



nyhart
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City of Pontiac Police and Fire Retirement System

December 31, 2023
Actuarial Valuation Report

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At the request of the plan sponsor, this report summarizes the City of Pontiac Police and Fire Retirement System as of December 31, 2023. The purpose of this report is to communicate the following results of the valuation:

- Funded Status;
- and Determine Recommended Contribution.

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census and asset information has been provided to us by the employer. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the Board. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

Actuarial Certification

In preparing these results, Nyhart used ProVal valuation software developed by Winklevoss Technologies, LLC. This software is widely used for the purpose of performing pension valuations. We coded the plan provisions, assumptions, methods, and participant data summarized in this report, and reviewed the liability and cost outputs for reasonableness. We are not aware of any weaknesses or limitations in the software, and have determined it is appropriate for performing this valuation.

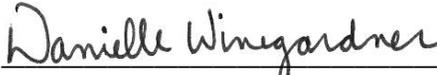
Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart



Jennifer Turk, FSA, EA, MAAA



Danielle Winegardner, FSA, EA, MAAA

August 2, 2024

Date

Executive Summary

The actuarial report provides the plan sponsor with several ways to measure the funded status of the pension plan. The following detail is included in the report:

- Recommended Contribution
- Asset Performance
- Plan Demographics

This report is filled with actuarial terminology. However, the ultimate objective of the valuation is to provide a rational method of funding the plan. It is necessary to fund the benefit promised by the employer in a manner that is logical and employer friendly, yet safeguards the participants' interest. The actuarially derived contribution, however, is not the true cost of the pension plan. The true cost is illustrated by the following formula:

$$\text{Ultimate Pension Cost} = \text{Benefits Paid} - \text{Investment Income} + \text{Plan Expenses}$$

While the plan's liability and normal cost determine the current contribution recommendations, the true cost is controlled only by the "defined" benefit and investment income generated by the underlying assets. The actuarial process only controls the timing of costs.

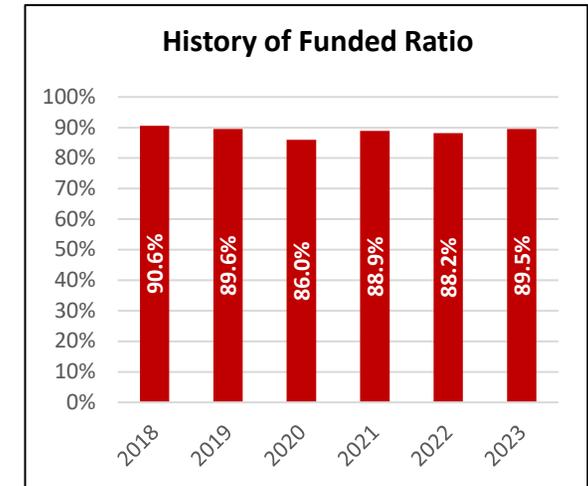
We suggest that a plan sponsor treat the actuarial report as you would treat a scorecard. It is simply a measure of progress toward the ultimate goal of paying all pension benefits when participants retire.

Executive Summary

Summary Results

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level dollar.

	December 31, 2022	December 31, 2023
Funded Status Measures		
Accrued Liability	\$243,211,632	\$236,829,871
Actuarial Value of Assets	\$214,422,433	\$211,958,131
Unfunded Actuarial Accrued Liability (UAAL)	\$28,789,199	\$24,871,740
Funded Percentage (AVA)	88.2%	89.5%
Funded Percentage (MVA)	81.6%	84.0%
Cost Measure		
Recommended Contribution	\$3,356,723	\$2,997,551
Expected Date of Recommended Contribution	January 1, 2025	January 1, 2026
Asset Performance		
Market Value of Assets (MVA)	\$198,500,351	\$198,870,715
Actuarial Value of Assets (AVA)	\$214,422,433	\$211,958,131
Actuarial Value/Market Value	108.0%	106.6%
Market Value Rate of Return	(9.8%)	8.9%
Actuarial Value Rate of Return	5.6%	6.8%
Participant Information		
Active Participants	0	0
Terminated Vested Participants	104	96
Retirees and Beneficiaries	433	433
Total	537	529



Executive Summary

Changes since Prior Valuation and Key Notes

Plan Provisions

There have been no changes to the plan provisions since the last valuation.

Assumptions

The amortization period of the unfunded liability has been lowered from 20 years to 19 years.

