcap Index	9.2	-17.3	-17.3	5.9	7.1	11.0
Russell Midcap Growth Index	6.9	-26.7	-26.7	3.9	7.6	11.4
Russell Midcap Value Index	10.5	-12.0	-12.0	5.8	5.7	10.1
Russell 2000 Index	6.2	-20.4	-20.4	3.1	4.1	9.0
Russell 2000 Growth Index	4.1	-26.4	-26.4	0.6	3.5	9.2
Russell 2000 Value Index	8.4	-14.5	-14.5	4.7	4.1	8.5
Russell Microcap Index	4.7	-22.0	-22.0	4.1	3.7	8.9
MSCI AC World Index ex-U.S.	14.3	-16.0	-16.0	0.1	0.9	3.8
MSCI EAFE Index	17.3	-14.5	-14.5	0.9	1.5	4.7
MSCI EAFE Growth Index	15.0	-22.9	-22.9	0.5	2.5	5.6
MSCI EAFE Value Index	19.6	-5.6	-5.6	0.6	0.2	3.5
MSCI Small Cap EAFE Index	15.8	-21.4	-21.4	-0.9	0.0	6.2
MSCI Emerging Markets Index	9.7	-20.1	-20.1	-2.7	-1.4	1.4
MSCI Emerging Markets Small Cap Index	8.2	-18.0	-18.0	5.1	1.1	3.2
MSCI Frontier Markets Index	-0.8	-26.3	-26.3	-3.6	-2.5	3.2
HFRI Equity Hedge Index	4.2	-10.2	-10.2	5.7	4.5	5.6
HFRI Emerging Markets	5.1	-12.7	-12.7	1.7	0.9	2.9
HFRI FOF: Strategic Index	3.1	-11.5	-11.5	2.5	2.1	3.4
Thomson One All Private Capital Index	0.0	-6.8	-6.8	16.6	14.6	13.7
Thomson One Buyout Index	0.0	-7.7	-7.7	16.2	15.1	15.1
Thomson One Fund of Funds Index	0.0	-12.5	-12.5	19.8	16.9	14.6
Thomson One Venture Capital Index	0.0	-14.8	-14.8	26.2	23.9	19.8
<b>Global Fixed Income</b>						
Bloomberg U.S. Aggregate Index	1.9	-13.0	-13.0	-2.7	0.0	1.1
Bloomberg U.S. TIPS Index	2.0	-11.8	-11.8	1.2	2.1	1.1
Bloomberg Government Bond Index	0.7	-12.3	-12.3	-2.6	-0.1	0.6
Bloomberg Municipals Index	4.1	-8.5	-8.5	-0.8	1.3	2.1
Bloomberg Asset Backed Index	0.8	-4.3	-4.3	-0.1	1.2	1.2

