

City of Philadelphia Municipal Retirement System

**Actuarial Valuation Report
as of July 1, 2019**

Produced by Cheiron

April 2020

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LETTER OF TRANSMITTAL

April 2, 2020

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

Dear Board Members:

At your request, we have performed the July 1, 2019 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 2021. 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, MAAA, EA
Principal Consulting Actuary



Karen Zangara, FSA, MAAA, EA
Principal Consulting Actuary

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 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) 2021,
- 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, 2019 valuation was completed and an examination of the current financial condition of the System. In addition, we present a review of the key historical trends followed by the System’s projected financial outlook.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

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A. Valuation Basis

The July 1, 2019 valuation results are based on the same actuarial methods and assumptions as used in the July 1, 2018 valuation except for the decrease in the interest rate assumption from 7.60% to 7.55% as of July 1, 2019 as adopted by the Board. 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, 2019 and does not reflect any subsequent changes in the membership or the assets.

This valuation is based on plan provisions in effect as of July 1, 2019 and does not reflect the impact of any changes in benefits effective after the valuation date. Council Bill No. 180559 passed in June 2018, increased the compensation cap used in determining benefits and member contributions for DC 33 members enrolled in the Hybrid Plan 16 from \$50,000 to \$65,000, effective January 1, 2019. This change is first reflected in this July 1, 2019 valuation.

In 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 Plan 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 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 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 addition tier/member contributions

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

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Below we highlight significant results of this valuation:

- ***Financial Performance:*** The return on market value of assets at 5.66% for the year ending June 30, 2019, was lower than the expected 7.60% 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, 2019 was 7.60% which was the same as the assumption of 7.60%. Though the calculated return rate was the same, there was a net asset gain of \$10.9 million on an actuarial asset basis. It is assumed on average that contributions are received in the middle of the year. When contributions are received earlier they are available for investment for a longer period of time resulting in this gain.
 - The smoothing method also limits the actuarial asset method to not be greater than 120% nor less than 80% of the underlying market value of assets. The ratio of actuarial assets to market assets increased from 101.1% in the prior year to 102.9% for the current year.
- ***Pension Adjustment Fund (PAF):*** As defined in the Philadelphia Code the PAF provides for additional benefits to current retirees through the use of excess earnings. Excess earnings are defined as returns in excess of the assumed return rate plus 1.00%. The asset return for the adjusted market value which is based on five-year smoothing of asset gains and losses (instead of the 10 years for funding) was 5.07%. Because the return is below 8.60% (the assumed prior year rate of return of 7.60% plus 1.00%), there are no additional amounts transferred into the PAF as of June 30, 2019.
- ***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 from \$6.124 billion as of July 1, 2018 to **\$5.931 billion as of July 1, 2019**. 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 decrease of \$192.9 million is comprised of liability losses of \$6.4 million from participants in transition from active to non-active status and mortality experience on retirees offset by asset return gains of \$10.9 million. The UAL increased by \$55.7 million due to the decrease in discount rate and \$1.0 million due to the increase in the Stacked Hybrid compensation cap for DC 33 Plan 16 members. These values are offset by contributions towards paying down the unfunded, differences in benefit accrual rates and interest on payment timing of \$245.1 million.
- ***Funding Ratio:*** This is the ratio of the System's AVA to AL. The funding ratio increased from 46.8% as of July 1, 2018 to **49.7% as of July 1, 2019**, mainly due to underlying growth in assets resulting from increased contributions. The funding ratio on market assets to liability basis increased from 46.4% to 48.3%.

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- **Plan Changes:** Effective January 1, 2019, DC33 Plan 16 members’ Stacked Hybrid Cap was increased from \$50,000 to \$65,000 which increased the AL by \$1.0 million as of July 1, 2019.
- **Minimum Municipal Obligation (MMO):** The MMO is the required minimum amount the City must contribute under Pennsylvania State Law. The MMO decreased from \$675.8 million for FYE 2020 to **\$673.9 million for FYE 2021**. 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 increased from \$704.6 million for FYE 2020 to **\$713.0 million for FYE 2021**. The balance of the notional account, which is removed from the assets in calculating this contribution, increased from \$63.1 million as of July 1, 2018 to \$143.6 million as of July 1, 2019.
- **Contribution under the City’s Funding Policy:** The beginning-of-year contribution under the City’s Funding Policy increased from \$805.0 million for FYE 2020 based upon actual FYE 2019 payroll to an estimated **\$813.4 million for FYE 2021**.

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

Table I-1 Key Results (\$ thousands)					
Valuation Date	7/1/2019		7/1/2018		
Actuarial Liability	\$	11,783,085	\$	11,520,980	
Actuarial Value of Assets	\$	5,852,473	\$	5,397,434	
Unfunded Actuarial Liability/(Surplus)	\$	5,930,612	\$	6,123,546	
Funding Ratio		49.7%		46.8%	
		Fiscal Year 2021		Fiscal Year 2020	
Minimum Municipal Obligation	\$	673,884		\$ 675,751	
Revenue Recognition Policy Contribution	\$	712,978		\$ 704,589	
City's Funding Policy Contribution*	\$	813,436		\$ 804,970	

*The City’s funding policy contribution for FYE 2020 was updated based upon the actual payroll of \$1,842.6 million (provided as pay rates in the data) as of July 1, 2019. In the July 1, 2018 actuarial valuation report, the estimated FYE 2020 payroll was \$1,865.0 million based on July 1, 2018 pay rates and increased with the payroll assumption.

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B. Current Financial Condition

On the following pages, we summarize the key results of the July 1, 2019 valuation and how they compare to the results from the July 1, 2018 valuation.

1. City Membership:

As shown in Table I-2 below, total membership in the Retirement System decreased by 0.4% from 2018 to 2019.

Table I-2 Membership Total				
	July 1, 2019	July 1, 2018	% Change	
Actives	28,596	28,845	-0.9%	
Terminated Vesteds	965	1,074	-10.1%	
Disabled	3,883	3,890	-0.2%	
Retirees	22,241	22,275	-0.2%	
Beneficiaries	8,574	8,547	0.3%	
DROP	2,069	1,944	6.4%	
Total City Members	66,328	66,575	-0.4%	
Annual Salaries	\$ 1,842,554,883	\$ 1,805,400,096	2.1%	
Average Salary per Active Member	\$ 64,434	\$ 62,590	2.9%	
Annual Retirement Allowances	\$ 774,067,324	\$ 761,946,574	1.6%	
Average Retirement Allowance	\$ 22,309	\$ 21,951	1.6%	

The active participant population decreased by 0.9% during the 2018-2019 plan year. Deferred Retirement Option Plan (DROP) participants increased 6.4% from 2018 to 2019 as more members enrolled in DROP than retired from DROP. The average salary per active member increased by 2.9% during the plan year. The result of decreased active membership paired with the salary growth produced a total payroll growth of 2.1% versus the expected 3.3% payroll growth assumption.

Annual retirement allowances increased by 1.6% in aggregate with the average benefits also increasing 1.6%. The total number of participants in pay status remained about the same.

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SECTION I – BOARD SUMMARY

2. City Assets and Liabilities:

Table I-3 presents a comparison between the July 1, 2019 and July 1, 2018 system assets, liabilities, UAL, and funding ratios. The AVA Funding Ratio increased from 46.8% as of July 1, 2018 to **49.7%** as of July 1, 2019 despite the liability losses and decrease in the interest rate assumption. Prior to the change in the interest rate assumption, the funded ratio would have been 49.9%.

Table I-3 Assets and Liabilities (\$ thousands)				
	July 1, 2019	July 1, 2018	% Change	
Actuarial Liabilities by Membership:				
Actives	\$ 4,032,506	\$ 3,924,324	2.8%	
Terminated Vesteds	94,670	104,765	-9.6%	
Disabled	802,333	782,082	2.6%	
Retirees	5,156,344	5,119,142	0.7%	
Beneficiaries	687,522	672,900	2.2%	
DROP	1,000,293	909,297	10.0%	
Non-Vested Refunds	9,417	8,470	11.2%	
Total Actuarial Liability (AL)	\$ 11,783,085	\$ 11,520,980	2.3%	
Market Value of Assets (MVA net of PAF)*	\$ 5,687,158	\$ 5,340,125	6.5%	
Actuarial Value of Assets (AVA net of PAF)*	\$ 5,852,473	\$ 5,397,434	8.4%	
Actuarial Assets minus Market Assets	\$ 165,315	\$ 57,308	188.5%	
Unfunded Actuarial Liability	\$ 5,930,612	\$ 6,123,546	-3.2%	
Funding Ratio (AVA ÷ AL)	49.7%	46.8%	2.9%	
Funding Ratio (MVA ÷ AL)	48.3%	46.4%	1.9%	

*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 II – E

The market asset value average return is 5.66% compared to the 7.60% assumption for the previous year. For the actuarial value of assets, the investment gains and losses are smoothed over future years, which actually yielded a rate of return of 7.60% the same as the assumption.

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3. Components of UAL Change between July 1, 2018 and July 1, 2019:

The Retirement System’s unfunded actuarial liability decreased by \$192.9 million, from \$6,123.6 million as of July 1, 2018 to \$5,930.6 million as of July 1, 2019. Table I-4 presents the specific components of this change in the UAL.

The System experienced a \$10.9 million asset gain based on the actuarial value of assets and a \$6.4 million liability loss which is attributable to demographic experience. There was also an additional liability of \$55.7 million due to the change in interest rate and \$1.0 million due to the changes in plan provisions. Actual FYE 2019 contributions when compared to the expected RRP created a net gain of \$19.7 million due to higher than expected contributions and timing of contributions. **The higher contributions under RRP in comparison to MMO resulted in a gain of \$64.6 million.** There was a \$9.9 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 \$192.9 million over what is expected as of July 1, 2019.

Table I-4 Change in Unfunded Actuarial Liability (UAL) (\$ thousands)	
Experience	
1. UAL change due to asset (gain)/loss*	\$ (10,851.1)
2. UAL change due to overall liability (gain)/loss	\$ 6,374.7
Contributions	
3. UAL change due to difference in benefit accruals, actual contributions and timing	\$ (19,699.0)
4. UAL change due to one-year delay in MMO contributions	\$ 9,964.2
5. UAL change due to RRP contributions in excess of the MMO contributions	\$ (64,627.0)
Total (Gain)/Loss Amortization Base	
6. Total UAL change due to gains and losses: sum 1 through 5	\$ (78,838.2)
Plan Changes	
7. UAL change due to plan changes	\$ 980.6
Assumption Changes	
8. UAL change due to assumption changes	\$ 55,704.5
Total	
9. Total net overall change: 6 + 7 + 8	\$ (22,153.1)
10. UAL change due to benefit accruals and payments, contributions, and interest	<u>(170,782.4)</u>
11. Net increase/(decrease) in UAL: 9 + 10	\$ (192,935.5)

* Includes loss due to PAF transfer, if applicable

CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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4. Contributions:

Table I-5 on the next page summarizes the City contribution amounts. The **Minimum Municipal Obligation** for FYE 2021 measured as of the beginning of the year decreased by 0.83% of payroll, from 36.23% to 35.40%. In dollar terms, the required beginning of year contribution decreased from \$675.8 million to \$673.9 million, a \$1.9 million decrease. The decrease in the MMO is primarily attributable to experience gains for each year the actual City contributions are higher than the MMO. Assuming the City continues to contribute based on the higher RRP contribution, the MMO will continue to decrease going forward.

The contribution under the **Revenue Recognition Policy** decreased by 0.32% as a percent of payroll, from 37.78% to 37.46% for FYE 2021. The contribution in dollar amount increased \$8.4 million from \$704.6 million in the prior year to \$713.0 million for FYE 2021. Though the RRP contribution increased in dollar amounts, it decreased as a percent of pay because total payroll increased more than the increase in RRP over the last year. Also, the RRP contribution is higher than the MMO because accumulated sales tax revenue and additional member contributions received are excluded from the assets when determining the RRP contributions.

For Fiscal Year 2021, the **City Funding Policy** contributions decreased by 0.95% of payroll, from 43.69% to 42.74%. In dollar terms, the contributions under the City's Funding Policy increased from \$805.0 million to \$813.4 million, an \$8.4 million increase. Along with changes in assumptions and experience, the increase in the funding policy is attributable to experience losses for each year the actual City contributions are less than the Funding Policy amount. 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.

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SECTION I – BOARD SUMMARY

**Table I-5
Contributions
(\$ thousands)**

Fiscal Year Ending in Year:	2021	% of Pay	2020	% of Pay
Minimum Municipal Obligation ¹				
Estimated FY Payroll ²	\$ 1,903,359		\$ 1,864,978	
Normal Cost (with Expenses)	\$ 195,225	10.26%	\$ 188,203	10.09%
Regular Employee Contributions	(83,902)	4.41%	(80,734)	4.33%
Extra Employee Contributions for Funding ³	<u>(25,724)</u>	1.35%	<u>(22,956)</u>	1.23%
City Normal Cost	\$ 85,600	4.50%	\$ 84,513	4.53%
Amortization Payment	<u>588,284</u>	30.91%	<u>591,238</u>	31.70%
Minimum Municipal Obligation	\$ 673,884	35.40%	\$ 675,751	36.23%
Revenue Recognition Policy ⁴				
Estimated FY Payroll ²	\$ 1,903,359		\$ 1,864,978	
Normal Cost (with Expenses)	\$ 195,225	10.26%	\$ 188,203	10.09%
Regular Employee Contributions	(83,902)	4.41%	(80,734)	4.33%
Extra Employee Contributions for Funding ³	<u>(0)</u>	0.00%	<u>(0)</u>	0.00%
City Normal Cost	\$ 111,323	5.85%	\$ 107,469	5.76%
Amortization Payment	<u>601,655</u>	31.61%	<u>597,120</u>	32.02%
Revenue Recognition Policy	\$ 712,978	37.46%	\$ 704,589	37.78%
City's Funding Policy ⁵				
Estimated FY Payroll ²	\$ 1,903,359		\$ 1,842,555 ⁶	
Normal Cost (with Expenses)	\$ 195,225	10.26%	\$ 186,011	10.10%
Regular Employee Contributions	(83,902)	4.41%	(78,395)	4.25%
Extra Employee Contributions for Funding ³	<u>(25,724)</u>	1.35%	<u>(22,956)</u>	1.25%
City Normal Cost	\$ 85,600	4.50%	\$ 84,661	4.59%
Amortization Payment	<u>727,836</u>	38.24%	<u>720,309</u>	39.09%
City's Funding Policy	\$ 813,436	42.74%	\$ 804,970	43.69%

¹ The MMO does not include Quasi-Agency contributions.

² The estimated payroll is based on total uncapped payroll.

³ Additional tier member contributions under Municipal Plans 67, 87, 10, and 16 and the 2017 Police and Fire Arbitration for Plan 87 are specifically dedicated to paying down the unfunded liability and are recognized as employee contributions under MMO and Funding Policy but not under the RRP contribution.

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

⁵ Assuming beginning-of-year payment.

⁶ FY 2021 Payroll for the City's Funding Policy is based upon the 7/1/2020 pay rates and will be finalized when the FYE 2021 payroll is available. All other payroll is estimated based upon the prior year's data used for the actuarial valuation.

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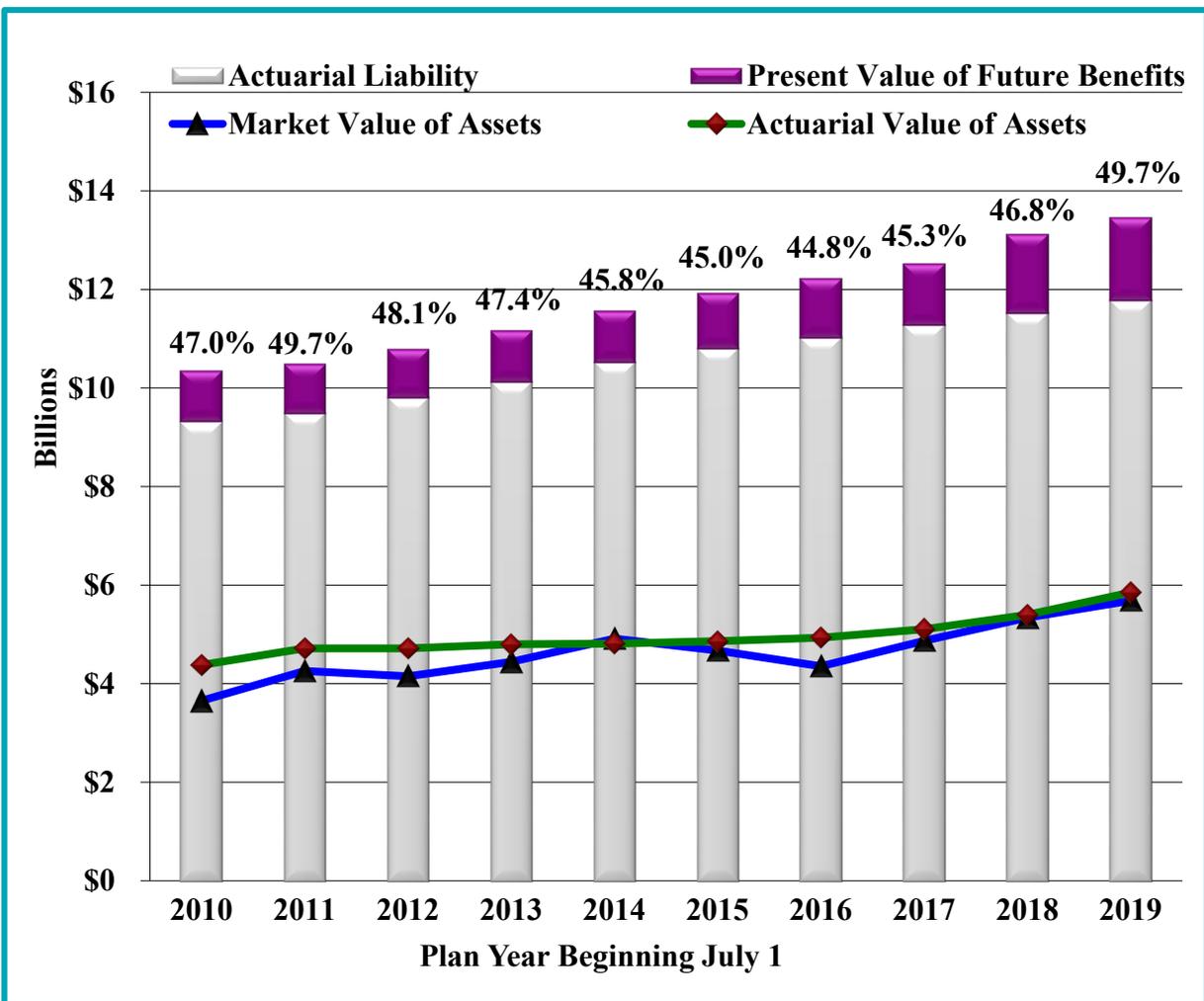
SECTION I – BOARD SUMMARY

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.

In the chart below, 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 2010.

City of Philadelphia Assets* and Liabilities – 2010 to 2019



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

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The System’s funding ratio has remained relatively stable since 2010. It is important to note that the assumed interest rate assumption has been decreased during this period from 8.15% to 7.55% which has lowered the funding ratio 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 2019, the funding ratio increased by 2.9%.

This historic trend emphasizing the relatively low funding status highlights the potential risk of running out of assets to pay benefits. However, as long as the City adheres to the continued policy of contributing at least the Minimum Municipal Obligation this risk 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 resulting in an increase in assets over the last three years.

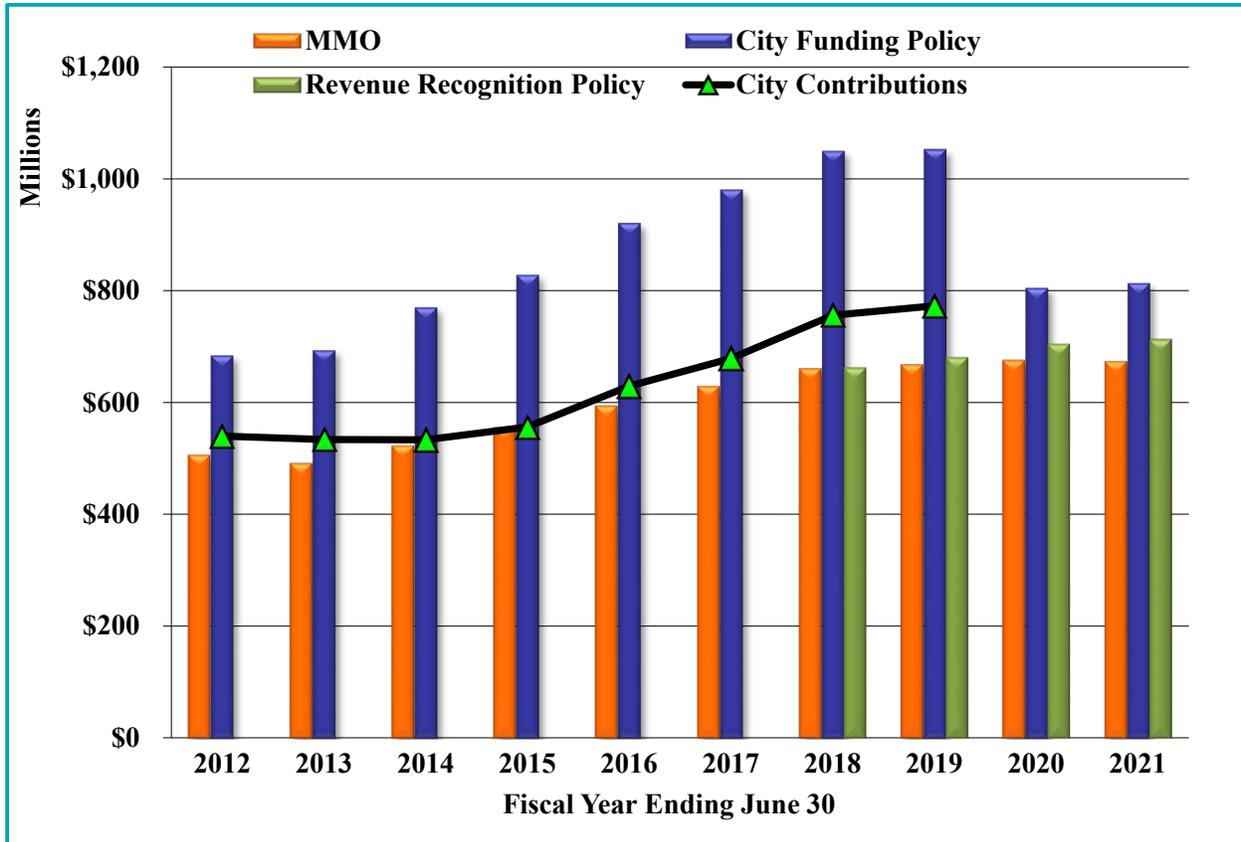
In the chart on the next page, we present historical trends for the Minimum Municipal Obligation (MMO), the contributions under the City’s Funding Policy, the Revenue Recognition Policy (RRP) beginning in 2018, and the actual City contributions made for fiscal years since 2012. Because there is a two-year 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 2020 and 2021. City contributions in the amount of \$80 million that were deferred in FYE 2011 were fully paid during FYE 2013. The deferred contributions received during FYE 2013 were included in the asset value as if they were made when due in accordance with special funding provisions under Act 205, and treated as if they are short-term investments and therefore not reflected in the actual City contributions. The 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 \$24.2 million in FYE 2018 and \$52.1 million in FYE 2019. The City contributions also reflect additional contributions made by the City over the RRP in the amounts of \$47.2 million in FYE 2018 and \$39.7 million in FYE 2019.

