



## **City of Philadelphia Municipal Retirement System**

**Actuarial Valuation Report  
as of July 1, 2021**

**Produced by Cheiron**

**April 2022**

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**LETTER OF TRANSMITTAL**

April 12, 2022

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

Dear Board Members:

At your request, we have performed the July 1, 2021 Actuarial Valuation of the City of Philadelphia Municipal Retirement System (the System).

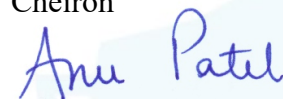
In preparing our report, we relied on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for 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 2023. 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



Karen Zangara, FSA, EA, MAAA  
Principal Consulting Actuary



Brett Warren, FSA, EA, MAAA  
Consulting Actuary



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 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) 2023,
- 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 upon which the July 1, 2021 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  
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**SECTION I – BOARD SUMMARY**

**A. Valuation Basis**

The July 1, 2021 valuation results are based on the same actuarial methods and assumptions as used in the July 1, 2020 valuation except for the decrease in the interest rate assumption from 7.50% to 7.45% as of July 1, 2021 as adopted by the Board. Furthermore, the Board adopted to decrease the interest rate assumption from 7.45% to 7.40% for the July 1, 2022 actuarial valuation, which is reflected in the projections shown in this report. For a detailed description of the methods and assumptions, refer to Appendix C of this report.

This report was prepared using census data and financial information as of July 1, 2021 and does not reflect any subsequent changes in the membership or the assets.

Whereas there remains a lot of uncertainty during the COVID-19 pandemic, we continue to monitor developments and the impact it may have on the System. Actual experience, both demographic and economic, will be reflected in subsequent valuations as experience emerges.

This valuation is based on plan provisions in effect as of July 1, 2021 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 additional tier/member contributions.

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.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

Below we highlight significant results of this valuation:

- **Financial Performance:** The return on market value of assets at 28.42% for the year ending June 30, 2021, was higher than the expected 7.50% 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, 2021 was 6.28% resulting in a net asset loss of \$67.2 million when compared to the 7.50% 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 decreased from 108.0% in the prior year to 90.3% 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 10.75%. Because the return is above 8.50% (the assumed prior year rate of return of 7.50% plus 1.00%), there is a one-time transfer of \$74.9 million into the PAF as of June 30, 2021. These funds are removed from the assets used in determining the City's obligations.
- **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 \$354.4 million from \$5,795.4 million as of July 1, 2020 to **\$5,441.0 million as of July 1, 2021**. 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 decreased by \$200.7 million due to liability gains resulting primarily from the one-time reduction in AL due to the updates in the census data for credited service after adjusting for breaks in service plus lower than expected salary increases. The UAL increased by \$67.2 million due to asset return losses based on the smoothed asset value. The UAL increased by \$56.5 million due to the decrease in discount rate. These values are offset by contributions towards paying down the unfunded, differences in benefit accrual rates, and interest on payment timing of \$75.7 million.
- **Funding Ratio:** This is the ratio of the System's AVA to AL. The funding ratio increased from 51.9% as of July 1, 2020 to **54.9% as of July 1, 2021**, mainly due to underlying growth in assets resulting from increased contributions and liability gains. The funding ratio on market assets to liability basis increased from 48.0% to 60.9%.
- **Plan Changes:** There were no changes in plan provisions since the July 1, 2020 valuation.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

- **Assumption Changes:** The only assumption change for this valuation was the decrease in interest rate from 7.50% to 7.45% resulting in an increase in Actuarial Liability of \$56.5 million.
- **Minimum Municipal Obligation (MMO):** The MMO is the required minimum amount the City must contribute under Pennsylvania State Law. The MMO decreased from \$678.2 million for FYE 2022 to **\$664.1 million for FYE 2023**. 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 expected to decrease assuming the actuarial assumptions are met each year.
- **Revenue Recognition Policy (RRP):** The contribution based on the RRP decreased from \$727.4 million for FYE 2022 to **\$726.5 million for FYE 2023**. The balance of the notional account, which is removed from the assets in calculating this contribution, increased from \$213.9 million as of July 1, 2020 to \$358.7 million as of July 1, 2021.
- **Contribution under the City’s Funding Policy:** The beginning-of-year contribution under the City’s Funding Policy decreased from \$780.1 million for FYE 2022 based upon actual FYE 2021 payroll to an estimated **\$757.6 million for FYE 2023**.

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

<b>Table I-1 Key Results (\$ thousands)</b>				
<b>Valuation Date</b>	<b>7/1/2021</b>		<b>7/1/2020</b>	
Actuarial Liability	\$	12,074,036	\$	12,038,051
Actuarial Value of Assets	\$	<u>6,633,086</u>	\$	<u>6,242,696</u>
Unfunded Actuarial Liability/(Surplus)	\$	5,440,950	\$	5,795,355
Funding Ratio		54.9%		51.9%
		<b>Fiscal Year 2023</b>		<b>Fiscal Year 2022</b>
Minimum Municipal Obligation	\$	664,067	\$	678,192
Revenue Recognition Policy Contribution	\$	726,501	\$	727,430
City's Funding Policy Contribution*	\$	757,577	\$	780,099

\*The City’s funding policy contribution for FYE 2022 was updated based upon the actual payroll of \$1,886.5 million (provided as pay rates in the data) as of July 1, 2021. In the July 1, 2020 actuarial valuation report, the estimated FYE 2022 payroll was \$1,984.6 million based on July 1, 2020 pay rates and increased with the payroll assumption.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

**B. Current Financial Condition**

On the following pages, we summarize the key results of the July 1, 2021 valuation and how they compare to the results from the July 1, 2020 valuation.

**1. City Membership:**

As shown in Table I-2 below, total membership in the Retirement System decreased by 2.7% from 2020 to 2021.

<b>Table I-2 Membership Total</b>				
	<b>July 1, 2021</b>	<b>July 1, 2020</b>	<b>% Change</b>	
Actives	27,020	28,892	-6.5%	
Terminated Vesteds	900	929	-3.1%	
Disabled	3,796	3,833	-1.0%	
Retirees	22,202	22,249	-0.2%	
Beneficiaries	8,445	8,471	-0.3%	
DROP	1,878	1,642	14.4%	
Total City Members	64,241	66,016	-2.7%	
Annual Salaries	\$ 1,886,511,515	\$ 1,921,217,453	-1.8%	
Average Salary per Active Member	\$ 69,819	\$ 66,497	5.0%	
Annual Retirement Allowances	\$ 804,906,478	\$ 789,023,043	2.0%	
Average Retirement Allowance	\$ 23,369	\$ 22,835	2.3%	

The active participant population decreased by 6.5% during the 2020-2021 plan year primarily due to fewer new hire actives that came into the System in the past year and more retirements and terminations than expected. Deferred Retirement Option Plan (DROP) participants increased 14.4% from 2020 to 2021 as more members enrolled in DROP than retired from DROP. The average salary per active member increased by 5.0% during the plan year. The salary growth offset by the decrease in active membership resulted in a decline in total payroll of 1.8% versus the expected 3.3% payroll growth assumption.

Annual retirement allowances increased by 2.0% in aggregate with the average benefits also increasing 2.3%. The total number of participants in pay status decreased 0.3%.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION I – BOARD SUMMARY**

**2. City Assets and Liabilities:**

Table I-3 presents a comparison between the July 1, 2021 and July 1, 2020 system assets, liabilities, UAL, and funding ratios. The AVA Funding Ratio increased from 51.9% as of July 1, 2020 to **54.9%** as of July 1, 2021 after reflecting liability gains offset by asset losses and decrease in the interest rate assumption. Prior to the change in the interest rate assumption, the funded ratio would have been 55.2%.

<b>Table I-3 Assets and Liabilities (\$ thousands)</b>					
		<b>July 1, 2021</b>	<b>July 1, 2020</b>	<b>% Change</b>	
<b>Actuarial Liabilities by Membership:</b>					
Actives	\$	4,068,311	\$	4,331,823	-6.1%
Terminated Vested		94,294		94,667	-0.4%
Disabled		839,239		814,359	3.1%
Retirees		5,317,192		5,242,456	1.4%
Beneficiaries		722,709		698,160	3.5%
DROP		1,023,223		847,371	20.8%
Non-Vested Refunds		9,068		9,215	-1.6%
Total Actuarial Liability (AL)	\$	12,074,036	\$	12,038,051	0.3%
Market Value of Assets (MVA net of PAF)*	\$	7,348,512	\$	5,781,647	27.1%
Actuarial Value of Assets (AVA net of PAF)*	\$	6,633,086	\$	6,242,696	6.3%
Ratio of Actuarial Assets to Market Assets		90.3%		108.0%	-17.7%
Unfunded Actuarial Liability	\$	5,440,950	\$	5,795,355	-6.1%
Funding Ratio (AVA ÷ AL)		54.9%		51.9%	3.0%
Funding Ratio (MVA ÷ AL)		60.9%		48.0%	12.9%

\*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

The market asset value average return is 28.42% compared to the 7.50% assumption for the previous year. For the actuarial value of assets, the investment gains and losses are smoothed over future years, which yielded a rate of return of 6.28%.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

**3. Components of UAL Change between July 1, 2020 and July 1, 2021:**

The Retirement System’s unfunded actuarial liability decreased by \$354.4 million from the prior year. Table I-4 presents the specific components of this change in the UAL.

The System experienced a \$67.2 million asset loss based on the actuarial value of assets and a \$200.7 million liability gain which is attributable to demographic experience and the one-time liability reduction from credited service adjustments for breaks-in service. There was also an increase in liability of \$56.5 million due to the change in interest rate. Actual FYE 2021 contributions when compared to the expected RRP created a net loss of \$14.7 million due to timing of contributions. **The higher employer contributions under RRP in comparison to MMO resulted in a gain of \$94.3 million.** There was a \$3.9 million loss 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 \$354.4 million as of July 1, 2021.

<b>Table I-4 Change in Unfunded Actuarial Liability (UAL) (\$ thousands)</b>	
<b>Unfunded Actuarial Liability</b>	
1. UAL as of July 1, 2020	\$ 5,795,355.3
2. UAL as of July 1, 2021	\$ 5,440,950.5
3. Net increase/(decrease) in UAL: 2 - 1	\$ (354,404.8)
<b>Changes in Unfunded Actuarial Liability</b>	
<b>Experience</b>	
4. UAL change due to asset (gain)/loss*	\$ 67,246.7
5. UAL change due to overall liability (gain)/loss	\$ (200,733.4)
<b>Contributions</b>	
6. UAL change due to difference in benefit accruals, actual contributions and timing	\$ 14,667.8
7. UAL change due to one-year delay in MMO contributions	\$ 3,953.9
8. UAL change due to RRP contributions in excess of the MMO contributions	\$ (94,298.9)
<b>Total (Gain)/Loss Amortization Base</b>	
9. Total UAL change due to gains and losses: sum 4 through 8	\$ (209,163.9)
<b>Plan Changes</b>	
10. UAL change due to plan changes	\$ 0
<b>Assumption Changes</b>	
11. UAL change due to assumption changes	\$ 56,466.8
<b>Total Changes</b>	
12. Total net overall change: 9 + 10 + 11	\$ (152,697.1)
13. UAL change due to benefit accruals and payments, contributions, and interest	<u>(201,707.6)</u>
14. Net increase/(decrease) in UAL: 12 + 13	\$ (354,404.7)

\* Includes loss due to PAF transfer, if applicable

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

**4. Contributions:**

Table I-5 below summarizes the City contribution amounts.

<b>Table I-5 Contributions (\$ thousands)</b>				
<b>Fiscal Year Ending in Year:</b>	<b>2023</b>	<b>% of Pay</b>	<b>2022</b>	<b>% of Pay</b>
<b>Minimum Municipal Obligation <sup>1</sup></b>				
Estimated FY Payroll <sup>2</sup>	\$ 1,948,766		\$ 1,984,618	
Normal Cost (with Expenses)	\$ 200,751	10.30%	\$ 203,078	10.23%
Regular Employee Contributions	(85,220)	4.37%	(87,679)	4.42%
Extra Employee Contributions for Funding <sup>3</sup>	<u>(28,752)</u>	1.48%	<u>(29,169)</u>	1.47%
City Normal Cost (with expenses)	\$ 86,779	4.45%	\$ 86,230	4.34%
Amortization Payment	<u>577,287</u>	29.62%	<u>591,962</u>	29.83%
Minimum Municipal Obligation	\$ 664,067	34.08%	\$ 678,192	34.17%
<b>Revenue Recognition Policy <sup>4</sup></b>				
Estimated FY Payroll <sup>2</sup>	\$ 1,948,766		\$ 1,984,618	
Normal Cost (with Expenses)	\$ 200,751	10.30%	\$ 203,078	10.23%
Regular Employee Contributions	(85,220)	4.37%	(87,679)	4.42%
Extra Employee Contributions for Funding <sup>3</sup>	<u>(0)</u>	0.00%	<u>(0)</u>	0.00%
City Normal Cost (with expenses)	\$ 115,531	5.93%	\$ 115,399	5.81%
Amortization Payment	<u>610,970</u>	31.35%	<u>612,031</u>	30.84%
Revenue Recognition Policy	\$ 726,501	37.28%	\$ 727,430	36.65%
<b>City's Funding Policy <sup>5</sup></b>				
Estimated FY Payroll <sup>2</sup>	\$ 1,948,766		\$ 1,886,512 <sup>6</sup>	
Normal Cost (with Expenses)	\$ 200,751	10.30%	\$ 193,668	10.27%
Regular Employee Contributions	(85,220)	4.37%	(82,294)	4.36%
Extra Employee Contributions for Funding <sup>3</sup>	<u>(28,752)</u>	1.48%	<u>(29,169)</u>	1.55%
City Normal Cost (with expenses)	\$ 86,779	4.45%	\$ 82,205	4.36%
Amortization Payment	<u>670,798</u>	34.42%	<u>697,894</u>	36.99%
City's Funding Policy	\$ 757,577	38.87%	\$ 780,099	41.35%

<sup>1</sup> The MMO does not include Quasi-Agency contributions.

<sup>2</sup> The estimated payroll is based on total uncapped payroll.

<sup>3</sup> 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.

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

<sup>5</sup> Assuming beginning-of-year payment.

<sup>6</sup> FY 2023 Payroll for the City's Funding Policy is based upon the 7/1/2022 pay rates and will be finalized when the FYE 2023 payroll is available. All other payroll is estimated based upon the prior year's data used for the actuarial valuation.

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The **Minimum Municipal Obligation** for FYE 2023 measured as of the beginning of the year decreased by 0.09% of payroll, from 34.17% to 34.08%. In dollars, the required beginning of year contribution decreased from \$678.2 million to \$664.1 million, a \$14.1 million decrease. The decrease in the MMO is attributable to the expected City contributions based on the RRP which are higher than the MMO as well as actuarial liability gains.

The contribution under the **Revenue Recognition Policy** increased by 0.63% as a percent of payroll, from 36.65% to 37.28% for FYE 2023. The contribution in dollars decreased \$0.9 million from \$727.4 million in the prior year to \$726.5 million for FYE 2023. The RRP increased as a percent of pay but decreased in dollar amounts because payroll decreased at a faster rate than contributions. 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 2023, the **City Funding Policy** contributions decreased by 2.48% of payroll, from 41.35% to 38.87%. In dollars, the contributions under the City's Funding Policy decreased from \$780.1 million to \$757.6 million, a \$22.5 million decrease. Along with changes in assumptions and experience, the decrease in the funding policy is attributable to the expected payment in full of the July 1, 2006 loss base which was amortized over 15 years ending FYE 2022. 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  
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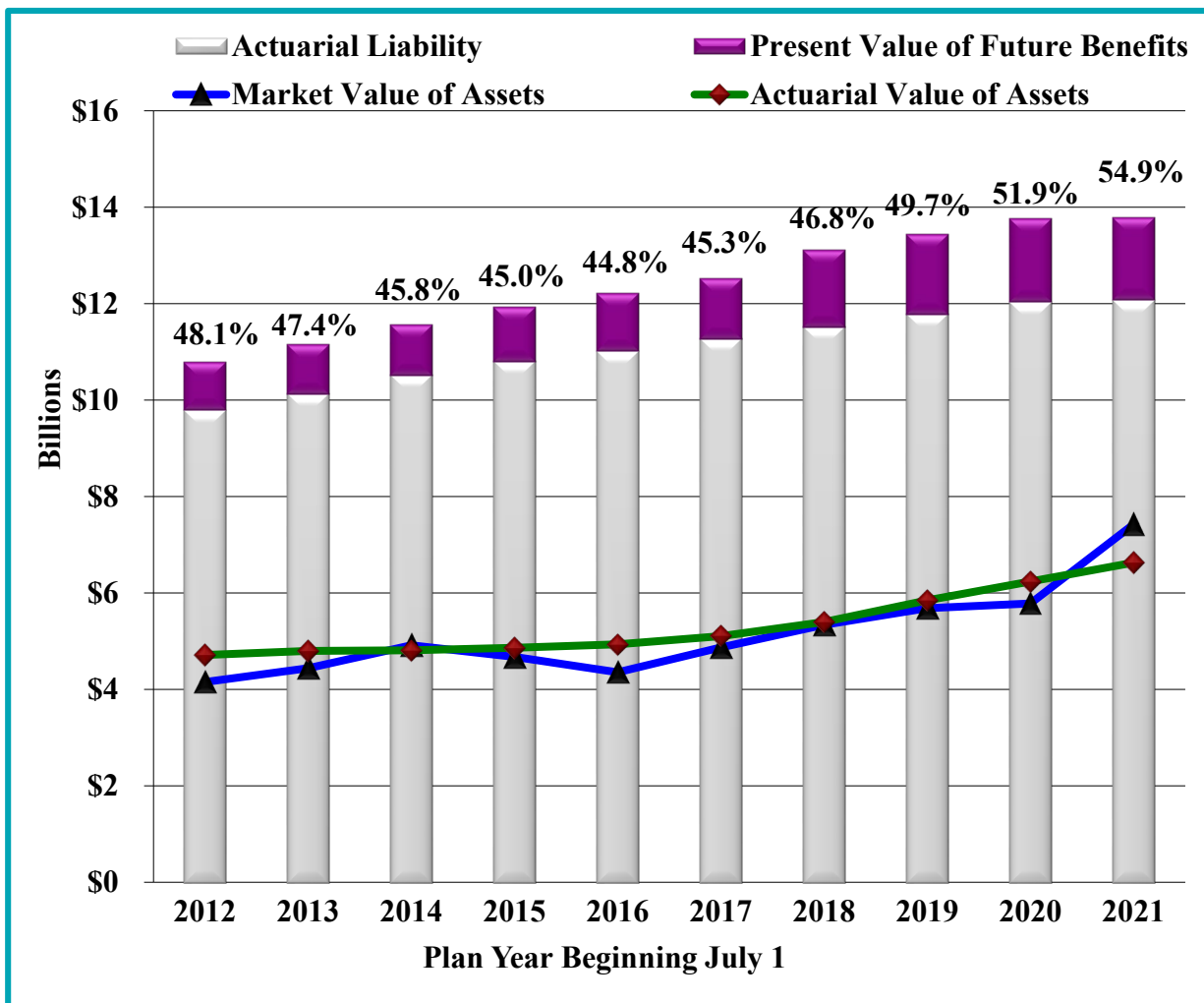
**SECTION I – BOARD SUMMARY**

**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 2012.

**City of Philadelphia Assets\* and Liabilities – 2012 to 2021**



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

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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 2012 from 7.95% to 7.45% 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 2021, the funding ratio increased by 3.0%.

The recent trend has shown improvement in funding status as the 2008/2009 financial losses have been fully recognized and 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 assets have remained relatively flat through 2016. This is a function of the negative cash flow as contributions and investment income have to keep pace with benefit payouts and expenses before the absolute value of assets can 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 over the last five years.

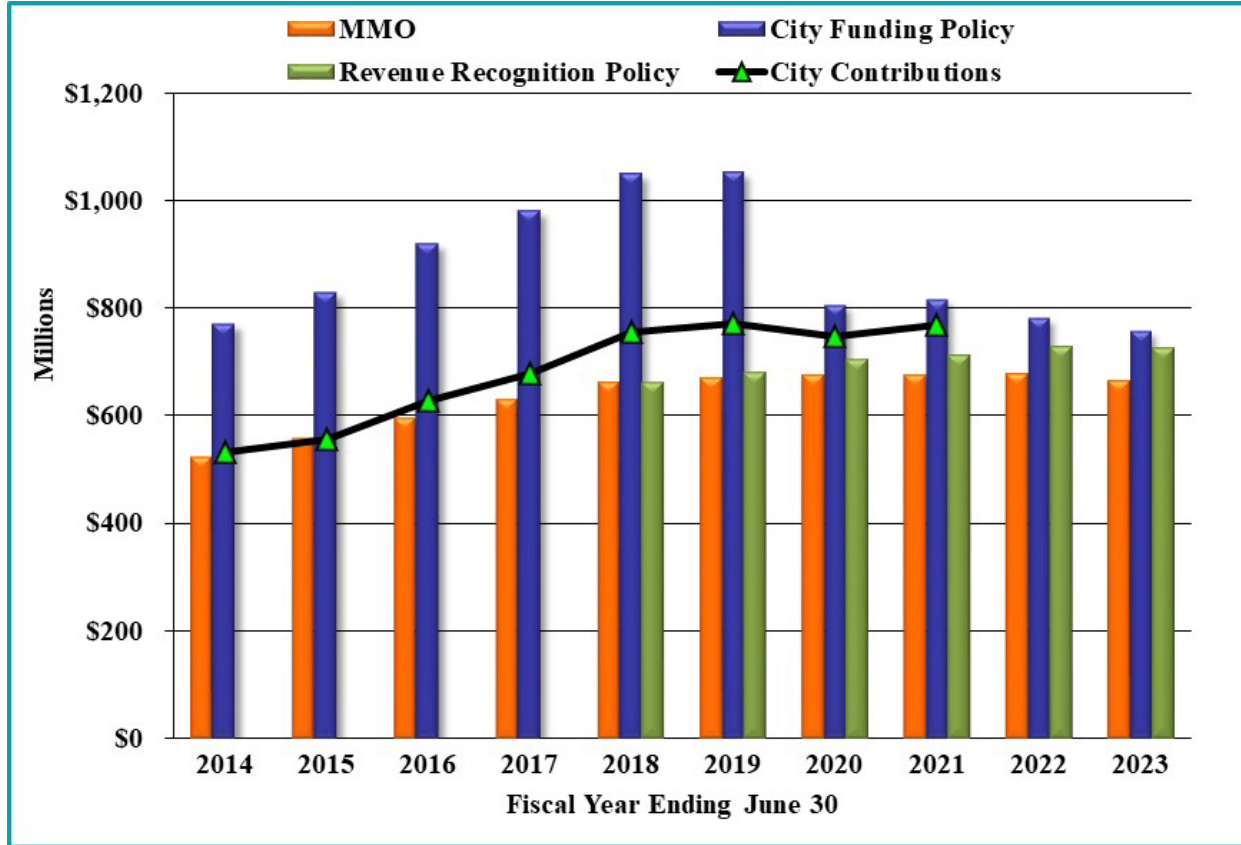
In the chart on the next page, we present historical trends for the Minimum Municipal Obligation (MMO), the contributions under the City’s Funding Policy, the Revenue Recognition Policy (RRP) beginning in 2018, and the actual City contributions made for fiscal years since 2014. Because there is a two-year 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 2022 and 2023. 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 \$42.7 million in FYE 2020 and \$55.2 million in FYE 2021.

The Funding Policy amounts were higher than the MMO 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 has decreased significantly and is closer to the MMO in subsequent years.

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**City of Philadelphia Contributions for Fiscal Years 2014-2023**



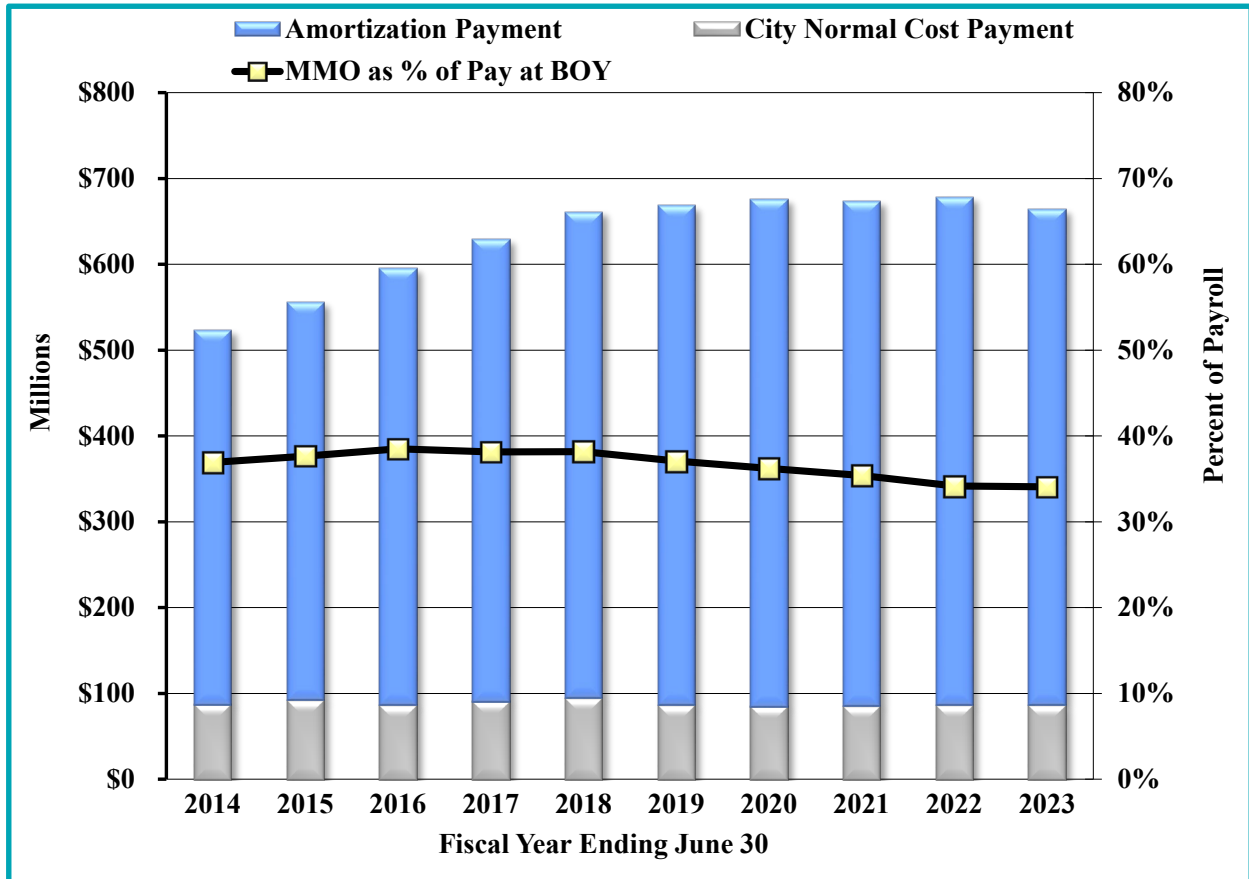
The key trend illustrated in this chart is from FYE 2014 through FYE 2017 all measures of contributions were increasing due in part to ten-year smoothing of historical investment losses and assumption changes that resulted in increases in UAL. Starting with FYE 2018, the MMO has remained relatively flat and the RRP (which is higher than the MMO) has increased slowly. In FYE 2023 the RRP is approximately \$62.4 million higher than the MMO. In future years, as the City continues to pay the RRP, and as tax revenue and tiered and additional member contributions paid in excess of the MMO accumulate, the gap between the MMO and the RRP will continue to grow.

