



City of Philadelphia Municipal Retirement System

**Actuarial Valuation Report
as of July 1, 2022**

Produced by Cheiron

April 2023

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Letter of Transmittal	i
Section I Board Summary	1
Section II Assessment and Disclosure of Risk	19
Section III Assets	35
Section IV Liabilities	45
Section V Contributions and Minimal Municipal Obligation	51
 <u>Appendices</u>	
Appendix A Membership Information	70
Appendix B Supporting Tables for City’s Funding Policy	93
Appendix C Summary of Actuarial Assumptions and Methods	103
Appendix D Summary of Plan Provisions	112
Appendix E Baseline Projections Based on RRP	143
Appendix F Glossary of Terms	144

LETTER OF TRANSMITTAL

April 12, 2023

City of Philadelphia Municipal Retirement System
Two Penn Center Plaza – 16th Floor
Philadelphia, Pennsylvania 19102-1721

Dear Board Members:

At your request, we have performed the July 1, 2022 Actuarial Valuation of the City of Philadelphia Municipal Retirement System (the System).

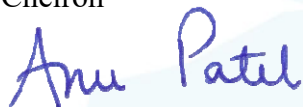
In preparing our report, we relied on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The results of this report are only applicable to the System's contribution for Fiscal Year Ending 2024. Future results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

This report has been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries we meet the Qualification Standards, as defined by the American Academy of Actuaries, to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This actuarial valuation report was prepared exclusively for the City of Philadelphia Municipal Retirement System for the purposes described herein and for the Plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

Finally, in preparation of this report, we have accepted the assumptions and methodologies as adopted by the Board of Pensions and Retirement for the City of Philadelphia Municipal Retirement System.

Sincerely,
Cheiron



Anu Patel, FSA, EA, MAAA
Principal Consulting Actuary



Brett Warren, FSA, EA, MAAA
Consulting Actuary

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

The primary purpose of the actuarial valuation and this report is to disclose the following as of the valuation date:

- The financial condition of the City of Philadelphia Municipal Retirement System (the System),
- Past and expected future trends and risks to the Retirement System’s financial condition,
- The City’s Minimum Municipal Obligation (MMO) representing the required contribution in accordance with Act 205 of Pennsylvania Law for Fiscal Year End (FYE) 2024,
- The Revenue Recognition Policy (RRP) contribution amount requested by the City, and
- The Retirement Board’s Funding Policy recommended City contribution.

Cheiron has issued a separate report containing the information required by the Governmental Accounting Standards Board (GASB) and therefore that accounting information is not included in this valuation report.

In this Section, we present a summary of the principal valuation results. This includes the basis on which the July 1, 2022 valuation was completed and an examination of the current financial condition of the System. In addition, we present a review of the key historical trends followed by the System’s projected financial outlook.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

A. Valuation Basis

The July 1, 2022 valuation results are based on the same actuarial methods used in the July 1, 2021 valuation. The actuarial assumptions have been updated to reflect the new assumptions approved by the Retirement Board, as presented in the Experience Study Results for July 1, 2016 - June 30, 2021 on March 24, 2022. The following outlines the basic assumption changes. For a detailed description of the methods and assumptions, refer to Appendix C of this report.

- **Interest Rate:** The interest rate was decreased from 7.45% to 7.40% as of July 1, 2022 as adopted by the Board. Furthermore, the Board adopted to decrease the interest rate assumption from 7.40% to 7.35% for the July 1, 2023 actuarial valuation, which is reflected in the projections shown in this report.
- **Mortality Rates:** Mortality base tables were updated to use adjusted Pub-2010 tables projected to 2025 using mortality improvement scale MP-2021 to reflect projected improvements in mortality over time until the next required experience analysis.
- **Other Actuarial Assumptions:** Demographic assumptions (retirement rates, termination rates, disability rates, and marriage assumption for non-active members) and economic assumptions (salary increases) were updated to better reflect actual experience.

This report was prepared using census data and financial information as of July 1, 2022 and does not reflect any subsequent changes in the membership or the assets. This valuation is based on plan provisions in effect as of July 1, 2022 and does not reflect the impact of any changes in benefits effective after the valuation date.

Since FYE 2018, the City started making contributions based on an alternate funding policy known as the Revenue Recognition Policy (RRP), which calls for contributions in excess of the Minimum Municipal Obligation (MMO). Each year, there are three sources of anticipated *additional revenue* that are received by the System:

- A portion of the sales tax revenue according to the State Legislation,
- Additional tiered member contributions based on salary level for current and future Municipal members, and
- Additional member contributions for current and future members in Plans 87 Police and Fire.

Typically, as additional contributions are received, the following years' MMOs are reduced as a function of the additional assets. However, it is our understanding the objective of the RRP for these additional revenue sources is to dedicate them toward paying down the unfunded liability and not to reduce future City costs. The RRP contributions are similar to the MMO except that the *additional revenue* coming into the System is tracked and accumulated in a notional account which is then deducted from the Actuarial Asset Value used to determine the City's contribution. Therefore, under the RRP the City's contributions do not reflect the additional cash flow into the fund from the sales tax or tiered/additional member contributions.

CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

The MMO is calculated using all assets including *additional revenue* sources for state reporting purposes under Act 205 and represents the Actuarially Determined Contribution (ADC) under Governmental Accounting Standards.

Below we highlight significant results of this valuation:

- ***Financial Performance:*** The return on market value of assets at -6.46% for the year ending June 30, 2022, was lower than the expected 7.45% assumed rate of return. For funding purposes, the System applies an asset smoothing method to determine the Actuarial Value of Assets which phases in actuarial investment gains and losses over ten years. On an actuarial asset value basis the return as of June 30, 2022 was 7.68% resulting in a net asset gain of \$27.1 million when compared to the 7.45% assumption.
 - The smoothing method also limits the actuarial asset method to not be greater than 120% nor less than 80% of the underlying market value of assets. The ratio of actuarial assets to market assets increased from 90.3% in the prior year to 103.9% for the current year.
- ***Pension Adjustment Fund (PAF):*** As defined in the Philadelphia Code the PAF provides for additional benefits to current retirees through the use of excess earnings. Excess earnings are defined as returns in excess of the assumed return rate plus 1.00%. The asset return for the adjusted market value which is based on five-year smoothing of asset gains and losses (instead of the 10 years for funding) was 7.70%. Because the return is below 8.45% (the assumed prior year rate of return of 7.45% plus 1.00%), there are no additional amounts transferred into the PAF as of June 30, 2022.
- ***Unfunded Actuarial Liability (UAL):*** The UAL is the excess of the System’s actuarial liability (AL) over the actuarial value of assets (AVA). The UAL decreased by \$168.6 million from \$5,441.0 million as of July 1, 2021 to **\$5,272.3 million as of July 1, 2022**. The UAL decreased because the City and member contributions received during the year were higher than the normal cost plus interest on the UAL.
 - The UAL increased by \$79.4 million due to liability losses resulting primarily from higher than expected retirements and higher than expected salary increases. The UAL decreased by \$27.1 million due to asset return gains based on the smoothed asset value. The UAL increased by \$158.5 million due to assumption changes which included the decrease in discount rate along with the change in other assumptions adopted following the most recent experience study. These values are offset by contributions towards paying down the unfunded, differences in benefit accrual rates, and interest on payment timing of \$379.4 million.
- ***Funding Ratio:*** This is the ratio of the System’s AVA to AL. The funding ratio increased from 54.9% as of July 1, 2021 to **57.6% as of July 1, 2022**, due to the underlying growth in the smoothed assets and from increased contributions. The funding ratio on market assets to liability basis decreased from 60.9% to 55.5% due to the investment loss for FYE 2022.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

- **Plan Changes:** There were no changes in plan provisions since the July 1, 2021 valuation.
- **Assumption Changes:** The assumption changes for this valuation include the decrease in interest rate from 7.45% to 7.40% and other changes from the experience study, which combined resulted in an increase in Actuarial Liability of \$158.5 million.
- **Minimum Municipal Obligation (MMO):** The MMO is the required minimum amount the City must contribute under Pennsylvania State Law. The MMO increased from \$664.1 million for FYE 2023 to **\$671.7 million for FYE 2024**. The expected City contributions based on the RRP are higher than the MMO and each year that the City continues to contribute in excess of the MMO, the MMO is generally expected to decrease assuming the actuarial assumptions are met each year. This year, the MMO increased due to the increase in UAL that resulted from the changes in assumptions.
- **Revenue Recognition Policy (RRP):** The contribution based on the RRP increased from \$726.5 million for FYE 2023 to **\$742.8 million for FYE 2024**. The balance of the notional account, which is removed from the assets in calculating this contribution, increased from \$358.7 million as of July 1, 2021 to \$439.7 million as of July 1, 2022.
- **Contribution under the City’s Funding Policy:** The beginning-of-year contribution under the City’s Funding Policy increased from \$755.8 million for FYE 2023 based upon actual FYE 2022 payroll to an estimated **\$779.3 million for FYE 2024**.

Table I-1 summarizes the comparative UAL and fiscal year funding amounts discussed above.

Table I-1 Key Results (\$ thousands)				
Valuation Date	7/1/2022		7/1/2021	
Actuarial Liability	\$	12,448,374	\$	12,074,036
Actuarial Value of Assets	\$	7,176,062	\$	6,633,086
Unfunded Actuarial Liability/(Surplus)	\$	5,272,312	\$	5,440,950
Funding Ratio		57.6%		54.9%
		Fiscal Year 2024		Fiscal Year 2023
Minimum Municipal Obligation	\$	671,689	\$	664,067
Revenue Recognition Policy Contribution	\$	742,764	\$	726,501
City's Funding Policy Contribution*	\$	779,321	\$	755,816

*The City’s funding policy contribution for FYE 2023 was updated based upon the actual payroll of \$1,921.1 million (provided as pay rates in the data) as of July 1, 2022. In the July 1, 2021 actuarial valuation report, the estimated FYE 2023 payroll was \$1,948.8 million based on July 1, 2021 pay rates and increased with the payroll assumption.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

B. Current Financial Condition

On the following pages, we summarize the key results of the July 1, 2022 valuation and how they compare to the results from the July 1, 2021 valuation.

1. City Membership:

As shown in Table I-2 below, total membership in the Retirement System decreased by 0.1% from 2021 to 2022.

Table I-2 Membership Total				
	July 1, 2022	July 1, 2021	% Change	
Actives	26,723	27,020	-1.1%	
Terminated Vesteds	832	900	-7.6%	
Disabled	3,757	3,796	-1.0%	
Retirees	22,392	22,202	0.9%	
Beneficiaries	8,523	8,445	0.9%	
DROP	1,921	1,878	2.3%	
Total City Members	64,148	64,241	-0.1%	
Annual Salaries	\$ 1,921,141,531	\$ 1,886,511,515	1.8%	
Average Salary per Active Member	\$ 71,891	\$ 69,819	3.0%	
Annual Retirement Allowances	\$ 828,187,638	\$ 804,906,478	2.9%	
Average Retirement Allowance	\$ 23,886	\$ 23,369	2.2%	

The active participant population decreased by 1.1% during the 2021-2022 plan year primarily due to more retirements and terminations than expected. Deferred Retirement Option Plan (DROP) participants increased 2.3% from 2021 to 2022 as more members enrolled in DROP than retired from DROP. The average salary per active member increased by 3.0% during the plan year. The salary growth offset by the decrease in active membership resulted in an increase in total payroll of 1.8% versus the expected 3.3% payroll growth assumption.

Annual retirement allowances increased by 2.9% in aggregate with the average benefits also increasing 2.2%. The total number of participants in pay status increased 0.7%.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

2. City Assets and Liabilities:

Table I-3 presents a comparison between the July 1, 2022 and July 1, 2021 system assets, liabilities, UAL, and funding ratios. The AVA Funding Ratio increased from 54.9% as of July 1, 2021 to **57.6%** as of July 1, 2022 despite the liability losses and changes in actuarial assumptions. Prior to the assumption changes, the funded ratio would have been 58.4%.

Table I-3 Assets and Liabilities (\$ thousands)				
	July 1, 2022		July 1, 2021	% Change
Actuarial Liabilities by Membership:				
Actives	\$ 4,147,465	\$	4,068,311	1.9%
Terminated Vesteds	87,726		94,294	-7.0%
Disabled	873,306		839,239	4.1%
Retirees	5,464,920		5,317,192	2.8%
Beneficiaries	749,119		722,709	3.7%
DROP	1,116,831		1,023,223	9.1%
Non-Vested Refunds	9,007		9,068	-0.7%
Total Actuarial Liability (AL)	\$ 12,448,374	\$	12,074,036	3.1%
Market Value of Assets (MVA net of PAF)*	\$ 6,905,493	\$	7,348,512	-6.0%
Actuarial Value of Assets (AVA net of PAF)*	\$ 7,176,062	\$	6,633,086	8.2%
Ratio of Actuarial Assets to Market Assets	103.9%		90.3%	13.7%
Unfunded Actuarial Liability	\$ 5,272,312	\$	5,440,950	-3.1%
Funding Ratio (AVA ÷ AL)	57.6%		54.9%	2.7%
Funding Ratio (MVA ÷ AL)	55.5%		60.9%	-5.4%

*The PAF is available for distribution under title §22-311 of the Philadelphia Code. In general, the PAF provides for enhanced benefit distribution to retirees and beneficiaries through the use of excess earnings. For more details on the PAF, see Section III – E

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

3. Components of UAL Change between July 1, 2021 and July 1, 2022:

The Retirement System’s unfunded actuarial liability decreased by \$168.6 million from the prior year. Table I-4 presents the specific components of this change in the UAL.

The System experienced a \$27.1 million asset gain based on the actuarial value of assets and a \$79.4 million liability loss which is attributable to demographic experience. There was also an increase in liability of \$158.5 million due to assumption changes (the change in interest rate and changes from the experience study). Actual FYE 2022 contributions when compared to the expected RRP created a net gain of \$20.6 million due to timing of contributions. **The higher employer contributions under RRP in comparison to MMO resulted in a gain of \$128.1 million.** There was a \$15.8 million gain due to the one year deferral of gains and losses under the MMO funding requirements. When these changes are compared to the expected pay down of the UAL as part of the MMO, there is a net decrease in the UAL of \$168.6 million as of July 1, 2022.

Table I-4 Change in Unfunded Actuarial Liability (UAL) (\$ thousands)	
Unfunded Actuarial Liability	
1. UAL as of July 1, 2021	\$ 5,440,950.5
2. UAL as of July 1, 2022	\$ 5,272,312.5
3. Net increase/(decrease) in UAL: 2 - 1	\$ (168,638.0)
Changes in Unfunded Actuarial Liability	
Experience	
4. UAL change due to asset (gain)/loss*	\$ (27,137.9)
5. UAL change due to overall liability (gain)/loss	\$ 79,441.4
Contributions	
6. UAL change due to difference in benefit accruals, actual contributions and timing	\$ (20,639.1)
7. UAL change due to one-year delay in MMO contributions	\$ (15,767.9)
8. UAL change due to RRP contributions in excess of the MMO contributions	\$ (128,082.8)
Total (Gain)/Loss Amortization Base	
9. Total UAL change due to gains and losses: sum 4 through 8	\$ (112,186.3)
Plan Changes	
10. UAL change due to plan changes	\$ 0
Assumption Changes	
11. UAL change due to assumption changes	\$ 158,492.9
Total Changes	
12. Total net overall change: 9 + 10 + 11	\$ 46,306.6
13. UAL change due to benefit accruals and payments, contributions, and interest	<u>(214,944.6)</u>
14. Net increase/(decrease) in UAL: 12 + 13	\$ (168,638.0)

* Includes loss due to PAF transfer, if applicable

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

4. Contributions:

Table I-5 below summarizes the City contribution amounts.

Table I-5 Contributions (\$ thousands)				
Fiscal Year Ending in Year:	2024	% of Pay	2023	% of Pay
Minimum Municipal Obligation ¹				
Estimated FY Payroll ²	\$ 1,984,539		\$ 1,948,766	
Normal Cost (with Expenses)	\$ 205,847	10.37%	\$ 200,751	10.30%
Regular Employee Contributions	(87,146)	4.39%	(85,220)	4.37%
Extra Employee Contributions for Funding ³	<u>(29,296)</u>	1.48%	<u>(28,752)</u>	1.48%
City Normal Cost (with expenses)	\$ 89,406	4.51%	\$ 86,779	4.45%
Amortization Payment	<u>582,284</u>	29.34%	<u>577,287</u>	29.62%
Minimum Municipal Obligation	\$ 671,689	33.85%	\$ 664,067	34.08%
Revenue Recognition Policy ⁴				
Estimated FY Payroll ²	\$ 1,984,539		\$ 1,948,766	
Normal Cost (with Expenses)	\$ 205,847	10.37%	\$ 200,751	10.30%
Regular Employee Contributions	(87,146)	4.39%	(85,220)	4.37%
Extra Employee Contributions for Funding ³	<u>(0)</u>	0.00%	<u>(0)</u>	0.00%
City Normal Cost (with expenses)	\$ 118,702	5.98%	\$ 115,531	5.93%
Amortization Payment	<u>624,062</u>	31.45%	<u>610,970</u>	31.35%
Revenue Recognition Policy	\$ 742,764	37.43%	\$ 726,501	37.28%
City's Funding Policy ⁵				
Estimated FY Payroll ²	\$ 1,984,539		\$ 1,921,142 ⁶	
Normal Cost (with Expenses)	\$ 205,847	10.37%	\$ 198,288 ⁷	10.32%
Regular Employee Contributions	(87,146)	4.39%	(84,518) ⁷	4.40%
Extra Employee Contributions for Funding ³	<u>(29,296)</u>	1.48%	<u>(28,752)</u>	1.50%
City Normal Cost (with expenses)	\$ 89,406	4.51%	\$ 85,018	4.43%
Amortization Payment	<u>689,915</u>	34.76%	<u>670,798</u>	34.92%
City's Funding Policy	\$ 779,321	39.27%	\$ 755,816	39.34%

¹ The MMO does not include Quasi-Agency contributions.

² The estimated payroll is based on total uncapped payroll.

³ Additional tier member contributions under Municipal Plans 67, 87, 10, and 16 and extra member contributions for Police and Fire Plans 87 are specifically dedicated to paying down the unfunded liability and are recognized as employee contributions under MMO and Funding Policy but not under the RRP contribution.

⁴ Revenue Recognition Policy (RRP) is based on the calculation of MMO without including accumulated sales tax revenue and additional member contribution amounts.

⁵ Assuming beginning-of-year payment.

⁶ FY 2023 payroll for the City's Funding Policy is the final payroll for the prior year. All other payroll is estimated based upon the prior year's data used for the actuarial valuation.

⁷ FY 2023 normal cost including regular employee contributions for the the City's Funding Policy is updated to reflect the final payroll for the prior year.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

The **Minimum Municipal Obligation** for FYE 2024 measured as of the beginning of the year decreased by 0.23% of payroll, from 34.08% to 33.85%. In dollars, the required beginning of year contribution increased from \$664.1 million to \$671.7 million, a \$7.6 million increase. Though the MMO increased in dollar amounts, it decreased as a percent of pay because the total payroll increased more than the increase in MMO over the last year. The increase in the MMO is primarily attributable to the assumption changes and actuarial liability losses.

The contribution under the **Revenue Recognition Policy** increased by 0.15% as a percent of payroll, from 37.28% to 37.43% for FYE 2024. The contribution in dollars increased \$16.3 million from \$726.5 million in the prior year to \$742.8 million for FYE 2024. When compared to the MMO, the RRP contribution is higher because accumulated sales tax revenue and additional member contributions are excluded from the assets when determining the RRP contributions.

For Fiscal Year 2024, the **City Funding Policy** contributions decreased by 0.07% of payroll, from 39.34% to 39.27%. In dollars, the contributions under the City’s Funding Policy increased from \$755.8 million to \$779.3 million, a \$23.5 million increase. All contributions for the City’s Funding Policy are provided as of the beginning of the year.

In Section IV of this report, we provide more detail on the development of these contributions.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

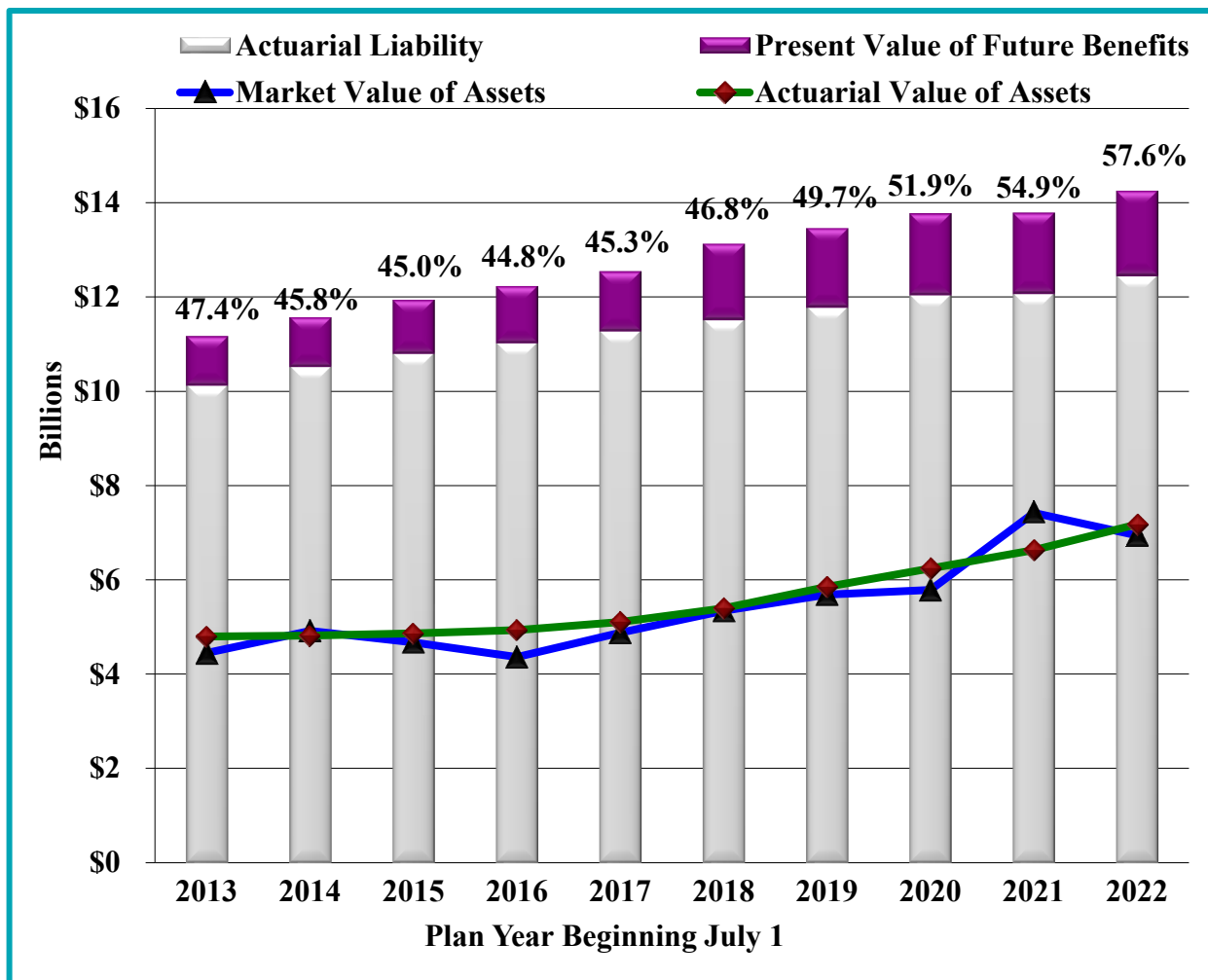
SECTION I – BOARD SUMMARY

C. Historical Trends

Although most of the attention given to the valuation reflects the most recently computed unfunded actuarial liability, funding ratio, and contribution amounts, each valuation is merely a snapshot of the long-term progress of a pension fund. It is important to take a step back from these latest results and view them in the context of the System’s recent history and trends expected into the future. Below, we present a series of graphs which display historical trends for key factors in the valuations of the last 10 years.

Here we present the historical trends for the market and actuarial value of assets compared to the actuarial liabilities and present value of future benefits; we also show the progress of the Retirement System’s funding ratios on an actuarial value of asset basis (provided above each bar) since 2013.

City of Philadelphia Assets* and Liabilities – 2013 to 2022



* Market value of assets includes the PAF, which is not available for funding purposes.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

The System’s funding ratio has steadily increased since 2016. It is important to note that the assumed interest rate assumption has been decreasing since 2013 from 7.85% to 7.40% which increases the liabilities but has improved the System’s risk profile. Besides the regular reductions of the interest rate assumption, during this period the changes in the ratio are also due to the volatility of the markets. In 2022, the funding ratio increased by 2.7%.

The recent trend has shown good improvement in funding status because contribution levels have been higher than anticipated under the MMO. As long as the City adheres to the continued policy of contributing under the Revenue Recognition Policy and at least the Minimum Municipal Obligation, the potential risk of running out of assets to pay benefits will be avoided.

Another observation is that historically assets have remained relatively flat through 2016. This was a function of the negative cash flow as contributions and investment income had to keep pace with benefit payouts and expenses before the absolute value of assets could grow. However, the steps taken by the City and participants in providing additional contributions to the System has reduced this cash flow risk significantly which has resulted in an increase in assets. In aggregate, assets have increased approximately \$2.6 billion since 2016.

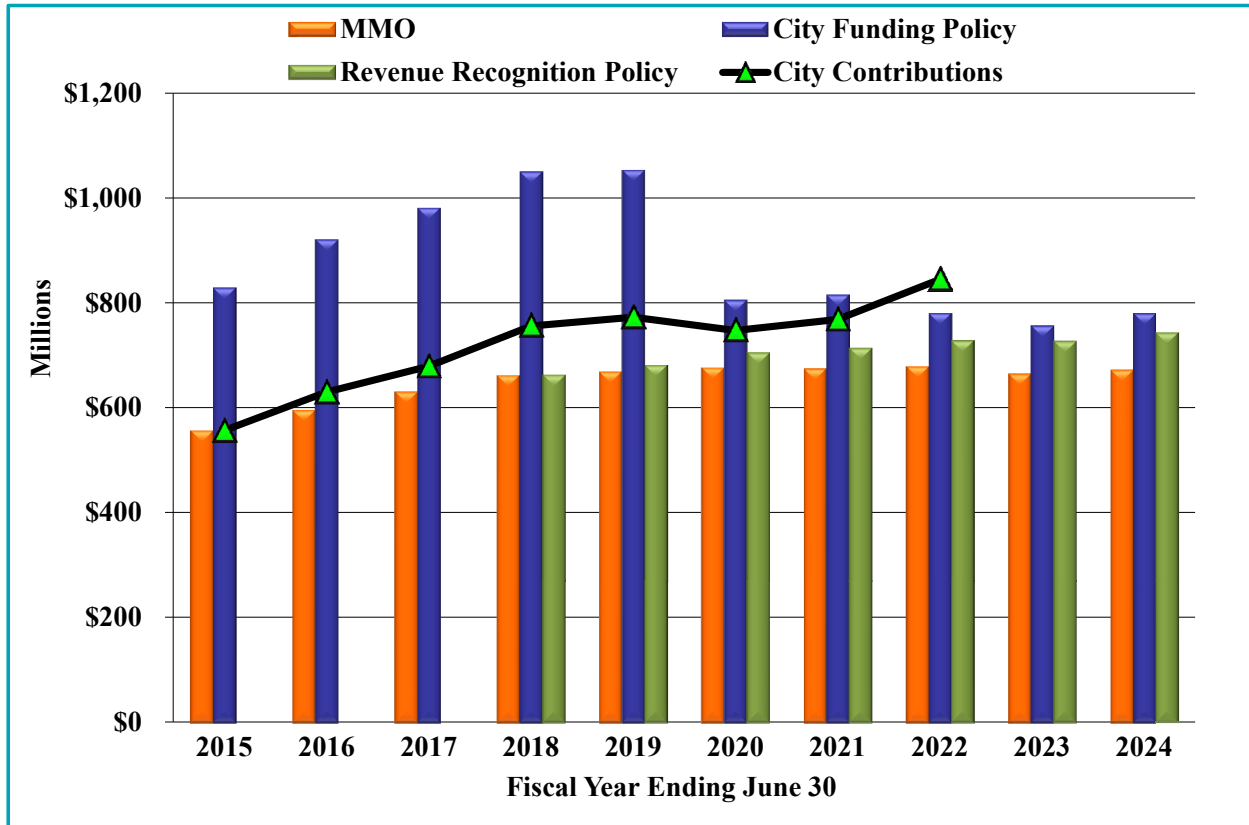
In the chart on the next page, we present historical trends for the Minimum Municipal Obligation (MMO), the contributions under the City’s Funding Policy, the Revenue Recognition Policy (RRP) beginning in 2018, and the actual City contributions made for fiscal years since 2015. Because there is a two-year lag in the determination of the City Funding Policy, RRP and MMO requirements, we show the contributions to date and the estimated amounts for fiscal years 2023 and 2024. The actual City contributions, shown in the black line, have been higher than the amounts required under the MMO and the RRP (orange and green bars) starting FYE 2016. The City contributions include sales tax revenue amounts (which began in FYE 2016), in the amounts of \$55.2 million in FYE 2021 and \$78.8 million in FYE 2022.

The Funding Policy amounts were higher than the MMO prior to 2020 because of the City’s decision to fund based on the MMO for a number of years which slowed the funding progress in maintaining the funding policy and resulted in losses under the funding policy due to contribution amounts being lower than what the policy called for. These losses resulted in the increasing gap between the funding policy amount and the MMO. However, with the full payment of the initial funding policy base in FYE 2019, the funding policy contribution has decreased significantly and is closer to the MMO in subsequent years.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

City of Philadelphia Contributions for Fiscal Years 2015-2024



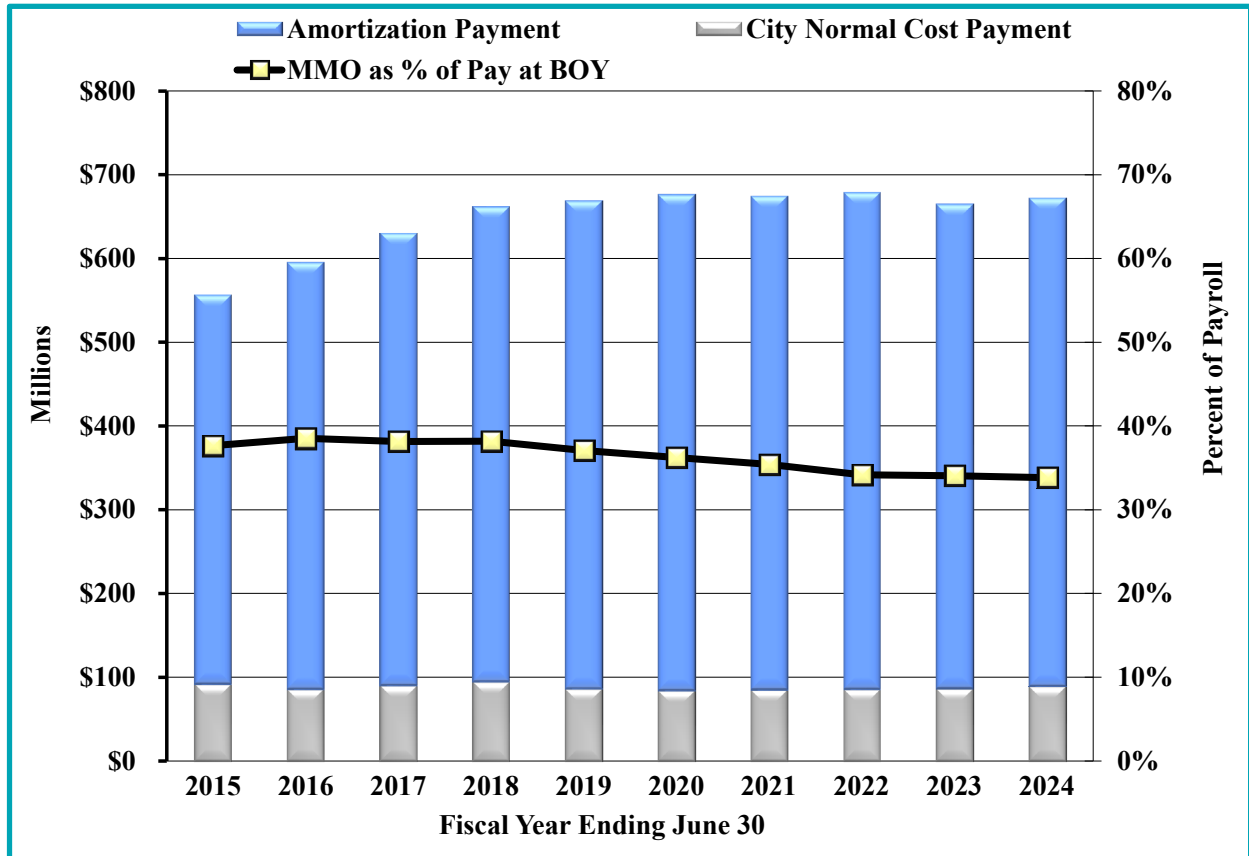
The key trend illustrated in this chart is that from FYE 2015 through FYE 2017 all measures of contributions were increasing due in part to the ten-year smoothing of historical investment losses and assumption changes that resulted in increases in UAL. Starting with FYE 2018, the MMO has remained relatively flat and the RRP (which is higher than the MMO) has increased slowly. In FYE 2024 the RRP is approximately \$71.1 million higher than the MMO. In future years, as the City continues to pay the RRP, and as tax revenue and tiered/additional member contributions paid in excess of the MMO accumulate, the gap between the MMO and the RRP will continue to grow.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

The chart below shows the historical amortization payments under the MMO and City normal cost payments. The City normal cost payments include an explicit administrative expense assumption. The black line which goes with the axis on the right shows the beginning-of-year MMO (normal cost plus amortization payments only) as a percentage of payroll.

MMO Contributions by Source for Fiscal Years 2015-2024



The amortization payment to pay off the unfunded actuarial liability has increased from \$464 million for FYE 2015 to \$582 million for FYE 2024. Up until FYE 2020, the amortization amounts have increased steadily due to the changes in assumptions that have had a net result of increasing liabilities and continued recognition of the 2008 investment losses. Since FYE 2020 the amortization amount has remained relatively flat, primarily due to the actual City contributions being higher than the MMO offsetting the changes in assumptions which increased liabilities.

The total MMO as a percentage of payroll (as shown by the line and on the right hand axis) was about 37.7% in FYE 2015, then increased gradually through FYE 2018 as the 2008/2009 investment losses were still being recognized. It has been gradually decreasing over the last six years to the current level of approximately 33.8% in FYE 2024 due to the additional contributions in excess of the MMO.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

D. Projected Financial Trends

Our analysis of the City of Philadelphia Municipal Retirement System’s projected financial trends is an important part of this valuation. In this section, we present our assessment of the implications of the July 1, 2022 valuation results on the future outlook in terms of benefit security (assets over liabilities) and the City’s expected cost progression.

In the charts that follow, we project the Retirement System’s assets and liabilities, and the City’s contributions. Our illustrations assume the provisions of Act 205 as amended by Act 44 remain in force during the projection period. The projections are based on the assumptions of the July 1, 2022 valuation, which includes the changes from the experience study changes and the decrease in interest rate assumption from 7.45% to 7.40%. Additionally, the interest rate assumption is further decreased from 7.40% to 7.35% as of July 1, 2023 as adopted by the Board.

All projections also reflect future new hires, based on a stable active population reflecting the replacement of members expected to decrement from the active roles based on the demographic assumptions, that all Municipal groups will participate in the Stacked Hybrid Plan - Plan 16. Stacked plan benefits and contributions are based on pay up to a cap of \$65,000 resulting in lower future costs for this group.

All projections include expected additional funds from sales tax revenue and additional member contributions for current and future Municipal members and members of 1987 Plans Police and Fire. The amounts of expected sales tax were provided to us by the City (as shown in the table on the next page).

The treatment of the sales tax and tiered/additional member contributions varies based on whether or not these amounts are used to reduce future City costs or are dedicated to pay down the unfunded liability. Typically, as additional contributions are received, the following years MMOs are reduced as a function of the additional assets. However, under the RRP, the sales tax revenue and additional member contributions are dedicated to fund the unfunded liability without reducing the City’s future contribution obligation. Tier and additional member contributions do not offset the City’s portion of the normal cost under RRP. The additional revenue is contributed in addition to the City contributions based on adjusted assets under the RRP. Charts shown based on the RRP funding methodology set these assets aside in a notional account which is deducted from actuarial asset value used in determining the contributions under the RRP. We show three sets of projections for contributions based on 1) the MMO calculated in accordance with Act 205; 2) the RRP and 3) the Funding Policy.

The following chart reflects the expected projected sales tax revenue provided to us by the City for our analysis.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Fiscal Year Ending	2023	2024	2025	2026	2027
Expected Sales Tax	\$ 80,285,158	\$ 88,198,383	\$ 96,924,141	\$ 105,146,508	\$ 113,159,616
Fiscal Year Ending	2028	2029	2030	2031	2032
Expected Sales Tax	\$ 121,248,175	\$ 127,279,379	\$ 133,461,363	\$ 139,797,898	\$ 146,292,845
Fiscal Year Ending	2033	2034	2035	2036	2037
Expected Sales Tax	\$ 152,950,166	\$ 159,773,920	\$ 166,768,268	\$ 173,937,475	\$ 181,285,912
Fiscal Year Ending	2038	2039	2040	2041	2042
Expected Sales Tax	\$ 188,818,060	\$ 196,538,511	\$ 204,451,974	\$ 204,451,974	\$ 204,451,974

The following baseline projections assume all actuarial assumptions are met. We show three sets of projections for each of the three funding policies. For each set of projections, we show two graphs covering the historical period from 2012 to 2022 and the projected period from 2023 to 2042 assuming all assumptions are met.

The top graph shows asset measures (green and blue lines) compared to liabilities (gray bars). At the top of the graph is the progression of the System’s funding ratio which compares the actuarial value of assets (blue lines) to the actuarial liability (gray bars). The bars for the historical period are lighter shaded.

The bottom graph shows the MMO (red bars), expected sales tax revenue (blue bars) and expected tiered and additional member contributions (black bars). The blue line shows the Funding Policy and the green line shows the expected City contributions under the RRP excluding the sales tax revenue which is shown separately. In comparing the RRP to MMO, the green line should be compared to the top of the red bars. Prior to 2016, the RRP is equal to the MMO. The impact of the additional revenue and member contributions is that MMO decreases each year as actual contributions are in excess of the MMO.