## Index Summary Sheet for Periods Ending December 31, 2022

	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
<b>Global Fixed Income (continued)</b>						
Bloomberg US MBS Index	2.1%	-11.8%	-11.8%	-3.2%	-0.5%	0.7%
Bloomberg IG CMBS Index	1.0	-10.9	-10.9	-1.7	0.8	1.6
Bloomberg U.S. Credit Index	3.4	-15.3	-15.3	-2.9	0.4	1.8
Bloomberg U.S. Corporate HY Index	4.2	-11.2	-11.2	0.0	2.3	4.0
Bloomberg Intermediate U.S. G/C Index	1.5	-8.2	-8.2	-1.3	0.7	1.1
ICE BofA 1-3 Yr. Govt. Bond Index	0.7	-3.7	-3.7	-0.4	0.8	0.7
U.S. 91-Day Treasury Bills	1.0	2.0	2.0	0.8	1.3	0.8
CS Leveraged Loan Index	2.3	-1.1	-1.1	2.3	3.2	3.8
JPMorgan Non-U.S. GBI Hedged Index	-0.8	-12.1	-12.1	-3.5	-0.3	1.8
JPMorgan Non-U.S. GBI Index	7.0	-21.9	-21.9	-7.9	-4.2	-2.2
JPMorgan EMBI Plus Index	8.7	-24.7	-24.7	-8.3	-3.9	-0.3
JPMorgan EMBI Global Index	7.4	-16.5	-16.5	-4.5	-1.0	1.3
HFRI RV: Fixed Income - Corporate Index	2.1	-4.6	-4.6	3.0	3.4	4.0
HFRI ED: Distressed/Restructuring Index	2.0	-3.1	-3.1	7.8	4.9	4.8
Thomson One Distressed Index	0.0	1.7	1.7	12.1	8.8	9.6
<b>Real Assets</b>						
FTSE NAREIT All Equity Index	4.1	-24.9	-24.9	0.2	4.4	7.1
S&P Developed BMI Property Index	7.1	-25.0	-25.0	-4.3	-0.2	3.4
S&P Developed ex-U.S. Property Index	10.2	-24.1	-24.1	-7.5	-2.4	2.2
NCREIF Property Index	0.0	9.4	9.4	9.4	8.2	9.2
Bloomberg Commodity Index	2.2	16.1	16.1	12.7	6.4	-1.3
Alerian MLP Index	10.1	30.9	30.9	9.4	4.1	2.0
NCREIF Timberland Index	0.0	7.6	7.6	5.8	4.4	5.3
Thomson One Private Real Estate Index	0.0	3.8	3.8	10.8	10.0	11.3
S&P Real Assets Equity Total Return Index	9.1	-11.5	-11.5	1.0	3.0	4.8
<b>Diversifying Strategies</b>						
HFRI Fund of Funds Index	1.8	-5.2	-5.2	3.7	3.0	3.5
HFRI Fund Weighted Composite Index	2.3	-4.2	-4.2	5.7	4.4	4.7
HFRI FOF: Conservative Index	1.8	0.5	0.5	4.8	3.9	3.7
HFRI Event Driven	3.3	-4.6	-4.6	5.4	4.3	4.9
HFRI Relative Value Total Index	1.3	-0.8	-0.8	3.3	3.4	4.0
HFRI Macro Index	-1.3	9.0	9.0	7.3	4.8	3.1
<b>Other</b>						
Consumer Price Index - U.S.	0.4	6.3	6.3	4.9	3.8	2.6
U.S. Dollar Index	-7.7	7.9	7.9	2.4	2.3	2.6

\* For indices that report returns on a lag, 0.0% is utilized for the most recent time period until the actual return data are reported.

# City of Grosse Pointe Woods Employees Retirement System

## Benchmark Composition Summary

### Target Weighted Index

<u>Since Inception</u>	<u>Weight</u>
Russell 1000 Index	15.00%
Russell Midcap Index	4.00%
Russell 2000 Index	6.00%
MSCI EAFE Index	10.00%
MSCI Small Cap EAFE Index	5.00%
MSCI Emerging Markets Index	12.00%
Bloomberg U.S. Aggregate Index	20.00%
HFRI Equity Hedge Index	5.00%
U.S. 91-Day Treasury Bills	1.00%
Bloomberg Commodity Index	3.00%
FTSE NAREIT All Equity Index	3.00%
HFRI FOF: Conservative Index	10.00%
MSCI Frontier Markets Index	3.00%
S&P 500 Energy Sector Index	3.00%

<u>November 30, 2018</u>	<u>Weight</u>
Russell 1000 Index	23.00%
Russell Midcap Index	5.00%
Russell 2000 Index	7.00%
MSCI EAFE Index	10.00%
MSCI Small Cap EAFE Index	5.00%
MSCI Emerging Markets Index	10.00%
Bloomberg U.S. Aggregate Index	20.00%
U.S. 91-Day Treasury Bills	1.00%
Bloomberg Commodity Index	3.00%
FTSE NAREIT All Equity Index	3.00%
HFRI FOF: Conservative Index	10.00%
S&P 500 Energy Sector Index	3.00%

<u>August 31, 2020</u>	<u>Weight</u>
Russell 1000 Index	30.00%
Russell Midcap Index	5.00%
Russell 2000 Index	7.00%
MSCI EAFE Index	10.00%
MSCI Small Cap EAFE Index	5.00%
MSCI Emerging Markets Index	10.00%
Bloomberg U.S. Aggregate Index	20.00%
Alerian MLP Index	3.00%
FTSE NAREIT All Equity Index	3.00%
HFRI FOF: Conservative Index	7.00%

### Actuarial Rate

<u>Since Inception</u>	<u>Weight</u>
7.75% Absolute Return	100.00%

<u>August 31, 2020</u>	<u>Weight</u>
7.5% Absolute Return	100.00%

## Definitions

**Alpha** – Measures how well a portfolio performed versus its benchmark after factoring in the amount of risk (as measured by beta) taken. Technically, alpha is the difference between the excess return of a portfolio and the excess return of the benchmark multiplied by beta. Excess return is simply the actual return minus the return of the risk-free asset, U.S. Treasury Bill. A positive alpha indicates the portfolio has performed better than the benchmark on a risk-adjusted basis.