The Funding Policy amounts were higher than the MMO because of the City’s decision to fund based on the MMO had slowed the funding progress in maintaining the funding policy which resulted in losses under the funding policy due to contribution amounts being lower than what the policy calls for. These losses result 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 2012-2021



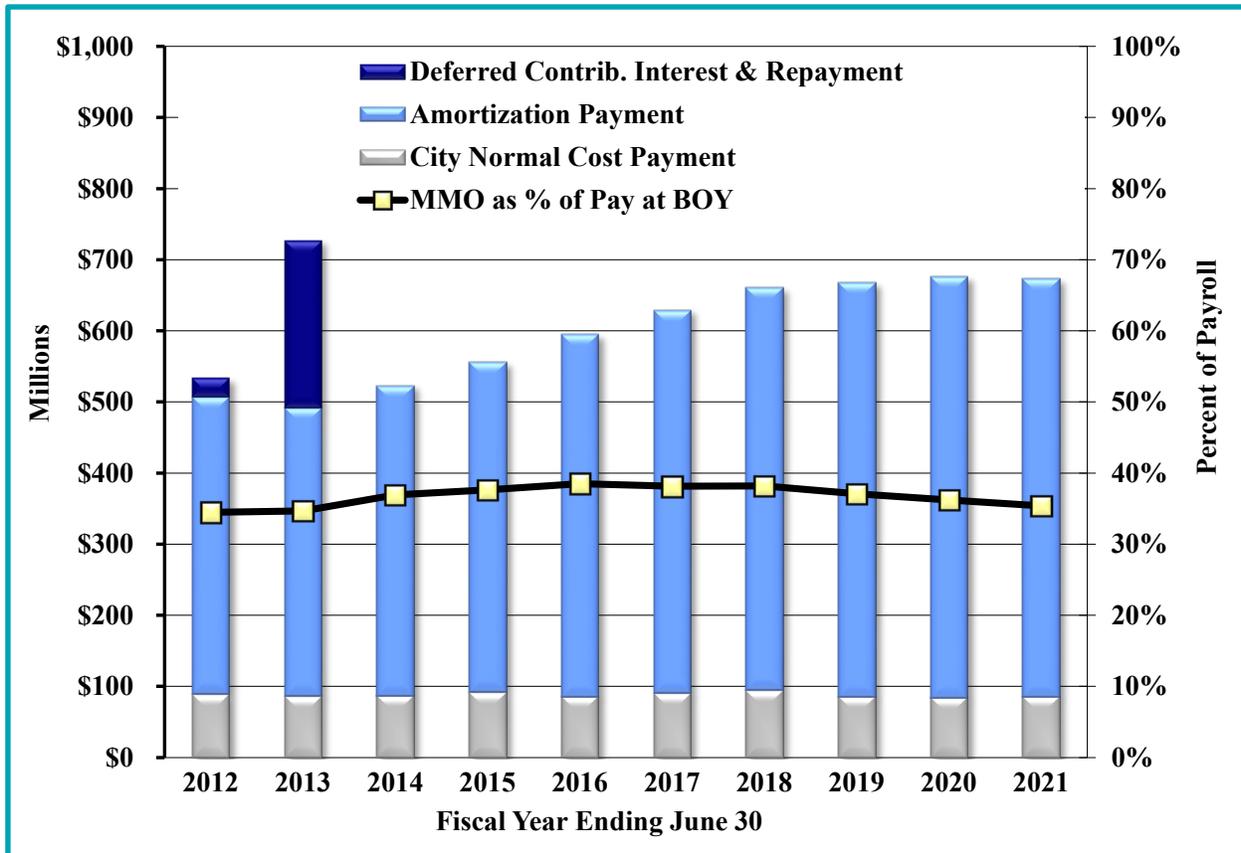
The key trend illustrated in this chart is from FYE 2012 through FYE 2017 all measures of contributions were increasing due in part to ten-year smoothing of historical investment losses and assumption changes that resulted in increases in UAL. Starting with 2018 the MMO has remained relatively flat and in fact decreased in 2021. The RRP is approximately \$39.1 million higher than the MMO in FYE 2021. 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, City normal cost payments, and the deferred contribution interest and principal repayment. 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) as a percentage of payroll, not including the deferred contributions).

MMO Contributions by Source for Fiscal Years 2012-2021



The amortization payment to pay off the unfunded actuarial liability has increased from \$417 million for FYE 2012 to \$588 million for FYE 2021. 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. The amortization amount has decreased slightly in FYE 2021 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 34.5% in FYE 2012, then increased gradually as the investment losses of FYE 2008 and 2009 were still being recognized until this year. It has been decreasing over the last three years to the current level of approximately 35.4% in FYE 2021 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, 2019 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, 2019 valuation.

All projections also reflect future new hires 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.

Fiscal Year Ending	2020	2021	2022	2023	2024
Expected Sales Tax	\$ 58,113,611	\$ 63,688,567	\$ 69,658,445	\$ 75,670,618	\$ 82,186,449
Fiscal Year Ending	2025	2026	2027	2028	2029
Expected Sales Tax	\$ 89,384,287	\$ 94,618,894	\$ 99,984,367	\$ 105,483,976	\$ 111,121,075
Fiscal Year Ending	2030	2031	2032	2033	2034
Expected Sales Tax	\$ 116,899,102	\$ 122,821,580	\$ 128,892,119	\$ 135,114,422	\$ 141,492,283
Fiscal Year Ending	2035	2036	2037	2038	2039
Expected Sales Tax	\$ 148,029,590	\$ 154,730,329	\$ 161,598,588	\$ 168,638,552	\$ 175,854,516

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SECTION I – BOARD SUMMARY

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 2009 to 2019 and the projected period from 2020 to 2039 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.

We show stress testing to illustrate the impact of varying returns on the System in Section II – Assessment and Disclosure of Risk of this report. We do this because 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.

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.

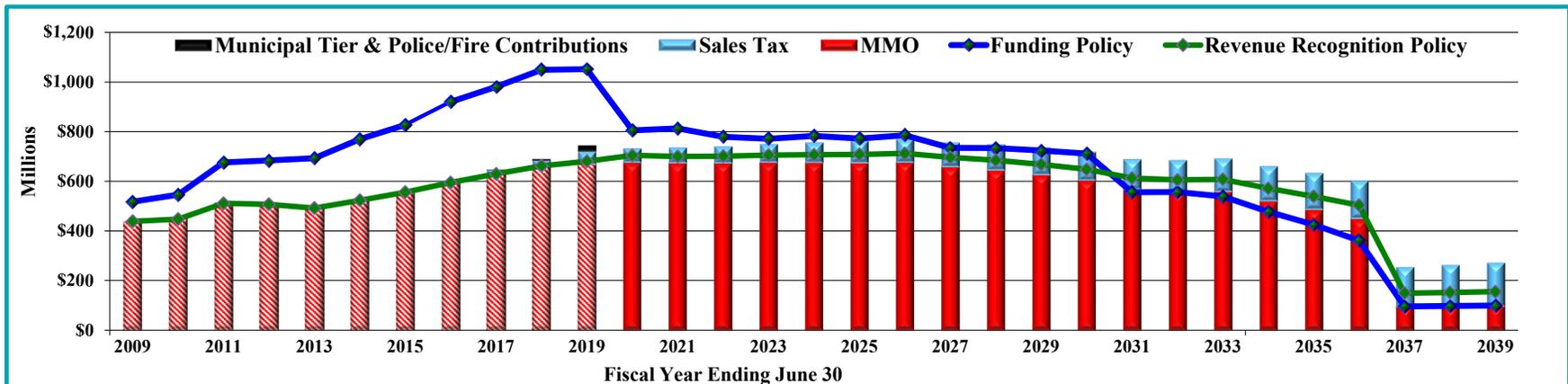
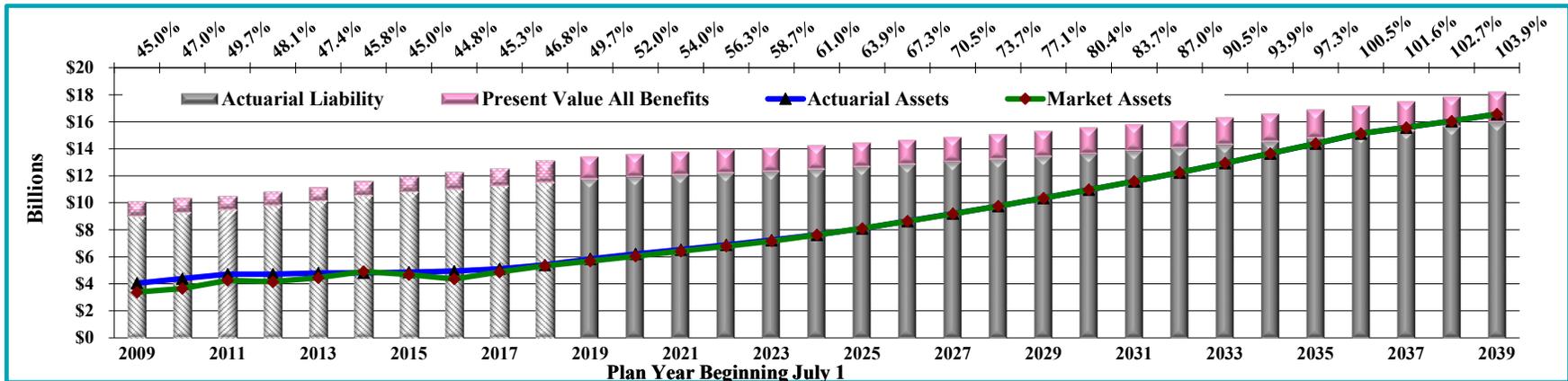
We note that when the System becomes 70% funded or greater, the unfunded liability may be amortized on a rolling 10-year basis. We have not shown the implications of this alternative funding method provided for in Act 205.

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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% in 2030 and 100% funded by 2036. Funding at the MMO level with the current ten-year asset smoothing method and the 2009, 30-year fresh start amortization method on a level-dollar basis, would result in a relatively slow improvement of funding.



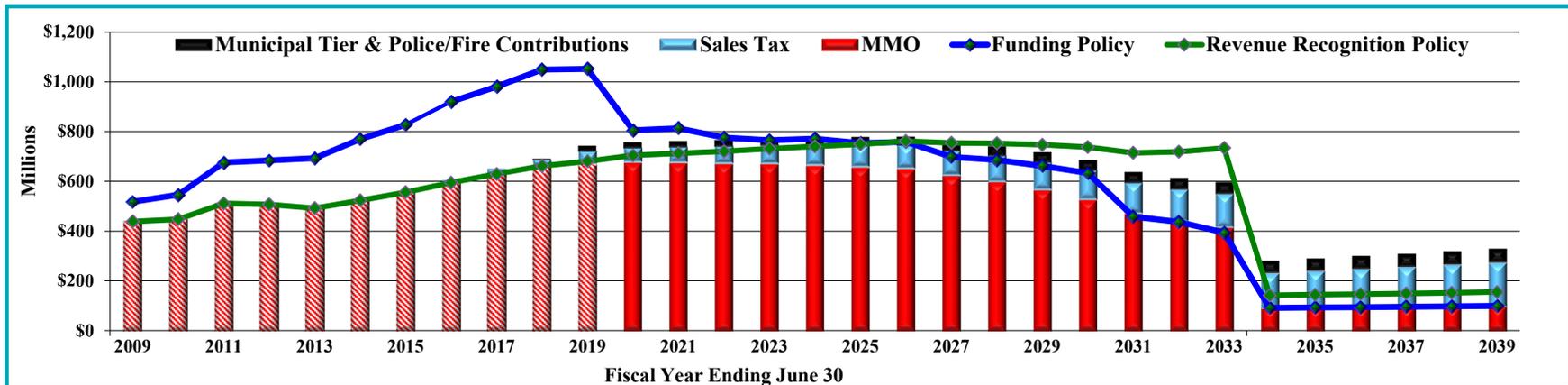
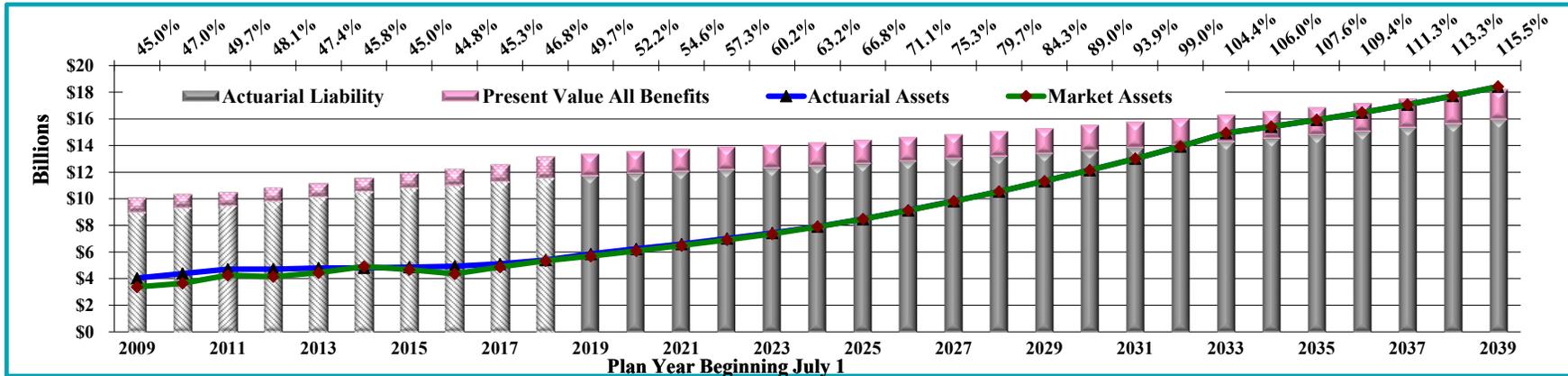
The decrease in FYE 2020 for the City's Funding Policy (blue line) is due to the expected payment in full of the initial unfunded liability.

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SECTION I – BOARD SUMMARY

Baseline Projection Set 2: City Makes Contributions based on RRP

This chart illustrates the impact on the funded status when the additional revenue sources are used to pay down the UAL under the RRP as opposed to reducing future costs. The System is projected to be 80% funded by 2029 and 100% funded by 2033, three years earlier than under the MMO projections. By the end of the projection period, the System is expected to be funded at 115.5% compared to 103.9% when MMO contributions are made.



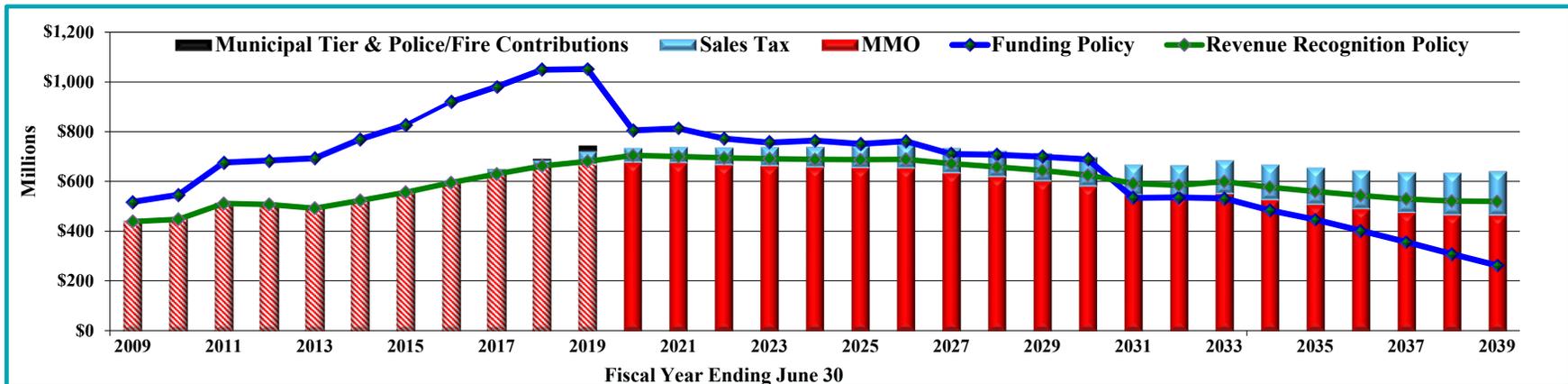
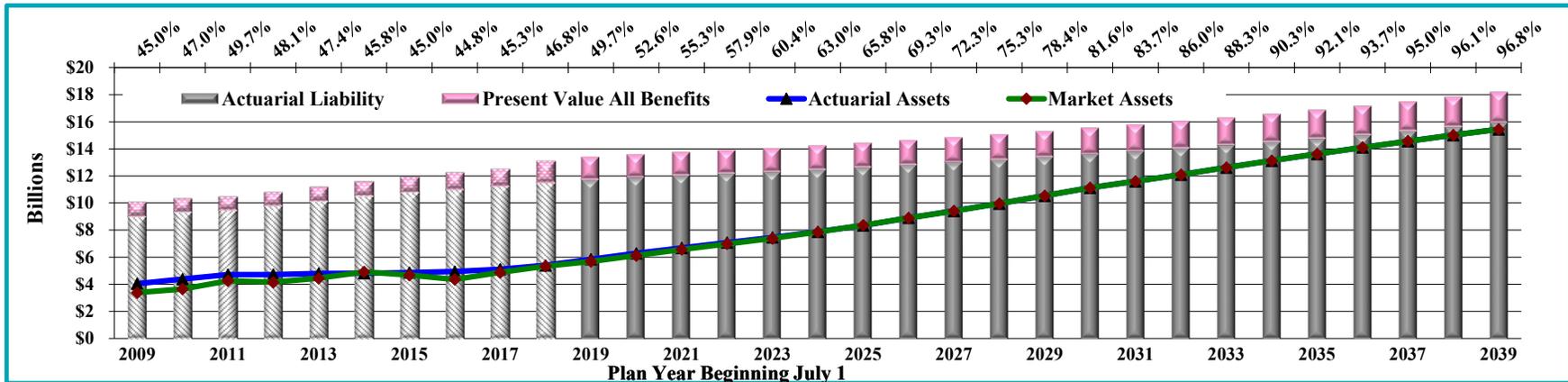
Sales tax revenue and additional member contributions are not included in the green line which shows the RRP contributions. The RRP contribution is higher than the MMO until the System reaches 100% funded in FYE 2034 at which time it drops to the normal cost rate.

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SECTION I – BOARD SUMMARY

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

If the City’s Funding Policy is contributed every year going forward, the System reaches a funded ratio of 96.8% 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, therefore, resulting in a lower funded ratio by the end of the projection period.



Significantly larger contributions are assumed through FYE 2019, when projected contributions decline more rapidly after the initial funded base is expected to be paid off 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 \$800 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 in higher investment returns for fixed income investments, but lower expected future returns 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 2010-2019

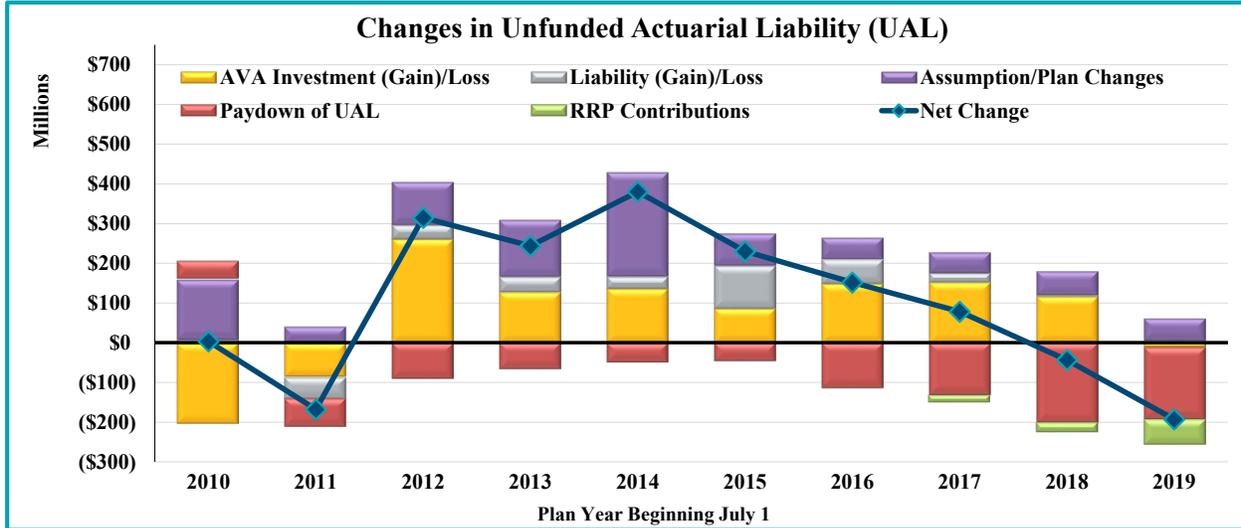


Table II-1 Changes in Unfunded Actuarial Liability (UAL) (\$ millions)											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Discount Rate	8.15%	8.10%	7.95%	7.85%	7.80%	7.75%	7.70%	7.65%	7.60%	7.55%	
Source											
AVA Investment (G)/L	\$ (201.9)	\$ (84.4)	\$ 260.7	\$ 127.7	\$ 136.5	\$ 87.0	\$ 148.8	\$ 152.0	\$ 117.0	\$ (10.9)	\$ 732.5
Liability (G)/L	8.6	(54.3)	35.9	39.3	31.0	107.9	62.1	23.9	3.6	6.4	264.4
Assumptions/Plan Changes ¹	151.2	42.3	108.5	143.1	262.2	81.0	54.7	52.4	60.3	56.7	1,012.4
Paydown of UAL ²	45.4	(71.4)	(90.4)	(66.3)	(49.5)	(45.8)	(113.8)	(130.9)	(199.4)	(180.5)	(902.6)
RRP Contributions ³	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(19.2)	(25.1)	(64.6)	(108.9)
Total UAL Change	\$ 3.3	\$ (167.8)	\$ 314.7	\$ 243.8	\$ 380.2	\$ 230.1	\$ 151.8	\$ 78.2	\$ (43.6)	\$ (192.9)	\$ 997.8

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

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

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

On a smoothed asset basis, the investment gains and losses (gold bars) from 2010 to 2019 reflect material investment losses driven by the market decline of 2008 and 2009, which was spread over the ten successive years. Over the 10-year period, investment losses have added approximately \$732.5 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 \$264.4 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 \$1,012.4 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 from 8.15% to 7.55% as well as experience studies in 2010, 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. With the continued low-interest rate environment, we are continuing to see investment consultants reduce their capital market and underlying inflation assumptions. As a result, 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 mortality 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, contributions, and timing, have decreased the UAL by about \$902.6 million over the last 10 years.

Finally, starting in 2016, the City has started contributing sales tax and higher amounts under the RRP in comparison to MMO. In the last three years, RRP contributions (green bars) in excess of the MMO contributions have decreased the UAL by about \$108.9 million. In future years, as the tax revenue and tiered/additional member contributions paid in excess of the MMO accumulate, this amount will continue to increase.

Plan Maturity Measures

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

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

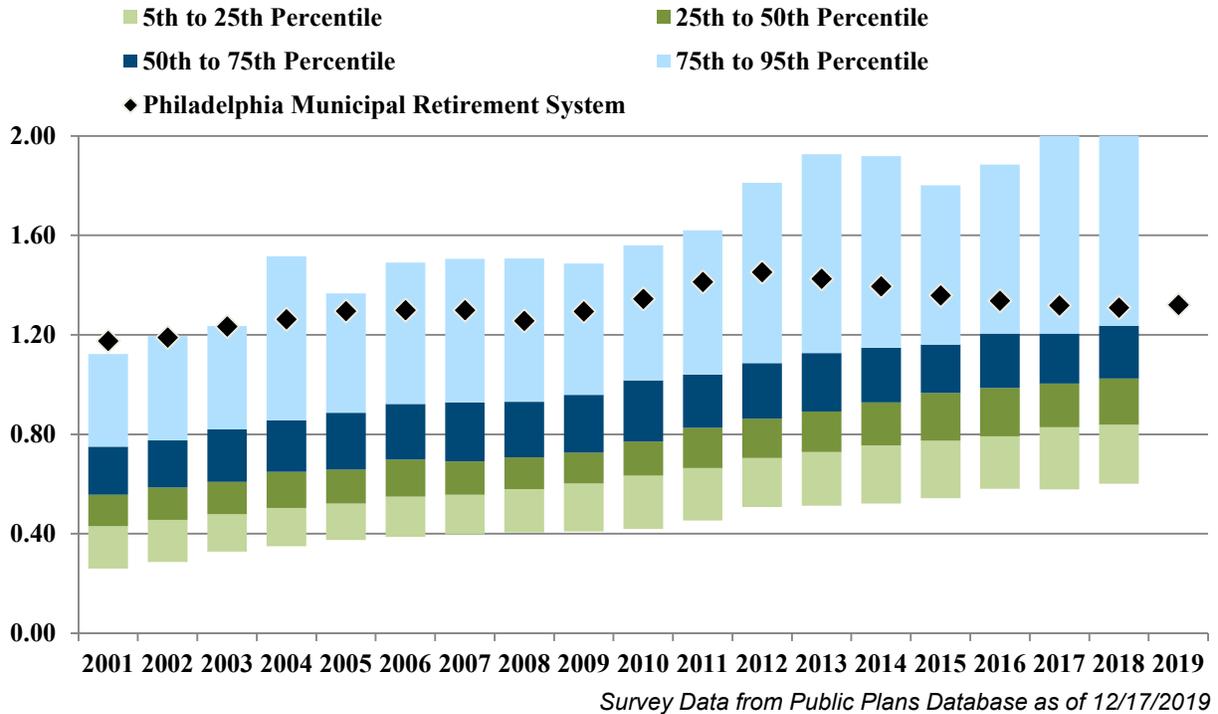
Inactives per Active (Support Ratio)

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 plan 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.