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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 2014-2023**



The amortization payment to pay off the unfunded actuarial liability has increased from \$436 million for FYE 2014 to \$577 million for FYE 2023. 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 or decreased primarily due to the 2008 investment losses being fully recognized and the actual City contributions recently being higher than the MMO.

The total MMO as a percentage of payroll (as shown by the line and on the right hand axis) was about 36.9% in FYE 2014, then increased gradually through FYE 2018 as the 2008/2009 investment losses were still being recognized. It has been gradually decreasing over the last five years to the current level of approximately 34.1% in FYE 2023 reflecting the additional contributions by the City.

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**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, 2021 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, 2021 valuation and additionally reflects the decrease in interest rate assumption from 7.45% to 7.40% as of July 1, 2022 as adopted by the Board. They do not reflect any assumption changes resulting from the 2021 experience study which will be effective for the July 1, 2022 actuarial valuation.

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, in 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 below).

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 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 in determining the contributions under the RRP. We show three sets of projections for contributions based on MMO calculated in accordance with Act 205 compared to RRP and finally the Funding Policy.

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

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Fiscal Year Ending	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Expected Sales Tax	\$ 74,219,412	\$ 78,821,106	\$ 84,584,825	\$ 91,047,733	\$ 97,863,266
Fiscal Year Ending	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
Expected Sales Tax	\$ 104,540,524	\$ 110,154,037	\$ 115,907,888	\$ 121,805,585	\$ 127,850,724
Fiscal Year Ending	<b>2032</b>	<b>2033</b>	<b>2034</b>	<b>2035</b>	<b>2036</b>
Expected Sales Tax	\$ 134,046,993	\$ 140,398,167	\$ 146,908,122	\$ 153,580,825	\$ 160,420,345
Fiscal Year Ending	<b>2037</b>	<b>2038</b>	<b>2039</b>	<b>2040</b>	<b>2041</b>
Expected Sales Tax	\$ 167,430,854	\$ 174,616,625	\$ 181,982,041	\$ 189,531,592	\$ 189,531,592

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 2011 to 2021 and the projected period from 2022 to 2041 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 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 actual 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.

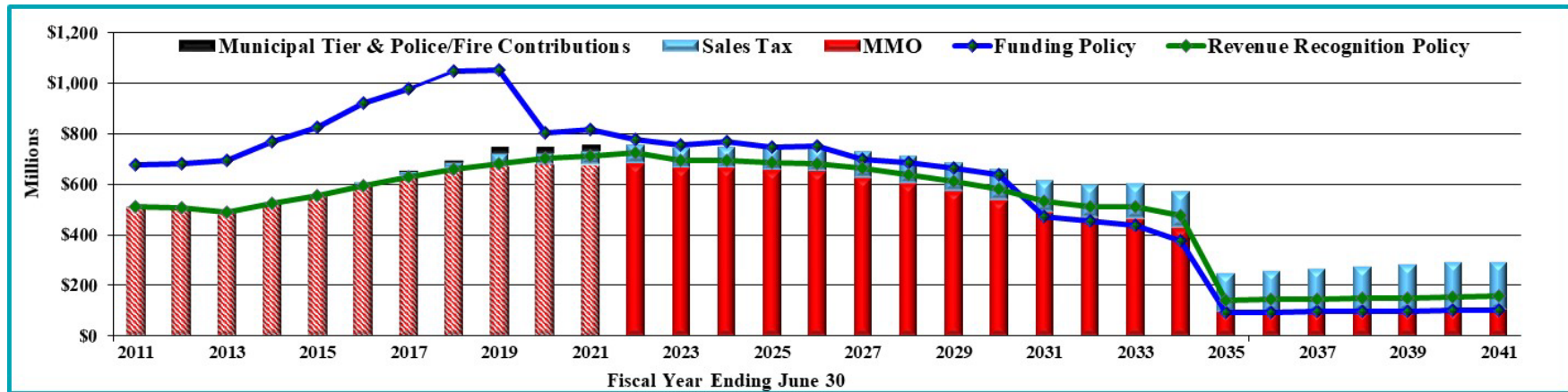
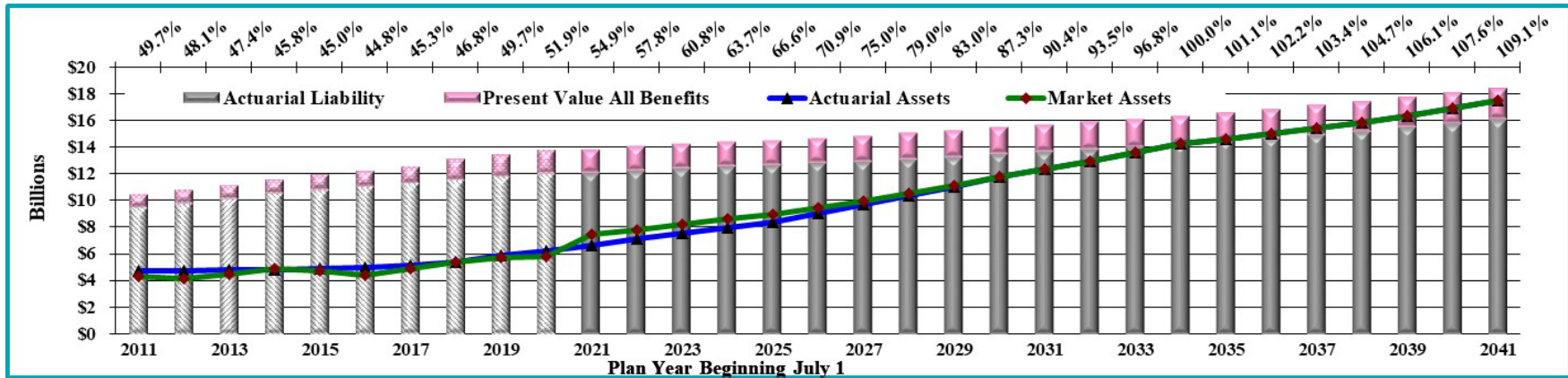


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**SECTION I – BOARD SUMMARY**

**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 2029 and 100% funded by 2034. 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.



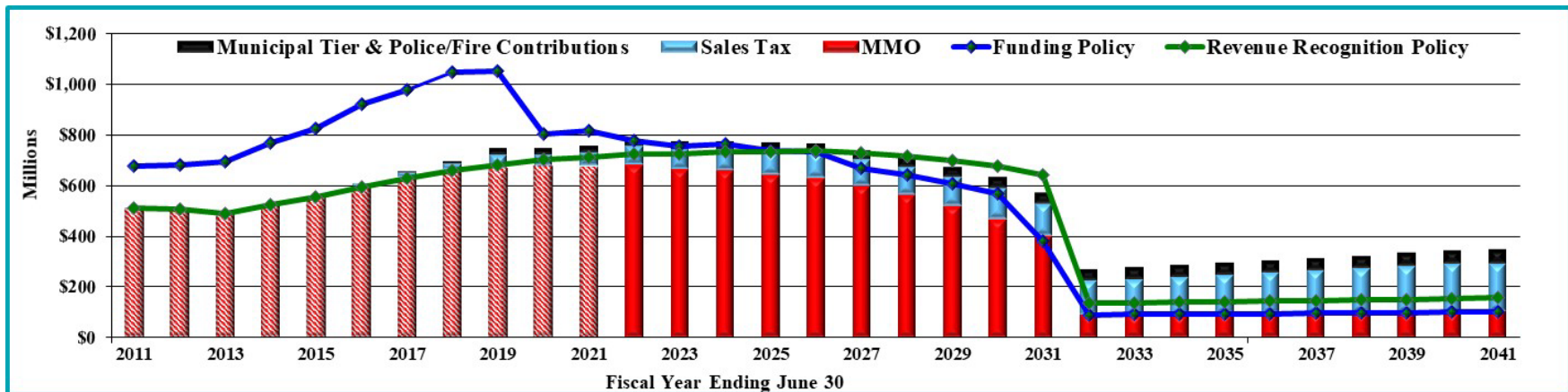
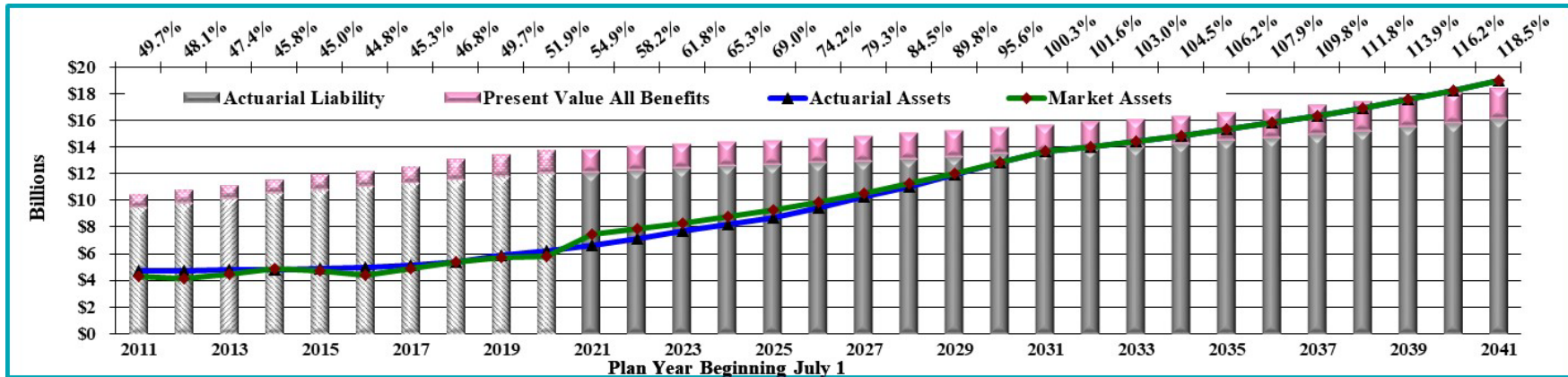
The decrease in FYE 2020 for the City's Funding Policy (blue line) is due to the expected payment in full of the initial unfunded liability.

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**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 2028 and 100% funded by 2031, three years earlier than under the MMO projections. By the end of the projection period, the System is expected to be funded at 118.5% compared to 109.1% 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 2032 at which time it drops to the normal cost rate.

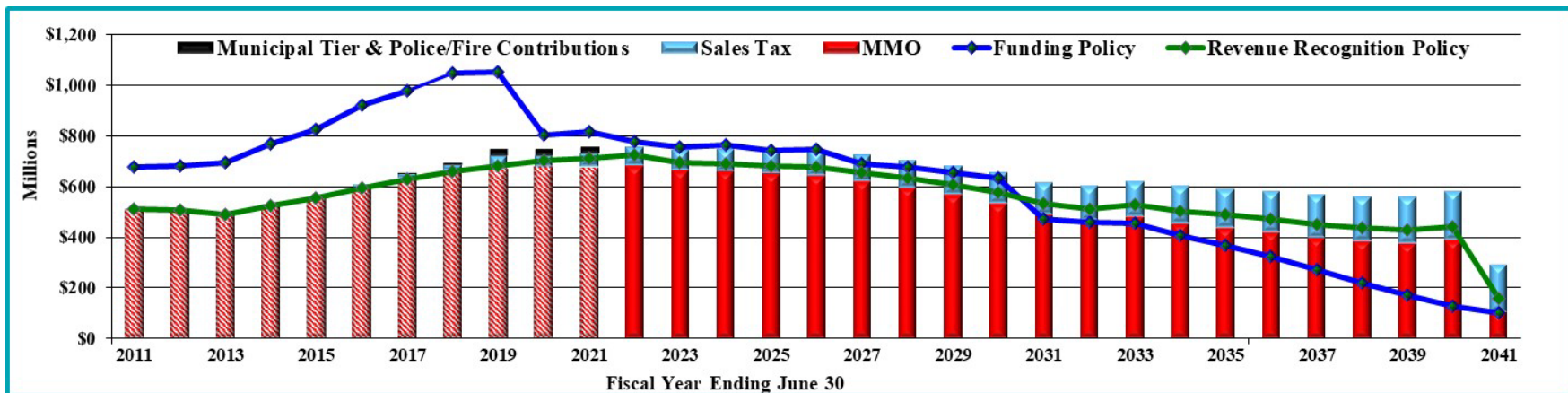
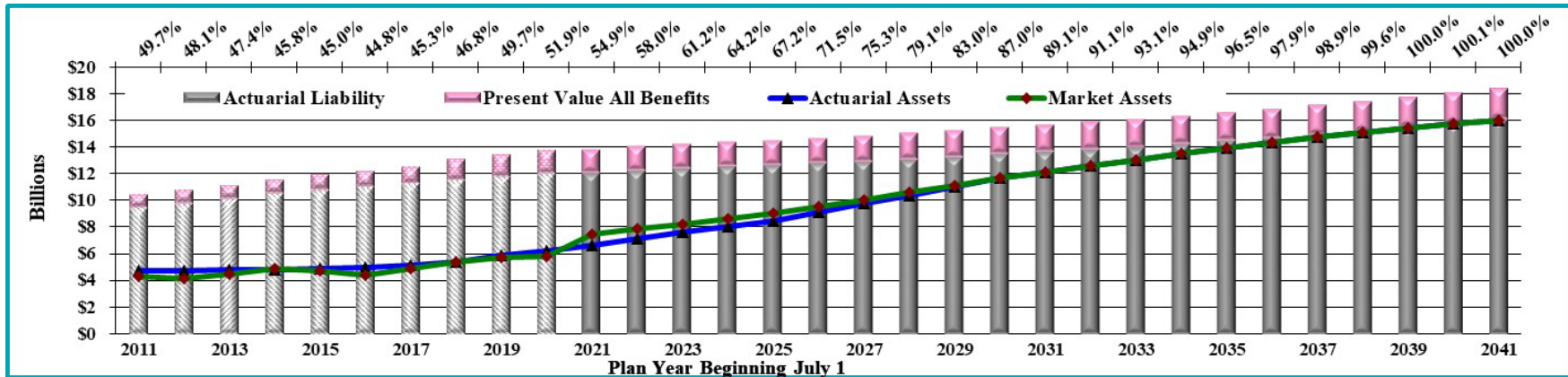


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**Baseline Projection Set 3: City Makes Contributions based on the Funding Policy**

If the City’s Funding Policy is contributed every year going forward, the System is projected to be 80% funded by 2029 and 100% funded by 2039. 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.

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**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 \$850 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.

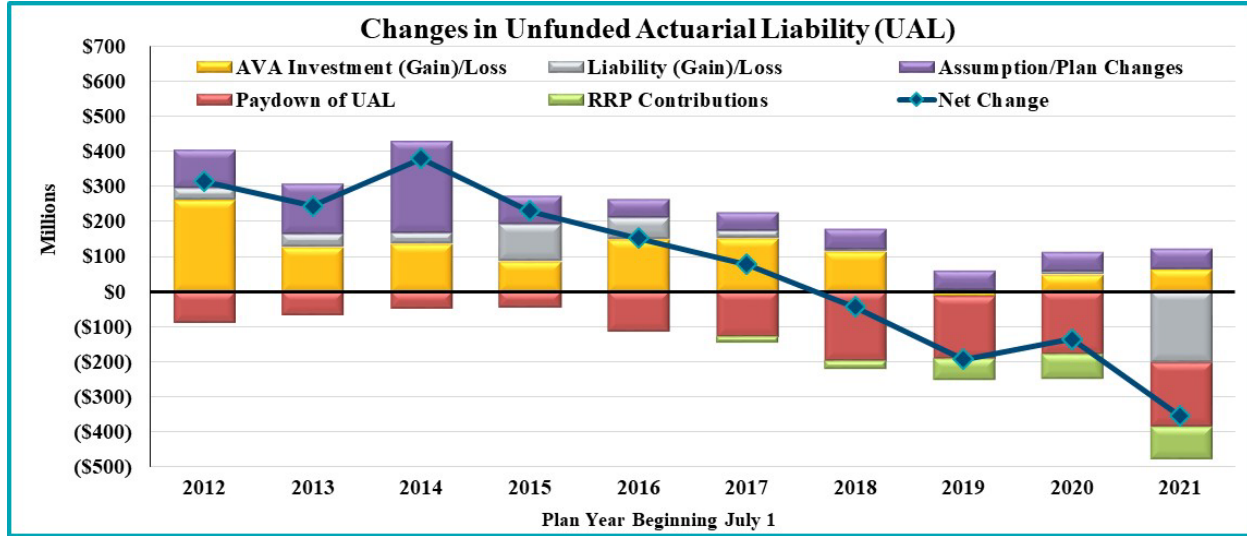
The chart below shows the components of changes in the Unfunded Actuarial Liability (UAL) for the System over the last 10 years, including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption and benefit changes, paying down of the UAL, and RRP contributions 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.

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

**Historical Changes in UAL 2012-2021**



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
<b>Discount Rate</b>	7.95%	7.85%	7.80%	7.75%	7.70%	7.65%	7.60%	7.55%	7.50%	7.45%	
<b>Source</b>											
AVA Investment (G)/L	\$ 260.7	\$ 127.7	\$ 136.5	\$ 87.0	\$ 148.8	\$ 152.0	\$ 117.0	\$ (10.9)	\$ 50.7	\$ 67.2	\$ 1,136.7
Liability (G)/L	35.9	39.3	31.0	107.9	62.1	23.9	3.6	6.4	8.9	(200.7)	118.3
Assumptions/Plan Changes <sup>1</sup>	108.5	143.1	262.2	81.0	54.7	52.4	60.3	56.7	57.1	56.5	932.5
Paydown of UAL <sup>2</sup>	(90.4)	(66.3)	(49.5)	(45.8)	(113.8)	(130.9)	(199.4)	(180.5)	(180.3)	(183.1)	(1,240.0)
RRP Funding Policy <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	(19.2)	(25.1)	(64.6)	(71.6)	(94.3)	(274.8)
<b>Total UAL Change</b>	<b>\$ 314.7</b>	<b>\$ 243.8</b>	<b>\$ 380.2</b>	<b>\$ 230.1</b>	<b>\$ 151.8</b>	<b>\$ 78.2</b>	<b>\$ (43.6)</b>	<b>\$ (192.9)</b>	<b>\$ (135.2)</b>	<b>\$ (354.4)</b>	<b>\$ 672.7</b>

<sup>1</sup> Plan changes include \$3.5 million increase in 2016 and \$1.0 million increase in 2019.

<sup>2</sup> UAL change due to benefit accruals and payments, contributions, timing, and interest.

<sup>3</sup> 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 2012 to 2021 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 \$1,136.7 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 \$118.3 million over the 10-year period.

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Assumption and plan changes (purple bars) over the last 10 years have increased the UAL by about \$932.5 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 8.10% in 2011 decreasing down to 7.45% in 2021, as well as experience studies in 2014 and 2018. 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 \$1,240.0 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. In the last five years, RRP contributions (green bars) in excess of the MMO contributions have decreased the UAL by about \$274.8 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.

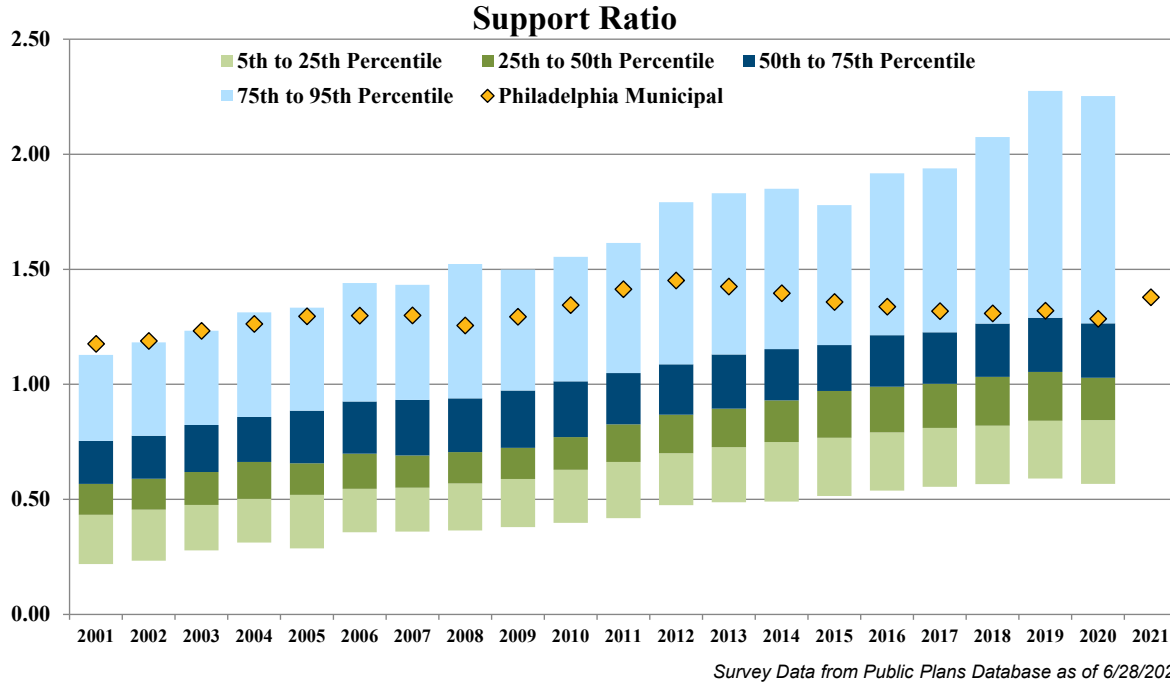
Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic - the larger the plan assets are compared to the contribution or revenue base that supports it; the more sensitive the System will be to risk. The measures below have been selected as the most important in understanding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

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**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.



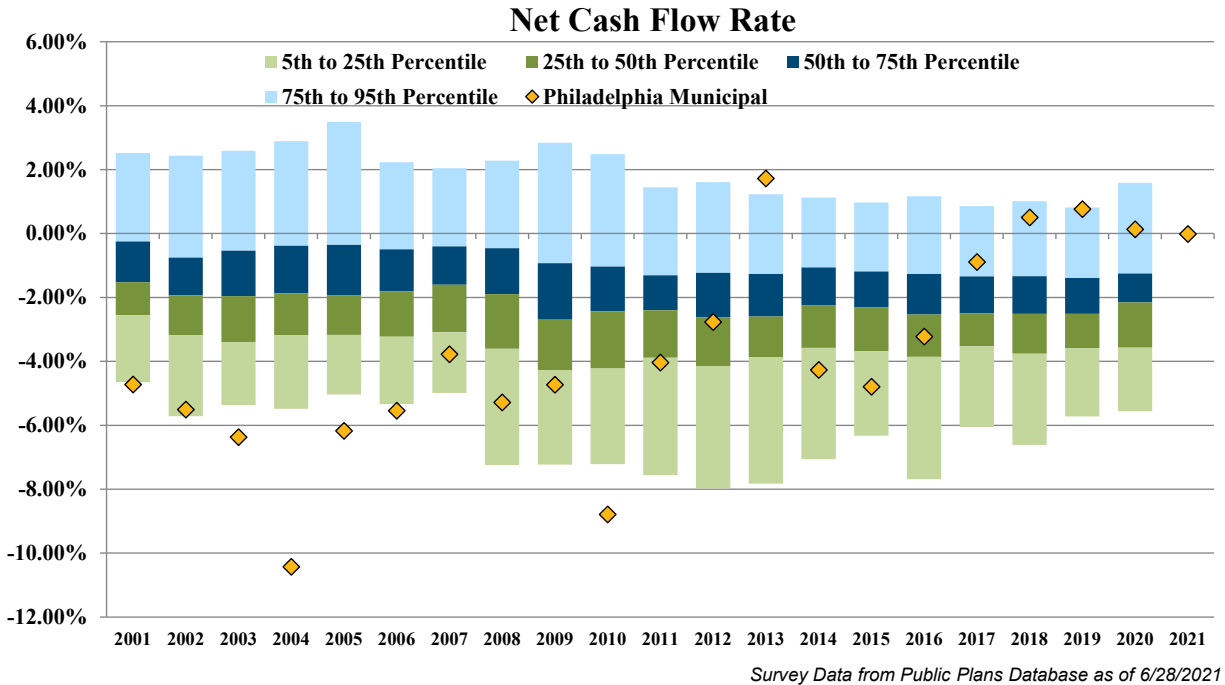
The chart above shows the distribution from the 5<sup>th</sup> to 95<sup>th</sup> percentile of support ratios for the plans in the Public Plans Database. The gold diamond shows how the System compares to other plans in the database. What this shows is that the System was already in a relatively mature 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 since 2012 with the exception of 2021 when 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.

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The chart above shows the distribution from the 5<sup>th</sup> to 95<sup>th</sup> 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 5<sup>th</sup> 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 in the top portion of the 75<sup>th</sup> to 95<sup>th</sup> 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.



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**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 7.45% investment return assumption for the year beginning July 1, 2021 and 7.40% investment return assumption for each year beginning July 1, 2022 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 7.31%, standard deviation of 10.99%). The 7.31% return is a result of the low interest rates at the time. It is expected to rise as rates move higher (consistent with what has happened in 2021 and 2022 to date). Going forward, the System’s investment consultant continues to believe that 7.40% - 7.45% is still appropriate for the long-term expected rate of return for the portfolio.

<b>Distribution of Expected Average Annual Returns</b>		
<b>Percentile</b>	<b>1 Year</b>	<b>5 Year</b>
5%	-10.8%	-0.8%
25%	-0.1%	4.0%
50%	7.3%	7.3%
75%	14.7%	10.6%
95%	25.4%	15.4%

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.

<b>FYE</b>	<b>Theoretical Scenarios</b>					
	<b>1-Yr Shock</b>		<b>5-Yr Moderate</b>		<b>5-Yr Significant</b>	
	<b>Neg</b>	<b>Pos</b>	<b>Neg</b>	<b>Pos</b>	<b>Neg</b>	<b>Pos</b>
2022	-10.8%	25.4%	4.0%	10.6%	-0.8%	15.4%
2023	7.40%	7.40%	4.0%	10.6%	-0.8%	15.4%
2024	7.40%	7.40%	4.0%	10.6%	-0.8%	15.4%
2025	7.40%	7.40%	4.0%	10.6%	-0.8%	15.4%
2026	7.40%	7.40%	4.0%	10.6%	-0.8%	15.4%
2027+	7.40%	7.40%	7.40%	7.40%	7.40%	7.40%

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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.

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 7.45% return for FYE 2022 and 7.40% return thereafter from the prior section, the System achieved fully funded by 2031. 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 for four years now and expected to be around zero in the near future under baseline assumptions mitigating much of this risk.