The System’s asset return will never be level from year to year and the System must anticipate the implications of asset return volatility to the funded status and contribution requirements. As a result in addition to the baseline projections shown in this section, we show stress testing to illustrate the impact of varying returns in Section II –Assessment and Disclosure of Risk of this report. In our opinion, the stress testing analyses shown in Section II meet the requirements of Bill No. 210772 which codified the Board’s practice of annually reviewing stress testing.

In reviewing each of these projections, it is the future trends, not necessarily the current values that are important to observe in consideration of the risks of the System and the potential volatility of future funding ratios and City contribution levels.

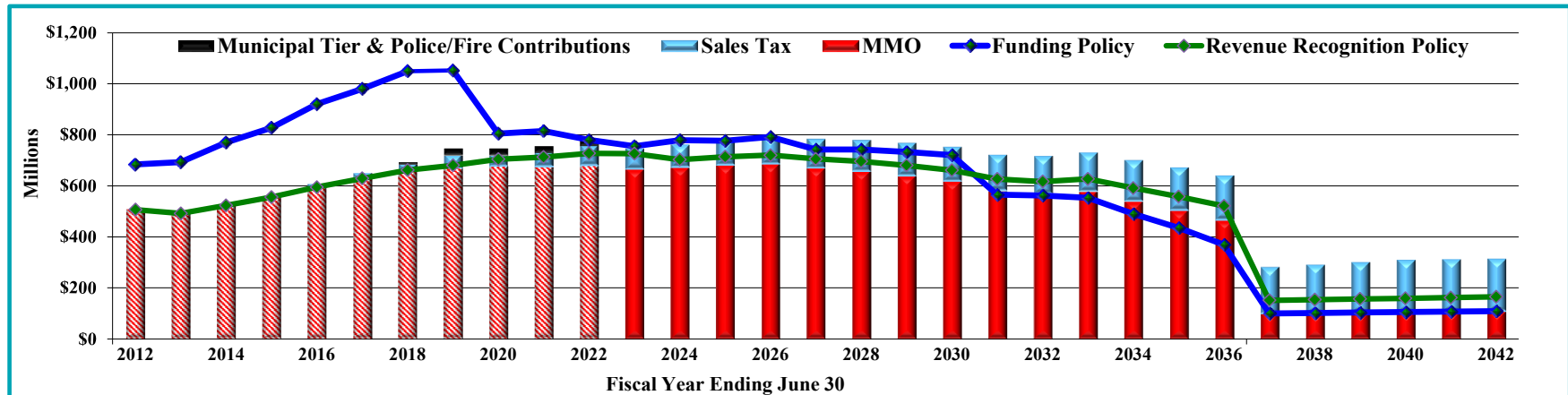
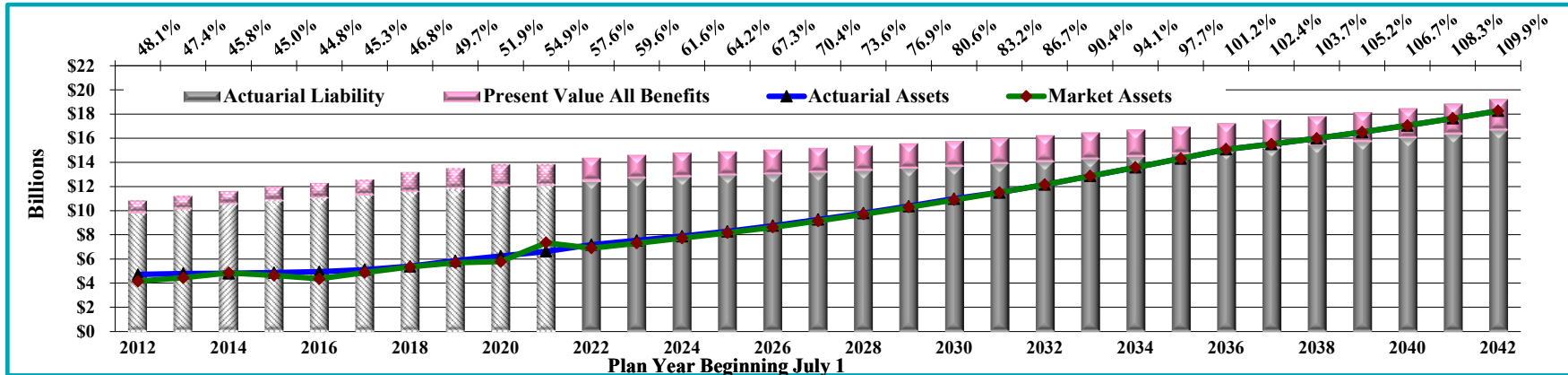
We note that when the System becomes 70% funded or greater, the unfunded liability may be amortized on a rolling 10-year basis. We have not shown the implications of this alternative funding method provided for in Act 205.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Baseline Projection Set 1: City Makes Contributions based on MMO

If the City was to contribute based on the MMO, the System is expected to reach 80% by 2030 and 100% funded by 2036. Funding at the MMO level with the current ten-year asset smoothing method and the 2009 thirty-year fresh start amortization method on a level-dollar basis, results in a relatively slow improvement of funding.



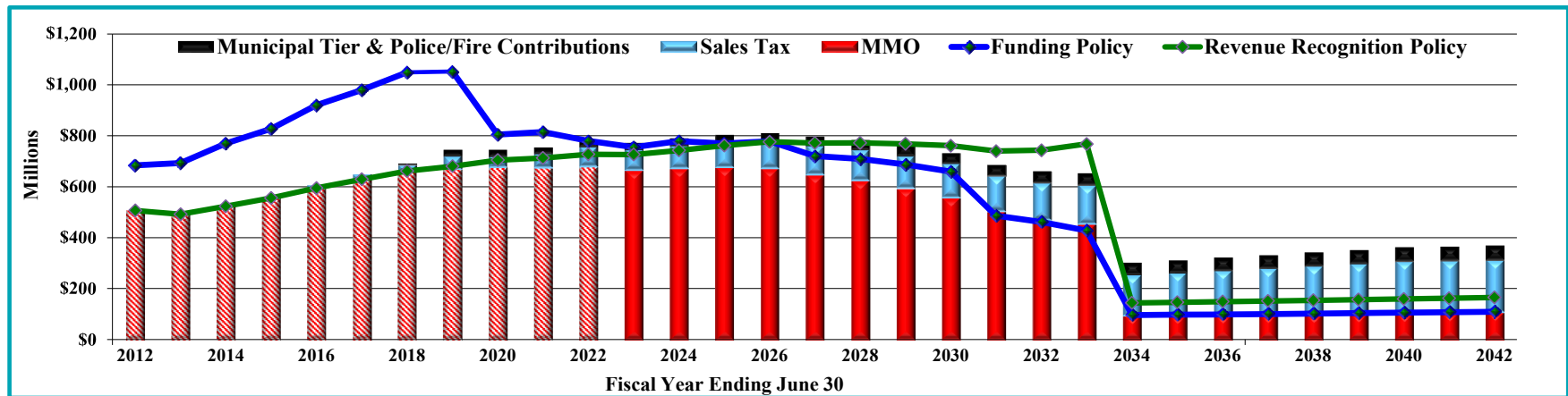
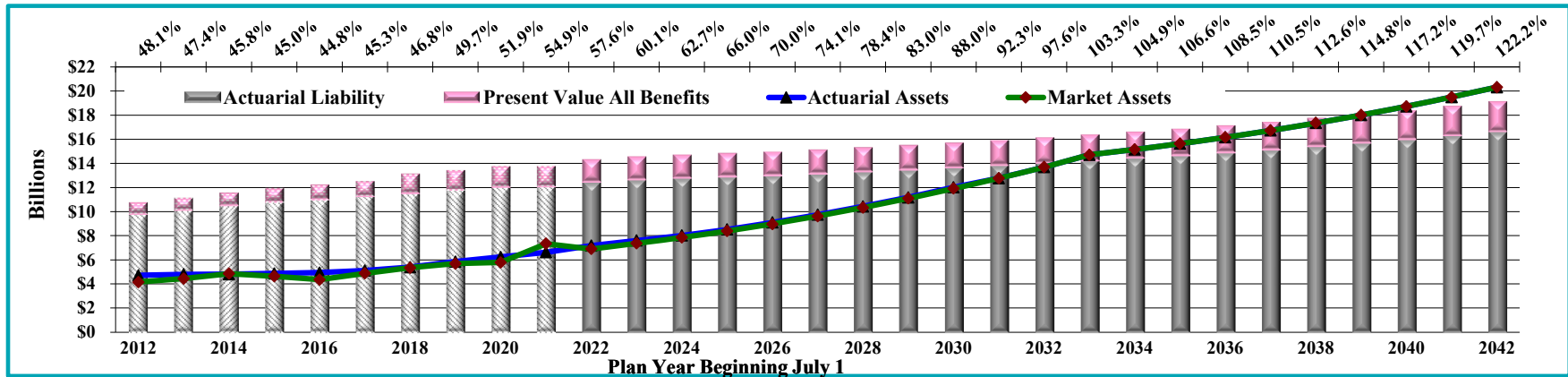
The decrease in FYE 2020 for the City’s Funding Policy (blue line) is due to the expected payment in full of the initial unfunded liability.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Baseline Projection Set 2: City Makes Contributions based on RRP

This chart illustrates the impact on the funded status when the additional revenue sources are used to pay down the UAL under the RRP as opposed to reducing future costs. The System is projected to be 80% funded by 2029 and 100% funded by 2033, three years earlier than under the MMO projections. By the end of the projection period, the System is expected to be funded at 122.2% compared to 109.9% when MMO contributions are made.



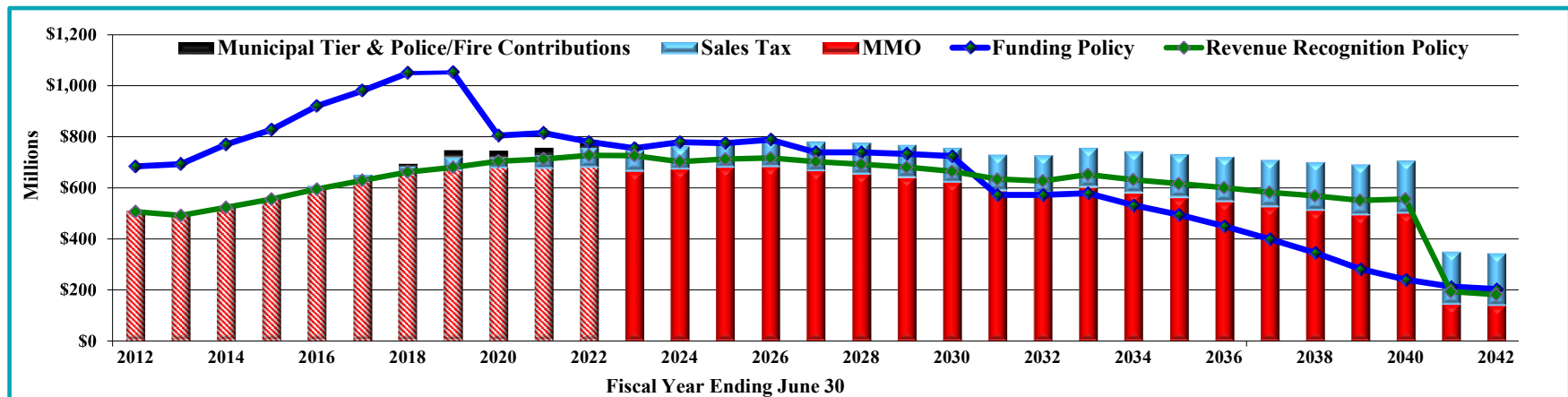
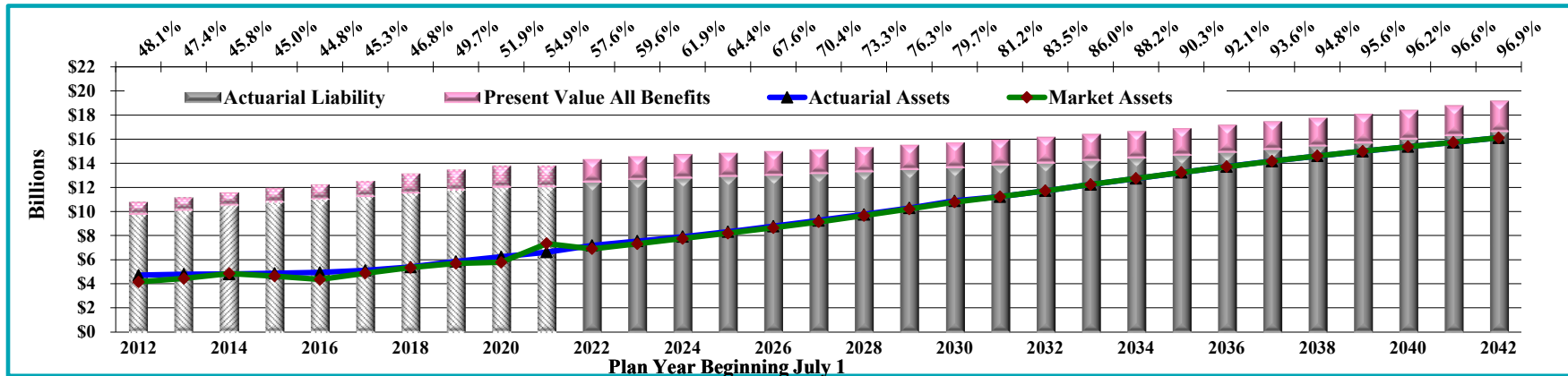
Sales tax revenue and additional member contributions are not included in the green line which shows the RRP contributions. The RRP contribution is higher than the MMO until the System reaches 100% funded in FYE 2034 at which time it drops to the normal cost rate.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Baseline Projection Set 3: City Makes Contributions based on the Funding Policy

If the City’s Funding Policy is contributed every year going forward, the System is projected to be 80% funded by 2031 and 96.9% funded by 2042. In this projection, we have assumed that the City may use sales tax revenue and additional member contributions to meet the requirements of the Funding Policy. Over time the contributions under the Funding Policy are lower than the RRP, resulting in a lower funded ratio by the end of the projection period.



The funding policy contributions were significantly larger through FYE 2019, and declined more rapidly after the initial funded base was fully amortized in FYE 2020.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may be significantly different. This section of the report is intended to identify the primary risks to the plan, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

The fundamental risk to the System is that the contributions needed to pay the benefits become unaffordable. While there are a number of factors that could lead to contribution amounts becoming unaffordable, we believe the primary risks are:

- Investment risk,
- Longevity and other demographic risks, and
- Assumption change risk.

Investment Risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the unfunded actuarial liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the System’s asset allocation and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsor or other contribution base.

Longevity and other demographic risks are the potential for mortality or other demographic experience to be different than expected. Our mortality assumption has consistently used a mortality improvement scale to project rates past the valuation date to reflect projected improvements in mortality over time. In addition, there is the requirement to measure actual experience against the assumptions every four years. Currently, the System pays out over \$900 million in benefit payments each year which is a cash flow risk as members continue to live longer. Generally, longevity and other demographic risks emerge slowly over time.

Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. For example, declines in interest rates over the last three decades resulted recently in lower investment returns for fixed income investments, necessitating either a change in investment policy, a reduction in discount rate, or some combination of the two. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

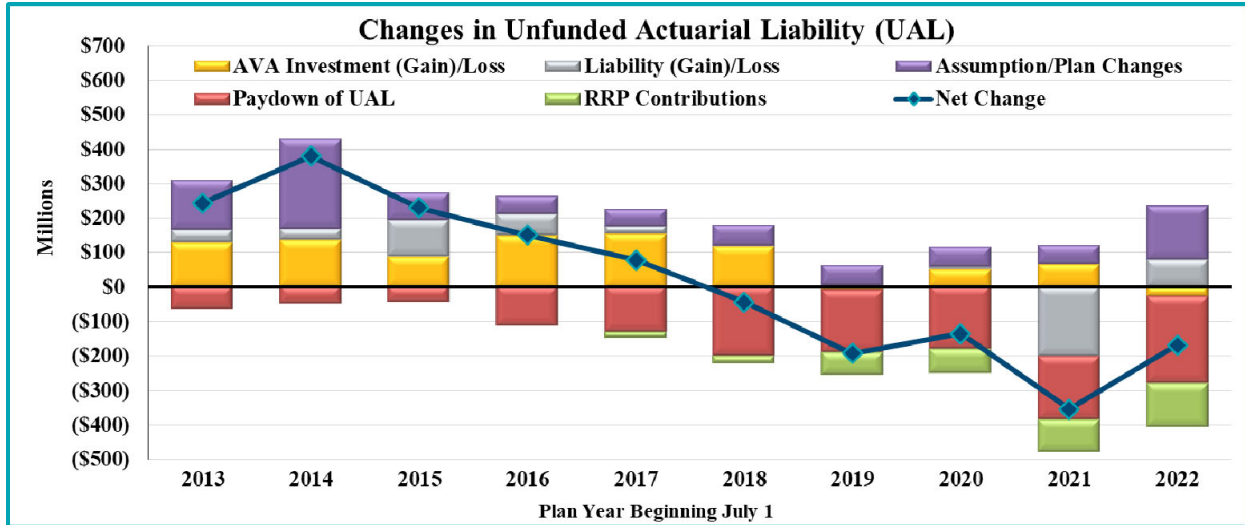
The chart below shows the components of changes in the Unfunded Actuarial Liability (UAL) for the System over the last 10 years, including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption and benefit changes, paying down of the UAL, and RRP contributions in excess of the MMO. The net UAL change is shown by the dark blue line. Table II-1 below the chart summarizes the changes in the UAL over the last 10 years.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

These totals support our identification of investment returns, longevity, and assumption changes as the primary risks to the System.

Historical Changes in UAL 2013-2022



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Discount Rate	7.85%	7.80%	7.75%	7.70%	7.65%	7.60%	7.55%	7.50%	7.45%	7.40%	
Source											
AVA Investment (G)/L	\$ 127.7	\$ 136.5	\$ 87.0	\$ 148.8	\$ 152.0	\$ 117.0	\$ (10.9)	\$ 50.7	\$ 67.2	\$ (27.1)	\$ 848.9
Liability (G)/L	39.3	31.0	107.9	62.1	23.9	3.6	6.4	8.9	(200.7)	79.4	161.8
Assumptions/Plan Changes ¹	143.1	262.2	81.0	54.7	52.4	60.3	56.7	57.1	56.5	158.5	982.5
Paydown of UAL ²	(66.3)	(49.5)	(45.8)	(113.8)	(130.9)	(199.4)	(180.5)	(180.3)	(183.1)	(251.3)	(1,400.9)
RRP Funding Policy ³	0.0	0.0	0.0	0.0	(19.2)	(25.1)	(64.6)	(71.6)	(94.3)	(128.1)	(402.9)
Total UAL Change	\$ 243.8	\$ 380.2	\$ 230.1	\$ 151.8	\$ 78.2	\$ (43.6)	\$ (192.9)	\$ (135.2)	\$ (354.4)	\$ (168.6)	\$ 189.4

¹ Plan changes include \$3.5 million increase in 2016 and \$1.0 million increase in 2019.

² UAL change due to benefit accruals and payments, contributions, timing, and interest.

³ UAL change due to RRP contributions in excess of the MMO contributions and sales tax revenue.

On a smoothed asset basis, the investment gains and losses (gold bars) from 2013 to 2022 include material investment losses driven by the market decline of 2008 and 2009, which was spread over the ten successive years through 2018. Over the 10-year period, investment losses have added approximately \$848.9 million to the UAL.

On the liability side (gray bars), the System has experienced mostly losses, however smaller in magnitude compared to the assets, increasing the UAL by approximately \$161.8 million over the 10-year period.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Assumption and plan changes (purple bars) over the last 10 years have increased the UAL by about \$982.5 million. As a note, the two plan changes during the period occurred in 2016 and 2019 which increased the UAL by about \$3.5 million and \$1.0 million, respectively. The significant assumption changes have included reductions in the discount rate beginning with 7.95% in 2012 decreasing down to 7.40% in 2022, as well as experience studies in 2014, 2018, and 2022. Investment return changes reflect a downward revision to the estimate of future investment earnings and ultimately costs will be determined by actual investment earnings. Future expectations of investment returns may continue to decline necessitating further reductions in the discount rate.

In addition, increases in UAL due to the experience studies have been driven by decreasing mortality rates and projecting future improvement. This accounts for members living longer and the longevity risk for the System.

Each year, the UAL is expected to decrease due to paying down of the UAL from the contributions coming into the System. Changes due to paying down the UAL (red bars), related to benefit accruals and payments, actual contributions including contributions in excess of RRP, and timing, have decreased the UAL by about \$1,400.9 million over the last 10 years.

Finally, starting in 2016 the City started contributing sales tax and higher amounts under the RRP in comparison to MMO. Since 2017, RRP contributions (green bars) in excess of the MMO contributions have decreased the UAL by about \$402.9 million. In future years, as the tax revenue and tiered/additional member contributions paid in excess of the MMO accumulate, this amount will continue to increase.

Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the plan compared to other plans and how the maturity has changed over time.

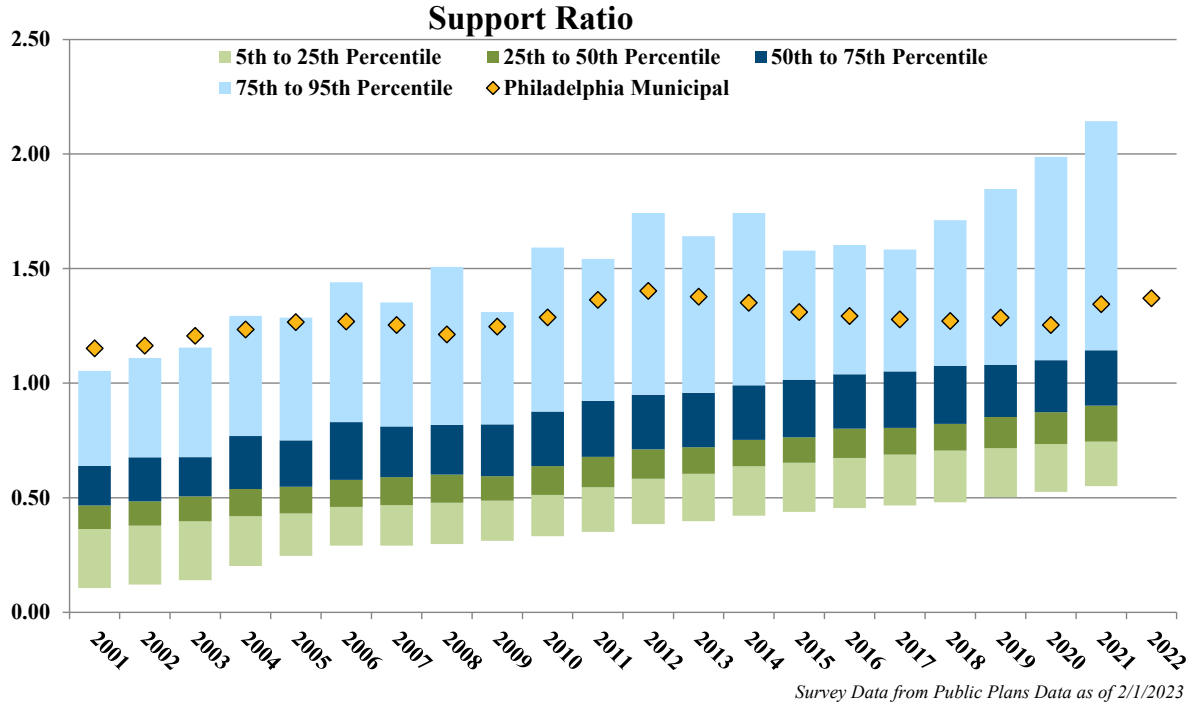
Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic - the larger the plan assets are compared to the contribution or revenue base that supports it; the more sensitive the System will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for the System.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members. We refer to this ratio as the *support ratio*. The revenue base supporting the System is usually proportional to the number of active members, so a relatively high number of inactives compared to actives indicate a larger plan relative to its revenue base as well.



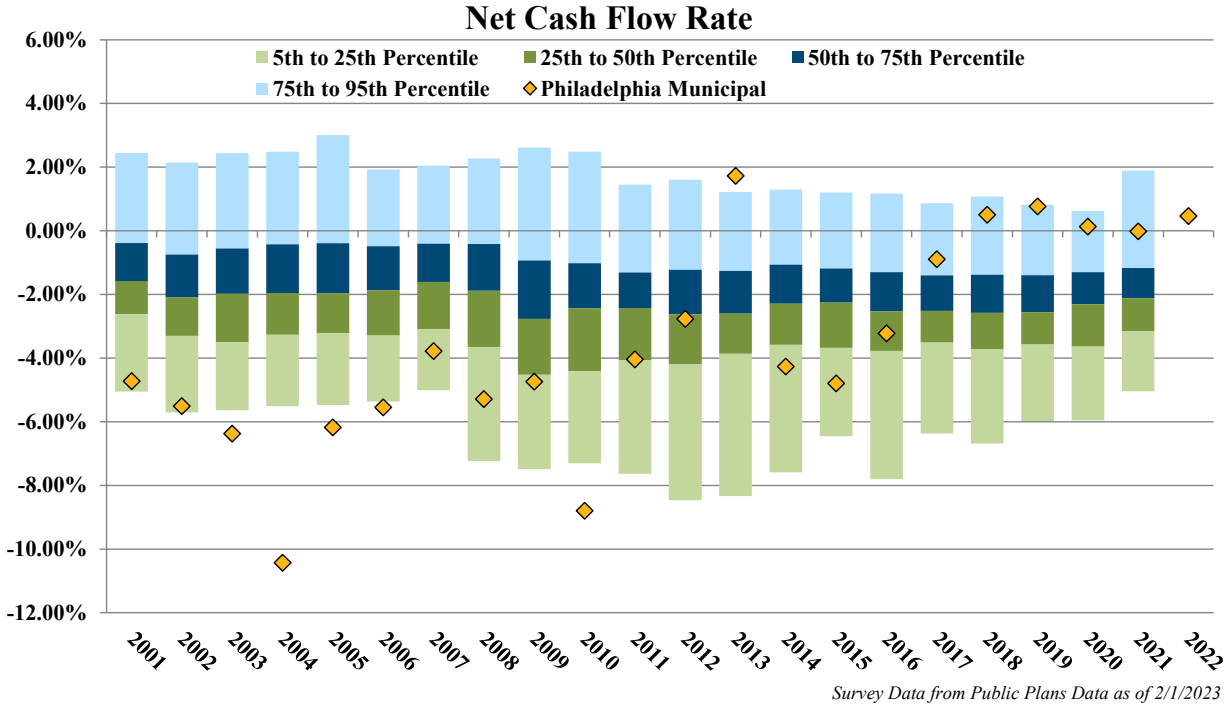
The chart above shows the distribution from the 5th to 95th percentile of support ratios for the plans in the Public Plans Database. The gold diamond shows how the System compares to other plans in the database. What this shows is that the System was already in a relatively mature status in 2001 while the other systems over this historic period grew more mature resulting in the System actually becoming more the norm. So as the average support ratio for other public plans has gradually increased over time, the support ratio for the System has generally been decreasing from 2012 to 2020 relative to the other public plans in the database. In 2021 and 2022, it increased due to fewer new hires and a higher number of retirements and terminations.

Net Cash Flow

The net cash flow of the System as a percentage of the beginning of year assets indicates the sensitivity of the plan to short-term investment returns. Net cash flow is equal to contributions less benefit payments and administrative expenses. Mature plans can have large amounts of benefit payments compared to contributions, particularly if they are well funded. Investment losses in the short-term are compounded by the net withdrawal from the plan leaving a smaller asset base to try to recover from the investment losses. Large negative cash flows can also create liquidity issues.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK



The chart above shows the distribution from the 5th to 95th percentile of net cash flow for the plans in the Public Plans Database. The gold diamond shows how the System compares to other plans in the database. Up until 2006, the System was consistently below the 5th percentile compared to the database of other public plans in terms of negative cash flow as a percentage of assets. In 2004, the net cash flow decreased down to -10.2% due to a PAF distribution. The decrease in 2010 was a result of the deferred contributions which were subsequently repaid in 2013, causing a positive net cash flow for that year. The steps taken by the City and participants in providing additional contributions to the System has reduced this cash flow risk significantly. The net cash flow has been increasing since 2015 and since 2018 it has generally been positive or close to zero net cash flow which would put the System on the other side of the spectrum, with this factor being a lower source of risk, in the top portion of the 75th to 95th percentile.

Assessing Costs and Risks

The fundamental risk to the System is that the contributions needed to fund the benefits become unaffordable. Assessing this risk, however, is complex because there is no bright line of what is unaffordable and the contribution amounts themselves are affected not just by the experience of the System, but also by the interaction of that experience and decisions by the Board related to assumptions, asset smoothing methods, and amortization periods.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Investment Risk – Deterministic Scenarios for Stress Testing

This section illustrates stress testing of the investment return assumption and is an extension of the baseline results provided in the baseline projections in the Summary section. Under the baseline results, we assumed the 7.40% investment return assumption for the year beginning July 1, 2022 and 7.35% investment return assumption for each year beginning July 1, 2023 and thereafter.

For stress testing purposes, we developed six hypothetical scenarios to illustrate the impact actual investment returns may have on future funded status and contribution rates. The scenarios are balanced between positive and negative scenarios and are based on a normal distribution of one and five year expected returns as shown in the table below using the most recent 10-year capital market assumptions from the System’s investment consultant (geometric return of 7.93%, standard deviation of 10.70%).

Distribution of Expected Average Annual Returns		
Percentile	1 Year	5 Year
5%	-9.7%	0.1%
25%	0.7%	4.7%
50%	7.9%	7.9%
75%	15.1%	11.2%
95%	25.5%	15.8%

The scenarios include: a one-year shock using the 5th and 95th percentile returns for one year; a 5-year moderate scenario using the 25th and 75th percentile returns for five years; and a 5-year significant scenario using the 5th and 95th percentile returns for five years. A two-standard deviation event may seem like a very remote possibility, but the risk actually accumulates from year to year. The table below summarizes the theoretical scenarios.

FYE	Theoretical Scenarios					
	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
	Neg	Pos	Neg	Pos	Neg	Pos
2022	-9.7%	25.5%	4.7%	11.2%	0.1%	15.8%
2023	7.35%	7.35%	4.7%	11.2%	0.1%	15.8%
2024	7.35%	7.35%	4.7%	11.2%	0.1%	15.8%
2025	7.35%	7.35%	4.7%	11.2%	0.1%	15.8%
2026	7.35%	7.35%	4.7%	11.2%	0.1%	15.8%
2027+	7.35%	7.35%	7.35%	7.35%	7.35%	7.35%

The charts on the following pages show the projections over the next 20 years under each of these theoretical scenarios assuming the **City makes contributions on the RRP basis**. We show the sales tax revenue and the City’s RRP contributions separately. For each scenario, we show two charts.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

The top chart shows asset measures (green and blue lines) compared to liabilities (gray bars). At the top of each chart is the progression of the System’s funding ratio which compares the actuarial value of assets (blue lines) to the actuarial liability (gray bars).

Under the baseline RRP scenario assuming a 7.40% return for FYE 2023 and 7.35% return thereafter from the prior section, the System achieved fully funded by 2033. The stress testing of investment return expectations reveals insight from these charts as to how varying investment returns impact the System’s funding ratio.

It is worth noting the 10-year asset valuation method has significant influence on the smoothing of assets against market value volatility as well as the funding progress. A single year or a couple of years of lower than expected returns can delay the System from becoming fully funded. While some of these losses are made up through required increased contribution payments, these scenarios also demonstrate the implications of negative cash flow. Similarly, when returns are higher than expected the investment gains can help mitigate future investment losses due to the asset smoothing.

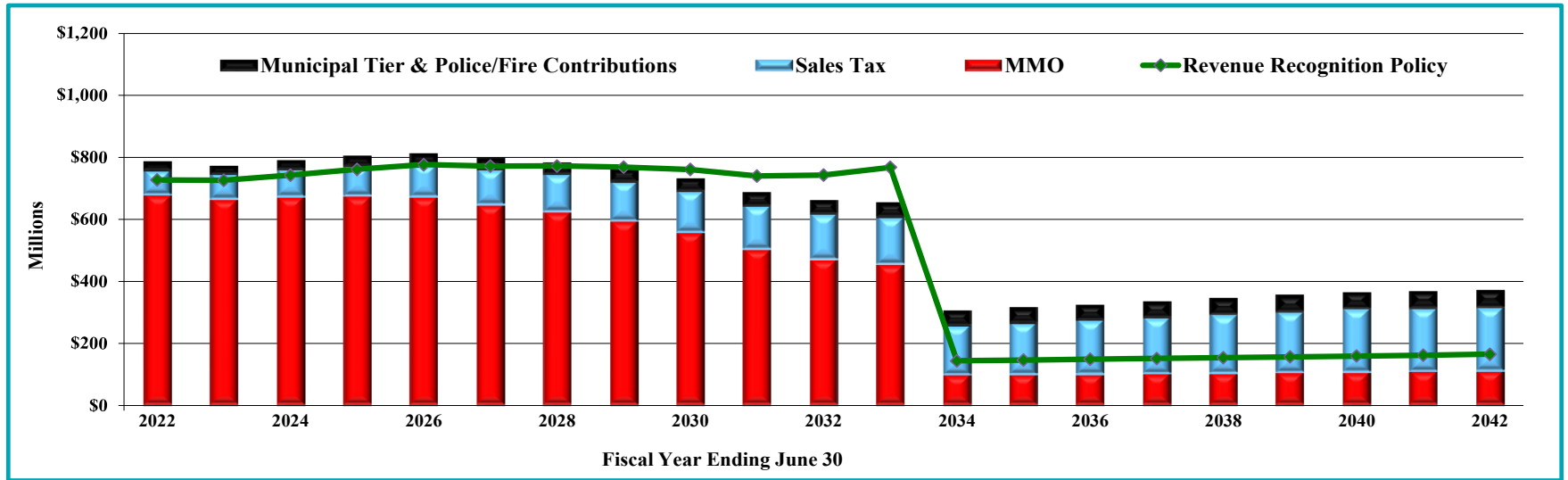
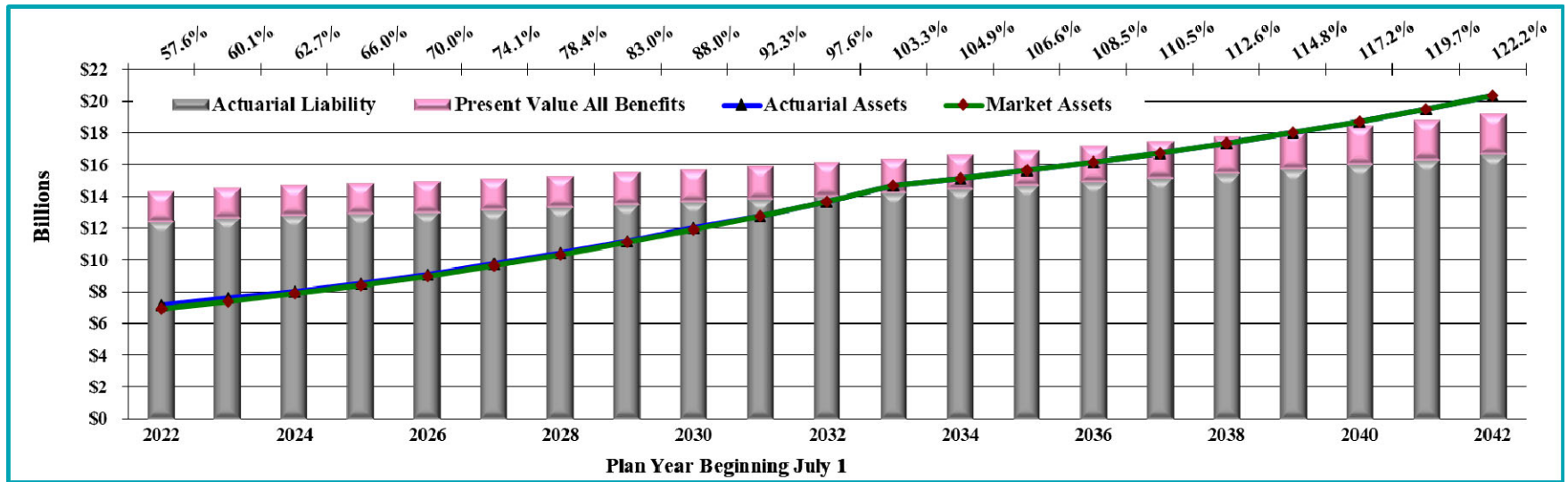
When a mature system pays out more than it receives in a year and returns are below the assumption, the assets that get paid out are no longer in the system during subsequent years of market recovery. So a system with significant negative cash flow coupled with investment return volatility will grow at a slower rate than the investment return assumption. While the net cash flow has been negative historically, it has been generally positive since 2017 and expected to be around zero in the near future under baseline assumptions mitigating much of this risk.