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Support Ratio - Inactives per Active



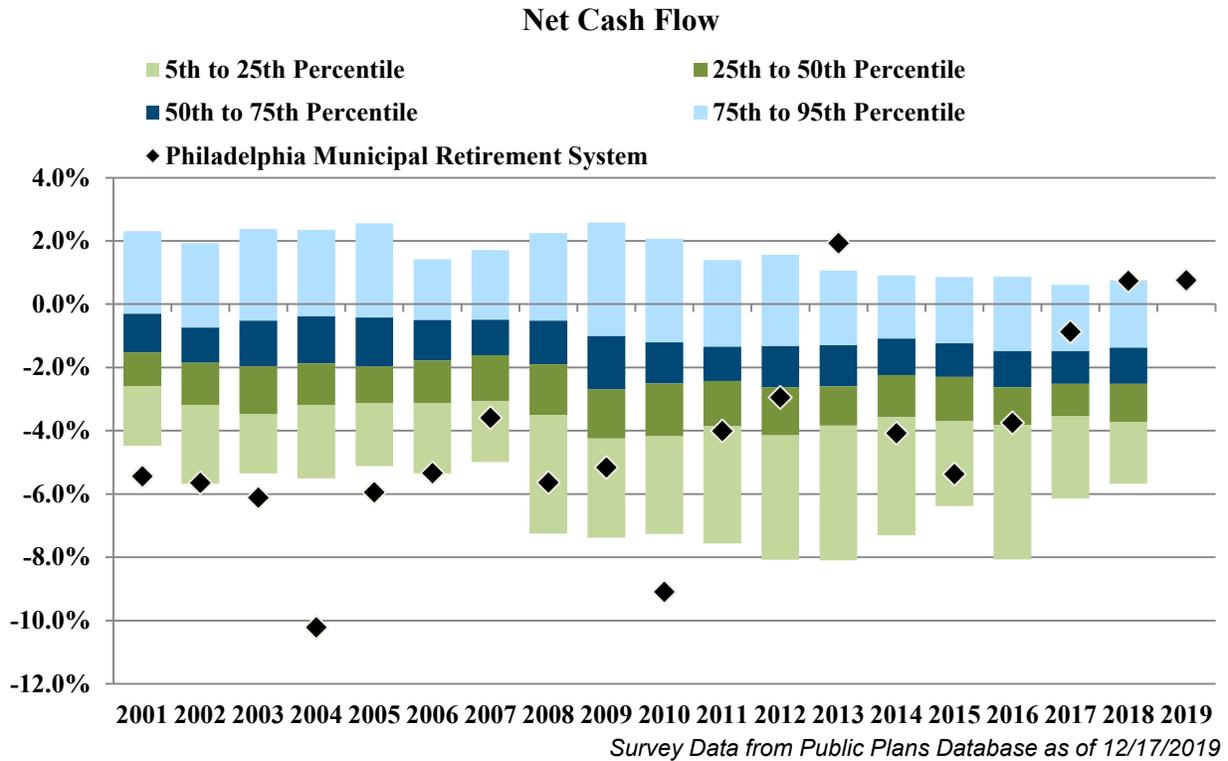
The chart above shows the distribution from the 5th to 95th percentile of support ratios for the plans in the Public Plans Database. The black diamond shows how the System compares. What this shows is that the System was already in a relatively mature status in 2001 while the other systems over this 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 been decreasing since 2012 and currently has a similar support ratio in 2019 as compared to 2001. These changes also reflect the decrease in the City’s active members in response to the recession and gradual increase in active members since then.

Net Cash Flow

The net cash flow of the plan 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 5th to 95th percentile of net cash flow for the plans in the Public Plans Database. The black diamond shows how the System compares. Up until 2006, the System was consistently below the 5th percentile compared to the database of other public plans in terms of negative cash flow as a percentage of assets. In 2004, the net cash flow decreased down to -10.2% due to a PAF distribution. The decrease in 2010 was a result of the deferred contributions which were subsequently repaid in 2013, causing a positive net cash flow for that year. The steps taken by the City and participants in providing additional contributions to the System has reduced this cash flow risk significantly. In 2018 and 2019, there was a positive cash flow which would put the System on the other side of the spectrum in the 95th percentile.

Assessing Costs and Risks

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

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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 7.55% investment return assumption each year beginning July 1, 2019.

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 10-year capital market assumptions from the System’s investment consultant as of March 2020 (geometric return of 7.63%, standard deviation of 12.04%).

Distribution of Expected Average Annual Returns		
Percentile	1 Year	5 Year
5%	-12.2%	-1.2%
25%	-0.5%	4.0%
50%	7.6%	7.6%
75%	15.8%	11.3%
95%	27.4%	16.5%

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

FYE	Theoretical Scenarios					
	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
	Neg	Pos	Neg	Pos	Neg	Pos
2020	-12.2%	27.4%	4.0%	11.3%	-1.2%	16.5%
2021	7.55%	7.55%	4.0%	11.3%	-1.2%	16.5%
2022	7.55%	7.55%	4.0%	11.3%	-1.2%	16.5%
2023	7.55%	7.55%	4.0%	11.3%	-1.2%	16.5%
2024	7.55%	7.55%	4.0%	11.3%	-1.2%	16.5%
2025+	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%

Note that the negative 1-year shock scenario that shows a -12.2% return in FYE 2020 and the accompanying positive 1-year shock scenario that shows a 27.4% return are just examples of stress testing scenarios. Additional stress testing of multiple scenarios will be presented by Cheiron and the System’s investment staff at an upcoming Board meeting.

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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 7.55% return assumption each and every year from the prior section, the System achieved fully funded by 2033. The stress testing of 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 smoothing 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.

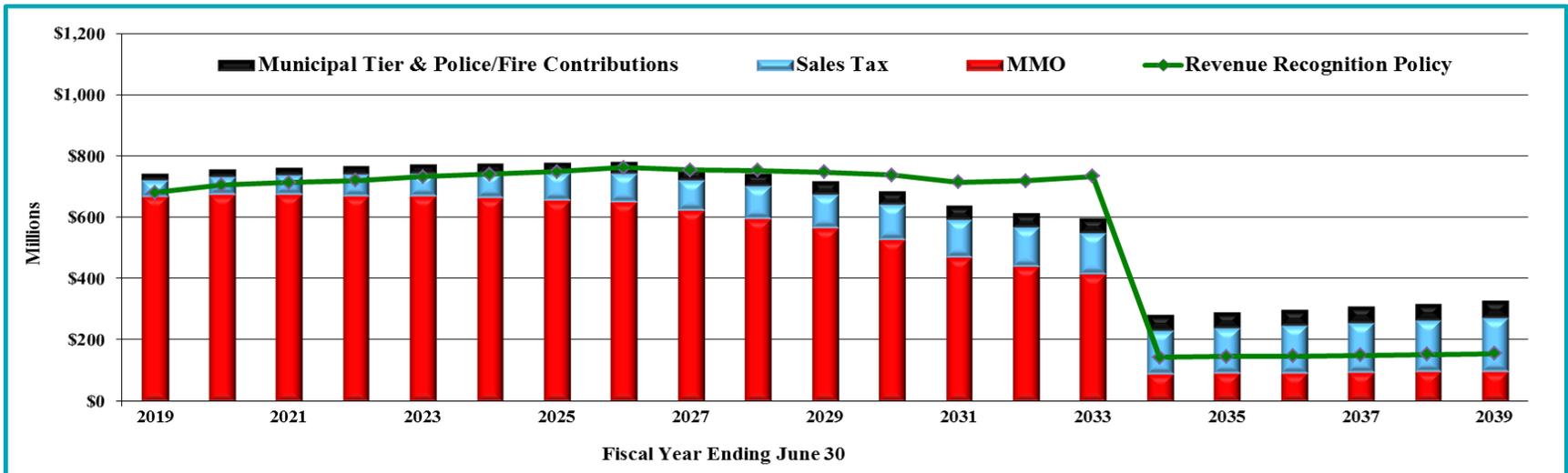
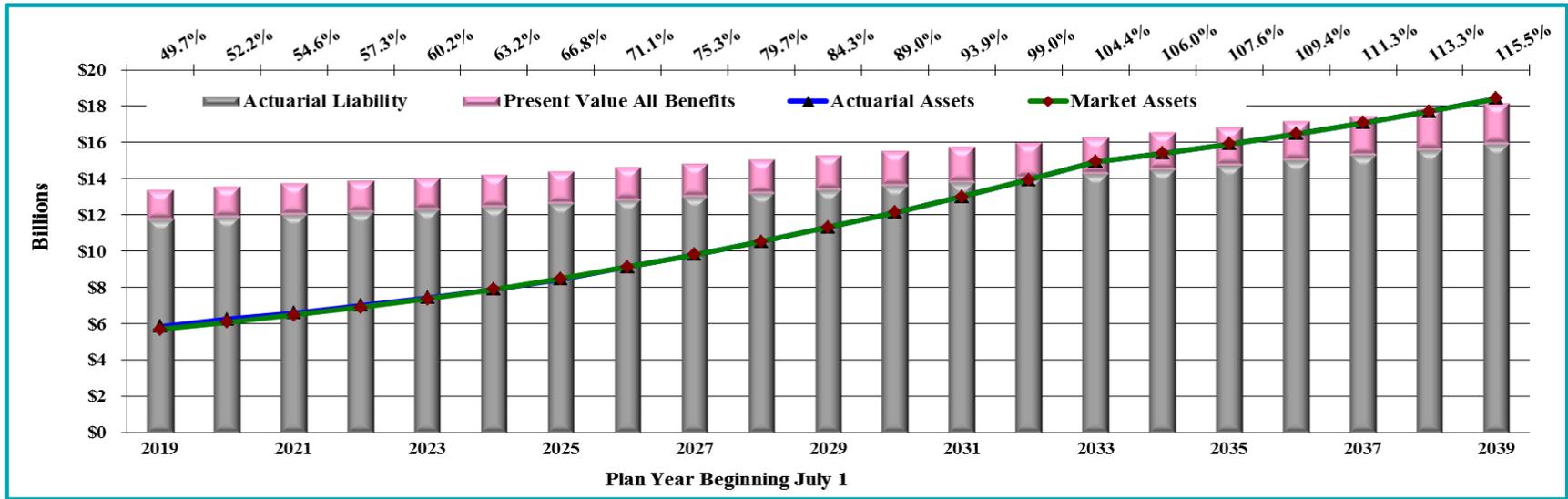
When a mature system pays out more than it receives in a year and returns are below the assumption, the assets that get paid out are no longer in the system during subsequent years of market recovery. So a system with significant negative cash flow coupled with investment return volatility will grow at a slower rate than the investment return assumption. While the net cash flow has been negative historically, it has been positive for two 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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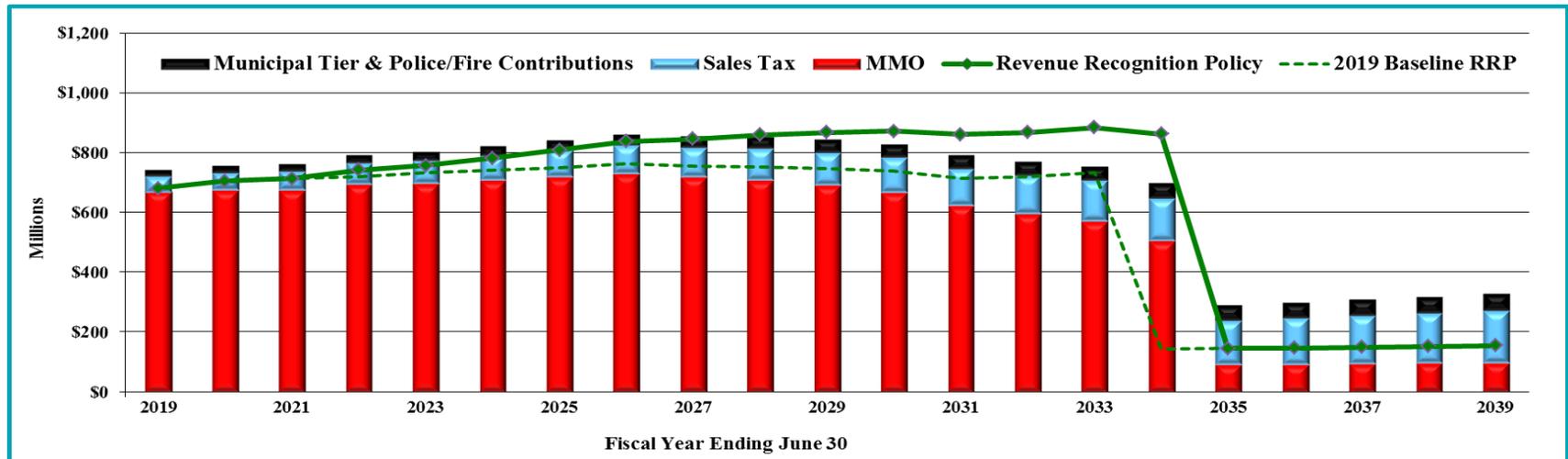
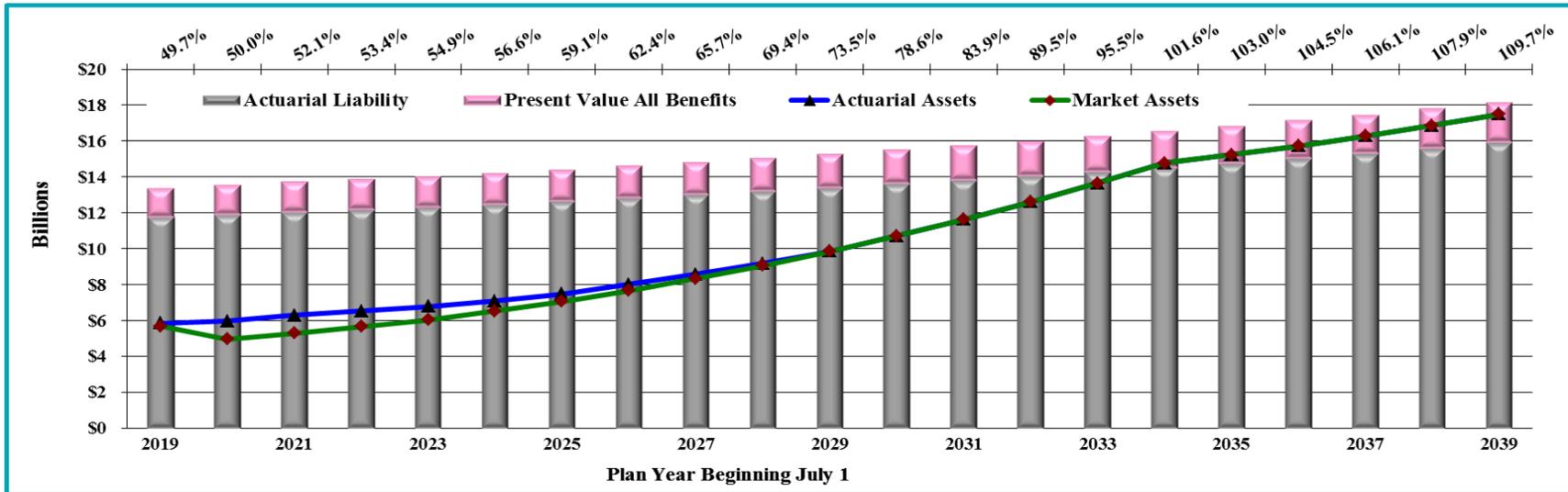
Baseline Scenario: 7.55% return for all years based on RRP contributions



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One-Year Negative Shock Scenario: -12.2% return FYE 2020, 7.55% after

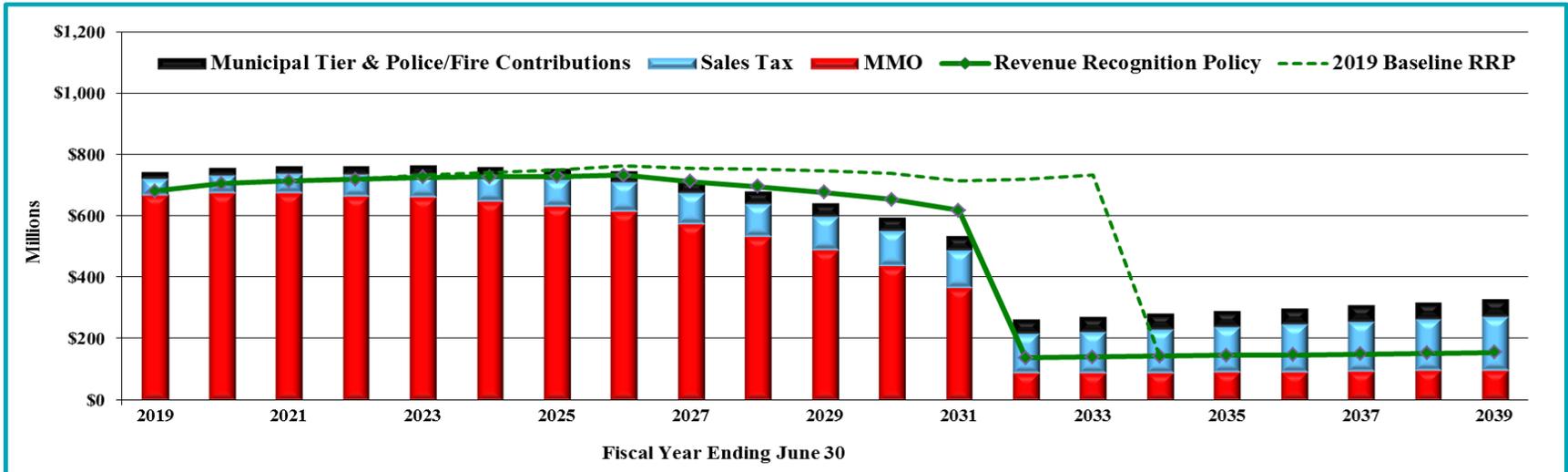
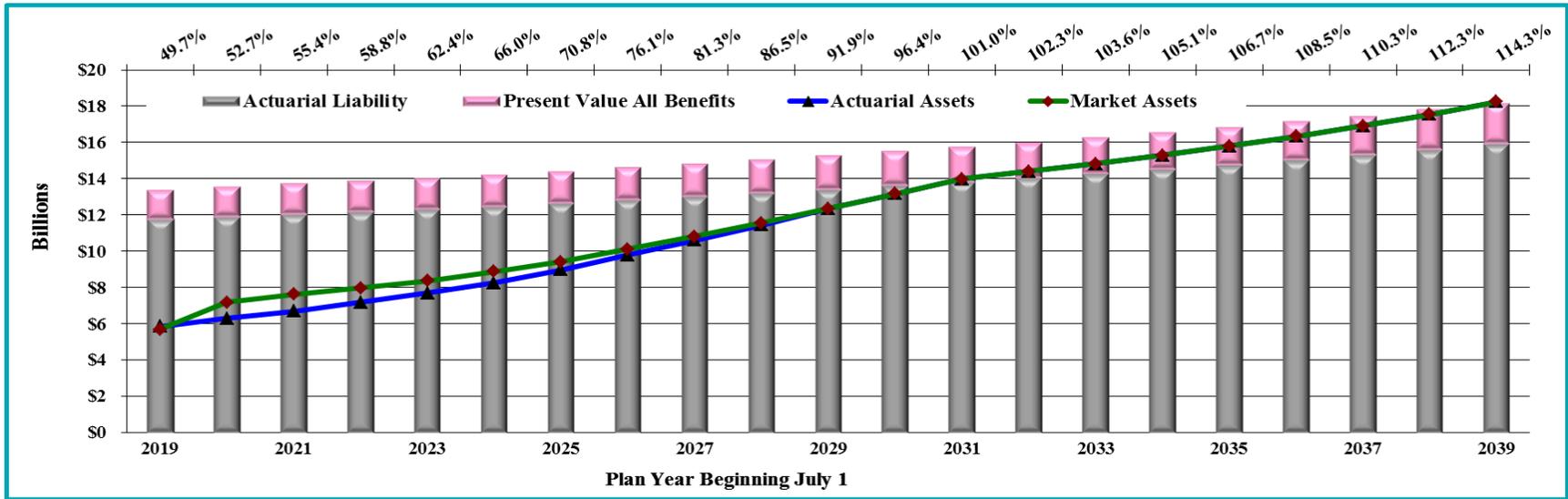


*Note that the negative 1-year shock scenario that shows a -12.2% return in FYE 2020 above is just one example of the stress testing scenarios. Additional testing of multiple scenarios will be presented by Cheiron and the System’s investment staff at an upcoming Board meeting.

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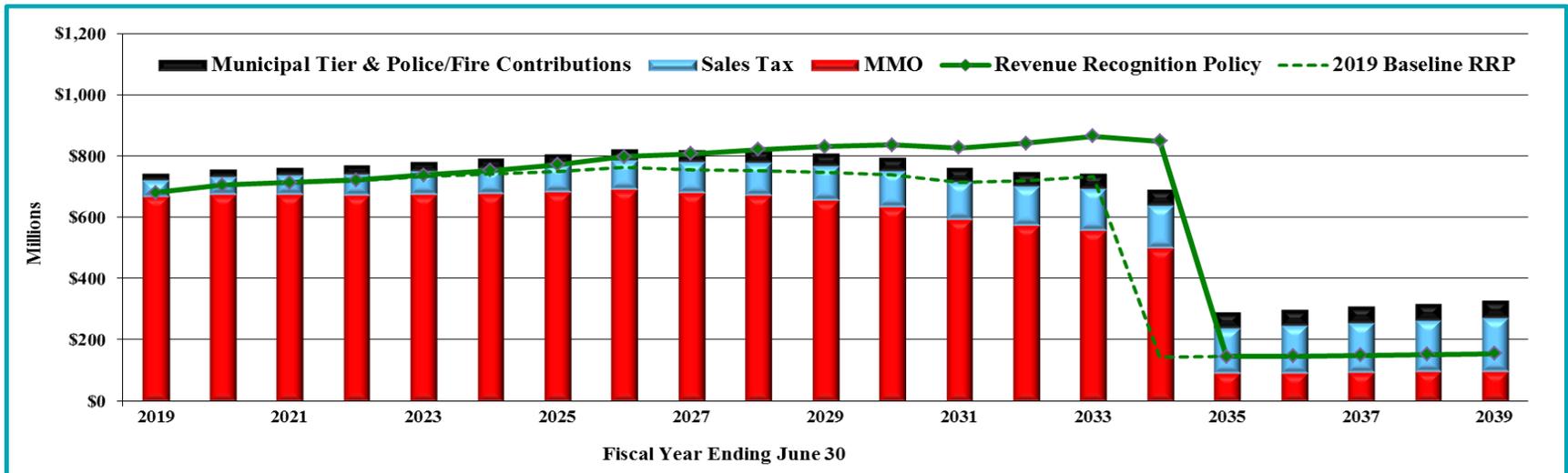
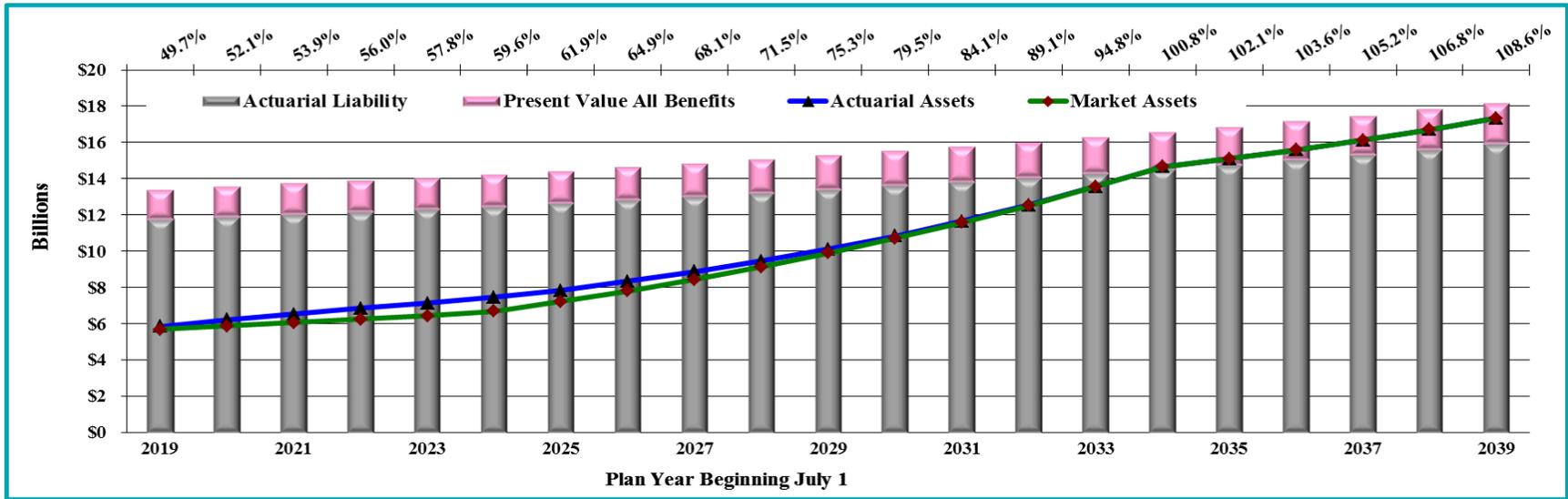
One-Year Positive Shock Scenario: 27.4% return FYE 2020, 7.55% after