A Low-Default-Risk Obligation Measure (LDROM) was added to this report to comply with new Actuarial Standards of Practice requirements. This new calculation is displayed on the final page of the report.

Executive Summary

Historical Valuation Summary

	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023
Funding					
Accrued Liability	\$240,806,837	\$249,854,074	\$246,905,871	\$243,211,632	\$236,829,871
Actuarial Value of Assets	\$215,709,114	\$214,814,588	\$219,510,558	\$214,422,433	\$211,958,131
Unfunded Actuarial Accrued Liability	\$25,097,723	\$35,039,486	\$27,395,313	\$28,789,199	\$24,871,740
Funded Percentage	89.6%	86.0%	88.9%	88.2%	89.5%
Normal Cost (NC)	\$0	\$0	\$0	\$0	\$0
Actual Contribution	\$2,133,428	\$1,835,294	\$4,745,450 ¹	\$3,709,236	\$3,819,003
Recommended Contribution for Plan Year	\$2,133,428	\$1,835,294	\$2,248,844	\$2,496,606	\$3,819,003
Interest Rate	7.5%	7.25%	7.25%	7.25%	7.25%
Amortization Period	23 years	22 years	21 years	20 years	19 years
Recommended Contribution Determined at Valuation	\$2,496,606	\$3,819,003	\$3,134,384	\$3,356,723	\$2,997,551
Rate of Return					
Actuarial Value of Assets	6.2%	8.8%	10.1%	5.6%	6.8%
Market Value of Assets	16.6%	9.1%	15.0%	(9.8)%	8.9%
Demographic Information					
Active Participants	0	0	0	0	0
Terminated Vested Participants	133	120	114	104	96
Retired Participants	330	340	341	344	342
Beneficiaries	74	71	68	68	71
Disabled Participants	21	21	21	21	20 ²
Total Participants	558	552	544	537	529

¹ Actual contribution includes \$2,248,844 contribution made April 2021 for the 2021 Plan Year, and \$2,496,606 made November 2021 for the 2022 Plan Year.

² Of the 20 disabled participants above, there are currently 5 who are receiving a disability benefit. The remaining participants have converted to a Normal Retirement benefit.

Executive Summary

Identification of Risks

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the City of Pontiac Police and Fire Retirement System. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk	Method to Assess Risk
Investment Return	Scenario Testing; Asset Liability Study
Interest Rates	Scenario Testing; Stochastic Modeling
Participant Longevity	Scenario Testing; Stress Testing

Plan Maturity Measures - January 1, 2024

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the City of Pontiac Police and Fire Plan falls in its life-cycle.

Duration of Liabilities: 9.8%

Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 0.0%

A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 0.0%

Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 10.2%

As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.

Assets and Liabilities

The basic building blocks of the actuarial report are contained in this section. These include:

- Actuarial Accrued Liabilities
- Asset Information

Assets and Liabilities

Actuarial Accrued Liability

The Actuarial Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions.

December 31, 2023

Funding Liabilities - Entry Age Normal level dollar

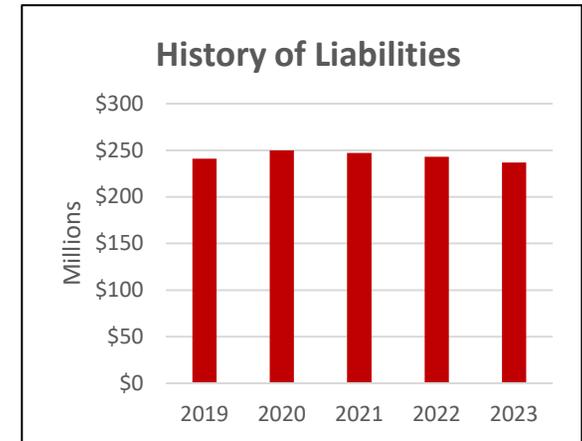
Active participants

Retirement	\$0
Disability	0
Death	0
Termination	0
Refund of contributions	0
Total Active	\$0

Inactive participants

Retired participants	\$193,987,298
Beneficiaries	18,951,023
Disabled participants	9,634,153
Terminated vested participants	14,257,397
Total Inactive	\$236,829,871
Total	\$236,829,871