The bottom chart shows the MMO (red bars), expected sales tax revenue (blue bars) and expected tiered and member contributions (black bars). The green line shows the expected City contributions under the RRP excluding the sales tax revenue so the sales tax revenue and additional member contributions are shown separately. The dashed green line represents the expected RRP under the baseline projections to facilitate the comparison between the particular scenario and the baseline projections assuming all assumptions are met.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

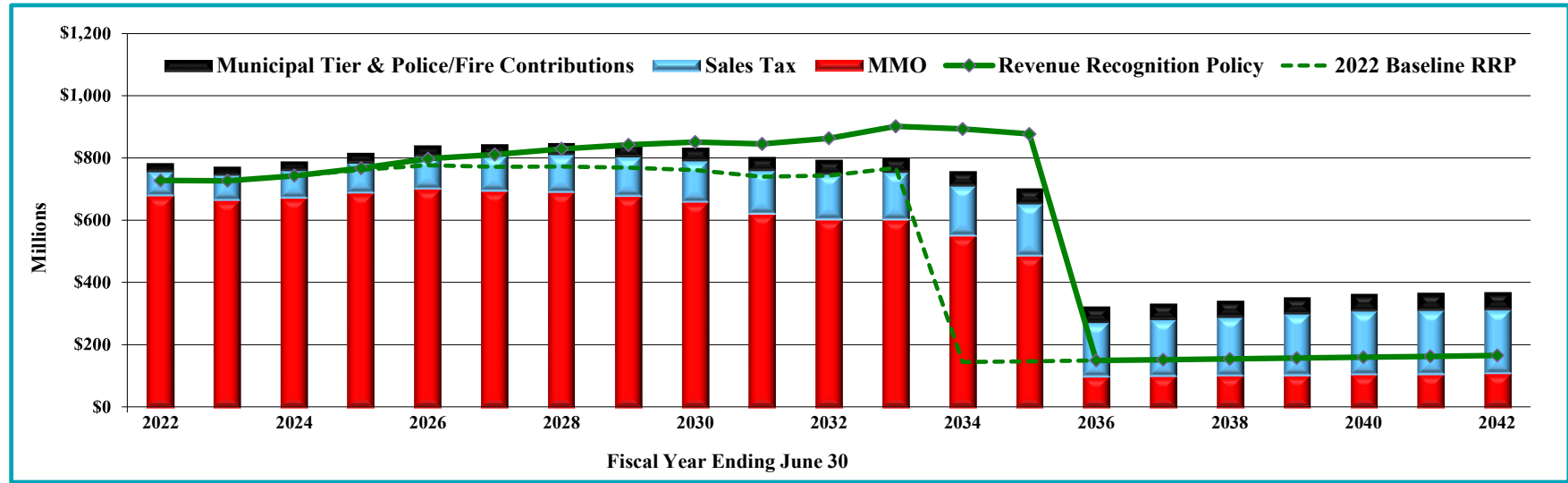
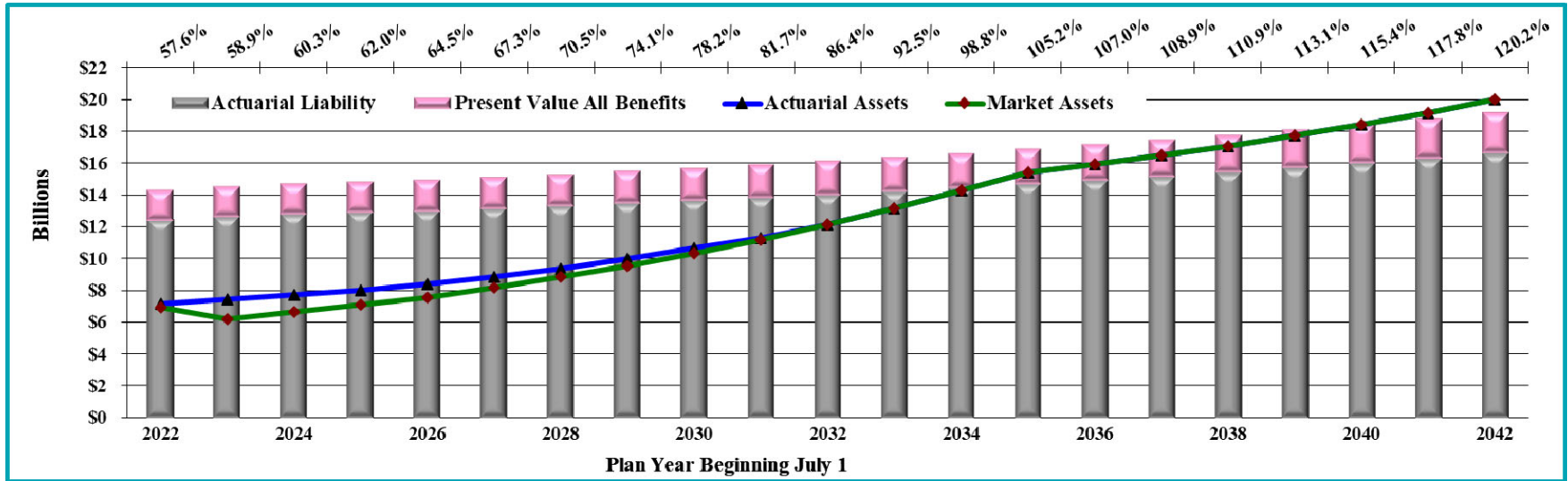
Baseline Scenario: 7.40% return FYE 2023, 7.35% after based on RRP contributions



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

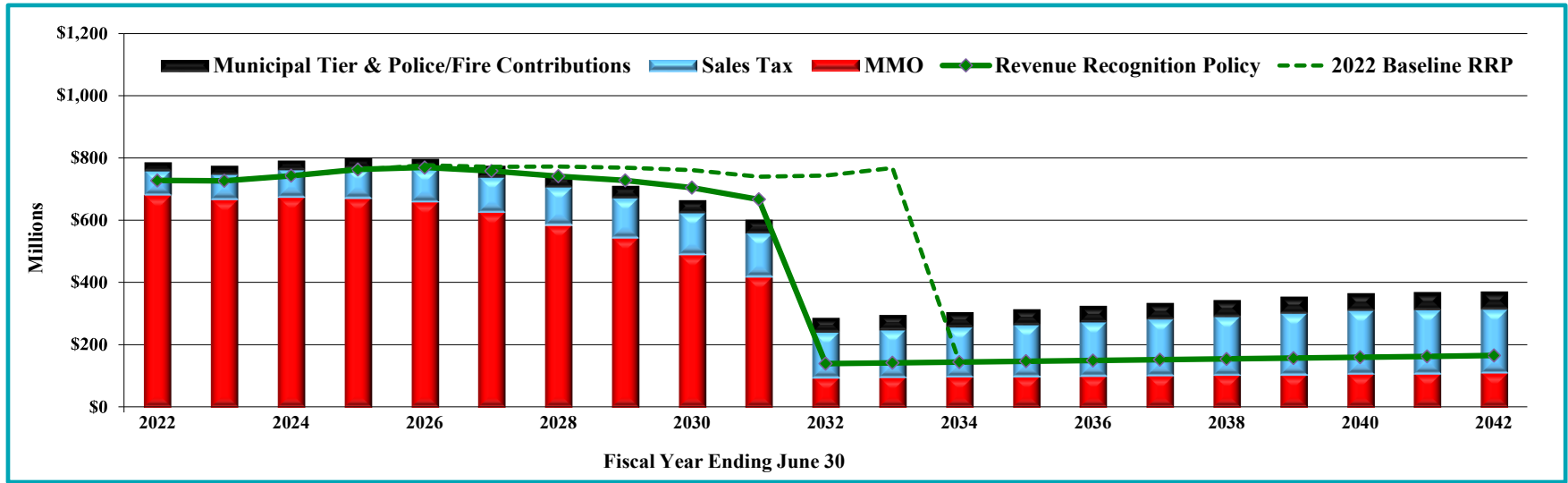
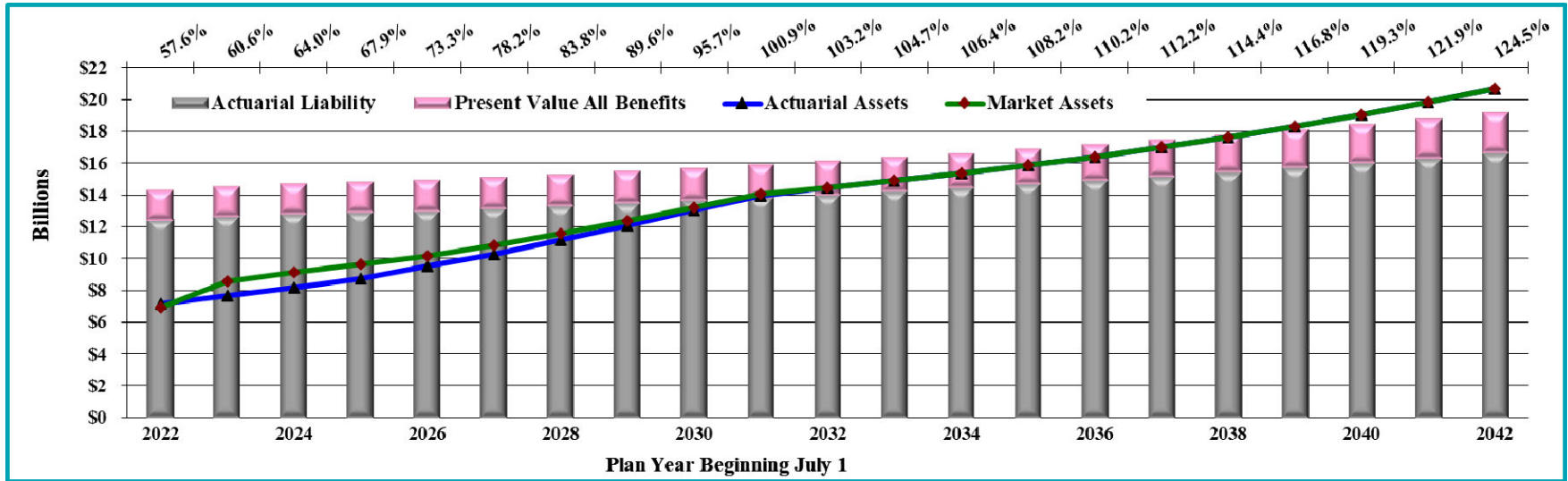
One-Year Negative Shock Scenario: -9.7% return FYE 2023, 7.35% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

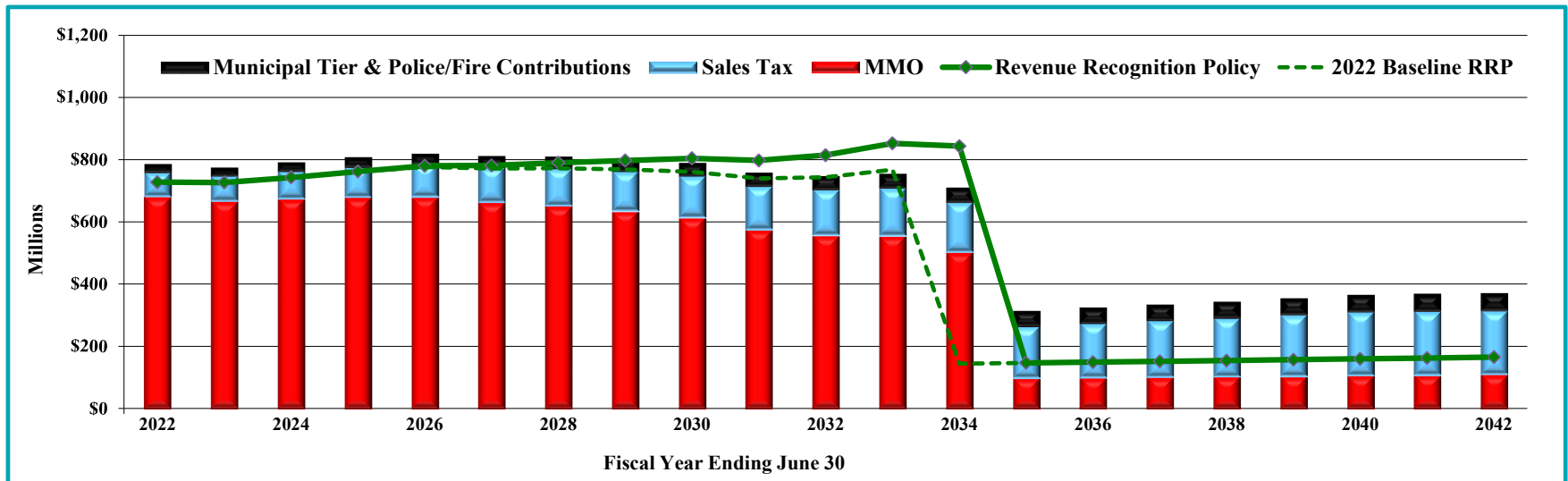
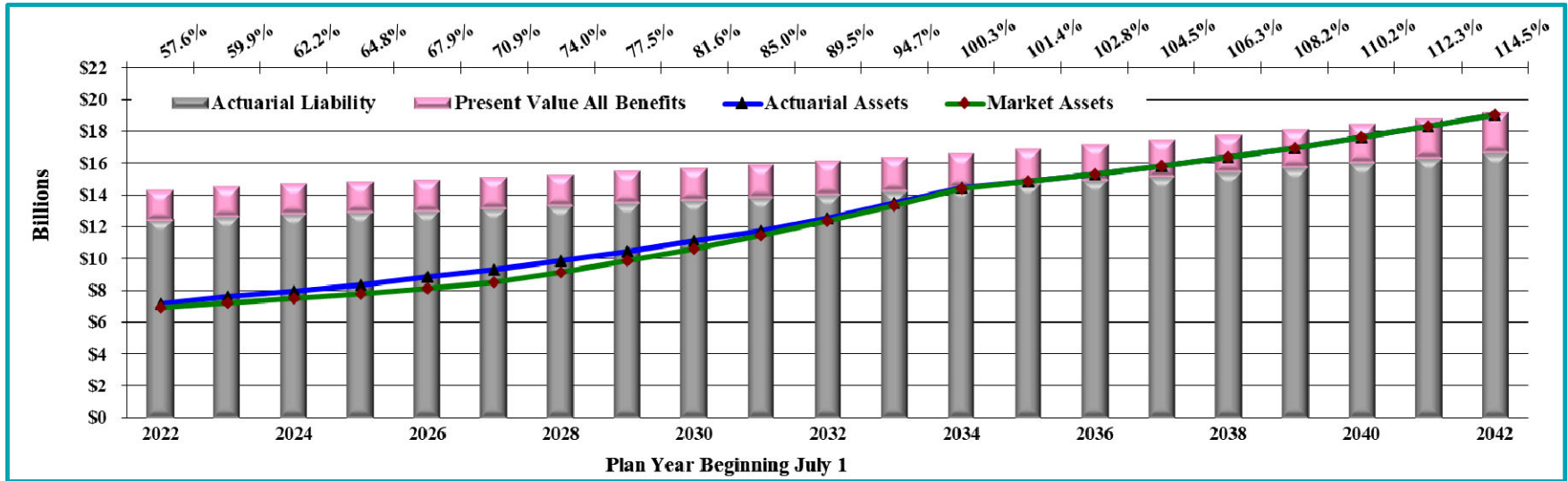
One-Year Positive Shock Scenario: 25.5% return FYE 2023, 7.35% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

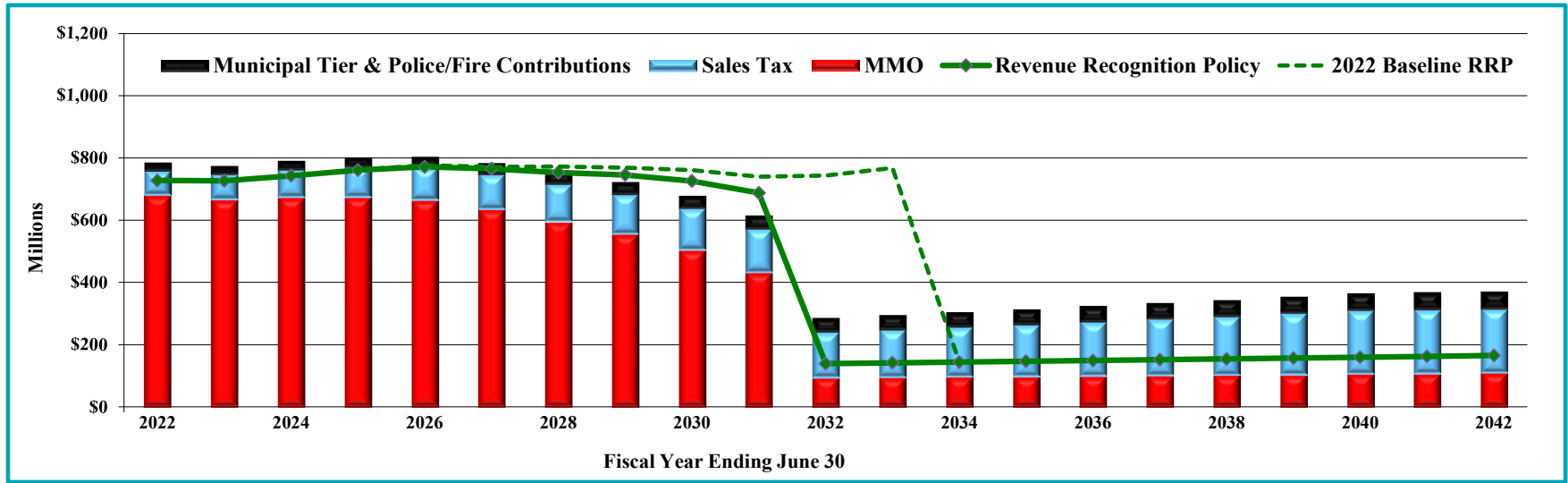
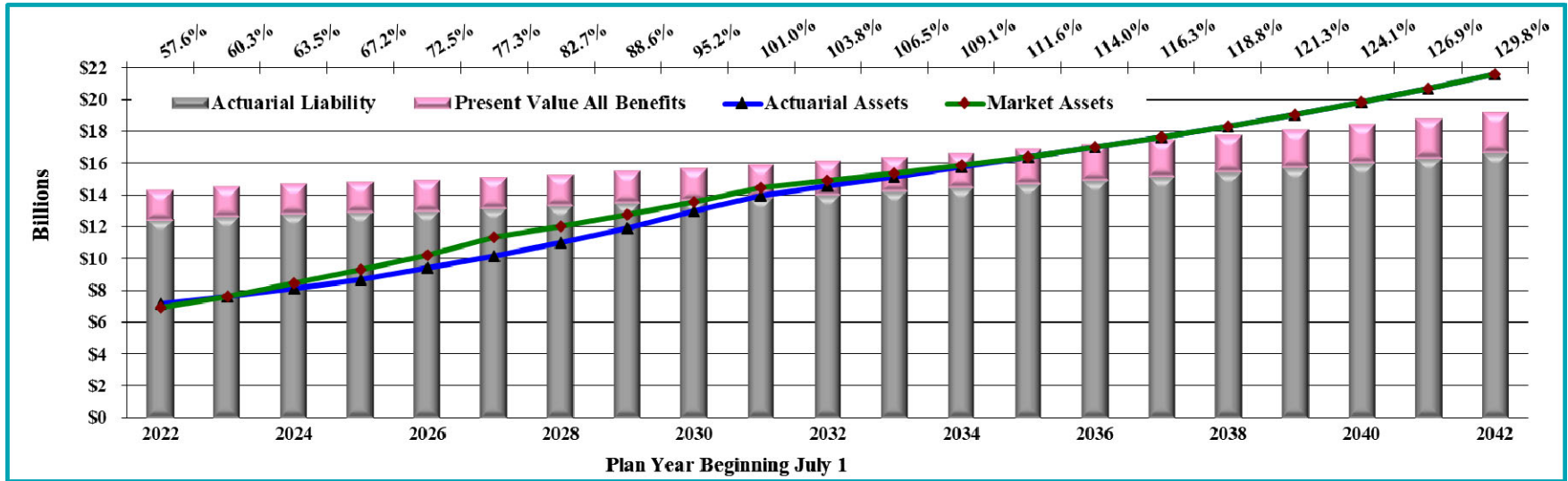
Five-Year Moderate Negative Scenario: 4.7% return FYE 2023-2027, 7.35% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

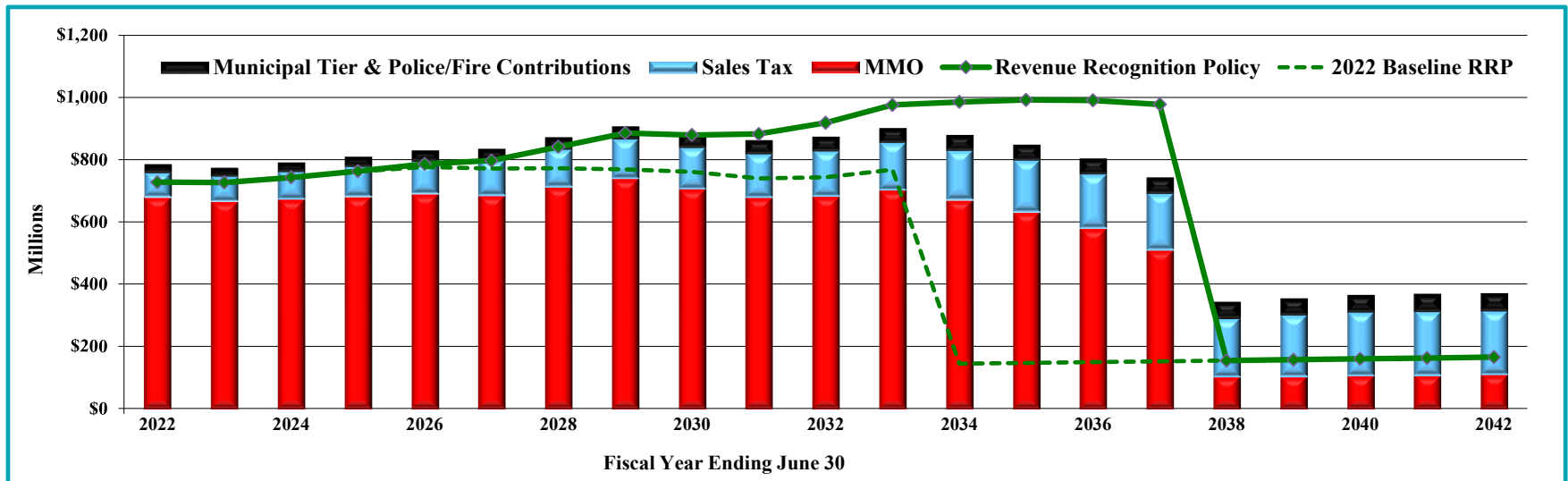
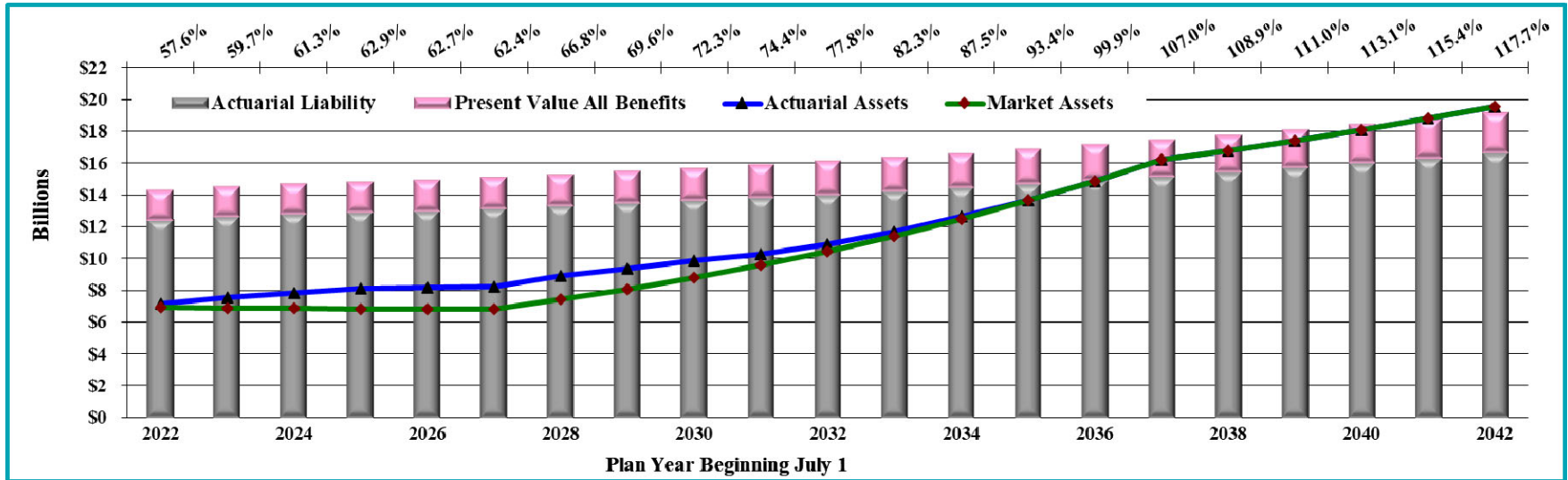
Five-Year Moderate Positive Scenario: 11.2% return FYE 2023-2027, 7.35% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

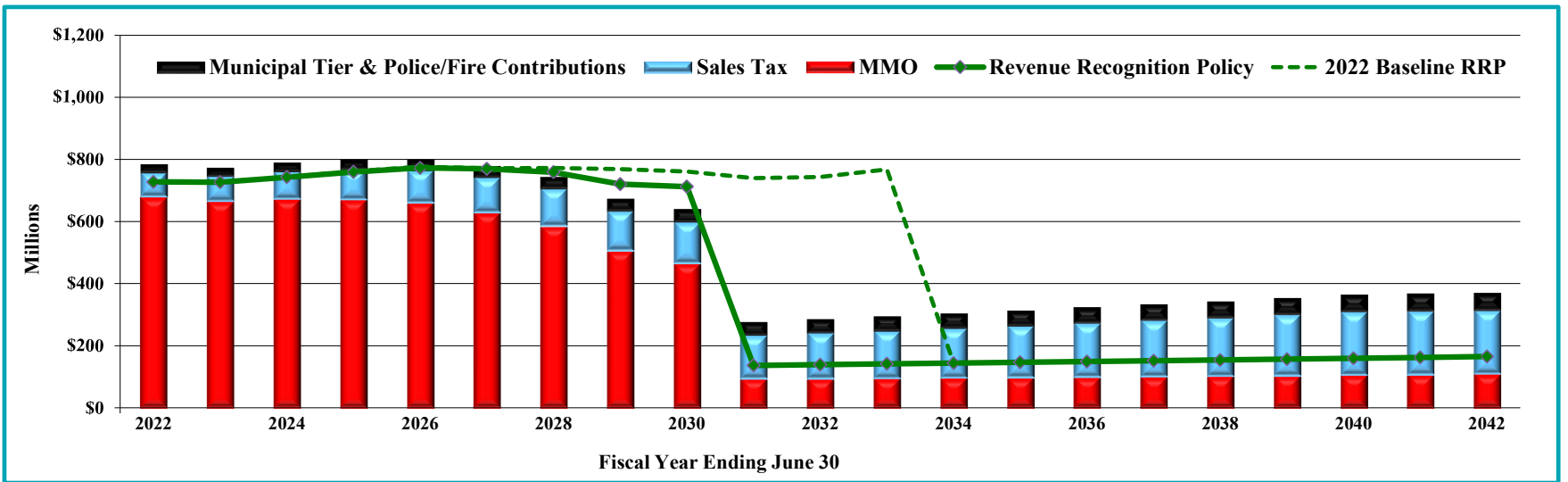
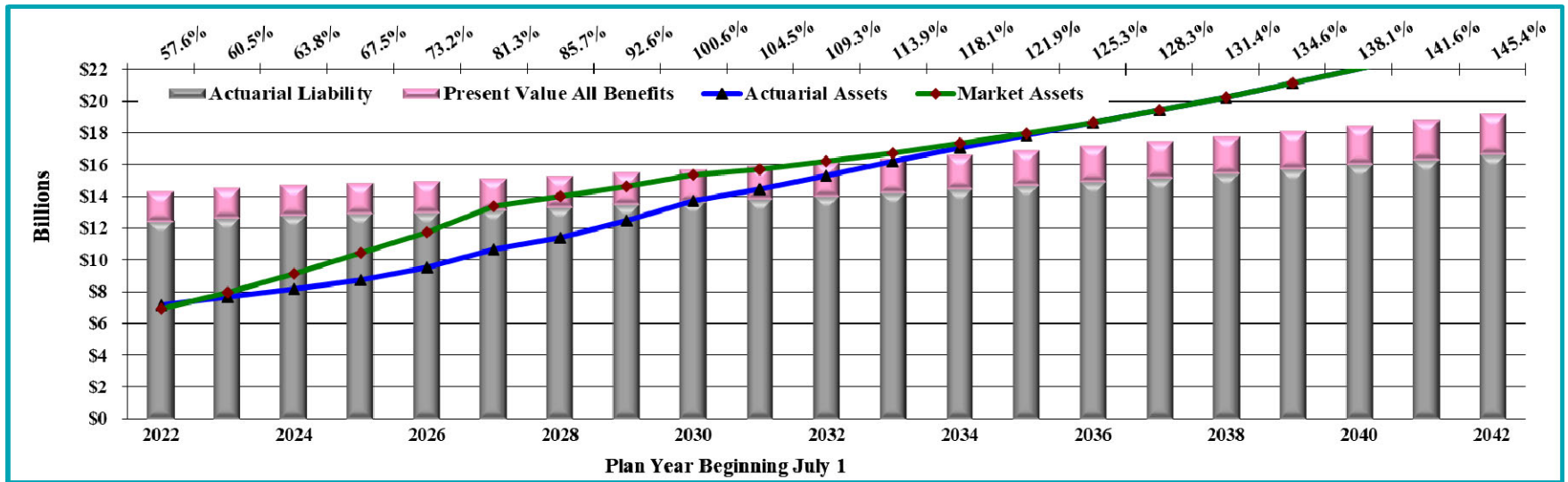
Five-Year Significant Negative Scenario: 0.1% return FYE 2023–2027, 7.35% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Positive Scenario: 15.8% return FYE 2023-2027, 7.35% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

As illustrated in the charts above, varying returns have an impact on the computed City contributions, especially in the later projection years when the System is fully funded. However, the volatility is mitigated for two reasons, the 10-year smoothing of assets and 20-year amortization of experience gains and losses. This illustrates that the future contributions should be anticipated to be higher to adjust for the market volatility. Thus, the market volatility can prolong the period of paying down the unfunded actuarial liability when coupled with the impact of negative cash flows in down markets.

The investment returns used in the projections above were selected solely to illustrate the impact of investment volatility on the pattern of funded status and City contributions. They are not intended to be predictive of actual future contributions or funded status or even to represent a realistic pattern of investment returns.

Stochastic Projections

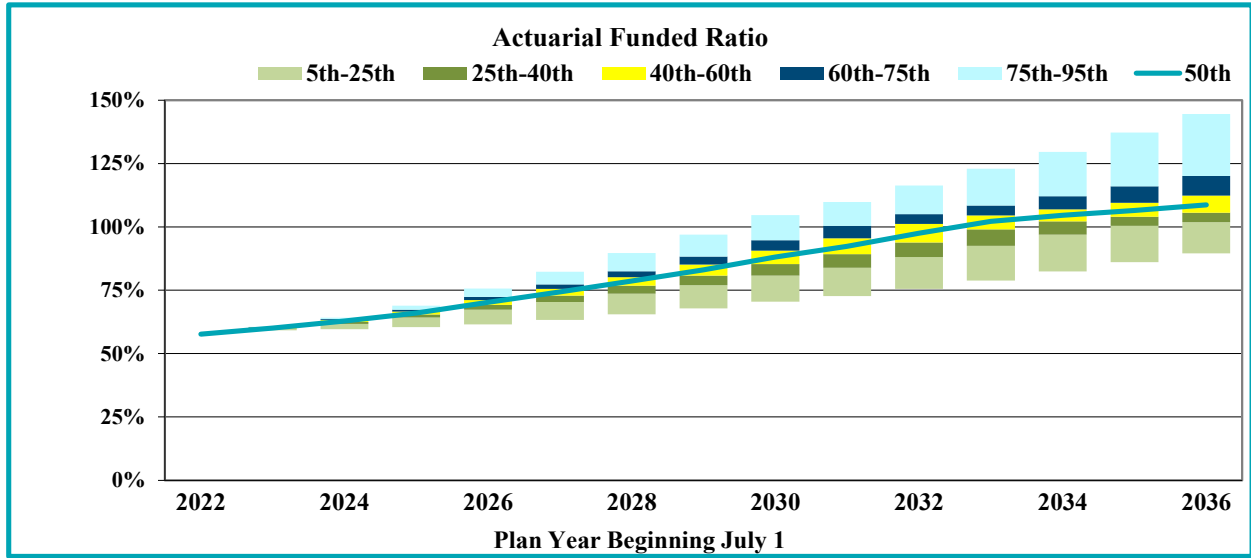
Stochastic Projections are used to provide an alternative view of what the likely future outcomes might be. Instead of a single projection, we use the expected long term average return allowing for the returns for each year to vary according to the expected volatility of asset returns based on the current asset allocation. The returns are determined randomly within anticipated ranges; we then perform 10,000 such projections over a 15-year period and accumulate the results. Accumulating this information allows us to present ranges of likely results.

The charts on the next page show the stochastic projection of the actuarial funded ratio and City contribution amounts under RRP. The blue line represents the most likely or average of the range of outcomes. The colored ranges represent potential results reflecting future asset return volatility (geometric return of 7.93%, standard deviation of 10.70%). The yellow bar around the blue line shows there is a 20% probability the actual ratio will fall within the range. The dark green and dark blue bars show that there is a 50% probability the actual results will fall within the ranges (25th-40th and 60th-75th). Finally, the light green and the light blue bars show that there is a 90% chance the actual results will fall within those ranges (5th-25th and 75th-95th). Another way to say this is there is a 10% chance the ratio could be above or below the projected range of ratios shown. There is increasing uncertainty in the actuarial funded ratio and level of City contributions depending on investment returns over time reflected in how broad the range gets.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

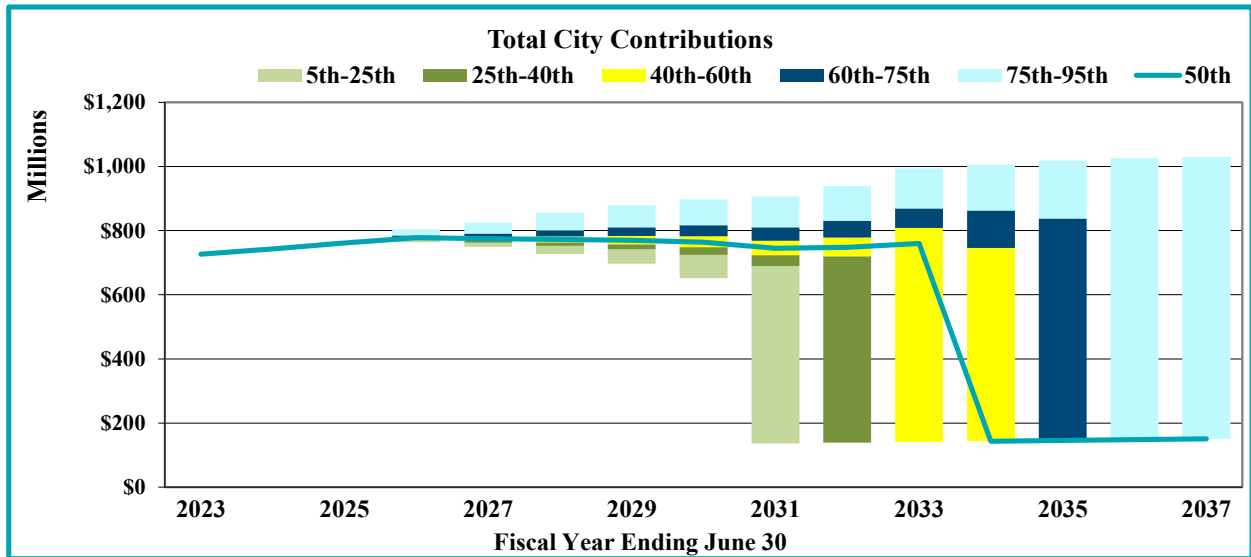
SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Stochastic Projection of Actuarial Funded Ratio and City Contributions



In the worst scenarios, the System’s actuarial funded ratio is just under 90% by plan year beginning 2036 based on poor investment returns. In the best scenarios, the System’s actuarial funded ratio reaches just under 145% by 2036.

In a similar process, we show the projected volatility of future City contributions.



In the worst scenarios, the City’s contribution amount could exceed \$1.0 billion by FYE 2037. In the best scenarios, the City’s contribution could drop below \$150 million as early as 2031 which represents the System reaching 100% funded or greater at which time it drops to the normal cost rate. The significant cost reduction shows the potential when there are no more payments to fund the unfunded liability.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

The Retirement System uses and discloses two different asset measurements for funding, which are presented in this section of the report: market value and actuarial value of assets. The market value represents the value of the assets if they were liquidated on the valuation date and, unless explicitly stated otherwise, this value includes the Pension Adjustment Fund (PAF) which is not available for funding purposes. The actuarial value of assets is a value that smooths annual investment returns over ten years to reduce annual investment volatility and is used in determining contribution levels. This smoothing method also requires that the actuarial value of assets may not be more than 120% or less than 80% of the market value of assets. By definition, the actuarial value of assets does not include the PAF.

On the following pages, we present detailed information on the Retirement System’s assets:

- Disclosure of assets at July 1, 2021 and July 1, 2022,
- Statement of cash flows during the year,
- Actual City and member contributions,
- Development of the actuarial value of assets,
- Apportionment of assets between plans for valuation purposes,
- Development of the Pension Adjustment Fund as of July 1, 2022,
- Development of the actuarial value of assets for Revenue Recognition Policy,
- Disclosure of investment performance for the year, and
- Determination of Asset gain/(loss).

A. Disclosure

The market value of assets represents a “snap-shot” value as of the last day of the fiscal year that provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the value of the investments. Because these fluctuations cause volatility in employer contributions, an actuarial value of assets is developed. Table III-1 on the following page presents the market value by asset class as of July 1, 2021 and July 1, 2022. Table III-2 presents the System’s net cash flows for the plan year beginning July 1, 2021 and ending June 30, 2022. Table III-3 presents Fiscal Year End 2022 contributions received from members of the System and the City as compared to the MMO and RRP.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

Table III-1		
Statement of Assets at Market Value*		
	7/1/2022	7/1/2021
<u>Assets</u>		
Cash	\$ 19,205,840	\$ 18,465,877
Investments	6,798,800,823	7,333,264,762
Securities Lending	500,371,109	181,952,215
Accrued Interest and Other Receivables	368,151,949	249,143,550
Due from Other Governmental Units	<u>6,079,891</u>	<u>6,528,233</u>
Total Assets	\$ 7,692,609,612	\$ 7,789,354,637
<u>Liabilities</u>		
Due on Securities Lending	\$ 500,371,109	\$ 181,951,594
Accrued Expenses and Other Liabilities	<u>252,404,607</u>	<u>182,420,256</u>
Total Liabilities	\$ 752,775,716	\$ 364,371,850
Net Assets	\$ 6,939,833,896	\$ 7,424,982,787

* Includes the PAF which is not available for funding purposes.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

B. System Cash Flows for the Year July 1, 2021 through July 1, 2022

Table III-2 Changes in Market Values¹		
Value of Assets – July 1, 2021		\$ 7,424,982,787
<u>Additions</u>		
Contributions:		
Employer Contributions	\$ 859,786,617	
Employee Contributions	110,446,674	
Total Contributions		\$ 970,233,291
Investment Income:		
Appreciation in FV of Investments	\$ (646,937,737)	
Interest and Dividends	175,169,525	
Total Investment Income	<u>\$ (471,768,212)</u>	
Investment Activity Expenses:		
Investment Expenses	<u>(8,907,843)</u>	
Total Investment Activity Expenses	\$ (8,907,843)	
Securities Lending Activities:		
Securities Lending Income	\$ 959,531	
Securities Lending Expenses	<u>(191,675)</u>	
Net Income from Securities Lending Activities	\$ 767,856	
Miscellaneous Operating Revenues	\$ 145,416	
Net Investment Income		<u>(479,762,783)</u>
Total Additions		\$ 490,470,508
<u>Deductions</u>		
Administrative Expenses	\$ (8,933,371)	
Refunds of Member Contributions	(13,393,966)	
Benefit Payments	(915,896,934)	
PAF Distributions	<u>(37,395,128)</u>	
Total Deductions		<u>(975,619,399)</u>
<u>Total</u>		
Net Increase (Decrease)		<u>(485,148,891)</u>
Value of Assets – July 1, 2022		\$ 6,939,833,896

¹ Includes the PAF which is not available for funding purposes

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

Table III-3 Contributions for the Plan Year Ending June 30, 2022		
Actuarially Determined Contribution		
MMO for Fiscal Year 2022	\$	678,191,858
RRP for Fiscal Year 2022	\$	727,429,766
Actual City Contributions		
Cash Received from City during Fiscal Year 2022	\$	686,459,400
State Aid Amount		79,254,873
Sales Tax Revenue		78,844,922
Cash Received from Quasi-Agencies		15,227,422
Total Cash Received from City during Fiscal Year 2022	\$	859,786,617
Actual Member Contributions		
Regular Member Contributions	\$	84,262,657
Tier Member Contributions (Municipal and Elected)		13,091,629
Additional Member Contributions (Police and Fire)		13,092,388
Total Member Contributions Received during Fiscal Year 2022	\$	110,446,674

The City’s actual contribution (including the state aid amount) of \$765.7 million includes approximately \$38.3 million paid in excess of the RRP contribution amount for FYE 2022.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

C. Actuarial Value of Assets

To determine on-going funding requirements, most pension systems utilize an actuarial value of assets that differs from the market value of assets. The actuarial value of assets represents an asset value based on averaging or smoothing year-to-year market value returns for purposes of reducing contribution volatility. For the City, gains and losses are recognized in equal amounts over a ten-year period. The resulting asset value may not be more or less than 20% of the MVA.