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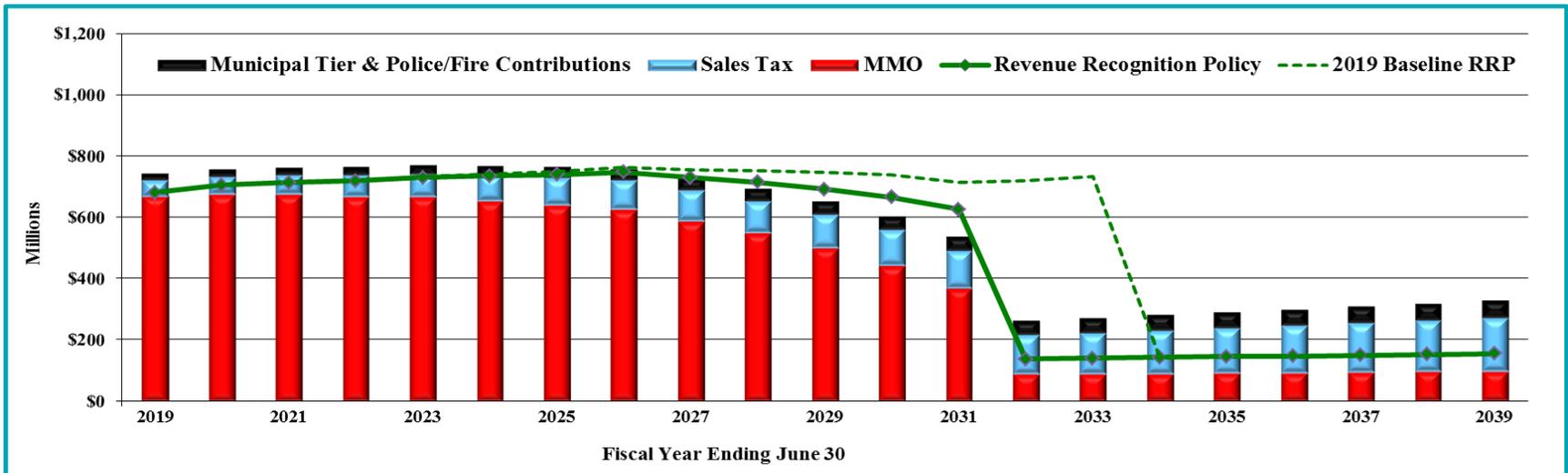
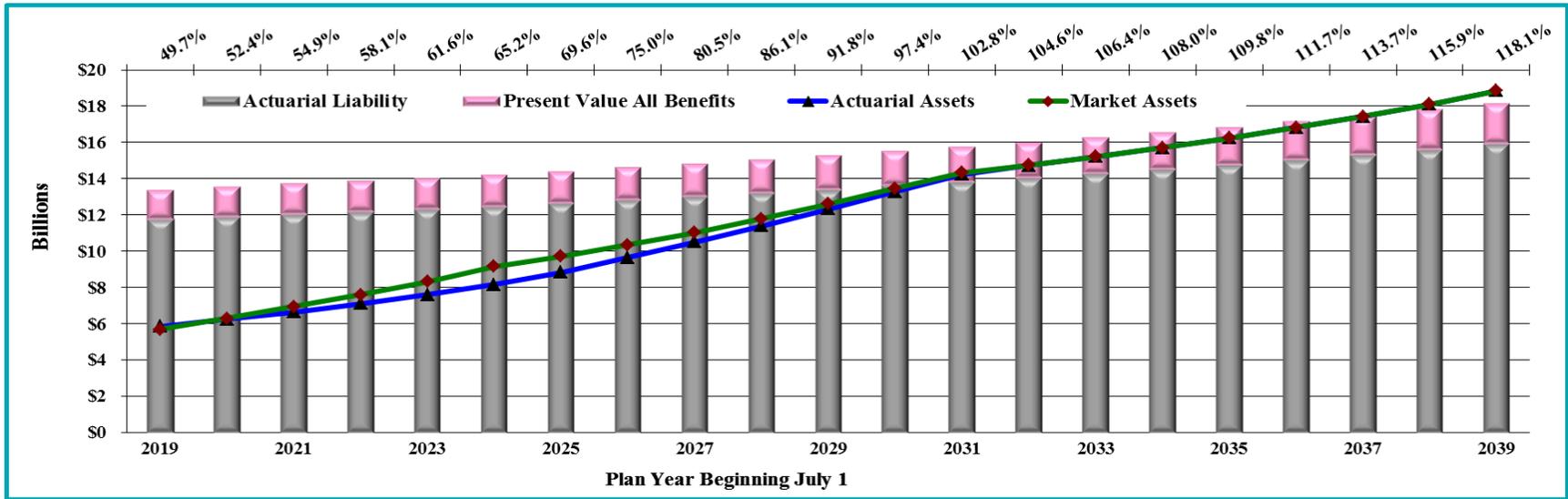
Five-Year Moderate Negative Scenario: 4.0% return FYE 2020-2024, 7.55% after



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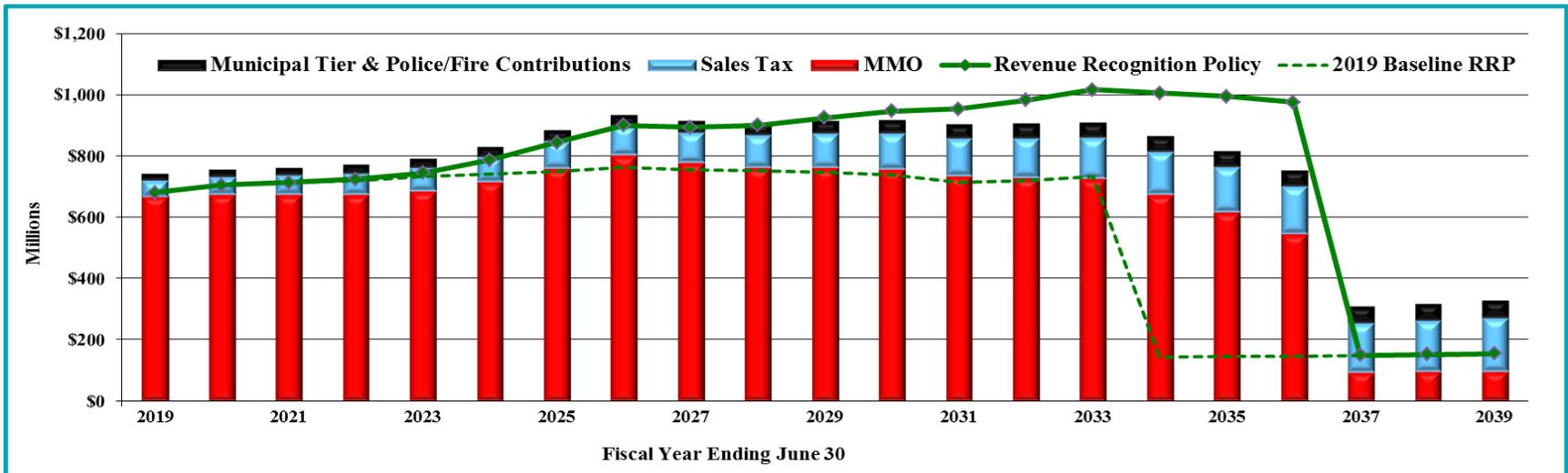
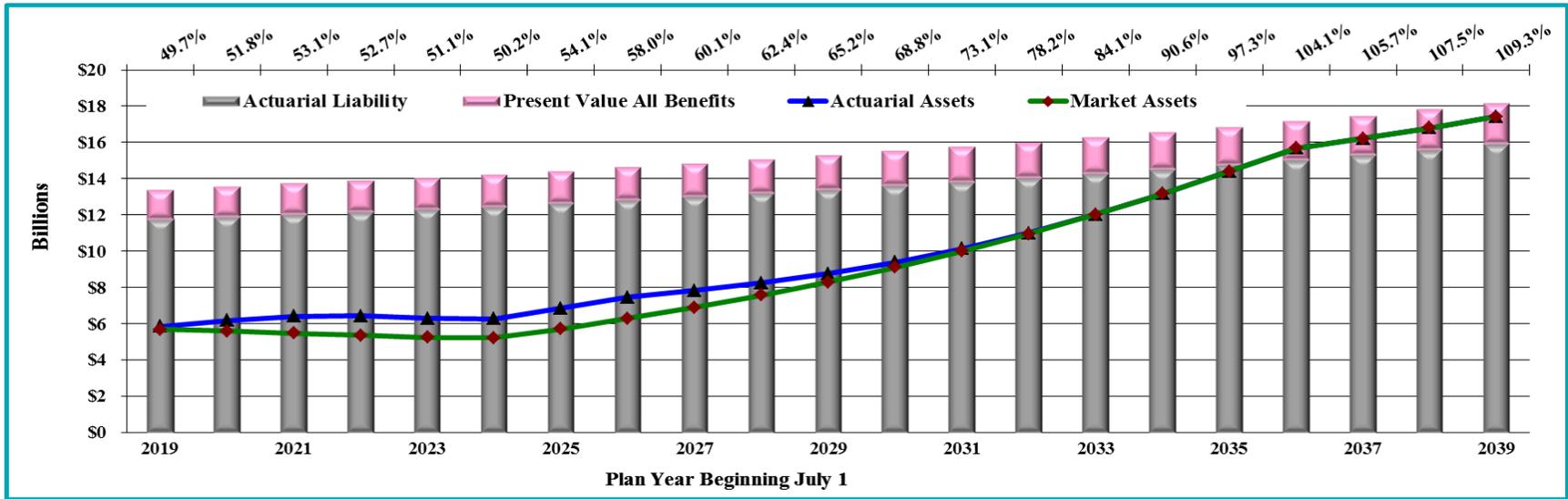
Five-Year Moderate Positive Scenario: 11.3% return FYE 2020-2024, 7.55% after



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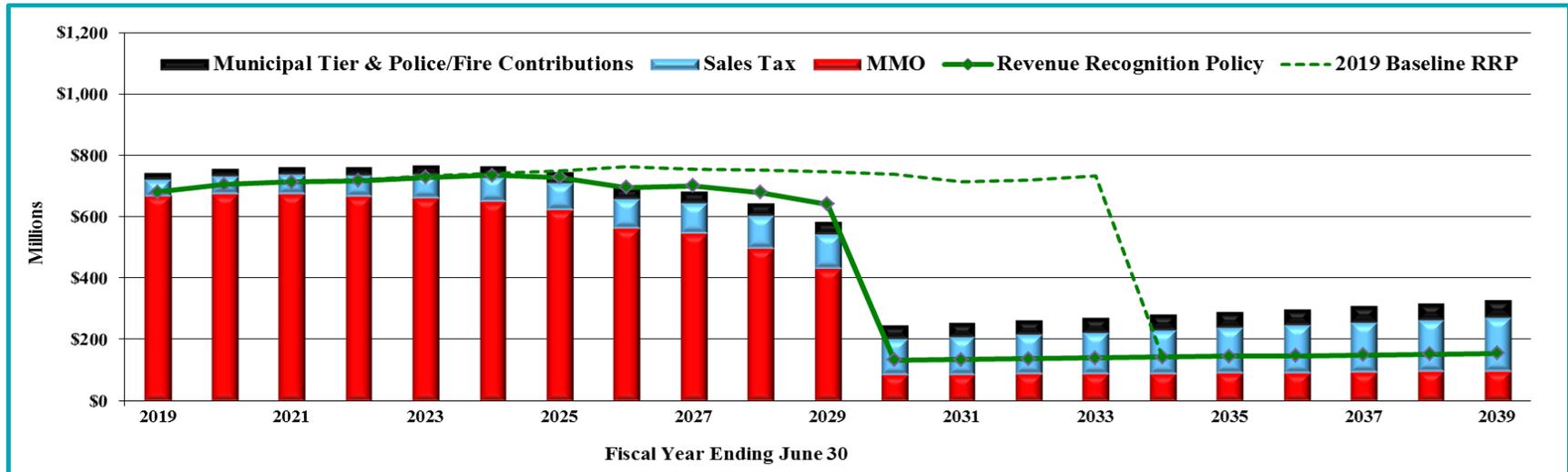
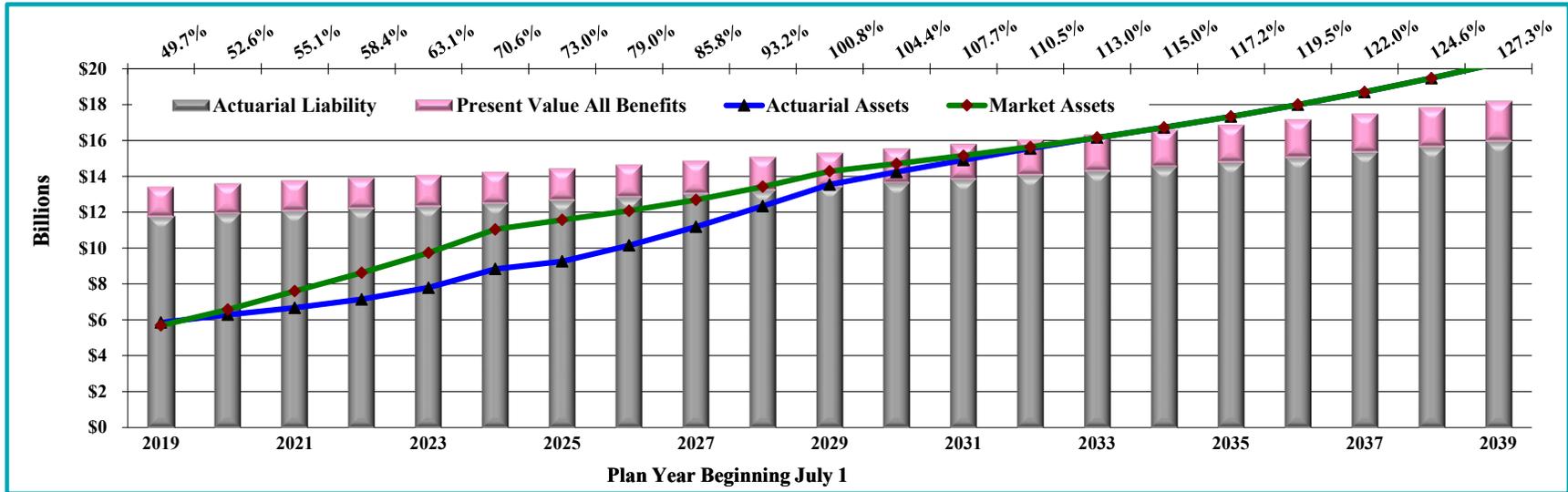
Five-Year Significant Negative Scenario: -1.2% return FYE 2020–2024, 7.55% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Positive Scenario: 16.5% return FYE 2020-2024, 7.55% after



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

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

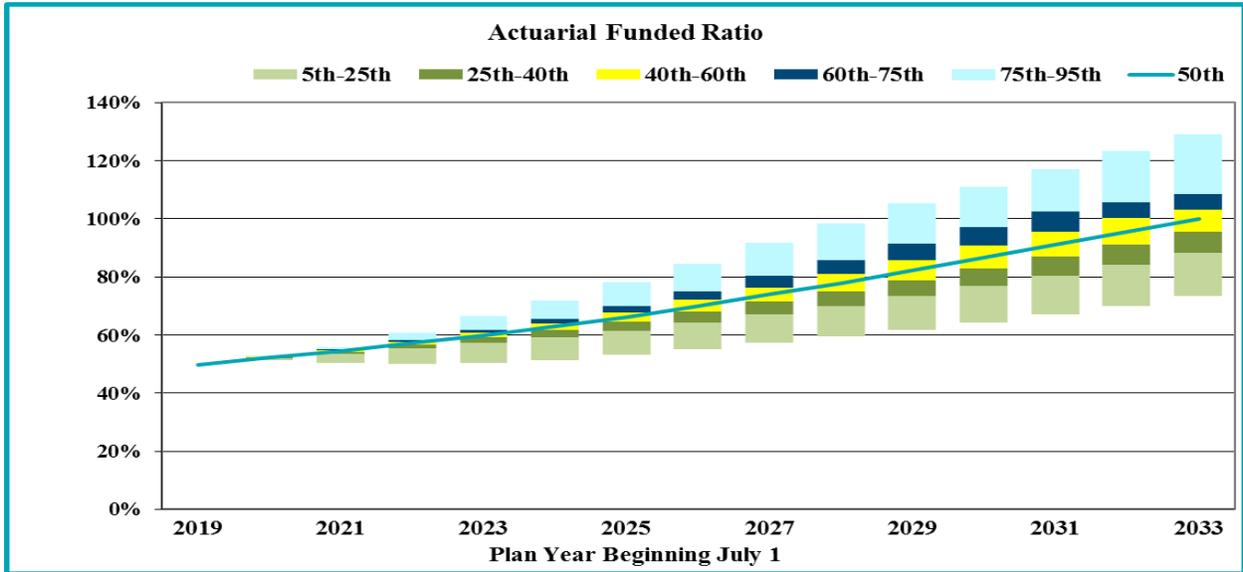
Stochastic Projections are used to provide a more realistic picture of what the likely future outcomes might be. Instead of a single projection, we use the expected long term average return allowing for the returns for each year to vary according to the expected volatility of asset returns based on the current asset allocation. The returns are determined randomly within acceptable 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 7.63%, standard deviation of 12.04%). The yellow bar around the blue line shows there is a 20% probability the actual ratio will fall within the range. The dark green and dark blue bars show that there is a 50% probability the actual results will fall within the ranges (25th-40th and 60th-75th). Finally, the light green and the light blue bars show that there is a 90% chance the actual results will fall within those ranges (5th-25th and 75th-95th). Another way to say this is there is a 10% chance the ratio could be above or below the projected range of ratios shown. There is increasing uncertainty in the actuarial funded ratio and level of City contributions depending on investment returns over time reflected in how broad the range gets.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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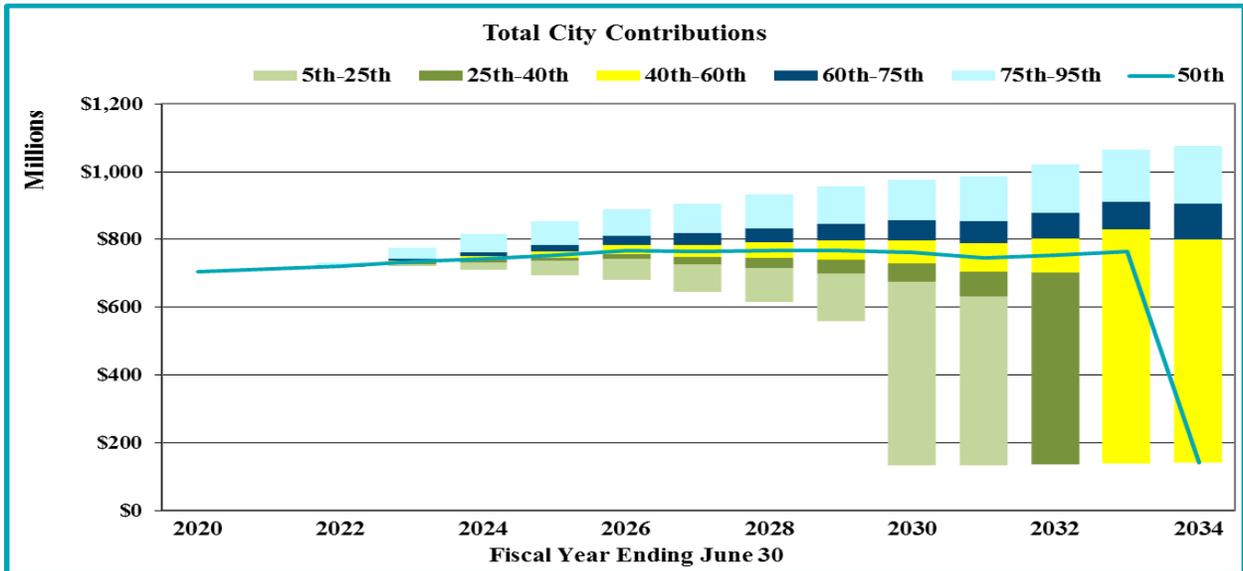
SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Stochastic Projection of Actuarial Funded Ratio and City Contributions



In the worst scenarios, the System’s actuarial funded ratio is just over 70% by plan year beginning 2033 based on poor investment returns. In the best scenarios, the System’s actuarial funded ratio reaches just under 130% by 2033.

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



In the worst scenarios, the City’s contribution amount could exceed \$1 billion by FYE 2034. 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.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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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 beginning in 2008 (five years before 2008) 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, 2018 and July 1, 2019,
- 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, 2019,
- 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 would 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, 2018 and July 1, 2019. Table III-2 presents the System’s net cash flows for the plan year beginning July 1, 2018 and ending June 30, 2019. Table III-3 presents Fiscal 2019 contributions received from the City and members of the System.

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

Table III-1		
Statement of Assets at Market Value*		
	7/1/2019	7/1/2018
<u>Assets</u>		
Cash	\$ 17,463,705	\$ 14,542,295
Investments	5,555,149,856	5,208,327,049
Securities Lending	381,507,629	411,318,769
Accrued Interest and Other Receivables	260,620,397	238,879,825
Due from Other Governmental Units	<u>7,815,928</u>	<u>9,225,655</u>
Total Assets	\$ 6,222,557,515	\$ 5,882,293,593
<u>Liabilities</u>		
Due on Securities Lending	\$ 381,430,628	\$ 411,286,925
Accrued Expenses and Other Liabilities	<u>152,743,536</u>	<u>129,721,140</u>
Total Liabilities	\$ 534,174,164	\$ 541,008,065
Net Assets	\$ 5,688,383,351	\$ 5,341,285,527

* 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, 2018 through July 1, 2019

Table III-2 Changes in Market Values¹		
Value of Assets – July 1, 2018		\$ 5,341,285,527
<u>Additions</u>		
Contributions:		
Employer Contributions	\$ 797,805,518	
Employee Contributions	99,179,683	
Total Contributions		\$ 896,985,201
Investment Income:		
Appreciation in FV of Investments	\$ 176,587,085	
Interest and Dividends	132,655,148	
Total Investment Income	\$ 309,242,233	
Investment Activity Expenses:		
Investment Expenses	(7,492,987)	
Total Investment Activity Expenses	\$ (7,492,987)	
Securities Lending Activities:		
Securities Lending Income	\$ 2,166,363	
Securities Lending Expenses	(324,382)	
Net Income from Securities Lending Activities	\$ 1,841,981	
Miscellaneous Operating Revenues	\$ 144,720	
Net Investment Income		303,735,947
Total Additions		\$ 1,200,721,148
<u>Deductions</u>		
Administrative Expenses	\$ (11,154,696)	
Refunds of Member Contributions	(10,001,504)	
Benefit Payments	(832,466,302)	
PAF Distributions	(822)	
Total Deductions		(853,623,324)
<u>Total</u>		
Net Increase (Decrease)		347,097,824
Value of Assets – July 1, 2019		\$ 5,688,383,351

¹ Includes the PAF which is not available for funding purposes

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

SECTION III – ASSETS

Table III-3		
Contributions for the Plan Year Ending June 30, 2019		
City Contributions		
Cash Received from City during Fiscal Year 2019	\$	720,458,669
Sales Tax Revenue		52,099,331
Cash Received from Quasi-Agencies		<u>25,247,518</u>
Total Cash Received from City during Fiscal Year 2019	\$	797,805,518
Member Contributions		
Regular Member Contributions	\$	75,066,025
Tier Member Contributions (Municipal and Elected)		11,238,896
Additional Member Contributions (Police and Fire)		<u>12,874,762</u>
Total Member Contributions Received during Fiscal Year 2019	\$	99,179,683

The City’s contribution of \$720.5 million includes the extra contribution of \$39.6 million in excess of the FYE 2019 RRP contribution amount.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

SECTION III – ASSETS

C. Actuarial Value of Assets

To determine on-going funding requirements, most pension systems utilize an actuarial value of assets that differs from the market value of assets. The actuarial value of assets represents an asset value based on averaging or smoothing year-to-year market value returns for purposes of reducing contribution volatility. Beginning with investment losses as of Fiscal Year End 2009, gains and losses are prospectively distributed 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, 2019						
1. Market Value of Assets as of July 1, 2019						\$ 5,688,383,351
2. Pension Adjustment Fund (PAF) as of July 1, 2019 Before Additional Transfers						\$ 1,225,114
3. Market Value of Assets Net of Original PAF*						\$ 5,687,158,237
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>		
2010	\$ 200,524,637	100%	0%	\$ 0		
2011	414,187,915	90%	10%	41,418,792		
2012	(328,486,968)	80%	20%	(65,697,394)		
2013	127,718,278	70%	30%	38,315,483		
2014	347,082,935	60%	40%	138,833,174		
2015	(349,020,722)	50%	50%	(174,510,361)		
2016	(489,127,035)	40%	60%	(293,476,221)		
2017	242,673,428	30%	70%	169,871,400		
2018	79,312,820	20%	80%	63,450,256		
2019	(92,799,571)	10%	90%	(83,519,614)		
Total				\$ (165,314,485)		
5. Preliminary Actuarial Value as of July 1, 2019 (5 = 3 - 4)						\$ 5,852,472,722
6. Corridor for Actuarial Value						
a. 80% of Market Value Net of PAF						\$ 4,549,726,590
b. 120% of Market Value Net of PAF						\$ 6,824,589,884
7. Additional PAF Transfer as of July 1, 2019						\$ 0
8. Actuarial Value of Assets Net of Final PAF as of July 1, 2019 8 = max(min of 5 or 6b) and 6a), minus 7						\$ 5,852,472,722
9. As a percent of Market Value Net of Final PAF						102.9%
10. Market Value of Assets Net of Final PAF						\$ 5,687,158,237

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

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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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, 2019										
(\$ 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, 2018	\$ 1,428,042	\$ 509,384	\$ 173,951	\$ 1,486,760	\$ 13,878	\$ 1,372,310	\$ 401,650	\$ 7,171	\$ 4,287	\$ 5,397,434
2. Transactions During Plan Year July 1, 2018 to June 30, 2019										
a. Contributions										
City and Commonwealth Employees	\$ 346,815	\$ 180,543	\$ 76,067	\$ 83,858	\$ 1,583	\$ 57,471	\$ 22,015	\$ 1,739	\$ 2,466	\$ 772,558
Quasi-Public Agencies	4,505	1,279	493	37,572	381	35,542	14,260	1,962	3,186	99,180
	20,742	0	0	4,200	0	0	0	97	208	25,248
b. Benefit Payments	(425,058)	(206,009)	(87,772)	(62,149)	(1,658)	(39,937)	(9,883)	0	0	(832,466)
c. Withdrawals	(991)	(720)	(129)	(4,937)	(54)	(2,608)	(481)	0	(81)	(10,002)
d. Administrative Expenses	(3,429)	(1,498)	(513)	(3,543)	(8)	(1,221)	(435)	(244)	(264)	(11,155)
e. Net Transactions	\$ (57,416)	\$ (26,405)	\$ (11,854)	\$ 55,001	\$ 244	\$ 49,247	\$ 25,476	\$ 3,554	\$ 5,515	\$ 43,363
3. Total Fund Balance Prior to Allocation of Investment Income [1. + 2e.]	\$ 1,370,626	\$ 482,979	\$ 162,097	\$ 1,541,761	\$ 14,122	\$ 1,421,557	\$ 427,126	\$ 10,725	\$ 9,802	\$ 5,440,797
4. Investment Income During Plan Year July 1, 2018 to June 30, 2019	\$ 103,708	\$ 36,544	\$ 12,265	\$ 116,657	\$ 1,069	\$ 107,562	\$ 32,318	\$ 812	\$ 742	\$ 411,677
5. Preliminary Actuarial Value of Assets as of July 1, 2019 [3. + 4.]	\$ 1,474,334	\$ 519,523	\$ 174,362	\$ 1,658,418	\$ 15,191	\$ 1,529,120	\$ 459,444	\$ 11,537	\$ 10,543	\$ 5,852,473
6. Allocation of PAF Transfer	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
7. Final Actuarial Value of Assets With Corridor as of July 1, 2019	\$ 1,474,334	\$ 519,523	\$ 174,362	\$ 1,658,418	\$ 15,191	\$ 1,529,120	\$ 459,444	\$ 11,537	\$ 10,543	\$ 5,852,473
8. Final Actuarial Value of Assets Less RRP Additional Revenue Account	\$ 1,438,166	\$ 506,778	\$ 170,085	\$ 1,617,734	\$ 14,819	\$ 1,491,608	\$ 448,173	\$ 11,254	\$ 10,285	\$ 5,708,900

Note: Numbers may not add due to rounding

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

E. Development of the Pension Adjustment Fund as of July 1, 2019

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

Table III-6 Development of the Pension Adjustment Fund as of July 1, 2019		
1.	PAF on July 1, 2018	\$ 1,160,247
2.	PAF Distribution	(822)
3.	Market Value Asset Return Through June 30, 2019 *	5.66%
4.	PAF on July 1, 2019 Before Additional Transfers** =(1) x [1 + (3)] + (2) x {[1+(3)]^.50}	\$ 1,225,114
5.	Adjusted Market Value of Assets Through June 30, 2019	\$ 5,714,566,238
6.	Adjusted Market Value of Assets Return Through June 30, 2019 ***	5.07%
7.	Return in Excess of Investment Assumption Plus 1.0%, Limited to 5.0% =(6) - [7.6% + 1.00%]	0.00%
8.	Additional Transfer as of July 1, 2019 =50% of (7) x (5)	\$ 0
9.	Total PAF as of July 1, 2019 = (4) + (8)	\$ 1,225,114

* 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

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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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 member contributions, which is anticipated to be contributed over and above the City’s contribution of the MMO. These additional sources of revenue are tracked separately and accumulated in a notional account. For determining the actuarial value of assets for the RRP, the additional revenue account is excluded from the assets. Below is the development of the assets used for the RRP.