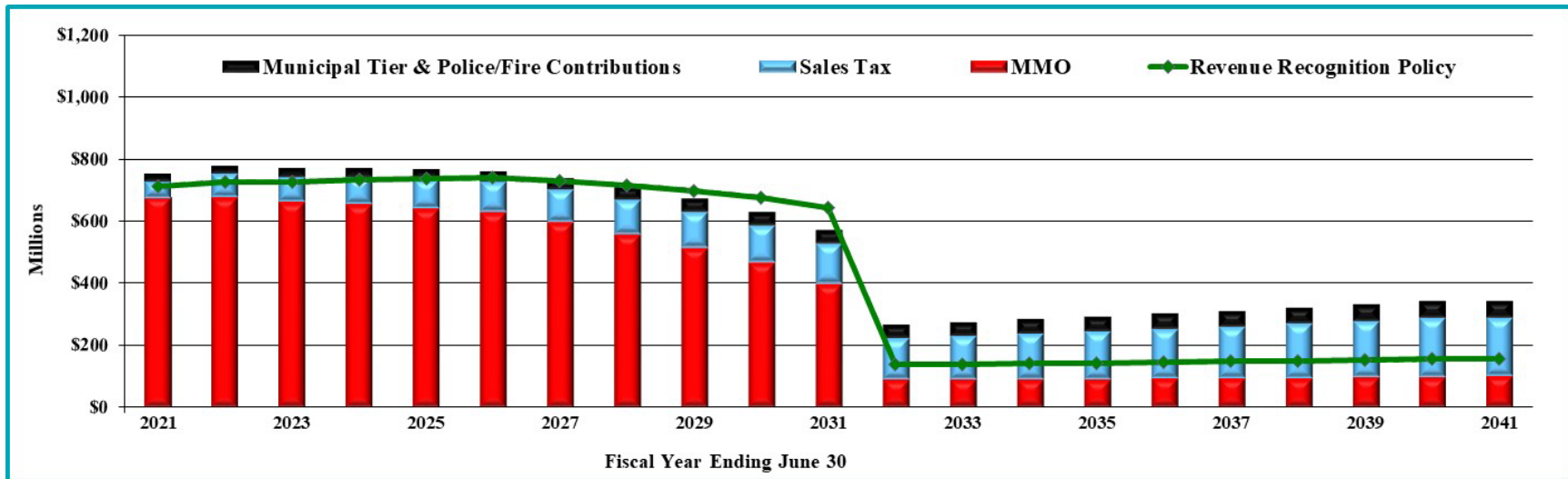
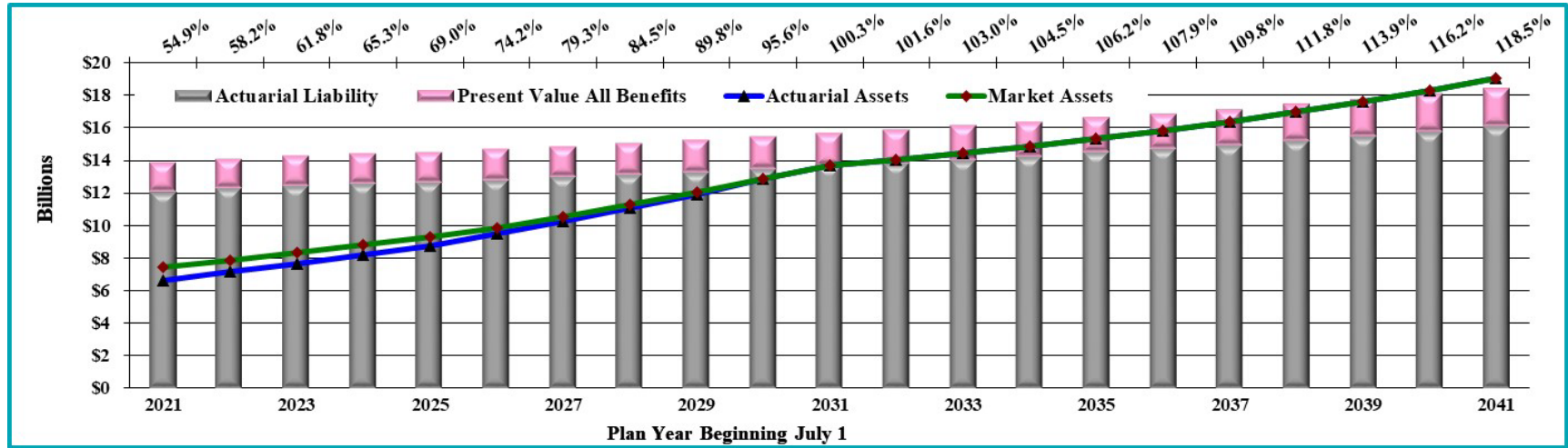
The bottom chart shows the MMO (red bars), expected sales tax revenue (blue bars) and expected tiered and member contributions (black bars). The green line shows the expected City contributions under the RRP excluding the sales tax revenue so the sales tax revenue and additional member contributions 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.



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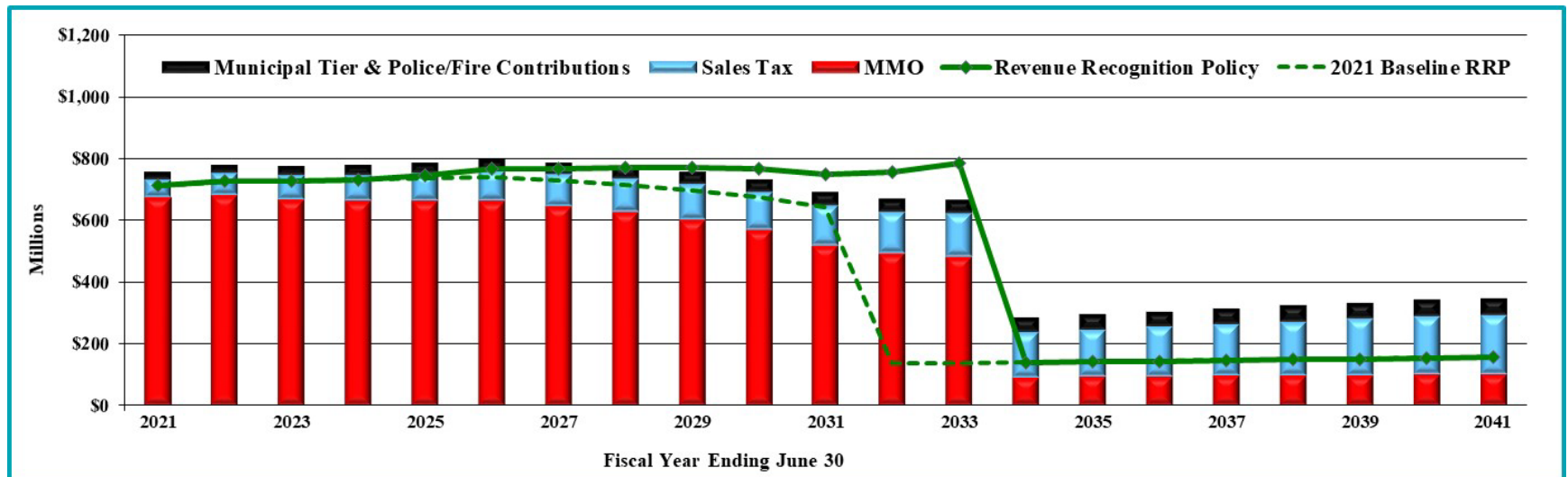
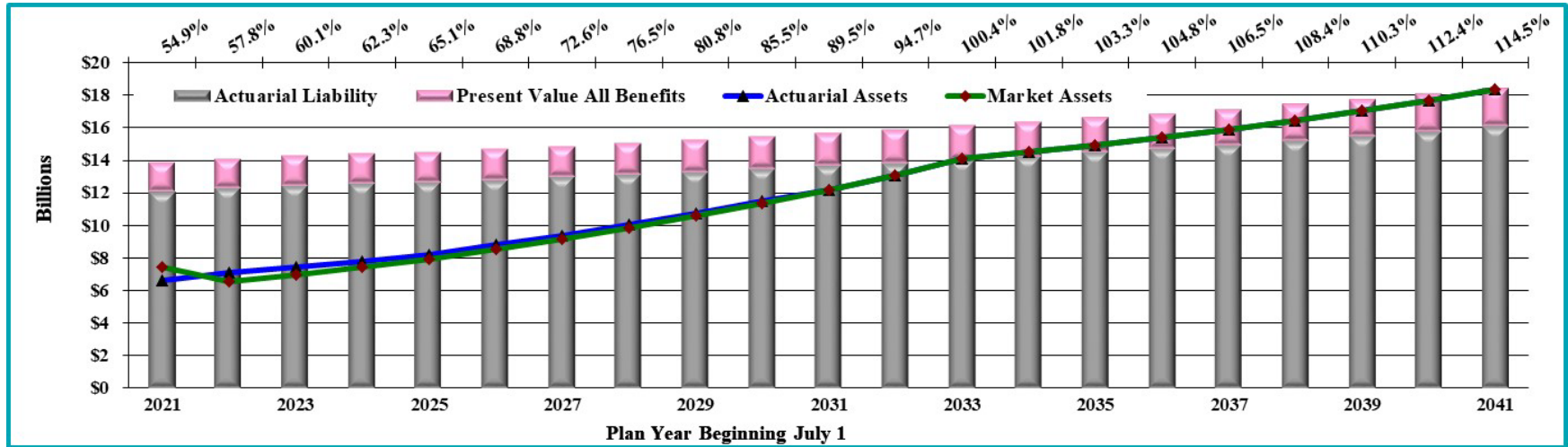
**Baseline Scenario: 7.45% return FYE 2022, 7.40% after based on RRP contributions**



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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

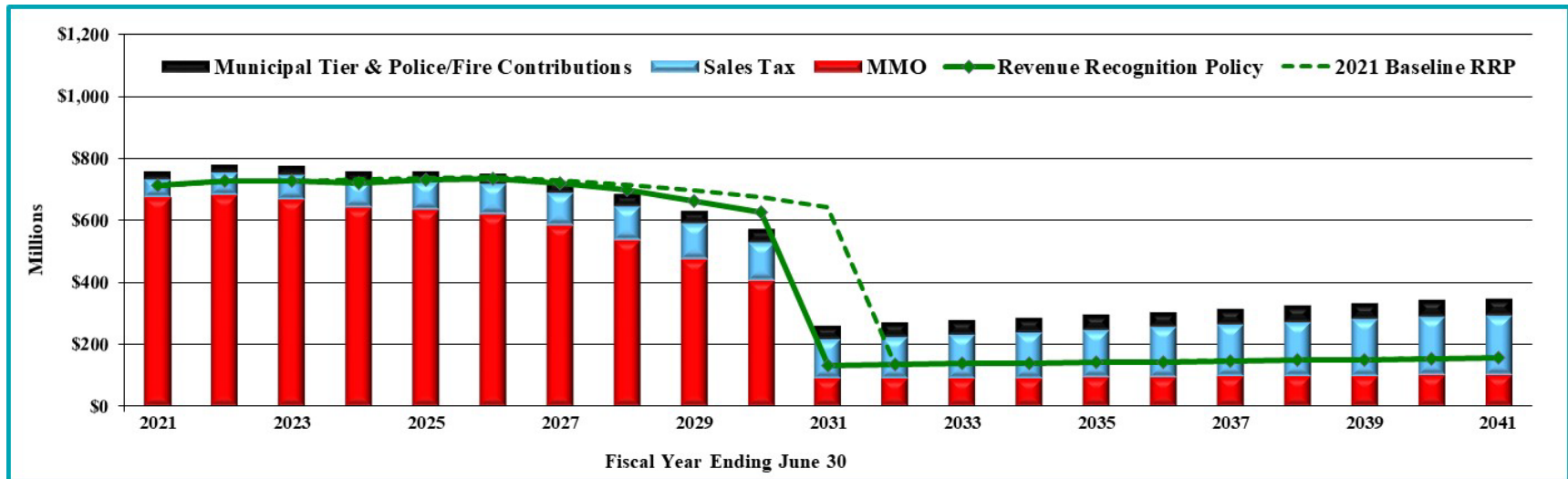
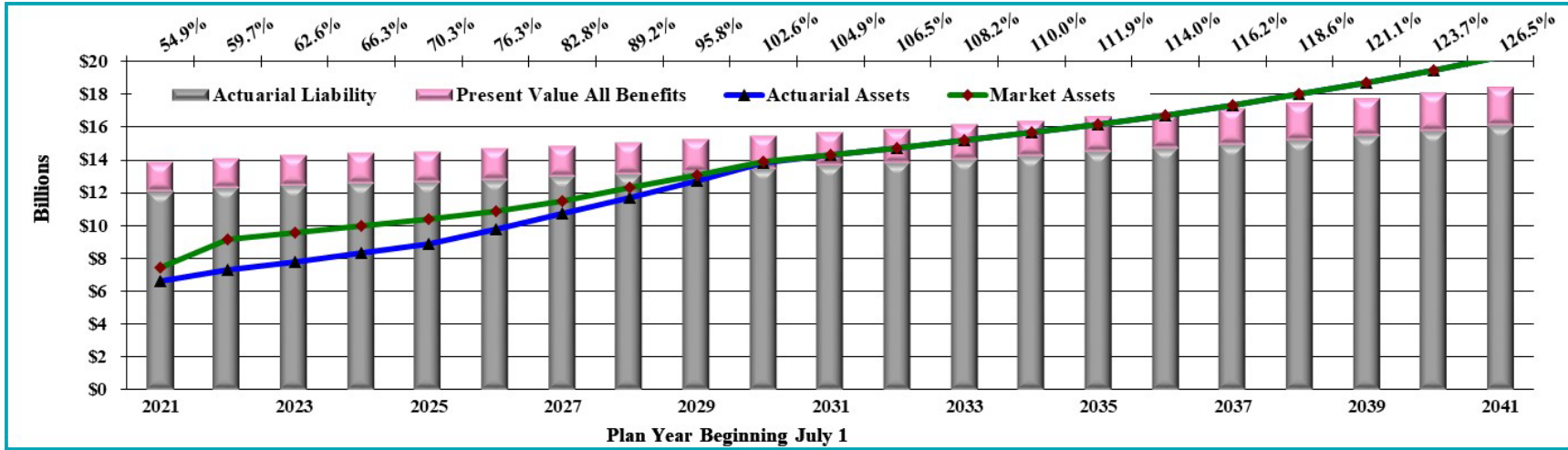
**One-Year Negative Shock Scenario: -10.8% return FYE 2022, 7.40% after**



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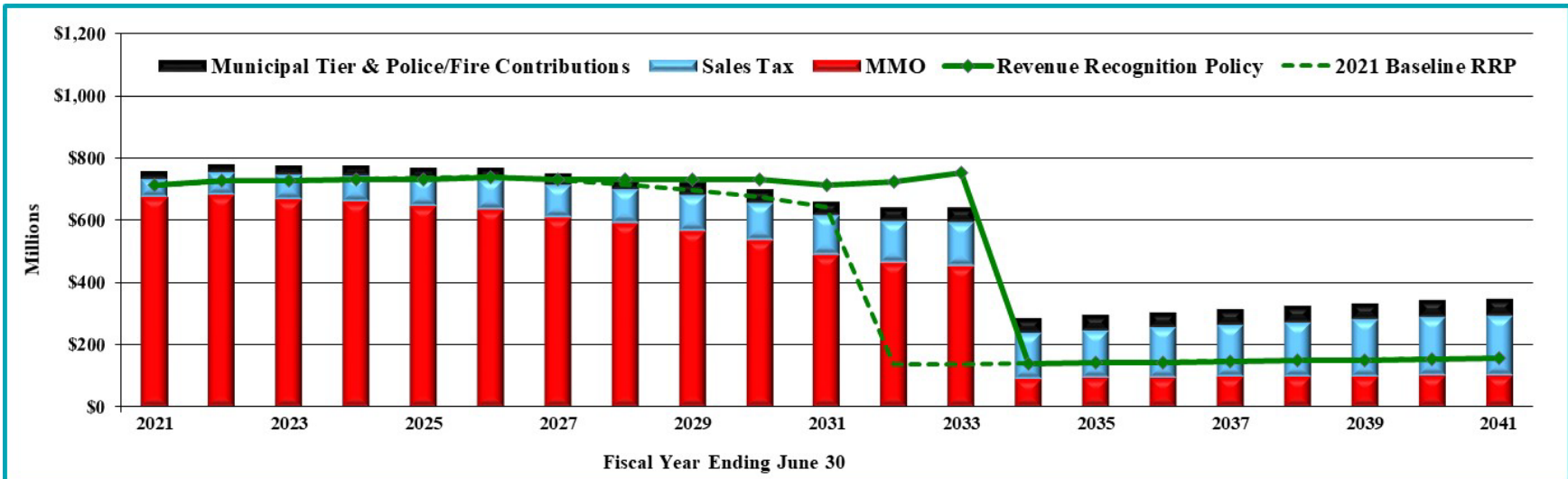
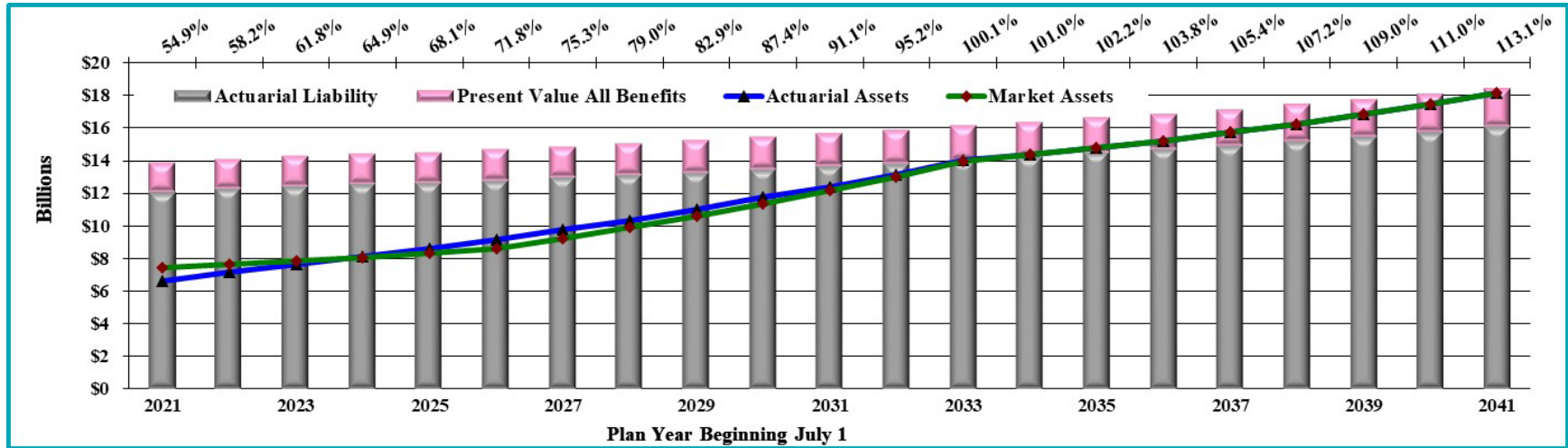
**One-Year Positive Shock Scenario: 25.4% return FYE 2022, 7.40% after**



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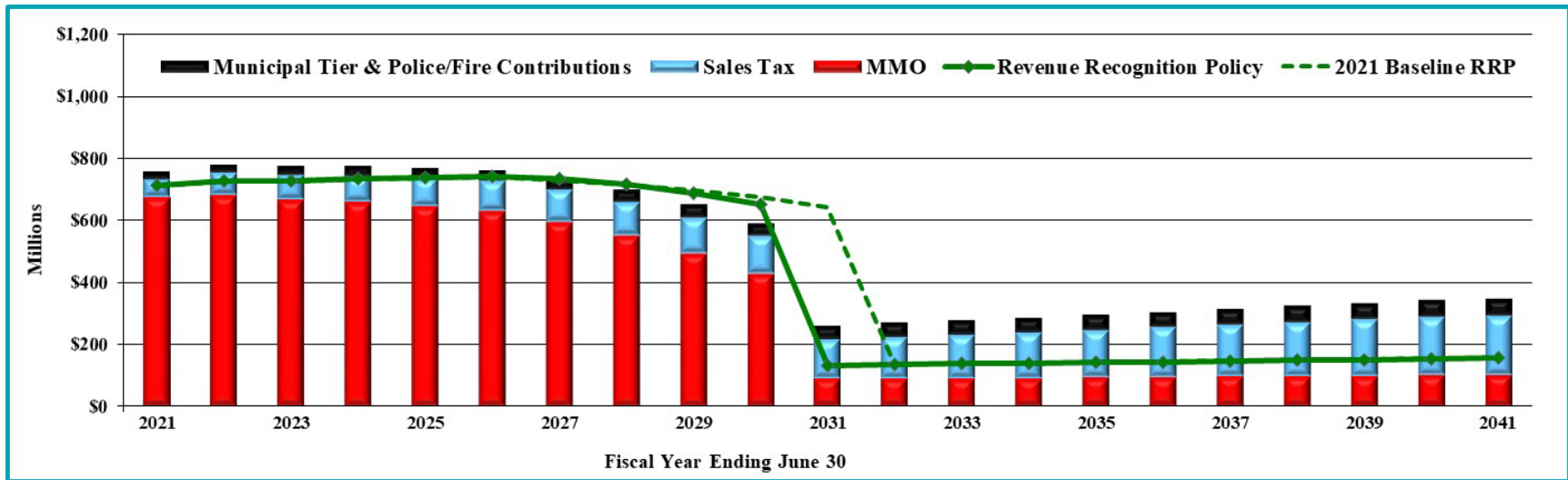
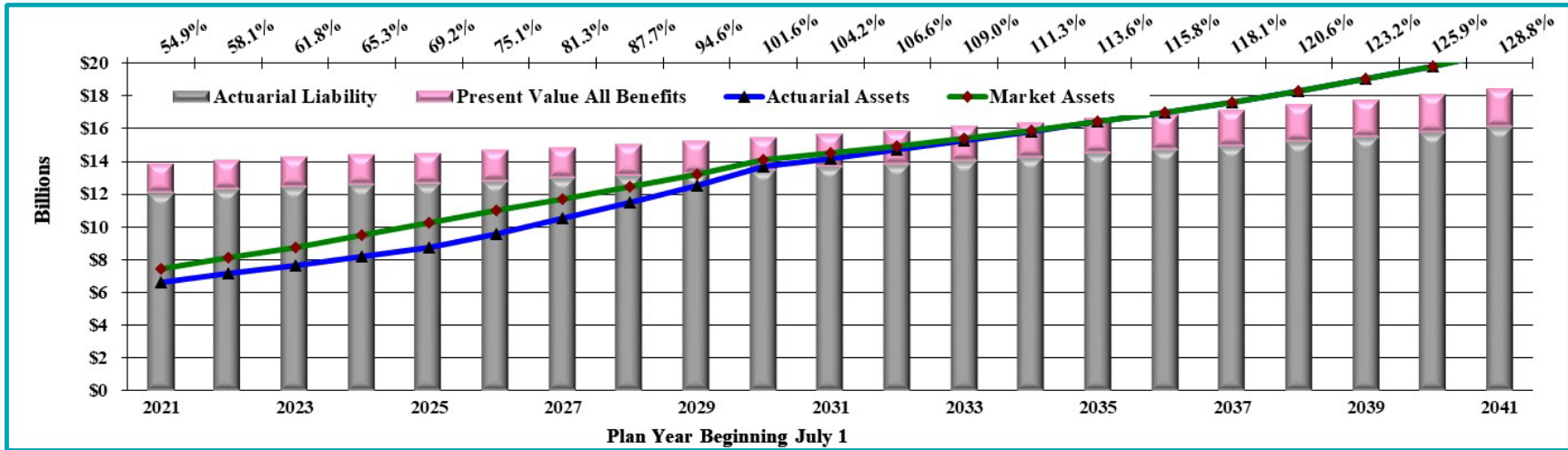
**Five-Year Moderate Negative Scenario: 4.0% return FYE 2022-2026, 7.40% after**



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**Five-Year Moderate Positive Scenario: 10.6% return FYE 2022-2026, 7.40% after**

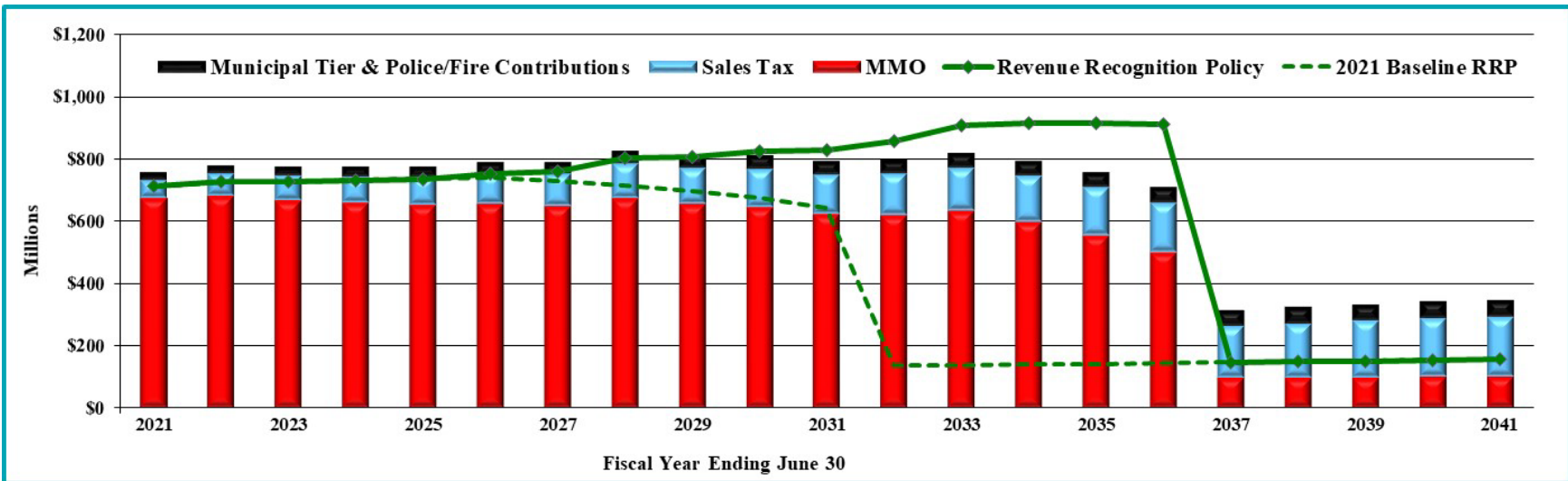
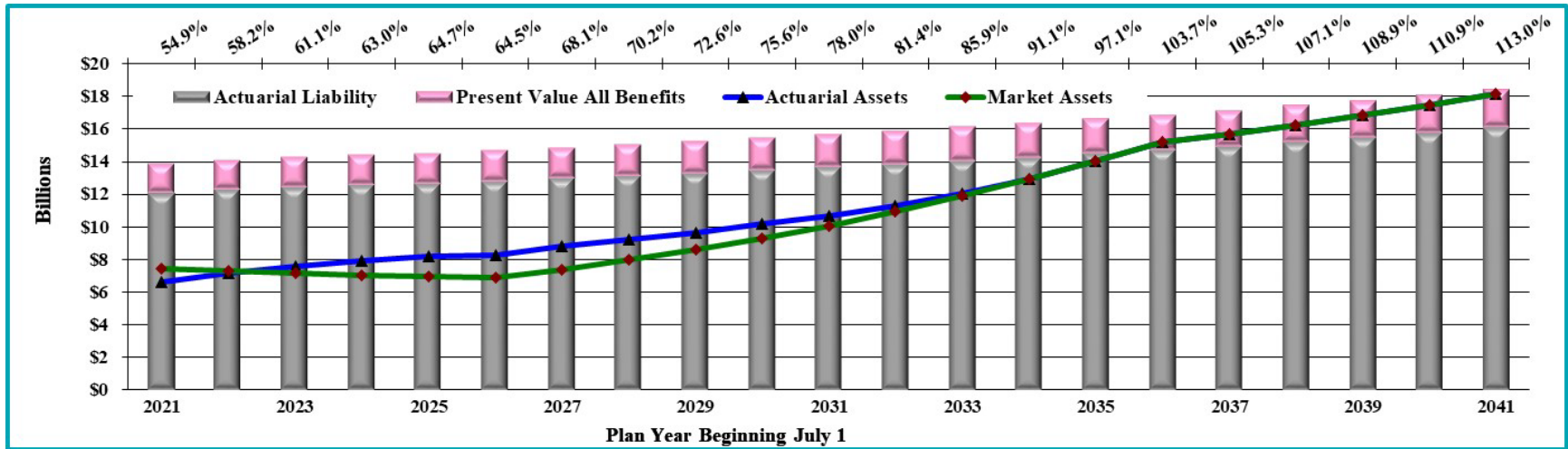