Table III-4 Development of Actuarial Value of Assets as of July 1, 2022					
1. Market Value of Assets as of July 1, 2022					\$ 6,939,833,896
2. Pension Adjustment Fund (PAF) as of July 1, 2022 Before Additional Transfers					\$ 34,340,630
3. Market Value of Assets Net of Original PAF*					\$ 6,905,493,266
4. Deferred Asset Gains/(Losses)					
Fiscal Year	Investment	Percent	Percent	Amount	
<u>Ending</u>	<u>Gains / (Losses)</u>	<u>Recognized</u>	<u>Deferred</u>	<u>Deferred</u>	
2013	\$ 127,718,278	100%	0%	\$	0
2014	347,082,935	90%	10%		34,708,294
2015	(349,020,722)	80%	20%		(69,804,144)
2016	(489,127,035)	70%	30%		(146,738,110)
2017	242,673,428	60%	40%		97,069,371
2018	79,312,820	50%	50%		39,656,410
2019	(92,799,571)	40%	60%		(55,679,742)
2020	(333,977,782)	30%	70%		(233,784,447)
2021	1,218,679,926	20%	80%		974,943,941
2022	(1,012,155,357)	10%	90%		(910,939,822)
Total				\$	(270,568,249)
5. Preliminary Actuarial Value as of July 1, 2022 (5 = 3 - 4)					\$ 7,176,061,515
6. Corridor for Actuarial Value					
a. 80% of Market Value Net of PAF					\$ 5,524,394,613
b. 120% of Market Value Net of PAF					\$ 8,286,591,919
7. Additional PAF Transfer as of July 1, 2022					\$ 0
8. Actuarial Value of Assets Net of Final PAF as of July 1, 2022 8 = max((min of 5 or 6b) and 6a), minus 7					\$ 7,176,061,515
9. As a percent of Market Value Net of Final PAF					103.9%
10. Market Value of Assets Net of Final PAF					\$ 6,905,493,266

* Market value of assets net of original PAF before the determination of the final PAF amount. See section III - E for more details on the development of the total PAF and the additional PAF transfer, if applicable.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

D. Apportionment of Actuarial Value of Assets

The asset allocation reflects the actual cash flows for each plan and proportional allocation of investment earnings.

Table III-5 Allocation of Assets for Valuation Purposes Between Plans as of July 1, 2022 (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
1. Actuarial Value of Assets as of July 1, 2021	\$ 1,469,435	\$ 486,994	\$ 160,672	\$ 2,041,180	\$ 16,974	\$ 1,825,912	\$ 571,454	\$ 21,343	\$ 39,122	\$ 6,633,086
2. Transactions During Plan Year July 1, 2021 to June 30, 2022										
a. Contributions										
City and Commonwealth Employees	\$ 356,407	\$ 178,295	\$ 77,621	\$ 132,624	\$ 1,750	\$ 65,146	\$ 25,686	\$ 702	\$ 6,329	\$ 844,559
Quasi-Public Agencies	2,581	408	269	42,999	397	34,440	16,113	1,220	12,019	110,447
b. Benefit Payments	10,074	0	0	4,600	0	0	0	51	504	15,227
c. Withdrawals	(440,311)	(204,442)	(86,761)	(101,211)	(2,025)	(65,664)	(15,494)	0	10	(915,897)
d. Administrative Expenses	(360)	(157)	(708)	(7,422)	0	(3,383)	(190)	0	(1,173)	(13,394)
e. Net Transactions	(2,553)	(1,132)	(392)	(2,672)	(7)	(1,039)	(404)	(154)	(580)	(8,933)
3. Total Fund Balance Prior to Allocation of Investment Income [1. + 2e.]	\$ (74,162)	\$ (27,028)	\$ (9,971)	\$ 68,918	\$ 115	\$ 29,500	\$ 25,711	\$ 1,819	\$ 17,109	\$ 32,009
4. Investment Income During Plan Year July 1, 2021 to June 30, 2022	\$ 1,395,273	\$ 459,966	\$ 150,701	\$ 2,110,098	\$ 17,089	\$ 1,855,412	\$ 597,165	\$ 23,162	\$ 56,231	\$ 6,665,095
5. Preliminary Actuarial Value of Assets as of July 1, 2022 [3. + 4.]	\$ 106,966	\$ 35,262	\$ 11,553	\$ 161,767	\$ 1,310	\$ 142,242	\$ 45,780	\$ 1,776	\$ 4,311	\$ 510,967
6. Allocation of PAF Transfer	\$ 1,502,239	\$ 495,228	\$ 162,255	\$ 2,271,865	\$ 18,399	\$ 1,997,654	\$ 642,945	\$ 24,936	\$ 60,541	\$ 7,176,062
7. Final Actuarial Value of Assets With Corridor as of July 1, 2022	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
8. Final Actuarial Value of Assets Less RRP Additional Revenue Account	\$ 1,502,239	\$ 495,228	\$ 162,255	\$ 2,271,865	\$ 18,399	\$ 1,997,654	\$ 642,945	\$ 24,936	\$ 60,541	\$ 7,176,062
	\$ 1,410,191	\$ 464,884	\$ 152,313	\$ 2,132,659	\$ 17,272	\$ 1,875,250	\$ 603,549	\$ 23,408	\$ 56,831	\$ 6,736,357

Note: Numbers may not add due to rounding

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

E. Development of the Pension Adjustment Fund as of July 1, 2022

This table provides the funds available for distribution consideration under title §22-311 of the Philadelphia Code. In general, the Pension Adjustment Fund (PAF) provides for additional benefit distributions to retirees and beneficiaries through the use of excess earnings. This may include a lump-sum bonus payment, monthly pension increases, ad-hoc cost of living adjustments, or other increases determined by the Board. The adjusted market value of assets reflects a five-year smoothing of asset gains and losses, as described in the Philadelphia Code.

Table III-6 Development of the Pension Adjustment Fund as of July 1, 2022		
1. PAF on July 1, 2021	\$	76,471,047
2. PAF Distribution		(37,395,128)
3. Market Value Asset Return Through June 30, 2022 *		-6.46%
4. PAF on July 1, 2022 Before Additional Transfers** =(1) x [1 + (3)] + (2) x {[1+(3)]^.083}	\$	34,340,630
5. Adjusted Market Value of Assets Through June 30, 2022	\$	7,136,160,623
6. Adjusted Market Value of Assets Return Through June 30, 2022 ***		7.70%
7. Return in Excess of Investment Assumption Plus 1.0%, Limited to 5.0% =(6) - [7.45% + 1.00%]		0.00%
8. Additional Transfer as of July 1, 2022 =50% of (7) x (5)	\$	0
9. Total PAF as of July 1, 2022 = (4) + (8)	\$	34,340,630

* Market Value Asset Return including the PAF

** Calculations are based upon the unrounded percents for items (3) and (7) and actual PAF distribution date

*** Asset Return based upon the Adjusted Market Value of Assets using a 5 year smoothing of the gains/losses as outlined in Title 22-311

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

F. Actuarial Value of Assets for Revenue Recognition Policy

The System is expected to receive additional revenue from sales tax, tier member contributions and additional Police and Fire member contributions, which is anticipated to be contributed over and above the City’s contribution of the MMO. These additional sources of revenue are tracked separately and accumulated in a notional account. For determining the actuarial value of assets for the RRP, the additional revenue account is excluded from the assets. Below is the development of the assets used for the RRP.

Table III-7 Actuarial Value of Assets for Revenue Recognition Policy as of July 1, 2022	
1. Additional Revenue Account on July 1, 2021	\$358,722,736
2. Sales Tax Revenue Received During FYE June 30, 2022	\$78,844,922
3. Tier and Additional Member Contributions Received During FYE June 30, 2022*	26,184,017
4. Market Value Asset Return Through June 30, 2022	-6.46%
5. Interest Through June 30, 2022	(24,047,538)
6. Additional Revenue Account on July 1, 2022 =(1) + (2) + (3) + (5)	\$439,704,136
7. Actuarial Value of Assets on June 30, 2022	\$7,176,061,515
8. Actuarial Value of Assets Net of Additional Revenue on June 30, 2022** =(7) - (6)	\$6,736,357,379

* Tier and additional member contributions are assumed to be received mid-year.

Actual date of receipt is used for sales tax revenue contribution

** Actuarial Value of Assets used in calculation of the RRP contribution is net of accumulated sales tax revenue and tier and additional member contributions

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

G. Investment Performance

The market value of assets internal rate of return was -6.46% for the year ending June 30, 2022. This is compared to an assumed return of 7.45% for the same period. This return produced an overall investment loss of \$1,012.2 million for the year ending June 30, 2022. On an actuarial value of assets basis (net of PAF), the return for FYE 2022 was 7.68%. In the table below, we also provide returns from two broad asset classes for comparison.

Table III-8					
Annual Rates of Return					
Year Ending	Investment	Market	Actuarial	Total Return	Barclays
June 30,	Return	Value	Value *	Standard & Poor's	Aggregate
	Assumption			500 Index	Bond Index**
1995	9.00%	11.70%	7.80%	26.10%	12.80%
1996	9.00%	15.10%	10.10%	26.00%	4.70%
1997	9.00%	18.30%	12.20%	34.60%	8.20%
1998	9.00%	14.30%	13.10%	30.20%	10.50%
1999	9.00%	10.00%	13.10%	22.70%	3.10%
2000	9.00%	9.60%	11.10%	7.30%	4.60%
2001	9.00%	-6.00%	8.30%	-14.80%	11.20%
2002	9.00%	-5.80%	3.40%	-18.00%	8.60%
2003	9.00%	1.80%	-2.20%	0.30%	10.40%
2004	9.00%	16.60%	4.60%	19.10%	0.30%
2005	8.75%	9.90%	1.80%	6.31%	6.81%
2006	8.75%	11.30%	6.10%	8.60%	-0.80%
2007	8.75%	16.98%	10.71%	20.60%	6.10%
2008	8.75%	-4.53%	10.13%	-13.10%	7.10%
2009	8.75%	-19.87%	-9.28%	-26.21%	5.98%
2010	8.25%	13.81%	12.89%	14.40%	9.19%
2011	8.15%	19.40%	9.90%	28.13%	3.56%
2012	8.10%	0.18%	2.42%	3.14%	7.30%
2013	7.95%	10.94%	5.08%	17.91%	-0.85%
2014	7.85%	15.70%	4.81%	22.04%	4.36%
2015	7.80%	0.29%	5.80%	5.25%	1.86%
2016	7.75%	-3.17%	4.45%	1.73%	6.00%
2017	7.70%	13.08%	4.40%	15.46%	-0.31%
2018	7.65%	9.01%	5.11%	12.17%	-0.39%
2019	7.60%	5.66%	7.60%	8.22%	7.82%
2020	7.55%	1.53%	6.54%	5.39%	8.65%
2021	7.50%	28.42%	6.28%	38.62%	-0.38%
2022	7.45%	-6.46%	7.68%	-11.92%	-10.27%

* Net of PAF

** Formerly Lehman Brothers Aggregate Bond Index

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION III – ASSETS

H. Asset Gain/(Loss)

There was a \$1,012.2 million investment loss on market value of assets when compared to the expected as of July 1, 2022. Table III-9 reconciles the 2022 asset gain (expected versus actual) for the market value of assets both net of the PAF and in total. This investment gain is smoothed over a ten-year period to determine the actuarial value of assets (see Table III – 4). Also provided below is a reconciliation of the PAF.

Table III-9				
Calculation of Asset Gain/(Loss)				
	Market Value (Net of PAF)	PAF	Total Market Value	
1. Market Value of Assets as of July 1, 2021	\$ 7,348,511,740	\$ 76,471,047	\$ 7,424,982,787	
2. Transactions During Plan Year July 1, 2021 to June 30, 2022				
a. Contributions				
City and Commonwealth	\$ 844,559,195	\$ 0	\$ 844,559,195	
Employees	110,446,674	0	110,446,674	
Quasi-Public Agencies	15,227,422	0	15,227,422	
b. Benefit Payments	(915,896,934)	(37,395,128)	(953,292,062)	
c. Withdrawals	(13,393,966)	0	(13,393,966)	
d. Administrative Expenses	(8,933,371)	0	(8,933,371)	
e. Net Transactions	\$ 32,009,020	\$ (37,395,128)	\$ (5,386,108)	
3. Expected Investment Income from July 1, 2021 to June 30, 2022	\$ 537,127,863	\$ (4,735,289) *	\$ 532,392,574	
4. PAF transfer at July 1, 2022	\$ 0	\$ 0	\$ 0	
5. Expected Market Value of Assets as of July 1, 2022 [1. + 2.e. + 3. + 4]	\$ 7,917,648,623	\$ 34,340,630	\$ 7,951,989,253	
6. Market Value of Assets as of July 1, 2022	\$ 6,905,493,266	\$ 34,340,630	\$ 6,939,833,896	
7. Investment Gain/(Loss) [6. - 5.]	\$ (1,012,155,357)	\$ 0	\$ (1,012,155,357)	

* The PAF is credited with investment income at the market rate of return earned by plan assets.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

In this section, we present detailed information on liabilities for the City of Philadelphia Municipal Retirement System, including:

- Disclosure of liabilities at July 1, 2021 and July 1, 2022,
- Statement of changes in these liabilities and the unfunded liabilities during the year,
- Development of the normal cost rates by plan, and
- The reconciliation of the changes in the unfunded liability by plan as well as the expected unfunded liability as of July 1, 2023.

Disclosure

Two types of liabilities are calculated and presented in this report. Each type is distinguished by the purpose for which the figures are ultimately used.

- **Present Value of all Future Benefits:** Used for measuring all future obligations, this represents the amount of money needed today to fully fund all benefits both earned as of the valuation date and those to be earned in the future by current plan participants, under the current plan provisions and assumptions.
- **Actuarial Liability:** Used for determining employer contributions and GASB accounting disclosures. This liability is calculated by subtracting the present value of future member contributions and future employer normal cost contributions as determined under the Entry Age Normal Cost (EAN) actuarial funding method from the present value of all future benefits.

These liabilities are for funding purposes and are not appropriate for measuring the cost of settling plan liabilities by purchasing annuities or paying lump sums.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-1 shows the present value of future benefits, actuarial liability, and unfunded actuarial liability as of July 1, 2022, and July 1, 2021, for the Retirement System. The UAL shown in the table below is based on AVA including the additional revenue account balance which is different from the assets used in calculating the RRP contributions.

Table IV-1 Disclosure of Liabilities (\$ thousands)		
	July 1, 2022	July 1, 2021
Present Value of Future Benefits		
Actives	\$ 5,944,148	\$ 5,769,176
Terminated Vesteds	87,726	94,294
Disabled	873,306	839,239
Retirees	5,464,920	5,317,192
Beneficiaries	749,119	722,709
DROP Account plus Deferred Annuities	1,116,831	1,023,223
Non-Vested Refunds	9,007	9,068
Total City PVFB	\$ 14,245,057	\$ 13,774,901
Market Value of Assets (Net of PAF)	(6,905,493)	(7,348,512)
Present Value Future Member Contrib.	(1,135,228)	(1,074,081)
City's Unfunded Future Obligation	\$ 6,204,336	\$ 5,352,308
Actuarial Liability		
Actives	\$ 4,147,465	\$ 4,068,311
Terminated Vesteds	87,726	94,294
Disabled	873,306	839,239
Retirees	5,464,920	5,317,192
Beneficiaries	749,119	722,709
DROP	1,116,831	1,023,223
Non-Vested Refunds	9,007	9,068
Total City AL	\$ 12,448,374	\$ 12,074,036
Actuarial Value of Assets	(7,176,062)	(6,633,086)
Unfunded Actuarial Liability	\$ 5,272,312	\$ 5,440,950

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-2 shows the present value of future benefits, actuarial liability, and unfunded actuarial liability for each Plan in the Retirement System.

Table IV-2 Liabilities Detail as of July 1, 2022 (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Present Value of Future Benefits										
Actives	\$ 287,681	\$ 82,731	\$ 35,875	\$ 2,423,600	\$ 15,171	\$ 2,025,887	\$ 816,971	\$ 47,237	\$ 208,994	\$ 5,944,148
Terminated Vesteds	17,893	0	0	59,987	0	8,755	1,046	0	46	87,726
Disabled	185,818	150,817	30,627	169,015	0	289,033	46,413	0	1,583	873,306
Retirees	2,714,655	1,175,734	505,203	624,958	12,954	340,968	90,447	0	0	5,464,920
Beneficiaries	352,201	183,601	82,554	64,585	2,138	48,438	15,602	0	0	749,119
DROP	282,319	157,553	32,145	179,223	0	399,809	65,782	0	0	1,116,831
Non-Vested Refunds	1,588	155	194	5,874	10	885	302	0	0	9,007
Total PVFB	\$ 3,842,155	\$ 1,750,591	\$ 686,598	\$ 3,527,242	\$ 30,273	\$ 3,113,775	\$ 1,036,563	\$ 47,237	\$ 210,623	\$ 14,245,057
Actuarial Liability										
Actives	\$ 274,975	\$ 77,292	\$ 33,807	\$ 1,852,530	\$ 11,768	\$ 1,328,100	\$ 492,882	\$ 21,326	\$ 54,785	\$ 4,147,465
Terminated Vesteds	17,893	0	0	59,987	0	8,755	1,046	0	46	87,726
Disabled	185,818	150,817	30,627	169,015	0	289,033	46,413	0	1,583	873,306
Retirees	2,714,655	1,175,734	505,203	624,958	12,954	340,968	90,447	0	0	5,464,920
Beneficiaries	352,201	183,601	82,554	64,585	2,138	48,438	15,602	0	0	749,119
DROP	282,319	157,553	32,145	179,223	0	399,809	65,782	0	0	1,116,831
Non-Vested Refunds	1,588	155	194	5,874	10	885	302	0	0	9,007
Total AL	\$ 3,829,449	\$ 1,745,152	\$ 684,530	\$ 2,956,172	\$ 26,870	\$ 2,415,988	\$ 712,474	\$ 21,326	\$ 56,414	\$ 12,448,374
Actuarial Value of Assets	(1,502,239)	(495,228)	(162,255)	(2,271,865)	(18,399)	(1,997,654)	(642,945)	(24,936)	(60,541)	(7,176,062)
Unfunded Actuarial Liability	\$ 2,327,210	\$ 1,249,924	\$ 522,276	\$ 684,307	\$ 8,471	\$ 418,334	\$ 69,529	\$ (3,610)	\$ (4,126)	\$ 5,272,312
Funding Percent	39.2%	28.4%	23.7%	76.9%	68.5%	82.7%	90.2%	116.9%	107.3%	57.6%

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-3 shows the derivation of the City normal cost as a percent of pay for each Plan in the System as of the valuation date. For MMO purposes, the normal cost as a percent of pay for the aggregated uniform, police and fire plans reflects the projected payroll for each plan. The expected employee contributions below include tier and additional Police and Firefighter member contributions.

Table IV-3 Derivation of the Normal Cost as of July 1, 2022 on MMO Basis (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Retirement	\$ 1,586	\$ 1,227	\$ 515	\$ 48,629	\$ 354	\$ 47,567	\$ 22,065	\$ 1,930	\$ 12,373	\$ 136,247
Death	95	51	22	2,798	19	2,621	1,231	123	801	7,762
Disability	221	219	91	6,973	39	11,185	5,208	457	2,349	26,742
Termination	1,553	177	72	12,030	152	1,922	722	485	3,861	20,975
Administrative Expenses	2,552	1,137	393	2,668	7	1,079	427	135	830	9,228
Total Normal Cost (with Expenses)	\$ 6,007	\$ 2,812	\$ 1,093	\$ 73,098	\$ 571	\$ 64,375	\$ 29,653	\$ 3,130	\$ 20,215	\$ 200,955
Expected Employee Contributions	\$ 2,634	\$ 593	\$ 255	\$ 42,536	\$ 465	\$ 34,067	\$ 15,480	\$ 2,289	\$ 13,155	\$ 111,474
City Normal Cost	\$ 3,373	\$ 2,219	\$ 838	\$ 30,562	\$ 106	\$ 30,308	\$ 14,172	\$ 842	\$ 7,060	\$ 89,480
Current Annual Payroll	\$ 41,434	\$ 9,880	\$ 4,254	\$ 824,259	\$ 3,205	\$ 469,545	\$ 208,763	\$ 60,124	\$ 299,678	\$ 1,921,142
City Normal Cost as % of Pay, Beginning of Year Payment	8.140%	22.463%	19.697%	3.708%	3.311%	6.455%	6.789%	1.400%	2.356%	4.658%
City Normal Cost as % of Pay, End of Year Payment	8.742%	24.125%	21.154%	3.982%	3.556%	6.932%	7.291%	1.503%	2.530%	5.002%

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-4 shows changes in the unfunded actuarial liability from July 1, 2021 to July 1, 2022 due to actuarial experience, assumption changes, and plan changes. The table also shows the development of the expected unfunded actuarial liability from July 1, 2022 to July 1, 2023 based upon the City’s Funding Policy, which is used to develop the end of year amortization amounts for the City’s Funding Policy in Table V – 10 and in Appendix B. The actuarial experience of each of the plans is calculated based on the plans’ actual asset and liability values compared to the expected values.

Table IV-4 Expected Unfunded Actuarial Liability for the Plan Year Ending June 30, 2023 (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation*	\$ 2,304,576	\$ 1,255,622	\$ 527,976	\$ 586,546	\$ 7,601	\$ 362,110	\$ 61,290	\$ (3,957)	\$ (3,804)	\$ 5,097,960
2. Changes in UAL due to										
a. Actuarial Experience	\$ 911	\$ 659	\$ (14)	\$ 29,654	\$ 408	\$ (8,315)	\$ (5,493)	\$ (139)	\$ (1,810)	\$ 15,862
b. Assumption Changes	21,724	(6,358)	(5,686)	68,107	462	64,540	13,732	486	1,487	158,493
c. Active Plan Changes	0	0	0	0	0	0	0	0	0	0
d. Inactive Plan Changes	0	0	0	0	0	0	0	0	0	0
e. Subtotal	\$ 22,635	\$ (5,699)	\$ (5,700)	\$ 97,761	\$ 870	\$ 56,225	\$ 8,238	\$ 347	\$ (322)	\$ 174,355
3. Actual UAL as of July 1, 2022 [1. + 2e.]	\$ 2,327,210	\$ 1,249,923	\$ 522,275	\$ 684,307	\$ 8,471	\$ 418,334	\$ 69,529	\$ (3,610)	\$ (4,126)	\$ 5,272,313
4. Expected Changes in UAL from July 1, 2022 to July 1, 2023 due to										
a. Interest on Changes in UAL	\$ 1,675	\$ (422)	\$ (422)	\$ 7,234	\$ 64	\$ 4,161	\$ 610	\$ 26	\$ (24)	\$ 12,902
b. FY 2023 Amortization Contribution	(166,036)	(83,305)	(35,992)	(38,446)	(876)	(13,478)	(3,738)	74	26	(341,772)
c. Subtotal	\$ (164,361)	\$ (83,727)	\$ (36,414)	\$ (31,211)	\$ (811)	\$ (9,318)	\$ (3,129)	\$ 99	\$ 2	\$ (328,869)
5. Expected UAL as of July 1, 2023 [3. + 4c.]	\$ 2,162,849	\$ 1,166,196	\$ 485,861	\$ 653,096	\$ 7,660	\$ 409,016	\$ 66,400	\$ (3,511)	\$ (4,124)	\$ 4,943,444

* Expected UAL is based upon the City's funding policy
Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-5 shows a reconciliation of the changes in the Actuarial Liability from July 1, 2021 to July 1, 2022. The components of that change can include:

- Benefits accrued since the last valuation
- Plan amendments changing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial assumptions
- A change in the actuarial funding method

The expected liabilities below were provided in the GASB 67 and 68 report for Measurement Date June 30, 2022.

Table IV-5 Change in Actuarial Liability (\$ thousands)	
Liabilities on July 1, 2021	\$ 12,074,036
Liabilities on July 1, 2022	<u>12,448,374</u>
Liability Increase/(Decrease)	\$ 374,338
Liabilities on July 1, 2021	\$ 12,074,036
Expected Change During the year due to:	
Accrual of Benefits	\$ 186,294
Benefit Payments	(929,291)
Passage of Time	<u>879,400</u>
Total	\$ 136,403
Expected Liabilities on June 30, 2022	\$ 12,210,439
Change Due to:	
Method Change	\$ 0
Plan Amendment	0
Assumption Change	158,493
Liability (Gain)/Loss	<u>79,442</u>
Total	\$ 237,935
Liabilities on July 1, 2022	\$ 12,448,374

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

In the process of evaluating the financial condition of any pension system, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions are needed based on the funding methods either required by law or adopted by the plan sponsor. For an actuarial funding method to be effective, it should result in a pattern of contributions that are both stable and predictable as well as systematically fund the plan obligations.

The actuarial funding method used to determine the normal cost and the unfunded actuarial liability is the Entry Age Normal (EAN) cost method. The normal cost is based on taking the value, as of entry age into the plan, of each member's projected future benefits. This value is then divided by the value, also at entry age, of each member's expected future salary producing a normal cost rate as a percent of salary that should remain relatively constant over a participant's career. The normal cost rate is multiplied by current salary to determine each member's normal cost which is then all summed to get the total normal cost for all members. Finally, the total normal cost is reduced by the member contribution to produce the employer normal cost. The normal cost also includes an explicit administrative expense assumption to account for anticipated administrative expenses. The unfunded actuarial liability is the difference between the EAN actuarial liability and the actuarial value of assets.

Within this section of the report, three contribution amounts are calculated based on three different sets of funding policies for determining the way the unfunded actuarial liability is funded.

- The first policy is defined in accordance with Act 205 and defines the Minimum Municipal Obligation (MMO), which is the City's minimum required contribution under Pennsylvania State law.
- The second policy is the Revenue Recognition Policy (RRP), which is similar to the MMO calculations except the assets used for determining the contributions exclude the accumulated value of sales tax revenue and tier and additional member contributions received by the System to dedicate these funds to exclusively pay down the Unfunded Liability.
- The third policy is in accordance with the City's Funding Policy implemented in 1984, which predates the Act 205 rules and calls for contributions based on a different amortization schedule for the unfunded actuarial liability.

Under all funding policies there are two components: the normal cost and the amortized unfunded actuarial liability. The amortized unfunded actuarial liability is the amount of the unfunded actuarial liability that is paid each year based upon the given or defined amortization periods. The amortization periods are different under the MMO/RRP and the City's Funding Policy. These amortization periods are outlined in more detail in Appendix C, Section B.

As of July 1, 2010, gains and losses are recognized annually to determine the amortization base used to calculate the MMO, as opposed to biennially. This change is implemented in accordance with section 1002 of Act 205 and has been continued since then to provide greater transparency in the determination of the period and amount of such amounts.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

In addition, the MMO, excluding the Pension Obligation Bond (POB), is also provided in this section, as required for reporting purposes under Act 205.

In Table V-1 we provide the employee contribution rates as a percent of pay effective for the plan year starting July 1, 2023. The rates shown include the 1% increase in contributions for certain municipal employees and elected officials in Plan 67, 87 and 87 prime as required by legislation in 2015 as well as the additional 1% for new employees in these groups entering Plan 87 Municipal prime. The rates shown for Police Officers and Firefighters in Plan 87 and 87 Prime and Plan 10 include the increases effective July 1, 2017 resulting from the Pension Award. For a complete list of all plan codes by membership class for employee contribution rates, refer to Appendix D of this report.

Table V-1 Employee Contribution Rates for the Plan Year Beginning July 1, 2023				
	Municipal¹	Elected²	Police	Fire
Plan 67	7.00%	N/A	6.00%	6.00%
Plan 87	3.66%	11.75%	6.84%	6.84%
Plan 87- 50% of Aggregate NC ³	4.43%	N/A	N/A	N/A
Plan 87 - Accelerated Vesting ⁴	5.29%	13.92%	N/A	N/A
Plan 87 Prime ⁵	4.66%	12.75%	7.84%	7.84%
Plan '10	2.60%	N/A	7.34%	7.34%
Plan '10 - Accelerated Vesting	3.49%	N/A	N/A	N/A
Plan '16 ⁶	4.17%	N/A	N/A	N/A
Plan '16 - Accelerated Vesting ⁷	4.64%	N/A	N/A	N/A

¹ For Municipal Plan 67 members who participate in the Social Security System, employee contributions are 4.75% of compensation up to the social security wage base and 7% above it.

² The employee contribution rate is based upon the normal cost of \$571,022 under Plan 87 Elected, normal cost of \$323,730 under Plan 87 Municipal and current annual payroll of \$3,205,286.

³ This represents 50% of Aggregate Normal Cost for all members in Plan Y and applies to Deputy Sheriffs hired between 1/1/2012 and 6/20/2018.

⁴ Member rate for Municipal Plan 87 (Y5) members eligible to vest in 5 years, and Elected Officials (L8) eligible to be vested in 8 years, instead of 10 years.

⁵ Plan 87 Prime refers to new hires who have the option to elect Plan '10 but have elected to stay in Plan '87. New hires after 7/1/2017 in Police and Fire Plan 87 Prime pay 8.50% and are not reflected above.

⁶ All Municipal groups (except elected officials) hired after January 1, 2019 participate in Plan '16.

⁷ Member rate for Municipal Plan 16 members eligible to vest in 7 years instead of 10 years.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-2a and Table V-2b isolate the contribution requirements for the Quasi Agencies that participate in the System broken out for Municipal Plans 1967, 1987, 2010, and 2016 both under the Funding Policy and MMO.

Table V-2a		
Quasi Agency Funding Rate as a Percent of Payroll (Based on Funding Policy)		
Valuation Date	July 1, 2022	July 1, 2021
Fiscal Year Ending in Year	2024	2023
67 Municipal		
1. Normal Cost Rate	8.742%	8.376%
2. Amortization Rate under the City's Funding Policy	<u>810.798%</u>	<u>648.890%</u>
3. Total Year-End Rate [1. + 2.]	819.540%	657.266%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	797.733%	639.663%
87 Municipal		
1. Normal Cost Rate	3.982%	4.026%
2. Amortization Rate under the City's Funding Policy	<u>11.288%</u>	<u>9.665%</u>
3. Total Year-End Rate [1. + 2.]	15.270%	13.691%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	14.864%	13.324%
Plan 10 Municipal		
1. Normal Cost Rate	1.503%	1.479%
2. Amortization Rate under the City's Funding Policy	<u>-0.536%</u>	<u>-0.556%</u>
3. Total Year-End Rate [1. + 2.]	0.967%	0.923%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	0.942%	0.898%
Plan 16 Municipal		
1. Normal Cost Rate	2.530%	2.553%
2. Amortization Rate under the City's Funding Policy	<u>-0.106%</u>	<u>-0.148%</u>
3. Total Year-End Rate [1. + 2.]	2.424%	2.405%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	2.360%	2.341%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-2b		
Quasi Agency Funding Rate as a Percent of Payroll (Based on MMO)		
Valuation Date	July 1, 2022	July 1, 2021
Fiscal Year Ending in Year	2024	2023
67 Municipal		
1. Normal Cost Rate	8.742%	8.376%
2. Amortization Rate under MMO*	<u>681.309%</u>	<u>553.023%</u>
3. Total Year-End Rate [1. + 2.]	690.051%	561.399%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	671.689%	546.364%
87 Municipal		
1. Normal Cost Rate	3.982%	4.026%
2. Amortization Rate under MMO*	<u>10.071%</u>	<u>8.756%</u>
3. Total Year-End Rate [1. + 2.]	14.053%	12.782%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	13.679%	12.440%
Plan 10 Municipal		
1. Normal Cost Rate	1.503%	1.479%
2. Amortization Rate under MMO*	<u>-0.728%</u>	<u>-0.686%</u>
3. Total Year-End Rate [1. + 2.]	0.775%	0.793%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	0.754%	0.771%
Plan 16 Municipal		
1. Normal Cost Rate	2.530%	2.553%
2. Amortization Rate under MMO*	<u>-0.167%</u>	<u>-0.203%</u>
3. Total Year-End Rate [1. + 2.]	2.363%	2.350%
4. Quarterly adjustment factor	0.97339	0.97322
5. Total, adjusted for Quarterly Payments [3. x 4.]	2.300%	2.287%

* The amortization amounts were derived based on the proportional share of the Unfunded Actuarial Liability.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-3a shows the development of the FYE 2024 Minimum Municipal Obligation (MMO) and Table V-3b shows the Revenue Recognition Policy (RRP) for each division. Table V-4 on the following page shows a schedule of amortization payments toward the MMO.

Table V-3a				
Development of the Minimum Municipal Obligation for Fiscal Year End 2024				
(\$ thousands)				
	Non-Uniformed	Police	Fire	Total
Estimated FY 2023-2024 Payroll	\$ 1,269,247	\$ 495,246	\$ 220,046	\$ 1,984,539
Normal Cost % without Expenses	7.754%	13.533%	14.033%	9.892%
Normal Cost without Expenses	\$ 98,412	\$ 67,023	\$ 30,879	\$ 196,314
Amortization Payment	340,218	176,953	65,113	582,284
Administrative Expenses	6,396	2,290	847	9,533
Subtotal	\$ 445,026	\$ 246,266	\$ 96,839	\$ 788,131
Expected Employee Contributions*	(63,953)	(36,098)	(16,390)	(116,441)
Minimum Municipal Obligation	\$ 381,072	\$ 210,168	\$ 80,449	\$ 671,689

* Includes additional expected member contributions from Police and Fire Plans 87 and Tier Contributions from Municipal Plans

Table V-3b				
Development of the Revenue Recognition Policy for Fiscal Year End 2024				
(\$ thousands)				
	Non-Uniformed	Police	Fire	Total
Estimated FY 2023-2024 Payroll	\$ 1,269,247	\$ 495,246	\$ 220,046	\$ 1,984,539
Normal Cost % without Expenses	7.754%	13.533%	14.033%	9.892%
Normal Cost without Expenses	\$ 98,412	\$ 67,023	\$ 30,879	\$ 196,314
Amortization Payment	362,798	191,469	69,794	624,062
Administrative Expenses	6,396	2,290	847	9,533
Subtotal	\$ 467,606	\$ 260,782	\$ 101,520	\$ 829,909
Expected Employee Contributions *	(48,429)	(26,599)	(12,118)	(87,146)
Revenue Recognition Policy	\$ 419,177	\$ 234,184	\$ 89,403	\$ 742,764

* Does not include additional expected member contributions from Police and Fire Plans 87 and Tier Contributions from Municipal Plans

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-4 Unfunded Liability Payments toward the MMO for Fiscal Year 2024 (\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2022 Balance	Years Left	FY 2024 Payment	7/1/2022 Balance	Years Left	FY 2024 Payment	7/1/2022 Balance	Years Left	FY 2024 Payment	7/1/2022 Balance	Years Left	FY 2024 Payment
Fresh Start Base est. July 1, 2009	\$ 2,228,697	17	\$ 218,472	\$ 1,254,499	17	\$ 122,974	\$ 486,142	17	\$ 47,655	\$ 3,969,338	17	\$ 389,101
Gain/Loss Base est. July 1, 2010	\$ (34,899)	8	\$ (5,526)	\$ (24,885)	8	\$ (3,941)	\$ (1,863)	8	\$ (295)	\$ (61,647)	8	\$ (9,762)
Assumption Change est. July 1, 2010	\$ 25,461	3	\$ 9,100	\$ 10,216	3	\$ 3,651	\$ 9,323	3	\$ 3,332	\$ 45,000	3	\$ 16,083
Gain/Loss est. July 1, 2011	\$ (72,360)	9	\$ (10,518)	\$ (14,663)	9	\$ (2,131)	\$ (14,419)	9	\$ (2,096)	\$ (101,442)	9	\$ (14,745)
Assumption Change est. July 1, 2011	\$ 8,961	4	\$ 2,486	\$ 5,388	4	\$ 1,494	\$ 1,817	4	\$ 504	\$ 16,166	4	\$ 4,484
Gain/Loss est. July 1, 2012	\$ 104,691	10	\$ 14,136	\$ 55,371	10	\$ 7,477	\$ 14,340	10	\$ 1,936	\$ 174,401	10	\$ 23,549
Assumption Change est. July 1, 2012	\$ 28,246	5	\$ 6,483	\$ 16,137	5	\$ 3,704	\$ 5,638	5	\$ 1,294	\$ 50,021	5	\$ 11,481
Gain/Loss est. July 1, 2013	\$ 96,476	11	\$ 12,219	\$ 28,103	11	\$ 3,559	\$ (3,966)	11	\$ (502)	\$ 120,612	11	\$ 15,276
Assumption Change est. July 1, 2013	\$ 42,454	6	\$ 8,396	\$ 25,458	6	\$ 5,035	\$ 8,491	6	\$ 1,679	\$ 76,403	6	\$ 15,109
Gain/Loss est. July 1, 2014	\$ 80,694	12	\$ 9,662	\$ 33,048	12	\$ 3,957	\$ 38,356	12	\$ 4,593	\$ 152,097	12	\$ 18,212
Assumption Change est. July 1, 2014	\$ 156,990	7	\$ 27,502	\$ (5,499)	7	\$ (963)	\$ 6,314	7	\$ 1,106	\$ 157,805	7	\$ 27,645
Gain/Loss est. July 1, 2015	\$ 139,381	13	\$ 15,882	\$ 31,647	13	\$ 3,606	\$ 30,495	13	\$ 3,475	\$ 201,523	13	\$ 22,963
Assumption Change est. July 1, 2015	\$ 18,535	8	\$ 2,935	\$ 26,786	8	\$ 4,242	\$ 8,552	8	\$ 1,354	\$ 53,873	8	\$ 8,531
Gain/Loss est. July 1, 2016	\$ 98,313	14	\$ 10,720	\$ 64,985	14	\$ 7,086	\$ 18,080	14	\$ 1,971	\$ 181,378	14	\$ 19,776
Assumption Change est. July 1, 2016	\$ 20,643	9	\$ 3,001	\$ 12,313	9	\$ 1,790	\$ 4,082	9	\$ 593	\$ 37,038	9	\$ 5,384
Gain/Loss est. July 1, 2017	\$ 72,360	15	\$ 7,585	\$ 58,311	15	\$ 6,113	\$ 14,217	15	\$ 1,490	\$ 144,888	15	\$ 15,188
Assumption Change est. July 1, 2017	\$ 22,640	10	\$ 3,057	\$ 13,643	10	\$ 1,842	\$ 4,521	10	\$ 610	\$ 40,804	10	\$ 5,510

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-4 (Continued)												
Unfunded Liability Payments toward the MMO for Fiscal Year 2024												
(\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2022 Balance	Years Left	FY 2024 Payment	7/1/2022 Balance	Years Left	FY 2024 Payment	7/1/2022 Balance	Years Left	FY 2024 Payment	7/1/2022 Balance	Years Left	FY 2024 Payment
Gain/Loss												
est. July 1, 2018	\$ 14,534	16	\$ 1,471	\$ 22,952	16	\$ 2,323	\$ 8,164	16	\$ 826	\$ 45,650	16	\$ 4,619
Assumption Change												
est. July 1, 2018	\$ 116,931	11	\$ 14,810	\$ (50,004)	11	\$ (6,333)	\$ (16,928)	11	\$ (2,144)	\$ 50,000	11	\$ 6,333
Gain/Loss												
est. July 1, 2019	\$ (74,785)	17	\$ (7,331)	\$ 3,406	17	\$ 334	\$ (1,577)	17	\$ (155)	\$ (72,956)	17	\$ (7,152)
Assumption Change												
est. July 1, 2019	\$ 27,242	12	\$ 3,262	\$ 16,159	12	\$ 1,935	\$ 5,413	12	\$ 648	\$ 48,814	12	\$ 5,845
Plan Change												
est. July 1, 2019	\$ 757	7	\$ 133	\$ 0	7	\$ 0	\$ 0	7	\$ 0	\$ 757	7	\$ 133
Gain/Loss												
est. July 1, 2020	\$ 47,702	18	\$ 4,544	\$ (43,245)	18	\$ (4,119)	\$ (11,497)	18	\$ (1,095)	\$ (7,040)	18	\$ (671)
Assumption Change												
est. July 1, 2020	\$ 29,589	13	\$ 3,372	\$ 17,146	13	\$ 1,954	\$ 5,798	13	\$ 661	\$ 52,534	13	\$ 5,986
Gain/Loss												
est. July 1, 2021	\$ (248,100)	19	\$ (23,025)	\$ 64,767	19	\$ 6,011	\$ (20,975)	19	\$ (1,947)	\$ (204,307)	19	\$ (18,961)
Assumption Change												
est. July 1, 2021	\$ 29,696	14	\$ 3,238	\$ 18,512	14	\$ 2,018	\$ 6,089	14	\$ 664	\$ 54,296	14	\$ 5,920
Gain/Loss												
est. July 1, 2022	\$ (60,862)	20	\$ (5,517)	\$ (30,477)	20	\$ (2,762)	\$ (20,847)	20	\$ (1,890)	\$ (112,186)	20	\$ (10,169)
Assumption Change												
est. July 1, 2022	\$ 92,266	15	\$ 9,672	\$ 58,182	15	\$ 6,099	\$ 8,045	15	\$ 843	\$ 158,493	15	\$ 16,614
Total	\$ 3,012,251		\$ 340,218	\$ 1,668,257		\$ 176,953	\$ 591,804		\$ 65,113	\$ 5,272,312		\$ 582,284

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-5 (a) – (d) provides more detail by plan on the expected and actual unfunded actuarial liability and the new amortization bases established as of July 1, 2022 for the MMO.