Table III-7 Actuarial Value of Assets for Revenue Recognition Policy as of July 1, 2019	
1. Additional Revenue Account on July 1, 2018	\$63,111,588
2. Sales Tax Revenue Received During FYE June 30, 2019	\$52,099,331
3. Tier and Additional Member Contributions Received During FYE June 30, 2019*	24,113,658
4. Market Value Asset Return Through June 30, 2019	5.66%
5. Interest Through June 30, 2019	4,247,820
6. Additional Revenue Account on July 1, 2019 =(1) + (2) + (3) +(5)	\$143,572,397
7. Actuarial Value of Assets on June 30, 2019	\$5,852,472,722
8. Actuarial Value of Assets Net of Additional Revenue on June 30, 2019** =(7) - (6)	\$5,708,900,324

* 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 5.66% for the year ending June 30, 2019. This is compared to an assumed return of 7.60% for the same period. This return produced an overall investment loss of \$92.8 million for the year ending June 30, 2019. On an actuarial value of assets basis (net of PAF), the return for FYE 2019 was 7.60%. In the table below, we also provide returns from two broad asset classes for comparison.

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

* Net of PAF

** Formerly Lehman Brothers Aggregate Bond Index

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

H. Asset Gain/(Loss)

There was a \$92.8 million investment loss on market value of assets when compared to the expected as of July 1, 2019. Table III-9 reconciles the 2019 asset gain (expected versus actual) for the market value of assets both net of the PAF and in total. This investment gain is smoothed over a ten-year period to determine the actuarial value of assets (see Table III – 4). Also provided below is a reconciliation of the PAF.

Table III-9 Calculation of Asset Gain/(Loss)			
	Market Value (Net of PAF)	PAF	Total Market Value
1. Market Value of Assets as of July 1, 2018	\$ 5,340,125,281	\$ 1,160,247	\$ 5,341,285,528
2. Transactions During Plan Year July 1, 2018 to June 30, 2019			
a. Contributions			
City and Commonwealth Employees	\$ 772,558,000 99,179,683	\$ 0 0	\$ 772,558,000 99,179,683
Quasi-Public Agencies	25,247,518	0	25,247,518
b. Benefit Payments	(832,466,302)	(822)	(832,467,124)
c. Withdrawals	(10,001,504)	0	(10,001,504)
d. Administrative Expenses	(11,154,696)	0	(11,154,696)
e. Net Transactions	\$ 43,362,699	\$ (822)	\$ 43,361,877
3. Expected Investment Income from July 1, 2018 to June 30, 2019	\$ 396,469,827	\$ 65,689 *	\$ 396,535,516
4. PAF transfer at July 1, 2019	\$ 0	\$ 0	\$ 0
5. Expected Market Value of Assets as of July 1, 2019 [1. + 2.e. + 3. + 4]	\$ 5,779,957,808	\$ 1,225,114	\$ 5,781,182,921
6. Market Value of Assets as of July 1, 2019	\$ 5,687,158,237	\$ 1,225,114	\$ 5,688,383,351
7. Investment Gain/(Loss) [6. - 5.]	\$ (92,799,571)	\$ 0	\$ (92,799,571)

* 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, 2018 and July 1, 2019,
- 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, 2020.

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 III-1 shows the present value of future benefits, actuarial liability, and unfunded actuarial liability as of July 1, 2019, and July 1, 2018, for the Retirement System. The UAL shown in the table below is based on AVA including the additional revenue account balance which is different from the assets used in calculating the RRP contributions.

Table IV-1 Disclosure of Liabilities (\$ thousands)		
	July 1, 2019	July 1, 2018
Present Value of Future Benefits		
Actives	\$ 5,696,945	\$ 5,516,023
Terminated Vesteds	94,670	104,765
Disabled	802,333	782,082
Retirees	5,156,344	5,119,142
Beneficiaries	687,522	672,900
DROP Account plus Deferred Annuities	1,000,293	909,297
Non-Vested Refunds	9,417	8,470
Total City PVFB	\$ 13,447,524	\$ 13,112,679
Market Value of Assets (Net of PAF)	(5,687,158)	(5,340,125)
Present Value Future Member Contrib.	(1,057,148)	(872,893)
City's Unfunded Future Obligation	\$ 6,703,218	\$ 6,899,661
Actuarial Liability		
Actives	\$ 4,032,506	\$ 3,924,324
Terminated Vesteds	94,670	104,765
Disabled	802,333	782,082
Retirees	5,156,344	5,119,142
Beneficiaries	687,522	672,900
DROP	1,000,293	909,297
Non-Vested Refunds	9,417	8,470
Total City AL	\$ 11,783,085	\$ 11,520,980
Actuarial Value of Assets	(5,852,473)	(5,397,434)
Unfunded Actuarial Liability	\$ 5,930,612	\$ 6,123,546

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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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, 2019 (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Present Value of Future Benefits										
Actives	\$ 478,168	\$ 149,344	\$ 55,134	\$ 2,213,513	\$ 19,097	\$ 1,963,602	\$ 705,688	\$ 42,404	\$ 69,995	\$ 5,696,945
Terminated Vesteds	24,501	138	0	57,598	0	10,600	1,834	0	0	94,670
Disabled	210,375	176,532	39,787	120,179	0	219,653	35,807	0	0	802,333
Retirees	2,726,285	1,270,581	554,939	377,190	9,675	170,274	47,400	0	0	5,156,344
Beneficiaries	340,176	179,072	80,557	45,443	602	30,020	11,652	0	0	687,522
DROP	434,047	167,886	45,984	171,336	1,620	144,626	34,793	0	0	1,000,293
Non-Vested Refunds	1,614	155	126	6,157	10	1,058	296	0	0	9,417
Total PVFB	\$ 4,215,166	\$ 1,943,708	\$ 776,527	\$ 2,991,417	\$ 31,004	\$ 2,539,834	\$ 837,470	\$ 42,404	\$ 69,995	\$ 13,447,524
Actuarial Liability										
Actives	\$ 452,372	\$ 138,240	\$ 51,337	\$ 1,644,232	\$ 16,166	\$ 1,285,836	\$ 423,287	\$ 10,904	\$ 10,131	\$ 4,032,506
Terminated Vesteds	24,501	138	0	57,598	0	10,600	1,834	0	0	94,670
Disabled	210,375	176,532	39,787	120,179	0	219,653	35,807	0	0	802,333
Retirees	2,726,285	1,270,581	554,939	377,190	9,675	170,274	47,400	0	0	5,156,344
Beneficiaries	340,176	179,072	80,557	45,443	602	30,020	11,652	0	0	687,522
DROP	434,047	167,886	45,984	171,336	1,620	144,626	34,793	0	0	1,000,293
Non-Vested Refunds	1,614	155	126	6,157	10	1,058	296	0	0	9,417
Total AL	\$ 4,189,370	\$ 1,932,604	\$ 772,730	\$ 2,422,136	\$ 28,073	\$ 1,862,068	\$ 555,069	\$ 10,904	\$ 10,131	\$ 11,783,085
Actuarial Value of Assets	(1,474,334)	(519,523)	(174,362)	(1,658,418)	(15,191)	(1,529,120)	(459,444)	(11,537)	(10,543)	(5,852,473)
Unfunded Actuarial Liability	\$ 2,715,036	\$ 1,413,081	\$ 598,368	\$ 763,718	\$ 12,882	\$ 332,948	\$ 95,625	\$ (633)	\$ (412)	\$ 5,930,612
Funding Percent	35.2%	26.9%	22.6%	68.5%	54.1%	82.1%	82.8%	105.8%	104.1%	49.7%

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 under the MMO basis. For MMO purposes expected employee contributions include tier and additional Police and Firefighter member contributions.

Table IV-3 Derivation of the Normal Cost as of July 1, 2019 on MMO Basis (\$ thousands)										
	1967 Plan			1987 Plan				Plan '10	Plan '16	Total
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Retirement	\$ 2,751	\$ 2,265	\$ 833	\$ 38,959	\$ 304	\$ 44,069	\$ 18,301	\$ 1,794	\$ 3,871	\$ 113,147
Death	132	77	30	2,585	21	2,245	985	148	303	6,526
Disability	368	407	145	6,505	34	11,069	4,533	486	711	24,259
Termination	3,042	233	78	22,780	181	4,787	1,738	1,010	2,187	36,035
Administrative Expenses	3,135	1,379	470	3,236	7	1,180	436	229	417	10,490
Total Normal Cost (with Expenses)	\$ 9,428	\$ 4,361	\$ 1,557	\$ 74,065	\$ 548	\$ 63,350	\$ 25,992	\$ 3,667	\$ 7,489	\$ 190,457
Expected Employee Contributions	\$ 4,373	\$ 1,121	\$ 415	\$ 42,735	\$ 446	\$ 34,974	\$ 14,026	\$ 2,517	\$ 4,423	\$ 105,030
City Normal Cost	\$ 5,055	\$ 3,240	\$ 1,142	\$ 31,330	\$ 102	\$ 28,376	\$ 11,966	\$ 1,149	\$ 3,066	\$ 85,426
Current Annual Payroll	\$ 71,103	\$ 18,689	\$ 6,912	\$ 876,351	\$ 3,326	\$ 490,223	\$ 193,534	\$ 77,195	\$ 105,222	\$ 1,842,555
City Normal Cost as % of Pay, Beginning of Year Payment	7.110%	17.337%	16.522%	3.575%	3.065%	5.788%	6.183%	1.489%	2.914%	4.636%
City Normal Cost as % of Pay, End of Year Payment	7.646%	18.646%	17.769%	3.845%	3.296%	6.225%	6.650%	1.601%	3.134%	4.986%

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, 2018 to July 1, 2019 due to actuarial experience, assumption changes, and active plan changes. The table also shows the development of the expected unfunded actuarial liability from July 1, 2019 to July 1, 2020 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, 2020 (\$ 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, 2019 Based on July 1, 2018 Valuation*	\$ 2,554,708	\$ 1,309,716	\$ 554,058	\$ 755,782	\$ 13,387	\$ 282,743	\$ 81,425	\$ 868	\$ (1,063)	\$ 5,551,624
2. Changes in UAL due to										
a. Actuarial Experience	\$ 145,360	\$ 96,727	\$ 41,735	\$ (7,892)	\$ (615)	\$ 38,404	\$ 10,599	\$ (1,596)	\$ (415)	\$ 322,306
b. Assumption Changes	14,967	6,639	2,575	15,829	111	11,801	3,601	96	85	55,704
c. Active Plan Changes	0	0	0	0	0	0	0	0	981	981
d. Inactive Plan Changes	0	0	0	0	0	0	0	0	0	0
e. Subtotal	\$ 160,327	\$ 103,366	\$ 44,310	\$ 7,937	\$ (504)	\$ 50,205	\$ 14,200	\$ (1,500)	\$ 651	\$ 378,991
3. Actual UAL as of July 1, 2019 [1. + 2e.]	\$ 2,715,035	\$ 1,413,081	\$ 598,369	\$ 763,718	\$ 12,882	\$ 332,947	\$ 95,625	\$ (633)	\$ (412)	\$ 5,930,612
4. Expected Changes in UAL from July 1, 2019 to July 1, 2020 due to										
a. Interest on Changes in UAL	\$ 12,105	\$ 7,804	\$ 3,345	\$ 599	\$ (38)	\$ 3,790	\$ 1,072	\$ (113)	\$ 49	\$ 28,614
b. FY 2020 Amortization Contribution	(178,261)	(84,533)	(36,642)	(36,057)	(992)	(13,219)	(4,233)	(33)	24	(353,947)
c. Subtotal	\$ (166,156)	\$ (76,729)	\$ (33,297)	\$ (35,458)	\$ (1,031)	\$ (9,428)	\$ (3,161)	\$ (146)	\$ 73	\$ (325,333)
5. Expected UAL as of July 1, 2020 [3. + 4c.]	\$ 2,548,879	\$ 1,336,352	\$ 565,072	\$ 728,260	\$ 11,851	\$ 323,519	\$ 92,464	\$ (779)	\$ (339)	\$ 5,605,279

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

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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 approach 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 approach is in accordance with the City's Funding Policy implemented in 1984, which predates the Act 205 rules and calls for contributions that are greater than the MMO until the initial unfunded liability determined in 1984 is fully funded.

Under all funding methods 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.

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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, 2020. 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.

Table V-1 Employee Contribution Rates for the Plan Year Beginning July 1, 2020				
	Municipal¹	Elected²	Police	Fire
Plan 67	7.00%	N/A	6.00%	6.00%
Plan 87	3.54%	10.98%	6.84%	6.84%
Plan 87- 50% of Aggregate NC ³	4.23%	N/A	N/A	N/A
Plan 87 - Accelerated Vesting ⁴	4.23%	12.88%	N/A	N/A
Plan 87 Prime ⁵	4.54%	11.98%	7.84%	7.84%
Plan '10	2.37%	N/A	7.34%	7.34%
Plan '10 - Accelerated Vesting	2.77%	N/A	N/A	N/A
Plan '16 ⁶	4.17%	N/A	N/A	N/A
Plan '16 - Accelerated Vesting ⁷	4.60%	N/A	N/A	N/A

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

² The employee contribution rate is based upon the normal cost of \$547,930 under Plan 87 Elected, normal cost of \$308,613 under Plan 87 Municipal and current annual payroll of \$3,325,892.

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

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

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

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

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

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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.

Table V-2a		
Quasi Agency Funding Rate as a Percent of Payroll (Based on Funding Policy)		
Valuation Date	July 1, 2019	July 1, 2018
Fiscal Year Ending in Year	2021	2020
67 Municipal		
1. Normal Cost Rate	7.646%	6.899%
2. Amortization Rate under the City's Funding Policy	<u>522.726%</u>	<u>444.927%</u>
3. Total Year-End Rate [1. + 2.]	530.372%	451.825%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	515.985%	439.491%
87 Municipal		
1. Normal Cost Rate	3.845%	4.070%
2. Amortization Rate under the City's Funding Policy	<u>10.632%</u>	<u>10.174%</u>
3. Total Year-End Rate [1. + 2.]	14.477%	14.243%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	14.084%	13.854%
Plan 10 Municipal		
1. Normal Cost Rate	1.601%	2.512%
2. Amortization Rate under the City's Funding Policy	<u>-0.076%</u>	<u>0.132%</u>
3. Total Year-End Rate [1. + 2.]	1.525%	2.645%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	1.484%	2.573%
Plan 16 Municipal		
1. Normal Cost Rate	3.134%	2.831%
2. Amortization Rate under the City's Funding Policy	<u>0.015%</u>	<u>-0.194%</u>
3. Total Year-End Rate [1. + 2.]	3.149%	2.638%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	3.064%	2.566%

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SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-2b		
Quasi Agency Funding Rate as a Percent of Payroll (Based on MMO)		
Valuation Date	July 1, 2019	July 1, 2018
Fiscal Year Ending in Year	2021	2020
67 Municipal		
1. Normal Cost Rate	7.646%	6.899%
2. Amortization Rate under MMO*	<u>412.589%</u>	<u>358.231%</u>
3. Total Year-End Rate [1. + 2.]	420.235%	365.130%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	408.835%	355.162%
87 Municipal		
1. Normal Cost Rate	3.845%	4.070%
2. Amortization Rate under MMO*	<u>9.416%</u>	<u>8.899%</u>
3. Total Year-End Rate [1. + 2.]	13.261%	12.969%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	12.902%	12.615%
Plan 10 Municipal		
1. Normal Cost Rate	1.601%	2.512%
2. Amortization Rate under MMO*	<u>-0.089%</u>	<u>0.118%</u>
3. Total Year-End Rate [1. + 2.]	1.513%	2.631%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	1.472%	2.559%
Plan 16 Municipal		
1. Normal Cost Rate	3.134%	2.831%
2. Amortization Rate under MMO*	<u>-0.042%</u>	<u>-0.195%</u>
3. Total Year-End Rate [1. + 2.]	3.092%	2.636%
4. Quarterly adjustment factor	0.97287	0.97270
5. Total, adjusted for Quarterly Payments [3. x 4.]	3.008%	2.564%

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

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SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-3a shows the development of the FYE 2021 Minimum Municipal Obligation (MMO) and Table V-3b shows the Revenue Recognition Policy (RRP) for each division. Table V-4 on the following page shows a schedule of amortization payments toward the MMO.

Table V-3a Development of the Minimum Municipal Obligation for Fiscal Year End 2021 (\$ thousands)				
	Non-Uniformed	Police	Fire	Total
Estimated FY 2020-2021 Payroll	\$ 1,170,592	\$ 525,706	\$ 207,061	\$ 1,903,359
Normal Cost % without Expenses	7.666%	12.777%	13.270%	9.688%
Normal Cost without Expenses	\$ 89,740	\$ 67,172	\$ 27,478	\$ 184,389
Amortization Payment	350,685	169,166	68,433	588,284
Administrative Expenses	7,257	2,643	936	10,836
Subtotal	\$ 447,682	\$ 238,981	\$ 96,847	\$ 783,509
Expected Employee Contributions*	(56,959)	(37,618)	(15,049)	(109,626)
Minimum Municipal Obligation	\$ 390,723	\$ 201,364	\$ 81,797	\$ 673,884

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

Table V-3b Development of the Revenue Recognition Policy for Fiscal Year End 2021 (\$ thousands)				
	Non-Uniformed	Police	Fire	Total
Estimated FY 2020-2021 Payroll	\$ 1,170,592	\$ 525,706	\$ 207,061	\$ 1,903,359
Normal Cost % without Expenses	7.666%	12.777%	13.270%	9.688%
Normal Cost without Expenses	\$ 89,740	\$ 67,172	\$ 27,478	\$ 184,389
Amortization Payment	357,928	173,846	69,880	601,655
Administrative Expenses	7,257	2,643	936	10,836
Subtotal	\$ 454,925	\$ 243,661	\$ 98,294	\$ 796,880
Expected Employee Contributions *	(44,824)	(27,878)	(11,200)	(83,902)
Revenue Recognition Policy	\$ 410,101	\$ 215,783	\$ 87,094	\$ 712,978

* 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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SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-4 Unfunded Liability Payments toward the MMO for Fiscal Year 2021 (\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2019 Balance	Years Left	FY 2021 Payment									
Fresh Start Base												
est. July 1, 2009	\$ 2,408,391	20	\$ 220,496	\$ 1,355,646	20	\$ 124,114	\$ 525,338	20	\$ 48,096	\$ 4,289,375	20	\$ 392,706
Gain/Loss Base												
est. July 1, 2010	\$ (43,588)	11	\$ (5,554)	\$ (31,081)	11	\$ (3,960)	\$ (2,326)	11	\$ (296)	\$ (76,995)	11	\$ (9,810)
Assumption Change												
est. July 1, 2010	\$ 45,956	6	\$ 9,117	\$ 18,440	6	\$ 3,658	\$ 16,828	6	\$ 3,339	\$ 81,224	6	\$ 16,114
Gain/Loss												
est. July 1, 2011	\$ (87,748)	12	\$ (10,575)	\$ (17,781)	12	\$ (2,143)	\$ (17,486)	12	\$ (2,107)	\$ (123,014)	12	\$ (14,825)
Assumption Change												
est. July 1, 2011	\$ 14,171	7	\$ 2,492	\$ 8,521	7	\$ 1,498	\$ 2,873	7	\$ 505	\$ 25,565	7	\$ 4,496
Gain/Loss												
est. July 1, 2012	\$ 123,937	13	\$ 14,221	\$ 65,550	13	\$ 7,521	\$ 16,976	13	\$ 1,948	\$ 206,462	13	\$ 23,690
Assumption Change												
est. July 1, 2012	\$ 40,892	8	\$ 6,504	\$ 23,362	8	\$ 3,716	\$ 8,163	8	\$ 1,298	\$ 72,417	8	\$ 11,518
Gain/Loss												
est. July 1, 2013	\$ 111,956	14	\$ 12,299	\$ 32,612	14	\$ 3,582	\$ (4,603)	14	\$ (506)	\$ 139,966	14	\$ 15,375
Assumption Change												
est. July 1, 2013	\$ 57,695	9	\$ 8,427	\$ 34,597	9	\$ 5,054	\$ 11,540	9	\$ 1,686	\$ 103,832	9	\$ 15,167
Gain/Loss												
est. July 1, 2014	\$ 92,085	15	\$ 9,730	\$ 37,713	15	\$ 3,985	\$ 43,770	15	\$ 4,625	\$ 173,568	15	\$ 18,340
Assumption Change												
est. July 1, 2014	\$ 203,452	10	\$ 27,622	\$ (7,126)	10	\$ (967)	\$ 8,182	10	\$ 1,111	\$ 204,509	10	\$ 27,766
Gain/Loss												
est. July 1, 2015	\$ 156,804	16	\$ 16,001	\$ 35,603	16	\$ 3,633	\$ 34,307	16	\$ 3,501	\$ 226,714	16	\$ 23,135
Assumption Change												
est. July 1, 2015	\$ 23,149	11	\$ 2,949	\$ 33,454	11	\$ 4,263	\$ 10,682	11	\$ 1,361	\$ 67,285	11	\$ 8,573
Gain/Loss												
est. July 1, 2016	\$ 109,256	17	\$ 10,805	\$ 72,219	17	\$ 7,142	\$ 20,092	17	\$ 1,987	\$ 201,567	17	\$ 19,934
Assumption Change												
est. July 1, 2016	\$ 25,033	12	\$ 3,017	\$ 14,931	12	\$ 1,799	\$ 4,950	12	\$ 597	\$ 44,914	12	\$ 5,413
Gain/Loss												
est. July 1, 2017	\$ 79,565	18	\$ 7,649	\$ 64,118	18	\$ 6,164	\$ 15,632	18	\$ 1,503	\$ 159,316	18	\$ 15,316
Assumption Change												
est. July 1, 2017	\$ 26,802	13	\$ 3,075	\$ 16,151	13	\$ 1,853	\$ 5,352	13	\$ 614	\$ 48,305	13	\$ 5,543

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SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-4 (Continued)												
Unfunded Liability Payments toward the MMO for Fiscal Year 2021												
(\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2019 Balance	Years Left	FY 2021 Payment									
Gain/Loss												
est. July 1, 2018	\$ 15,834	19	\$ 1,484	\$ 25,005	19	\$ 2,343	\$ 8,894	19	\$ 833	\$ 49,733	19	\$ 4,660
Assumption Change												
est. July 1, 2018	\$ 135,694	14	\$ 14,906	\$ (58,027)	14	\$ (6,374)	\$ (19,644)	14	\$ (2,158)	\$ 58,023	14	\$ 6,374
Gain/Loss												
est. July 1, 2019	\$ (80,815)	20	\$ (7,399)	\$ 3,681	20	\$ 337	\$ (1,704)	20	\$ (156)	\$ (78,838)	20	\$ (7,218)
Assumption Change												
est. July 1, 2019	\$ 31,088	15	\$ 3,285	\$ 18,440	15	\$ 1,948	\$ 6,177	15	\$ 653	\$ 55,704	15	\$ 5,886
Plan Change												
est. July 1, 2019	\$ 981	10	\$ 133	\$ 0	10	\$ 0	\$ 0	10	\$ 0	\$ 981	10	\$ 133
Total	\$ 3,490,591		\$ 350,685	\$ 1,746,028		\$ 169,166	\$ 693,993		\$ 68,433	\$ 5,930,612		\$ 588,284

Note: Numbers may not add due to rounding.