Normal Cost	\$0
Interest Rate	7.25%



Assets and Liabilities

Asset Information

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

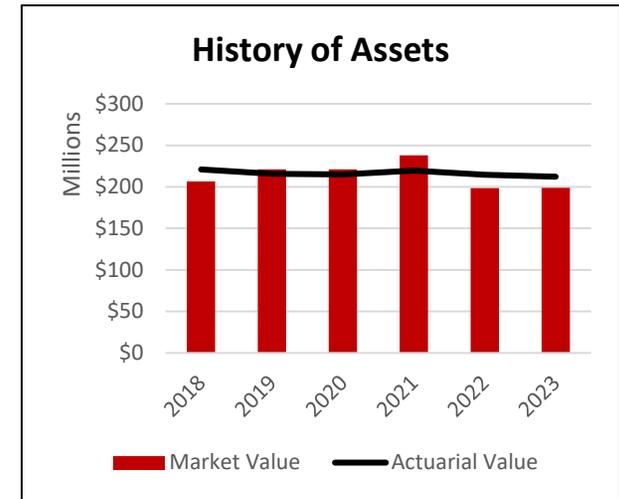
December 31, 2023

Market Value Reconciliation

Market value of assets, beginning of prior year	\$198,500,351
Contributions	
Employer contributions	3,819,003
Employee contributions	0
Total	\$3,819,003
Investment income	\$17,229,913
Refund of Member Contributions	\$0
Benefit payments	\$(20,363,219)
Administrative expenses	\$(315,333)
Market value of assets, beginning of current year	\$198,870,715
Return on Market Value	8.89%
Market value of assets available for pension benefits	\$198,870,715

Actuarial Value of Assets

Value at beginning of current year	\$211,958,131
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Monitoring the pension plan's investment performance is crucial to eliminating surprises.

Assets and Liabilities

Asset Information (continued) – 20% Phase in

Plan Assets are used to develop funded percentages and contribution requirements.

	December 31, 2023
Investment Gain or (Loss)	
1. Prior year’s market value of assets	\$198,500,351
2. Employer contributions for the prior plan year	\$3,819,003
3. Employee contributions for the prior plan year	0
4. Benefit payments during the prior plan year	(20,363,219)
5. Administrative expenses	(315,333)
6. Expected earnings at 7.25% to the end of the plan year on	
(a) Market value of assets	\$14,391,275
(b) Contributions	138,439
(c) Benefit payments	(738,167)
(d) Administrative expenses	(11,431)
(e) Total expected earnings, (a) + (b) + (c) + (d)	\$13,780,116
7. Expected market value of assets, (1) + (2) + (3) + (4) + (5) + (6e)	\$195,420,918
8. Actual market value of assets	\$198,870,715
9. Investment Gain or (Loss), (8) – (7)	\$3,449,797
Actuarial Value of Assets	
10. Market value of assets	\$198,870,715
11. Deferred Investment gains or (losses)	
(a) Current year: 80% x \$3,449,797	\$2,759,838
(b) First prior year: 60% x (\$39,137,841)	(23,482,705)
(c) Second prior year: 40% x \$17,359,563	6,943,825
(d) Third prior year: 20% x \$3,458,131	691,626
(e) Total	(\$13,087,416)
12. Final actuarial value of assets, (10 – (11e))	\$211,958,131
13. Return on actuarial value of assets	6.83%

Funding Results

The basic building blocks of the actuarial report are contained in this section. These include:

- Reconciliation of Gain/Loss
- Recommended Contribution

Funding Results

Reconciliation of Gain/Loss

December 31, 2023

Liability (Gain)/Loss

1. Actuarial liability, beginning of prior year	\$243,211,632
2. Normal cost for prior year	0
3. Benefit payments	(20,363,219)
4. Expected Interest	16,894,677
5. Change in Assumptions	0
6. Change in Plan Provisions	0
7. Expected actuarial liability, beginning of current year	<u>\$239,743,090</u>
8. Actual actuarial liability	236,829,871
9. Liability (Gain)/Loss, (8) – (7)	<u>(\$2,913,219)</u>

Asset Gain/(Loss)

10. Actuarial value of assets, beginning of prior year	\$214,422,433
11. Contributions	3,819,003
12. Benefit payments and administrative expenses	(20,678,552)
13. Expected Investment return	14,934,468
14. Expected actuarial value of assets, beginning of current year	<u>212,497,352</u>
15. Actual actuarial value of assets, beginning of current year	211,958,131
16. Asset (Gain)/Loss, (14) – (15)	<u>\$539,221</u>

Total (Gain)/Loss, (9) + (16)

(\$2,373,998)