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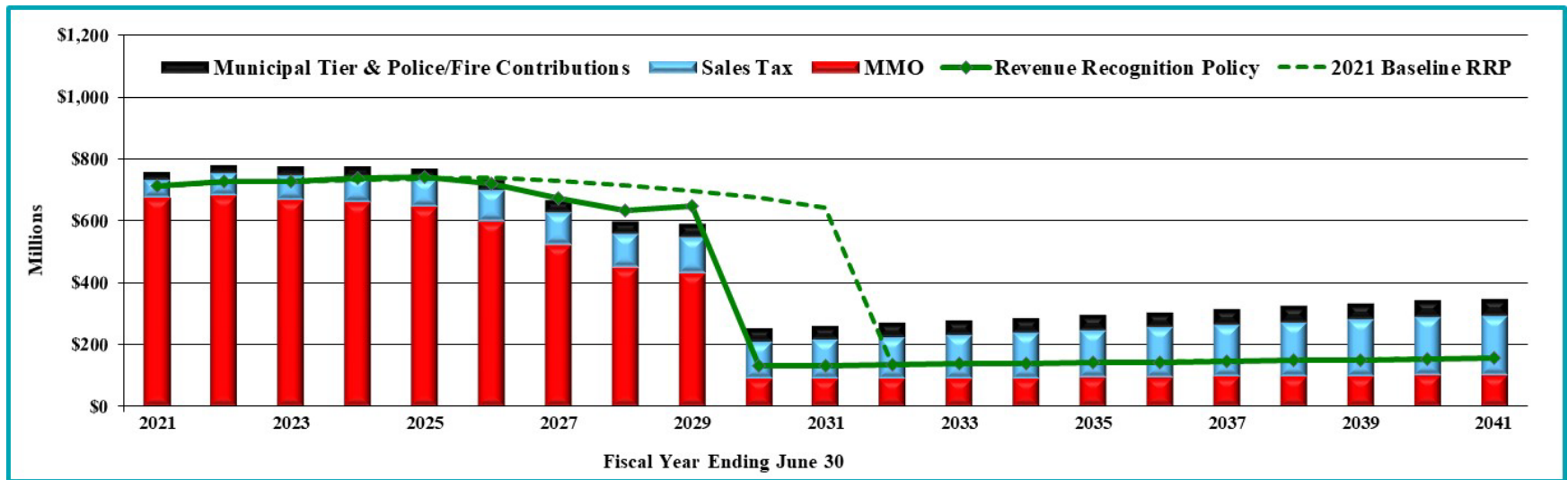
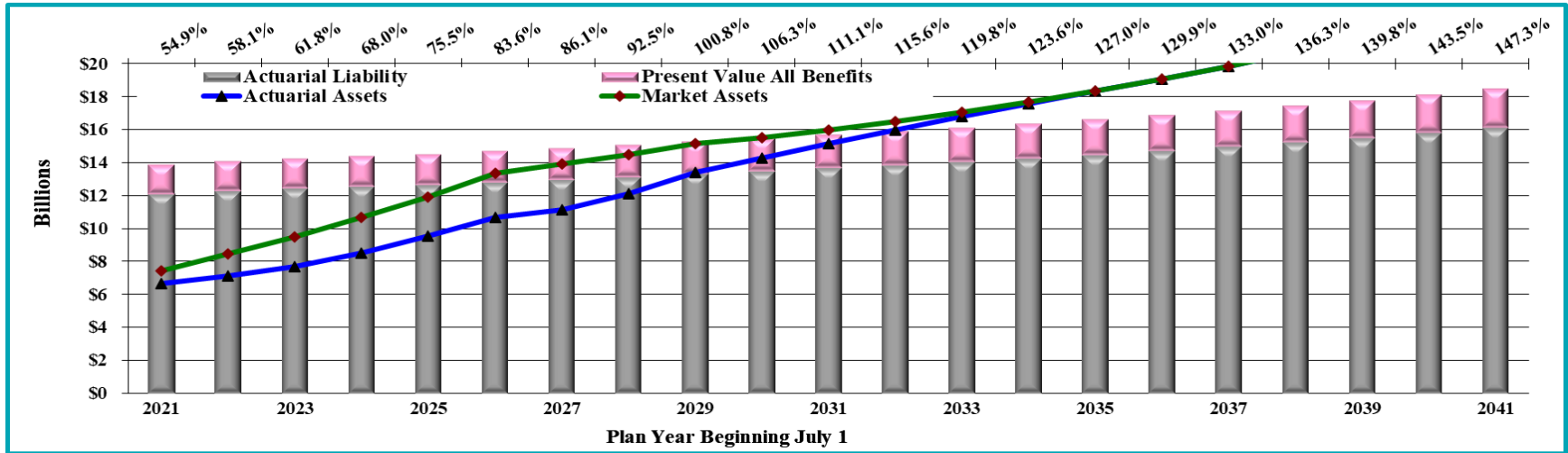
**Five-Year Significant Negative Scenario: -0.8% return FYE 2022–2026, 7.40% after**



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**Five-Year Significant Positive Scenario: 15.4% return FYE 2022-2026, 7.40% after**



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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.

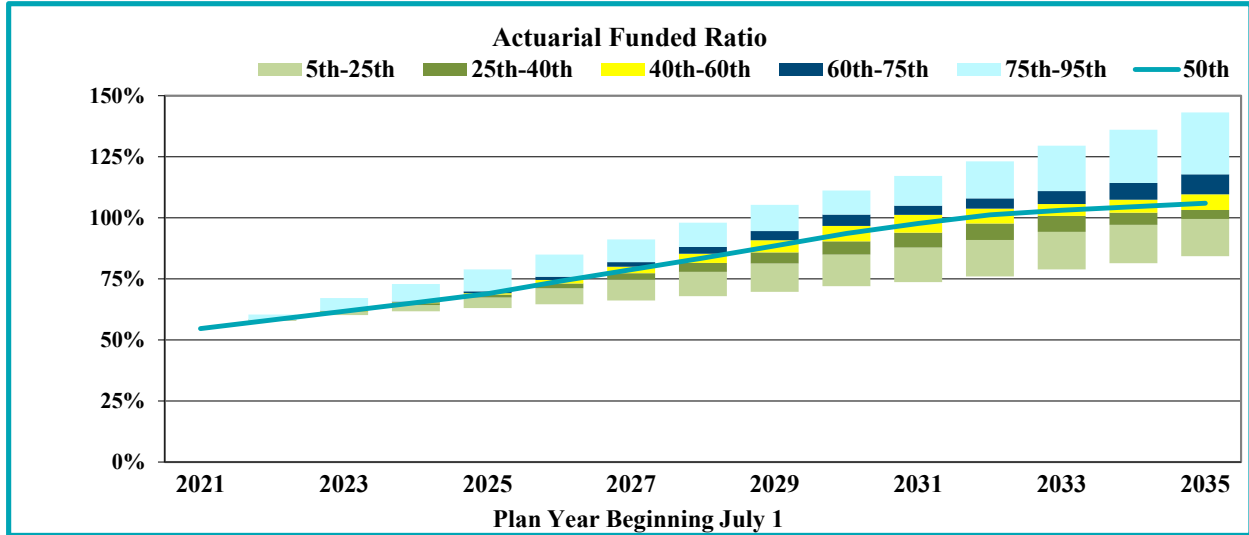
The charts on the next page show the stochastic projection of the actuarial funded ratio and City contribution amounts under RRP. The blue line represents the most likely or average of the range of outcomes. The colored ranges represent potential results reflecting future asset return volatility (geometric return of 7.31%, standard deviation of 10.99%). 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 (25<sup>th</sup>-40<sup>th</sup> and 60<sup>th</sup>-75<sup>th</sup>). Finally, the light green and the light blue bars show that there is a 90% chance the actual results will fall within those ranges (5<sup>th</sup>-25<sup>th</sup> and 75<sup>th</sup>-95<sup>th</sup>). 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.



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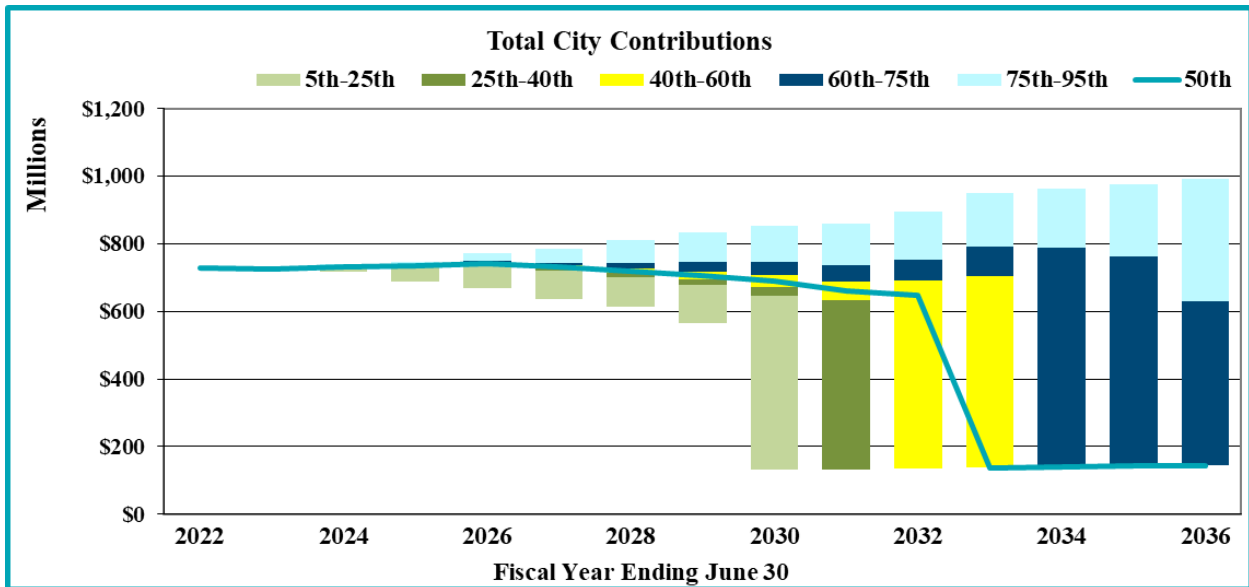
**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

**Stochastic Projection of Actuarial Funded Ratio and City Contributions**



In the worst scenarios, the System’s actuarial funded ratio is just under 85% by plan year beginning 2035 based on poor investment returns. In the best scenarios, the System’s actuarial funded ratio reaches just over 140% by 2035.

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



In the worst scenarios, the City’s contribution amount could reach approximately \$1.0 billion by FYE 2036. In the best scenarios, the City’s contribution could drop below \$150 million as early as 2030 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.

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**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, 2020 and July 1, 2021,
- 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, 2021,
- 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, 2020 and July 1, 2021. Table III-2 presents the System’s net cash flows for the plan year beginning July 1, 2020 and ending June 30, 2021. Table III-3 presents Fiscal Year End 2021 contributions received from members of the System and the City as compared to the MMO and RRP.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION III – ASSETS**

<b>Table III-1</b>		
<b>Statement of Assets at Market Value*</b>		
	<b>7/1/2021</b>	<b>7/1/2020</b>
<b><u>Assets</u></b>		
Cash	\$ 18,465,877	\$ 7,639,107
Investments	7,333,264,762	5,713,115,327
Securities Lending	181,952,215	391,236,983
Accrued Interest and Other Receivables	249,143,550	260,698,748
Due from Other Governmental Units	6,528,233	9,943,408
<b>Total Assets</b>	<b>\$ 7,789,354,637</b>	<b>\$ 6,382,633,573</b>
<b><u>Liabilities</u></b>		
Due on Securities Lending	\$ 181,951,594	\$ 391,234,427
Accrued Expenses and Other Liabilities	182,420,256	208,508,180
<b>Total Liabilities</b>	<b>\$ 364,371,850</b>	<b>\$ 599,742,607</b>
<b>Net Assets</b>	<b>\$ 7,424,982,787</b>	<b>\$ 5,782,890,966</b>

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

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION III – ASSETS**

**B. System Cash Flows for the Year July 1, 2020 through July 1, 2021**

<b>Table III-2 Changes in Market Values<sup>1</sup></b>		
<b>Value of Assets – July 1, 2020</b>		<b>\$ 5,782,890,966</b>
<b><u>Additions</u></b>		
Contributions:		
Employer Contributions	\$ 788,483,157	
Employee Contributions	111,272,801	
Total Contributions		\$ 899,755,958
Investment Income:		
Appreciation in FV of Investments	\$ 1,521,778,269	
Interest and Dividends	127,658,394	
Total Investment Income	<u>\$ 1,649,436,663</u>	
Investment Activity Expenses:		
Investment Expenses	<u>(7,220,177)</u>	
Total Investment Activity Expenses	\$ (7,220,177)	
Securities Lending Activities:		
Securities Lending Income	\$ 1,246,363	
Securities Lending Expenses	<u>(186,115)</u>	
Net Income from Securities Lending Activities	\$ 1,060,248	
Miscellaneous Operating Revenues	\$ 212,925	
Net Investment Income		<u>1,643,489,659</u>
Total Additions		\$ 2,543,245,617
<b><u>Deductions</u></b>		
Administrative Expenses	\$ (9,708,833)	
Refunds of Member Contributions	(7,841,271)	
Benefit Payments	(883,603,692)	
PAF Distributions	<u>0</u>	
Total Deductions		<u>(901,153,796)</u>
<b><u>Total</u></b>		
Net Increase (Decrease)		<u>1,642,091,821</u>
<b>Value of Assets – July 1, 2021</b>		<b>\$ 7,424,982,787</b>

<sup>1</sup> Includes the PAF which is not available for funding purposes

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION III – ASSETS**

Table III-3		
Contributions for the Plan Year Ending June 30, 2021		
<b>Actuarially Determined Contribution</b>		
MMO for Fiscal Year 2021	\$	673,883,620
RRP for Fiscal Year 2021	\$	712,978,118
<b>Actual City Contributions</b>		
Cash Received from City during Fiscal Year 2021	\$	631,672,260
State Aid Amount		81,307,740
Sales Tax Revenue		55,204,374
Cash Received from Quasi-Agencies		20,298,783
Total Cash Received from City during Fiscal Year 2021	\$	788,483,157
<b>Actual Member Contributions</b>		
Regular Member Contributions	\$	85,825,553
Tier Member Contributions (Municipal and Elected)		12,259,514
Additional Member Contributions (Police and Fire)		13,187,734
Total Member Contributions Received during Fiscal Year 2021	\$	111,272,801

The City’s actual contribution (including the state aid amount) of \$712,980,000 is the RRP contribution amount for FYE 2021.

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**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, 2021						
1. Market Value of Assets as of July 1, 2021						\$ 7,424,982,787
2. Pension Adjustment Fund (PAF) as of July 1, 2021 Before Additional Transfers						\$ 1,597,420
3. Market Value of Assets Net of Original PAF*						\$ 7,423,385,367
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>		
2012	\$ (328,486,968)	100%	0%	\$ 0		
2013	127,718,278	90%	10%	12,771,828		
2014	347,082,935	80%	20%	69,416,587		
2015	(349,020,722)	70%	30%	(104,706,216)		
2016	(489,127,035)	60%	40%	(195,650,814)		
2017	242,673,428	50%	50%	121,336,714		
2018	79,312,820	40%	60%	47,587,692		
2019	(92,799,571)	30%	70%	(64,959,699)		
2020	(333,977,782)	20%	80%	(267,182,226)		
2021	1,218,679,926	10%	90%	<u>1,096,811,933</u>		
Total				\$ 715,425,799		
5. Preliminary Actuarial Value as of July 1, 2021 (5 = 3 - 4)						\$ 6,707,959,568
6. Corridor for Actuarial Value						
a. 80% of Market Value Net of PAF						\$ 5,938,708,294
b. 120% of Market Value Net of PAF						\$ 8,908,062,440
7. Additional PAF Transfer as of July 1, 2021						\$ 74,873,627
8. Actuarial Value of Assets Net of Final PAF as of July 1, 2021 8 = max( (min of 5 or 6b) and 6a), minus 7						\$ 6,633,085,941
9. As a percent of Market Value Net of Final PAF						90.3%
10. Market Value of Assets Net of Final PAF						\$ 7,348,511,740

\* 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.

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**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, 2021 (\$ 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, 2020	\$ 1,476,469	\$ 504,693	\$ 163,580	\$ 1,853,283	\$ 16,030	\$ 1,675,231	\$ 514,344	\$ 16,768	\$ 22,296	\$ 6,242,696
2. Transactions During Plan Year July 1, 2020 to June 30, 2021										
a. Contributions										
City and Commonwealth Employees	\$ 324,507	\$ 162,035	\$ 70,548	\$ 114,090	\$ 1,655	\$ 64,822	\$ 23,495	\$ 1,064	\$ 5,969	\$ 768,184
Quasi-Public Agencies	3,250	778	320	43,500	407	36,294	15,196	2,388	9,139	111,273
	15,323	0	0	4,513	0	0	0	50	413	20,299
b. Benefit Payments	(433,284)	(207,867)	(82,817)	(87,426)	(2,114)	(55,603)	(14,494)	0	0	(883,604)
c. Withdrawals	(818)	(170)	(24)	(4,427)	0	(1,570)	(411)	0	(422)	(7,841)
d. Administrative Expenses	(2,805)	(1,240)	(426)	(2,917)	(7)	(1,111)	(430)	(188)	(584)	(9,709)
e. Net Transactions	\$ (93,827)	\$ (46,464)	\$ (12,399)	\$ 67,333	\$ (59)	\$ 42,832	\$ 23,356	\$ 3,314	\$ 14,515	\$ (1,398)
3. Total Fund Balance Prior to Allocation of Investment Income [1. + 2e.]	\$ 1,382,642	\$ 458,229	\$ 151,181	\$ 1,920,616	\$ 15,971	\$ 1,718,063	\$ 537,700	\$ 20,082	\$ 36,811	\$ 6,241,298
4. Investment Income During Plan Year July 1, 2020 to June 30, 2021	\$ 103,380	\$ 34,262	\$ 11,304	\$ 143,604	\$ 1,194	\$ 128,460	\$ 40,204	\$ 1,502	\$ 2,752	\$ 466,662
5. Preliminary Actuarial Value of Assets as of July 1, 2021 [3. + 4.]	\$ 1,486,022	\$ 492,491	\$ 162,486	\$ 2,064,221	\$ 17,165	\$ 1,846,523	\$ 577,904	\$ 21,584	\$ 39,564	\$ 6,707,960
6. Allocation of PAF Transfer	\$ (16,587)	\$ (5,497)	\$ (1,814)	\$ (23,041)	\$ (192)	\$ (20,611)	\$ (6,451)	\$ (241)	\$ (442)	\$ (74,874)
7. Final Actuarial Value of Assets With Corridor 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
8. Final Actuarial Value of Assets Less RRP Additional Revenue Account	\$ 1,389,967	\$ 460,657	\$ 151,983	\$ 1,930,792	\$ 16,056	\$ 1,727,165	\$ 540,549	\$ 20,188	\$ 37,006	\$ 6,274,363

Note: Numbers may not add due to rounding

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**SECTION III – ASSETS**

**E. Development of the Pension Adjustment Fund as of July 1, 2021**

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.

<b>Table III-6 Development of the Pension Adjustment Fund as of July 1, 2021</b>		
1.	PAF on July 1, 2020	\$ 1,243,871
2.	PAF Distribution	0
3.	Market Value Asset Return Through June 30, 2021 *	28.42%
4.	PAF on July 1, 2021 Before Additional Transfers** =(1) x [1 + (3)] + (2) x {[1+(3)]^.50}	\$ 1,597,420
5.	Adjusted Market Value of Assets Through June 30, 2021	\$ 6,670,085,359
6.	Adjusted Market Value of Assets Return Through June 30, 2021 ***	10.75%
7.	Return in Excess of Investment Assumption Plus 1.0%, Limited to 5.0% =(6) - [7.5% + 1.00%]	2.25%
8.	Additional Transfer as of July 1, 2021 =50% of (7) x (5)	\$ 74,873,627
9.	Total PAF as of July 1, 2021 = (4) + (8)	\$ 76,471,047

\* Market Value Asset Return including the PAF

\*\* Calculations are based upon the unrounded percents for items (3) and (7)

\*\*\* 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



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**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.

<b>Table III-7 Actuarial Value of Assets for Revenue Recognition Policy as of July 1, 2021</b>	
1. Additional Revenue Account on July 1, 2020	\$213,886,831
2. Sales Tax Revenue Received During FYE June 30, 2021	\$55,204,374
3. Tier and Additional Member Contributions Received During FYE June 30, 2021*	25,447,248
4. Market Value Asset Return Through June 30, 2021	28.42%
5. Interest Through June 30, 2021	64,184,283
6. Additional Revenue Account on July 1, 2021 =(1) + (2) + (3) + (5)	\$358,722,736
7. Actuarial Value of Assets on June 30, 2021	\$6,633,085,940
8. Actuarial Value of Assets Net of Additional Revenue on June 30, 2021** =(7) - (6)	\$6,274,363,204

\* 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

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**SECTION III – ASSETS**

**G. Investment Performance**

The market value of assets internal rate of return was 28.42% for the year ending June 30, 2021. This is compared to an assumed return of 7.50% for the same period. This return produced an overall investment gain of \$1,218.7 million for the year ending June 30, 2021. On an actuarial value of assets basis (net of PAF), the return for FYE 2021 was 6.28%. In the table below, we also provide returns from two broad asset classes for comparison.

<b>Table III-8</b>					
<b>Annual Rates of Return</b>					
<b>Year Ending</b>	<b>Investment</b>			<b>Total Return</b>	<b>Barclays</b>
<b>June 30,</b>	<b>Return</b>	<b>Market</b>	<b>Actuarial</b>	<b>Standard &amp; Poor</b>	<b>Aggregate</b>
<b><u>June 30,</u></b>	<b><u>Assumption</u></b>	<b><u>Value</u></b>	<b><u>Value *</u></b>	<b><u>500 Index</u></b>	<b><u>Bond Index**</u></b>
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%

\* Net of PAF

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION III – ASSETS**

**H. Asset Gain/(Loss)**

There was a \$1,218.7 million investment gain on market value of assets when compared to the expected as of July 1, 2021. Table III-9 reconciles the 2021 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.

<b>Table III-9 Calculation of Asset Gain/(Loss)</b>			
	<b>Market Value (Net of PAF)</b>	<b>PAF</b>	<b>Total Market Value</b>
1. Market Value of Assets as of July 1, 2020	\$ 5,781,647,095	\$ 1,243,871	\$ 5,782,890,966
2. Transactions During Plan Year July 1, 2020 to June 30, 2021			
a. Contributions			
City and Commonwealth	\$ 768,184,374	\$ 0	\$ 768,184,374
Employees	111,272,801	0	111,272,801
Quasi-Public Agencies	20,298,783	0	20,298,783
b. Benefit Payments	(883,603,692)	0	(883,603,692)
c. Withdrawals	(7,841,271)	0	(7,841,271)
d. Administrative Expenses	(9,708,833)	0	(9,708,833)
e. Net Transactions	\$ (1,397,838)	\$ 0	\$ (1,397,838)
3. Expected Investment Income from July 1, 2020 to June 30, 2021	\$ 424,456,184	\$ 353,549 *	\$ 424,809,733
4. PAF transfer at July 1, 2021	\$ (74,873,627)	\$ 74,873,627	\$ 0
5. Expected Market Value of Assets as of July 1, 2021 [1. + 2.e. + 3. + 4]	\$ 6,129,831,814	\$ 76,471,047	\$ 6,206,302,861
6. Market Value of Assets as of July 1, 2021	\$ 7,348,511,740	\$ 76,471,047	\$ 7,424,982,787
7. Investment Gain/(Loss) [6. - 5.]	\$ 1,218,679,926	\$ 0	\$ 1,218,679,926

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

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**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, 2020 and July 1, 2021,
- 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, 2022.

**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  
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**SECTION IV – LIABILITIES**

Table IV-1 shows the present value of future benefits, actuarial liability, and unfunded actuarial liability as of July 1, 2021, and July 1, 2020, 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.

<b>Table IV-1 Disclosure of Liabilities (\$ thousands)</b>		
	<b>July 1, 2021</b>	<b>July 1, 2020</b>
<b>Present Value of Future Benefits</b>		
Actives	\$ 5,769,176	\$ 6,054,540
Terminated Vesteds	94,294	94,667
Disabled	839,239	814,359
Retirees	5,317,192	5,242,456
Beneficiaries	722,709	698,160
DROP Account plus Deferred Annuities	1,023,223	847,371
Non-Vested Refunds	9,068	9,215
<b>Total City PVFB</b>	<b>\$ 13,774,901</b>	<b>\$ 13,760,768</b>
Market Value of Assets (Net of PAF)	(7,348,512)	(5,781,647)
Present Value Future Member Contrib.	(1,074,081)	(1,105,968)
<b>City's Unfunded Future Obligation</b>	<b>\$ 5,352,308</b>	<b>\$ 6,873,153</b>
<b>Actuarial Liability</b>		
Actives	\$ 4,068,311	\$ 4,331,823
Terminated Vesteds	94,294	94,667
Disabled	839,239	814,359
Retirees	5,317,192	5,242,456
Beneficiaries	722,709	698,160
DROP	1,023,223	847,371
Non-Vested Refunds	9,068	9,215
<b>Total City AL</b>	<b>\$ 12,074,036</b>	<b>\$ 12,038,051</b>
Actuarial Value of Assets	(6,633,086)	(6,242,696)
<b>Unfunded Actuarial Liability</b>	<b>\$ 5,440,950</b>	<b>\$ 5,795,355</b>

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 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, 2021 (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
<b>Present Value of Future Benefits</b>										
Actives	\$ 355,738	\$ 102,239	\$ 46,717	\$ 2,283,921	\$ 14,666	\$ 2,022,888	\$ 756,614	\$ 44,726	\$ 141,668	\$ 5,769,176
Terminated Vesteds	20,086	0	0	61,607	0	11,187	1,374	0	39	94,294
Disabled	195,069	159,619	34,827	150,773	0	259,375	39,576	0	0	839,239
Retirees	2,704,055	1,226,452	523,706	511,980	14,014	264,299	72,687	0	0	5,317,192
Beneficiaries	346,366	180,302	82,588	55,801	693	42,657	14,302	0	0	722,709
DROP	334,596	156,912	37,805	170,024	0	272,306	51,580	0	0	1,023,223
Non-Vested Refunds	1,595	155	156	5,953	10	890	308	0	0	9,068
<b>Total PVFB</b>	<b>\$ 3,957,505</b>	<b>\$ 1,825,679</b>	<b>\$ 725,799</b>	<b>\$ 3,240,059</b>	<b>\$ 29,383</b>	<b>\$ 2,873,602</b>	<b>\$ 936,442</b>	<b>\$ 44,726</b>	<b>\$ 141,707</b>	<b>\$ 13,774,901</b>
<b>Actuarial Liability</b>										
Actives	\$ 338,814	\$ 95,296	\$ 43,885	\$ 1,723,899	\$ 10,844	\$ 1,344,340	\$ 458,345	\$ 17,442	\$ 35,448	\$ 4,068,311
Terminated Vesteds	20,086	0	0	61,607	0	11,187	1,374	0	39	94,294
Disabled	195,069	159,619	34,827	150,773	0	259,375	39,576	0	0	839,239
Retirees	2,704,055	1,226,452	523,706	511,980	14,014	264,299	72,687	0	0	5,317,192
Beneficiaries	346,366	180,302	82,588	55,801	693	42,657	14,302	0	0	722,709
DROP	334,596	156,912	37,805	170,024	0	272,306	51,580	0	0	1,023,223
Non-Vested Refunds	1,595	155	156	5,953	10	890	308	0	0	9,068
<b>Total AL</b>	<b>\$ 3,940,581</b>	<b>\$ 1,818,736</b>	<b>\$ 722,967</b>	<b>\$ 2,680,037</b>	<b>\$ 25,561</b>	<b>\$ 2,195,054</b>	<b>\$ 638,172</b>	<b>\$ 17,442</b>	<b>\$ 35,487</b>	<b>\$ 12,074,036</b>
Actuarial Value of Assets	(1,469,435)	(486,994)	(160,672)	(2,041,180)	(16,974)	(1,825,912)	(571,454)	(21,343)	(39,122)	(6,633,086)
<b>Unfunded Actuarial Liability</b>	<b>\$ 2,471,146</b>	<b>\$ 1,331,742</b>	<b>\$ 562,295</b>	<b>\$ 638,857</b>	<b>\$ 8,587</b>	<b>\$ 369,142</b>	<b>\$ 66,718</b>	<b>\$ (3,901)</b>	<b>\$ (3,635)</b>	<b>\$ 5,440,950</b>
<b>Funding Percent</b>	<b>37.3%</b>	<b>26.8%</b>	<b>22.2%</b>	<b>76.2%</b>	<b>66.4%</b>	<b>83.2%</b>	<b>89.5%</b>	<b>122.4%</b>	<b>110.2%</b>	<b>54.9%</b>

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**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.