Table V-5a			
Development of the Fiscal Year 2024 Amortization Payment under MMO			
Municipal and Elected			
(\$ thousands)			
	7/1/2022	Remaining	FY 2024
	Outstanding Balance	Years	Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation	\$ 2,980,848		\$ 336,062
2. Changes in UAL due to			
a. Actuarial Experience	\$ (60,862)	20	\$ (5,517)
b. Assumption Changes	92,266	15	9,672
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ 31,403		\$ 4,155
3. Total [1c. + 2e.]	\$ 3,012,251		\$ 340,218

Note: Numbers may not add due to rounding.

Table V-5b			
Development of the Fiscal Year 2024 Amortization Payment under MMO			
Police			
(\$ thousands)			
	7/1/2022	Remaining	FY 2024
	Outstanding Balance	Years	Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation	\$ 1,640,552		\$ 173,616
2. Changes in UAL due to			
a. Actuarial Experience	\$ (30,477)	20	\$ (2,762)
b. Assumption Changes	58,182	15	6,099
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ 27,705		\$ 3,337
3. Total [1c. + 2e.]	\$ 1,668,257		\$ 176,953

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-5c			
Development of the Fiscal Year 2024 Amortization Payment under MMO			
Fire			
(\$ thousands)			
	7/1/2022 Outstanding Balance	Remaining Years	FY 2024 Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation	\$ 604,606		\$ 66,159
2. Changes in UAL due to			
a. Actuarial Experience	\$ (20,847)	20	\$ (1,890)
b. Assumption Changes	8,045	15	843
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	<u>0</u>	<u>1</u>	<u>0</u>
e. Subtotal	\$ (12,802)		\$ (1,046)
3. Total [1c. + 2e.]	\$ 591,804		\$ 65,113

Note: Numbers may not add due to rounding.

Table V-5d			
Development of the Fiscal Year 2024 Amortization Payment under MMO			
Total			
(\$ thousands)			
	7/1/2022 Outstanding Balance	Remaining Years	FY 2024 Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation	\$ 5,226,006		\$ 575,837
2. Changes in UAL due to			
a. Actuarial Experience	\$ (112,186)	20	\$ (10,169)
b. Assumption Changes	158,493	15	16,614
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	<u>0</u>	<u>1</u>	<u>0</u>
e. Subtotal	\$ 46,307		\$ 6,446
3. Total [1c. + 2e.]	\$ 5,272,313		\$ 582,283

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

The tables on the following pages support Exhibit I of the Act 205 filings.

- Table V-6 is a summary of assets, liabilities, and amortization contributions under the assumption that the Pension Obligation Bond (POB) was never contributed.
- Table V-7 is a schedule of modified amortization payments under the assumption that the proceeds from the POB were never contributed.
- Table V-8a, V-8b, and V-8c are debt service schedules for the POB, allocated for the Municipal, Police, and Fire divisions.
- Tables V-9a and V-9b are statements of receipts and disbursements for each division excluding and including bond issue assets, respectively, excluding the PAF.

Table V-6				
Summary of Modified Actuarial Data				
(\$ thousands)				
	Municipal	Police	Fire	Total
Actuarial Liability	\$ 6,890,231	\$ 4,161,139	\$ 1,397,004	\$ 12,448,374
Market Value of Assets (less POB)	\$ 3,570,890	\$ 2,385,972	\$ 697,923	\$ 6,654,785
Actuarial Value of Assets (less POB)	\$ 3,619,298	\$ 2,338,901	\$ 723,402	\$ 6,681,601
Unfunded Actuarial Liability (AL - AVA)	\$ 3,270,933	\$ 1,822,238	\$ 673,602	\$ 5,766,773
Amortization Contributions				
Total Amortization Amount	\$ 366,540	\$ 193,243	\$ 73,564	\$ 633,347
Remaining Years	13	15	14	14

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-7 Modified Unfunded Liability Payments toward the MMO for Fiscal Year 2024 (\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2022 Balance	Remaining Years	FY 2024 Payment	7/1/2022 Balance	Remaining Years	FY 2024 Payment	7/1/2022 Balance	Remaining Years	FY 2024 Payment	7/1/2022 Balance	Remaining Years	FY 2024 Payment
Fresh Start UAL Base est. July 1, 2009	\$ 2,613,490	17	\$ 256,192	\$ 1,415,598	17	\$ 138,766	\$ 599,710	17	\$ 58,788	\$ 4,628,797	17	\$ 453,746
July 1, 2010 Charges												
Experience (Gain)/Loss	\$ (30,910)	8	\$ (4,895)	\$ (21,622)	8	\$ (3,424)	\$ 1,061	8	\$ 168	\$ (51,470)	8	\$ (8,151)
Assumption Change	25,461	3	9,100	10,216	3	3,651	9,323	3	3,332	45,000	3	16,083
July 1, 2011 Charges												
Experience (Gain)/Loss	\$ (56,613)	9	\$ (8,229)	\$ (5,707)	9	\$ (829)	\$ (7,642)	9	\$ (1,111)	\$ (69,962)	9	\$ (10,169)
Assumption Change	\$ 8,961	4	\$ 2,486	\$ 5,388	4	\$ 1,494	\$ 1,817	4	\$ 504	\$ 16,166	4	\$ 4,484
July 1, 2012 Charges												
Experience (Gain)/Loss	\$ 105,175	10	\$ 14,202	\$ 58,386	10	\$ 7,884	\$ 14,973	10	\$ 2,022	\$ 178,534	10	\$ 24,107
Assumption Change	\$ 28,246	5	\$ 6,483	\$ 16,137	5	\$ 3,704	\$ 5,638	5	\$ 1,294	\$ 50,021	5	\$ 11,481
July 1, 2013 Charges												
Experience (Gain)/Loss	\$ 103,452	11	\$ 13,103	\$ 35,046	11	\$ 4,439	\$ (2,393)	11	\$ (303)	\$ 136,104	11	\$ 17,238
Assumption Change	\$ 42,454	6	\$ 8,396	\$ 25,458	6	\$ 5,035	\$ 8,491	6	\$ 1,679	\$ 76,403	6	\$ 15,109
July 1, 2014 Charges												
Experience (Gain)/Loss	\$ 81,113	12	\$ 9,712	\$ 36,965	12	\$ 4,426	\$ 37,944	12	\$ 4,543	\$ 156,023	12	\$ 18,682
Assumption Change	\$ 156,990	7	\$ 27,502	\$ (5,499)	7	\$ (963)	\$ 6,314	7	\$ 1,106	\$ 157,805	7	\$ 27,645
July 1, 2015 Charges												
Experience (Gain)/Loss	\$ 135,877	13	\$ 15,483	\$ 34,802	13	\$ 3,966	\$ 29,587	13	\$ 3,371	\$ 200,266	13	\$ 22,819
Assumption Change	\$ 18,535	8	\$ 2,935	\$ 26,786	8	\$ 4,242	\$ 8,552	8	\$ 1,354	\$ 53,873	8	\$ 8,531
July 1, 2016 Charges												
Experience (Gain)/Loss	\$ 77,478	14	\$ 8,448	\$ 65,664	14	\$ 7,160	\$ 10,914	14	\$ 1,190	\$ 154,055	14	\$ 16,797
Assumption Change	\$ 20,643	9	\$ 3,001	\$ 12,313	9	\$ 1,790	\$ 4,082	9	\$ 593	\$ 37,038	9	\$ 5,384
July 1, 2017 Charges												
Experience (Gain)/Loss	\$ 46,560	15	\$ 4,881	\$ 56,344	15	\$ 5,906	\$ 5,489	15	\$ 575	\$ 108,393	15	\$ 11,363
Assumption Change	\$ 22,640	10	\$ 3,057	\$ 13,643	10	\$ 1,842	\$ 4,521	10	\$ 610	\$ 40,804	10	\$ 5,510

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-7 (Continued)												
Modified Unfunded Liability Payments toward the MMO for Fiscal Year 2024												
(\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2022 Balance	Remaining Years	FY 2024 Payment	7/1/2022 Balance	Remaining Years	FY 2024 Payment	7/1/2022 Balance	Remaining Years	FY 2024 Payment	7/1/2022 Balance	Remaining Years	FY 2024 Payment
July 1, 2018 Charges												
Experience (Gain)/Loss	\$ (11,169)	16	\$ (1,130)	\$ 20,410	16	\$ 2,065	\$ (267)	16	\$ (27)	\$ 8,975	16	\$ 908
Assumption Change	\$ 116,931	11	\$ 14,810	\$ (50,004)	11	\$ (6,333)	\$ (16,928)	11	\$ (2,144)	\$ 50,000	11	\$ 6,333
July 1, 2019 Charges												
Experience (Gain)/Loss	\$ (96,043)	17	\$ (9,415)	\$ (1,673)	17	\$ (164)	\$ (8,420)	17	\$ (825)	\$ (106,136)	17	\$ (10,404)
Assumption Change	\$ 27,242	12	\$ 3,262	\$ 16,159	12	\$ 1,935	\$ 5,413	12	\$ 648	\$ 48,814	12	\$ 5,845
Plan Change	\$ 757	7	\$ 133	\$ 0	7	\$ 0	\$ 0	7	\$ 0	\$ 757	7	\$ 133
July 1, 2020 Charges												
Experience (Gain)/Loss	\$ 29,459	18	\$ 2,806	\$ (51,798)	18	\$ (4,934)	\$ (15,558)	18	\$ (1,482)	\$ (37,897)	18	\$ (3,610)
Assumption Change	\$ 29,589	13	\$ 3,372	\$ 17,146	13	\$ 1,954	\$ 5,798	13	\$ 661	\$ 52,534	13	\$ 5,986
July 1, 2021 Charges												
Experience (Gain)/Loss	\$ (266,751)	19	\$ (24,756)	\$ 55,457	19	\$ 5,147	\$ (24,702)	19	\$ (2,292)	\$ (235,996)	19	\$ (21,902)
Assumption Change	\$ 29,696	14	\$ 3,238	\$ 18,512	14	\$ 2,018	\$ 6,089	14	\$ 664	\$ 54,296	14	\$ 5,920
July 1, 2022 Charges												
Experience (Gain)/Loss	\$ (80,595)	20	\$ (7,305)	\$ (40,072)	20	\$ (3,632)	\$ (24,249)	20	\$ (2,198)	\$ (144,916)	20	\$ (13,135)
Assumption Change	\$ 92,266	15	\$ 9,672	\$ 58,182	15	\$ 6,099	\$ 8,045	15	\$ 843	\$ 158,493	15	\$ 16,614
Total	\$ 3,270,933		\$ 366,540	\$ 1,822,239		\$ 193,243	\$ 673,602		\$ 73,564	\$ 5,766,773		\$ 633,347

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-8a				
TOTAL DEBT SERVICE REQUIREMENTS: MUNICIPAL				
Plan Year	Required Principal Payment	Required Interest Payment	Premium or Discount Amortized	Principal Balance at Valuation Date
1999	\$ 0	\$ 7,041,525.30	\$ 0	\$ 727,185,593.15
2000	9,917,857.50	29,825,175.27	0	717,267,735.65
2001	4,567,730.63	29,324,323.46	0	712,700,005.02
2002	0	29,087,715.02	0	712,700,005.02
2003	6,422,403.75	29,087,715.02	0	706,277,601.27
2004	8,884,981.88	28,728,336.25	0	697,392,619.39
2005	15,161,038.13	28,250,550.75	0	682,231,581.26
2006	18,743,737.50	27,403,048.72	0	663,487,843.76
2007	22,526,257.50	26,345,901.92	0	640,961,586.26
2008	26,486,083.13	25,064,157.87	0	614,475,503.13
2009	30,870,879.38	23,543,856.70	0	583,604,623.75
2010	40,000,711.88	21,756,432.78	0	543,603,911.87
2011	45,151,018.13	19,420,391.21	0	498,452,893.74
2012	22,154,721.72	45,234,066.39	0	476,298,172.02
2013	21,786,233.75	48,416,929.37	0	454,511,938.27
2014	20,545,516.84	50,378,126.28	0	433,966,421.43
2015	20,088,811.07	53,652,021.42	0	413,877,610.36
2016	19,364,886.72	56,464,212.02	0	394,512,723.64
2017	18,085,471.62	57,743,627.12	0	376,427,252.02
2018	16,915,332.51	58,913,766.23	0	359,511,919.51
2019	15,787,131.76	60,041,966.99	0	343,724,787.75
2020	14,758,165.41	61,070,933.33	0	328,966,622.34
2021	13,823,708.03	62,005,390.71	0	315,142,914.31
2022	12,919,375.38	62,909,723.36	0	302,223,538.93
2023	12,071,748.11	63,757,350.63	0	290,151,790.82
2024	11,250,110.80	64,578,987.94	0	278,901,680.02
2025	10,560,195.36	65,268,903.38	0	268,341,484.66
2026	17,271,090.90	58,558,007.84	0	251,070,393.76
2027	60,297,984.38	16,196,263.75	0	190,772,409.38
2028	64,125,534.38	12,367,341.75	0	126,646,875.00
2029	126,646,875.00	4,147,685.16	0	0

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-8b				
TOTAL DEBT SERVICE REQUIREMENTS: POLICE				
Plan Year	Required Principal Payment	Required Interest Payment	Premium or Discount Amortized	Principal Balance at Valuation Date
1999	\$ 0	\$ 3,848,228.76	\$ 0	\$ 397,410,560.15
2000	5,420,158.68	16,299,607.13	0	391,990,401.47
2001	2,496,287.61	16,025,889.30	0	389,494,113.86
2002	0	15,896,581.60	0	389,494,113.86
2003	3,509,875.74	15,896,581.60	0	385,984,238.12
2004	4,855,686.99	15,705,644.36	0	381,128,551.13
2005	8,285,583.09	15,439,067.14	0	372,842,968.04
2006	10,243,546.20	14,975,903.05	0	362,599,421.84
2007	12,310,712.28	14,398,167.04	0	350,288,709.56
2008	14,474,776.77	13,697,687.51	0	335,813,932.79
2009	16,871,089.83	12,866,835.33	0	318,942,842.96
2010	21,860,588.91	11,889,999.22	0	297,082,254.05
2011	24,675,257.01	10,613,340.83	0	272,406,997.04
2012	12,107,666.12	24,720,643.30	0	260,299,330.92
2013	11,906,285.60	26,460,093.82	0	248,393,045.32
2014	11,228,227.61	27,531,897.73	0	237,164,817.71
2015	10,978,635.63	29,321,097.79	0	226,186,182.08
2016	10,583,007.35	30,857,974.00	0	215,603,174.73
2017	9,883,800.61	31,557,180.75	0	205,719,374.12
2018	9,244,313.74	32,196,667.62	0	196,475,060.38
2019	8,627,746.39	32,813,234.97	0	187,847,313.99
2020	8,065,411.14	33,375,570.22	0	179,781,902.85
2021	7,554,725.51	33,886,255.84	0	172,227,177.34
2022	7,060,503.20	34,380,478.16	0	165,166,674.14
2023	6,597,270.66	34,843,710.70	0	158,569,403.48
2024	6,148,241.77	35,292,739.59	0	152,421,161.71
2025	5,771,199.53	35,669,781.82	0	146,649,962.18
2026	9,438,737.48	32,002,243.88	0	137,211,224.70
2027	32,953,149.75	8,851,339.07	0	104,258,074.95
2028	35,044,924.95	6,758,814.06	0	69,213,150.00
2029	69,213,150.00	2,266,730.66	0	0

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-8c					
TOTAL DEBT SERVICE REQUIREMENTS: FIRE					
Plan Year	Required Principal Payment	Required Interest Payment	Premium or Discount Amortized	Principal Balance at Valuation Date	
1999	\$ 0	\$ 1,620,185.70	\$ 0	\$ 167,318,251.01	
2000	2,282,001.44	6,862,479.41	0	165,036,249.57	
2001	1,050,989.88	6,747,238.34	0	163,985,259.69	
2002	0	6,692,797.06	0	163,985,259.69	
2003	1,477,731.92	6,692,797.06	0	162,507,527.77	
2004	2,044,346.92	6,612,408.45	0	160,463,180.85	
2005	3,488,405.72	6,500,173.80	0	156,974,775.13	
2006	4,312,749.60	6,305,171.92	0	152,662,025.53	
2007	5,183,070.24	6,061,932.84	0	147,478,955.29	
2008	6,094,187.16	5,767,016.15	0	141,384,768.13	
2009	7,103,085.64	5,417,209.80	0	134,281,682.49	
2010	9,203,770.28	5,005,941.15	0	125,077,912.21	
2011	10,388,805.08	4,468,440.96	0	114,689,107.13	
2012	5,097,583.51	10,407,913.67	0	109,591,523.62	
2013	5,012,798.05	11,140,259.13	0	104,578,725.57	
2014	4,727,321.30	11,591,511.24	0	99,851,404.27	
2015	4,622,237.80	12,344,802.31	0	95,229,166.47	
2016	4,455,669.93	12,991,859.70	0	90,773,496.54	
2017	4,161,289.10	13,286,240.52	0	86,612,207.44	
2018	3,892,051.60	13,555,478.02	0	82,720,155.84	
2019	3,632,463.70	13,815,065.92	0	79,087,692.14	
2020	3,395,708.67	14,051,820.95	0	75,691,983.47	
2021	3,180,699.22	14,266,830.40	0	72,511,284.25	
2022	2,972,621.18	14,474,908.45	0	69,538,663.07	
2023	2,777,590.48	14,669,939.14	0	66,761,072.59	
2024	2,588,539.82	14,858,989.80	0	64,172,532.77	
2025	2,429,797.06	15,017,732.56	0	61,742,735.71	
2026	3,973,908.11	13,473,621.52	0	57,768,827.60	
2027	13,873,973.00	3,726,600.95	0	43,894,854.60	
2028	14,754,654.60	2,845,603.67	0	29,140,200.00	
2029	29,140,200.00	954,341.55	0	0	

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V- 9a provides the receipts and disbursements of assets *excluding* the Bond issue assets and excluding the PAF.

Table V-9a Receipts and Disbursements Excluding Bond Issue Assets				
	Municipal	Police	Fire	Total
Assets as of July 1, 2021	\$ 3,772,250,769	\$ 2,529,520,779	\$ 720,396,003	\$ 7,022,167,551
Receipts				
Employer Contributions	\$ 496,339,770	\$ 238,719,354	\$ 102,770,718	\$ 837,829,842
Employee Contributions	59,215,893	34,848,705	16,382,076	110,446,674
State Aid	46,715,456	22,844,866	9,694,551	79,254,873
Supplemental State Assistance	0	0	0	0
Investment Income (includes investment expenses)	(245,173,712)	(164,144,866)	(47,370,181)	(456,688,760)
Other Receipts	0	0	0	0
Total Receipts	\$ 357,097,407	\$ 132,268,059	\$ 81,477,164	\$ 570,842,629
Disbursements				
Benefit Payments	\$ 543,536,438	\$ 270,105,473	\$ 102,255,022	\$ 915,896,933
Refund of Contributions	8,955,642	3,540,020	898,304	13,393,966
Administrative Expenses	5,965,686	2,171,287	796,398	8,933,371
PAF Transfer at Year End	0	0	0	0
Other Disbursements	0	0	0	0
Total Disbursements	\$ 558,457,766	\$ 275,816,780	\$ 103,949,724	\$ 938,224,270
Assets as of July 1, 2022	\$ 3,570,890,411	\$ 2,385,972,057	\$ 697,923,442	\$ 6,654,785,911

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table IV- 9b provides the market value of assets *including* the Bond issue assets and excluding the PAF.

Table V-9b Receipts and Disbursements Including Bond Issue Assets				
	Municipal	Police	Fire	Total
Assets as of July 1, 2021	\$ 3,950,696,629	\$ 2,595,965,374	\$ 801,849,738	\$ 7,348,511,741
Receipts				
Employer Contributions	\$ 466,323,227	\$ 220,595,578	\$ 93,612,939	\$ 780,531,744
Employee Contributions	59,215,893	34,848,705	16,382,076	110,446,674
State Aid	46,715,456	22,844,866	9,694,551	79,254,873
Supplemental State Assistance	0	0	0	0
Investment Income (includes investment expenses)	(254,657,773)	(167,644,112)	(52,725,611)	(475,027,496)
Other Receipts	0	0	0	0
Total Receipts	\$ 317,596,803	\$ 110,645,037	\$ 66,963,955	\$ 495,205,795
Disbursements				
Benefit Payments	\$ 543,536,438	\$ 270,105,473	\$ 102,255,022	\$ 915,896,933
Refund of Contributions	8,955,642	3,540,020	898,304	13,393,966
Administrative Expenses	5,965,686	2,171,287	796,398	8,933,371
PAF Transfer at Year End	0	0	0	0
Other Disbursements	0	0	0	0
Total Disbursements	\$ 558,457,766	\$ 275,816,780	\$ 103,949,724	\$ 938,224,270
Assets as of July 1, 2022	\$ 3,709,835,666	\$ 2,430,793,631	\$ 764,863,969	\$ 6,905,493,266

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V – 10 and Table V – 11 provide information on the City’s Funding Policy for FYE 2022 and FYE 2023. The differences between the MMO and the City’s Funding Policy are:

- The City’s Funding Policy amortized the initial July 1, 1985 unfunded actuarial liability over 34 years which has since expired in 2019. Chapter 10 under Act 44 allowed for the amortization of the entire unfunded actuarial liability as of July 1, 2009 to be “fresh started” over a 30-year period for MMO purposes.
- The normal cost portion of the City’s Funding Policy payment is based on actual fiscal year payroll, whereas the MMO is based on the prior year’s estimated payroll for that year.
- Interest does not accumulate on the MMO, as long as the payment is made by the end of the fiscal year. This has the impact of creating systematic losses each year which get offset by assumed interest on contributions received before year-end.
- Both the City’s Funding Policy and the MMO utilize valuation results developed in the previous year (e.g., the July 1, 2022 valuation report will determine FYE 2024 contribution amounts). However, no interest is added to the MMO for this delay. For the Funding Policy, interest is added to the amortized amount to reflect this delay.
- The MMO reflects amortization of prior years’ City contributions above past MMOs as actuarial gains.

Starting with FYE 2007-2008, the MMO recognized actuarial gains and losses every other year, in order to coincide with the filing of the Act 205 forms. Beginning for FYE 2012, gains and losses are recognized annually. The City’s Funding Policy recognizes actuarial gains and losses on an annual basis.

Table V – 10 develops the amortized amounts for the current year under the City’s Funding Policy. For additional details on the amortized amounts by plan, refer to Appendix B.

Table V – 11 provides the estimated FYE 2024 and updated FYE 2023 contribution amount under the City’s Funding Policy. The estimated FYE 2024 contribution will be updated in next year’s actuarial valuation report based upon the July 1, 2023 payroll.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-10 Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Total (\$ thousands)					
	7/1/2022 Outstanding Balance	7/1/2023 Expected Balance	Remaining Years	FY 2024 Payment Beginning-of-Year	FY 2024 Payment End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation Remaining	\$ 5,097,959	\$ 4,756,187		\$ 670,527	\$ 720,146
2. Changes in UAL due to					
a. Actuarial Experience	\$ 15,860	\$ 17,034	20	\$ 1,544	\$ 1,658
b. Assumption Changes	158,493	170,221	15	17,844	19,164
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ 174,353	\$ 187,255		\$ 19,388	\$ 20,823
3. Total [1c. + 2e.]	\$ 5,272,312	\$ 4,943,442		\$ 689,915	\$ 740,969

Table V-11 City's Funding Policy Contributions*					
Fiscal Year	2024	% of Pay	2023	% of Pay	
Estimated FY Payroll	\$ 1,984,539		\$ 1,921,142	**	
Normal Cost (with Expenses)	\$ 205,847	10.37%	\$ 198,288	10.32%	
Employee Contributions	(116,441)	5.87%	(113,270)	5.90%	
City Normal Cost	\$ 89,406	4.51%	\$ 85,018	4.43%	
Amortization Payment	689,915	34.76%	670,798	34.92%	
City's Funding Policy	\$ 779,321	39.27%	\$ 755,816	39.34%	

* Assuming beginning-of-year payment.

** FY 2023 Payroll for the City's Funding Policy is the final payroll for the prior year. All other payroll is estimated based upon the prior year's data used for the actuarial valuation.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the Board of Pensions as of July 1, 2022. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1: Active Member Data by Plan
- A-2: Non-Active Member Data, Counts, by Plan
- A-3: Non-Active Member Data, Total Annual Benefits, by Plan
- A-4: Non-Active Member Data, Average Annual Benefits, by Plan
- A-5 through A-24: Age/Service Distribution for Active Participants, Counts and Average Salary for all Plans
- A-25: Reconciliation of Plan Membership
- A-26 through A-30: Age and Benefit Distributions for Non-Active Member Data

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-1							
Active Member Data							
	July 1, 2022	July 1, 2021	% Change		July 1, 2022	July 1, 2021	% Change
<u>1967 Municipal</u>				<u>1987 Elected</u>			
Count	532	704	-24.4%	Count	21	22	-4.5%
Average Age	58.6	58.0	1.1%	Average Age	54.9	54.6	0.5%
Average Service	33.2	32.4	2.5%	Average Service	16.4	15.1	8.2%
Average Salary	\$ 77,884	\$ 73,851	5.5%	Average Salary	\$ 152,633	\$ 145,469	4.9%
Total Annual Salary	\$ 41,434,475	\$ 51,991,304	-20.3%	Total Annual Salary	\$ 3,205,286	\$ 3,200,320	0.2%
<u>1967 Police</u>				<u>1987 Police</u>			
Count	94	122	-23.0%	Count	5,140	5,429	-5.3%
Average Age	60.1	59.3	1.2%	Average Age	42.6	42.6	0.1%
Average Service	35.1	34.3	2.3%	Average Service	16.3	16.2	0.4%
Average Salary	\$ 105,107	\$ 102,291	2.8%	Average Salary	\$ 91,351	\$ 89,904	1.6%
Total Annual Salary	\$ 9,880,093	\$ 12,479,487	-20.8%	Total Annual Salary	\$ 469,544,572	\$ 488,088,685	-3.8%
<u>1967 Fire</u>				<u>1987 Fire</u>			
Count	40	56	-28.6%	Count	2,425	2,414	0.5%
Average Age	61.9	61.0	1.4%	Average Age	42.3	41.9	1.0%
Average Service	36.2	35.4	2.2%	Average Service	13.3	12.9	2.7%
Average Salary	\$ 106,347	\$ 101,849	4.4%	Average Salary	\$ 86,088	\$ 83,659	2.9%
Total Annual Salary	\$ 4,253,898	\$ 5,703,547	-25.4%	Total Annual Salary	\$ 208,763,019	\$ 201,953,644	3.4%
<u>1987 Municipal</u>				<u>2010 Municipal</u>			
Count	11,772	12,993	-9.4%	Count	936	1,109	-15.6%
Average Age	48.3	47.6	1.4%	Average Age	42.4	40.7	4.2%
Average Service	14.5	13.6	6.7%	Average Service	6.0	5.0	20.5%
Average Salary	\$ 70,019	\$ 65,339	7.2%	Average Salary	\$ 64,235	\$ 59,645	7.7%
Total Annual Salary	\$ 824,258,676	\$ 848,951,261	-2.9%	Total Annual Salary	\$ 60,123,658	\$ 66,146,801	-9.1%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-1
Active Member Data (continued)**

	July 1, 2022	July 1, 2021	% Change		July 1, 2022	July 1, 2021	% Change
<u>2016 Municipal</u>				<u>Total City</u>			
Count	5,763	4,171	38.2%	Count	26,723	27,020	-1.1%
Average Age	39.0	39.0	0.2%	Average Age	44.7	44.8	-0.2%
Average Service	2.4	2.4	0.8%	Average Service	12.3	12.6	-2.4%
Average Salary	\$ 52,000	\$ 49,867	4.3%	Average Salary	\$ 71,891	\$ 69,819	3.0%
Total Annual Salary	\$ 299,677,854	\$ 207,996,466	44.1%	Total Annual Salary	\$ 1,921,141,531	\$ 1,886,511,515	1.8%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-2 Non-Active Member Data Count							
	July 1, 2022	July 1, 2021	% Change		July 1, 2022	July 1, 2021	% Change
<u>Total City</u>				<u>1987 Municipal Plan</u>			
Retired	22,392	22,202	0.9%	Retired	4,053	3,568	13.6%
Disabled	3,757	3,796	-1.0%	Disabled	767	710	8.0%
Beneficiary	8,523	8,445	0.9%	Beneficiary	663	597	11.1%
In Pay Status Total	34,672	34,443	0.7%	In Pay Status Total	5,483	4,875	12.5%
DROP	1,921	1,878	2.3%	DROP	637	650	-2.0%
Deferred Vested	832	900	-7.6%	Deferred Vested	652	694	-6.1%
<u>1967 Municipal Plan</u>				<u>1987 Elected Plan</u>			
Retired	11,065	11,326	-2.3%	Retired	21	21	0.0%
Disabled	1,117	1,166	-4.2%	Disabled	0	0	0.0%
Beneficiary	4,494	4,532	-0.8%	Beneficiary	7	4	75.0%
In Pay Status Total	16,676	17,024	-2.0%	In Pay Status Total	28	25	12.0%
DROP	411	499	-17.6%	DROP	0	0	0.0%
Deferred Vested	122	133	-8.3%	Deferred Vested	0	0	0.0%
<u>1967 Police Plan</u>				<u>1987 Police Plan</u>			
Retired	4,427	4,601	-3.8%	Retired	901	744	21.1%
Disabled	977	1,030	-5.1%	Disabled	579	568	1.9%
Beneficiary	2,265	2,235	1.3%	Beneficiary	226	210	7.6%
In Pay Status Total	7,669	7,866	-2.5%	In Pay Status Total	1,706	1,522	12.1%
DROP	144	153	-5.9%	DROP	604	457	32.2%
Deferred Vested	0	0	0.0%	Deferred Vested	52	65	-20.0%
<u>1967 Fire Plan</u>				<u>1987 Fire Plan</u>			
Retired	1,660	1,709	-2.9%	Retired	265	233	13.7%
Disabled	215	231	-6.9%	Disabled	97	91	6.6%
Beneficiary	782	786	-0.5%	Beneficiary	86	81	6.2%
In Pay Status Total	2,657	2,726	-2.5%	In Pay Status Total	448	405	10.6%
DROP	32	38	-15.8%	DROP	93	81	14.8%
Deferred Vested	0	0	0.0%	Deferred Vested	5	7	-28.6%
<u>2010 Municipal Plan</u>				<u>2016 Municipal Plan</u>			
Retired	0	0	0.0%	Retired	0	0	0.0%
Disabled	0	0	0.0%	Disabled	5	0	0.0%
Beneficiary	0	0	0.0%	Beneficiary	0	0	0.0%
In Pay Status Total	0	0	0.0%	In Pay Status Total	5	0	0.0%
Deferred Vested	0	0	0.0%	Deferred Vested	1	1	0.0%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-3 Non-Active Member Data Total Annual Benefit									
	July 1, 2022			July 1, 2021			% Change		
<u>Total City</u>									
Retired	\$	642,934,101	\$	624,303,167			3.0%		
Disabled		92,983,118		91,816,078			1.3%		
Beneficiary		<u>92,270,419</u>		<u>88,787,233</u>			3.9%		
In Pay Status Total	\$	828,187,638	\$	804,906,478			2.9%		
DROP (pension)	\$	89,363,109	\$	82,362,388			8.5%		
DROP (account balance)		156,510,764		158,380,739			-1.2%		
Deferred Vested	\$	11,300,437	\$	12,482,106			-9.5%		
<u>1967 Municipal Plan</u>									
Retired	\$	325,963,085	\$	323,958,575			0.6%		
Disabled		22,792,270		23,671,189			-3.7%		
Beneficiary		<u>44,718,340</u>		<u>43,948,995</u>			1.8%		
In Pay Status Total	\$	393,473,695	\$	391,578,759			0.5%		
DROP (pension)	\$	22,140,762	\$	25,802,482			-14.2%		
DROP (account balance)		44,306,891		58,191,134			-23.9%		
Deferred Vested	\$	1,790,715	\$	2,020,142			-11.4%		
<u>1967 Police Plan</u>									
Retired	\$	143,608,620	\$	146,561,443			-2.0%		
Disabled		19,967,244		20,843,487			-4.2%		
Beneficiary		<u>24,893,954</u>		<u>24,043,318</u>			3.5%		
In Pay Status Total	\$	188,469,818	\$	191,448,248			-1.6%		
DROP (pension)	\$	12,255,058	\$	12,419,839			-1.3%		
DROP (account balance)		30,198,664		27,060,063			11.6%		
Deferred Vested	\$	0	\$	0			0.0%		
<u>1967 Fire Plan</u>									
Retired	\$	64,115,934	\$	64,625,377			-0.8%		
Disabled		4,429,717		4,728,828			-6.3%		
Beneficiary		<u>10,703,480</u>		<u>10,523,670</u>			1.7%		
In Pay Status Total	\$	79,249,131	\$	79,877,875			-0.8%		
DROP (pension)	\$	2,680,593	\$	2,982,478			-10.1%		
DROP (account balance)		4,380,284		7,443,292			-41.2%		
Deferred Vested	\$	0	\$	0			0.0%		
<u>2010 Municipal Plan</u>									
Retired	\$	0	\$	0			0.0%		
Disabled		0		0			0.0%		
Beneficiary		<u>0</u>		<u>0</u>			0.0%		
In Pay Status Total	\$	0	\$	0			0.0%		
Deferred Vested	\$	0	\$	0			0.0%		
<u>1987 Municipal Plan</u>									
Retired	\$	67,660,656	\$	56,249,712			20.3%		
Disabled		16,576,364		14,734,972			12.5%		
Beneficiary		<u>6,092,184</u>		<u>5,220,286</u>			16.7%		
In Pay Status Total	\$	90,329,204	\$	76,204,970			18.5%		
DROP (pension)	\$	15,476,590	\$	14,610,994			5.9%		
DROP (account balance)		24,942,862		27,900,293			-10.6%		
Deferred Vested	\$	8,586,175	\$	9,263,595			-7.3%		
<u>1987 Elected Plan</u>									
Retired	\$	1,618,551	\$	1,657,166			-2.3%		
Disabled		0		0			0.0%		
Beneficiary		<u>338,118</u>		<u>124,932</u>			170.6%		
In Pay Status Total	\$	1,956,669	\$	1,782,098			9.8%		
DROP (pension)	\$	0	\$	0			0.0%		
DROP (account balance)		0		0			0.0%		
Deferred Vested	\$	0	\$	0			0.0%		
<u>1987 Police Plan</u>									
Retired	\$	31,335,348	\$	24,326,450			28.8%		
Disabled		24,962,088		24,085,786			3.6%		
Beneficiary		<u>4,150,187</u>		<u>3,663,507</u>			13.3%		
In Pay Status Total	\$	60,447,623	\$	52,075,743			16.1%		
DROP (pension)	\$	31,481,502	\$	22,395,218			40.6%		
DROP (account balance)		45,232,718		30,775,171			47.0%		
Deferred Vested	\$	802,125	\$	1,046,330			-23.3%		
<u>1987 Fire Plan</u>									
Retired	\$	8,631,907	\$	6,924,444			24.7%		
Disabled		4,116,952		3,751,816			9.7%		
Beneficiary		<u>1,374,156</u>		<u>1,262,525</u>			8.8%		
In Pay Status Total	\$	14,123,015	\$	11,938,785			18.3%		
DROP (pension)	\$	5,328,604	\$	4,151,377			28.4%		
DROP (account balance)		7,449,344		7,010,786			6.3%		
Deferred Vested	\$	87,917	\$	118,534			-25.8%		
<u>2016 Municipal Plan</u>									
Retired	\$	0	\$	0			0.0%		
Disabled		138,483		0			0.0%		
Beneficiary		<u>0</u>		<u>0</u>			0.0%		
In Pay Status Total	\$	138,483	\$	0			0.0%		
Deferred Vested	\$	33,505	\$	33,505			0.0%		