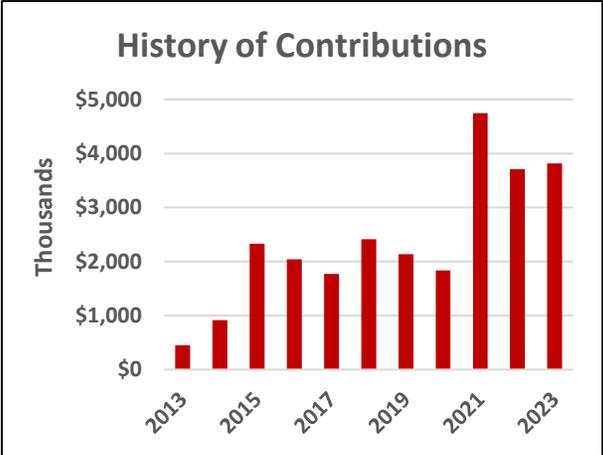
Funding Results

Development of Actuarial Recommended Contribution

The actuarial recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

Valuation Date **December 31, 2023**

Funded Position	
1. Entry age accrued liability	\$236,829,871
2. Actuarial value of assets	<u>211,958,131</u>
3. Unfunded actuarial accrued liability (UAAL)	\$24,871,740
Employer Contributions	
1. Normal Cost	0
2. Administrative Expenses	320,000
3. Amortization of UAAL	2,285,985
4. Applicable Interest	<u>391,566</u>
5. Total recommended contribution	\$2,997,551



In accordance with ASOP No. 4, we reviewed the plan’s funding method (liability method, amortization method and period, asset smoothing method), contribution policy & allocation procedures, and the computation of the actuarially determined contribution. We believe each to be reasonable, both individually and in combination, as expected plan costs are expected to be fully funded over a reasonable timeframe.

The contribution calculated as of December 31, 2023 is assumed to be paid January 1, 2026. Please see the following page for alternative payment dates.

Funding Results

Alternative Payment Date for the Actuarial Recommended Contribution

The actuarial recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws. The contribution is adjusted with interest to the actual payment date. The required contribution amounts may be adjusted if they are made prior to January 1, 2025 or January 1, 2026 as shown in the following schedule.

December 31, 2022	
Assumed Contribution Date	Contribution Amount
July 1, 2024	\$3,241,282
August 1, 2024	\$3,260,243
September 1, 2024	\$3,279,315
October 1, 2024	\$3,298,498
November 1, 2024	\$3,317,793
December 1, 2024	\$3,337,201
January 1, 2025	\$3,356,723

December 31, 2023	
Assumed Contribution Date	Contribution Amount
July 1, 2025	\$2,894,461
August 1, 2025	\$2,911,393
September 1, 2025	\$2,928,424
October 1, 2025	\$2,945,555
November 1, 2025	\$2,962,786
December 1, 2025	\$2,980,118
January 1, 2026	\$2,997,551

Funding Results

Michigan PA 202 Reporting Requirements

	December 31, 2023	
	Plan Assumptions	State Treasury Uniform Assumptions
Interest Rate	7.25%	6.85%
Mortality	Pub-S 2010 with MP-21	No change
Amortization Period	19 years	16 years
Accrued Liability	\$236,829,871	\$245,661,561
Market Value of Assets	\$198,870,715	\$198,870,715
Unfunded Accrued Liability, MVA Basis	\$37,959,156	\$46,790,846
Funded Percentage (MVA)	84.0%	81.0%
Underfunded Status	Not Underfunded	Not Underfunded
Actuarially Determined Contribution	\$3,819,003	\$4,339,522

The Actuarially Determined Contribution payable during 2023 is calculated as of December 31, 2020 and based on data, assumptions, and plan provisions summarized in the December 31, 2020 Actuarial Valuation Report. The Actuarially Determined Contribution under Uniform Assumptions is calculated using the December 31, 2020 Market Value of Assets, 6.85% discount rate, Pub-S 2010 Mortality with Scale MP-2021, and 16-year amortization.