**Annual Standard Deviation** – A measure of variability in returns. The annual standard deviation measures the dispersion of annual returns around the average annualized return.

**Beta** – A coefficient measuring a portfolio's relative volatility with respect to its market. Technically, beta is the covariance of a portfolio's return with the benchmark portfolio's return divided by the variance of the benchmark portfolio's return. Thus, a portfolio with a beta greater than 1.00, indicates the portfolio experienced greater volatility than the benchmark, whereas a portfolio with a beta less than 1.00, indicates the portfolio experienced less volatility than the benchmark.

**Consumer Price Index** – Measures the change in consumer prices, as determined by a monthly survey of the U.S. Bureau of Labor Statistics. CPI components include housing costs, food, transportation and electricity.

**Duration** – A measure of the price sensitivity of a bond or bond portfolio to a change in interest rates.

**Information Ratio** – Describes the risk / reward trade-off of alpha and tracking error. Because the formula for calculating information ratio is Alpha divided by Tracking Error, the larger the information ratio, the more attractive the portfolio is from an overall risk return profile.

**Max Drawdown** – The maximum loss incurred by a portfolio during a specified time period.

**R<sup>2</sup>** – Also called the coefficient of determination. On the detail page, R<sup>2</sup> measures how much of the variation in the investment manager's returns can be explained by movements in the market (benchmark).

**Sharpe Ratio** – A risk-adjusted measure calculated using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe ratio, the better the manager's historical risk-adjusted performance.

**Tracking Error** – A measure that describes the volatility of the expected excess return (alpha) achieved through active management. Since excess return can only be achieved through a portfolio that actively differs from the benchmark, the level of tracking error is indicative of how different the portfolio will perform relative to any given benchmark.

## Disclosures

This one on one report was prepared by FEG (also known as Fund Evaluation Group, LLC), a federally registered investment adviser under the Investment Advisers Act of 1940, as amended, providing non-discretionary and discretionary investment advice to its clients on an individual basis. Registration as an investment adviser does not imply a certain level of skill or training. The oral and written communications of an adviser provide you with information about which you determine to hire or retain an adviser. Fund Evaluation Group, LLC, Form ADV can be obtained by written request directed to: Fund Evaluation Group, LLC, 201 East Fifth Street, Suite 1600, Cincinnati, OH 45202 Attention: Compliance Department.

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Market Values and return statistics for time periods pre-dating FEG's relationship with clients may include data provided by the clients and/or a previous consultant is assumed to be accurate. However, this information is not independently verified by FEG.

Performance results are calculated using information provided by the custodian and/ or independent pricing sources. It is the responsibility of the trustee, custodian and /or manager to ensure the accuracy of market value and transactional data. Performance analysis is calculated using monthly and/or quarterly market values. Performance analysis and asset valuations may or may not include accrued interest and dividend income and are net of management fees. FEG/Consulting fees may or may not be deducted, based on client preference.

FEG's universes are updated monthly and the traditional asset classes are constructed from Lipper data feeds encompassing over 19,000 mutual funds. Lipper classifies approximately 50 asset classes according to the funds' investment objectives and portfolio attributes. FEG screens the Lipper universes to include only institutional and no-load funds. However, because the Lipper data may treat multiple share classes of the same fund as separate funds for the purposes of constructing their universes, FEG further screens the universes to eliminate multiple share classes within the institutional and no-load funds (examples include retirement-share classes and 529-share classes) in an effort to present pure-institutional universes.

Monitoring of managers includes fundamental research for all investment managers, as well as enhanced coverage for managers that have been approved for FEG's recommended list. A Quarterly Content Questionnaire is the basis of fundamental coverage and requests qualitative (e.g., personnel, organizational changes) and quantitative information (performance, cash flows) on all investment strategies for ongoing monitoring and adherence to investment policy. Clients may have exposure to both fundamental and recommended managers in their portfolio depending on their unique needs. FEG conducts conference calls directly with the active managers that receive enhanced coverage.