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4 Non-Active Member Data Average Annual Benefit													
	July 1, 2022			July 1, 2021			% Change						
<u>Total City</u>													
Retired	\$	28,713	\$	28,119		2.1%	<u>1987 Municipal Plan</u>	\$	16,694	\$	15,765		5.9%
Disabled		24,749		24,188		2.3%	Retired		21,612		20,753		4.1%
Beneficiary		10,826		10,514		3.0%	Beneficiary		9,189		8,744		5.1%
In Pay Status Total	\$	23,886	\$	23,369		2.2%	In Pay Status Total	\$	16,474	\$	15,632		5.4%
DROP (pension)	\$	46,519	\$	43,856		6.1%	DROP (pension)	\$	24,296	\$	22,478		8.1%
DROP (account balance)		81,474		84,335		-3.4%	DROP (account balance)		39,157		42,924		-8.8%
Deferred Vested	\$	13,582	\$	13,869		-2.1%	Deferred Vested	\$	13,169	\$	13,348		-1.3%
<u>1967 Municipal Plan</u>							<u>1987 Elected Plan</u>						
Retired	\$	29,459	\$	28,603		3.0%	Retired	\$	77,074	\$	78,913		-2.3%
Disabled		20,405		20,301		0.5%	Disabled		0		0		0.0%
Beneficiary		9,951		9,697		2.6%	Beneficiary		48,303		31,233		54.7%
In Pay Status Total	\$	23,595	\$	23,002		2.6%	In Pay Status Total	\$	69,881	\$	71,284		-2.0%
DROP (pension)	\$	53,870	\$	51,708		4.2%	DROP (pension)	\$	0	\$	0		0.0%
DROP (account balance)		107,803		116,615		-7.6%	DROP (account balance)		0		0		0.0%
Deferred Vested	\$	14,678	\$	15,189		-3.4%	Deferred Vested	\$	0	\$	0		0.0%
<u>1967 Police Plan</u>							<u>1987 Police Plan</u>						
Retired	\$	32,439	\$	31,854		1.8%	Retired	\$	34,778	\$	32,697		6.4%
Disabled		20,437		20,236		1.0%	Disabled		43,112		42,405		1.7%
Beneficiary		10,991		10,758		2.2%	Beneficiary		18,364		17,445		5.3%
In Pay Status Total	\$	24,576	\$	24,339		1.0%	In Pay Status Total	\$	35,432	\$	34,215		3.6%
DROP (pension)	\$	85,105	\$	81,175		4.8%	DROP (pension)	\$	52,122	\$	49,005		6.4%
DROP (account balance)		209,713		176,863		18.6%	DROP (account balance)		74,889		67,342		11.2%
Deferred Vested	\$	0	\$	0		0.0%	Deferred Vested	\$	15,425	\$	16,097		-4.2%
<u>1967 Fire Plan</u>							<u>1987 Fire Plan</u>						
Retired	\$	38,624	\$	37,815		2.1%	Retired	\$	32,573	\$	29,719		9.6%
Disabled		20,603		20,471		0.6%	Disabled		42,443		41,229		2.9%
Beneficiary		13,687		13,389		2.2%	Beneficiary		15,979		15,587		2.5%
In Pay Status Total	\$	29,827	\$	29,302		1.8%	In Pay Status Total	\$	31,525	\$	29,478		6.9%
DROP (pension)	\$	83,769	\$	78,486		6.7%	DROP (pension)	\$	57,297	\$	51,252		11.8%
DROP (account balance)		136,884		195,876		-30.1%	DROP (account balance)		80,100		86,553		-7.5%
Deferred Vested	\$	0	\$	0		0.0%	Deferred Vested	\$	17,583	\$	16,933		3.8%
<u>2010 Municipal Plan</u>							<u>2016 Municipal Plan</u>						
Retired	\$	0	\$	0		0.0%	Retired	\$	0	\$	0		0.0%
Disabled		0		0		0.0%	Disabled		27,697		0		0.0%
Beneficiary		0		0		0.0%	Beneficiary		0		0		0.0%
In Pay Status Total	\$	0	\$	0		0.0%	In Pay Status Total	\$	27,697	\$	0		0.0%
Deferred Vested	\$	0	\$	0		0.0%	Deferred Vested	\$	33,505	\$	33,505		0.0%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-5
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Total City**

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	226	158	14	0	0	0	0	0	0	398
25 to 29	494	1,196	407	5	0	0	0	0	0	2,102
30 to 34	382	1,275	1,577	261	20	0	0	0	0	3,515
35 to 39	257	804	1,256	870	487	4	0	0	0	3,678
40 to 44	194	572	829	664	1,068	302	7	0	0	3,636
45 to 49	124	415	568	435	812	809	331	3	0	3,497
50 to 54	128	374	518	405	631	834	855	229	0	3,974
55 to 59	78	302	392	343	492	550	605	518	0	3,280
60 to 64	50	226	327	197	222	233	219	310	0	1,784
65 & up	22	110	267	130	91	94	47	98	0	859
Total	1,955	5,432	6,155	3,310	3,823	2,826	2,064	1,158	0	26,723

**Table A-6
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Total City**

AVERAGE SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 46,316	\$ 47,869	\$ 46,380	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 46,935
25 to 29	50,220	62,637	68,348	56,820	0	0	0	0	0	60,811
30 to 34	49,917	63,540	74,275	74,098	69,922	0	0	0	0	67,696
35 to 39	50,402	64,710	73,694	80,016	82,846	71,804	0	0	0	72,808
40 to 44	49,704	62,365	71,182	78,295	83,799	87,681	89,525	0	0	75,060
45 to 49	52,066	59,091	69,779	78,771	83,705	86,275	92,183	58,334	0	78,162
50 to 54	48,323	55,679	65,482	69,324	77,136	80,991	91,121	93,495	0	76,634
55 to 59	48,350	56,518	63,086	63,677	73,458	72,247	82,624	91,329	0	73,349
60 to 64	47,564	57,666	58,006	61,689	66,871	69,557	79,187	90,414	0	68,920
65 & up	56,589	55,333	60,371	55,717	67,582	65,870	73,656	82,366	0	63,527
Total	\$ 49,604	\$ 61,253	\$ 69,950	\$ 73,959	\$ 79,786	\$ 80,058	\$ 87,131	\$ 90,668	\$ 0	\$ 71,891

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-7
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 67)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	1	0	0	3	3	7
50 to 54	0	1	0	0	0	1	10	89	101
55 to 59	0	0	0	0	1	4	14	203	222
60 to 64	0	2	1	0	2	0	7	134	146
65 & up	0	1	0	0	1	2	0	52	56
Total	0	4	1	1	4	7	34	481	532

**Table A-8
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 67)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	66,494	0	0	70,938	58,334	64,901
50 to 54	0	41,828	0	0	0	126,000	76,892	79,775	79,571
55 to 59	0	0	0	0	108,818	68,598	72,182	79,655	79,116
60 to 64	0	71,565	61,018	0	66,823	0	49,668	79,353	77,526
65 & up	0	70,000	0	0	134,856	84,465	0	70,909	72,519
Total	\$ 0	\$ 63,739	\$ 61,018	\$ 66,494	\$ 94,330	\$ 81,331	\$ 68,822	\$ 78,514	\$ 77,884

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-9
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Police (Plan 67)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	1	4	5
55 to 59	0	0	1	1	1	0	0	37	40
60 to 64	0	0	0	0	0	0	0	39	39
65 & up	0	0	0	0	0	0	0	10	10
Total	0	0	1	1	1	0	1	90	94

**Table A-10
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Police (Plan 67)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	96,932	95,311	95,635
55 to 59	0	0	88,139	86,572	89,435	0	0	106,048	104,698
60 to 64	0	0	0	0	0	0	0	107,220	107,220
65 & up	0	0	0	0	0	0	0	103,240	103,240
Total	\$ 0	\$ 0	\$ 88,139	\$ 86,572	\$ 89,435	\$ 0	\$ 96,932	\$ 105,767	\$ 105,107

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-11
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Fire (Plan 67)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	1	8	9
60 to 64	0	0	0	0	0	0	1	22	23
65 & up	0	0	0	0	0	0	0	8	8
Total	0	0	0	0	0	0	2	38	40

**Table A-12
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Fire (Plan 67)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	88,861	96,279	95,454
60 to 64	0	0	0	0	0	0	84,480	114,567	113,259
65 & up	0	0	0	0	0	0	0	98,731	98,731
Total	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 86,670	\$ 107,383	\$ 106,347

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-13
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 87)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	13	11	0	0	0	0	0	24
25 to 29	0	107	136	4	0	0	0	0	247
30 to 34	0	139	676	171	15	0	0	0	1,001
35 to 39	0	101	642	542	187	4	0	0	1,476
40 to 44	1	77	496	458	523	125	4	0	1,684
45 to 49	1	53	361	329	454	397	86	0	1,681
50 to 54	2	54	350	352	397	537	350	17	2,059
55 to 59	0	41	282	334	424	452	351	68	1,952
60 to 64	1	34	245	194	211	207	142	47	1,081
65 & up	0	15	200	130	86	88	38	10	567
Total	5	634	3,399	2,514	2,297	1,810	971	142	11,772

**Table A-14
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 87)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 42,413	\$ 46,417	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 44,248
25 to 29	0	60,280	56,833	49,927	0	0	0	0	58,214
30 to 34	0	65,153	68,647	64,774	64,314	0	0	0	67,435
35 to 39	0	85,030	69,926	73,011	67,320	71,804	0	0	71,767
40 to 44	38,488	77,151	68,170	72,810	73,364	75,484	86,308	0	72,024
45 to 49	65,113	72,856	69,680	75,371	76,868	77,210	77,901	0	75,032
50 to 54	34,825	68,220	66,157	66,267	69,703	74,112	81,743	76,564	71,693
55 to 59	0	71,355	65,132	62,825	70,608	68,022	74,098	87,782	69,128
60 to 64	79,068	68,724	58,260	60,698	66,007	66,664	71,878	83,901	65,071
65 & up	0	80,173	60,621	55,717	65,480	64,345	66,573	68,071	61,859
Total	\$ 50,464	\$ 70,341	\$ 66,615	\$ 68,544	\$ 71,393	\$ 72,034	\$ 76,622	\$ 83,766	\$ 70,019

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-15
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Elected (Plan 87)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	1	0	0	0	0	1
35 to 39	0	1	0	1	0	0	0	0	2
40 to 44	0	1	0	0	0	0	0	0	1
45 to 49	0	0	0	1	0	0	0	0	1
50 to 54	0	1	2	1	0	0	0	1	5
55 to 59	0	0	1	1	0	0	0	0	2
60 to 64	0	1	1	2	0	0	1	0	5
65 & up	0	0	0	0	0	0	1	3	4
Total	0	4	4	7	0	0	2	4	21

**Table A-16
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Elected (Plan 87)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	142,751	0	0	0	0	142,751
35 to 39	0	142,751	0	142,751	0	0	0	0	142,751
40 to 44	0	142,751	0	0	0	0	0	0	142,751
45 to 49	0	0	0	142,751	0	0	0	0	142,751
50 to 54	0	142,751	147,849	142,751	0	0	0	142,751	144,790
55 to 59	0	0	152,948	142,751	0	0	0	0	147,850
60 to 64	0	185,665	142,751	144,208	0	0	240,347	0	171,436
65 & up	0	0	0	0	0	0	142,751	157,317	153,676
Total	\$ 0	\$ 153,480	\$ 147,849	\$ 143,167	\$ 0	\$ 0	\$ 191,549	\$ 153,676	\$ 152,633

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-17
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Police (Plan 87)**

COUNTS BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	42	3	0	0	0	0	0	0	0	45
25 to 29	77	297	133	0	0	0	0	0	0	507
30 to 34	20	210	406	83	3	0	0	0	0	722
35 to 39	8	62	170	284	211	0	0	0	0	735
40 to 44	7	21	61	166	368	159	3	0	0	785
45 to 49	1	19	29	83	236	334	222	0	0	924
50 to 54	2	4	9	41	129	203	380	106	0	874
55 to 59	0	0	2	3	32	65	145	158	0	405
60 to 64	0	0	2	1	4	20	46	47	0	120
65 & up	0	0	2	0	2	1	7	11	0	23
Total	157	616	814	661	985	782	803	322	0	5,140

**Table A-18
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Police (Plan 87)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up		
Under 25	\$ 60,913	\$ 76,306	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 61,940
25 to 29	61,131	82,768	87,617	0	0	0	0	0	0	80,754
30 to 34	60,581	84,963	88,283	91,164	88,477	0	0	0	0	86,882
35 to 39	61,366	84,932	88,547	91,658	92,991	0	0	0	0	90,424
40 to 44	60,100	83,038	89,011	91,422	94,856	96,767	93,815	0	0	93,433
45 to 49	63,344	85,045	88,765	89,874	92,350	94,765	97,173	0	0	93,865
50 to 54	60,558	84,844	89,672	88,879	91,346	93,032	97,550	105,464	0	95,914
55 to 59	0	0	92,618	87,562	93,534	92,783	94,638	100,618	0	96,523
60 to 64	0	0	92,664	88,846	88,146	91,537	96,064	96,978	0	95,286
65 & up	0	0	92,659	0	89,435	85,808	100,488	94,517	0	95,352
Total	\$ 60,976	\$ 83,795	\$ 88,349	\$ 91,117	\$ 93,296	\$ 94,464	\$ 96,846	\$ 101,473	\$ 0	\$ 91,351

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-19
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Fire (Plan 87)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	6	10	0	0	0	0	0	0	16
25 to 29	10	96	36	1	0	0	0	0	143
30 to 34	27	148	238	6	2	0	0	0	421
35 to 39	10	79	257	43	89	0	0	0	478
40 to 44	4	37	134	39	177	18	0	0	409
45 to 49	4	22	48	21	122	78	20	0	315
50 to 54	2	9	17	11	105	92	114	12	362
55 to 59	0	0	7	4	34	29	94	44	212
60 to 64	0	2	3	0	5	6	22	21	59
65 & up	0	0	0	0	2	3	1	4	10
Total	63	403	740	125	536	226	251	81	2,425

**Table A-20
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Fire (Plan 87)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 57,773	\$ 68,456	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 64,450
25 to 29	57,773	72,201	80,482	84,394	0	0	0	0	73,362
30 to 34	57,773	73,796	82,074	92,305	84,151	0	0	0	77,761
35 to 39	57,773	73,184	84,069	89,978	91,415	0	0	0	83,619
40 to 44	57,773	74,620	82,829	86,807	91,644	92,126	0	0	86,445
45 to 49	57,773	79,607	83,271	85,691	92,428	96,053	101,395	0	90,715
50 to 54	57,773	75,026	79,526	87,578	87,784	94,239	99,677	108,808	92,990
55 to 59	0	0	83,372	91,423	88,588	92,567	97,422	104,036	96,137
60 to 64	0	76,247	75,767	0	86,315	96,113	92,901	104,369	95,316
65 & up	0	0	0	0	102,486	91,556	85,860	92,492	93,547
Total	\$ 57,773	\$ 73,596	\$ 82,832	\$ 88,170	\$ 90,798	\$ 94,497	\$ 98,321	\$ 104,259	\$ 86,088

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-21
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 10)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	2	0	0	0	0	0	0	2
25 to 29	0	34	55	0	0	0	0	0	89
30 to 34	0	70	160	0	0	0	0	0	230
35 to 39	0	34	126	0	0	0	0	0	160
40 to 44	0	22	83	0	0	0	0	0	105
45 to 49	0	20	67	0	0	0	0	0	87
50 to 54	0	19	63	0	0	1	0	0	83
55 to 59	0	12	62	0	0	0	0	0	74
60 to 64	0	12	48	0	0	0	0	0	60
65 & up	0	12	34	0	0	0	0	0	46
Total	0	237	698	0	0	1	0	0	936

**Table A-22
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 10)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 36,398	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 36,398
25 to 29	0	55,616	58,831	0	0	0	0	0	57,603
30 to 34	0	61,989	63,334	0	0	0	0	0	62,924
35 to 39	0	65,825	62,790	0	0	0	0	0	63,435
40 to 44	0	78,385	67,303	0	0	0	0	0	69,625
45 to 49	0	61,725	69,968	0	0	0	0	0	68,073
50 to 54	0	68,130	67,561	0	0	66,809	0	0	67,682
55 to 59	0	55,356	56,260	0	0	0	0	0	56,113
60 to 64	0	92,932	60,782	0	0	0	0	0	67,212
65 & up	0	85,458	65,905	0	0	0	0	0	71,006
Total	\$ 0	\$ 65,820	\$ 63,693	\$ 0	\$ 0	\$ 66,809	\$ 0	\$ 0	\$ 64,235

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-23
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 16)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	178	130	3	0	0	0	0	0	311
25 to 29	407	662	47	0	0	0	0	0	1,116
30 to 34	335	708	97	0	0	0	0	0	1,140
35 to 39	239	527	61	0	0	0	0	0	827
40 to 44	182	414	55	1	0	0	0	0	652
45 to 49	118	301	63	0	0	0	0	0	482
50 to 54	122	286	77	0	0	0	0	0	485
55 to 59	78	249	37	0	0	0	0	0	364
60 to 64	49	175	27	0	0	0	0	0	251
65 & up	22	82	31	0	0	0	0	0	135
Total	1,730	3,534	498	1	0	0	0	0	5,763

**Table A-24
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2022 -- Municipal (Plan 16)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 42,486	\$ 46,351	\$ 46,243	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 44,138
25 to 29	47,970	52,960	48,980	0	0	0	0	0	50,973
30 to 34	48,648	54,878	53,786	0	0	0	0	0	52,955
35 to 39	49,726	56,946	50,760	0	0	0	0	0	54,403
40 to 44	49,188	56,425	56,048	79,155	0	0	0	0	54,408
45 to 49	51,667	53,354	51,130	0	0	0	0	0	52,650
50 to 54	48,189	51,211	52,643	0	0	0	0	0	50,678
55 to 59	48,350	54,131	50,388	0	0	0	0	0	52,512
60 to 64	46,921	51,996	42,974	0	0	0	0	0	50,035
65 & up	56,589	46,202	50,608	0	0	0	0	0	48,906
Total	\$ 48,272	\$ 53,872	\$ 51,617	\$ 79,155	\$ 0	\$ 0	\$ 0	\$ 0	\$ 52,000

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-25 Reconciliation of Plan Membership										
	1967 Plan			Plan 87				Plan '10	Plan '16	Total City
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Active										
Active July 1, 2021	704	122	56	12,993	22	5,429	2,414	1,109	4,171	27,020
New Entrants and Rehires	2	1	0	106	1	187	82	10	2,281	2,670
Refunded Contributions	0	0	0	-201	0	-44	-1	-51	-155	-452
Non-Vested Terminations	0	0	0	-5	0	0	0	0	-2	-7
Terminated Vested	-2	0	0	0	0	-1	0	0	0	-3
Became Disabled	-1	0	0	-51	0	-9	-3	0	-1	-65
Retired	-47	-5	-2	-256	0	-65	-13	0	0	-388
Entered DROP	-115	-24	-13	-235	0	-233	-34	0	0	-654
Net Other Terminations	-9	0	-1	-579	-2	-124	-20	-132	-531	-1,398
Active July 1, 2022	532	94	40	11,772	21	5,140	2,425	936	5,763	26,723
Retired										
Retired July 1, 2021	11,326	4,601	1,709	3,568	21	744	233	0	0	22,202
New Retirees	271	38	23	573	1	166	36	0	0	1,108
Died with Beneficiary Payable	-101	-86	-28	-19	-1	-2	-2	0	0	-239
Died without Beneficiary Payable	-430	-126	-44	-65	0	-4	-2	0	0	-671
Net Other Terminations	-1	0	0	-4	0	-3	0	0	0	-8
Retired July 1, 2022	11,065	4,427	1,660	4,053	21	901	265	0	0	22,392
Beneficiary										
Beneficiary July 1, 2021	4,532	2,235	786	597	4	210	81	0	0	8,445
New Beneficiaries	191	132	49	69	3	17	5	0	0	466
Deaths	-217	-97	-48	-2	0	0	0	0	0	-364
Net Other Terminations	-12	-5	-5	-1	0	-1	0	0	0	-24
Beneficiary July 1, 2022	4,494	2,265	782	663	7	226	86	0	0	8,523

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

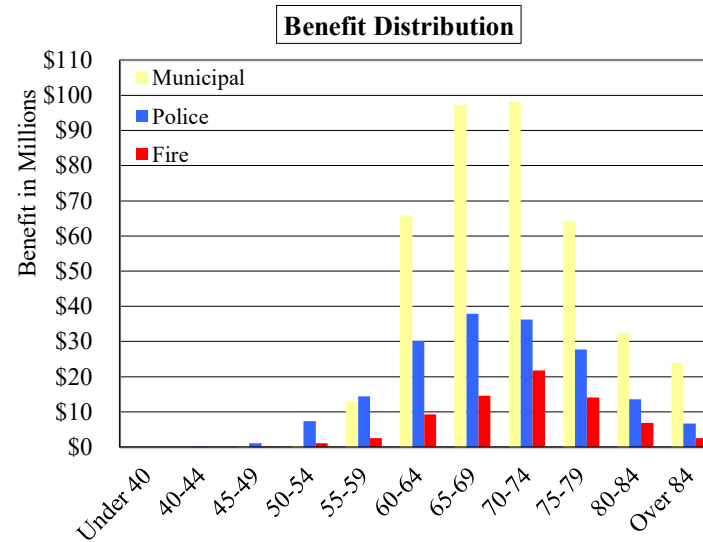
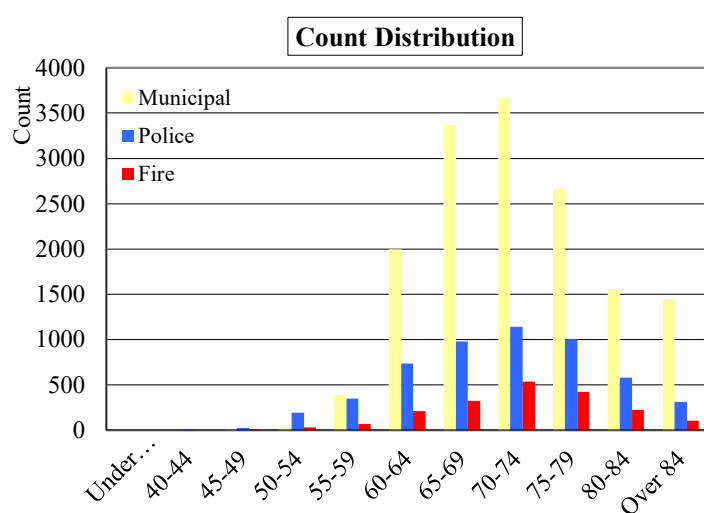
Table A-25 Reconciliation of Plan Membership (continued)										
	1967 Plan			Plan 87				Plan '10	Plan '16	Total City
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Disabled										
Disabled July 1, 2021	1,166	1,030	231	710	0	568	91	0	0	3,796
New Disabilities	2	0	0	72	0	19	6	0	5	104
Died with Beneficiary Payable	-5	-15	-7	-4	0	-4	0	0	0	-35
Died without Beneficiary Payable	-46	-38	-6	-10	0	-4	0	0	0	-104
Net Other Terminations	0	0	-3	-1	0	0	0	0	0	-4
Disabled July 1, 2022	1,117	977	215	767	0	579	97	0	5	3,757
Terminated Vested										
Terminated Vested July 1, 2021	133	0	0	694	0	65	7	0	1	900
New Vested Terminations	3	0	0	1	0	1	0	0	0	5
Retired	-13	0	0	-25	0	-12	0	0	0	-50
Net Other Terminations	-1	0	0	-18	0	-2	-2	0	0	-23
Terminated Vested July 1, 2022	122	0	0	652	0	52	5	0	1	832
DROP										
DROP July 1, 2021	499	153	38	650	0	457	81	0	0	1,878
New DROP Participants	116	24	12	240	0	235	35	0	0	662
Retired	-198	-31	-18	-250	0	-83	-22	0	0	-602
Net Other Terminations	-6	-2	0	-3	0	-5	-1	0	0	-17
DROP July 1, 2022	411	144	32	637	0	604	93	0	0	1,921

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-26
Age Distribution of Retired Members as of July 1, 2022**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	0	\$ 0	0	\$ 0	0	\$ 0
40-44	0	0	5	118,526	0	0
45-49	1	11,711	27	983,728	4	55,051
50-54	28	645,255	193	7,247,746	30	1,104,894
55-59	391	12,806,912	351	14,326,408	69	2,497,799
60-64	1,999	65,768,530	733	30,067,838	211	9,317,855
65-69	3,377	97,398,720	981	37,899,651	325	14,480,089
70-74	3,668	98,050,131	1,142	36,331,560	535	21,799,693
75-79	2,669	64,228,133	1,003	27,704,452	423	14,142,671
80-84	1,559	32,428,597	579	13,655,272	223	6,880,500
Over 84	1,447	23,904,303	314	6,608,787	105	2,469,289
Total	15,139	395,242,292	5,328	174,943,968	1,925	72,747,841

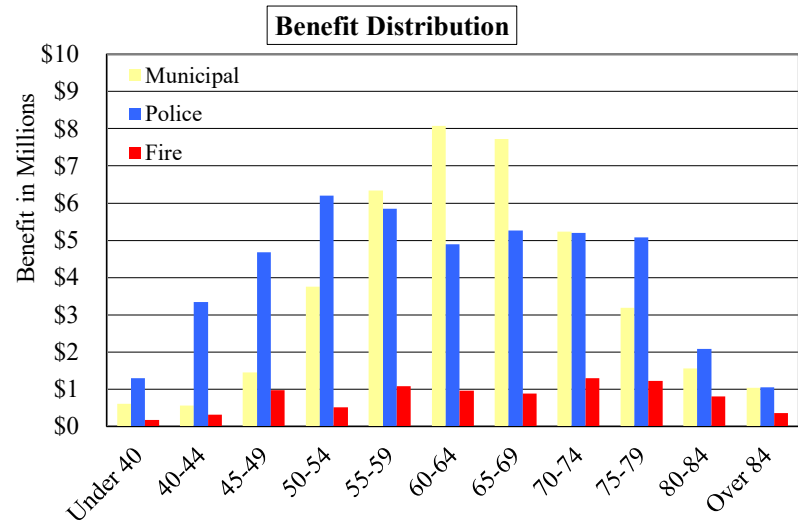
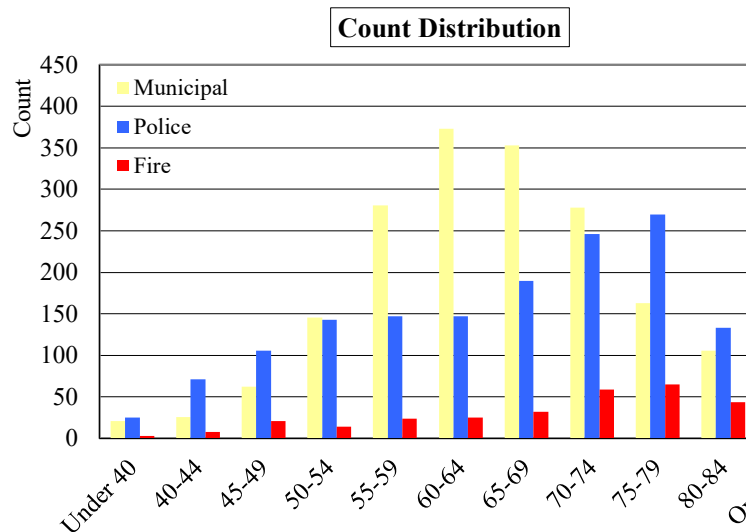


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-27
Age Distribution of Disabled Members as of July 1, 2022**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	21	\$ 601,472	25	\$ 1,291,278	3	\$ 180,296
40-44	26	558,243	71	3,347,909	8	307,467
45-49	62	1,448,450	106	4,674,899	21	969,633
50-54	146	3,750,994	143	6,204,168	14	515,776
55-59	281	6,334,407	147	5,843,929	24	1,073,873
60-64	373	8,076,229	147	4,897,771	25	958,340
65-69	353	7,723,153	190	5,264,894	32	876,618
70-74	278	5,238,380	246	5,195,976	59	1,289,119
75-79	163	3,183,304	270	5,079,472	65	1,219,774
80-84	106	1,562,648	133	2,077,397	44	797,933
Over 84	80	1,029,837	78	1,051,639	17	357,840
Total	1,889	39,507,117	1,556	44,929,332	312	8,546,669

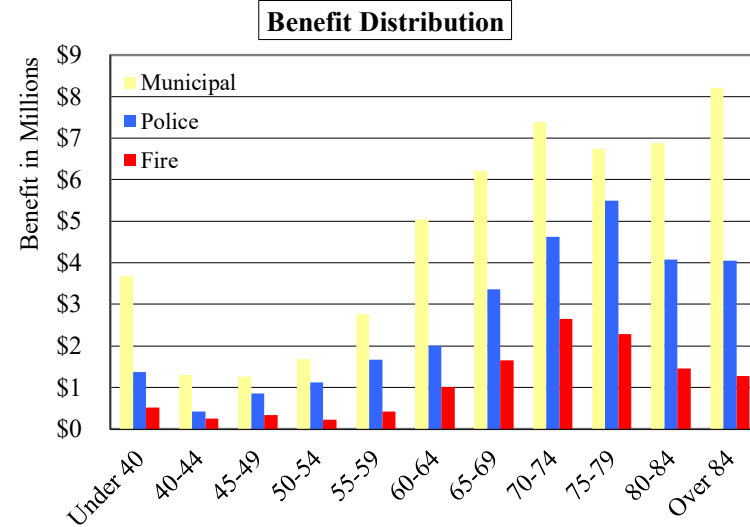
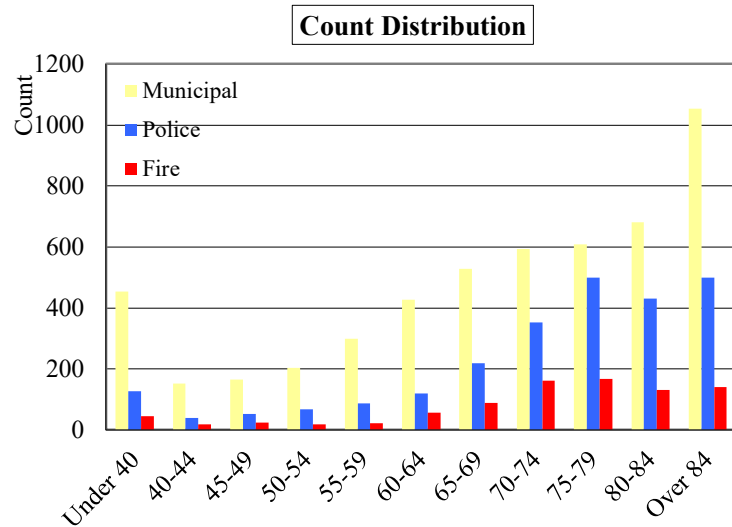


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-28
Age Distribution of Beneficiaries as of July 1, 2022**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	454	\$ 3,677,271	127	\$ 1,376,181	45	\$ 513,544
40-44	152	1,302,881	38	424,227	18	258,378
45-49	165	1,262,572	53	854,773	24	337,732
50-54	203	1,686,448	68	1,119,380	17	223,826
55-59	299	2,753,851	86	1,662,490	21	424,005
60-64	426	5,041,955	119	2,001,840	56	1,004,680
65-69	529	6,207,417	218	3,367,485	89	1,658,936
70-74	593	7,382,046	352	4,623,987	161	2,652,597
75-79	608	6,733,092	500	5,487,892	166	2,283,241
80-84	681	6,884,579	430	4,081,909	130	1,451,273
Over 84	1,054	8,216,530	500	4,043,977	141	1,269,424
Total	5,164	51,148,642	2,491	29,044,141	868	12,077,636

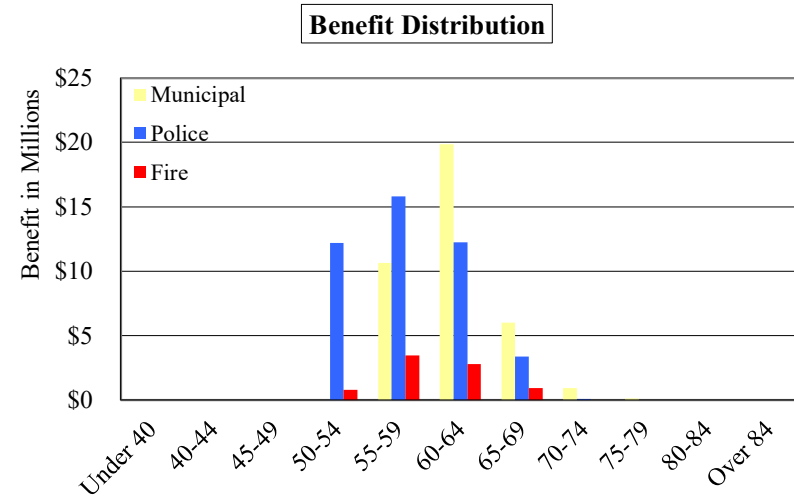
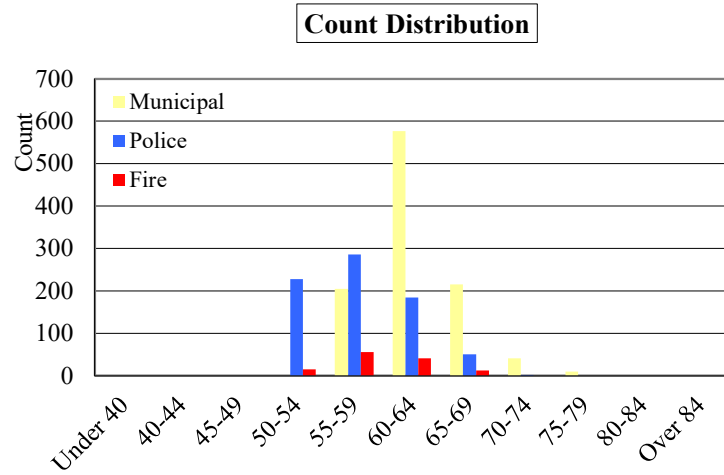


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-29
Age Distribution of DROP Participants as of July 1, 2022**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	0	\$ 0	0	\$ 0	0	\$ 0
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	0	0	227	12,204,130	15	809,271
55-59	205	10,634,539	286	15,824,519	56	3,454,626
60-64	577	19,882,443	184	12,252,925	41	2,796,770
65-69	215	6,027,615	50	3,366,426	13	948,530
70-74	41	944,026	1	88,560	0	0
75-79	10	128,729	0	0	0	0
80-84	0	0	0	0	0	0
Over 84	0	0	0	0	0	0
Total	1,048	37,617,352	748	43,736,560	125	8,009,197

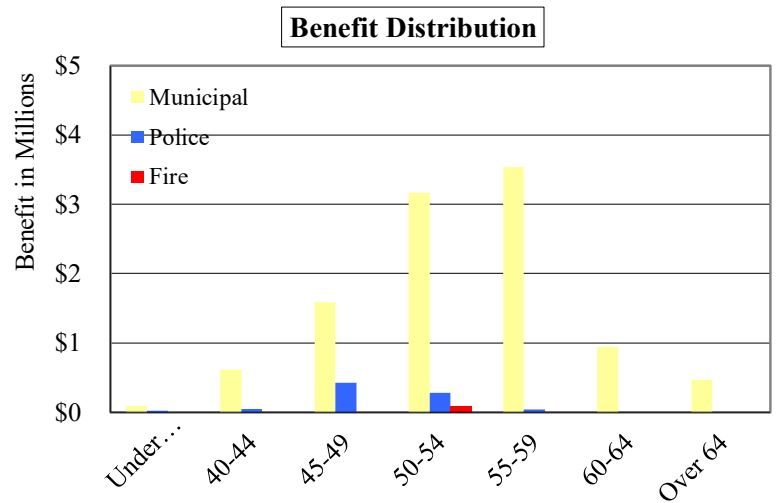
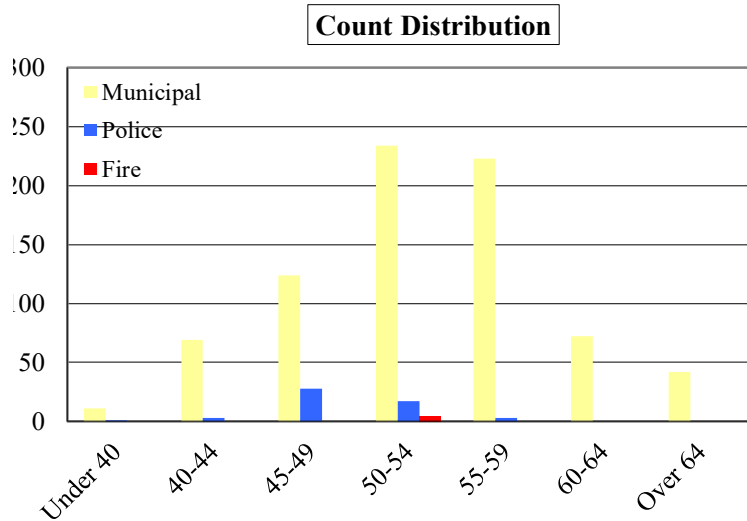


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-30
Age Distribution of Terminated Vested Members as of July 1, 2022**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	11	\$ 91,522	1	\$ 17,337	0	\$ 0
40-44	69	616,735	3	43,352	0	0
45-49	124	1,584,298	28	427,371	0	0
50-54	234	3,171,717	17	276,122	5	87,917
55-59	223	3,540,351	3	37,943	0	0
60-64	72	939,946	0	0	0	0
Over 64	42	465,826	0	0	0	0
Total	775	10,410,395	52	802,125	5	87,917



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Appendix B provides supporting information on the amortization payments under the City’s Funding Policy by each plan.