<b>Table IV-3 Derivation of the Normal Cost as of July 1, 2021 on MMO Basis (\$ thousands)</b>										
	<b>1967 Plan</b>			<b>1987 Plan</b>				<b>Plan '10</b>	<b>Plan '16</b>	<b>Total</b>
	<b>Municipal</b>	<b>Police</b>	<b>Fire</b>	<b>Municipal</b>	<b>Elected</b>	<b>Police</b>	<b>Fire</b>	<b>Municipal</b>	<b>Municipal</b>	
Retirement	\$ 2,116	\$ 1,571	\$ 689	\$ 39,510	\$ 396	\$ 44,978	\$ 19,596	\$ 1,606	\$ 7,078	\$ 117,540
Death	97	52	25	2,587	20	2,286	1,048	129	530	6,773
Disability	275	277	119	6,590	36	11,199	4,816	435	1,476	25,223
Termination	1,971	149	63	22,622	130	4,833	1,827	886	4,277	36,757
Administrative Expenses	2,866	1,271	440	2,999	7	1,167	454	173	651	10,029
<b>Total Normal Cost (with Expenses)</b>	<b>\$ 7,325</b>	<b>\$ 3,320</b>	<b>\$ 1,336</b>	<b>\$ 74,308</b>	<b>\$ 590</b>	<b>\$ 64,462</b>	<b>\$ 27,741</b>	<b>\$ 3,228</b>	<b>\$ 14,012</b>	<b>\$ 196,323</b>
Expected Employee Contributions	\$ 3,272	\$ 749	\$ 342	\$ 42,496	\$ 477	\$ 35,221	\$ 14,879	\$ 2,318	\$ 9,070	\$ 108,824
City Normal Cost	\$ 4,053	\$ 2,571	\$ 994	\$ 31,812	\$ 112	\$ 29,242	\$ 12,861	\$ 910	\$ 4,943	\$ 87,498
Current Annual Payroll	\$ 51,991	\$ 12,479	\$ 5,704	\$ 848,951	\$ 3,200	\$ 488,089	\$ 201,954	\$ 66,147	\$ 207,996	\$ 1,886,512
City Normal Cost as % of Pay, Beginning of Year Payment	7.796%	20.605%	17.424%	3.747%	3.513%	5.991%	6.368%	1.376%	2.376%	4.638%
City Normal Cost as % of Pay, End of Year Payment	8.376%	22.140%	18.723%	4.026%	3.775%	6.437%	6.843%	1.479%	2.553%	4.984%

Note: Numbers may not add due to rounding.



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION IV – LIABILITIES**

Table IV-4 shows changes in the unfunded actuarial liability from July 1, 2020 to July 1, 2021 due to actuarial experience, assumption changes, and plan changes. The table also shows the development of the expected unfunded actuarial liability from July 1, 2021 to July 1, 2022 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, 2022 (\$ 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, 2021 Based on July 1, 2020 Valuation*	\$ 2,463,181	\$ 1,280,642	\$ 546,543	\$ 784,342	\$ 9,924	\$ 290,246	\$ 78,529	\$ (2,602)	\$ (1,617)	\$ 5,449,188
2. Changes in UAL due to										
a. Actuarial Experience	\$ (5,690)	\$ 45,050	\$ 13,426	\$ (162,161)	\$ (1,442)	\$ 65,696	\$ (15,816)	\$ (1,449)	\$ (2,315)	\$ (64,702)
b. Assumption Changes	13,655	6,050	2,327	16,676	105	13,202	4,005	150	297	56,467
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	\$ 7,965	\$ 51,100	\$ 15,753	\$ (145,485)	\$ (1,337)	\$ 78,898	\$ (11,811)	\$ (1,298)	\$ (2,018)	\$ (8,235)
3. Actual UAL as of July 1, 2021 [1. + 2e.]	\$ 2,471,145	\$ 1,331,741	\$ 562,296	\$ 638,857	\$ 8,587	\$ 369,142	\$ 66,718	\$ (3,901)	\$ (3,635)	\$ 5,440,950
4. Expected Changes in UAL from July 1, 2021 to July 1, 2022 due to										
a. Interest on Changes in UAL	\$ 593	\$ 3,807	\$ 1,174	\$ (10,839)	\$ (100)	\$ 5,878	\$ (880)	\$ (97)	\$ (150)	\$ (614)
b. FY 2022 Amortization Contribution	(167,163)	(79,927)	(35,493)	(41,473)	(886)	(12,911)	(4,548)	40	(19)	(342,378)
c. Subtotal	\$ (166,569)	\$ (76,120)	\$ (34,320)	\$ (52,311)	\$ (985)	\$ (7,033)	\$ (5,428)	\$ (57)	\$ (169)	\$ (342,992)
5. Expected UAL as of July 1, 2022 [3. + 4c.]	\$ 2,304,576	\$ 1,255,621	\$ 527,976	\$ 586,546	\$ 7,602	\$ 362,109	\$ 61,290	\$ (3,958)	\$ (3,804)	\$ 5,097,958

\* Expected UAL is based upon the City's funding policy

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION IV – LIABILITIES**

Table IV-5 shows a reconciliation of the changes in the Actuarial Liability from July 1, 2020 to July 1, 2021. 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, 2021.

<b>Table IV-5 Change in Actuarial Liability (\$ thousands)</b>	
Liabilities on July 1, 2020	\$ 12,038,051
Liabilities on July 1, 2021	<u>12,074,036</u>
Liability Increase/(Decrease)	\$ 35,985
Liabilities on July 1, 2020	\$ 12,038,051
Expected Change During the year due to:	
Accrual of Benefits	\$ 187,598
Benefit Payments	(891,445)
Passage of Time	<u>884,098</u>
Total	\$ 180,251
Expected Liabilities on June 30, 2021	\$ 12,218,302
Change Due to:	
Method Change	\$ 0
Plan Amendment	0
Assumption Change	56,467
Liability (Gain)/Loss	<u>(200,733)</u>
Total	\$ (144,266)
Liabilities on July 1, 2021	\$ 12,074,036

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**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.
- 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  
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**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, 2022. 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.

<b>Table V-1 Employee Contribution Rates for the Plan Year Beginning July 1, 2022</b>				
	<b>Municipal<sup>1</sup></b>	<b>Elected<sup>2</sup></b>	<b>Police</b>	<b>Fire</b>
Plan 67	7.00%	N/A	6.00%	6.00%
Plan 87	3.63%	12.01%	6.84%	6.84%
Plan 87- 50% of Aggregate NC <sup>3</sup>	4.38%	N/A	N/A	N/A
Plan 87 - Accelerated Vesting <sup>4</sup>	4.61%	13.46%	N/A	N/A
Plan 87 Prime <sup>5</sup>	4.63%	13.01%	7.84%	7.84%
Plan '10	2.44%	N/A	7.34%	7.34%
Plan '10 - Accelerated Vesting	2.93%	N/A	N/A	N/A
Plan '16 <sup>6</sup>	4.14%	N/A	N/A	N/A
Plan '16 - Accelerated Vesting <sup>7</sup>	4.52%	N/A	N/A	N/A

<sup>1</sup> 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.

<sup>2</sup> The employee contribution rate is based upon the normal cost of \$589,721 under Plan 87 Elected, normal cost of \$338,869 under Plan 87 Municipal and current annual payroll of \$3,200,320.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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.

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

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

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**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.

<b>Table V-2a</b>		
<b>Quasi Agency Funding Rate as a Percent of Payroll (Based on Funding Policy)</b>		
<b>Valuation Date</b>	<b>July 1, 2021</b>	<b>July 1, 2020</b>
<b>Fiscal Year Ending in Year</b>	<b>2023</b>	<b>2022</b>
<b>67 Municipal</b>		
1. Normal Cost Rate	8.376%	7.394%
2. Amortization Rate under the City's Funding Policy	<u>648.890%</u>	<u>479.858%</u>
3. Total Year-End Rate [1. + 2.]	657.266%	487.252%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	639.663%	474.118%
<b>87 Municipal</b>		
1. Normal Cost Rate	4.026%	3.703%
2. Amortization Rate under the City's Funding Policy	<u>9.665%</u>	<u>11.473%</u>
3. Total Year-End Rate [1. + 2.]	13.691%	15.177%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	13.324%	14.768%
<b>Plan 10 Municipal</b>		
1. Normal Cost Rate	1.479%	1.490%
2. Amortization Rate under the City's Funding Policy	<u>-0.556%</u>	<u>-0.329%</u>
3. Total Year-End Rate [1. + 2.]	0.923%	1.161%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	0.898%	1.130%
<b>Plan 16 Municipal</b>		
1. Normal Cost Rate	2.553%	2.648%
2. Amortization Rate under the City's Funding Policy	<u>-0.148%</u>	<u>-0.059%</u>
3. Total Year-End Rate [1. + 2.]	2.405%	2.588%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	2.341%	2.519%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION**

<b>Table V-2b</b>		
<b>Quasi Agency Funding Rate as a Percent of Payroll (Based on MMO)</b>		
<b>Valuation Date</b>	<b>July 1, 2021</b>	<b>July 1, 2020</b>
<b>Fiscal Year Ending in Year</b>	<b>2023</b>	<b>2022</b>
<b>67 Municipal</b>		
1. Normal Cost Rate	8.376%	7.394%
2. Amortization Rate under MMO*	<u>553.023%</u>	<u>400.001%</u>
3. Total Year-End Rate [1. + 2.]	561.399%	407.395%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	546.364%	396.414%
<b>87 Municipal</b>		
1. Normal Cost Rate	4.026%	3.703%
2. Amortization Rate under MMO*	<u>8.756%</u>	<u>10.388%</u>
3. Total Year-End Rate [1. + 2.]	12.782%	14.092%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	12.440%	13.712%
<b>Plan 10 Municipal</b>		
1. Normal Cost Rate	1.479%	1.490%
2. Amortization Rate under MMO*	<u>-0.686%</u>	<u>-0.386%</u>
3. Total Year-End Rate [1. + 2.]	0.793%	1.105%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	0.771%	1.075%
<b>Plan 16 Municipal</b>		
1. Normal Cost Rate	2.553%	2.648%
2. Amortization Rate under MMO*	<u>-0.203%</u>	<u>-0.096%</u>
3. Total Year-End Rate [1. + 2.]	2.350%	2.552%
4. Quarterly adjustment factor	0.97322	0.97305
5. Total, adjusted for Quarterly Payments [3. x 4.]	2.287%	2.483%

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



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Table V-3a shows the development of the FYE 2023 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.

<b>Table V-3a</b>				
<b>Development of the Minimum Municipal Obligation for Fiscal Year End 2023</b>				
(\$ thousands)				
	Non-Uniformed	Police	Fire	Total
Estimated FY 2022-2023 Payroll	\$ 1,217,170	\$ 517,087	\$ 214,510	\$ 1,948,766
Normal Cost % without Expenses	7.717%	13.033%	13.554%	9.770%
Normal Cost without Expenses	\$ 93,924	\$ 67,394	\$ 29,074	\$ 190,391
Amortization Payment	336,881	174,079	66,328	577,287
Administrative Expenses	6,919	2,518	924	10,360
Subtotal	\$ 437,724	\$ 243,991	\$ 96,326	\$ 778,038
Expected Employee Contributions*	(60,619)	(37,488)	(15,865)	(113,972)
Minimum Municipal Obligation	\$ 377,105	\$ 206,502	\$ 80,460	\$ 664,067

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

<b>Table V-3b</b>				
<b>Development of the Revenue Recognition Policy for Fiscal Year End 2023</b>				
(\$ thousands)				
	Non-Uniformed	Police	Fire	Total
Estimated FY 2022-2023 Payroll	\$ 1,217,170	\$ 517,087	\$ 214,510	\$ 1,948,766
Normal Cost % without Expenses	7.717%	13.033%	13.554%	9.770%
Normal Cost without Expenses	\$ 93,924	\$ 67,394	\$ 29,074	\$ 190,391
Amortization Payment	355,103	185,824	70,043	610,970
Administrative Expenses	6,919	2,518	924	10,360
Subtotal	\$ 455,946	\$ 255,736	\$ 100,041	\$ 811,721
Expected Employee Contributions *	(45,771)	(27,688)	(11,761)	(85,220)
Revenue Recognition Policy	\$ 410,175	\$ 228,048	\$ 88,279	\$ 726,501

\* 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.

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Table V-4 Unfunded Liability Payments toward the MMO for Fiscal Year 2023 (\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2021 Balance	Years Left	FY 2023 Payment	7/1/2021 Balance	Years Left	FY 2023 Payment	7/1/2021 Balance	Years Left	FY 2023 Payment	7/1/2021 Balance	Years Left	FY 2023 Payment
<b>Fresh Start Base</b> est. July 1, 2009	\$ 2,293,287	18	\$ 219,116	\$ 1,290,856	18	\$ 123,337	\$ 500,231	18	\$ 47,795	\$ 4,084,374	18	\$ 390,248
<b>Gain/Loss Base</b> est. July 1, 2010	\$ (38,014)	9	\$ (5,534)	\$ (27,106)	9	\$ (3,946)	\$ (2,029)	9	\$ (295)	\$ (67,149)	9	\$ (9,776)
<b>Assumption Change</b> est. July 1, 2010	\$ 32,799	4	\$ 9,104	\$ 13,160	4	\$ 3,653	\$ 12,010	4	\$ 3,334	\$ 57,970	4	\$ 16,090
<b>Gain/Loss</b> est. July 1, 2011	\$ (77,878)	10	\$ (10,535)	\$ (15,781)	10	\$ (2,135)	\$ (15,519)	10	\$ (2,099)	\$ (109,178)	10	\$ (14,769)
<b>Assumption Change</b> est. July 1, 2011	\$ 10,827	5	\$ 2,487	\$ 6,510	5	\$ 1,495	\$ 2,195	5	\$ 504	\$ 19,532	5	\$ 4,487
<b>Gain/Loss</b> est. July 1, 2012	\$ 111,594	11	\$ 14,162	\$ 59,022	11	\$ 7,490	\$ 15,285	11	\$ 1,940	\$ 185,901	11	\$ 23,592
<b>Assumption Change</b> est. July 1, 2012	\$ 32,776	6	\$ 6,489	\$ 18,725	6	\$ 3,707	\$ 6,543	6	\$ 1,295	\$ 58,044	6	\$ 11,491
<b>Gain/Loss</b> est. July 1, 2013	\$ 102,030	12	\$ 12,243	\$ 29,721	12	\$ 3,566	\$ (4,195)	12	\$ (503)	\$ 127,556	12	\$ 15,307
<b>Assumption Change</b> est. July 1, 2013	\$ 47,915	7	\$ 8,405	\$ 28,733	7	\$ 5,040	\$ 9,584	7	\$ 1,681	\$ 86,231	7	\$ 15,125
<b>Gain/Loss</b> est. July 1, 2014	\$ 84,782	13	\$ 9,683	\$ 34,722	13	\$ 3,966	\$ 40,299	13	\$ 4,603	\$ 159,803	13	\$ 18,251
<b>Assumption Change</b> est. July 1, 2014	\$ 173,642	8	\$ 27,537	\$ (6,082)	8	\$ (964)	\$ 6,984	8	\$ 1,107	\$ 174,544	8	\$ 27,680
<b>Gain/Loss</b> est. July 1, 2015	\$ 145,636	14	\$ 15,919	\$ 33,068	14	\$ 3,615	\$ 31,864	14	\$ 3,483	\$ 210,567	14	\$ 23,016
<b>Assumption Change</b> est. July 1, 2015	\$ 20,189	9	\$ 2,939	\$ 29,176	9	\$ 4,248	\$ 9,316	9	\$ 1,356	\$ 58,681	9	\$ 8,543
<b>Gain/Loss</b> est. July 1, 2016	\$ 102,243	15	\$ 10,746	\$ 67,583	15	\$ 7,103	\$ 18,803	15	\$ 1,976	\$ 188,628	15	\$ 19,826
<b>Assumption Change</b> est. July 1, 2016	\$ 22,217	10	\$ 3,005	\$ 13,252	10	\$ 1,793	\$ 4,393	10	\$ 594	\$ 39,862	10	\$ 5,392
<b>Gain/Loss</b> est. July 1, 2017	\$ 74,948	16	\$ 7,605	\$ 60,397	16	\$ 6,129	\$ 14,725	16	\$ 1,494	\$ 150,071	16	\$ 15,229
<b>Assumption Change</b> est. July 1, 2017	\$ 24,133	11	\$ 3,063	\$ 14,543	11	\$ 1,846	\$ 4,819	11	\$ 612	\$ 43,494	11	\$ 5,520

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Table V-4 (Continued)												
Unfunded Liability Payments toward the MMO for Fiscal Year 2023												
(\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2021 Balance	Years Left	FY 2023 Payment	7/1/2021 Balance	Years Left	FY 2023 Payment	7/1/2021 Balance	Years Left	FY 2023 Payment	7/1/2021 Balance	Years Left	FY 2023 Payment
<b>Gain/Loss</b>												
<b>est. July 1, 2018</b>	\$ 15,001	17	\$ 1,475	\$ 23,690	17	\$ 2,329	\$ 8,426	17	\$ 828	\$ 47,117	17	\$ 4,632
<b>Assumption Change</b>												
<b>est. July 1, 2018</b>	\$ 123,663	12	\$ 14,839	\$ (52,883)	12	\$ (6,346)	\$ (17,902)	12	\$ (2,148)	\$ 52,878	12	\$ 6,345
<b>Gain/Loss</b>												
<b>est. July 1, 2019</b>	\$ (76,952)	18	\$ (7,353)	\$ 3,505	18	\$ 335	\$ (1,623)	18	\$ (155)	\$ (75,070)	18	\$ (7,173)
<b>Assumption Change</b>												
<b>est. July 1, 2019</b>	\$ 28,622	13	\$ 3,269	\$ 16,978	13	\$ 1,939	\$ 5,687	13	\$ 650	\$ 51,287	13	\$ 5,858
<b>Plan Change</b>												
<b>est. July 1, 2019</b>	\$ 837	8	\$ 133	\$ 0	8	\$ 0	\$ 0	8	\$ 0	\$ 837	8	\$ 133
<b>Gain/Loss</b>												
<b>est. July 1, 2020</b>	\$ 48,952	19	\$ 4,558	\$ (44,378)	19	\$ (4,132)	\$ (11,799)	19	\$ (1,099)	\$ (7,225)	19	\$ (673)
<b>Assumption Change</b>												
<b>est. July 1, 2020</b>	\$ 30,917	14	\$ 3,379	\$ 17,916	14	\$ 1,958	\$ 6,058	14	\$ 662	\$ 54,891	14	\$ 6,000
<b>Gain/Loss</b>												
<b>est. July 1, 2021</b>	\$ (253,997)	20	\$ (23,100)	\$ 66,307	20	\$ 6,030	\$ (21,473)	20	\$ (1,953)	\$ (209,164)	20	\$ (19,022)
<b>Assumption Change</b>												
<b>est. July 1, 2021</b>	\$ 30,883	15	\$ 3,246	\$ 19,251	15	\$ 2,023	\$ 6,332	15	\$ 666	\$ 56,467	15	\$ 5,935
<b>Total</b>	<b>\$ 3,111,053</b>		<b>\$ 336,881</b>	<b>\$ 1,700,884</b>		<b>\$ 174,079</b>	<b>\$ 629,014</b>		<b>\$ 66,328</b>	<b>\$ 5,440,951</b>		<b>\$ 577,287</b>

Note: Numbers may not add due to rounding.

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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, 2021 for the MMO.

<b>Table V-5a</b>			
<b>Development of the Fiscal Year 2023 Amortization Payment under MMO</b>			
<b>Municipal and Elected</b>			
<b>(\$ thousands)</b>			
	<b>7/1/2021</b>	<b>Remaining</b>	<b>FY 2023</b>
	<b>Outstanding Balance</b>	<b>Years</b>	<b>Payment</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation	\$ 3,334,167		\$ 356,735
2. Changes in UAL due to			
a. Actuarial Experience	\$ (253,997)	20	\$ (23,100)
b. Assumption Changes	30,883	15	3,246
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ (223,114)		\$ (19,854)
3. Total [1c. + 2e.]	\$ 3,111,053		\$ 336,881

Note: Numbers may not add due to rounding.

<b>Table V-5b</b>			
<b>Development of the Fiscal Year 2023 Amortization Payment under MMO</b>			
<b>Police</b>			
<b>(\$ thousands)</b>			
	<b>7/1/2021</b>	<b>Remaining</b>	<b>FY 2023</b>
	<b>Outstanding Balance</b>	<b>Years</b>	<b>Payment</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation	\$ 1,615,325		\$ 166,025
2. Changes in UAL due to			
a. Actuarial Experience	\$ 66,307	20	\$ 6,030
b. Assumption Changes	19,251	15	2,023
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ 85,558		\$ 8,054
3. Total [1c. + 2e.]	\$ 1,700,883		\$ 174,079

Note: Numbers may not add due to rounding.

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<b>Table V-5c</b>			
<b>Development of the Fiscal Year 2023 Amortization Payment under MMO</b>			
<b>Fire</b>			
<b>(\$ thousands)</b>			
	<b>7/1/2021 Outstanding Balance</b>	<b>Remaining Years</b>	<b>FY 2023 Payment</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation	\$ 644,155		\$ 67,615
2. Changes in UAL due to			
a. Actuarial Experience	\$ (21,473)	20	\$ (1,953)
b. Assumption Changes	6,332	15	666
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ (15,141)		\$ (1,287)
3. Total [1c. + 2e.]	\$ 629,014		\$ 66,328

Note: Numbers may not add due to rounding.

<b>Table V-5d</b>			
<b>Development of the Fiscal Year 2023 Amortization Payment under MMO</b>			
<b>Total</b>			
<b>(\$ thousands)</b>			
	<b>7/1/2021 Outstanding Balance</b>	<b>Remaining Years</b>	<b>FY 2023 Payment</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation	\$ 5,593,647		\$ 590,375
2. Changes in UAL due to			
a. Actuarial Experience	\$ (209,164)	20	\$ (19,022)
b. Assumption Changes	56,467	15	5,935
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ (152,697)		\$ (13,087)
3. Total [1c. + 2e.]	\$ 5,440,950		\$ 577,287

Note: Numbers may not add due to rounding.

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**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.

<b>Table V-6 Summary of Modified Actuarial Data (\$ thousands)</b>				
	<b>Municipal</b>	<b>Police</b>	<b>Fire</b>	<b>Total</b>
Actuarial Liability	\$ 6,699,107	\$ 4,013,789	\$ 1,361,140	\$ 12,074,036
Market Value of Assets (less POB)	\$ 3,772,251	\$ 2,529,521	\$ 720,396	\$ 7,022,168
Actuarial Value of Assets (less POB)	\$ 3,300,753	\$ 2,143,466	\$ 644,050	\$ 6,088,269
Unfunded Actuarial Liability (AL - AVA)	\$ 3,398,354	\$ 1,870,323	\$ 717,090	\$ 5,985,767
<b>Amortization Contributions</b>				
Total Amortization Amount	\$ 365,071	\$ 191,284	\$ 75,112	\$ 631,467
Remaining Years	14	16	15	15

Note: Numbers may not add due to rounding.