Mutual funds are bound by their prospectus, limiting potential deviation from the stated investment strategy.

Clients are encouraged to contact their Investment Advisers immediately if there are changes to their financial situation or investment objectives, or if they wish to impose or modify restrictions on the management of their account(s). Please notify your adviser immediately if you believe that any information on file is incorrect, or have had changes that have not been previously discussed.

Index performance results do not represent any managed portfolio returns. An investor cannot invest directly in a presented index, as an investment vehicle replicating an index would be required. An index does not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the performance shown.

This report is prepared for informational purposes only. Past performance is not indicative of future results.



# SHIFT IN CAPITAL MARKET ASSUMPTIONS OVER LAST 2 YEARS



	2021 Expected Return	2022 Expected Return	2023 Expected Return
<b>Global Equity</b>			
<b>Long-Only Strategies</b>	<b>5.8%</b>	<b>5.3%</b>	<b>7.1%</b>
U.S. Equity	5.2%	4.7%	6.6%
Large Cap	5.0%	4.5%	6.5%
Mid Cap	5.5%	5.0%	6.8%
Small Cap	6.0%	5.5%	7.3%
<b>International Equity</b>	<b>6.6%</b>	<b>6.0%</b>	<b>7.7%</b>
Large Cap Developed	6.0%	5.5%	7.3%
Small Cap Developed	6.0%	5.5%	8.0%
Emerging Markets	8.5%	7.5%	8.5%
Private Equity	8.5%	8.0%	9.0%
<b>Global Fixed Income/Credit</b>			
<b>Rate Sensitive Strategies</b>	<b>1.4%</b>	<b>1.8%</b>	<b>5.5%</b>
Core (Investment Grade)	1.2%	1.6%	5.0%
Inflation Protected (TIPS)	1.0%	1.3%	4.7%
Long Duration Corporate Debt	3.0%	3.0%	6.0%
Emerging Market Debt	4.0%	5.0%	7.8%
<b>Credit Sensitive Strategies</b>	<b>4.7%</b>	<b>4.2%</b>	<b>7.2%</b>
High Yield	4.0%	3.2%	7.3%
Bank Loans	3.0%	3.0%	6.0%
Private Debt	7.0%	6.5%	8.3%

## Real Assets

### Real Estate

Public Real Estate

Private Real Estate

### Natural Resources

Commodities

Private Energy

### Infrastructure

Energy Infrastructure/MLPs

Global Listed Infrastructure

## Diversifying Strategies

### Semi-liquid Hedged Strategies

Event Driven

Macro

Relative Value

Illiquid Diversifying Strategies

Liquid Diversifying Strategies

Global Hedged Equity

## Money Markets

U.S. Inflation

U.S. Cash

	2021 Expected Return	2022 Expected Return	2023 Expected Return
Public Real Estate	5.5%	4.5%	6.5%
Private Real Estate	7.0%	7.0%	8.3%
Commodities	3.0%	3.0%	4.5%
Private Energy	7.5%	7.5%	9.5%
Energy Infrastructure/MLPs	7.0%	6.0%	7.0%
Global Listed Infrastructure	5.5%	5.0%	6.8%
<b>Semi-liquid Hedged Strategies</b>	<b>4.8%</b>	<b>4.3%</b>	<b>5.8%</b>
Event Driven	5.0%	4.5%	6.0%
Macro	5.0%	4.5%	6.0%
Relative Value	4.5%	4.0%	5.5%
Illiquid Diversifying Strategies	7.5%	7.0%	8.5%
Liquid Diversifying Strategies	3.8%	4.0%	5.5%
Global Hedged Equity	5.0%	4.5%	6.3%
U.S. Inflation	2.0%	2.3%	3.0%
U.S. Cash	0.3%	1.0%	3.0%

# INVOICE



**201 East Fifth Street, Suite 1600**  
**Cincinnati, Ohio 45202**

DATE	INVOICE #
1/31/23	202301149

**BILL TO:**

City of Grosse Pointe Woods  
Employees Retirement System  
Shawn Murphy  
20025 Mack Plaza  
Grosse Pointe Woods, MI 48236

**Fee Schedule:** includes CIS

.12% first \$50 Million  
.10% next \$50 Million  
.05% next \$150 Million  
.04% next \$250 Million  
.03% over \$500 Million  
Minimum annual fee \$60,000

*Professional Services for the period*

**10/1/22-12/31/22**

**AMOUNT**

Based on the market value of    \$    37,707,958    @    9/30/22    =    \$    14,425.00

***Total Amount Due***

\$    14,425.00

*Payment due upon receipt of invoice*

Reference:                          DAVIS  
Inception:                          7/3/2014  
Updated:                              12/1/15 Prorated w/ Retiree HC Benefits

Note: Assets of Employee Retirement System and Healthcare Benefits Plan are aggregated for fee break purposes.