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SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-5 (a) – (d) provides more detail by plan on the expected and actual unfunded actuarial liability and the new amortization bases established as of July 1, 2019 for the MMO.

Table V-5a				
Development of the Fiscal Year 2021 Amortization Payment under MMO				
Municipal and Elected				
(\$ thousands)				
	7/1/2019	Remaining		FY 2021
	Outstanding Balance	Years		Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation	\$ 3,539,337		\$	354,666
2. Changes in UAL due to				
a. Actuarial Experience	\$ (80,815)	20	\$	(7,399)
b. Assumption Changes	31,088	15		3,285
c. Active Plan Changes	981	10		133
d. Inactive Plan Changes	0	1		0
e. Subtotal	\$ (48,746)		\$	(3,981)
3. Total [1c. + 2e.]	\$ 3,490,591		\$	350,685

Note: Numbers may not add due to rounding.

Table V-5b				
Development of the Fiscal Year 2021 Amortization Payment under MMO				
Police				
(\$ thousands)				
	7/1/2019	Remaining		FY 2021
	Outstanding Balance	Years		Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation	\$ 1,723,907		\$	166,881
2. Changes in UAL due to				
a. Actuarial Experience	\$ 3,681	20	\$	337
b. Assumption Changes	18,440	15		1,948
c. Active Plan Changes	0	10		0
d. Inactive Plan Changes	0	1		0
e. Subtotal	\$ 22,121		\$	2,285
3. Total [1c. + 2e.]	\$ 1,746,028		\$	169,166

Note: Numbers may not add due to rounding.

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Table V-5c			
Development of the Fiscal Year 2021 Amortization Payment under MMO			
Fire			
(\$ thousands)			
	7/1/2019 Outstanding Balance	Remaining Years	FY 2021 Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation	\$ 689,522		\$ 67,936
2. Changes in UAL due to			
a. Actuarial Experience	\$ (1,704)	20	\$ (156)
b. Assumption Changes	6,177	15	653
c. Active Plan Changes	0	10	0
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ 4,472		\$ 497
3. Total [1c. + 2e.]	\$ 693,994		\$ 68,433

Note: Numbers may not add due to rounding.

Table V-5d			
Development of the Fiscal Year 2021 Amortization Payment under MMO			
Total			
(\$ thousands)			
	7/1/2019 Outstanding Balance	Remaining Years	FY 2021 Payment
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation	\$ 5,952,766		\$ 589,483
2. Changes in UAL due to			
a. Actuarial Experience	\$ (78,838)	20	\$ (7,218)
b. Assumption Changes	55,704	15	5,886
c. Active Plan Changes	981	10	133
d. Inactive Plan Changes	0	1	0
e. Subtotal	\$ (22,153)		\$ (1,199)
3. Total [1c. + 2e.]	\$ 5,930,612		\$ 588,284

Note: Numbers may not add due to rounding.

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

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

Table V-6				
Summary of Modified Actuarial Data				
(\$ thousands)				
	Municipal	Police	Fire	Total
Actuarial Liability	\$ 6,660,614	\$ 3,794,671	\$ 1,327,800	\$ 11,783,085
Market Value of Assets (less POB)	\$ 2,868,287	\$ 1,924,596	\$ 527,110	\$ 5,319,993
Actuarial Value of Assets (less POB)	\$ 2,827,421	\$ 1,849,639	\$ 532,269	\$ 5,209,329
Unfunded Actuarial Liability (AL - AVA)	\$ 3,833,193	\$ 1,945,032	\$ 795,531	\$ 6,573,756
Amortization Contributions				
Total Amortization Amount	\$ 382,550	\$ 188,167	\$ 78,009	\$ 648,726
Remaining Years	17	18	17	17

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 2021 (\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2019 Balance	Remaining Years	FY 2021 Payment									
Fresh Start UAL Base est. July 1, 2009	\$ 2,824,208	20	\$ 258,565	\$ 1,529,734	20	\$ 140,052	\$ 648,062	20	\$ 59,332	\$ 5,002,004	20	\$ 457,950
July 1, 2010 Charges												
Experience (Gain)/Loss	\$ (38,605)	11	\$ (4,919)	\$ (27,005)	11	\$ (3,441)	\$ 1,325	11	\$ 169	\$ (64,284)	11	\$ (8,191)
Assumption Change	45,956	6	9,117	18,440	6	3,658	16,828	6	3,339	81,224	6	16,114
July 1, 2011 Charges												
Experience (Gain)/Loss	\$ (68,652)	12	\$ (8,274)	\$ (6,920)	12	\$ (834)	\$ (9,268)	12	\$ (1,117)	\$ (84,839)	12	\$ (10,225)
Assumption Change	\$ 14,171	7	\$ 2,492	\$ 8,521	7	\$ 1,498	\$ 2,873	7	\$ 505	\$ 25,565	7	\$ 4,496
July 1, 2012 Charges												
Experience (Gain)/Loss	\$ 124,510	13	\$ 14,287	\$ 69,120	13	\$ 7,931	\$ 17,725	13	\$ 2,034	\$ 211,355	13	\$ 24,252
Assumption Change	\$ 40,892	8	\$ 6,504	\$ 23,362	8	\$ 3,716	\$ 8,163	8	\$ 1,298	\$ 72,417	8	\$ 11,518
July 1, 2013 Charges												
Experience (Gain)/Loss	\$ 120,051	14	\$ 13,188	\$ 40,670	14	\$ 4,468	\$ (2,778)	14	\$ (305)	\$ 157,943	14	\$ 17,350
Assumption Change	\$ 57,695	9	\$ 8,427	\$ 34,597	9	\$ 5,054	\$ 11,540	9	\$ 1,686	\$ 103,832	9	\$ 15,167
July 1, 2014 Charges												
Experience (Gain)/Loss	\$ 92,563	15	\$ 9,780	\$ 42,184	15	\$ 4,457	\$ 43,300	15	\$ 4,575	\$ 178,047	15	\$ 18,813
Assumption Change	\$ 203,452	10	\$ 27,622	\$ (7,126)	10	\$ (967)	\$ 8,182	10	\$ 1,111	\$ 204,509	10	\$ 27,766
July 1, 2015 Charges												
Experience (Gain)/Loss	\$ 152,862	16	\$ 15,598	\$ 39,153	16	\$ 3,995	\$ 33,285	16	\$ 3,397	\$ 225,300	16	\$ 22,990
Assumption Change	\$ 23,149	11	\$ 2,949	\$ 33,454	11	\$ 4,263	\$ 10,682	11	\$ 1,361	\$ 67,285	11	\$ 8,573
July 1, 2016 Charges												
Experience (Gain)/Loss	\$ 86,101	17	\$ 8,515	\$ 72,973	17	\$ 7,217	\$ 12,128	17	\$ 1,199	\$ 171,202	17	\$ 16,931
Assumption Change	\$ 25,033	12	\$ 3,017	\$ 14,931	12	\$ 1,799	\$ 4,950	12	\$ 597	\$ 44,914	12	\$ 5,413
July 1, 2017 Charges												
Experience (Gain)/Loss	\$ 51,196	18	\$ 4,922	\$ 61,954	18	\$ 5,956	\$ 6,036	18	\$ 580	\$ 119,187	18	\$ 11,458
Assumption Change	\$ 26,802	13	\$ 3,075	\$ 16,151	13	\$ 1,853	\$ 5,352	13	\$ 614	\$ 48,305	13	\$ 5,543

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Table V-7 (Continued)												
Modified Unfunded Liability Payments toward the MMO for Fiscal Year 2021												
(\$ thousands)												
Type of Base	Municipal			Police			Fire			Total		
	7/1/2019 Balance	Remaining Years	FY 2021 Payment									
July 1, 2018 Charges												
Experience (Gain)/Loss	\$ (12,168)	19	\$ (1,140)	\$ 22,236	19	\$ 2,084	\$ (291)	19	\$ (27)	\$ 9,778	19	\$ 916
Assumption Change	\$ 135,694	14	\$ 14,906	\$ (58,027)	14	\$ (6,374)	\$ (19,644)	14	\$ (2,158)	\$ 58,023	14	\$ 6,374
July 1, 2019 Charges												
Experience (Gain)/Loss	\$ (103,787)	20	\$ (9,502)	\$ (1,808)	20	\$ (166)	\$ (9,099)	20	\$ (833)	\$ (114,694)	20	\$ (10,501)
Assumption Change	\$ 31,088	15	\$ 3,285	\$ 18,440	15	\$ 1,948	\$ 6,177	15	\$ 653	\$ 55,704	15	\$ 5,886
Plan Change	\$ 981	10	\$ 133	\$ 0	10	\$ 0	\$ 0	10	\$ 0	\$ 981	10	\$ 133
Total	\$ 3,833,193		\$ 382,550	\$ 1,945,032		\$ 188,167	\$ 795,531		\$ 78,009	\$ 6,573,756		\$ 648,726

Note: Numbers may not add due to rounding.

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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

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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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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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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, 2018	\$ 2,669,064,389	\$ 1,782,192,304	\$ 471,687,306	\$ 4,922,943,998
Receipts				
Employer Contributions	\$ 459,203,973	\$ 232,183,858	\$ 102,879,273	\$ 794,267,103
Employee Contributions	47,605,902	36,820,743	14,753,038	99,179,683
State Aid	42,264,374	23,047,945	9,497,687	74,810,006
Supplemental State Assistance	0	0	0	0
Investment Income (includes investment expenses)	152,564,829	102,344,230	27,506,339	282,415,398
Other Receipts	0	0	0	0
Total Receipts	\$ 701,639,078	\$ 394,396,776	\$ 154,636,337	\$ 1,250,672,190
Disbursements				
Benefit Payments	\$ 488,865,108	\$ 245,945,967	\$ 97,655,227	\$ 832,466,302
Refund of Contributions	6,063,237	3,327,819	610,448	10,001,504
Administrative Expenses	7,487,846	2,719,015	947,835	11,154,696
PAF Transfer at Year End	0	0	0	0
Other Disbursements	0	0	0	0
Total Disbursements	\$ 502,416,191	\$ 251,992,801	\$ 99,213,510	\$ 853,622,502
Assets as of July 1, 2019	\$ 2,868,287,275	\$ 1,924,596,279	\$ 527,110,132	\$ 5,319,993,686

Note: Numbers may not add due to rounding.

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

Table V-9b				
Receipts and Disbursements Including Bond Issue Assets				
	Municipal	Police	Fire	Total
Assets as of July 1, 2018	\$ 2,898,577,101	\$ 1,881,009,898	\$ 560,538,282	\$ 5,340,125,281
Receipts				
Employer Contributions	\$ 419,444,545	\$ 214,966,668	\$ 88,584,299	\$ 722,995,512
Employee Contributions	47,605,902	36,820,743	14,753,038	99,179,683
State Aid	42,264,374	23,047,945	9,497,687	74,810,006
Supplemental State Assistance	0	0	0	0
Investment Income (includes investment expenses)	163,904,193	107,381,188	32,384,875	303,670,256
Other Receipts	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Receipts	\$ 673,219,014	\$ 382,216,544	\$ 145,219,899	\$ 1,200,655,457
Disbursements				
Benefit Payments	\$ 488,865,108	\$ 245,945,967	\$ 97,655,227	\$ 832,466,302
Refund of Contributions	6,063,237	3,327,819	610,448	10,001,504
Administrative Expenses	7,487,846	2,719,015	947,835	11,154,696
PAF Transfer at Year End	0	0	0	0
Other Disbursements	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Disbursements	\$ 502,416,191	\$ 251,992,801	\$ 99,213,510	\$ 853,622,502
Assets as of July 1, 2019	\$ 3,069,379,924	\$ 2,011,233,642	\$ 606,544,671	\$ 5,687,158,237

Note: Numbers may not add due to rounding.

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Table V – 10 and Table V – 11 provide information on the City’s Funding Policy for FYE 2019 and FYE 2020. 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, 2019 valuation report will determine FYE 2021 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 2021 and updated FYE 2020 contribution amount under the City’s Funding Policy. The estimated FYE 2021 contribution will be updated in next year’s actuarial valuation report based upon the July 1, 2020 payroll.

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SECTION V – CONTRIBUTIONS AND MINIMUM MUNICIPAL OBLIGATION

Table V-10 Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy Total (\$ thousands)					
	7/1/2019 Outstanding Balance	7/1/2020 Expected Balance	Remaining Years	FY 2021 Payment Beginning-of-Year	FY 2021 Payment End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation Remaining	\$ 5,551,622	\$ 5,197,675		\$ 689,627	\$ 741,694
2. Changes in UAL due to					
a. Actuarial Experience	\$ 322,305	\$ 346,639	20	\$ 31,736	\$ 34,132
b. Assumption Changes	55,704	59,910	15	6,330	6,808
c. Active Plan Changes	981	1,055	10	143	154
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 378,990</u>	<u>\$ 407,604</u>		<u>\$ 38,209</u>	<u>\$ 41,094</u>
3. Total [1c. + 2e.]	\$ 5,930,612	\$ 5,605,279		\$ 727,836	\$ 782,788

Table V-11 City's Funding Policy Contributions*					
Fiscal Year	2021	% of Pay	2020	% of Pay	
Estimated FY Payroll	\$ 1,903,359		\$ 1,842,555	**	
Normal Cost (with Expenses)	\$ 195,225	10.26%	\$ 186,011	10.10%	
Employee Contributions	<u>(109,626)</u>	5.76%	<u>(101,350)</u>	5.50%	
City Normal Cost	\$ 85,600	4.50%	\$ 84,661	4.59%	
Amortization Payment	<u>727,836</u>	38.24%	<u>720,309</u>	39.09%	
City's Funding Policy	<u>\$ 813,436</u>	42.74%	<u>\$ 804,970</u>	43.69%	

* Assuming beginning-of-year payment.

** FY 2019 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.

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The data for this valuation was provided by the Board of Pensions as of July 1, 2019. 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
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APPENDIX A – MEMBERSHIP INFORMATION

Table A-1							
Active Member Data							
	July 1, 2019	July 1, 2018	% Change		July 1, 2019	July 1, 2018	% Change
<u>1967 Municipal</u>				<u>1987 Elected</u>			
Count	1,010	1,214	-16.8%	Count	24	24	0.0%
Average Age	56.4	55.9	0.8%	Average Age	58.8	57.8	1.7%
Average Service	31.2	30.6	2.0%	Average Service	22.8	21.8	4.6%
Average Salary	\$ 70,399	\$ 68,878	2.2%	Average Salary	\$ 138,579	\$ 137,427	0.8%
Total Annual Salary	\$ 71,102,802	\$ 83,618,195	-15.0%	Total Annual Salary	\$ 3,325,892	\$ 3,298,255	0.8%
<u>1967 Police</u>				<u>1987 Police</u>			
Count	186	243	-23.5%	Count	5,889	5,887	0.0%
Average Age	57.6	57.3	0.5%	Average Age	41.6	41.5	0.4%
Average Service	33.2	32.6	1.6%	Average Service	15.4	15.2	1.3%
Average Salary	\$ 100,478	\$ 95,200	5.5%	Average Salary	\$ 83,244	\$ 79,365	4.9%
Total Annual Salary	\$ 18,688,984	\$ 23,133,686	-19.2%	Total Annual Salary	\$ 490,223,115	\$ 467,223,367	4.9%
<u>1967 Fire</u>				<u>1987 Fire</u>			
Count	69	77	-10.4%	Count	2,343	2,216	5.7%
Average Age	59.0	58.3	1.3%	Average Age	41.2	41.1	0.3%
Average Service	33.8	32.9	2.9%	Average Service	12.5	12.5	0.2%
Average Salary	\$ 100,173	\$ 94,651	5.8%	Average Salary	\$ 82,601	\$ 78,481	5.2%
Total Annual Salary	\$ 6,911,952	\$ 7,288,130	-5.2%	Total Annual Salary	\$ 193,533,912	\$ 173,914,584	11.3%
<u>1987 Municipal</u>				<u>2010 Municipal</u>			
Count	14,989	16,154	-7.2%	Count	1,447	1,457	-0.7%
Average Age	46.0	45.3	1.6%	Average Age	37.8	37.0	2.1%
Average Service	12.8	11.8	8.4%	Average Service	2.9	2.3	26.1%
Average Salary	\$ 58,466	\$ 56,824	2.9%	Average Salary	\$ 53,349	\$ 51,346	3.9%
Total Annual Salary	\$ 876,350,753	\$ 917,940,870	-4.5%	Total Annual Salary	\$ 77,195,493	\$ 74,811,405	3.2%

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

Table A-1							
Active Member Data (continued)							
	July 1, 2019	July 1, 2018	% Change		July 1, 2019	July 1, 2018	% Change
<u>2016 Municipal</u>				<u>Total City</u>			
Count	2,639	1,573	67.8%	Count	28,596	28,845	-0.9%
Average Age	38.2	38.1	0.2%	Average Age	44.0	44.0	0.2%
Average Service	1.3	0.9	48.7%	Average Service	12.6	12.5	0.7%
Average Salary	\$ 39,872	\$ 34,438	15.8%	Average Salary	\$ 64,434	\$ 62,590	2.9%
Total Annual Salary	\$ 105,221,980	\$ 54,171,604	94.2%	Total Annual Salary	\$ 1,842,554,883	\$ 1,805,400,096	2.1%

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

Table A-2 Non-Active Member Data Count							
	July 1, 2019	July 1, 2018	% Change		July 1, 2019	July 1, 2018	% Change
<u>Total City</u>				<u>1987 Municipal Plan</u>			
Retired	22,241	22,275	-0.2%	Retired	2,875	2,585	11.2%
Disabled	3,883	3,890	-0.2%	Disabled	599	528	13.4%
Beneficiary	<u>8,574</u>	<u>8,547</u>	0.3%	Beneficiary	<u>511</u>	<u>458</u>	11.6%
In Pay Status Total	34,698	34,712	0.0%	In Pay Status Total	3,985	3,571	11.6%
DROP	2,069	1,944	6.4%	DROP	768	669	14.8%
Deferred Vested	965	1,074	-10.1%	Deferred Vested	719	752	-4.4%
<u>1967 Municipal Plan</u>				<u>1987 Elected Plan</u>			
Retired	11,923	12,134	-1.7%	Retired	18	19	-5.3%
Disabled	1,290	1,345	-4.1%	Disabled	0	0	0.0%
Beneficiary	<u>4,726</u>	<u>4,788</u>	-1.3%	Beneficiary	<u>4</u>	<u>4</u>	0.0%
In Pay Status Total	17,939	18,267	-1.8%	In Pay Status Total	22	23	-4.3%
DROP	712	758	-6.1%	DROP	1	1	0.0%
Deferred Vested	165	227	-27.3%	Deferred Vested	0	0	0.0%
<u>1967 Police Plan</u>				<u>1987 Police Plan</u>			
Retired	4,890	5,034	-2.9%	Retired	548	473	15.9%
Disabled	1,153	1,201	-4.0%	Disabled	497	461	7.8%
Beneficiary	<u>2,302</u>	<u>2,291</u>	0.5%	Beneficiary	<u>174</u>	<u>164</u>	6.1%
In Pay Status Total	8,345	8,526	-2.1%	In Pay Status Total	1,219	1,098	11.0%
DROP	189	172	9.9%	DROP	281	219	28.3%
Deferred Vested	1	1	0.0%	Deferred Vested	70	82	-14.6%
<u>1967 Fire Plan</u>				<u>1987 Fire Plan</u>			
Retired	1,809	1,870	-3.3%	Retired	178	160	11.3%
Disabled	260	275	-5.5%	Disabled	84	80	5.0%
Beneficiary	<u>785</u>	<u>774</u>	1.4%	Beneficiary	<u>72</u>	<u>68</u>	5.9%
In Pay Status Total	2,854	2,919	-2.2%	In Pay Status Total	334	308	8.4%
DROP	51	64	-20.3%	DROP	67	61	9.8%
Deferred Vested	0	0	0.0%	Deferred Vested	10	12	-16.7%

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

Table A-3 Non-Active Member Data Total Annual Benefit							
	July 1, 2019	July 1, 2018	% Change		July 1, 2019	July 1, 2018	% Change
<u>Total City</u>				<u>1987 Municipal Plan</u>			
Retired	\$ 600,911,130	\$ 592,834,017	1.4%	Retired	\$ 41,491,071	\$ 36,207,868	14.6%
Disabled	88,536,268	86,537,158	2.3%	Disabled	11,772,973	10,094,621	16.6%
Beneficiary	84,619,926	82,575,399	2.5%	Beneficiary	4,249,791	3,708,401	14.6%
In Pay Status Total	\$ 774,067,324	\$ 761,946,574	1.6%	In Pay Status Total	\$ 57,513,835	\$ 50,010,890	15.0%
DROP (pension)	\$ 80,793,516	\$ 73,818,616	9.4%	DROP (pension)	\$ 14,996,451	\$ 12,531,856	19.7%
DROP (account balance)	156,865,987	135,355,386	15.9%	DROP (account balance)	25,791,195	19,351,949	33.3%
Deferred Vested	\$ 13,456,373	\$ 15,009,883	-10.3%	Deferred Vested	\$ 9,623,343	\$ 9,979,581	-3.6%
<u>1967 Municipal Plan</u>				<u>1987 Elected Plan</u>			
Retired	\$ 322,875,845	\$ 320,623,599	0.7%	Retired	\$ 1,363,881	\$ 1,465,458	-6.9%
Disabled	25,174,039	25,968,955	-3.1%	Disabled	0	0	0.0%
Beneficiary	43,132,414	42,749,179	0.9%	Beneficiary	118,681	118,681	0.0%
In Pay Status Total	\$ 391,182,298	\$ 389,341,733	0.5%	In Pay Status Total	\$ 1,482,562	\$ 1,584,139	-6.4%
DROP (pension)	\$ 33,915,222	\$ 34,775,116	-2.5%	DROP (pension)	\$ 123,864	\$ 123,864	0.0%
DROP (account balance)	71,618,588	66,982,573	6.9%	DROP (account balance)	360,680	229,440	57.2%
Deferred Vested	\$ 2,555,583	\$ 3,514,551	-27.3%	Deferred Vested	\$ 0	\$ 0	0.0%
<u>1967 Police Plan</u>				<u>1987 Police Plan</u>			
Retired	\$ 148,731,537	\$ 150,900,151	-1.4%	Retired	\$ 15,588,516	\$ 12,493,408	24.8%
Disabled	22,609,313	23,323,793	-3.1%	Disabled	20,364,908	18,419,429	10.6%
Beneficiary	23,493,185	23,202,009	1.3%	Beneficiary	2,565,523	2,305,333	11.3%
In Pay Status Total	\$ 194,834,035	\$ 197,425,953	-1.3%	In Pay Status Total	\$ 38,518,947	\$ 33,218,170	16.0%
DROP (pension)	\$ 13,480,697	\$ 11,221,305	20.1%	DROP (pension)	\$ 11,880,222	\$ 8,608,618	38.0%
DROP (account balance)	26,611,678	21,423,807	24.2%	DROP (account balance)	18,648,052	14,003,888	33.2%
Deferred Vested	\$ 13,436	\$ 13,436	0.0%	Deferred Vested	\$ 1,100,281	\$ 1,311,234	-16.1%
<u>1967 Fire Plan</u>				<u>1987 Fire Plan</u>			
Retired	\$ 66,344,134	\$ 67,256,132	-1.4%	Retired	\$ 4,516,146	\$ 3,887,401	16.2%
Disabled	5,256,795	5,534,778	-5.0%	Disabled	3,358,240	3,195,582	5.1%
Beneficiary	10,018,186	9,574,914	4.6%	Beneficiary	1,042,146	916,882	13.7%
In Pay Status Total	\$ 81,619,115	\$ 82,365,824	-0.9%	In Pay Status Total	\$ 8,916,532	\$ 7,999,865	11.5%
DROP (pension)	\$ 3,626,280	\$ 4,264,257	-15.0%	DROP (pension)	\$ 2,770,780	\$ 2,293,600	20.8%
DROP (account balance)	8,706,961	9,370,441	-7.1%	DROP (account balance)	5,128,832	3,993,287	28.4%
Deferred Vested	\$ 0	\$ 0	0.0%	Deferred Vested	\$ 163,730	\$ 191,081	-14.3%

