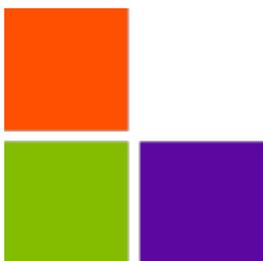


CITY OF MERIDEN EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT

JULY 1, 2020





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## Executive Summary

	July 1, 2020	July 1, 2018
<b>Number of members</b>		
Active employees	403	491
Terminated vested members	30	29
Vested in employee contributions only	72	69
Retired, disabled and beneficiaries	567	497
Total	1,072	1,086
<b>Covered employee payroll</b>	29,331,811	33,003,112
<b>Average plan salary</b>	72,784	67,216
<b>Actuarial present value of future benefits</b>	272,604,299	240,482,275
<b>Actuarial accrued liability</b>	235,357,533	201,890,699
<b>Plan assets</b>		
Market value of assets	148,821,584	148,592,039
Actuarial value of assets	166,997,534	163,664,645
<b>Unfunded accrued liability</b>	68,359,999	38,226,054
<b>Funded ratio</b>	71.0%	81.1%
<b>Actuarially determined employer contribution (ADEC)</b>		
Fiscal year ending	2022	2020
ADEC	7,835,250	5,698,548
Fiscal year ending	2023	2021
ADEC	7,835,250	5,698,548



## Valuation Results and Highlights

### Purpose of the Valuation

The purpose of the valuation is to develop the Actuarially Determined Employer Contribution (ADEC).

The ultimate cost of a pension plan is based primarily on the level of benefits promised by the plan. The pension fund's investment earnings serve to reduce the cost of plan benefits and expenses. Thus,

$$\text{Ultimate cost} = \text{Benefits Paid} + \text{Expenses Incurred} - \text{Investment Return} - \text{Employee Contributions}$$

The actuarial cost method distributes this ultimate cost over the working lifetime of current plan participants. By means of this budgeting process, costs are allocated to both past and future years, and a cost is assigned to the current year. The current year's allocated cost, or normal cost, is the building block upon which the actuarially determined employer contribution is developed. The July 1, 2020 valuation produces the contributions for the fiscal years ending 2022 and 2023.

### Information Available in the Valuation Report

The Executive Summary is intended to emphasize the notable results of the valuation from the perspective of the Plan Sponsor. Supporting technical detail is documented in Results of the Valuation, Supporting Exhibits and Description of Actuarial Methods and Assumptions. A concise summary of the principal provisions of the Plan is outlined in Summary of Plan Provisions.

### Changes Reflected in the Valuation

The investment rate of return assumption decreased from 7.375% to 7.25% and the inflation assumption decreased from 2.60% to 2.40%.

The amortization period was reset to 25 years, with future changes to the unfunded liability be amortized over 20 years at each valuation.

### Cash Contribution for Fiscal Years Ending 2022 and 2023

The City cost is:	2022 Fiscal Year	2023 Fiscal Year
City	\$5,859,656	\$5,859,656
Fire	895,716	895,716
Police	<u>1,079,878</u>	<u>1,079,878</u>
Total	\$7,835,250	\$7,835,250

### Liability Experience During Period Under Review

The plan experienced a net actuarial loss on liabilities of approximately 10.7% of the expected liability since the prior valuation.

There was an Early Retirement Incentive Plan offered during 2019 that 58 participants took the option to retire early.



### Asset Experience During Period Under Review

The plan's assets provided the following rates of return during the past two fiscal years:

	2019 Fiscal Year	2020 Fiscal Year
Market Value Basis	6.4%	1.7%
Actuarial Value Basis	5.2%	4.6%

The Actuarial Value of assets, rather than the Market Value, is used to determine plan contributions. The Actuarial Value spreads the asset volatility by recognizing 20% of the difference each year, thereby smoothing out fluctuations that are inherent in the Market Value.

### Assessment and Measurement of Risks

#### Financial Significance of Plan

It is important to understand the size of the pension plan compared to the size of the sponsor of that plan. Additional pension contributions may be required at inopportune times for the plan sponsor. In general, a plan sponsor with assets or revenue that are much larger than the liabilities in its pension plans will be better able to withstand increases in required pension contributions.