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Table V-7 Modified Unfunded Liability Payments toward the MMO for Fiscal Year 2023 (\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2021 Balance	Remaining Years	FY 2023 Payment	7/1/2021 Balance	Remaining Years	FY 2023 Payment	7/1/2021 Balance	Remaining Years	FY 2023 Payment	7/1/2021 Balance	Remaining Years	FY 2023 Payment
<b>Fresh Start UAL Base est. July 1, 2009</b>	\$ 2,689,231	18	\$ 256,947	\$ 1,456,623	18	\$ 139,175	\$ 617,090	18	\$ 58,961	\$ 4,762,945	18	\$ 455,083
<b>July 1, 2010 Charges</b>												
Experience (Gain)/Loss	\$ (33,668)	9	\$ (4,902)	\$ (23,552)	9	\$ (3,429)	\$ 1,156	9	\$ 168	\$ (56,064)	9	\$ (8,162)
Assumption Change	32,799	4	9,104	13,160	4	3,653	12,010	4	3,334	57,970	4	16,090
<b>July 1, 2011 Charges</b>												
Experience (Gain)/Loss	\$ (60,930)	10	\$ (8,242)	\$ (6,142)	10	\$ (831)	\$ (8,225)	10	\$ (1,113)	\$ (75,297)	10	\$ (10,186)
Assumption Change	\$ 10,827	5	\$ 2,487	\$ 6,510	5	\$ 1,495	\$ 2,195	5	\$ 504	\$ 19,532	5	\$ 4,487
<b>July 1, 2012 Charges</b>												
Experience (Gain)/Loss	\$ 112,111	11	\$ 14,228	\$ 62,236	11	\$ 7,898	\$ 15,960	11	\$ 2,025	\$ 190,307	11	\$ 24,151
Assumption Change	\$ 32,776	6	\$ 6,489	\$ 18,725	6	\$ 3,707	\$ 6,543	6	\$ 1,295	\$ 58,044	6	\$ 11,491
<b>July 1, 2013 Charges</b>												
Experience (Gain)/Loss	\$ 109,407	12	\$ 13,129	\$ 37,064	12	\$ 4,448	\$ (2,531)	12	\$ (304)	\$ 143,940	12	\$ 17,273
Assumption Change	\$ 47,915	7	\$ 8,405	\$ 28,733	7	\$ 5,040	\$ 9,584	7	\$ 1,681	\$ 86,231	7	\$ 15,125
<b>July 1, 2014 Charges</b>												
Experience (Gain)/Loss	\$ 85,222	13	\$ 9,733	\$ 38,838	13	\$ 4,436	\$ 39,867	13	\$ 4,553	\$ 163,927	13	\$ 18,722
Assumption Change	\$ 173,642	8	\$ 27,537	\$ (6,082)	8	\$ (964)	\$ 6,984	8	\$ 1,107	\$ 174,544	8	\$ 27,680
<b>July 1, 2015 Charges</b>												
Experience (Gain)/Loss	\$ 141,974	14	\$ 15,519	\$ 36,364	14	\$ 3,975	\$ 30,915	14	\$ 3,379	\$ 209,253	14	\$ 22,873
Assumption Change	\$ 20,189	9	\$ 2,939	\$ 29,176	9	\$ 4,248	\$ 9,316	9	\$ 1,356	\$ 58,681	9	\$ 8,543
<b>July 1, 2016 Charges</b>												
Experience (Gain)/Loss	\$ 80,575	15	\$ 8,469	\$ 68,289	15	\$ 7,177	\$ 11,350	15	\$ 1,193	\$ 160,213	15	\$ 16,839
Assumption Change	\$ 22,217	10	\$ 3,005	\$ 13,252	10	\$ 1,793	\$ 4,393	10	\$ 594	\$ 39,862	10	\$ 5,392
<b>July 1, 2017 Charges</b>												
Experience (Gain)/Loss	\$ 48,225	16	\$ 4,894	\$ 58,359	16	\$ 5,922	\$ 5,686	16	\$ 577	\$ 112,270	16	\$ 11,393
Assumption Change	\$ 24,133	11	\$ 3,063	\$ 14,543	11	\$ 1,846	\$ 4,819	11	\$ 612	\$ 43,494	11	\$ 5,520

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Table V-7 (Continued)												
Modified Unfunded Liability Payments toward the MMO for Fiscal Year 2023												
(\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2021 Balance	Remaining Years	FY 2023 Payment	7/1/2021 Balance	Remaining Years	FY 2023 Payment	7/1/2021 Balance	Remaining Years	FY 2023 Payment	7/1/2021 Balance	Remaining Years	FY 2023 Payment
<b>July 1, 2018 Charges</b>												
Experience (Gain)/Loss	\$ (11,528)	17	\$ (1,133)	\$ 21,066	17	\$ 2,071	\$ (275)	17	\$ (27)	\$ 9,263	17	\$ 911
Assumption Change	\$ 123,663	12	\$ 14,839	\$ (52,883)	12	\$ (6,346)	\$ (17,902)	12	\$ (2,148)	\$ 52,878	12	\$ 6,345
<b>July 1, 2019 Charges</b>												
Experience (Gain)/Loss	\$ (98,827)	18	\$ (9,443)	\$ (1,721)	18	\$ (164)	\$ (8,664)	18	\$ (828)	\$ (109,212)	18	\$ (10,435)
Assumption Change	\$ 28,622	13	\$ 3,269	\$ 16,978	13	\$ 1,939	\$ 5,687	13	\$ 650	\$ 51,287	13	\$ 5,858
Plan Change	\$ 837	8	\$ 133	\$ 0	8	\$ 0	\$ 0	8	\$ 0	\$ 837	8	\$ 133
<b>July 1, 2020 Charges</b>												
Experience (Gain)/Loss	\$ 30,231	19	\$ 2,815	\$ (53,156)	19	\$ (4,949)	\$ (15,966)	19	\$ (1,487)	\$ (38,890)	19	\$ (3,621)
Assumption Change	\$ 30,917	14	\$ 3,379	\$ 17,916	14	\$ 1,958	\$ 6,058	14	\$ 662	\$ 54,891	14	\$ 6,000
<b>July 1, 2021 Charges</b>												
Experience (Gain)/Loss	\$ (273,092)	20	\$ (24,836)	\$ 56,775	20	\$ 5,163	\$ (25,289)	20	\$ (2,300)	\$ (241,606)	20	\$ (21,973)
Assumption Change	\$ 30,883	15	\$ 3,246	\$ 19,251	15	\$ 2,023	\$ 6,332	15	\$ 666	\$ 56,467	15	\$ 5,935
<b>Total</b>	\$ 3,398,354		\$ 365,071	\$ 1,870,324		\$ 191,284	\$ 717,090		\$ 75,112	\$ 5,985,768		\$ 631,467

Note: Numbers may not add due to rounding.

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**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  
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**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

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**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

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**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, 2020	\$ 2,953,937,072	\$ 1,971,672,202	\$ 548,119,576	\$ 5,473,728,849
<b>Receipts</b>				
Employer Contributions	\$ 452,106,342	\$ 221,845,139	\$ 93,665,499	\$ 767,616,980
Employee Contributions	58,684,645	37,072,376	15,515,779	111,272,800
State Aid	47,342,478	24,011,364	9,953,898	81,307,740
Supplemental State Assistance	0	0	0	0
Investment Income (includes investment expenses)	842,832,203	562,887,988	158,548,413	1,564,268,604
Other Receipts	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Receipts</b>	<b>\$ 1,400,965,668</b>	<b>\$ 845,816,867</b>	<b>\$ 277,683,589</b>	<b>\$ 2,524,466,124</b>
<b>Disbursements</b>				
Benefit Payments	\$ 522,823,542	\$ 263,469,361	\$ 97,310,790	\$ 883,603,693
Refund of Contributions	5,667,254	1,739,436	434,580	7,841,270
Administrative Expenses	6,501,870	2,351,468	855,494	9,708,832
PAF Transfer at Year End	47,659,304	20,408,025	6,806,298	74,873,627
Other Disbursements	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Disbursements</b>	<b>\$ 582,651,970</b>	<b>\$ 287,968,290</b>	<b>\$ 105,407,162</b>	<b>\$ 976,027,422</b>
Assets as of July 1, 2021	\$ 3,772,250,769	\$ 2,529,520,779	\$ 720,396,003	\$ 7,022,167,551

Note: Numbers may not add due to rounding.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**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.

<b>Table V-9b</b>				
<b>Receipts and Disbursements Including Bond Issue Assets</b>				
	<b>Municipal</b>	<b>Police</b>	<b>Fire</b>	<b>Total</b>
Assets as of July 1, 2020	\$ 3,123,704,713	\$ 2,039,540,424	\$ 618,401,959	\$ 5,781,647,095
<b>Receipts</b>				
Employer Contributions	\$ 420,241,538	\$ 202,844,713	\$ 84,089,166	\$ 707,175,417
Employee Contributions	58,684,645	37,072,376	15,515,779	111,272,800
State Aid	47,342,478	24,011,364	9,953,898	81,307,740
Supplemental State Assistance	0	0	0	0
Investment Income (includes investment expenses)	883,375,225	580,464,787	179,296,098	1,643,136,110
Other Receipts	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Receipts</b>	<b>\$ 1,409,643,886</b>	<b>\$ 844,393,240</b>	<b>\$ 288,854,941</b>	<b>\$ 2,542,892,067</b>
<b>Disbursements</b>				
Benefit Payments	\$ 522,823,542	\$ 263,469,361	\$ 97,310,790	\$ 883,603,693
Refund of Contributions	5,667,254	1,739,436	434,580	7,841,270
Administrative Expenses	6,501,870	2,351,468	855,494	9,708,832
PAF Transfer at Year End	47,659,304	20,408,025	6,806,298	74,873,627
Other Disbursements	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Disbursements</b>	<b>\$ 582,651,970</b>	<b>\$ 287,968,290</b>	<b>\$ 105,407,162</b>	<b>\$ 976,027,422</b>
Assets as of July 1, 2021	\$ 3,950,696,629	\$ 2,595,965,374	\$ 801,849,738	\$ 7,348,511,741

Note: Numbers may not add due to rounding.



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION**

Table V – 10 and Table V – 11 provide information on the City’s Funding Policy for FYE 2021 and FYE 2022. 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, 2021 valuation report will determine FYE 2023 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 2023 and updated FYE 2022 contribution amount under the City’s Funding Policy. The estimated FYE 2023 contribution will be updated in next year’s actuarial valuation report based upon the July 1, 2022 payroll.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION**

Table V-10 Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy					
Total (\$ thousands)					
	7/1/2021 Outstanding Balance	7/1/2022 Expected Balance	Remaining Years	FY 2023 Payment Beginning-of-Year	FY 2023 Payment End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
Remaining	\$ 5,449,186	\$ 5,106,808		\$ 670,744	\$ 720,714
2. Changes in UAL due to					
a. Actuarial Experience	\$ (64,702)	\$ (69,522)	20	\$ (6,323)	\$ (6,794)
b. Assumption Changes	56,467	60,674	15	6,377	6,852
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (8,235)	\$ (8,848)		\$ 54	\$ 58
3. Total [1c. + 2e.]	\$ 5,440,951	\$ 5,097,960		\$ 670,798	\$ 720,772

Table V-11 City's Funding Policy Contributions*					
Fiscal Year	2023	% of Pay	2022	% of Pay	
Estimated FY Payroll	\$ 1,948,766		\$ 1,886,512	**	
Normal Cost (with Expenses)	\$ 200,751	10.30%	\$ 193,668	10.27%	
Employee Contributions	<u>(113,972)</u>	5.85%	<u>(111,463)</u>	5.91%	
City Normal Cost	\$ 86,779	4.45%	\$ 82,205	4.36%	
Amortization Payment	<u>670,798</u>	34.42%	<u>697,894</u>	36.99%	
City's Funding Policy	\$ 757,577	38.87%	\$ 780,099	41.35%	

\* Assuming beginning-of-year payment.

\*\* FY 2022 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  
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**APPENDIX A – MEMBERSHIP INFORMATION**

The data for this valuation was provided by the Board of Pensions as of July 1, 2021. 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, 2021 ACTUARIAL VALUATION**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-1  
Active Member Data**

	July 1, 2021	July 1, 2020	% Change		July 1, 2021	July 1, 2020	% Change
<b><u>1967 Municipal</u></b>				<b><u>1987 Elected</u></b>			
Count	704	904	-22.1%	Count	22	23	-4.3%
Average Age	58.0	57.2	1.3%	Average Age	54.6	53.7	1.8%
Average Service	32.4	32.2	0.4%	Average Service	15.1	15.5	-2.2%
Average Salary	\$ 73,851	\$ 81,035	-8.9%	Average Salary	\$ 145,469	\$ 142,258	2.3%
Total Annual Salary	\$ 51,991,304	\$ 73,255,916	-29.0%	Total Annual Salary	\$ 3,200,320	\$ 3,271,935	-2.2%
<b><u>1967 Police</u></b>				<b><u>1987 Police</u></b>			
Count	122	172	-29.1%	Count	5,429	5,868	-7.5%
Average Age	59.3	58.5	1.5%	Average Age	42.6	42.1	1.1%
Average Service	34.3	34.1	0.5%	Average Service	16.2	15.9	1.8%
Average Salary	\$ 102,291	\$ 97,363	5.1%	Average Salary	\$ 89,904	\$ 84,889	5.9%
Total Annual Salary	\$ 12,479,487	\$ 16,746,388	-25.5%	Total Annual Salary	\$ 488,088,685	\$ 498,127,512	-2.0%
<b><u>1967 Fire</u></b>				<b><u>1987 Fire</u></b>			
Count	56	64	-12.5%	Count	2,414	2,485	-2.9%
Average Age	61.0	60.2	1.3%	Average Age	41.9	41.2	1.6%
Average Service	35.4	34.9	1.4%	Average Service	12.9	12.6	3.0%
Average Salary	\$ 101,849	\$ 99,651	2.2%	Average Salary	\$ 83,659	\$ 83,250	0.5%
Total Annual Salary	\$ 5,703,547	\$ 6,377,659	-10.6%	Total Annual Salary	\$ 201,953,644	\$ 206,876,105	-2.4%
<b><u>1987 Municipal</u></b>				<b><u>2010 Municipal</u></b>			
Count	12,993	14,127	-8.0%	Count	1,109	1,276	-13.1%
Average Age	47.6	46.9	1.4%	Average Age	40.7	39.1	4.1%
Average Service	13.6	13.8	-0.9%	Average Service	5.0	4.0	25.2%
Average Salary	\$ 65,339	\$ 61,807	5.7%	Average Salary	\$ 59,645	\$ 55,928	6.6%
Total Annual Salary	\$ 848,951,261	\$ 873,143,803	-2.8%	Total Annual Salary	\$ 66,146,801	\$ 71,363,783	-7.3%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-1 Active Member Data (continued)</b>							
	<b>July 1, 2021</b>	<b>July 1, 2020</b>	<b>% Change</b>		<b>July 1, 2021</b>	<b>July 1, 2020</b>	<b>% Change</b>
<b><u>2016 Municipal</u></b>				<b><u>Total City</u></b>			
Count	4,171	3,973	5.0%	Count	27,020	28,892	-6.5%
Average Age	39.0	38.1	2.2%	Average Age	44.8	44.3	1.1%
Average Service	2.4	1.7	40.0%	Average Service	12.6	12.8	-1.0%
Average Salary	\$ 49,867	\$ 43,306	15.2%	Average Salary	\$ 69,819	\$ 66,497	5.0%
Total Annual Salary	\$ 207,996,466	\$ 172,054,352	20.9%	Total Annual Salary	\$ 1,886,511,515	\$ 1,921,217,453	-1.8%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-2 Non-Active Member Data Count</b>							
	<b>July 1, 2021</b>	<b>July 1, 2020</b>	<b>% Change</b>		<b>July 1, 2021</b>	<b>July 1, 2020</b>	<b>% Change</b>
<b><u>Total City</u></b>				<b><u>1987 Municipal Plan</u></b>			
Retired	22,202	22,249	-0.2%	Retired	3,568	3,205	11.3%
Disabled	3,796	3,833	-1.0%	Disabled	710	643	10.4%
Beneficiary	<u>8,445</u>	<u>8,471</u>	-0.3%	Beneficiary	<u>597</u>	<u>559</u>	6.8%
In Pay Status Total	34,443	34,553	-0.3%	In Pay Status Total	4,875	4,407	10.6%
DROP	1,878	1,642	14.4%	DROP	650	600	8.3%
Deferred Vested	900	929	-3.1%	Deferred Vested	694	700	-0.9%
<b><u>1967 Municipal Plan</u></b>				<b><u>1987 Elected Plan</u></b>			
Retired	11,326	11,655	-2.8%	Retired	21	23	-8.7%
Disabled	1,166	1,232	-5.4%	Disabled	0	0	0.0%
Beneficiary	<u>4,532</u>	<u>4,599</u>	-1.5%	Beneficiary	<u>4</u>	<u>4</u>	0.0%
In Pay Status Total	17,024	17,486	-2.6%	In Pay Status Total	25	27	-7.4%
DROP	499	533	-6.4%	DROP	0	0	0.0%
Deferred Vested	133	153	-13.1%	Deferred Vested	0	0	0.0%
<b><u>1967 Police Plan</u></b>				<b><u>1987 Police Plan</u></b>			
Retired	4,601	4,748	-3.1%	Retired	744	637	16.8%
Disabled	1,030	1,096	-6.0%	Disabled	568	533	6.6%
Beneficiary	<u>2,235</u>	<u>2,269</u>	-1.5%	Beneficiary	<u>210</u>	<u>184</u>	14.1%
In Pay Status Total	7,866	8,113	-3.0%	In Pay Status Total	1,522	1,354	12.4%
DROP	153	149	2.7%	DROP	457	265	72.5%
Deferred Vested	0	0	0.0%	Deferred Vested	65	68	-4.4%
<b><u>1967 Fire Plan</u></b>				<b><u>1987 Fire Plan</u></b>			
Retired	1,709	1,773	-3.6%	Retired	233	208	12.0%
Disabled	231	245	-5.7%	Disabled	91	84	8.3%
Beneficiary	<u>786</u>	<u>777</u>	1.2%	Beneficiary	<u>81</u>	<u>79</u>	2.5%
In Pay Status Total	2,726	2,795	-2.5%	In Pay Status Total	405	371	9.2%
DROP	38	36	5.6%	DROP	81	59	37.3%
Deferred Vested	0	0	0.0%	Deferred Vested	7	7	0.0%
<b><u>2010 Municipal Plan</u></b>				<b><u>2016 Municipal Plan</u></b>			
Deferred Vested	0	0	0.0%	Deferred Vested	1	1	0.0%

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-3 Non-Active Member Data Total Annual Benefit</b>							
	July 1, 2021	July 1, 2020	% Change		July 1, 2021	July 1, 2020	% Change
<b>Total City</b>				<b>1987 Municipal Plan</b>			
Retired	\$ 624,303,167	\$ 613,425,464	1.8%	Retired	\$ 56,249,712	\$ 48,062,551	17.0%
Disabled	91,816,078	89,694,509	2.4%	Disabled	14,734,972	12,904,443	14.2%
Beneficiary	88,787,233	85,903,070	3.4%	Beneficiary	5,220,286	4,724,310	10.5%
In Pay Status Total	\$ 804,906,478	\$ 789,023,043	2.0%	In Pay Status Total	\$ 76,204,970	\$ 65,691,304	16.0%
DROP (pension)	\$ 82,362,388	\$ 66,439,835	24.0%	DROP (pension)	\$ 14,610,994	\$ 12,236,239	19.4%
DROP (account balance)	158,380,739	155,614,261	1.8%	DROP (account balance)	27,900,293	27,223,471	2.5%
Deferred Vested	\$ 12,482,106	\$ 12,973,470	-3.8%	Deferred Vested	\$ 9,263,595	\$ 9,409,002	-1.5%
<b>1967 Municipal Plan</b>				<b>1987 Elected Plan</b>			
Retired	\$ 323,958,575	\$ 324,532,951	-0.2%	Retired	\$ 1,657,166	\$ 1,800,713	-8.0%
Disabled	23,671,189	24,520,547	-3.5%	Disabled	0	0	0.0%
Beneficiary	43,948,995	43,131,363	1.9%	Beneficiary	124,932	118,681	5.3%
In Pay Status Total	\$ 391,578,759	\$ 392,184,861	-0.2%	In Pay Status Total	\$ 1,782,098	\$ 1,919,394	-7.2%
DROP (pension)	\$ 25,802,482	\$ 26,223,128	-1.6%	DROP (pension)	\$ 0	\$ 0	0.0%
DROP (account balance)	58,191,134	64,499,067	-9.8%	DROP (account balance)	0	0	0.0%
Deferred Vested	\$ 2,020,142	\$ 2,336,843	-13.6%	Deferred Vested	\$ 0	\$ 0	0.0%
<b>1967 Police Plan</b>				<b>1987 Police Plan</b>			
Retired	\$ 146,561,443	\$ 147,679,475	-0.8%	Retired	\$ 24,326,450	\$ 19,460,498	25.0%
Disabled	20,843,487	21,743,531	-4.1%	Disabled	24,085,786	22,173,986	8.6%
Beneficiary	24,043,318	23,741,426	1.3%	Beneficiary	3,663,507	2,862,327	28.0%
In Pay Status Total	\$ 191,448,248	\$ 193,164,432	-0.9%	In Pay Status Total	\$ 52,075,743	\$ 44,496,811	17.0%
DROP (pension)	\$ 12,419,839	\$ 11,207,260	10.8%	DROP (pension)	\$ 22,395,218	\$ 11,596,960	93.1%
DROP (account balance)	27,060,063	27,435,326	-1.4%	DROP (account balance)	30,775,171	23,917,654	28.7%
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 1,046,330	\$ 1,073,182	-2.5%
<b>1967 Fire Plan</b>				<b>1987 Fire Plan</b>			
Retired	\$ 64,625,377	\$ 66,163,147	-2.3%	Retired	\$ 6,924,444	\$ 5,726,129	20.9%
Disabled	4,728,828	4,993,762	-5.3%	Disabled	3,751,816	3,358,240	11.7%
Beneficiary	10,523,670	10,134,253	3.8%	Beneficiary	1,262,525	1,190,710	6.0%
In Pay Status Total	\$ 79,877,875	\$ 81,291,162	-1.7%	In Pay Status Total	\$ 11,938,785	\$ 10,275,079	16.2%
DROP (pension)	\$ 2,982,478	\$ 2,654,538	12.4%	DROP (pension)	\$ 4,151,377	\$ 2,521,710	64.6%
DROP (account balance)	7,443,292	6,754,159	10.2%	DROP (account balance)	7,010,786	5,784,584	21.2%
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 118,534	\$ 120,938	-2.0%
<b>2010 Municipal Plan</b>				<b>2016 Municipal Plan</b>			
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 33,505	\$ 33,505	0.0%



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<b>Table A-4 Non-Active Member Data Average Annual Benefit</b>								
	July 1, 2021	July 1, 2020	% Change		July 1, 2021	July 1, 2020	% Change	
<b><u>Total City</u></b>				<b><u>1987 Municipal Plan</u></b>				
Retired	\$ 28,119	\$ 27,571	2.0%	Retired	\$ 15,765	\$ 14,996	5.1%	
Disabled	24,188	23,401	3.4%	Disabled	20,753	20,069	3.4%	
Beneficiary	10,514	10,141	3.7%	Beneficiary	8,744	8,451	3.5%	
In Pay Status Total	\$ 23,369	\$ 22,835	2.3%	In Pay Status Total	\$ 15,632	\$ 14,906	4.9%	
DROP (pension)	\$ 43,856	\$ 40,463	8.4%	DROP (pension)	\$ 22,478	\$ 20,394	10.2%	
DROP (account balance)	84,335	94,771	-11.0%	DROP (account balance)	42,924	45,372	-5.4%	
Deferred Vested	\$ 13,869	\$ 13,965	-0.7%	Deferred Vested	\$ 13,348	\$ 13,441	-0.7%	
<b><u>1967 Municipal Plan</u></b>				<b><u>1987 Elected Plan</u></b>				
Retired	\$ 28,603	\$ 27,845	2.7%	Retired	\$ 78,913	\$ 78,292	0.8%	
Disabled	20,301	19,903	2.0%	Disabled	0	0	0.0%	
Beneficiary	9,697	9,378	3.4%	Beneficiary	31,233	29,670	5.3%	
In Pay Status Total	\$ 23,002	\$ 22,429	2.6%	In Pay Status Total	\$ 71,284	\$ 71,089	0.3%	
DROP (pension)	\$ 51,708	\$ 49,199	5.1%	DROP (pension)	\$ 0	\$ 0	0.0%	
DROP (account balance)	116,615	121,011	-3.6%	DROP (account balance)	0	0	0.0%	
Deferred Vested	\$ 15,189	\$ 15,273	-0.6%	Deferred Vested	\$ 0	\$ 0	0.0%	
<b><u>1967 Police Plan</u></b>				<b><u>1987 Police Plan</u></b>				
Retired	\$ 31,854	\$ 31,104	2.4%	Retired	\$ 32,697	\$ 30,550	7.0%	
Disabled	20,236	19,839	2.0%	Disabled	42,405	41,602	1.9%	
Beneficiary	10,758	10,463	2.8%	Beneficiary	17,445	15,556	12.1%	
In Pay Status Total	\$ 24,339	\$ 23,809	2.2%	In Pay Status Total	\$ 34,215	\$ 32,863	4.1%	
DROP (pension)	\$ 81,175	\$ 75,217	7.9%	DROP (pension)	\$ 49,005	\$ 43,762	12.0%	
DROP (account balance)	176,863	184,130	-3.9%	DROP (account balance)	67,342	90,255	-25.4%	
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 16,097	\$ 15,782	2.0%	
<b><u>1967 Fire Plan</u></b>				<b><u>1987 Fire Plan</u></b>				
Retired	\$ 37,815	\$ 37,317	1.3%	Retired	\$ 29,719	\$ 27,529	8.0%	
Disabled	20,471	20,383	0.4%	Disabled	41,229	39,979	3.1%	
Beneficiary	13,389	13,043	2.7%	Beneficiary	15,587	15,072	3.4%	
In Pay Status Total	\$ 29,302	\$ 29,084	0.7%	In Pay Status Total	\$ 29,478	\$ 27,696	6.4%	
DROP (pension)	\$ 78,486	\$ 73,737	6.4%	DROP (pension)	\$ 51,252	\$ 42,741	19.9%	
DROP (account balance)	195,876	187,616	4.4%	DROP (account balance)	86,553	98,044	-11.7%	
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 16,933	\$ 17,277	-2.0%	
<b><u>2010 Municipal Plan</u></b>				<b><u>2016 Municipal Plan</u></b>				
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 33,505	\$ 33,505	0.0%	

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-5  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	60	236	28	0	0	0	0	0	0	324
25 to 29	163	1,613	430	7	0	0	0	0	0	2,213
30 to 34	111	1,519	1,546	322	8	0	0	0	0	3,506
35 to 39	92	910	1,229	1,108	321	5	0	0	0	3,665
40 to 44	56	671	786	790	942	355	4	1	0	3,605
45 to 49	35	491	517	542	745	948	266	2	0	3,546
50 to 54	51	445	481	467	600	945	786	282	0	4,057
55 to 59	27	321	409	382	480	607	599	581	0	3,406
60 to 64	21	233	335	232	261	262	231	305	0	1,880
65 & up	7	136	211	153	102	77	39	93	0	818
<b>Total</b>	<b>623</b>	<b>6,575</b>	<b>5,972</b>	<b>4,003</b>	<b>3,459</b>	<b>3,199</b>	<b>1,925</b>	<b>1,264</b>	<b>0</b>	<b>27,020</b>

**Table A-6  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 42,683	\$ 50,226	\$ 38,312	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,799
25 to 29	46,828	60,676	66,511	46,953	0	0	0	0	0	60,747
30 to 34	52,252	60,589	70,743	72,920	57,575	0	0	0	0	65,928
35 to 39	61,948	60,515	71,207	77,923	76,760	68,894	0	0	0	70,834
40 to 44	53,024	59,137	67,290	77,218	80,196	86,056	68,101	62,407	0	72,946
45 to 49	58,649	55,979	68,264	74,167	78,768	84,252	87,896	55,516	0	75,317
50 to 54	53,803	51,589	62,995	67,544	74,116	79,627	88,401	89,175	0	74,413
55 to 59	48,391	55,370	61,302	58,826	68,531	70,112	80,993	87,066	0	70,810
60 to 64	57,645	53,988	54,667	56,186	62,465	66,317	76,120	86,773	0	65,354
65 & up	73,330	54,816	57,544	57,182	55,572	69,644	69,130	78,237	0	60,956
<b>Total</b>	<b>\$ 52,150</b>	<b>\$ 58,518</b>	<b>\$ 67,074</b>	<b>\$ 71,733</b>	<b>\$ 74,780</b>	<b>\$ 78,558</b>	<b>\$ 84,120</b>	<b>\$ 86,747</b>	<b>\$ 0</b>	<b>\$ 69,819</b>

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-7  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	1	0	1	7	2		11
50 to 54	0	1	0	0	0	2	45	98		146
55 to 59	0	2	1	1	2	3	46	281		336
60 to 64	0	2	0	1	1	3	16	124		147
65 & up	0	1	0	0	0	2	6	55		64
<b>Total</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>11</b>	<b>120</b>	<b>560</b>		<b>704</b>

**Table A-8  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	64,486	0	69,689	63,108	55,516		62,451
50 to 54	0	40,100	0	0	0	109,517	77,258	74,633		75,683
55 to 59	0	59,688	61,107	47,600	79,268	59,745	65,694	74,846		73,272
60 to 64	0	68,866	0	62,075	122,596	45,415	69,683	78,167		76,641
65 & up	0	70,000	0	0	0	81,804	65,234	68,069		68,263
<b>Total</b>	<b>\$ 0</b>	<b>\$ 61,201</b>	<b>\$ 61,107</b>	<b>\$ 58,054</b>	<b>\$ 93,710</b>	<b>\$ 69,801</b>	<b>\$ 70,389</b>	<b>\$ 74,809</b>		<b>\$ 73,851</b>