Data, Assumptions, and Plan Provisions

- Demographic Information
- Plan Provisions
- Assumptions and Methods

Data, Assumptions, and Plan Provisions

Demographic Information

The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

	December 31, 2022	December 31, 2023
Participant Counts		
Active Participants	0	0
Retired Participants	344	342
Beneficiaries	68	71
Disabled Participants	21 ¹	20 ¹
Terminated Vested Participants	104	96
Total Participants	537	529
Active Participant Demographics (Ongoing)		
Average Age	N/A	N/A
Average Service	N/A	N/A
Average Compensation	N/A	N/A

¹Of the 20 participants above, there are currently 5 who are receiving a disability benefit and the rest are receiving a normal retirement benefit. The 5 disabled participants have an average age of 57.8, receive an average monthly benefit of \$2,414, and received an average annual pension improvement check of \$8,367.

Demographic Information (continued)

	December 31, 2022	December 31, 2023
Retiree Statistics		
Average Age	67.1	67.4
Average Monthly Benefit	\$3,084	\$3,046
Average Annual 13th Check Pension Improvement	\$12,905	\$13,056
Beneficiary Statistics		
Average Age	77.2	77.5
Average Monthly Benefit	\$1,999	\$2,045
Average Annual 13th Check Pension Improvement	\$9,338	\$8,570
Disabled Participant Statistics		
Average Age	68.9	69.1
Average Monthly Benefit	\$2,570	\$2,560
Average Annual 13th Check Pension Improvement	\$13,238	\$13,320
Terminated Vested Participant Statistics		
Average Age	45.6	46.3
Average Monthly Benefit	\$949	\$880

Monitoring the average age of the population is important due to the relationship of actuarial cost to age. Generally speaking, an older population generates a higher actuarial cost.

Changes in the ratio of active to retired participants can be a significant driver of costs in a volatile asset market.

Data, Assumptions, and Plan Provisions

Participant Reconciliation

	Active	Terminated Vested	Disabled	Retired	Beneficiaries	Totals
Prior Year	0	104	21	344	68	537
Active						
Terminated Vested						
To Retired	0	(8)	0	8	0	0
Retired						
To Death	0	0	0	(10)	0	(10)
Survivor						
To Death	0	0	0	0	(4)	(4)
Disabled						
To Death	0	0	(1)	0	0	(1)
Additions	0	0	0	0	7	7
Departures	0	0	0	0	0	0
Current Year	0	96	20	342	71	529

Data, Assumptions, and Plan Provisions

Plan Status

Established July 1, 1962 and amended through October 4, 2007. In addition, the provisions may be amended for certain members covered under Collective Bargaining Agreements (CBA) of the applicable groups. The latest CBA's and applicable groups are described as follows:

PFFU	Members of Local #376, Pontiac Fire Fighters Union International Association of Fire Fighters Affiliated with AFL-CIO are covered under the July 1, 2004 through June 30, 2010 CBA.
PPOA/PPSA	Members of The Michigan Association of Police are covered under the January 1, 2007 through December 31, 2012 CBA.

Eligibility for Participation

Participation in the Plan is closed.

Benefits

Normal Retirement

Eligibility

PFFU	Age 50 with 10 years of service or 25 years of service regardless of age
PPOA/PPSA	Age 50 with 10 years of service or 25 years of service regardless of age
Others	Age 55 with 20 years of service

Benefit

PFFU	3% of FAS for the first 20 years of service, 2.5% of FAS for the next 5 years of service, and 1% of FAS for the next 5 years of service, subject to a maximum of 77.5%
PPOA/PPSA	3% of FAS for the first 20 years of service, 2.5% of FAS for the next 5 years of service, and 1% of FAS for the next 5 years of service, subject to a maximum of 77.5%
Others	2.4% of Final Average Salary for each complete year of service, subject to a maximum of 75% of Final Average Salary

Data, Assumptions, and Plan Provisions

Late Retirement

Eligibility	Participation continues after normal retirement date.
Benefit	Accrued retirement benefit

Service-Connected Death Benefit

Eligibility	Immediately eligible upon hire
Benefit	50% of the Member's rate of salary at the date of the Member's death to the surviving spouse

Non-Service-Connected Death Benefit

Eligibility	A member with 3 years of credited service
Benefit	30% of the Member's Final Average Salary, increased 1% for each year of credited service above 3 years up to a maximum equal to 50% of Final Average Salary payable to the Member's spouse upon her attainment of age 55 (if later).

Termination Benefit

Eligibility	10 years of credited service
Benefit	Computed as a regular retirement but based upon service and Final Average Salary at termination date.

Service-Connected Disability

Eligibility	Immediately upon permanent disability, prior to age 55
Benefit	66-2/3% of salary at disablement, increased 10% of salary for each child under the age of 18 subject to a maximum of 80% of salary, payable until age 55.