#### Plan Maturity Measurements

	July 1, 2020	July 1, 2018
Actuarial accrued liability for members currently in pay status as a percentage of the total actuarial accrued liability	68.8%	56.4%
<ul style="list-style-type: none"> <li>• A lower percentage results in greater volatility as the investment return assumption changes.</li> <li>• A higher percentage results in greater demand on cash due to a proportionately higher percentage of benefits being in pay status.</li> </ul>		

	July 1, 2020
Duration of benefit payments using an investment rate of return of 7.25%	13.4 years
<ul style="list-style-type: none"> <li>• A higher duration will occur if the plan's percentage of members in pay status decreases. A plan with a higher duration will have a liability that is more sensitive to changes in the investment return assumption.</li> </ul>	

	July 1, 2020	July 1, 2018
Ratio of market value of assets to covered payroll	5.1	4.5
<ul style="list-style-type: none"> <li>• A higher ratio is more typical of relatively mature plans with a larger percentage of inactive members and may cause more potential contribution volatility as pension fund assets fluctuate.</li> </ul>		



## Risks to Assess

### Estimated Impact of a 5% Reduction in Market Value of Assets

	Fiscal Year Ending 2022	Fiscal Year Ending 2023
--	----------------------------	----------------------------

Increase in actuarially determined employer contribution (ADEC)	126,103	126,103
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- Plans would generally be subject to a larger amortization payment if the market value of assets were 5% smaller. As a result, the ADEC would generally be higher for up to 25 years.

Due to the asset smoothing method, the ADEC will additionally increase by the same amount in each of the next few years. Each of these additional contributions will continue for up to 25 years.

## Historical Results

Valuation Year Beginning	Investment Return Assumption	Annual Effective Rate of Return on Market Value of Assets	Market Value of Assets as a % of Actuarial Accrued Liability	Benefit Payments as a % of Market Value of Assets
2020	7.250%	N/A	63.2%	N/A
2019	N/A	1.7%	N/A	9.7%
2018	7.375%	6.4%	73.6%	7.9%
2017	N/A	10.2%	N/A	7.7%
2016	7.750%	9.5%	71.7%	7.7%



## Certification

This report presents the results of the July 1, 2020 Actuarial Valuation for City of Meriden Employees' Retirement System (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarially Determined Employer Contribution (ADEC) for the fiscal years ending June 30, 2022 and June 30, 2023. This report may not be appropriate for any other purpose.

The valuation has been performed in accordance with generally accepted actuarial principles and practices. It is intended to comply with all applicable Actuarial Standards of Practice.

I certify that the actuarial assumptions and methods that were selected by me and represent my best estimate of anticipated actuarial experience under the Plan.

In preparing this valuation, I have relied on employee data provided by the Plan Sponsor, and on asset and contribution information provided by the Trustee. I have audited neither the employee data nor the financial information, although I have reviewed them for reasonableness.

The results in this valuation report are based on the Plan as summarized in the *Summary of Plan Provisions* section of this report and the actuarial assumptions and methods detailed in the *Description of Actuarial Methods and Assumptions* section of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

I have no relationship with the employer or the Plan that would impair, or appear to impair, my objectivity in performing the work presented in this report. I am a member of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.