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**Remittance Information**

**Please include invoice number and make payable to Fund Evaluation Group**

*Mail: P.O. Box 639176, Cincinnati, OH 45263-9176*

*Wire or ACH: Fifth Third Bank, 38 Fountain Square Plaza, Cincinnati, OH 45263, R/T #042000314, Account #7027869440*

*Remittance information to [accountsreceivable@feg.com](mailto:accountsreceivable@feg.com)*

ROSATI, SCHULTZ, JOPPICH & AMTSBUECHLER, P.C.  
 27555 Executive Drive, Suite 250  
 Farmington Hills, MI 48331  
 (248) 489-4100 Tax ID# 38-3107356

December 7, 2022

City of Grosse Pointe Woods  
 Attn: Frank Schulte, City Administrator  
 20025 Mack Plaza  
 Grosse Pointe Woods, MI 48236

Invoice # 1078612

In Reference To: City of Grosse Pointe Woods Retirement System & Retiree Health Care

Professional Services Rendered Through November 30, 2022

	Hrs/Rate	Amount
11/16/2022 DAW Receipt/review correspondence from Treasurer regarding special meeting; Correspondence in response	0.30 \$145.00/hr	43.50
DAW Receipt/review correspondence from Mayor regarding availability for special meeting	0.10 \$145.00/hr	14.50
11/17/2022 DAW Receipt/review correspondence from Treasurer regarding special meeting on December 8, 2022	0.20 \$145.00/hr	29.00
11/21/2022 DAW Receipt/review of multiple (4) correspondences from Treasurer rescheduling the Special Pension Board Meeting; Correspondence in response	0.30 \$145.00/hr	43.50
For professional services rendered	0.90	\$130.50
Previous balance		\$378.76
11/7/2022 Payment - thank you. Check No. 774917720		(\$378.76)
Balance due		\$130.50

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Please include your Invoice Number on your payment. Thank you.

Attorney Summary

<u>Name</u>	<u>Hours</u>	<u>Rate</u>
Debra A. Walling, Associate	0.90	145.00



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS

# Invoice

Date	Invoice #
1/20/2023	25807

Bill To
City of Grosse Pointe Woods 20025 Mack Plaza Drive Grosse Pointe Woods, MI 48236

Phone: (630) 620-0200  
 Fax: (239) 481-0634  
 Email: AR@foster-foster.com  
 Website: www.foster-foster.com  
 Federal EIN: 59-1921114

**City of Grosse Pointe Woods**

Terms	Due Date
Net 30	2/19/2023

Description	Amount
Prepare June 30, 2022 Benefit Statements	1,000.00

***Thank you for your business!***

Most preferred method of payment is an ACH deposit.  
 Please reference Plan name & Invoice # above.

- Account Title: Foster & Foster, Inc.
- Account Number: 6100000360
- Routing Number: 063114661
- Bank Name: Cogent Bank

**Balance Due                    \$1,000.00**

For payment via a mailed check, please remit to:  
 Foster & Foster, Inc.  
 184 Shuman Blvd., Ste.305, Naperville, IL 60563



## CITY OF GROSSE POINTE WOODS MEMORANDUM

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**Date:** January 23, 2023  
**To:** Pension Board of Trustees  
**From:** Shawn Murphy, Pension Administrator  
**Re:** Increase of Annual Administrative Fee

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At the November 3, 2022 Pension Board Meeting there was discussion to increase the Annual Administrative Fee for the 2023-2024 budget year and further discussion would take place at the February 2, 2023 meeting.

October, 2009 the Pension Board authorized an *annual* payment of \$10,000 to the City of Grosse Pointe Woods for administrative fees and services performed by Finance staff for pension related items. There has not been an increase in the administrative fees since the annual payment was approved in 2009.

Thank you.