Data, Assumptions, and Plan Provisions

Non-Service-Connected Disability

Eligibility	10 years of service and deemed to be permanently disabled, prior to age 55
Benefit	1-3/4% of FAS subject to a minimum of 25% and a maximum of 50% of FAS

Final Average Salary

The average annual salary of the highest three consecutive years of credited service within the last 10 years of credited service of a Member.

Credited Service

For Vesting and Benefit Accrual

All years of completed months of continuous service with the city as a Policeman or Fireman.

Payment Forms

Normal Form

A single life annuity, with non-service-connected death benefit

Optional Forms

50% and 100% Joint and Survivor Annuity. Employees may also receive a refund of their employee contributions with interest and an annuity reduced by the actuarial equivalent value of withdrawal.

Cost of Living Adjustments

PFFU	2.00% simple for 10 years for those members who retire on or after 7/1/1972 but prior to 12/31/1984 2.00% simple for 25 years for those members who retire on or after 1/1/1985
PPOA	2.00% simple for 12 years with an additional 1% for the 13 th year for those members who retire on or after 7/1/1983 but prior to 12/31/1990 2.00% simple for 25 years for those members who retire on or after 1/1/1991

The COLA is paid as a 13th check at the end of each year.

Data, Assumptions, and Plan Provisions

Actuarial Equivalence

Actuarial Equivalence will be computed using the interest rate and mortality table used in the annual actuarial valuation of the year of distribution.

Plan Provisions Not Included

We are not aware of any plan provisions not included in the valuation

Adjustments Made for Subsequent Events

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

Data, Assumptions, and Plan Provisions

Except where otherwise indicated, the following assumptions were selected by the plan sponsor with the concurrence of the actuary.

Valuation Date	December 31, 2023
Participant and Asset Information Collected as of	December 31, 2023
Cost Method	Individual Entry Age Cost Method – Level Dollar
Amortization Method	19 year closed level dollar amortization of Unfunded Actuarial Accrued Liability
Asset Valuation Method	Market value of assets with a 5-year phase in of market gains and losses, subject to a 20% corridor
Interest Rates	7.25% net of investment expenses Support for the interest rate assumption has been provided in the experience study report dated August 2020
Mortality Rates	
Healthy	Pub-S 2010 Mortality with generational improvements using scale MP-2021
Disabled	Pub-S 2010 Disabled Retiree Mortality Table with generational improvements using scale MP-2021
	As the plan is not large enough to have credible experience, mortality assumptions are set to reflect general population trends.
Marital Assumption	80% of Terminated Vested members are assumed to be married with husbands 3 years older than wives.
Administrative Expense Load	3-year average of administrative expenses, rounded to the nearest \$5,000

Other Measurements

The actuarial report also shows the necessary items required for plan reporting and any state requirements.

- Low-Default-Risk Obligation Measure (LDROM)

Other Measurements

Low-Default-Risk Obligation Measure (LDRM)

For reports issued after February 15, 2023 the Plan's actuary is generally required to disclose liabilities under an alternative low-default-risk based discount rate. This LDRM liability measure represents the estimated asset value as of the measurement date the Plan would need in order to purchase a low-default-risk fixed income securities portfolio with durations that are reasonably consistent with the timing of benefits expected to be paid from the plan.

	December 31, 2023
LDRM liability	\$ (280,210,420)
Market value of assets	<u>\$ 198,870,715</u>
LDRM funded status	\$ (81,339,705)

The LDRM liability and funded status is for informational purposes only. The plan sponsor has no requirements to contribute to the Plan to meet this threshold.

If Plan assets are invested to earn in excess of a fixed income portfolio, a shortfall on this basis may not necessarily mean the security of participant benefits is at risk. If the plan is fully funded, or nearly fully funded, on the LDRM measure, the plan sponsor may want to consider reducing investment risk in order to offer greater benefit security and lower contribution volatility. We did not perform an analysis of assumption or provision changes resulting from a potential shift in investment policy due to the limited scope of our engagement.

The above LDRM liability measure applies a single effective discount rate of 5.51%. This is the single effective discount rate that would produce approximately the same discounted cashflows as the FTSE Pension Liability Curve as of April 30, 2024. All other data, assumptions, methods and provisions are the same as those detailed in this report.

While intended to be a market consistent measure, the above funded status is not appropriate for assessing the plan's sufficiency to settle plan obligations.