Stephen Chykirda, ASA, FCA, MAAA  
Enrolled Actuary 20-07517

March 12, 2021

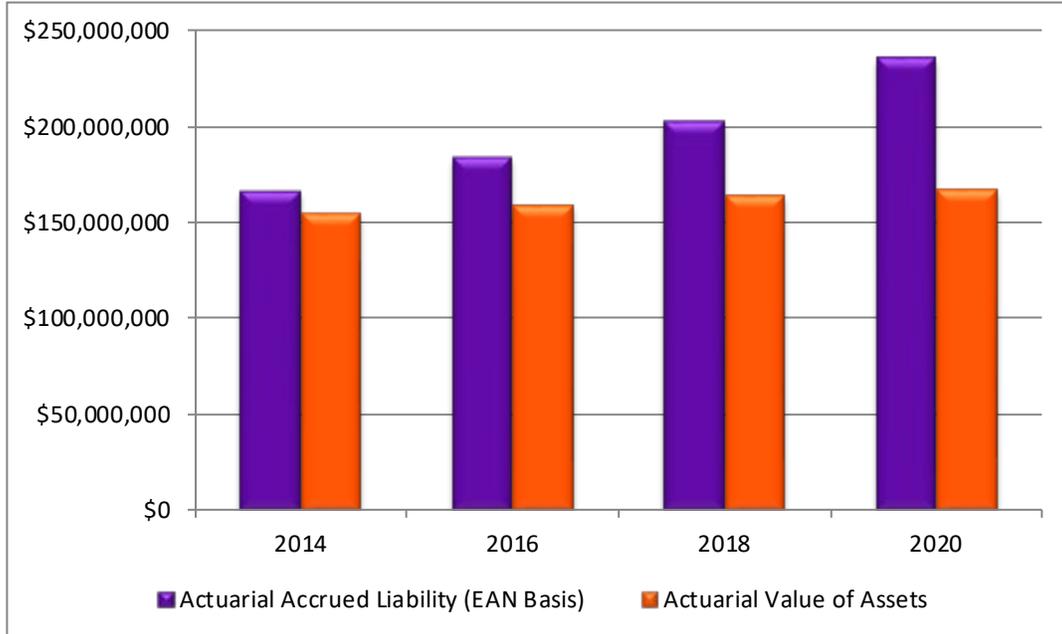


## Development of Unfunded Accrued Liability and Funded Ratio

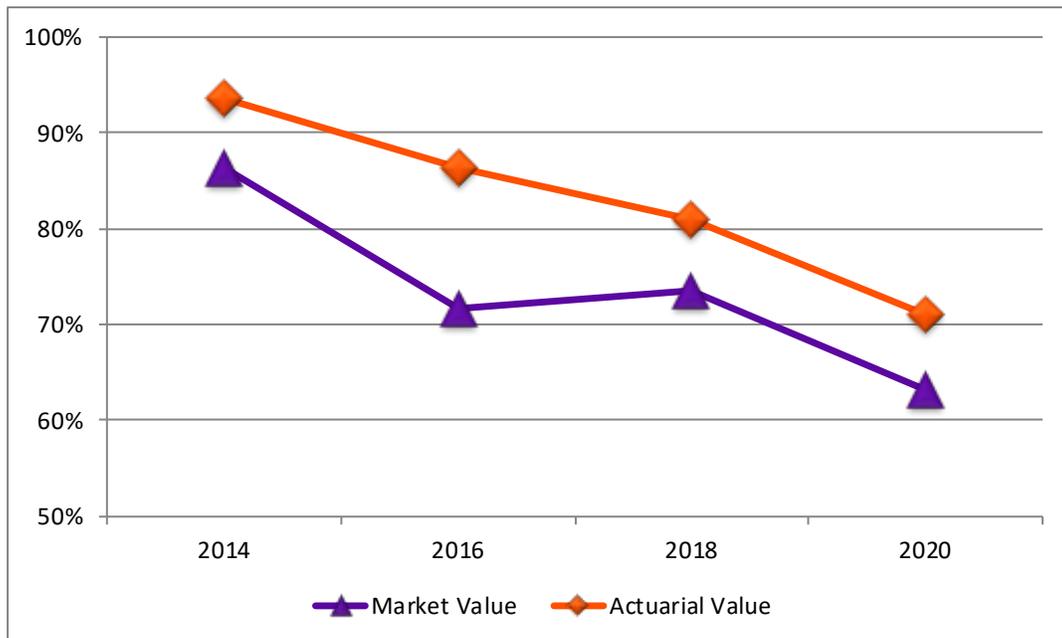
	July 1, 2020	July 1, 2018
Actuarial accrued liability for inactive members		
Retired pensioners	\$155,711,393	\$108,237,115
Disabled pensioners	2,533,183	2,054,665
Beneficiaries in payment status	3,669,634	3,553,058
Terminated vested members	4,626,215	2,223,671
Due refund of employee contributions only	430,082	426,590
Total	166,970,507	116,495,099
Actuarial accrued liability for active employees	68,387,026	85,395,600
Total actuarial accrued liability	235,357,533	201,890,699
Actuarial value of assets	166,997,534	163,664,645
Unfunded accrued liability	68,359,999	38,226,054
Funded ratio	71.0%	81.1%