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APPENDIX A – MEMBERSHIP INFORMATION

Table A-4 Non-Active Member Data Average Annual Benefit											
	July 1, 2019			July 1, 2018			% Change				
<u>Total City</u>				<u>1987 Municipal Plan</u>							
Retired	\$	27,018	\$	26,614	1.5%	Retired	\$	14,432	\$	14,007	3.0%
Disabled		22,801		22,246	2.5%	Disabled		19,654		19,119	2.8%
Beneficiary		9,869		9,661	2.2%	Beneficiary		8,317		8,097	2.7%
In Pay Status Total	\$	22,309	\$	21,951	1.6%	In Pay Status Total	\$	14,433	\$	14,005	3.1%
DROP (pension)	\$	39,050	\$	37,973	2.8%	DROP (pension)	\$	19,527	\$	18,732	4.2%
DROP (account balance)		75,817		69,627	8.9%	DROP (account balance)		33,582		28,927	16.1%
Deferred Vested	\$	13,944	\$	13,976	-0.2%	Deferred Vested	\$	13,384	\$	13,271	0.9%
<u>1967 Municipal Plan</u>				<u>1987 Elected Plan</u>							
Retired	\$	27,080	\$	26,424	2.5%	Retired	\$	75,771	\$	77,129	-1.8%
Disabled		19,515		19,308	1.1%	Disabled		0		0	0.0%
Beneficiary		9,127		8,928	2.2%	Beneficiary		29,670		29,670	0.0%
In Pay Status Total	\$	21,806	\$	21,314	2.3%	In Pay Status Total	\$	67,389	\$	68,876	-2.2%
DROP (pension)	\$	47,634	\$	45,877	3.8%	DROP (pension)	\$	123,864	\$	123,864	0.0%
DROP (account balance)		100,588		88,368	13.8%	DROP (account balance)		360,680		229,440	57.2%
Deferred Vested	\$	15,488	\$	15,483	0.0%	Deferred Vested	\$	0	\$	0	0.0%
<u>1967 Police Plan</u>				<u>1987 Police Plan</u>							
Retired	\$	30,415	\$	29,976	1.5%	Retired	\$	28,446	\$	26,413	7.7%
Disabled		19,609		19,420	1.0%	Disabled		40,976		39,955	2.6%
Beneficiary		10,206		10,127	0.8%	Beneficiary		14,744		14,057	4.9%
In Pay Status Total	\$	23,347	\$	23,156	0.8%	In Pay Status Total	\$	31,599	\$	30,253	4.4%
DROP (pension)	\$	71,326	\$	65,240	9.3%	DROP (pension)	\$	42,278	\$	39,309	7.6%
DROP (account balance)		140,803		124,557	13.0%	DROP (account balance)		66,363		63,945	3.8%
Deferred Vested	\$	13,436	\$	13,436	0.0%	Deferred Vested	\$	15,718	\$	15,991	-1.7%
<u>1967 Fire Plan</u>				<u>1987 Fire Plan</u>							
Retired	\$	36,674	\$	35,966	2.0%	Retired	\$	25,372	\$	24,296	4.4%
Disabled		20,218		20,126	0.5%	Disabled		39,979		39,945	0.1%
Beneficiary		12,762		12,371	3.2%	Beneficiary		14,474		13,484	7.3%
In Pay Status Total	\$	28,598	\$	28,217	1.4%	In Pay Status Total	\$	26,696	\$	25,974	2.8%
DROP (pension)	\$	71,104	\$	66,629	6.7%	DROP (pension)	\$	41,355	\$	37,600	10.0%
DROP (account balance)		170,725		146,413	16.6%	DROP (account balance)		76,550		65,464	16.9%
Deferred Vested	\$	0	\$	0	0.0%	Deferred Vested	\$	16,373	\$	15,923	2.8%

**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, 2019 -- 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	221	367	32	0	0	0	0	0	620
25 to 29	484	1,838	470	61	0	0	0	0	2,853
30 to 34	289	1,489	1,173	697	49	0	0	0	3,697
35 to 39	207	865	757	1,251	517	28	0	0	3,625
40 to 44	121	612	502	897	976	484	29	0	3,621
45 to 49	109	508	399	626	827	1,276	299	32	4,076
50 to 54	91	405	321	522	631	1,009	862	331	4,172
55 to 59	78	318	267	454	521	695	550	589	3,472
60 to 64	40	232	231	272	246	286	160	253	1,720
65 & up	16	126	139	144	98	91	36	90	740
Total	1,656	6,760	4,291	4,924	3,865	3,869	1,936	1,295	28,596

**Table A-6
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	\$ 43,268	\$ 39,860	\$ 34,774	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 40,813
25 to 29	46,337	54,904	60,143	54,509	0	0	0	0	54,305
30 to 34	47,882	56,307	66,606	68,891	62,353	0	0	0	61,369
35 to 39	48,595	56,369	67,201	71,752	73,366	63,082	0	0	65,972
40 to 44	48,225	52,238	63,499	71,537	77,065	78,840	67,983	0	68,820
45 to 49	44,863	51,196	59,791	66,131	72,613	80,740	80,492	69,748	70,051
50 to 54	43,250	48,705	59,177	61,679	66,143	75,495	83,191	78,398	69,613
55 to 59	46,975	47,978	54,947	54,284	59,101	67,015	79,961	81,190	65,496
60 to 64	47,796	48,489	51,153	52,413	55,316	64,992	72,933	77,554	59,721
65 & up	55,013	52,895	51,506	44,885	53,634	57,351	71,189	75,716	55,432
Total	\$ 46,500	\$ 53,109	\$ 62,166	\$ 65,847	\$ 69,248	\$ 74,827	\$ 80,558	\$ 79,103	\$ 64,434

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**Table A-7
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- Municipal (Plan 67)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	1	0	0	0	0	1
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	1	1	0	0	0	0	0	2
45 to 49	1	0	0	0	0	5	21	11	38
50 to 54	1	0	0	0	2	7	163	166	339
55 to 59	0	0	3	0	0	5	129	286	423
60 to 64	0	0	0	0	1	1	37	112	151
65 & up	0	0	1	0	1	0	10	44	56
Total	2	1	5	1	4	18	360	619	1,010

**Table A-8
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- Municipal (Plan 67)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	85,568	0	0	0	0	85,568
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	56,005	64,392	0	0	0	0	0	60,199
45 to 49	40,462	0	0	0	0	59,794	69,845	75,974	69,524
50 to 54	35,851	0	0	0	38,535	63,745	71,815	69,066	70,000
55 to 59	0	0	74,272	0	0	58,357	69,073	73,676	72,095
60 to 64	0	0	0	0	122,596	63,150	72,088	68,595	69,773
65 & up	0	0	48,129	0	62,921	0	64,266	62,254	62,373
Total	\$ 38,157	\$ 56,005	\$ 67,068	\$ 85,568	\$ 65,647	\$ 61,118	\$ 70,536	\$ 70,749	\$ 70,399

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

**Table A-9
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- Police (Plan 67)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	2	1	0	3
50 to 54	0	0	0	0	0	1	14	18	33
55 to 59	0	0	0	0	1	0	6	89	96
60 to 64	0	0	0	0	0	0	0	44	44
65 & up	0	0	0	0	0	0	0	10	10
Total	0	0	0	0	1	3	21	161	186

**Table A-10
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- Police (Plan 67)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	89,202	83,037	0	87,147
50 to 54	0	0	0	0	0	82,542	90,269	92,481	91,242
55 to 59	0	0	0	0	82,130	0	88,483	106,496	105,116
60 to 64	0	0	0	0	0	0	0	96,538	96,538
65 & up	0	0	0	0	0	0	0	107,774	107,774
Total	\$ 0	\$ 0	\$ 0	\$ 0	\$ 82,130	\$ 86,982	\$ 89,415	\$ 102,287	\$ 100,478

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**Table A-11
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- Fire (Plan 67)**

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	4	9	13
55 to 59	0	0	0	0	0	0	1	27	28
60 to 64	0	0	0	0	0	0	0	21	21
65 & up	0	0	0	0	0	0	0	7	7
Total	0	0	0	0	0	0	5	64	69

**Table A-12
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- Fire (Plan 67)**

AVERAGE SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	84,387	91,358	89,213
55 to 59	0	0	0	0	0	0	84,337	102,966	102,301
60 to 64	0	0	0	0	0	0	0	102,006	102,006
65 & up	0	0	0	0	0	0	0	106,519	106,519
Total	\$ 0	\$ 84,377	\$ 101,407	\$ 100,173					

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**Table A-13
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	16	142	24	0	0	0	0	0	182
25 to 29	34	487	333	47	0	0	0	0	901
30 to 34	39	481	817	387	42	0	0	0	1,766
35 to 39	29	344	545	696	276	24	0	0	1,914
40 to 44	17	233	416	582	506	184	28	0	1,966
45 to 49	15	173	364	451	524	523	114	17	2,181
50 to 54	9	172	304	448	477	523	195	54	2,182
55 to 59	16	127	255	448	471	517	174	110	2,118
60 to 64	8	109	231	269	232	246	74	57	1,226
65 & up	2	55	136	143	94	86	16	21	553
Total	185	2,323	3,425	3,471	2,622	2,103	601	259	14,989

**Table A-14
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	\$ 37,896	\$ 26,884	\$ 27,264	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 27,902
25 to 29	44,864	47,945	53,151	48,748	0	0	0	0	49,795
30 to 34	56,853	53,136	60,053	56,671	59,602	0	0	0	57,347
35 to 39	59,145	58,304	61,291	61,065	60,590	58,878	0	0	60,508
40 to 44	67,521	53,939	59,612	64,216	66,809	63,916	67,451	0	62,738
45 to 49	66,348	54,864	57,310	59,291	64,232	68,080	64,996	61,056	62,264
50 to 54	49,468	53,399	57,675	58,166	59,649	63,794	67,479	69,407	60,470
55 to 59	63,885	52,046	53,992	53,876	56,179	60,061	69,907	63,422	57,691
60 to 64	75,951	49,291	51,153	51,902	53,352	61,295	60,818	66,189	55,047
65 & up	63,377	56,759	51,130	44,528	52,529	55,860	65,065	57,417	51,642
Total	\$ 56,265	\$ 51,283	\$ 57,387	\$ 58,013	\$ 60,609	\$ 63,280	\$ 66,825	\$ 64,637	\$ 58,466

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**Table A-15
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	2	0	1	1	0	0	4
50 to 54	0	1	3	0	1	0	0	1	6
55 to 59	0	1	1	0	0	0	0	1	3
60 to 64	0	0	0	1	0	1	1	0	3
65 & up	0	0	0	0	0	0	1	7	8
Total	0	2	6	1	2	2	2	9	24

**Table A-16
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	130,668	0	130,668	130,668	0	0	130,668
50 to 54	0	130,668	136,891	0	139,050	0	0	130,668	135,176
55 to 59	0	182,184	130,668	0	0	0	0	133,335	148,729
60 to 64	0	0	0	130,668	0	130,668	218,474	0	159,937
65 & up	0	0	0	0	0	0	103,107	137,580	133,271
Total	\$ 0	\$ 156,426	\$ 133,779	\$ 130,668	\$ 134,859	\$ 130,668	\$ 160,791	\$ 136,340	\$ 138,579

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**Table A-17
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	56	75	1	0	0	0	0	0	132
25 to 29	94	555	96	10	0	0	0	0	755
30 to 34	17	255	228	247	5	0	0	0	752
35 to 39	7	68	98	386	205	4	0	0	768
40 to 44	5	39	43	195	363	276	1	0	922
45 to 49	0	15	18	117	197	606	144	4	1,101
50 to 54	0	4	7	38	91	351	403	76	970
55 to 59	0	0	2	0	33	125	175	54	389
60 to 64	0	0	0	0	8	29	33	13	83
65 & up	0	1	1	0	2	4	8	1	17
Total	179	1,012	494	993	904	1,395	764	148	5,889

**Table A-18
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	\$ 57,156	\$ 65,299	\$ 59,935	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 61,804
25 to 29	57,610	70,009	80,023	77,469	0	0	0	0	69,838
30 to 34	57,647	72,227	82,571	84,210	78,697	0	0	0	79,013
35 to 39	57,156	71,709	83,469	84,765	87,986	88,305	0	0	84,070
40 to 44	56,823	70,104	82,313	84,050	87,198	87,937	82,875	0	85,633
45 to 49	0	72,615	82,064	83,327	85,296	88,257	92,563	89,570	87,457
50 to 54	0	73,563	81,483	82,317	85,648	86,629	92,035	98,049	89,418
55 to 59	0	0	80,974	0	86,326	85,756	90,760	94,722	89,276
60 to 64	0	0	0	0	83,207	86,870	87,011	88,613	86,846
65 & up	0	80,766	89,460	0	82,452	82,564	86,320	83,037	84,646
Total	\$ 57,432	\$ 70,400	\$ 82,159	\$ 84,150	\$ 86,682	\$ 87,515	\$ 91,554	\$ 95,676	\$ 83,244

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**Table A-19
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	19	8	4	0	0	0	0	0	31
25 to 29	58	139	31	4	0	0	0	0	232
30 to 34	30	196	116	62	2	0	0	0	406
35 to 39	24	95	109	169	36	0	0	0	433
40 to 44	8	45	41	120	107	24	0	0	345
45 to 49	2	26	14	58	105	139	19	0	363
50 to 54	3	7	5	36	60	127	83	7	328
55 to 59	1	3	2	6	16	48	65	22	163
60 to 64	0	1	0	2	5	9	15	6	38
65 & up	0	0	0	1	1	1	1	0	4
Total	145	520	322	458	332	348	183	35	2,343

**Table A-20
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	\$ 56,045	\$ 65,864	\$ 65,632	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 59,816
25 to 29	56,045	68,465	78,252	64,809	0	0	0	0	66,605
30 to 34	56,045	70,389	82,600	83,870	79,264	0	0	0	74,920
35 to 39	56,045	69,221	82,975	86,045	88,058	0	0	0	80,085
40 to 44	56,045	67,859	83,273	86,714	91,192	88,635	0	0	84,657
45 to 49	58,072	67,245	84,556	84,627	90,090	95,880	93,618	0	89,592
50 to 54	56,045	70,946	81,186	83,615	87,890	93,500	98,252	95,350	91,619
55 to 59	56,045	61,850	82,756	84,769	87,525	94,010	98,553	103,020	95,098
60 to 64	0	57,987	0	82,086	88,353	88,435	94,108	103,987	91,983
65 & up	0	0	0	95,824	90,521	84,716	85,439	0	89,125
Total	\$ 56,073	\$ 69,150	\$ 82,247	\$ 85,357	\$ 89,614	\$ 94,029	\$ 97,468	\$ 101,651	\$ 82,601

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**Table A-21
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	19	46	3	0	0	0	0	0	68
25 to 29	48	313	9	0	0	0	0	0	370
30 to 34	28	282	10	0	0	0	0	0	320
35 to 39	10	162	4	0	0	0	0	0	176
40 to 44	5	119	1	0	0	0	0	0	125
45 to 49	6	111	1	0	0	0	0	0	118
50 to 54	5	83	2	0	0	0	0	0	90
55 to 59	2	86	4	0	0	0	0	0	92
60 to 64	3	48	0	0	0	0	0	0	51
65 & up	3	33	1	0	0	0	0	0	37
Total	129	1,283	35	0	0	0	0	0	1,447

**Table A-22
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	\$ 38,027	\$ 38,632	\$ 45,323	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 38,758
25 to 29	45,732	48,436	45,731	0	0	0	0	0	48,020
30 to 34	53,241	53,506	50,306	0	0	0	0	0	53,383
35 to 39	53,331	57,596	42,520	0	0	0	0	0	57,011
40 to 44	50,063	57,005	59,452	0	0	0	0	0	56,747
45 to 49	61,557	59,030	73,492	0	0	0	0	0	59,281
50 to 54	55,329	52,707	37,776	0	0	0	0	0	52,521
55 to 59	46,484	54,752	55,502	0	0	0	0	0	54,605
60 to 64	63,395	66,966	0	0	0	0	0	0	66,756
65 & up	60,361	66,172	68,000	0	0	0	0	0	65,750
Total	\$ 48,855	\$ 53,916	\$ 49,120	\$ 0	\$ 53,349				

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**Table A-23
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	111	96	0	0	0	0	0	0	207
25 to 29	250	344	1	0	0	0	0	0	595
30 to 34	175	275	2	0	0	0	0	0	452
35 to 39	137	196	1	0	0	0	0	0	334
40 to 44	86	175	0	0	0	0	0	0	261
45 to 49	85	183	0	0	0	0	0	0	268
50 to 54	73	138	0	0	0	0	0	0	211
55 to 59	59	101	0	0	0	0	0	0	160
60 to 64	29	74	0	0	0	0	0	0	103
65 & up	11	37	0	0	0	0	0	0	48
Total	1,016	1,619	4	0	0	0	0	0	2,639

**Table A-24
Distribution of Active Participants (Excludes DROP Participants) as of July 1, 2019 -- 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	\$ 35,746	\$ 37,602	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 36,607
25 to 29	40,162	40,790	48,410	0	0	0	0	0	40,539
30 to 34	42,677	39,927	77,405	0	0	0	0	0	41,158
35 to 39	44,274	40,406	73,367	0	0	0	0	0	42,091
40 to 44	43,077	38,711	0	0	0	0	0	0	40,150
45 to 49	39,634	38,941	0	0	0	0	0	0	39,161
50 to 54	41,232	38,006	0	0	0	0	0	0	39,122
55 to 59	42,252	35,354	0	0	0	0	0	0	37,898
60 to 64	38,415	35,194	0	0	0	0	0	0	36,101
65 & up	52,034	34,556	0	0	0	0	0	0	38,562
Total	\$ 41,147	\$ 39,000	\$ 69,147	\$ 0	\$ 39,872				

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Table A-25 Reconciliation of Plan Membership										
	1967 Plan			Plan 87				Plan '10	Plan '16	Total City
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Active										
Active July 1, 2018	1,214	243	77	16,154	24	5,887	2,216	1,457	1,573	28,845
New Entrants and Rehires	6	1	1	567	0	302	190	289	1,287	2,643
Refunded Contributions	0	0	0	-388	0	-24	-7	-74	-60	-553
Non-Vested Terminations	-1	0	0	-106	0	-18	-1	-57	-34	-217
Terminated Vested	-1	0	0	-4	0	-1	0	0	0	-6
Became Disabled	-4	0	0	-33	0	-21	-2	0	0	-60
Retired	-44	-2	-2	-149	0	-33	-6	0	0	-236
Entered DROP	-151	-56	-6	-261	0	-111	-19	0	0	-604
Net Other Terminations	-9	0	-1	-791	0	-92	-28	-168	-127	-1,216
Active July 1, 2019	1,010	186	69	14,989	24	5,889	2,343	1,447	2,639	28,596
Retired										
Retired July 1, 2018	12,134	5,034	1,870	2,585	19	473	160	0	0	22,275
New Retirees	269	40	22	355	0	89	22	0	0	797
Died with Beneficiary Payable	-88	-68	-40	-11	0	-2	-2	0	0	-211
Died without Beneficiary Payable	-387	-116	-43	-43	-1	-8	0	0	0	-598
Net Other Terminations	-5	0	0	-11	0	-4	-2	0	0	-22
Retired July 1, 2019	11,923	4,890	1,809	2,875	18	548	178	0	0	22,241
Beneficiary										
Beneficiary July 1, 2018	4,788	2,291	774	458	4	164	68	0	0	8,547
New Beneficiaries	160	113	60	58	0	10	4	0	0	405
Deaths	-215	-99	-44	-5	0	0	0	0	0	-363
Net Other Terminations	-7	-3	-5	0	0	0	0	0	0	-15
Beneficiary July 1, 2019	4,726	2,302	785	511	4	174	72	0	0	8,574

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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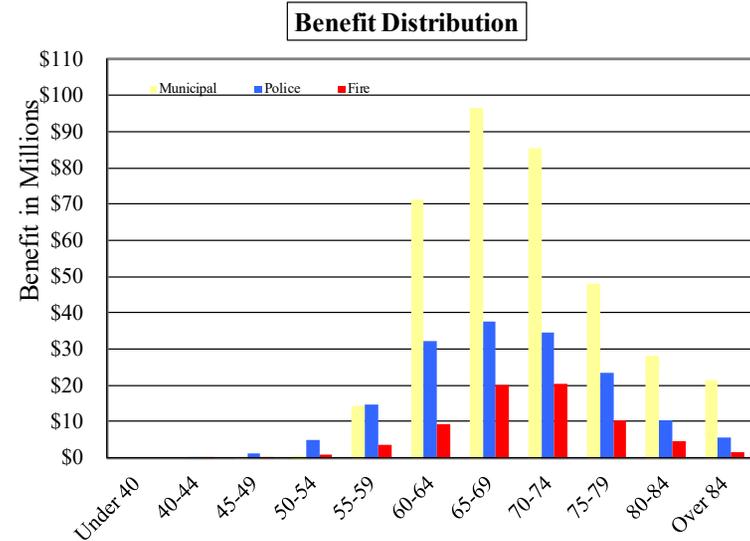
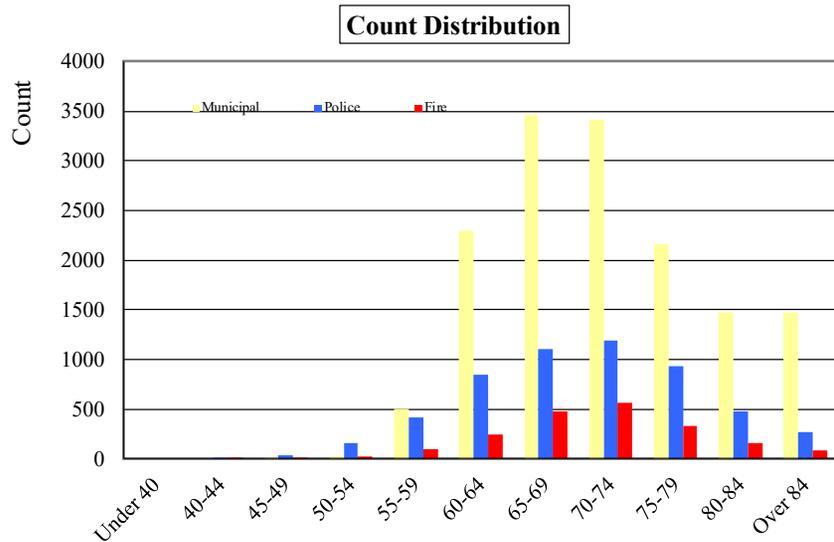
Table A-25 Reconciliation of Plan Membership (continued)										
	1967 Plan			Plan 87				Plan '10	Plan '16	Total City
	Municipal	Police	Fire	Municipal	Elected	Police	Fire	Municipal	Municipal	
Disabled										
Disabled July 1, 2018	1,345	1,201	275	528	0	461	80	0	0	3,890
New Disabilities	6	1	0	78	0	37	4	0	0	126
Died with Beneficiary Payable	-21	-16	-7	-1	0	0	0	0	0	-45
Died without Beneficiary Payable	-40	-33	-8	-6	0	-1	0	0	0	-88
Net Other Terminations	0	0	0	0	0	0	0	0	0	0
Disabled July 1, 2019	1,290	1,153	260	599	0	497	84	0	0	3,883
Terminated Vested										
Terminated Vested July 1, 2018	227	1	0	752	0	82	12	0	0	1,074
New Vested Terminations	3	0	0	4	0	1	0	0	0	8
Retired	-19	0	0	-15	0	-7	-1	0	0	-42
Net Other Terminations	-46	0	0	-22	0	-6	-1	0	0	-75
Terminated Vested July 1, 2019	165	1	0	719	0	70	10	0	0	965
DROP										
DROP July 1, 2018	758	172	64	669	1	219	61	0	0	1,944
New DROP Participants	151	56	6	263	0	111	19	0	0	606
Retired	-195	-37	-19	-160	0	-45	-13	0	0	-469
Net Other Terminations	-2	-2	0	-4	0	-4	0	0	0	-12
DROP July 1, 2019	712	189	51	768	1	281	67	0	0	2,069

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**Table A-26
Age Distribution of Retired Members as of July 1, 2019**

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	2	30,563	2	19,123
45-49	1	9,206	39	1,233,614	4	66,195
50-54	24	483,946	157	5,008,637	27	735,812
55-59	498	14,400,802	417	14,742,531	96	3,508,700
60-64	2,299	71,368,888	846	32,032,961	240	9,450,285
65-69	3,469	96,365,863	1,107	37,424,149	473	20,232,962
70-74	3,417	85,461,725	1,187	34,561,169	567	20,302,589
75-79	2,165	47,882,806	934	23,383,240	334	10,283,222
80-84	1,469	28,183,088	473	10,278,888	164	4,586,016
Over 84	1,474	21,574,473	276	5,624,301	80	1,675,376
Total	14,816	365,730,797	5,438	164,320,053	1,987	70,860,280