Table B-1a					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
1967 Plan - Municipal					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 2,304,576	\$ 2,138,540		\$ 310,268	\$ 333,228
2. Changes in UAL due to					
a. Actuarial Experience	\$ 911	\$ 978	20	\$ 89	\$ 95
b. Assumption Changes	21,724	23,331	15	2,446	2,627
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 22,634</u>	<u>\$ 24,309</u>		<u>\$ 2,534</u>	<u>\$ 2,722</u>
3. Total [1c. + 2e.]	\$ 2,327,210	\$ 2,162,849		\$ 312,803	\$ 335,950

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1b					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
1967 Plan - Police					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 1,255,622	\$ 1,172,316		\$ 164,956	\$ 177,163
2. Changes in UAL due to					
a. Actuarial Experience	\$ 659	\$ 708	20	\$ 64	\$ 69
b. Assumption Changes	(6,358)	(6,829)	15	(716)	(769)
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ (5,699)</u>	<u>\$ (6,121)</u>		<u>\$ (652)</u>	<u>\$ (700)</u>
3. Total [1c. + 2e.]	\$ 1,249,923	\$ 1,166,196		\$ 164,305	\$ 176,463

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1c					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
1967 Plan - Fire					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 527,976	\$ 491,984		\$ 70,027	\$ 75,209
2. Changes in UAL due to					
a. Actuarial Experience	\$ (14)	\$ (15)	20	\$ (1)	\$ (1)
b. Assumption Changes	(5,686)	(6,107)	15	(640)	(688)
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (5,700)	\$ (6,122)		\$ (642)	\$ (689)
3. Total [1c. + 2e.]	\$ 522,275	\$ 485,861		\$ 69,385	\$ 74,520

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1d					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Plan 87 - Municipal					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 586,546	\$ 548,100		\$ 76,077	\$ 81,707
2. Changes in UAL due to					
a. Actuarial Experience	\$ 29,654	\$ 31,848	20	\$ 2,887	\$ 3,100
b. Assumption Changes	68,107	73,147	15	7,668	8,235
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 97,761</u>	<u>\$ 104,995</u>		<u>\$ 10,555</u>	<u>\$ 11,336</u>
3. Total [1c. + 2e.]	\$ 684,307	\$ 653,095		\$ 86,632	\$ 93,043

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1e					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Plan 87 - Elected					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 7,601	\$ 6,726		\$ 1,252	\$ 1,345
2. Changes in UAL due to					
a. Actuarial Experience	\$ 408	\$ 438	20	\$ 40	\$ 43
b. Assumption Changes	462	496	15	52	56
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 870</u>	<u>\$ 934</u>		<u>\$ 92</u>	<u>\$ 98</u>
3. Total [1c. + 2e.]	\$ 8,471	\$ 7,660		\$ 1,344	\$ 1,444

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1f					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Plan 87 - Police					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 362,109	\$ 348,631		\$ 40,473	\$ 43,468
2. Changes in UAL due to					
a. Actuarial Experience	\$ (8,315)	\$ (8,930)	20	\$ (809)	\$ (869)
b. Assumption Changes	64,540	69,316	15	7,266	7,804
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 56,225</u>	<u>\$ 60,386</u>		<u>\$ 6,457</u>	<u>\$ 6,935</u>
3. Total [1c. + 2e.]	\$ 418,334	\$ 409,017		\$ 46,930	\$ 50,402

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1g					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Plan 87 - Fire					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 61,290	\$ 57,552		\$ 8,101	\$ 8,701
2. Changes in UAL due to					
a. Actuarial Experience	\$ (5,493)	\$ (5,900)	20	\$ (535)	\$ (574)
b. Assumption Changes	13,732	14,748	15	1,546	1,660
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 8,238</u>	<u>\$ 8,848</u>		<u>\$ 1,011</u>	<u>\$ 1,086</u>
3. Total [1c. + 2e.]	\$ 69,529	\$ 66,400		\$ 9,112	\$ 9,787

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1h					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Plan 10 - Municipal					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ (3,957)	\$ (3,884)		\$ (341)	\$ (366)
2. Changes in UAL due to					
a. Actuarial Experience	\$ (139)	\$ (149)	20	\$ (14)	\$ (15)
b. Assumption Changes	486	522	15	55	59
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 347</u>	<u>\$ 373</u>		<u>\$ 41</u>	<u>\$ 44</u>
3. Total [1c. + 2e.]	\$ (3,610)	\$ (3,511)		\$ (300)	\$ (322)

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1i					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Plan 16 - Municipal					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ (3,804)	\$ (3,778)		\$ (286)	\$ (307)
2. Changes in UAL due to					
a. Actuarial Experience	\$ (1,810)	\$ (1,943)	20	\$ (176)	\$ (189)
b. Assumption Changes	1,487	1,597	15	167	180
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (322)	\$ (346)		\$ (9)	\$ (9)
3. Total [1c. + 2e.]	\$ (4,126)	\$ (4,125)		\$ (295)	\$ (317)

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1j					
Development of the Fiscal Year 2024 Amortization Payment under the City's Funding Policy					
Total - All Divisions					
(\$ thousands)					
	7/1/2022	7/1/2023	Remaining	FY 2024 Payment	FY 2024 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2022 Based on July 1, 2021 Valuation					
a. Remaining	\$ 5,097,959	\$ 4,756,187		\$ 670,527	\$ 720,146
2. Changes in UAL due to					
a. Actuarial Experience	\$ 15,861	\$ 17,035	20	\$ 1,544	\$ 1,658
b. Assumption Changes	158,493	170,221	15	17,844	19,164
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 174,354</u>	<u>\$ 187,256</u>		<u>\$ 19,388</u>	<u>\$ 20,823</u>
3. Total [1c. + 2e.]	\$ 5,272,312	\$ 4,943,443		\$ 689,915	\$ 740,969

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Data Assumptions and Practices

In preparing our data, we relied on information supplied by the City of Philadelphia Municipal Retirement System staff. The data was reviewed to ensure that it complies with generally accepted actuarial standards. This information includes, but is not limited to, plan provisions, employee data, and financial information. Our methodology for obtaining the data used for the valuation is based upon the following assumptions and practices:

- We exclude raw active records with dates of hire after the valuation date or dates of termination prior to the valuation date.
- We include terminated vested records in the valuation data, regardless of whether they have enough service for vesting.
- We exclude terminated vested and retired records with values of zero in the benefit field.
- If a participant is found in multiple data files (e.g., both the active and retired data files), based on a match of both employee number and Social Security Number, we first attempt to identify the record with the most recent status change and keep only that record. If it is not apparent which record is the most recent, we keep the record that generates the highest liability in our valuation system.
- If a participant is found multiple times in the same data file, based on a match of both employee number and Social Security Number, we keep the record that generates the highest liability in our valuation system, except where one of the records is in the recorded death file in which case we check for a survivor record or delete the record.
- The date of retirement for a terminated vested participant was set to the valuation date, if the given date was earlier.
- If the payment form field for pensioners is missing, we assume that 1967 Plan members receive a 50% J&S annuity with a return of contributions in excess of payments received upon death of the member, and we assume that Plan 87 members receive a life annuity, also with a return of contributions. However, if the pensioner is a beneficiary or survivor, we assume that they receive a life annuity only.
- Records with missing dates of birth have their data filled in based on the average for their plan.
- We assumed that all changes in participant data from last year to this year were valid unless indicated otherwise by System staff.
- DROP participants are assumed to begin payments immediately.
- For Municipal Plan 1967 participants, pay was assumed to be below the Social Security Taxable Wage Base for purposes of determining the aggregate member contribution amount.
- We assumed that any participant who was active last year, missing this year is now a terminated non-vested participant.
- We assumed that any participant who was inactive last year and missing from this year without a clear reason is now deceased.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Investment Return Assumption

7.40% compounded annually, net of expenses effective as of July 1, 2022.

7.35% compounded annually, net of expenses effective as of July 1, 2023 and used in the actuarial projections.

2. Salary Increase Rate

Salary increases are based on Division and age, sample rates shown below.

Age	Municipal and Elected Officials	Uniformed
<20	20.00%	18.00%
20	18.00%	16.50%
25	10.00%	10.00%
30	7.00%	6.25%
35	5.75%	4.50%
40	4.50%	4.00%
45	4.25%	3.75%
50	4.00%	3.50%
55	3.75%	3.25%
60	3.50%	3.00%
65+	3.25%	2.75%

3. Total Annual Payroll Growth

3.30% per year.

4. Administrative Expenses

Annual expected expenses included in this report are \$9,228,172 and assumed to increase by 3.30% per year. This amount is included in the normal cost as an explicit assumption for purposes of determining the contribution amounts.

5. Funding of the Pension Adjustment Fund

To recognize the expense of the benefits payable under the Pension Adjustment Fund, the actuarial liabilities have been increased by 0.54%. This estimate is based on the statistical average expected value of the benefits.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

6. Rates of Termination

Termination rates are based on Division and age, sample rates shown below.

Age	Municipal and Elected Officials		Uniformed
20	0.2500	0.0400	
25	0.1500	0.0360	
30	0.1000	0.0260	
35	0.0775	0.0160	
40	0.0650	0.0200	
45	0.0400	0.0200	
50	0.0400	0.0200	
55	0.0600	0.0000	
60	0.1000	0.0000	

We assume that a vested employee who terminates will elect a pension deferred to service retirement age as long as their age plus years of service at termination are greater than or equal to 55 (45 for police and fire employees in the 1967 Plan). Otherwise, we assume they elect a refund of member contributions.

7. Rates of Disability

Disability rates are based on Division and age and split between gender for Municipal and Elected Officials, sample rates shown below.

Age	Municipal and Elected Officials		Uniformed
	Male	Female	
20	0.000025	0.000025	0.000025
25	0.000062	0.000025	0.000500
30	0.000500	0.000400	0.001000
35	0.001000	0.000800	0.004000
40	0.001500	0.001300	0.005000
45	0.001900	0.002200	0.005200
50	0.004200	0.004900	0.004000
55	0.006700	0.007100	0.003000
60	0.001000	0.001000	0.001500

*For municipal and elected members, we assume that 65% of all disabilities are ordinary and 35% are service-connected. For police and fire members, we assume that 25% are ordinary and 75% are service-connected.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

8. Rates of Pre-Retirement Mortality

Municipal and Elected Officials: 109% and 126%, for males and females, respectively, of the Pub-2010(B) General Employee Below-Median Table projected from base year of 2010 to 2025 using mortality improvement scale MP-2021 .

Uniformed: 118% and 122%, for males and females, respectively, of the Pub-2010(B) Safety Employee Below-Median Table projected from base year of 2010 to 2025 using mortality improvement scale MP-2021.

Experience studies are performed every four years as required by State law which require regular and detailed experience and analysis of the mortality trends such that improvements are addressed incrementally with assumption changes as a result of these studies. This mandatory process allows for periodic recognition of mortality improvements which are sufficient in addressing the potential trend. The most recent experience study was conducted for the period between July 1, 2016 and June 30, 2021.

Age	Municipal and Elected Officials		Uniformed	
	Male	Female	Male	Female
20	0.000459	0.000178	0.000546	0.000238
25	0.000526	0.000185	0.000694	0.000389
30	0.000800	0.000333	0.000916	0.000612
35	0.001143	0.000538	0.001128	0.000851
40	0.001455	0.000717	0.001280	0.000975
45	0.001727	0.000886	0.001425	0.001072
50	0.002246	0.001212	0.001774	0.001349
55	0.003276	0.001904	0.002582	0.001961
60	0.005101	0.003038	0.004159	0.002805
65	0.007369	0.004495	0.006375	0.003528

* For municipal and elected members, we assume that 98.5% of all deaths are ordinary, with 1.5% service-connected. For police and fire members, 92% are assumed to be ordinary and 8% service-connected.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

9. Rates of Post-Retirement Mortality

Municipal and Elected Officials: 109% and 126%, for males and females, respectively, of the Pub-2010(B) General Healthy Annuitant Below-Median Table projected from base year of 2010 to 2025 using mortality improvement scale MP-2021.

Uniformed: 118% and 122%, for males and females, respectively, of the Pub-2010(B) Safety Healthy Annuitant Below-Median Table projected from base year of 2010 to 2025 using mortality improvement scale MP-2021.

Age	Municipal and Elected Officials		Uniformed	
	Male	Female	Male	Female
50	0.007429	0.004756	0.003826	0.001754
55	0.009223	0.005700	0.005497	0.003241
60	0.011855	0.006803	0.008769	0.005895
65	0.014133	0.008222	0.013323	0.009439
70	0.020760	0.012908	0.021031	0.014947
75	0.033034	0.022428	0.034785	0.025666
80	0.056316	0.041032	0.060553	0.046061
85	0.098783	0.077590	0.106886	0.082580
90	0.163564	0.144523	0.182201	0.145491
95	0.239137	0.228763	0.265109	0.224738

10. Rates of Post-Disability Mortality

Municipal and Elected Officials: 108% and 105%, for males and females, respectively, of the Pub-2010 General Disabled Annuitant Table projected from base year of 2010 to 2025 using mortality improvement scale MP-2021.

Uniformed: 135% for males only of the Pub-2010 Safety Disabled Annuitant Table projected from base year of 2010 to 2025 using mortality improvement scale MP-2021.

Age	Municipal and Elected Officials		Uniformed	
	Male	Female	Male	Female
40	0.009685	0.007998	0.003266	0.001986
45	0.012050	0.010102	0.003620	0.002178
50	0.016386	0.013994	0.004505	0.002732
55	0.021442	0.017605	0.006086	0.004437
60	0.027148	0.020804	0.009965	0.007081
65	0.032589	0.022241	0.015872	0.009962
70	0.038468	0.025891	0.023506	0.013871
75	0.048862	0.036004	0.038126	0.020926
80	0.069412	0.056150	0.066101	0.035271

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

11. Rates of Retirement

Retirement rates are based on Division, age, and Plan. For the 1987, 2010, and 2016 Plans, rates are also split based on service eligibility for reduced and unreduced early retirement benefits.

Rates of Service Retirement - 1967 Plan		
Age	Municipal	Uniformed
45	0.00	0.10
46-52	0.00	0.05
53-54	0.00	0.10
55	0.30	0.15
56	0.20	0.17
57-58	0.30	0.20
59	0.20	0.20
60	0.20	0.25
61	0.20	0.30
62	0.25	0.30
63-64	0.20	0.30
65	0.30	0.30
66-68	0.20	0.30
69	0.30	0.30
70+	1.00	1.00

Rates of Service Retirement - 1987 Plan, 2010 Plan, and 2016 Plan				
Age	Municipal and Elected Officials		Uniformed	
	< 33 Years	33+ Years	< 25 Years	25+ Years
45-49	0.00	0.00	0.005	0.03
50	0.00	0.00	0.06	0.06
51	0.00	0.00	0.05	0.05
52-54	0.01	0.03	0.05	0.05
55	0.02	0.03	0.07	0.07
56-57	0.02	0.03	0.10	0.10
58-59	0.02	0.03	0.12	0.12
60	0.27	0.27	0.12	0.12
61	0.20	0.20	0.12	0.12
62	0.27	0.27	0.30	0.30
63	0.20	0.20	0.30	0.30
64-69	0.25	0.25	0.30	0.30
70+	1.00	1.00	0.10	0.10

Retirements under DROP are included in the rates above.

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

12. Family Composition Assumptions

70% of active members and 40% of non-active members are assumed to be married for retirees with the 50% J&S with return on contribution form of payment only. Male spouses are assumed to be four-years older than female spouses.

13. Service-connected disability benefit

Service-connected disability benefits are increased by 2.9% to account for the periodic adjustment.

14. Disclosures Regarding Models Used

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies for the intended purpose of calculating liabilities and projected benefit payments. We have examined the reasonableness of the input data and assumptions, reviewed sample calculations for accuracy, reconciled the actuarial gain loss, and find the aggregate results reasonable and appropriate. We are not aware of any material inconsistencies, unreasonable output resulting from the aggregation of assumptions, material limitations or known weaknesses that would affect this actuarial valuation.

The deterministic and stochastic projections are based on our propriety model P-Scan developed by our firm that utilize the results shown in this valuation report. The model is also used to stress test the impact of volatile asset returns over the projection period. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of the valuation date and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after the valuation date. While the assumptions individually are reasonable for the underlying valuation that supports the projections, specifically for projection purposes, they are also considered reasonable in the aggregate.

15. Rationale for Assumptions

The assumptions used in this report reflect the results of an Experience Study performed by Cheiron covering the five year period from July 1, 2016 through June 30, 2021 and adopted by the Board. More details on the rationale for the demographic and economic assumptions can be found in the Experience Study Report dated April 25, 2022 which can be found at: <https://www.phila.gov/media/20220427141932/Actuarial-Experience-Study-covering-20160701-to-20210630.pdf>. In compliance with Act 205 Chapter 2, Section 2.01, an experience study is conducted every four years.

16. Changes in Actuarial Assumptions Since Last Valuation

- Demographic assumptions (mortality rates, retirement rates, termination rates, disability rates, and marriage assumption for non-active members) and economic assumptions (salary increases) were updated to reflect the most recent experience study.
- The interest rate assumption was decreased from 7.45% to 7.40%.
- The administrative expenses assumption was changed from \$10,029,224 to \$9,228,172 to better reflect actual experience.

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Actuarial Funding Method

The Entry Age Normal actuarial funding method was used for active employees, whereby the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each member's date of hire and assumed retirement. The actuarial liability is the difference between the present value of future benefits and the present value of future normal cost. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets.

2. Funding Methods

City's Funding Policy:

The initial July 1, 1985 UAL was amortized over 34 years ending June 30, 2019, with payments increasing at 3.3% per year, the assumed payroll growth. Other changes in the actuarial liability are amortized in level-dollar payments as follows:

- Actuarial gains and losses – 20 years beginning July 1, 2009. Prior to July 1, 2009, gains and losses were amortized over 15 years
- Assumption changes – 15 years beginning July 1, 2010. Prior to July 1, 2010, assumption changes were amortized over 20 years
- Plan changes for active members – 10 years
- Plan changes for inactive members – 1 year
- Plan changes mandated by the State – 20 years

If the System is 70% funded or more, then the amortization periods are the lesser of the average future service and the years outlined above. Tiered and additional Police Officer and Firefighter member contributions offset the City's portion of the normal cost.

MMO:

For the purposes of the MMO under Act 205 reflecting the fresh start amortization schedule, the July 1, 2009 UAL was "fresh started" to be amortized over 30 years ending June 30, 2039. This is a level dollar amortization of the UAL. All future amortization periods will follow the City's Funding Policy as outlined above.

Tier and additional Police Officer and Firefighter member contributions offset the City's portion of the normal cost in accordance with Act 205. Sales tax revenue is contributed in addition to the MMO resulting in gains under the funding method.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Revenue Recognition Policy:

This calculation is similar to the MMO except that the assets used to determine the unfunded liability do not include the accumulated value of sales tax revenue and tier and additional Police and Fire member contributions received by the System. These sources of income are contributed over and above the City's contribution under RRP. Therefore, under this funding method, the additional revenue amounts are separately tracked and accumulated in a notional account which is then subtracted from the assets before calculating the contribution amounts due under the Minimum Municipal Obligation (MMO) methodology. We accumulate these amounts in a notional account and deduct them from the Actuarial Asset Value before the RRP is determined. These amounts are accumulated using the market value of asset return.

Tier and additional Police Officer and Firefighter member contributions do not offset the City's portion of the normal cost.

3. Asset Valuation Method

The actuarial value of assets (AVA) is determined using an adjusted market value. Under this method, a preliminary AVA is determined as the market value of assets on the valuation date, minus the existing balance of the Pension Adjustment Fund (PAF) rolled forward at the current year's market rate of return, minus a decreasing fraction (9/10, 8/10, 7/10, etc.) of the investment gains or losses in each of the preceding nine years. Gains and losses prior to FYE June 30, 2008 were smoothed over a five-year period and have now all been fully recognized. The gain or loss for a given year is the difference between the actual investment return (on a market-to-market basis) and the assumed investment return based on the market value of assets at the beginning of the year and actual cash flow. The AVA is adjusted, if necessary, to remain between 80% and 120% of the market value net of the PAF. The final AVA is determined by subtracting the additional transfer amount (if any) to the PAF. The additional transfer amount to the PAF remains to be calculated based on the five-year smoothing method.

4. Changes in Actuarial Methods Since Last Valuation

None

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

This summary of plan provisions provides an overview of the major provisions of the pension plans used in the actuarial valuation. It is not intended to replace the more precise language of the retirement code, and if there is any difference between the description of the plans herein and the actual text of the retirement code, the retirement code will govern.

1. Participation

Municipal (Plan J):

Full-time employees participate on their date of employment. Temporary employees participate after completing six months of employment. Participation is limited to employees hired before January 8, 1987. District Council 47 (Local 2186 or 2187) and 33 members hired between January 8, 1987 and October 1, 1992 were switched from Plan 87 to 1967 Plan effective on their hire dates, provided such employees contributed the difference between what they paid to the Plan and the amount they would have paid under Plan J.

Uniformed (Plans D and X):

Same as municipal.

2. Credited Service

Municipal (Plan J):

Credited service means the period of employment with the City during which the employee makes contributions to the Retirement System. Certain leaves of absence may also be credited.

Uniformed (Plans D and X):

Same as municipal.

3. Total Compensation

Municipal (Plan J):

Total compensation means the base rate of pay, longevity payments, and overtime received during a 12-month period.

Uniformed (Plans D and X):

Total compensation means the base rate of pay, longevity payments, and stress or premium pay (up to 6% of base pay) received during a 12-month period.

4. Final Compensation

Municipal (Plan J):

Final compensation means whichever is greater: annual base rate of pay at the time of termination or the total compensation received during the 12 months immediately preceding termination, including supplementary compensation received under Civil Service Regulation No. 32.

Uniformed (Plans D and X):

Same as municipal.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

5. Average Final Compensation

Municipal (Plan J):

Average final compensation means the arithmetic average of the total compensation received during the three calendar or anniversary years that produce the highest average.

Uniformed (Plans D and X):

Average final compensation means the highest of:

- The total compensation received during the 12-month period; or
- The annual base rate of pay, excluding longevity payments, calculated from the final pay period; or
- The arithmetic average of the total compensation received during five calendar years of employment.

6. Employee Contributions

Municipal (Plan J):

Employees who participate in the Social Security System contribute 3¾% of total compensation up to the taxable wage base (\$142,800 in 2021, and \$147,000 in 2022) and 6% of total compensation above the taxable wage base to the Retirement System.

Each employee who does not participate in the Social Security System contributes 6% of his total compensation to the Retirement System.

All employees pay an additional 0.5% of compensation for the period between January 1, 2015 through December 31, 2015, and 1.0% of compensation January 1, 2016 onwards.

Effective January 1, 2019 current employees with annual salary (excluding overtime) in excess of \$45,000 will pay additional tier contributions on their total compensation over their base rates as follows: +0.50% for annual salary between \$45,000-\$55,000; +1.50% for annual salary between \$55,000-\$75,000; +2.00% for annual salary between \$75,000-\$100,000; and +2.75% for annual salary greater than 100,000.

Uniformed (Plans D and X):

6% of total compensation to the Retirement System.

7. Service Retirement

Eligibility

Municipal (Plan J):

Each municipal employee is eligible to retire and receive a service pension at age 55 with one year of service.

Uniformed (Plans D and X):

Each uniformed employee is eligible to retire and receive a service pension at age 45.

CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

Benefit Amount

Municipal (Plan J):

The service pension equals 2 1/2% of the employee's average final compensation multiplied by credited service to a maximum of 20 years plus 2% of the employee's average final compensation multiplied by credited service above 20, to a maximum of 80% of the employee's average final compensation.

Uniformed (Plans D and X):

The service pension equals 2 1/2% of the employee's average final compensation multiplied by credited service, subject to a maximum of 100% of average final compensation. A minimum of \$1,000 per month is provided for those who retired with 20 or more years of service.

8. Early Retirement

Eligibility

Municipal (Plan J):

Each municipal employee is eligible to retire and receive a reduced service pension at age 52 if he or she has 10 or more years of credited service.

Uniformed (Plans D and X):

Each uniformed employee is eligible to retire and receive a reduced service pension at age 40 if he or she has 10 or more years of credited service.

Benefit Amount

Municipal (Plan J):

The annual amount is calculated the same as service retirement, reduced by 1/2 of 1% for each month the employee is younger than minimum retirement age.

Uniformed (Plans D and X):

Same as municipal.

9. Deferred Vested Retirement

Eligibility

Municipal (Plan J):

A terminating employee who has completed 10 or more years of credited service is eligible for a deferred vested retirement benefit.

Uniformed (Plans D and X):

Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

Benefit Amount

Municipal (Plan J):

The annual deferred vested benefit is determined the same as service pensions, using average final compensation and credited service at termination. This benefit begins at service retirement date. If the member dies before the deferred vested benefit begins, an ordinary death benefit is payable (see Ordinary Death below). As an alternative before benefits begin, a plan member who is terminating employment may ask to have employee contributions returned (without interest) instead of receiving the deferred vested benefit.

Uniformed (Plans D and X):

Same as municipal.

10. Withdrawal Benefit

Municipal (Plan J):

Each employee terminating who has completed less than 10 years of credited service will receive a withdrawal benefit equal to his or her employee contributions (without interest).

Uniformed (Plans D and X):

Same as municipal.

11. Service-Connected Death

Eligibility

Municipal (Plan J):

The beneficiary of each active employee who dies solely from the performance of duties of the employee's position with the City is eligible for an immediate death benefit.

Uniformed (Plans D and X):

Same as municipal.

Benefit Amount

Municipal (Plan J):

The death benefit equals total employee contributions paid to the Retirement System, plus a yearly payment of 60% of the employee's final compensation reduced by any death benefits payable under the Worker's Compensation Act.

This benefit is payable to the spouse until his or her death. Dependent children are entitled to an additional yearly payment of 10% of final compensation for each dependent child (up to two children) until the child reaches age 18. If there is no spouse, or if the spouse dies or remarries, each dependent child (up to three children) is entitled to receive a yearly payment of 25% of final compensation until the child reaches age 18.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

If there are no spouse or dependent children, each dependent parent is entitled to receive a yearly payment of 15% of final compensation for life.

Uniformed (Plans D and X):
Same as municipal.

12. Ordinary Death

Eligibility

Municipal (Plan J):

The beneficiary of an active employee (or a terminated vested employee who did not withdraw employee contributions) who dies after completing 10 years of credited service or reaches age 55 is eligible for an immediate death benefit equal to a yearly pension or a lump sum payment. The beneficiary of an active employee who dies before completing 10 years of credited service and reaches age 55 is eligible for a lump sum payment.

The beneficiary may be any relative by blood or marriage.

Uniformed (Plans D and X):

The beneficiary of any employee who dies while actively employed (or a terminated vested employee who did not withdraw employee contributions) is eligible for a death benefit equal to a yearly pension or a lump sum payment.

The beneficiary may be any relative by blood or marriage.

Annual Pension

Municipal (Plan J):

The annual ordinary death pension, payable for life, is equal to the regular service pension the employee would have received if eligible to retire on the day before he died and had elected Option 2, joint and 100% contingent annuitant (see Survivor Benefits below).

Uniformed (Plans D and X):

The annual ordinary death pension, payable for life, is equal to the regular service pension the employee would have received (based on a minimum of 10 years of service) had the person been eligible to retire on the day before dying and had elected Option 2, joint and 100% contingent annuitant (see Survivor Benefits below).

Lump Sum Payment

Municipal (Plan J):

The lump sum payment is equal to 10% of the deceased employee's average final compensation multiplied by years of credited service to a maximum of 10, plus the deceased employee's contributions to the Retirement System, minus the total amount of the deceased employee's City paid life insurance.

Uniformed (Plans D and X):
Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

13. Service-Connected Disability

Eligibility

Municipal (Plan J):

An active employee found by the Board of Pensions and Retirement to be mentally or physically permanently incapacitated (unable to perform duties) solely as the result of accident or injury during the performance of duties is eligible for an immediate service-connected disability pension.

Uniformed (Plans D and X):

Same as municipal. A minimum of \$1,000 per month is provided for Uniformed members.

Benefit Amount

Municipal (Plan J):

The service-connected disability benefit is equal to the Employee's Retirement System contributions, plus a yearly benefit of 70% of the employee's final compensation, reduced by any disability benefits payable under the Worker's Compensation Act. If he or she withdraws contributions, the benefit is payable for his or her lifetime only.

If the employee leaves employee contributions with the Retirement System, he or she may choose a survivor benefit option (see Survivor Benefit below) and the beneficiary will continue receiving benefit payments after his or her death.

Uniformed (Plans D and X):

Same as municipal.

14. Service-Connected Disability Periodic Adjustment

Eligibility

Municipal (Plan J):

An employee who is receiving a service-connected disability benefit who is totally disabled and does not collect Social Security disability insurance benefits is eligible for a periodic adjustment.

Uniformed (Plans D and X):

Same as municipal, but only applies to police employees.

Benefit Amount

Municipal (Plan J):

The disabled employee's pension will be increased in the eighth year after separation by the percentage raise given in the previous year to active employees in his or her job class. The adjustment will continue each year thereafter until the employee's 65th birthday.

Uniformed (Plans D and X):

Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

15. Ordinary Disability

Eligibility

Municipal (Plan J):

An active employee found by the Board to be mentally or physically permanently incapacitated from the further performance of duties due to an accident or illness not caused by the performance of duties is eligible for an immediate ordinary disability benefit after completing 10 years of credited service.

Uniformed (Plans D and X):

Same as municipal, except that fire employees only need five years of credited service and police employees have no service requirement if the disability is permanent and total. Police employees with permanent and partial disability need 10 years of credited service.

Benefit Amount

Municipal (Plan J):

The annual ordinary disability benefit is equal to the benefit determined under the service pension formula using average final compensation and credited service as of the date of disablement. If the employee is eligible for or receiving workers' compensation, no benefit is payable. Such employee may apply for benefits at retirement age.

Uniformed (Plans D and X):

Same as municipal, except police employees that have no service requirement are credited with a minimum of 10 years of credited service. Same as municipal.

16. Survivor Benefit

Municipal (Plan J):

Service pensions, deferred vested benefits, service-connected disability benefits (if employee contributions are left on deposit), and ordinary disability benefits are payable under five optional forms. Options 1, 2, 3, and 5 provide benefits actuarially equivalent to a lifetime only pension while Option 4 has no reduction.

Option 1 – A benefit is payable to the employee with the provision that upon death, the beneficiary will receive a lump sum equal to the excess, if any, of the employee's contributions over the sum of the payments received.

Option 2 – A reduced benefit payable to the employee with the provision that 100% of the reduced benefit will be paid to the designated beneficiary for life after the death of the employee.

Option 3 – Same as Option 2 except only 50% of the reduced benefit is continued to the designated beneficiary.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

Option 4 – Upon the employee’s death, 50% of the benefit will continue to be paid to the surviving spouse for life, provided the employee and spouse were married for two years before retirement and at death. If there is no eligible spouse at the time the employee dies, or the spouse dies before the full amount of the contributions have been returned, 50% of the benefit is continued to dependent children until age 18, or if no dependent children, payments are given to dependent parents for the remainder of their lives. In addition, Option 4 provides for a guaranteed return of employee contributions as described in Option 1 above.

Option 5 – Provides for a partial lump sum of between 6 and 36 monthly payments payable under Options 1, 2, 3 or 4. The remaining monthly benefit is reduced so that the partial lump sum plus the reduced benefit is actuarially equivalent to the original benefit.

Uniformed (Plans D and X):
Same as municipal.

17. Minimum Pension

Municipal (Plan J):

The monthly minimum pension to a pensioner is equal to \$25 multiplied by the pensioner’s completed years of credited service, to a 10-year maximum.

Uniformed (Plans D and X):

The monthly minimum pension to pensioners is \$500. The monthly minimum pension to all other pensioners is \$440 providing such pension will increase to \$500 at the time the pensioner reaches age 60.

18. Waiver of Benefit

Municipal (Plan J):

Any employee at service retirement age with less than three but more than one year of credited service may waive the right to receive a monthly benefit and in lieu thereof, receive a lump sum payment of twice his or her employee contributions without interest.

Uniformed (Plans D and X):
Same as municipal.

19. Service-Connected Health Care Benefit

Municipal (Plan J):

Not applicable.

Uniformed (Plans D and X):

If a uniformed employee dies during the performance of duties, a service-connected health care benefit may be payable to the surviving spouse and dependent children. Regular payments will be made of the appropriate cost of maintaining medical, dental, optical, and prescription drug benefits that were in force at the time of the employee’s death. Payments to the spouse cease upon remarriage and to the dependent children at age 18 (age 22 if a full-time student) or, if dependent due to physical or mental infirmity, the duration of the infirmity. The health care benefits are not paid from the pension trust assets.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

20. Deferred Retirement Option Plan (DROP)

Municipal (Plan J):

Employees that have ten years of service and have reached two years past the minimum retirement age may elect to participate in the DROP. During this time, their accrued benefit will go into a DROP account and will earn interest at a specified rate. The rate is calculated each year on January 1 and is equal to the lesser of the yield on 1-year treasury bonds and half of the valuation interest rate as of that date. The benefit is calculated as of the date they entered the DROP. At the end of the DROP, the employees' accrued monthly benefit will commence, plus they will receive the accumulated amount of the accrued benefit paid to the DROP, as well as the interest earned on such benefit.

Uniformed (Plans D and X):

Same as municipal except that employees are eligible as soon as they have ten years of service and have reached minimum retirement age.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

1. Participation

Municipal (Plan Y):

Full-time employees participate on their date of employment. Temporary employees participate after completing six months of employment. Participation is limited to employees hired on or after January 8, 1987. Any member of the 1967 Plan may irrevocably elect to participate in Plan 87. All employees hired after their Plan '10 effective date become members of Plan '10 with some groups having the option to elect into Plan 87. Employees first hired or rehired after their Plan 16 effective date become members of Plan 16.

Uniformed (Plans A and B):

Same as municipal except Police employees hired after January 1, 2010 and Fire employees hired on or after October 15, 2010 must make an election to participate in Plan 87.

Elected (Plan L):

Any City employee on or after January 8, 1987, in any general, municipal, or special election, participates in this Plan. Effective November 11, 2014, elected officials become members of Plan '10 upon employment or taking office unless they elect to participate in Plan 87.

2. Credited Service

Municipal (Plan Y):

Credited service means the period of employment with the City during which the employee makes contributions to the Retirement System. Certain leaves of absence may also be credited.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

3. Total Compensation

Municipal (Plan Y):

Total compensation means the base rate of pay, overtime, and longevity payments received during a 12-month period.

Uniformed (Plans A and B):

Total compensation means the base rate of pay, longevity payments, and stress or premium pay (up to 6% of base pay) received during a 12-month period.

Elected (Plan L):

Total compensation means the base rate of pay and longevity payments received during a 12-month period.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

4. Final Compensation

Municipal (Plan Y):

Final compensation means whichever is greater: annual base rate of pay at the time of termination or the total compensation received during the 12 months immediately preceding termination, including supplementary compensation received under Civil Service Regulation No. 32.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

5. Average Final Compensation

Municipal (Plan Y):

Average final compensation means the arithmetic average of the total compensation received during the three calendar or anniversary years producing the highest average.

Uniformed (Plans A and B):

Average final compensation means the arithmetic average of the total compensation received during the two calendar or anniversary years producing the highest average.

Elected (Plan L):

Same as municipal.

6. Employee Contributions

Municipal (Plan Y):

Total employee contributions equal 30% of the gross normal cost for all members in the municipal division. For employees of the Sheriff's Office represented by Lodge 5 of the F.O.P hired after January 1, 2012 and prior to August 20, 2018, who elect to participate in Plan Y employee contributions equal 50% of gross normal cost. Exempt and non-represented employees hired after January 13, 1999 and prior to January 1, 2019 (and current employees as of January 13, 1999 that elect to do so) will contribute an additional amount to become vested in five years instead of ten years. Employees hired after their Plan '10 date who elect the option to participate in Plan 87 prime will pay an additional 1.0% of compensation.

All employees will pay an additional 0.5% of compensation for the period between January 1, 2015 through December 31, 2015 and 1.0% of compensation January 1, 2016 onwards.

Effective January 1, 2019 current employees with annual salary (excluding overtime) in excess of \$45,000 will pay additional tier contributions on their total compensation over their base rates as follows: +0.50% for annual salary between \$45,000-\$55,000; +1.50% for annual salary between \$55,000-\$75,000; +2.00% for annual salary between \$75,000-\$100,000; and +2.75% for annual salary greater than 100,000.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

Uniformed (Plans A and B):

Total employee contributions equal 5% of total compensation, but not less than 30% or greater than 50% of gross normal cost for members in the uniformed division. Police employees hired after January 1, 2010 and Fire Fighters hired after October 15, 2010, who elect to participate in the 1987 Plan, will contribute 6% of total compensation.

Member contributions for current employees are increased by 0.92% effective July 1, 2017 and an additional 0.92% effective July 1, 2018. For new employees hired or rehired on or after July 1, 2017 member contribution rate shall be increased by 2.5% over the current rate of 6%.

Elected (Plan L):

Total employee contributions equal 30% of the gross normal cost for all members in the elected division calculated under the Municipal Plan plus 100% of the gross normal cost that exceeds the cost for the municipal plan. Employees hired after January 13, 1999 (and current employees as of January 13, 1999 that elect to do so) will contribute an additional amount to become vested in the lesser of two-full terms or eight years. Elected officials that are elected into Office after November 14, 2014 pay an additional 1% of compensation to participate in Plan L instead of Plan '10. All employees will also pay an additional 0.5% of compensation for the period between January 1, 2015 through December 31, 2015 and 1.0% of compensation January 1, 2016 onwards.

Effective January 1, 2019 current and future employees with annual salary (excluding overtime) in excess of \$45,000 will pay additional tier contributions on their total compensation over their base rates as follows: +0.50% for annual salary between \$45,000-\$55,000; +1.50% for annual salary between \$55,000-\$75,000; +2.00% for annual salary between \$75,000-\$100,000; and +2.75% for annual salary greater than \$100,000.

7. Service Retirement

Eligibility

Municipal (Plan Y):

Each municipal employee is eligible to retire and receive a service pension at age 60 if he or she has 10 or more years of credited service or, if the employee made additional contributions to become vested in five years, five years of credited service.