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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-9  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	4	8		12
55 to 59	0	0	1	1	1	0	1	51		55
60 to 64	0	0	0	0	0	0	0	44		44
65 & up	0	0	0	0	0	0	0	11		11
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>114</b>		<b>122</b>

**Table A-10  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	91,198	92,885		92,323
55 to 59	0	0	86,102	84,460	87,493	0	114,302	107,702		106,640
60 to 64	0	0	0	0	0	0	0	100,030		100,030
65 & up	0	0	0	0	0	0	0	100,466		100,466
<b>Total</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 86,102</b>	<b>\$ 84,460</b>	<b>\$ 87,493</b>	<b>\$ 0</b>	<b>\$ 95,818</b>	<b>\$ 103,003</b>		<b>\$ 102,291</b>

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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-11  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	3	3
55 to 59	0	0	0	0	0	1	1	13		15
60 to 64	0	0	0	0	0	1	0	30		31
65 & up	0	0	0	0	0	0	0	7		7
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>53</b>		<b>56</b>

**Table A-12  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	92,701		92,701
55 to 59	0	0	0	0	0	86,002	83,635	106,608		103,703
60 to 64	0	0	0	0	0	82,680	0	101,786		101,169
65 & up	0	0	0	0	0	0	0	104,807		104,807
<b>Total</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 84,341</b>	<b>\$ 83,635</b>	<b>\$ 102,853</b>		<b>\$ 101,849</b>

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**Table A-13  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	27	24	0	0	0	0	0	0	51
25 to 29	0	211	201	6	0	0	0	0	0	418
30 to 34	0	260	804	201	8	0	0	0	0	1,273
35 to 39	2	183	730	565	173	4	0	0	0	1,657
40 to 44	2	149	549	469	519	135	4	1	1	1,828
45 to 49	1	97	403	364	444	399	82	0	0	1,790
50 to 54	3	74	397	384	409	543	284	25	25	2,119
55 to 59	0	70	334	375	424	461	297	68	68	2,029
60 to 64	0	62	286	230	247	223	157	44	44	1,249
65 & up	1	28	189	153	100	71	28	9	9	579
<b>Total</b>	<b>9</b>	<b>1,161</b>	<b>3,917</b>	<b>2,747</b>	<b>2,324</b>	<b>1,836</b>	<b>852</b>	<b>147</b>	<b>147</b>	<b>12,993</b>

**Table A-14  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 40,026	\$ 37,299	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 38,743
25 to 29	0	55,616	57,145	41,678	0	0	0	0	0	56,151
30 to 34	0	61,959	63,596	62,961	57,575	0	0	0	0	63,124
35 to 39	66,183	71,378	66,417	67,022	63,624	64,135	0	0	0	66,874
40 to 44	44,708	69,266	63,071	69,228	70,156	72,167	68,101	62,407	62,407	67,829
45 to 49	51,109	71,772	66,668	67,417	70,942	71,878	73,250	0	0	69,611
50 to 54	45,182	61,526	60,804	63,345	67,493	70,398	75,240	73,717	73,717	67,104
55 to 59	0	70,324	60,972	58,399	65,739	64,164	71,756	85,795	85,795	64,951
60 to 64	0	66,382	53,867	55,813	60,911	62,757	68,037	76,999	76,999	60,423
65 & up	73,246	74,524	56,623	57,182	54,864	67,730	65,301	62,236	62,236	59,230
<b>Total</b>	<b>\$ 53,520</b>	<b>\$ 64,554</b>	<b>\$ 62,319</b>	<b>\$ 63,921</b>	<b>\$ 66,861</b>	<b>\$ 68,240</b>	<b>\$ 72,147</b>	<b>\$ 79,507</b>	<b>\$ 79,507</b>	<b>\$ 65,339</b>

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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-15  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0	0	0	0	0	0
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	1	2	0	0	0	0	0	3
50 to 54	0	0	4	1	0	0	0	1	6
55 to 59	0	1	2	0	0	0	0	0	3
60 to 64	0	1	0	1	0	0	2	1	5
65 & up	0	0	0	0	0	0	0	2	2
<b>Total</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>22</b>

**Table A-16  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0	0	0	0	0	0
35 to 39	0	136,083	0	136,083	0	0	0	0	136,083
40 to 44	0	136,083	0	0	0	0	0	0	136,083
45 to 49	0	136,083	140,943	0	0	0	0	0	139,323
50 to 54	0	0	136,083	136,083	0	0	0	136,083	136,083
55 to 59	0	136,083	142,332	0	0	0	0	0	140,249
60 to 64	0	185,665	0	136,083	0	0	182,602	143,026	165,995
65 & up	0	0	0	0	0	0	0	153,441	153,441
<b>Total</b>	<b>\$ 0</b>	<b>\$ 145,999</b>	<b>\$ 138,860</b>	<b>\$ 136,083</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 182,602</b>	<b>\$ 146,498</b>	<b>\$ 145,469</b>



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**Table A-17  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0	37	0	0	0	0	0	0	0	37
25 to 29	0	489	93	0	0	0	0	0	0	582
30 to 34	0	295	339	106	0	0	0	0	0	740
35 to 39	0	76	151	412	117	1	0	0	0	757
40 to 44	0	38	57	215	311	207	0	0	0	828
45 to 49	1	14	20	126	193	454	154	0	0	962
50 to 54	0	5	10	56	107	293	344	142	0	957
55 to 59	0	0	2	2	29	98	154	148	0	433
60 to 64	0	0	2	0	5	26	35	45	0	113
65 & up	0	0	2	0	1	4	5	8	0	20
<b>Total</b>	<b>1</b>	<b>954</b>	<b>676</b>	<b>917</b>	<b>763</b>	<b>1,083</b>	<b>692</b>	<b>343</b>	<b>0</b>	<b>5,429</b>

**Table A-18  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 0	\$ 71,804	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 71,804
25 to 29	0	79,382	86,401	0	0	0	0	0	0	80,504
30 to 34	0	81,205	87,171	89,751	0	0	0	0	0	85,162
35 to 39	0	81,005	87,777	89,860	92,767	87,926	0	0	0	89,002
40 to 44	0	81,059	87,680	89,713	93,285	94,526	0	0	0	91,721
45 to 49	67,704	81,164	86,441	89,349	90,705	93,097	95,733	0	0	92,210
50 to 54	0	80,970	87,143	87,365	89,302	91,256	97,189	100,912	0	94,278
55 to 59	0	0	89,560	86,815	92,628	90,759	92,714	99,314	0	94,480
60 to 64	0	0	90,519	0	87,315	89,510	96,449	93,369	0	93,117
65 & up	0	0	90,381	0	87,493	97,535	95,245	92,844	0	93,869
<b>Total</b>	<b>\$ 67,704</b>	<b>\$ 79,882</b>	<b>\$ 87,248</b>	<b>\$ 89,584</b>	<b>\$ 91,922</b>	<b>\$ 92,586</b>	<b>\$ 95,818</b>	<b>\$ 99,045</b>	<b>\$ 0</b>	<b>\$ 89,904</b>

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**Table A-19  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	0	17	0	0	0	0	0	0	17
25 to 29	3	121	69	1	0	0	0	0	194
30 to 34	4	148	239	15	0	0	0	0	406
35 to 39	1	83	233	130	31	0	0	0	478
40 to 44	1	37	106	106	112	13	0	0	375
45 to 49	1	21	31	51	108	94	23	0	329
50 to 54	0	9	17	26	84	107	109	5	357
55 to 59	0	1	6	3	24	44	100	20	198
60 to 64	0	1	2	0	8	9	21	17	58
65 & up	0	0	0	0	1	0	0	1	2
<b>Total</b>	<b>10</b>	<b>438</b>	<b>703</b>	<b>332</b>	<b>368</b>	<b>267</b>	<b>253</b>	<b>43</b>	<b>2,414</b>

**Table A-20  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 0	\$ 62,736	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 62,736
25 to 29	66,141	66,561	78,211	78,600	0	0	0	0	70,760
30 to 34	66,141	67,312	79,303	87,428	0	0	0	0	75,103
35 to 39	66,141	67,788	81,580	87,025	89,662	0	0	0	81,158
40 to 44	66,141	69,950	80,171	87,227	90,381	95,403	0	0	84,697
45 to 49	66,141	73,358	79,521	85,026	89,614	94,212	95,184	0	88,546
50 to 54	0	67,063	78,823	84,234	87,024	94,057	99,456	100,751	92,023
55 to 59	0	65,599	79,474	88,751	87,061	86,782	97,054	107,116	93,759
60 to 64	0	72,160	74,828	0	87,390	92,679	97,429	93,264	92,871
65 & up	0	0	0	0	94,512	0	0	83,753	89,133
<b>Total</b>	<b>\$ 66,141</b>	<b>\$ 67,532</b>	<b>\$ 80,068</b>	<b>\$ 86,572</b>	<b>\$ 89,059</b>	<b>\$ 92,932</b>	<b>\$ 97,950</b>	<b>\$ 100,357</b>	<b>\$ 83,659</b>

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**Table A-21  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	7	1	0	0	0	0	0	8
25 to 29	0	97	63	0	0	0	0	0	160
30 to 34	0	124	155	0	0	0	0	0	279
35 to 39	0	71	111	0	0	0	0	0	182
40 to 44	0	51	69	0	0	0	0	0	120
45 to 49	0	30	56	0	0	0	0	0	86
50 to 54	0	45	47	0	0	0	0	0	92
55 to 59	0	29	59	0	0	0	0	0	88
60 to 64	0	16	42	0	0	0	0	0	58
65 & up	0	18	18	0	0	0	0	0	36
<b>Total</b>	<b>0</b>	<b>488</b>	<b>621</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,109</b>

**Table A-22  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 38,639	\$ 47,394	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 39,733
25 to 29	0	50,731	55,940	0	0	0	0	0	52,782
30 to 34	0	58,589	59,176	0	0	0	0	0	58,915
35 to 39	0	64,227	58,318	0	0	0	0	0	60,623
40 to 44	0	63,333	64,099	0	0	0	0	0	63,773
45 to 49	0	61,109	63,924	0	0	0	0	0	62,942
50 to 54	0	59,706	65,481	0	0	0	0	0	62,656
55 to 59	0	51,156	58,332	0	0	0	0	0	55,967
60 to 64	0	77,563	55,725	0	0	0	0	0	61,749
65 & up	0	78,225	64,909	0	0	0	0	0	71,567
<b>Total</b>	<b>\$ 0</b>	<b>\$ 59,219</b>	<b>\$ 59,980</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 59,645</b>

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**Table A-23  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	60	148	3	0	0	0	0	0	211
25 to 29	160	695	4	0	0	0	0	0	859
30 to 34	107	692	9	0	0	0	0	0	808
35 to 39	89	496	4	0	0	0	0	0	589
40 to 44	53	395	5	0	0	0	0	0	453
45 to 49	32	328	5	0	0	0	0	0	365
50 to 54	48	311	6	0	0	0	0	0	365
55 to 59	27	218	4	0	0	0	0	0	249
60 to 64	21	151	3	0	0	0	0	0	175
65 & up	6	89	2	0	0	0	0	0	97
<b>Total</b>	<b>603</b>	<b>3,523</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,171</b>

**Table A-24  
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2021 -- 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	\$ 42,683	\$ 45,803	\$ 43,386	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 44,882
25 to 29	46,466	49,415	39,359	0	0	0	0	0	48,819
30 to 34	51,733	50,206	62,283	0	0	0	0	0	50,542
35 to 39	61,806	51,467	73,214	0	0	0	0	0	53,177
40 to 44	53,091	51,457	69,016	0	0	0	0	0	51,842
45 to 49	58,368	48,407	73,885	0	0	0	0	0	49,629
50 to 54	54,341	47,166	54,651	0	0	0	0	0	48,233
55 to 59	48,391	50,673	44,644	0	0	0	0	0	50,328
60 to 64	57,645	45,212	78,817	0	0	0	0	0	47,280
65 & up	73,344	43,711	45,469	0	0	0	0	0	45,581
<b>Total</b>	<b>\$ 51,872</b>	<b>\$ 49,398</b>	<b>\$ 59,764</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 49,867</b>

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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-25 Reconciliation of Plan Membership</b>										
	<b>1967 Plan</b>			<b>Plan 87</b>				<b>Plan '10</b>	<b>Plan '16</b>	<b>Total City</b>
	<b>Municipal</b>	<b>Police</b>	<b>Fire</b>	<b>Municipal</b>	<b>Elected</b>	<b>Police</b>	<b>Fire</b>	<b>Municipal</b>	<b>Municipal</b>	
<b>Active</b>										
Active July 1, 2020	<b>904</b>	<b>172</b>	<b>64</b>	<b>14,127</b>	<b>23</b>	<b>5,868</b>	<b>2,485</b>	<b>1,276</b>	<b>3,973</b>	<b>28,892</b>
New Entrants and Rehires	5	0	1	84	0	20	18	10	700	838
Refunded Contributions	0	0	0	-131	0	-14	-3	-41	-75	-264
Non-Vested Terminations	0	0	0	-30	0	-1	-8	-2	-6	-47
Terminated Vested	-2	0	0	-12	0	-1	-1	-3	-1	-20
Became Disabled	-5	0	0	-55	0	-18	-2	0	0	-80
Retired	-53	-4	0	-204	-1	-48	-13	0	0	-323
Entered DROP	-133	-45	-8	-221	0	-252	-36	0	0	-695
Net Other Terminations	-12	-1	-1	-565	0	-125	-26	-131	-420	-1,281
Active July 1, 2021	<b>704</b>	<b>122</b>	<b>56</b>	<b>12,993</b>	<b>22</b>	<b>5,429</b>	<b>2,414</b>	<b>1,109</b>	<b>4,171</b>	<b>27,020</b>
<b>Retired</b>										
Retired July 1, 2020	<b>11,655</b>	<b>4,748</b>	<b>1,773</b>	<b>3,205</b>	<b>23</b>	<b>637</b>	<b>208</b>	<b>0</b>	<b>0</b>	<b>22,249</b>
New Retirees	252	52	7	444	1	119	30	0	0	905
Died with Beneficiary Payable	-106	-62	-31	-6	-1	-4	-2	0	0	-212
Died without Beneficiary Payable	-471	-134	-40	-71	-2	-4	-1	0	0	-723
Net Other Terminations	-4	-3	0	-4	0	-4	-2	0	0	-17
Retired July 1, 2021	<b>11,326</b>	<b>4,601</b>	<b>1,709</b>	<b>3,568</b>	<b>21</b>	<b>744</b>	<b>233</b>	<b>0</b>	<b>0</b>	<b>22,202</b>
<b>Beneficiary</b>										
Beneficiary July 1, 2020	<b>4,599</b>	<b>2,269</b>	<b>777</b>	<b>559</b>	<b>4</b>	<b>184</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>8,471</b>
New Beneficiaries	188	119	47	43	1	26	5	0	0	429
Deaths	-245	-149	-35	-5	-1	0	-3	0	0	-438
Net Other Terminations	-10	-4	-3	0	0	0	0	0	0	-17
Beneficiary July 1, 2021	<b>4,532</b>	<b>2,235</b>	<b>786</b>	<b>597</b>	<b>4</b>	<b>210</b>	<b>81</b>	<b>0</b>	<b>0</b>	<b>8,445</b>

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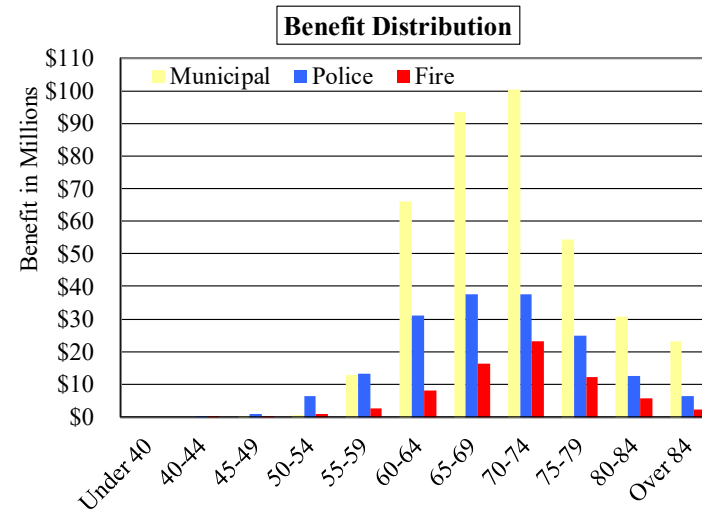
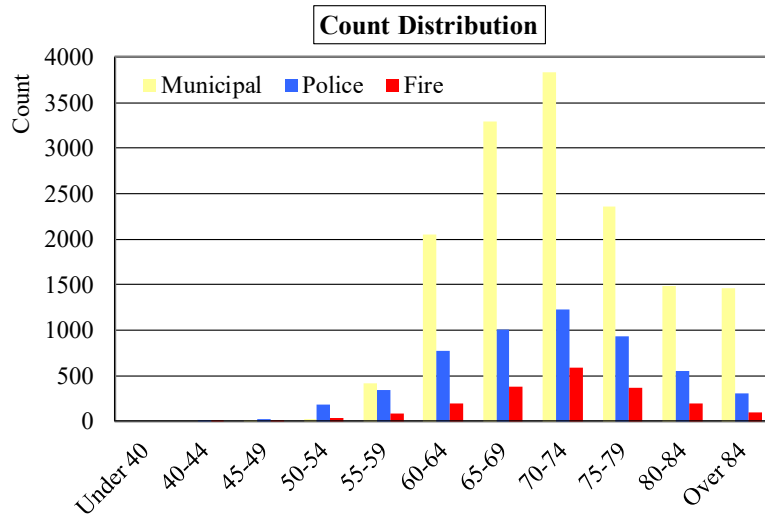
<b>Table A-25 Reconciliation of Plan Membership (continued)</b>										
	1967 Plan			Plan 87				Plan '10	Plan '16	Total City
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
<b>Disabled</b>										
Disabled July 1, 2020	1,232	1,096	245	643	0	533	84	0	0	3,833
New Disabilities	9	3	2	84	0	39	7	0	0	144
Died with Beneficiary Payable	-10	-17	-5	-2	0	0	0	0	0	-34
Died without Beneficiary Payable	-65	-52	-11	-15	0	-4	0	0	0	-147
Net Other Terminations	0	0	0	0	0	0	0	0	0	0
Disabled July 1, 2021	1,166	1,030	231	710	0	568	91	0	0	3,796
<b>Terminated Vested</b>										
Terminated Vested July 1, 2020	153	0	0	700	0	68	7	0	1	929
New Vested Terminations	4	0	0	15	0	2	2	0	0	23
Retired	-22	0	0	-19	0	-3	-2	0	0	-46
Net Other Terminations	-2	0	0	-2	0	-2	0	0	0	-6
Terminated Vested July 1, 2021	133	0	0	694	0	65	7	0	1	900
<b>DROP</b>										
DROP July 1, 2020	533	149	36	600	0	265	59	0	0	1,642
New DROP Participants	141	47	8	230	0	251	36	0	0	713
Retired	-166	-43	-6	-170	0	-55	-13	0	0	-453
Net Other Terminations	-9	0	0	-10	0	-4	-1	0	0	-24
DROP July 1, 2021	499	153	38	650	0	457	81	0	0	1,878

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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-26  
Age Distribution of Retired Members as of July 1, 2021**

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	3	80,203	1	8,062
45-49	2	20,917	26	937,846	4	57,717
50-54	21	546,607	183	6,542,534	32	1,066,014
55-59	415	12,843,594	347	13,399,712	80	2,722,990
60-64	2,053	66,183,935	773	31,015,222	192	8,108,088
65-69	3,287	93,551,511	1,006	37,565,349	375	16,500,482
70-74	3,827	100,274,059	1,223	37,432,923	594	23,080,099
75-79	2,358	54,514,687	928	24,841,813	374	12,059,399
80-84	1,492	30,780,085	548	12,583,326	196	5,755,684
Over 84	1,460	23,150,058	308	6,488,965	94	2,191,286
<b>Total</b>	<b>14,915</b>	<b>381,865,453</b>	<b>5,345</b>	<b>170,887,893</b>	<b>1,942</b>	<b>71,549,821</b>

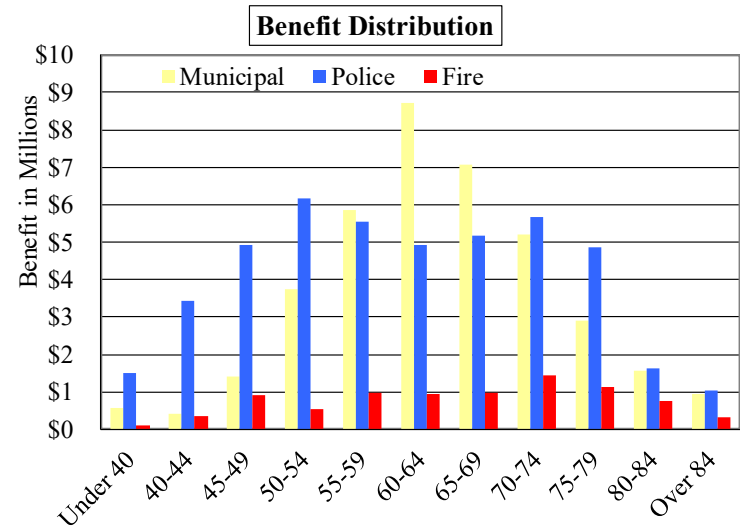
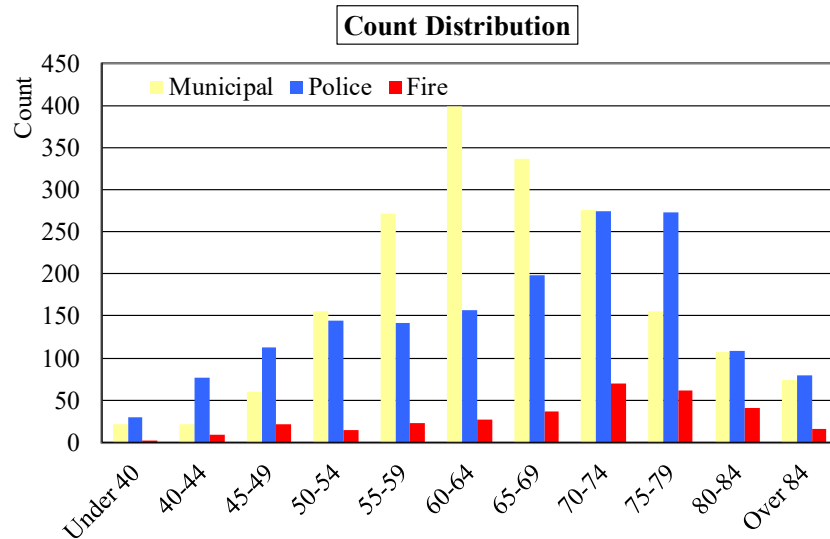


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**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-27  
Age Distribution of Disabled Members as of July 1, 2021**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	22	\$ 574,274	30	\$ 1,507,516	2	\$ 114,266
40-44	21	420,591	77	3,422,848	9	361,320
45-49	60	1,425,054	113	4,929,371	22	928,243
50-54	155	3,752,685	145	6,165,758	14	529,590
55-59	271	5,842,687	142	5,559,604	23	989,240
60-64	399	8,720,313	157	4,931,340	27	929,224
65-69	336	7,065,585	199	5,166,164	37	975,523
70-74	276	5,193,124	274	5,677,505	70	1,438,477
75-79	155	2,909,436	273	4,875,905	61	1,129,606
80-84	107	1,556,938	108	1,641,732	41	764,071
Over 84	74	945,474	80	1,051,530	16	321,084
<b>Total</b>	<b>1,876</b>	<b>38,406,161</b>	<b>1,598</b>	<b>44,929,273</b>	<b>322</b>	<b>8,480,644</b>



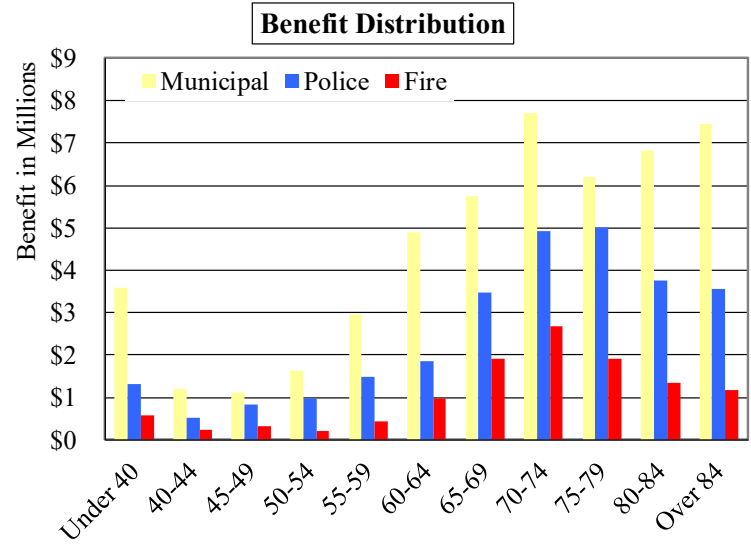
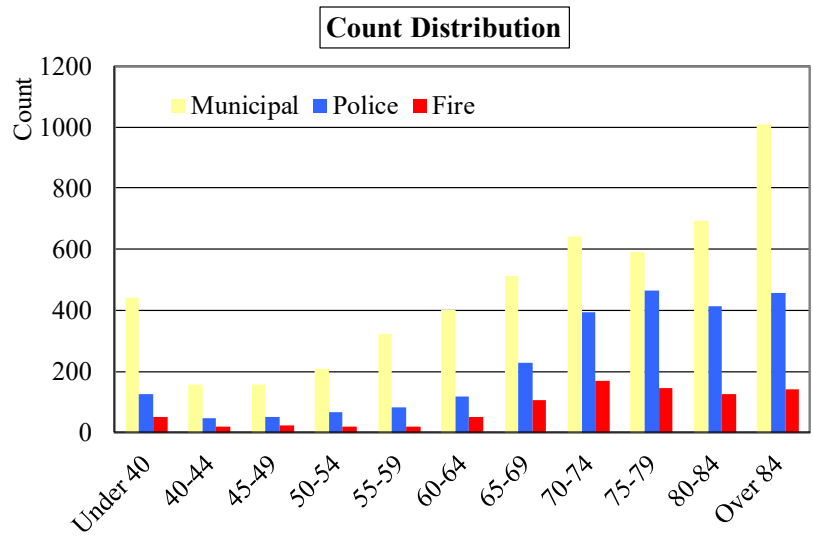


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-28  
Age Distribution of Beneficiaries as of July 1, 2021**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	441	\$ 3,577,710	124	\$ 1,329,932	50	\$ 584,851
40-44	156	1,190,413	47	533,085	18	241,778
45-49	159	1,110,793	51	843,654	22	315,098
50-54	207	1,642,046	65	973,945	19	211,771
55-59	322	2,960,161	84	1,475,447	21	434,938
60-64	400	4,889,650	119	1,857,512	51	968,512
65-69	512	5,754,233	227	3,469,960	105	1,899,860
70-74	642	7,693,650	392	4,913,006	168	2,682,421
75-79	591	6,199,382	465	4,998,669	145	1,919,078
80-84	693	6,814,073	414	3,757,457	126	1,343,013
Over 84	1,010	7,462,102	457	3,554,158	142	1,184,875
<b>Total</b>	<b>5,133</b>	<b>49,294,213</b>	<b>2,445</b>	<b>27,706,825</b>	<b>867</b>	<b>11,786,195</b>