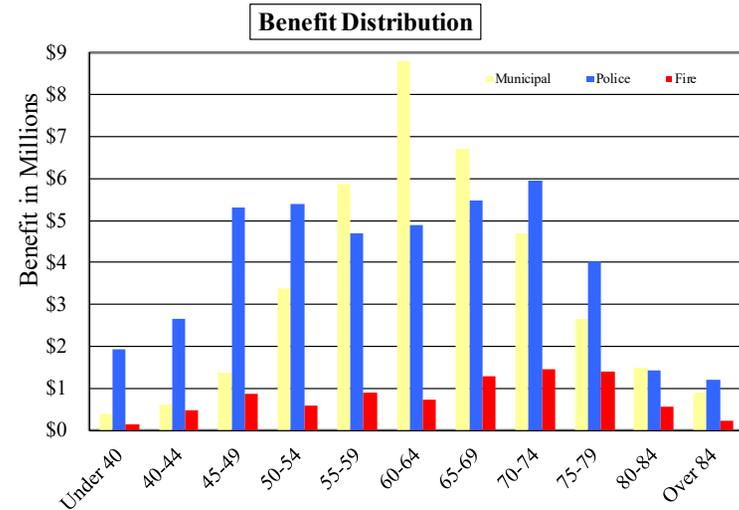
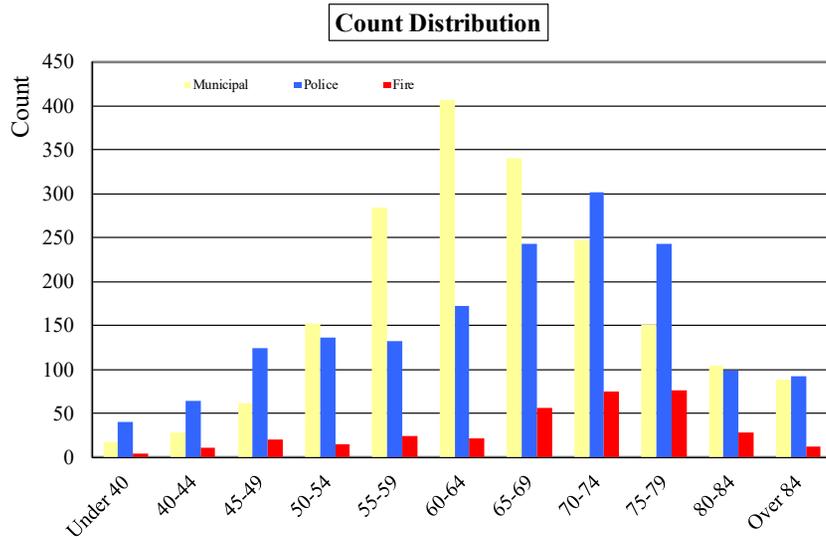


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-27
Age Distribution of Disabled Members as of July 1, 2019**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	18	\$ 402,565	40	\$ 1,928,965	4	\$ 142,284
40-44	28	631,488	64	2,664,775	11	470,273
45-49	62	1,380,901	124	5,313,332	20	878,643
50-54	153	3,396,573	137	5,407,675	15	577,728
55-59	284	5,864,231	133	4,696,782	24	886,446
60-64	413	8,797,963	172	4,896,883	22	730,744
65-69	340	6,705,809	243	5,470,658	56	1,299,218
70-74	247	4,693,758	302	5,954,526	75	1,442,746
75-79	151	2,670,476	243	4,029,466	76	1,404,763
80-84	105	1,496,500	99	1,419,692	28	556,760
Over 84	88	906,748	93	1,191,467	13	225,430
Total	1,889	36,947,012	1,650	42,974,221	344	8,615,035

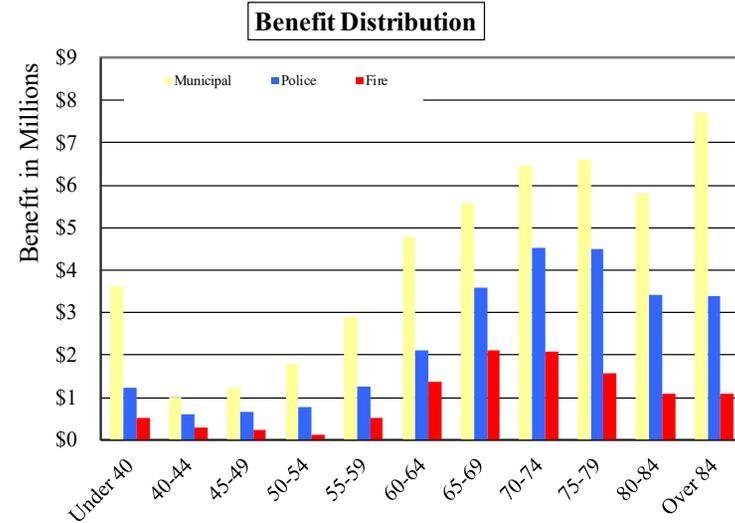
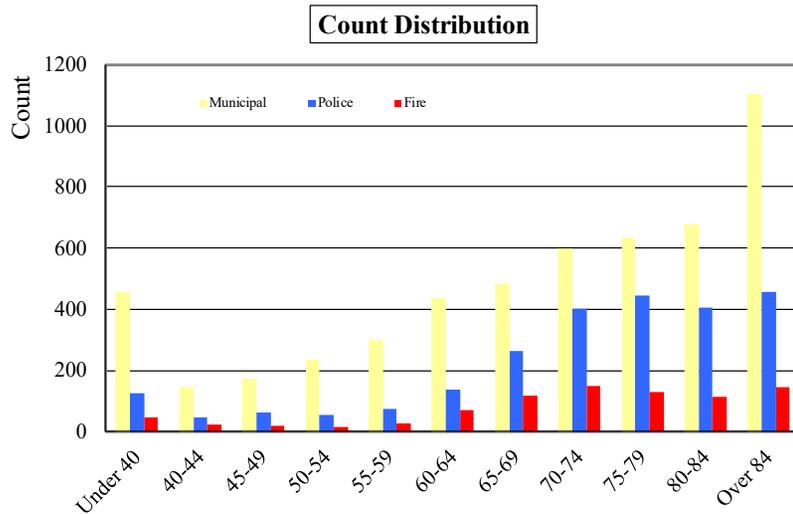


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-28
Age Distribution of Beneficiaries as of July 1, 2019**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	455	\$ 3,607,616	125	\$ 1,227,716	46	\$ 513,560
40-44	144	1,003,613	46	614,964	23	297,175
45-49	173	1,242,758	63	656,058	19	231,661
50-54	237	1,787,248	55	791,035	14	127,423
55-59	300	2,916,805	75	1,246,528	28	531,234
60-64	438	4,789,623	138	2,102,820	71	1,371,606
65-69	483	5,574,374	263	3,591,082	116	2,122,803
70-74	597	6,471,499	403	4,513,881	150	2,094,129
75-79	635	6,590,296	446	4,499,678	131	1,577,429
80-84	676	5,817,585	404	3,418,164	112	1,092,329
Over 84	1,103	7,699,469	458	3,396,782	147	1,100,983
Total	5,241	47,500,886	2,476	26,058,708	857	11,060,332



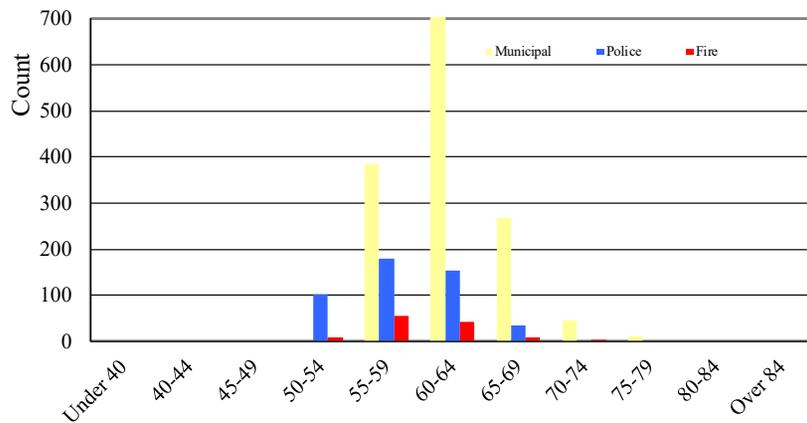
**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

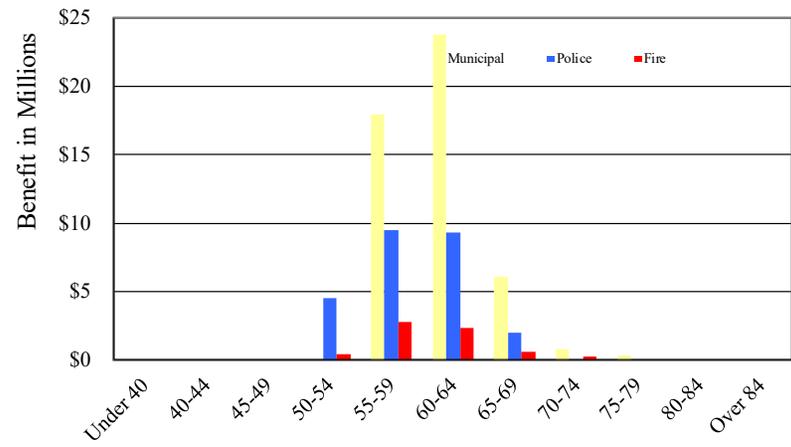
**Table A-29
Age Distribution of DROP Participants as of July 1, 2019**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	0	\$ 0	0	\$ 0	0	\$ 0
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	0	0	101	4,494,560	9	449,445
55-59	383	17,962,021	179	9,508,006	56	2,741,185
60-64	773	23,817,191	154	9,331,019	43	2,349,485
65-69	268	6,123,371	36	2,027,334	8	639,313
70-74	45	785,123	0	0	2	217,632
75-79	12	347,831	0	0	0	0
80-84	0	0	0	0	0	0
Over 84	0	0	0	0	0	0
Total	1,481	49,035,537	470	25,360,919	118	6,397,060

Count Distribution



Benefit Distribution

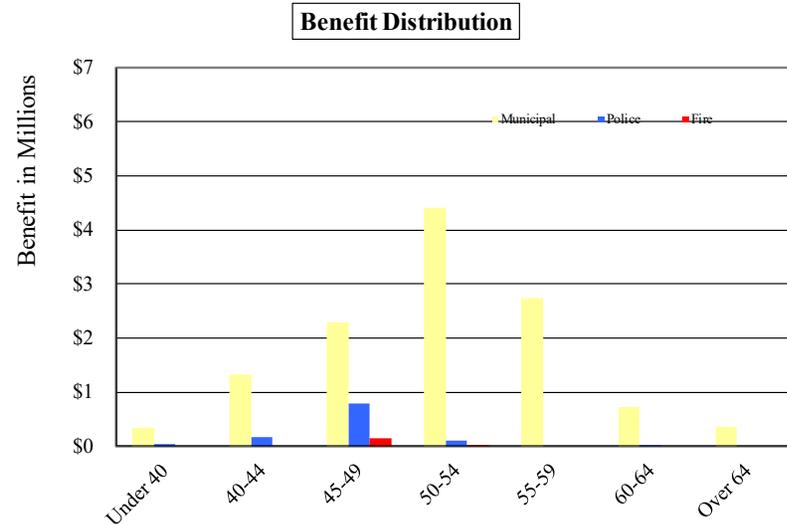
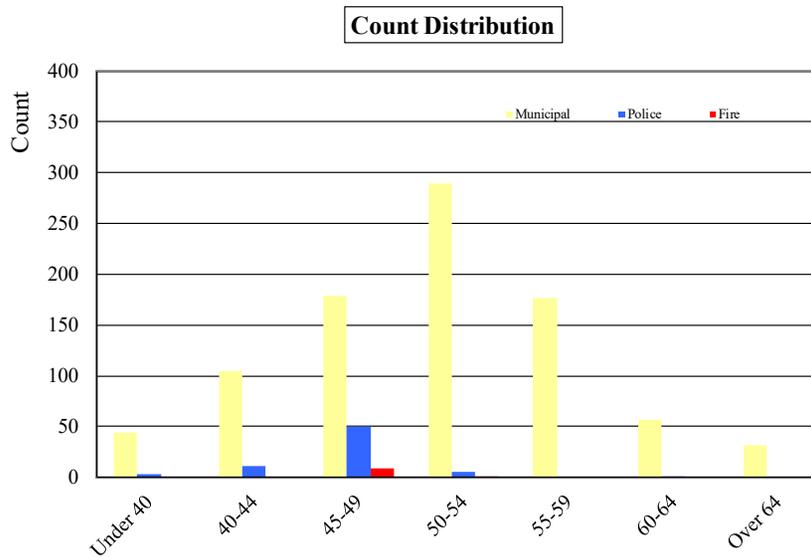


**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-30
Age Distribution of Terminated Vested Members as of July 1, 2019**

Age	Municipal		Police		Fire	
	Count	Annual Pensions	Count	Annual Pensions	Count	Annual Pensions
Under 40	44	\$ 332,929	3	\$ 47,452	0	\$ 0
40-44	105	1,318,233	11	174,901	0	0
45-49	179	2,288,878	50	780,309	9	149,595
50-54	290	4,407,900	6	97,619	1	14,135
55-59	177	2,740,473	0	0	0	0
60-64	57	730,600	1	13,436	0	0
Over 64	32	359,913	0	0	0	0
Total	884	12,178,926	71	1,113,717	10	163,730



**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

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

Table B-1a					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
1967 Plan - Municipal					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 2,554,708	\$ 2,376,447		\$ 329,568	\$ 354,450
2. Changes in UAL due to					
a. Actuarial Experience	\$ 145,360	\$ 156,335	20	\$ 14,313	\$ 15,394
b. Assumption Changes	14,967	16,097	15	1,701	1,829
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 160,327</u>	<u>\$ 172,432</u>		<u>\$ 16,014</u>	<u>\$ 17,223</u>
3. Total [1c. + 2e.]	\$ 2,715,035	\$ 2,548,879		\$ 345,581	\$ 371,673

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1b					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
1967 Plan - Police					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 1,309,716	\$ 1,225,182		\$ 161,887	\$ 174,110
2. Changes in UAL due to					
a. Actuarial Experience	\$ 96,727	\$ 104,030	20	\$ 9,524	\$ 10,243
b. Assumption Changes	6,639	7,140	15	754	811
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ 103,366	\$ 111,170		\$ 10,279	\$ 11,055
3. Total [1c. + 2e.]	\$ 1,413,081	\$ 1,336,352		\$ 172,166	\$ 185,165

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1c Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy 1967 Plan - Fire (\$ thousands)					
	7/1/2019 Outstanding Balance	7/1/2020 Expected Balance	Remaining Years	FY 2021 Payment Beginning-of-Year	FY 2021 Payment End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 554,058	\$ 517,416		\$ 70,652	\$ 75,987
2. Changes in UAL due to					
a. Actuarial Experience	\$ 41,735	\$ 44,886	20	\$ 4,109	\$ 4,420
b. Assumption Changes	2,575	2,770	15	293	315
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ 44,310	\$ 47,656		\$ 4,402	\$ 4,734
3. Total [1c. + 2e.]	\$ 598,369	\$ 565,072		\$ 75,054	\$ 80,721

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1d					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
Plan 87 - Municipal					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 755,782	\$ 719,724		\$ 85,611	\$ 92,075
2. Changes in UAL due to					
a. Actuarial Experience	\$ (7,892)	\$ (8,488)	20	\$ (777)	\$ (836)
b. Assumption Changes	15,829	17,024	15	1,799	1,935
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 7,937</u>	<u>\$ 8,536</u>		<u>\$ 1,022</u>	<u>\$ 1,099</u>
3. Total [1c. + 2e.]	\$ 763,718	\$ 728,260		\$ 86,633	\$ 93,174

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1e Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy Plan 87 - Elected (\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 13,387	\$ 12,394		\$ 1,711	\$ 1,840
2. Changes in UAL due to					
a. Actuarial Experience	\$ (615)	\$ (662)	20	\$ (61)	\$ (65)
b. Assumption Changes	111	119	15	13	14
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (504)	\$ (542)		\$ (48)	\$ (52)
3. Total [1c. + 2e.]	\$ 12,882	\$ 11,852		\$ 1,663	\$ 1,788

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1f					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
Plan 87 - Police					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 282,742	\$ 269,524		\$ 30,985	\$ 33,324
2. Changes in UAL due to					
a. Actuarial Experience	\$ 38,404	\$ 41,303	20	\$ 3,781	\$ 4,067
b. Assumption Changes	11,801	12,692	15	1,341	1,442
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 50,205</u>	<u>\$ 53,995</u>		<u>\$ 5,123</u>	<u>\$ 5,509</u>
3. Total [1c. + 2e.]	\$ 332,947	\$ 323,519		\$ 36,107	\$ 38,833

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1g Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy Plan 87 - Fire (\$ thousands)					
	7/1/2019 Outstanding Balance	7/1/2020 Expected Balance	Remaining Years	FY 2021 Payment Beginning-of-Year	FY 2021 Payment End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 81,425	\$ 77,192		\$ 9,219	\$ 9,915
2. Changes in UAL due to					
a. Actuarial Experience	\$ 10,599	\$ 11,399	20	\$ 1,044	\$ 1,122
b. Assumption Changes	3,601	3,873	15	409	440
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ 14,200	\$ 15,272		\$ 1,453	\$ 1,563
3. Total [1c. + 2e.]	\$ 95,625	\$ 92,464		\$ 10,671	\$ 11,477

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1h					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
Plan 10 - Municipal					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 868	\$ 834		\$ 92	\$ 99
2. Changes in UAL due to					
a. Actuarial Experience	\$ (1,596)	\$ (1,717)	20	\$ (157)	\$ (169)
b. Assumption Changes	96	103	15	11	12
c. Active Plan Changes	0	0	10	0	0
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	\$ (1,500)	\$ (1,614)		\$ (146)	\$ (157)
3. Total [1c. + 2e.]	\$ (633)	\$ (779)		\$ (54)	\$ (59)

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1i					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
Plan 16 - Municipal					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ (1,063)	\$ (1,038)		\$ (97)	\$ (105)
2. Changes in UAL due to					
a. Actuarial Experience	\$ (415)	\$ (446)	20	\$ (41)	\$ (44)
b. Assumption Changes	85	91	15	10	10
c. Active Plan Changes	981	1,055	10	143	154
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 651</u>	<u>\$ 700</u>		<u>\$ 112</u>	<u>\$ 120</u>
3. Total [1c. + 2e.]	\$ (412)	\$ (339)		\$ 15	\$ 16

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX B – SUPPORTING TABLES FOR CITY’S FUNDING POLICY

Table B-1j					
Development of the Fiscal Year 2021 Amortization Payment under the City's Funding Policy					
Total - All Divisions					
(\$ thousands)					
	7/1/2019	7/1/2020	Remaining	FY 2021 Payment	FY 2021 Payment
	Outstanding Balance	Expected Balance	Years	Beginning-of-Year	End-of-Year
1. Expected Unfunded Actuarial Liability (UAL) as of July 1, 2019 Based on July 1, 2018 Valuation					
a. Remaining	\$ 5,551,622	\$ 5,197,675		\$ 689,627	\$ 741,694
2. Changes in UAL due to					
a. Actuarial Experience	\$ 322,306	\$ 346,640	20	\$ 31,736	\$ 34,132
b. Assumption Changes	55,704	59,910	15	6,330	6,808
c. Active Plan Changes	981	1,055	10	143	154
d. Inactive Plan Changes	0	0	1	0	0
e. Subtotal	<u>\$ 378,991</u>	<u>\$ 407,605</u>		<u>\$ 38,209</u>	<u>\$ 41,094</u>
3. Total [1c. + 2e.]	\$ 5,930,613	\$ 5,605,279		\$ 727,836	\$ 782,788

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.
- Valuation pay reflects a load of 6% of pay for Police (stress pay) and Firefighters (premium pay).
- 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.
- For pensioners under the form of payment 50% J&S annuity with return of contributions, 50% are assumed to be married based upon data provided by the City. All other forms of payment are explicitly valued.
- 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.
- We use the dates of hire and service credit provided in the data to calculate actuarial liability. We understand from the System staff that the service credit data provided does not include adjustments for breaks in service so to the extent that some members may have had breaks in service the actuarial liability is overstated.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
JULY 1, 2019 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

- 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, 2019 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Investment Return Assumption

7.55% 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 \$10,489,801 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, 2019 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.

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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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

Rates of Service Retirement - 1967 Plan		
Age	Municipal	Uniformed
45	0.00	0.10
46-52	0.00	0.05
53-54	0.00	0.10
55	0.30	0.15
56	0.20	0.17
57	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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APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

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.

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14. 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.

15. Changes Since Last Valuation

- The interest rate assumption was decreased from 7.60% to 7.55%.
- The administrative expenses assumption was changed from \$9,733,963 to \$10,489,801 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

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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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 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 (\$128,400 in 2018, and \$132,900 in 2019) 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 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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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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APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

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

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

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

17. Minimum Pension

Municipal (Plan J):

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

Uniformed (Plans D and X):

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

18. Waiver of Benefit

Municipal (Plan J):

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

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

19. Service-Connected Health Care Benefit

Municipal (Plan J):
Not applicable.

Uniformed (Plans D and X):

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

APPENDIX D – SUMMARY OF PLAN PROVISIONS – 1967 PLAN

20. Deferred Retirement Option Plan (DROP)

Municipal (Plan J):

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

Uniformed (Plans D and X):

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

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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.

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Elected (Plan L):

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

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.

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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 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.

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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 of two full terms or eight years, the lesser of two full terms or eight years of credited service.

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.

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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.

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.

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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).

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.

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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.

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.

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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.

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.

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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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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.

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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.

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.

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17. Service-Connected Health Care Benefit

Eligibility

Municipal (Plan Y):
Not applicable.

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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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.

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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.

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%.

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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.

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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.

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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.

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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).

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.

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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.

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.

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

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.

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:

APPENDIX D – SUMMARY OF PLAN PROVISIONS – PLAN ‘10

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.

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

The plan change effective January 1, 2019 for the DC 33 Plan 16 members which increased the compensation cap from \$50,000 to \$65,000 was reflected in this report.

SUMMARY OF LEGISLATIVE CHANGES

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

**CITY OF PHILADELPHIA MUNICIPAL RETIREMENT SYSTEM
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APPENDIX D – SUMMARY OF PLAN PROVISIONS – MEMBER CONTRIBUTIONS

Member Contribution Rates by Membership Class			Effective 7/1/2020		
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 Reps; 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 Reps-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)		10.98%	Add on for Tier
		Plan Y		3.54%	Add on for Tier
		Plan Y (Deputy Sheriffs and Register of Wills)		3.54%	Add on for Tier
		Plan Y5		4.23%	Add on for Tier
		Plan L8		12.88%	Add on for Tier
		Plan Y2 (Non Reps-Exempts:excl Auditing EEs)		3.54%	Add on for Tier
		Plan Y3 (DC 47, DC 33 and OHCD)		3.54%	Add on for Tier
		Plan Y4 (Exempts-Auditing/ <i>Controller</i> Dept Ees)		3.54%	Add on for Tier
Plan 87 Prime	Opted out of Plan 10	Plan Y1 (Deputy Sheriff)	50% of Agregate Normal Cost of all members in Plan Y	4.23%	Add on for Tier
		Plan Y4 (Non Reps)	DOH>=1/1/2012 and < 6/20/2018 +1%	4.54%	Add on for Tier
		Plan Y6 (DC 47)	DOH>=3/5/2014 +1%	4.54%	Add on for Tier
		Plan Y9 (DC33-excluding Guards and OHCD)	DOH>=9/9/2014 +1%	4.54%	Add on for Tier
		Plan Y12 (DC33: Guards)	DOH>= 9/9/2014 and < 11/14/2014 +1%	4.54%	Add on for Tier
		Plan Y11 (Exempts)	DOH>=11/14/2014 +1%	4.54%	Add on for Tier
		Plan Y5.1 (5 yr vesting-Exempts)	DOH>=11/14/2014 +1%	5.23%	Add on for Tier
		Plan L1 (Elected)	DOH>=11/14/2014 +1%	11.98%	Add on for Tier
		Plan L8.1 (Elected)	DOH>=11/14/2014 +1%	13.88%	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%
	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	2.37%	Add on for Tier
	Register of Wills-MANDATORY DOH >=1/1/2012 and < 6/20/2018			2.37%	Add on for Tier
	DC33-Guards-MANDATORY DOH>=11/14/2014 and < 8/19/2016			2.37%	Add on for Tier
	DC 33 DOH < 8/19/2016				
	Non-Reps, DC 47	2.37%		Add on for Tier	
	Elected	2.37%		Add on for Tier	
	Exempts (5 yr vesting-Exempts)		2.77%	Add on for Tier	
Plan 16		Plan S16			
		Deputy Sheriffs and Register of Wills DOH >= 6/21/2018	Pensionable Earnings up to \$65,000	4.17%	Add on for Tier
		DC 33 DOH >= 8/20/2016		4.17%	Add on for Tier
		Non-Reps, DC 47 DOH >= 1/1/2019		4.17%	Add on for Tier
	Exempts (7 yr vesting-Exempts) DOH >= 1/1/2019	4.60%		Add on for Tier	

APPENDIX E – 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 E – 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.