Uniformed (Plans A and B):

Each uniformed employee is eligible to retire and receive a service pension upon reaching age 50 and 10 or more years of credited service, or, if the employee made additional contributions to become vested in five years, five years of credited service.

Elected (Plan L):

Each elected official is eligible to retire and receive a service pension at age 55 if he or she has 10 or more years of credited service, or, if the employee made additional contributions to become vested in the lesser or two full terms or eight years, the lesser of two full terms or eight years of credited service.

CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

Benefit Amount

Municipal (Plan Y):

The service pension equals 2.2% of the employee's average final compensation multiplied by years of credited service to a maximum of 10 years, plus 2% of the employee's average final compensation multiplied by years of service over 10, subject to a maximum of 100% of average final compensation.

Uniformed (Plans A and B):

The service pension equals 2.2% of the employee's average final compensation multiplied by years of credited service to a maximum of 20 years, plus 2% of the employee's average final compensation multiplied by years of credited service over 20, subject to a maximum of 100% of average final compensation.

Elected (Plan L):

The service pension equals 3.5% of the employee's average final compensation multiplied by years of credited service, subject to a maximum of 100% of average final compensation.

8. Early Retirement

Eligibility

Municipal (Plan Y):

Each municipal employee is eligible to retire and receive a reduced service pension at age 52 if he has 10 or more years of credited service. As an alternative, a member is eligible if he or she has at least 33 years of credited service, regardless of age.

Uniformed (Plans A and B):

Each uniformed employee is eligible to retire and receive a reduced service pension at age 40 if he or she has 10 or more years of credited service. Alternatively, a member is eligible if he has at least 25 years of credited service, regardless of age.

Benefit Amount

Municipal (Plan Y):

The annual amount is calculated the same as service retirement, reduced by 1/2 of 1% for each month the employee is younger than minimum retirement age. Benefits are not reduced if the employee has 33 or more years of credited service.

Uniformed (Plans A and B):

The annual amount is calculated the same as service retirement, reduced by 1/2 of 1% for each month the employee is younger than minimum retirement age. Benefits are not reduced if the employee has 25 or more years of credited service.

Elected (Plan L):

The annual amount is calculated the same as service retirement, reduced by 1/2 of 1% for each month the employee is younger than minimum retirement age.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

9. Deferred Vested Retirement

Eligibility

Municipal (Plan Y):

An employee who terminates employment after completing 10 or more years of credited service or, if the employee made additional contributions to become vested in five years, five years of credited service, is eligible for a deferred vested retirement if his or her contributions have not been withdrawn.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

A person terminating employment and who has completed 10 or more years of credited service, or if the employee made additional contributions to become vested in the lesser of two full terms or eight years, two full terms or eight years of credited service is eligible for a deferred vested retirement benefit provided he or she has not withdrawn contributions.

Benefit

Municipal (Plan Y):

The annual deferred vested benefit is determined the same as service pensions, based on average final compensation and credited service at termination. This benefit begins at the service retirement date. If a member dies before the deferred vested benefit begins, an ordinary death benefit is payable (see Ordinary Death below). As an alternative, the person terminating employment may request at any time before benefits begin a return of employee contributions (without interest) instead of the deferred vested benefit.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

10. Withdrawal Benefit

Eligibility

Municipal (Plan Y):

Each terminating employee who has completed fewer than 10 years of credited service (or, if the employee made additional contributions to become vested in five years, fewer than five years of credited service) will receive a withdrawal benefit equal to employee contributions (without interest).

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Each terminating employee who completed fewer than 10 years of credited service will receive a withdrawal benefit equal to employee contributions (without interest).

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

11. Service Connected Death

Eligibility

Municipal (Plan Y):

The beneficiary of each active employee who dies solely from the performance of duties of the employee's position with the City is eligible for an immediate death benefit.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

Benefit Amount

Municipal (Plan Y):

The death benefit equals the sum of the total employee contributions paid to the Retirement System (without interest), plus a yearly payment of 60% of the employee's final compensation reduced by any death benefits payable under the Workers' Compensation Act. This benefit is payable to the spouse until his or her death or remarriage, whichever occurs first. Dependent children are entitled to an additional 10% of final compensation yearly payment for each dependent child (up to two children) until the child reaches 18. This total benefit shall not exceed 80% of final compensation.

If there is no spouse, or if the spouse dies or remarries, each dependent child (up to three children) is eligible for a yearly payment of 25% of final compensation until the child reaches age 18. If there is no spouse or dependent children, each dependent parent is entitled to a 15% of final compensation yearly payment for life.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

12. Ordinary Death

Eligibility

Municipal (Plan Y):

The beneficiary of an active employee (or a terminated vested employee who did not withdraw his employee contributions) who dies after completing 10 years of credited service (or five years of credited service if additional contributions were made) or who has reached age 60 is eligible for an immediate death benefit equal to an annual pension or a lump sum payment, whichever the beneficiary chooses.

The beneficiary of an active employee who dies before completing 10 years of credited service (or five years of credited service if additional contributions were made) or reaching age 60 is eligible for a lump sum payment.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

The beneficiary may be any relative by blood or marriage.

Uniformed (Plans A and B):

The beneficiary of any employee who dies while actively employed (or a terminated vested employee who did not withdraw employee contributions) is eligible for a death benefit equal to an annual pension or a lump sum payment, whichever the beneficiary chooses.

The beneficiary may be any relative by blood or marriage.

Elected (Plan L):

The beneficiary of an active employee (or a terminated vested employee who did not withdraw contributions) who dies after completing 10 years of credited service or reaching age 55 is eligible for an immediate death benefit equal to an annual pension or a lump sum payment, whichever the beneficiary chooses.

The beneficiary of an active employee who dies before completing 10 years of credited service or reaching age 55 is eligible for a lump sum payment. The beneficiary may be any relative by blood or marriage.

Annual Pension

Municipal (Plan Y):

The annual ordinary death pension, payable for life, is equal to the regular service pension the employee would have received had he or she been eligible to retire on the day before death and had elected Option 2, joint and 100% contingent annuitant (see Survivor Benefits below).

Uniformed (Plans A and B):

The annual ordinary death pension, payable for life, is equal to the regular service pension the employee would have received (based on a minimum of 10 years of service) had he been eligible to retire on the day before death and had elected Option 2, joint and 100% contingent annuitant (see Survivor Benefits below).

Elected (Plan L):

Same as municipal.

Lump Sum Payment

Municipal (Plan Y):

The lump sum payment is equal to the deceased employee's average final compensation multiplied by years of credited service (not to exceed the service in the denominator) and divided by the number of years of credited service needed to become vested, plus the deceased employee's contribution to the Retirement System (without interest) minus the total amount of the deceased employee's life insurance which was paid by the City.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

13. Service-Connected Disability

Eligibility

Municipal (Plan Y):

An active employee found by the Board of Pensions and Retirement to be mentally or physically permanently incapacitated from any further performance of duties due solely to the result of the performance of duties is eligible for an immediate service-connected disability pension. The application for benefit must be made within one year after termination of employment.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

An active employee found by the Board of Pensions and Retirement to be mentally or physically permanently incapacitated from any further performance of duties due solely to the result of the performance of duties is eligible for an immediate service-connected disability pension.

Benefit Amount

Municipal (Plan Y):

The service-connected disability benefit is equal to the employee's contributions to the Retirement System, plus a yearly benefit of 70% of the employee's final compensation, reduced by any disability benefits payable under the Worker's Compensation Act.

If he or she withdraws contributions, the benefit is payable for his or her lifetime only. If the employee leaves employee contributions with the Retirement System, he or she may choose a survivor benefit option (see Survivor benefit below) and the beneficiary will continue receiving benefit payments after his or her death.

Uniformed (Plans A and B)

Same as municipal.

Elected (Plan L):

Same as municipal.

14. Service-Connected Disability Periodic Adjustment

Eligibility

Municipal (Plan Y):

An employee who is receiving a service-connected disability benefit who is totally disabled and does not collect Social Security disability insurance benefits is eligible for a periodic adjustment.

Uniformed (Plans A and B):

Same as municipal, but only applies to police employees.

Elected (Plan L):

Same as municipal.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

Benefit Amount

Municipal (Plan Y):

The disabled employee's pension will be increased in the eighth year after separation by the percentage raise given in the previous year to active employees in his or her job class. The adjustment will continue each year until the employee's 65th birthday.

Uniformed (Plans A and B):

Same as municipal.

Elected (Plan L):

Same as municipal.

15. Ordinary Disability

Eligibility

Municipal (Plan Y):

An active employee found by the Board to be mentally or physically permanently incapacitated from the further performance of duties due to an accident or illness not caused by the performance of duties is eligible for an immediate ordinary disability benefit provided he or she has at least 10 years of credited service (or five years of credited service, if additional contributions were made). The application for benefits must be made within one year after termination.

Uniformed (Plans A and B):

Same as municipal, except that fire employees only need five years of credited service and police employees have no service requirement if the disability is permanent and total. Police employees with permanent and partial disability need 10 years of credited service (or five years of credited service, if additional contributions were made).

Elected (Plan L):

An active employee found by the Board to be mentally or physically permanently incapacitated from the further performance of duties due to an accident or illness not caused by the performance of duties is eligible for an immediate ordinary disability benefit provided he or she has completed at least 10 years of credited service, or eight years if additional contributions were made.

Benefit Amount

Municipal (Plan Y):

The annual ordinary disability benefit is equal to the benefit determined under the service pension formula using average final compensation and credited service as of the date of disablement.

If the employee is eligible for or receiving workers compensation, no benefit is payable. Such employee may apply for benefits at retirement age.

Uniformed (Plans A and B):

Same as municipal, except each eligible employee is automatically credited with a minimum of 10 years of service to calculate the annual benefit.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

Elected (Plan L):

The annual ordinary disability benefit is equal to the benefit determined under the service pension formula using average final compensation and credited service as of the date of disablement.

16. Survivor Benefits

Municipal (Plan Y):

Service pensions, deferred vested benefits, service-connected disability benefits, and ordinary disability benefits are payable under five optional forms. Options 2 and 3 provide benefits actuarially equivalent to a lifetime only pension while Option 1 has no reduction.

Option 1 - A benefit is payable to the employee providing on his death, the beneficiary will receive a lump sum equal to the excess, if any, of the employee's contributions over the sum of the payments received.

Option 2 - A reduced benefit payable to the employee with the provision that 100% of the reduced benefit will continue to be paid to the designated beneficiary for life after the death of the employee.

Option 3 - The same as Option 2 except only 50% of the reduced benefit is continued to the designated beneficiary.

Option 5 – Provides for a partial lump sum of between 6 and 36 monthly payments payable under Options 1, 2, 3 or 4. The remaining monthly benefit is reduced so that the partial lump sum plus the reduced benefit is actuarially equivalent to the original benefit.

Uniformed (Plans A and B):

Same as municipal, except that police and fire employees may also elect Option 4:

Option 4 - Upon the employee's death, 50% of the benefit will continue to be paid to the surviving spouse for life, provided the employee and spouse were married for two years before retirement and at death. If there is no eligible spouse at the time the employee dies, or the spouse dies before the full amount of the contributions have been returned, 50% of the benefit is continued to dependent children until age 18, or if no dependent children, payments are given to dependent parents for the remainder of their lives. In addition, Option 4 provides for a guaranteed return of employee contributions as described in Option 1 above.

Elected (Plan L):

Same as municipal.

17. Service-Connected Health Care Benefit

Eligibility

Municipal (Plan Y):

Not applicable.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1987 PLAN

Uniformed (Plans A and B):

In the event of the death of a uniformed employee during the performance of his or her duties, a service-connected health care benefit may be payable to the surviving spouse and dependent children. Regular payments will be made of the appropriate cost of maintaining medical, dental, optical and pharmaceutical prescription benefits in force at the time of the employee's death. Payments to the spouse cease upon remarriage and to the dependent children at age 18 (age 22 if a full-time student) or if dependent due to physical or mental infirmity, the duration of the infirmity. The health care benefits are not paid from the pension trust assets.

Elected (Plan L):

Not applicable.

18. Deferred Retirement Option Plan (DROP)

Eligibility

Municipal (Plan Y):

Employees that have 10 years of service and have reached two years after the minimum retirement age may elect to participate in the DROP. During this time, their accrued benefit will go into a DROP account and will earn interest at a specified rate. The rate is calculated each year on January 1 and is equal to the lesser of the yield on 1-year treasury bonds and half of the valuation interest rate as of that date. The benefit is calculated as of the date they entered the DROP. At the end of the DROP, the employees' accrued monthly benefit will commence, plus they will receive the accumulated amount of the accrued benefit paid to the DROP, as well as the interest earned on such benefit.

Uniformed (Plans A and B):

Same as municipal except that employees are eligible as soon as they have ten years of service and have reached minimum retirement age.

Elected (Plan L):

Officials elected to Office after September 18, 2009 are not eligible to participate in the DROP.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

1. Participation

Municipal:

Municipal employees hired or rehired after the Plan ‘10 effective date (as shown below) become members in Plan ‘10 immediately upon employment. All Municipal employees except Elected Officials hired or rehired after their Plan 16 effective date become members of Plan 16.

Employees of the Sheriffs’ Office or Register of Wills: January 1, 2012

Employees represented by AFSCME, District Council 47: March 5, 2014

Municipal employees in the civil service not represented by a union: May 14, 2014

Employees represented by AFSCME, District Council 33, other than guards: September 2014

Guards represented by DC 33: November 11, 2014

Municipal employees not in the civil service and not represented by a union:
November 11, 2014

Elected Officials: November 11, 2014

All employees except Register of wills and guards represented by DC 33 have the option within 30 days to elect to participate in Plan 87 Municipal.

Uniformed:

Police employees hired or rehired on or after January 1, 2010 and Fire employees hired or rehired on or after October 15, 2010 are members in Plan ‘10 immediately upon employment. Employees have the option within 30 days to elect to participate in Plans A or B.

Existing Plan A, Plan B, and Plan Y participants had the option, for a period of ninety (90) days, to make an irrevocable election to enter the Plan ‘10. Employees who elected do so would have their benefits in the existing pension plan frozen, and their future earnings and service will count only toward benefits under Plan ‘10.

2. Credited Service

Municipal:

Credited service means the period of employment with the City during which the employee makes contributions to the Retirement System. Certain leaves of absence may also be credited.

Uniformed:

Same as municipal.

3. Total Compensation

Municipal:

Total compensation means the base rate of pay, overtime, and longevity payments received during a 12-month period.

Uniformed:

Total compensation means the base rate of pay, longevity payments, and stress or premium pay (up to 6% of base pay) received during a 12-month period.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

4. Final Compensation

Municipal:

Final compensation means whichever is greater: annual base rate of pay at the time of termination or the total compensation received during the 12 months immediately preceding termination, including supplementary compensation received under Civil Service Regulation No. 32.

Uniformed:

Same as municipal.

5. Average Final Compensation

Municipal:

Average final compensation means the arithmetic average of the total compensation received during the five calendar or anniversary years producing the highest average.

Uniformed:

Same as municipal.

6. Employee Contributions

Municipal:

Total employee contributions equal 50% of the gross normal cost for members in the municipal division.

Effective January 1, 2019, current employees with annual salary (excluding overtime) in excess of \$45,000 will pay additional tier contributions on their total compensation over their base rates as follows: +0.50% for annual salary between \$45,000-\$55,000; +1.50% for annual salary between \$55,000-\$75,000; +2.00% for annual salary between \$75,000-\$100,000; and +2.75% for annual salary greater than 100,000.

Uniformed:

Total employee contributions equal 5.5% of total compensation up to twenty years of credited service.

Member contributions for current employees are increased by 0.92% effective July 1, 2017 and an additional 0.92% effective July 1, 2018. For new employees hired or rehired on or after July 1, 2017 employee contributions rate shall be increased by 2.5% over the current rate of 5.5%.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

7. Service Retirement

Eligibility

Municipal:

Each municipal employee is eligible to retire and receive a service pension at age 60 if he or she has 10 or more years of credited service.

Uniformed:

Each uniformed employee is eligible to retire and receive a service pension upon reaching age 50 and 10 or more years of credited service.

Benefit Amount

Municipal:

The service pension equals 1.25% of the employee’s average final compensation multiplied by years of credited service up to a maximum of 20 years.

Uniformed:

The service pension equals 1.75% of the employee’s average final compensation multiplied by years of credited service up to a maximum of 20 years.

8. Early Retirement

Eligibility

Municipal:

Each municipal employee is eligible to retire and receive a reduced service pension at age 52 if he has 10 or more years of credited service.

Uniformed:

Each uniformed employee is eligible to retire and receive a reduced service pension at age 40 if he or she has 10 or more years of credited service.

Benefit Amount

Municipal:

The annual amount is calculated the same as service retirement, reduced by 1/2 of 1% for each month the employee is younger than minimum retirement age.

Uniformed:

Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

9. Deferred Vested Retirement

Eligibility

Municipal:

An employee who terminates employment after completing 10 or more years of credited service is eligible for a deferred vested retirement if his or her contributions have not been withdrawn.

Uniformed:

Same as municipal.

Benefit Amount

Municipal:

The annual deferred vested benefit is determined the same as service pensions, based on average final compensation and credited service at termination. This benefit begins at the service retirement date. If a member dies before the deferred vested benefit begins, an ordinary death benefit is payable (see Ordinary Death below). As an alternative, the person terminating employment may request at any time before benefits begin a return of employee contributions (without interest) instead of the deferred vested benefit.

Uniformed:

Same as municipal.

10. Withdrawal Benefit

Eligibility

Municipal:

Each terminating employee who has completed fewer than 10 years of credited service will receive a withdrawal benefit equal to employee contributions (without interest).

Uniformed:

Same as municipal.

11. Service Connected Death

Eligibility

Municipal:

The beneficiary of each active employee who dies solely from the performance of duties of the employee’s position with the City is eligible for an immediate death benefit.

Uniformed:

Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

Benefit Amount

Municipal:

The death benefit equals the sum of the total employee contributions paid to the Retirement System (without interest), plus a yearly payment of 60% of the employee’s final compensation reduced by any death benefits payable under the Workers’ Compensation Act. This benefit is payable to the spouse until his or her death or remarriage, whichever occurs first. Dependent children are entitled to an additional 10% of final compensation yearly payment for each dependent child (up to two children) until the child reaches 18. This total benefit shall not exceed 80% of final compensation.

If there is no spouse, or if the spouse dies or remarries, each dependent child (up to three children) is eligible for a yearly payment of 25% of final compensation until the child reaches age 18. If there is no spouse or dependent children, each dependent parent is entitled to a 15% of final compensation yearly payment for life.

Uniformed:

Same as municipal.

12. Ordinary Death

Eligibility

Municipal:

The beneficiary of an active employee (or a terminated vested employee who did not withdraw his employee contributions) who dies after completing 10 years of credited service or who has reached age 60 is eligible for an immediate death benefit equal to an annual pension or a lump sum payment, whichever the beneficiary chooses.

The beneficiary of an active employee who dies before completing 10 years of credited service or reaching age 60 is eligible for a lump sum payment.

The beneficiary may be any relative by blood or marriage.

Uniformed:

The beneficiary of any employee who dies while actively employed (or a terminated vested employee who did not withdraw employee contributions) is eligible for a death benefit equal to an annual pension or a lump sum payment, whichever the beneficiary chooses.

The beneficiary may be any relative by blood or marriage.

Annual Pension

Municipal:

The annual ordinary death pension, payable for life, is equal to the regular service pension the employee would have received had he or she been eligible to retire on the day before death and had elected Option 2, joint and 100% contingent annuitant (see Survivor Benefits below).

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

Uniformed:

The annual ordinary death pension, payable for life, is equal to the regular service pension the employee would have received (based on a minimum of 10 years of service) had he been eligible to retire on the day before death and had elected Option 2, joint and 100% contingent annuitant (see Survivor Benefits below).

Lump Sum Payment

Municipal:

The lump sum payment is equal to the deceased employee’s average final compensation multiplied by years of credited service (not to exceed the service in the denominator) and divided by the number of years of credited service needed to become vested, plus the deceased employee’s contribution to the Retirement System (without interest) minus the total amount of the deceased employee’s life insurance which was paid by the City.

Uniformed:

Same as municipal.

13. Service-Connected Disability

Eligibility

Municipal:

An active employee found by the Board of Pensions and Retirement to be mentally or physically permanently incapacitated from any further performance of duties due solely to the result of the performance of duties is eligible for an immediate service-connected disability pension. The application for benefit must be made within one year after termination of employment.

Uniformed:

Same as municipal.

Benefit Amount

Municipal:

The service-connected disability benefit is equal to the employee’s contributions to the Retirement System, plus a yearly benefit of 70% of the employee’s final compensation, reduced by any disability benefits payable under the Worker’s Compensation Act.

If he or she withdraws contributions, the benefit is payable for his or her lifetime only.

If the employee leaves employee contributions with the Retirement System, he or she may choose a survivor benefit option (see Survivor benefit below) and the beneficiary will continue receiving benefit payments after his or her death.

Uniformed:

Same as municipal.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

14. Service-Connected Disability Periodic Adjustment

Eligibility

Municipal:

An employee who is receiving a service-connected disability benefit who is totally disabled and does not collect Social Security disability insurance benefits is eligible for a periodic adjustment.

Uniformed:

Same as municipal, but only applies to police employees.

Benefit Amount

Municipal:

The disabled employee’s pension will be increased in the eighth year after separation by the percentage raise given in the previous year to active employees in his or her job class. The adjustment will continue each year until the employee’s 65th birthday.

Uniformed:

Same as municipal.

15. Ordinary Disability

Eligibility

Municipal:

An active employee found by the Board to be mentally or physically permanently incapacitated from the further performance of duties due to an accident or illness not caused by the performance o/f duties is eligible for an immediate ordinary disability benefit provided he or she has at least 10 years of credited service. The application for benefits must be made within one year after termination.

Uniformed:

Same as municipal, except that fire employees only need five years of credited service and police employees have no service requirement if the disability is permanent and total. Police employees with permanent and partial disability need 10 years of credited service.

Benefit Amount

Municipal:

The annual ordinary disability benefit is equal to the benefit determined under the service pension formula using average final compensation and credited service as of the date of disablement.

If the employee is eligible for or receiving workers compensation, no benefit is payable. Such employee may apply for benefits at retirement age.

Uniformed (Plans A and B):

Same as municipal, except each eligible employee is automatically credited with a minimum of 10 years of service to calculate the annual benefit.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

16. Survivor Benefits

Eligibility

Municipal:

Service pensions, deferred vested benefits, service-connected disability benefits, and ordinary disability benefits are payable under five optional forms. Options 2 and 3 provide benefits actuarially equivalent to a lifetime only pension while Option 1 has no reduction.

Option 1 - A benefit is payable to the employee providing on his death, the beneficiary will receive a lump sum equal to the excess, if any, of the employee's contributions over the sum of the payments received.

Option 2 - A reduced benefit payable to the employee with the provision that 100% of the reduced benefit will continue to be paid to the designated beneficiary for life after the death of the employee.

Option 3 - The same as Option 2 except only 50% of the reduced benefit is continued to the designated beneficiary.

Option 5 – Provides for a partial lump sum of between 6 and 36 monthly payments payable under Options 1, 2, 3 or 4. The remaining monthly benefit is reduced so that the partial lump sum plus the reduced benefit is actuarially equivalent to the original benefit.

Uniformed:

Same as municipal, except that police and fire employees may also elect Option 4:

Option 4 - Upon the employee's death, 50% of the benefit will continue to be paid to the surviving spouse for life, provided the employee and spouse were married for two years before retirement and at death. If there is no eligible spouse at the time the employee dies, or the spouse dies before the full amount of the contributions have been returned, 50% of the benefit is continued to dependent children until age 18, or if no dependent children, payments are given to dependent parents for the remainder of their lives. In addition, Option 4 provides for a guaranteed return of employee contributions as described in Option 1 above.

17. Service-Connected Health Care Benefit

Eligibility

Municipal:

Not applicable.

Uniformed:

In the event of the death of a uniformed employee during the performance of his or her duties, a service-connected health care benefit may be payable to the surviving spouse and dependent children. Regular payments will be made of the appropriate cost of maintaining medical, dental, optical and pharmaceutical prescription benefits in force at the time of the employee's death. Payments to the spouse cease upon remarriage and to the dependent children at age 18 (age 22 if a full-time student) or if dependent due to physical or mental infirmity, the duration of the infirmity. The health care benefits are not paid from the pension trust assets.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

18. Deferred Retirement Option Plan (DROP)

Eligibility

Municipal:

Employees that have 10 years of service and have reached two years after the minimum retirement age may elect to participate in the DROP. During this time, their accrued benefit will go into a DROP account and will earn interest at a specified rate. The rate is calculated each year on January 1 and is equal to the lesser of the yield on 1-year treasury bonds and half of the valuation interest rate as of that date. The benefit is calculated as of the date they entered the DROP. At the end of the DROP, the employees' accrued monthly benefit will commence, plus they will receive the accumulated amount of the accrued benefit paid to the DROP, as well as the interest earned on such benefit.

Uniformed:

Same as municipal except that employees are eligible as soon as they have ten years of service and have reached minimum retirement age.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘16

Employees in all Municipal groups (except elected officials) hired or rehired on or after the Plan 16 effective date (as shown below) are required to participate in the new Stacked Hybrid Plan – Plan 16.

Employees of the Sheriffs’ Office or Register of Wills: June 21, 2018
Employees represented by AFSCME, District Council 33: August 20, 2016
Employees represented by AFSCME, District Council 47: January 1, 2019
Municipal employees not represented by a union: January 1, 2019

Plan 16 benefits are similar to Plan 87, except that the average final compensation used in calculating benefits is limited by the Stacked Hybrid Cap of \$65,000. For DC 33 Plan 16 members, effective January 1, 2019 the Stacked Hybrid Cap was increased from \$50,000 to \$65,000.

Member contributions for Plan 16 members will also be based on compensation capped at \$65,000. Additionally, employees with annual salary (excluding overtime) in excess of \$45,000 will pay additional tier contributions on their total compensation over their base rates as follows: +0.50% for annual salary between \$45,000-\$55,000 and +1.50% for annual salary between \$55,000-\$65,000.

Municipal employee members of Plan 16 who are both not in the civil service and not represented by a union will contribute an additional amount to become vested in seven years instead of ten years.

Plan 16 members will have the option to participate in the Deferred Compensation Plan (DC Plan). For members whose benefits are capped under the retirement plan, the City will match 50% of the members’ contribution up to a maximum of 1.5% of the member’s annual compensation.

Summary of Plan Changes

None.

SUMMARY OF LEGISLATIVE CHANGES

The following table summarizes member contribution rates by Plan and by bargaining group where applicable. This information has been provided by the Staff and has been applied where effective as of the valuation date. The methodology to determine the employee contributions for accelerated vesting schedules follows the City code and has been reviewed by the Retirement Board.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX D – SUMMARY OF PLAN PROVISIONS – MEMBER CONTRIBUTIONS

Member Contribution Rates by Membership Class			Effective 7/1/2023			
Plan 67	No SSA Coverage	Plan D (Police)		6.00%		
		Plan X (Fire)		6.00%		
		Plan J-(OHCD)		6.00%	Add on for Tier	
		Plan J1 (Non Repts; Exempts)		7.00%	Add on for Tier	
		Plan J2 (DC 47, DC 33 and OHCD)		7.00%	Add on for Tier	
		SSA	Plan J3 (Non Repts-Exempts: excluding Auditing (<i>Controller</i>) Department who are not in Civil Service)		4.75%	Add on for Tier
	Plan J4 (DC 47, DC 33)		4.75%	Add on for Tier		
	Plan J6 (Non Civil Service-Auditing Dept EE)		4.75%	Add on for Tier		
Plan 87		Plan A (Fire)		6.84%		
		Plan B (Police)		6.84%		
		Plan L (Elected)		11.75%	Add on for Tier	
		Plan Y		3.66%	Add on for Tier	
		Plan Y (Deputy Sheriffs and Register of Wills)		3.66%	Add on for Tier	
		Plan Y5		5.29%	Add on for Tier	
		Plan L8		13.92%	Add on for Tier	
		Plan Y2 (Non Repts-Exempts:excl Auditing EEs)		3.66%	Add on for Tier	
		Plan Y3 (DC 47, DC 33 and OHCD)		3.66%	Add on for Tier	
		Plan Y4 (Exempts-Auditing/ <i>Controller</i> Dept Ees)		3.66%	Add on for Tier	
Plan 87 Prime	Opted out of Plan 10	Plan Y1 (Deputy Sheriff)	50% of Agregate Normal Cost of all members in Plan Y	4.43%	Add on for Tier	
			DOH>=1/1/2012 and < 6/20/2018			
		Plan Y4 (Non Repts)	DOH>=5/14/2014	+1%	4.66%	Add on for Tier
		Plan Y6 (DC 47)	DOH>=3/5/2014	+1%	4.66%	Add on for Tier
		Plan Y9 (DC33-excluding Guards and OHCD)		+1%	4.66%	Add on for Tier
			DOH>=9/9/2014			
		Plan Y12 (DC33: Guards)	DOH>= 9/9/2014 and < 11/14/2014	+1%	4.66%	Add on for Tier
		Plan Y11 (Exempts)	DOH>=11/14/2014	+1%	4.66%	Add on for Tier
		Plan Y5.1 (5 yr vesting-Exempts)		+1%	6.29%	Add on for Tier
			DOH>=11/14/2014			
		Plan L1 (Elected)	DOH>=11/14/2014	+1%	12.75%	Add on for Tier
		Plan L8.1 (Elected)	DOH>=11/14/2014	+1%	14.92%	Add on for Tier
			Plan B6 (Police)	DOH>=1/1/2010 and < 7/1/2017	+1.84%	7.84%
	Plan B6 (Police)	DOH>=7/1/2017	+2.50%	8.50%		
	Plan A6 (Fire)	DOH>=10/15/2010 and < 7/1/2017	+1.84%	7.84%		
	Plan A6 (Fire)	DOH>=7/1/2017	+2.50%	8.50%		
Plan 10		Plan B10 (Police)	DOH< 7/1/2017	+1.84%	7.34%	
		Plan B10 (Police)	DOH>=7/1/2017	+2.50%	8.00%	
		Plan A10 (Fire)	DOH< 7/1/2017	+1.84%	7.34%	
		Plan A10 (Fire)	DOH>=7/1/2017	+2.50%	8.00%	
		Plan Y10				
		Deputy Sheriff	DOH >=1/1/2012 and < 6/20/2018	50% of Normal Cost for members of Plan 10	2.60%	Add on for Tier
		Register of Wills-MANDATORY	DOH >=1/1/2012 and < 6/20/2018		2.60%	Add on for Tier
		DC33-Guards-MANDATORY	DOH>=11/14/2014 and < 8/19/2016		2.60%	Add on for Tier
	DC 33	DOH < 8/19/2016	2.60%		Add on for Tier	
	Non-Reps, DC 47		2.60%		Add on for Tier	
	Elected		2.60%		Add on for Tier	
	Exempts (5 yr vesting-Exempts)		3.49%		Add on for Tier	
	Exempts (7 yr vesting-Exempts)		4.64%		Add on for Tier	
Plan 16		Plan S16				
		Deputy Sheriffs and Register of Wills	DOH >= 6/21/2018	Pensionable Earnings up to \$65,000	4.17%	Add on for Tier
		DC 33	DOH >= 8/20/2016		4.17%	Add on for Tier
		Non-Reps, DC 47	DOH >= 1/1/2019		4.17%	Add on for Tier
	Exempts (7 yr vesting-Exempts)	DOH >= 1/1/2019	4.64%		Add on for Tier	

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2022 ACTUARIAL VALUATION**

APPENDIX E – BASELINE PROJECTIONS BASED ON RRP

The following charts show the 20-year projections under the baseline scenario if the City contributes based on the RRP as shown on page 26 of the report. The first graph shows projections of the actuarial liability, assets (actuarial and market), and funded ratios. The second graph shows the expected amounts of MMO and RRP contributions. Table E-1 shows the 5-year projection of RRP contributions, sales tax contributions, actuarial value of assets, actuarial liability, and funded ratio.

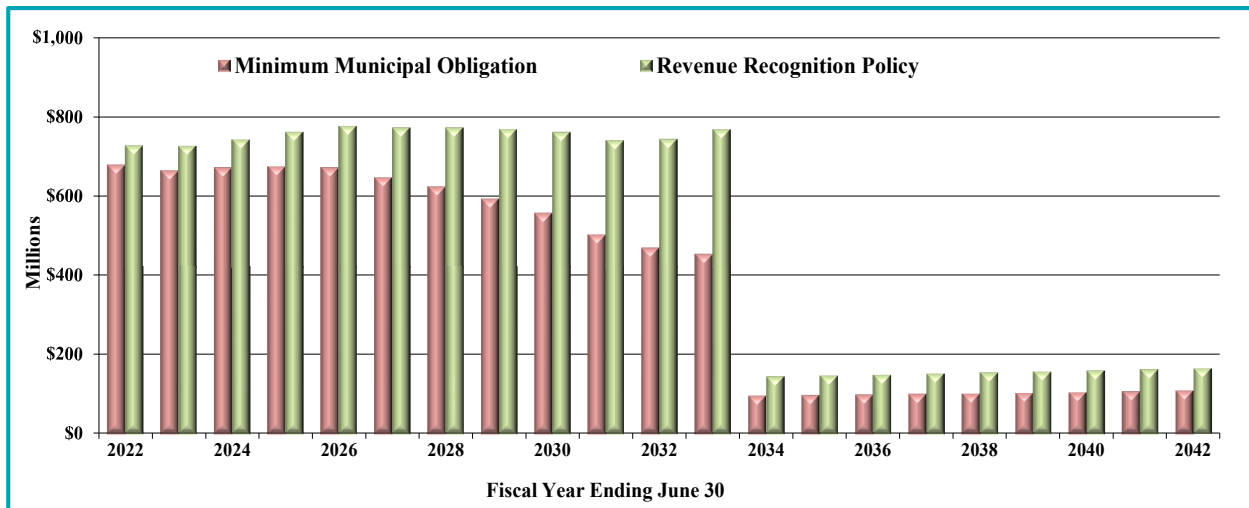
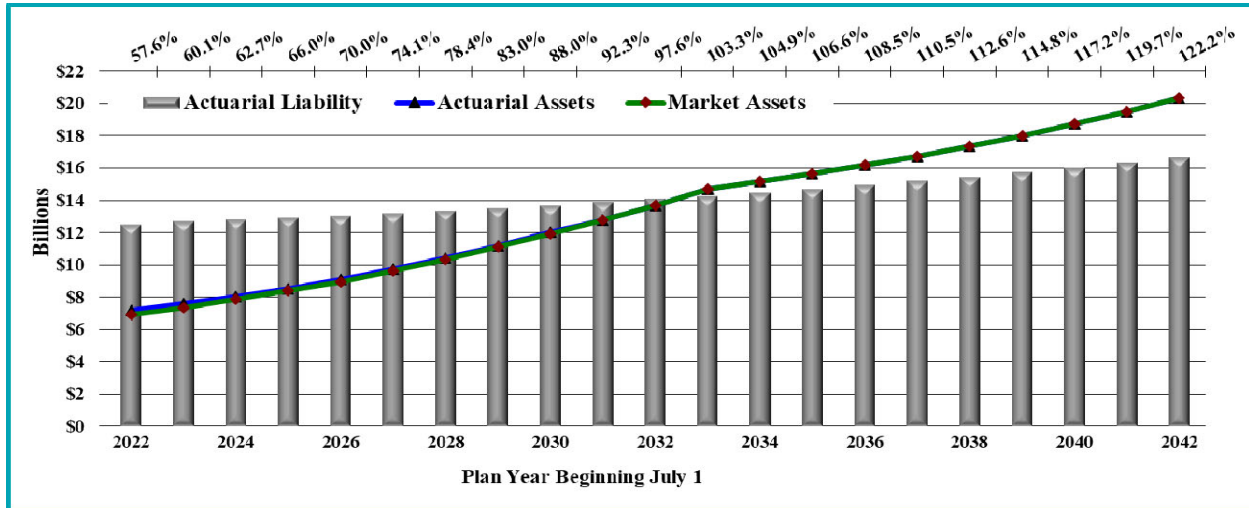


Table E-1 (\$ millions)

Fiscal Year End	RRP Contributions	Sales Tax Contributions	Actuarial Value of Assets	Actuarial Liability	Unfunded Actuarial Liability	Funded Ratio
2023	\$ 726.5	\$ 80.3	\$ 7,176.1	\$ 12,448.4	\$ 5,272.3	57.6%
2024	742.8	88.2	7,601.9	12,656.9	5,055.0	60.1%
2025	761.5	96.9	8,023.8	12,789.7	4,765.9	62.7%
2026	776.7	105.1	8,517.9	12,905.4	4,387.5	66.0%
2027	772.0	113.2	9,097.1	13,002.9	3,905.8	70.0%
2028	772.4	121.2	9,740.6	13,151.6	3,411.0	74.1%

APPENDIX F – GLOSSARY OF TERMS

1. Actuarial Liability

The Actuarial Liability is the difference between the present value of all future system benefits and the present value of total future normal costs. This is also referred to by some actuaries as the “accrued liability” or “actuarial accrued liability.”

2. Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement rate or rates of investment income and salary increases. Actuarial assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

3. Accrued Service

Service credited under the System which was rendered before the date of the actuarial valuation.

4. Actuarial Equivalent

A single amount or series of amounts of equal actuarial value to another single amount or series of amounts computed on the basis of appropriate actuarial assumptions.

5. Actuarial Funding Method

A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of a retirement system benefit between future normal cost and actuarial accrued liability. Sometimes this is referred to as the “actuarial cost method.”

6. Actuarial Gain/(Loss)

The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

7. Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

APPENDIX F – GLOSSARY OF TERMS

8. Adjusted Market Value of Assets

An asset value reflecting a five-year smoothing of asset gains and losses, as described in the Philadelphia Municipal Code Title 22-311.

9. Amortization

This term represents the paying off an interest-discounted amount with periodic payments of interest and principal—as opposed to paying off with a lump sum payment.

10. Normal Cost

The actuarial present value of retirement system benefits allocated to the current year by the actuarial funding method.

11. Unfunded Actuarial Liability (UAL)

The difference between actuarial liability and valuation assets. This is sometimes referred to as “unfunded actuarial accrued liability.”

Most retirement systems have unfunded actuarial liabilities. They typically arise each time new benefits are added and each time experience gains/losses are realized.

The existence of unfunded actuarial accrued liability is not in itself an indicator of poor funding. Also, unfunded actuarial liabilities do not represent a debt that is payable today. What is important is the ability of the plan sponsor to contribute the annual amortized cost to fund down the unfunded actuarial liability and the trend in unfunded actuarial liability amount.