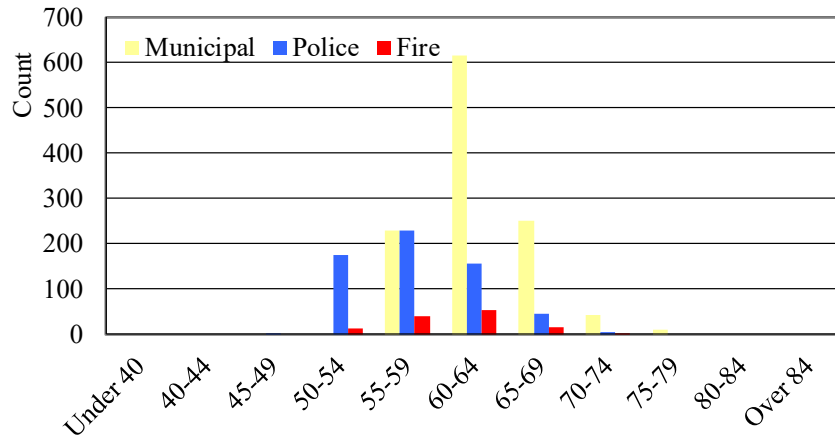
**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX A – MEMBERSHIP INFORMATION**

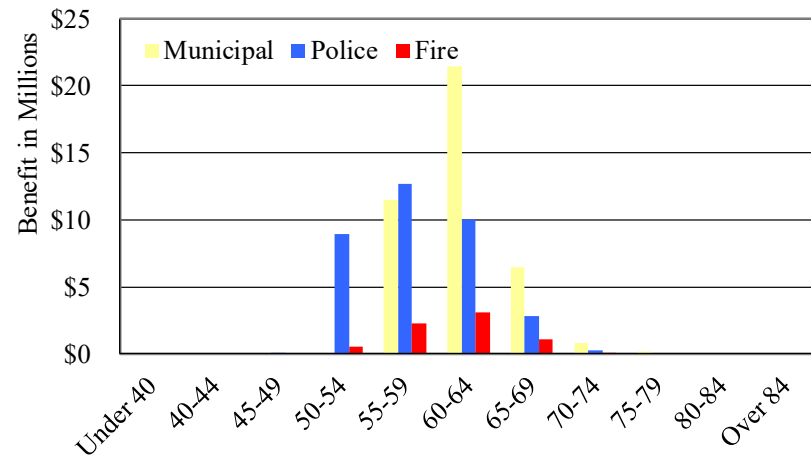
**Table A-29  
Age Distribution of DROP Participants as of July 1, 2021**

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	1	51,183	0	0
50-54	0	0	174	8,916,575	12	574,031
55-59	230	11,527,641	230	12,657,913	39	2,224,898
60-64	615	21,424,687	156	10,071,127	52	3,125,854
65-69	251	6,489,399	45	2,859,599	15	1,109,916
70-74	43	843,044	4	258,660	1	99,156
75-79	10	128,705	0	0	0	0
80-84	0	0	0	0	0	0
Over 84	0	0	0	0	0	0
<b>Total</b>	<b>1,149</b>	<b>40,413,476</b>	<b>610</b>	<b>34,815,057</b>	<b>119</b>	<b>7,133,855</b>

**Count Distribution**



**Benefit Distribution**

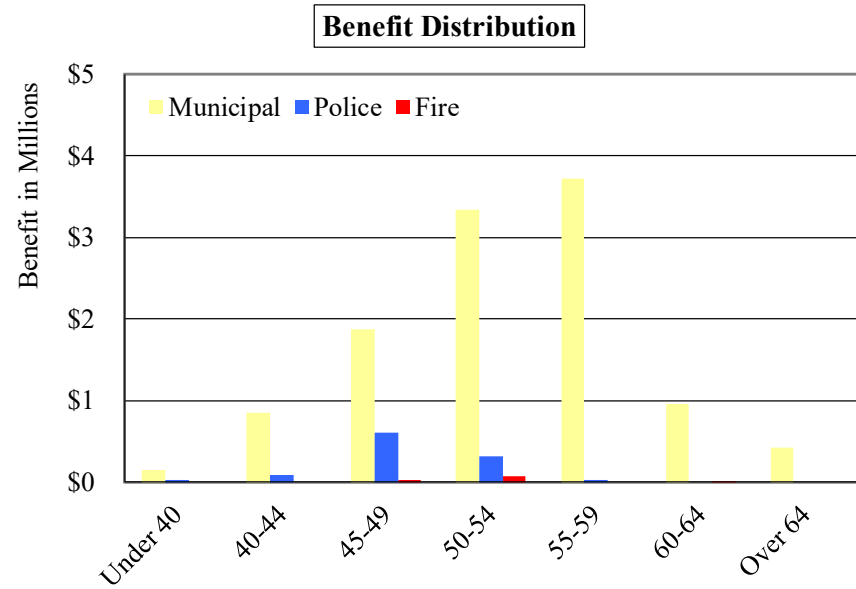
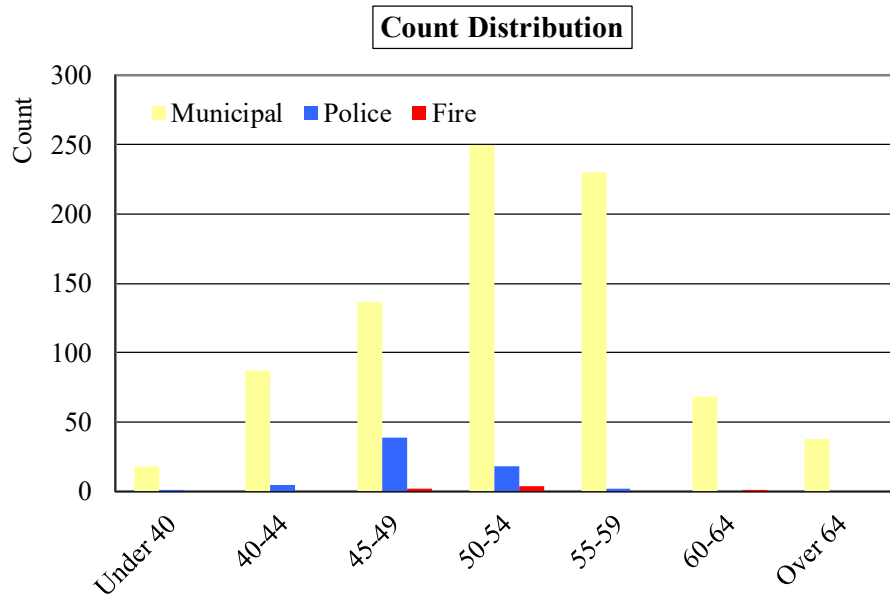


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-30  
Age Distribution of Terminated Vested Members as of July 1, 2021**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	18	\$ 148,309	1	\$ 17,337	0	\$ 0
40-44	87	851,339	5	79,652	0	0
45-49	137	1,874,404	39	605,373	2	26,153
50-54	250	3,338,542	18	318,518	4	75,899
55-59	230	3,721,870	2	25,450	0	0
60-64	68	955,579	0	0	1	16,482
Over 64	38	427,199	0	0	0	0
Total	828	11,317,242	65	1,046,330	7	118,534



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 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.

<b>Table B-1a</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>1967 Plan - Municipal</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 2,463,181	\$ 2,296,018		\$ 312,989	\$ 336,307
2. Changes in UAL due to					
a. Actuarial Experience	\$ (5,690)	\$ (6,114)	20	\$ (556)	\$ (597)
b. Assumption Changes	13,655	14,672	15	1,542	1,657
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ 7,964	\$ 8,557		\$ 986	\$ 1,059
3. Total [1c. + 2e.]	\$ 2,471,145	\$ 2,304,576		\$ 313,975	\$ 337,366

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1b</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>1967 Plan - Police</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 1,280,642	\$ 1,200,715		\$ 159,321	\$ 171,190
2. Changes in UAL due to					
a. Actuarial Experience	\$ 45,050	\$ 48,406	20	\$ 4,402	\$ 4,730
b. Assumption Changes	6,050	6,501	15	683	734
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ 51,100	\$ 54,906		\$ 5,085	\$ 5,464
3. Total [1c. + 2e.]	\$ 1,331,741	\$ 1,255,622		\$ 164,406	\$ 176,655

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1c</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>1967 Plan - Fire</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 546,543	\$ 511,049		\$ 68,453	\$ 73,553
2. Changes in UAL due to					
a. Actuarial Experience	\$ 13,426	\$ 14,426	20	\$ 1,312	\$ 1,410
b. Assumption Changes	2,327	2,501	15	263	282
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 15,753</u>	<u>\$ 16,927</u>		<u>\$ 1,575</u>	<u>\$ 1,692</u>
3. Total [1c. + 2e.]	\$ 562,296	\$ 527,976		\$ 70,028	\$ 75,245

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1d</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Plan 87 - Municipal</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 784,342	\$ 742,869		\$ 90,322	\$ 97,051
2. Changes in UAL due to					
a. Actuarial Experience	\$ (162,161)	\$ (174,242)	20	\$ (15,846)	\$ (17,027)
b. Assumption Changes	16,676	17,918	15	1,883	2,024
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (145,485)	\$ (156,324)		\$ (13,963)	\$ (15,003)
3. Total [1c. + 2e.]	\$ 638,857	\$ 586,546		\$ 76,359	\$ 82,048

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1e</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Plan 87 - Elected</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 9,924	\$ 9,038		\$ 1,470	\$ 1,579
2. Changes in UAL due to					
a. Actuarial Experience	\$ (1,442)	\$ (1,549)	20	\$ (141)	\$ (151)
b. Assumption Changes	105	113	15	12	13
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (1,337)	\$ (1,437)		\$ (129)	\$ (139)
3. Total [1c. + 2e.]	\$ 8,587	\$ 7,601		\$ 1,341	\$ 1,441



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1f</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Plan 87 - Police</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 290,245	\$ 277,334		\$ 29,689	\$ 31,901
2. Changes in UAL due to					
a. Actuarial Experience	\$ 65,696	\$ 70,590	20	\$ 6,420	\$ 6,898
b. Assumption Changes	13,202	14,185	15	1,491	1,602
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 78,897</u>	<u>\$ 84,775</u>		<u>\$ 7,911</u>	<u>\$ 8,500</u>
3. Total [1c. + 2e.]	\$ 369,142	\$ 362,109		\$ 37,600	\$ 40,401

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1g</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Plan 87 - Fire</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 78,530	\$ 73,982		\$ 8,813	\$ 9,469
2. Changes in UAL due to					
a. Actuarial Experience	\$ (15,816)	\$ (16,995)	20	\$ (1,546)	\$ (1,661)
b. Assumption Changes	4,005	4,303	15	452	486
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ (11,811)</u>	<u>\$ (12,691)</u>		<u>\$ (1,093)</u>	<u>\$ (1,175)</u>
3. Total [1c. + 2e.]	\$ 66,718	\$ 61,290		\$ 7,720	\$ 8,295

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1h</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Plan 10 - Municipal</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ (2,603)	\$ (2,562)		\$ (218)	\$ (234)
2. Changes in UAL due to					
a. Actuarial Experience	\$ (1,449)	\$ (1,557)	20	\$ (142)	\$ (152)
b. Assumption Changes	150	161	15	17	18
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ (1,298)</u>	<u>\$ (1,395)</u>		<u>\$ (125)</u>	<u>\$ (134)</u>
3. Total [1c. + 2e.]	\$ (3,901)	\$ (3,957)		\$ (342)	\$ (368)

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1i</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Plan 16 - Municipal</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ (1,617)	\$ (1,636)		\$ (95)	\$ (102)
2. Changes in UAL due to					
a. Actuarial Experience	\$ (2,315)	\$ (2,488)	20	\$ (226)	\$ (243)
b. Assumption Changes	297	319	15	34	36
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ (2,018)</u>	<u>\$ (2,168)</u>		<u>\$ (193)</u>	<u>\$ (207)</u>
3. Total [1c. + 2e.]	\$ (3,635)	\$ (3,804)		\$ (287)	\$ (309)

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM  
JULY 1, 2021 ACTUARIAL VALUATION**

**APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY**

<b>Table B-1j</b>					
<b>Development of the Fiscal Year 2023 Amortization Payment under the City's Funding Policy</b>					
<b>Total - All Divisions</b>					
<b>(\$ thousands)</b>					
	<b>7/1/2021</b>	<b>7/1/2022</b>	<b>Remaining</b>	<b>FY 2023 Payment</b>	<b>FY 2023 Payment</b>
	<b>Outstanding Balance</b>	<b>Expected Balance</b>	<b>Years</b>	<b>Beginning-of-Year</b>	<b>End-of-Year</b>
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2021 Based on July 1, 2020 Valuation					
a. Remaining	\$ 5,449,186	\$ 5,106,808		\$ 670,744	\$ 720,714
2. Changes in UAL due to					
a. Actuarial Experience	\$ (64,703)	\$ (69,523)	20	\$ (6,323)	\$ (6,794)
b. Assumption Changes	56,467	60,674	15	6,377	6,852
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ (8,236)</u>	<u>\$ (8,849)</u>		<u>\$ 54</u>	<u>\$ 58</u>
3. Total [1c. + 2e.]	\$ 5,440,951	\$ 5,097,959		\$ 670,798	\$ 720,772

**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.
- 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, 2021 ACTUARIAL VALUATION**

**APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS**

**A. Actuarial Assumptions**

**1. Investment Return Assumption**

7.45% compounded annually, net of expenses.

**2. Salary Increase Rate**

Age	Municipal and Elected Officials	Uniformed
<20	20.00%	20.00%
20	18.00%	11.00%
25	10.00%	7.00%
30	7.00%	5.00%
35	5.75%	4.25%
40	5.00%	4.00%
45	4.60%	3.50%
50	4.35%	3.30%
55	4.10%	3.00%
60	3.85%	3.00%
65+	3.50%	2.75%

**3. Total Annual Payroll Growth**

3.30% per year.

**4. Administrative Expenses**

Annual expected expenses included in this report are \$10,029,224 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, 2021 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	0.2200		0.0350
25	0.1500		0.0310
30	0.1000		0.0235
35	0.0775		0.0160
40	0.0650		0.0100
45	0.0525		0.0100
50	0.0450		0.0100
55	0.0450		0.0000
60	0.0900		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	0.000050	0.000025	0.000500
30	0.000750	0.000400	0.001800
35	0.001000	0.000800	0.004000
40	0.001500	0.001300	0.005000
45	0.001900	0.002800	0.005200
50	0.004000	0.005700	0.004000
55	0.005400	0.005500	0.003000
60	0.000000	0.000000	0.000000

\*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.



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**APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS**

**8. Rates of Pre-Retirement Mortality**

Municipal and Elected Officials: 110% and 115%, for males and females, respectively, of the RP-2014 Employee Table projected from base year of 2006 to 2021 using mortality improvement scale MP-2017.

Uniformed: 85% of the RP-2014 Blue Collar Employee Table projected from base year of 2006 to 2021 using mortality improvement scale MP-2017.

Experience studies are performed every four years as required by State law which requires 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, 2012 and June 30, 2017.

Age	Municipal and Elected Officials		Uniformed	
	Male	Female	Male	Female
20	0.000409	0.000189	0.000408	0.000157
25	0.000530	0.000212	0.000530	0.000176
30	0.000550	0.000268	0.000550	0.000221
35	0.000668	0.000380	0.000668	0.000315
40	0.000772	0.000524	0.000772	0.000434
45	0.001086	0.000769	0.001086	0.000638
50	0.001802	0.001226	0.001802	0.001016
55	0.003018	0.002002	0.003018	0.001660
60	0.005319	0.003088	0.005319	0.002560
65	0.009579	0.004453	0.009578	0.003691

\* 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.

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**9. Rates of Post-Retirement Mortality**

Municipal and Elected Officials: 127% and 119% for males and females, respectively, of the RP-2014 Healthy Annuitant Table projected from base year 2006 to 2021 using mortality improvement scale MP-2017.

Uniformed: 115% of the RP-2014 Blue Collar Healthy Annuitant Table projected from base year of 2006 to 2021 using mortality improvement scale MP-2017.

Age	Municipal and Elected Officials		Uniformed	
	Male	Female	Male	Female
50	0.005015	0.003186	0.004541	0.003139
55	0.007168	0.004486	0.006789	0.004817
60	0.010180	0.006792	0.010031	0.007252
65	0.014715	0.010033	0.015263	0.010512
70	0.021742	0.015288	0.023114	0.016035
75	0.034319	0.024900	0.036499	0.026399
80	0.057729	0.042731	0.060617	0.045229
85	0.101295	0.076712	0.102771	0.079656
90	0.178648	0.137255	0.174268	0.138509
95	0.278849	0.224212	0.261914	0.219761

**10. Rates of Post-Disability Mortality**

Municipal and Elected Officials: 95% of the RP-2014 Disabled Retiree Table projected from base year 2006 to 2021 using mortality improvement scale MP-2017.

Uniformed: 80% of the RP-2014 Disabled Retiree Table projected from base year 2006 to 2021 using mortality improvement scale MP-2017.

Age	Municipal and Elected Officials		Uniformed	
	Male	Female	Male	Female
35	0.010106	0.004319	0.008510	0.003637
40	0.011676	0.005959	0.009832	0.005018
45	0.016427	0.008752	0.013834	0.007370
50	0.018826	0.010942	0.015854	0.009214
55	0.021849	0.014315	0.018399	0.012055
60	0.026070	0.017756	0.021954	0.014953
65	0.031668	0.020761	0.026668	0.017483
70	0.039130	0.026749	0.032952	0.022526
75	0.051951	0.038967	0.043748	0.032814
80	0.073980	0.059755	0.062299	0.050320

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**11. Rates of Retirement**

<b>Rates of Service Retirement - 1967 Plan</b>		
<b>Age</b>	<b>Municipal</b>	<b>Uniformed</b>
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	0.30	0.20
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	0.20	0.30
64	0.20	0.30
65	0.30	0.30
66	0.20	0.30
67	0.20	0.30
68	0.20	0.30
69	0.30	0.30
70+	1.00	1.00

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Rates of Service Retirement - 1987 Plan and Plan '10				
Age	Municipal and Elected Officials		Uniformed	
	First Year Eligible	Subsequent Years	First Year Eligible	Subsequent Years
45	0.000	0.000	0.030	0.000
46-49	0.000	0.000	0.030	0.030
50	0.000	0.000	0.060	0.060
51	0.000	0.000	0.100	0.050
52	0.050	0.020	0.100	0.050
53-54	0.100	0.020	0.100	0.050
55	0.100	0.020	0.100	0.070
56	0.100	0.020	0.100	0.100
57	0.100	0.020	0.100	0.070
58	0.100	0.020	0.100	0.120
59	0.100	0.080	0.100	0.120
60	0.250	0.250	0.100	0.120
61	0.150	0.200	0.100	0.120
62	0.400	0.250	0.100	0.300
63	0.250	0.200	0.100	0.300
64	0.300	0.200	0.100	0.300
65-69	0.600	0.200	0.100	0.500
70	0.100	1.000	0.100	1.000

Retirements under DROP are included in the rates above.

**12. Family Composition Assumptions**

70% of active members and 50% 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.

## APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

### 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, 2012 through June 30, 2017 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 March 28, 2018. In compliance with Act 205 Chapter 2, Section 2.01 an experience study is conducted every four years. An experience study for the five-year period from July 1, 2016 through June 30, 2021 has recently been completed, approved by the Board, and will be effective for the July 1, 2022 actuarial valuation.

### 16. Changes in Actuarial Assumptions Since Last Valuation

- The interest rate assumption was decreased from 7.50% to 7.45%.
- The administrative expenses assumption was changed from \$10,837,309 to \$10,029,224 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.

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**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

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**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.



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 (\$132,900 in 2019, and \$137,700 in 2020) 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.

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**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.

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**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.

**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.

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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.

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**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  
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**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.

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**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.

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*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.

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**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.

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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.



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**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.

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*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.

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*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.

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**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.

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**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.

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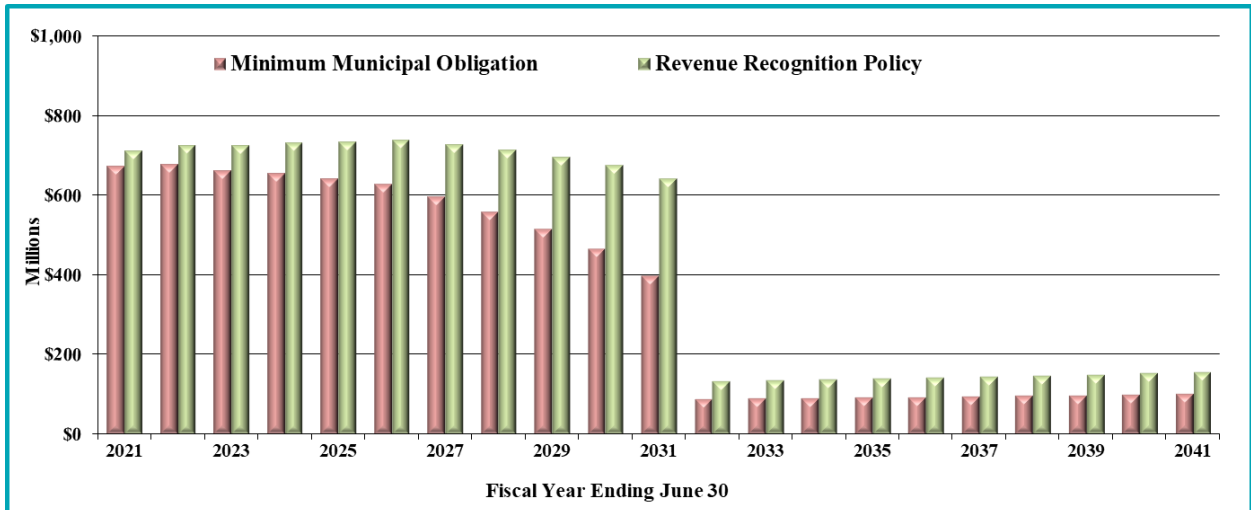
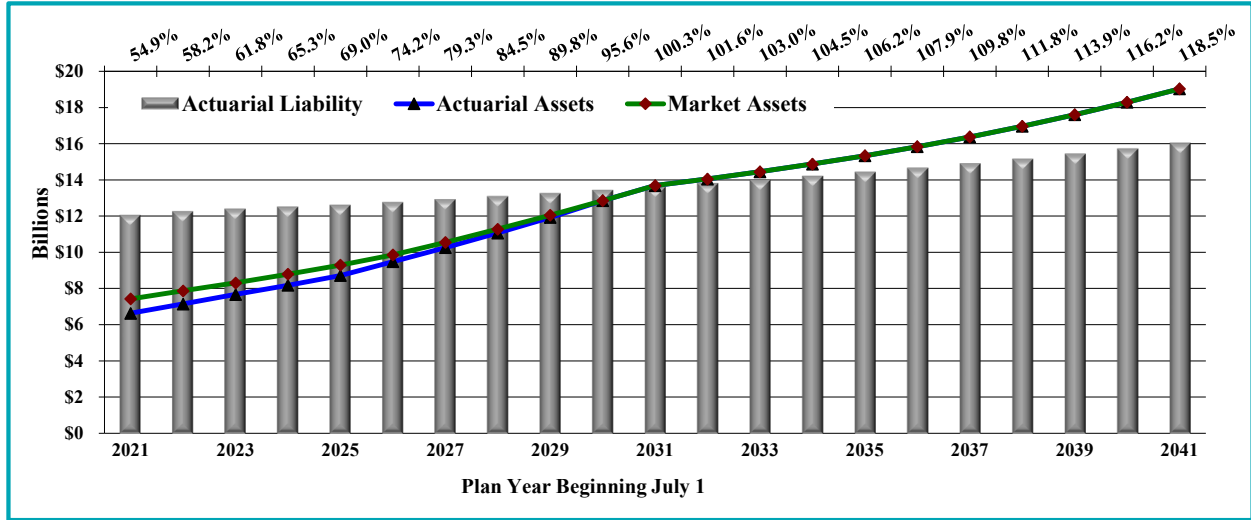
**APPENDIX D – SUMMARY OF PLAN PROVISIONS – MEMBER CONTRIBUTIONS**

Member Contribution Rates by Membership Class			Effective 7/1/2022			
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)		12.01%	Add on for Tier	
		Plan Y		3.63%	Add on for Tier	
		Plan Y (Deputy Sheriffs and Register of Wills)		3.63%	Add on for Tier	
		Plan Y5		4.61%	Add on for Tier	
		Plan L8		13.46%	Add on for Tier	
		Plan Y2 (Non Repts-Exempts:excl Auditing EEs)		3.63%	Add on for Tier	
		Plan Y3 (DC 47, DC 33 and OHCD)		3.63%	Add on for Tier	
		Plan Y4 (Exempts-Auditing/ <i>Controller</i> Dept Ees)		3.63%	Add on for Tier	
Plan 87 Prime Opted out of Plan 10		Plan Y1 (Deputy Sheriff) DOH>=1/1/2012 and < 6/20/2018	50% of Agregate Normal Cost of all members in Plan Y	4.38%	Add on for Tier	
		Plan Y4 (Non Repts) DOH>=5/14/2014	+1%	4.63%	Add on for Tier	
		Plan Y6 (DC 47) DOH>=3/5/2014	+1%	4.63%	Add on for Tier	
		Plan Y9 (DC33-excluding Guards and OHCD) DOH>=9/9/2014	+1%	4.63%	Add on for Tier	
		Plan Y12 (DC33: Guards) DOH>= 9/9/2014 and < 11/14/2014	+1%	4.63%	Add on for Tier	
		Plan Y11 (Exempts) DOH>=11/14/2014	+1%	4.63%	Add on for Tier	
		Plan Y5.1 (5 yr vesting-Exempts) DOH>=11/14/2014	+1%	5.61%	Add on for Tier	
		Plan L1 (Elected) DOH>=11/14/2014	+1%	13.01%	Add on for Tier	
		Plan L8.1 (Elected) DOH>=11/14/2014	+1%	14.46%	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	2.44%	Add on for Tier	
		Register of Wills-MANDATORY DOH >=1/1/2012 and < 6/20/2018		2.44%	Add on for Tier	
		DC33-Guards-MANDATORY DOH>=11/14/2014 and < 8/19/2016		2.44%	Add on for Tier	
		DC 33 DOH < 8/19/2016				
		Non-Reps, DC 47		2.44%	Add on for Tier	
	Elected	2.44%		Add on for Tier		
	Exempts (5 yr vesting-Exempts)	2.93%		Add on for Tier		
Plan 16		Plan S16				
		Deputy Sheriffs and Register of Wills DOH >= 6/21/2018		Pensionable Earnings up to \$65,000	4.14%	Add on for Tier
		DC 33 DOH >= 8/20/2016			4.14%	Add on for Tier
		Non-Reps, DC 47 DOH >= 1/1/2019	4.14%		Add on for Tier	
	Exempts (7 yr vesting-Exempts) DOH >= 1/1/2019	4.52%	Add on for Tier			

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**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
2022	\$ 727.4	\$ 74.2	\$ 6,633.1	\$ 12,074.0	\$ 5,441.0	54.9%
2023	726.5	78.8	7,143.4	12,280.2	5,136.8	58.2%
2024	733.9	84.6	7,668.8	12,414.0	4,745.2	61.8%
2025	735.5	91.0	8,179.2	12,531.8	4,352.6	65.3%
2026	740.4	97.9	8,716.5	12,632.1	3,915.7	69.0%
2027	728.9	104.5	9,480.9	12,782.7	3,301.8	74.2%

**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.