### Actuarial Accrued Liability vs. Actuarial Value of Assets



### Funded Ratio



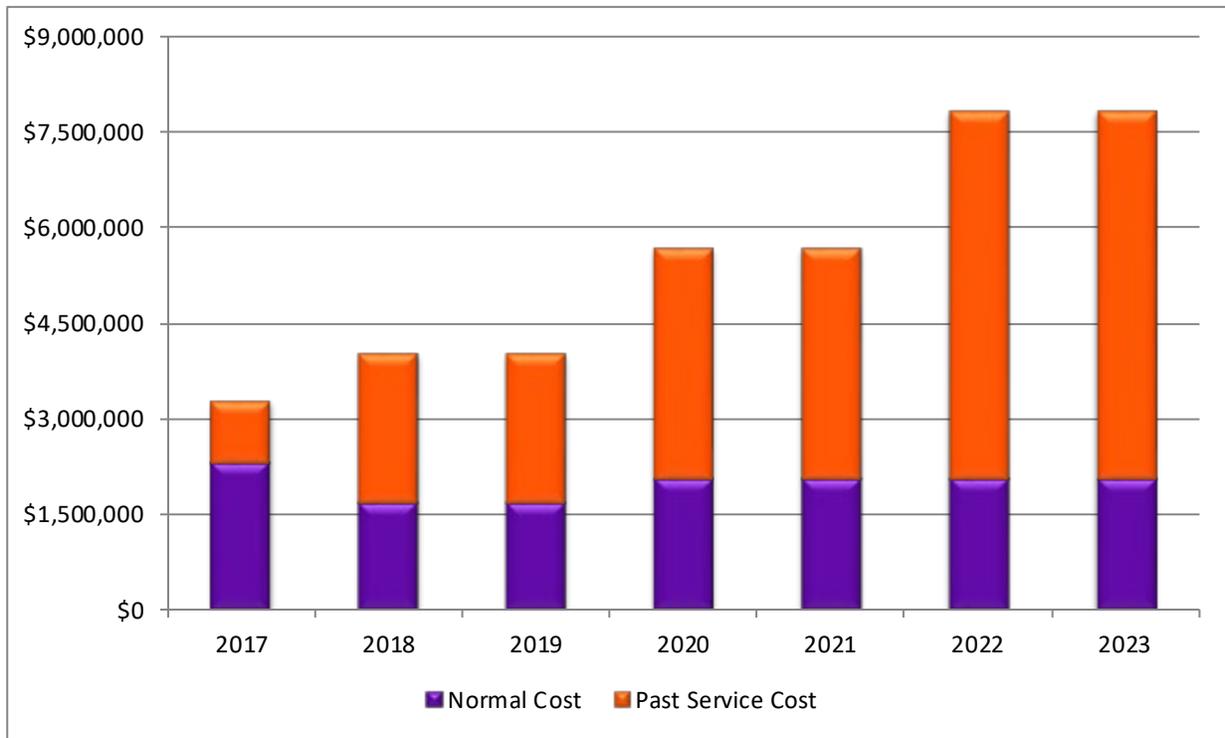


## Determination of Normal Cost and Actuarially Determined Employer Contribution

	July 1, 2020		July 1, 2018	
	Cost	Percent of payroll	Cost	Percent of payroll
Gross normal cost	\$3,632,749	11.9%	\$3,903,104	11.3%
Estimated employee contributions	(1,688,172)	-5.5%	(1,978,163)	-5.7%
Estimated administrative expenses	28,000	0.0%	32,500	0.0%
City's normal cost	1,972,577	6.4%	1,957,441	5.6%
Amortization of unfunded accrued liability	5,593,212	18.3%	3,541,925	10.3%
Contribution before adjustment as of the valuation date	7,565,789	24.7%	5,499,366	15.9%
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	30,602,385		34,673,843	
Fiscal year ending	2022		2020	
Adjustment for interest and inflation	269,461		199,182	
Actuarially determined employer contribution	7,835,250		5,698,548	
Fiscal year ending	2023		2021	
Adjustment for interest and inflation	0		0	
Actuarially determined employer contribution	7,835,250		5,698,548	



### Actuarially Determined Employer Contribution





### Actuarially Determined Employer Contribution per Group

	City	Fire	Police	Total
Gross normal cost	\$1,488,640	\$923,358	\$1,220,751	\$3,632,749
Estimated employee contributions	(890,769)	(260,546)	(536,857)	(1,688,172)
Estimated administrative expenses	11,474	7,117	9,409	28,000
City's normal cost	609,345	669,929	693,303	1,972,577
Actuarial accrued liability	212,448,841	8,204,696	14,703,996	235,357,533
Actuarial value of assets	150,742,711	5,821,628	10,433,195	166,997,534
Unfunded accrued liability	61,706,130	2,383,068	4,270,801	68,359,999
Amortization of unfunded accrued liability	5,048,792	194,983	349,437	5,593,212
Contribution before adjustment as of the valuation date	5,658,137	864,912	1,042,740	7,565,789
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	15,765,643	6,513,655	8,323,087	30,602,385
City's normal cost as a percentage of payroll	3.9%	10.3%	8.3%	6.4%
Contribution as a percentage of payroll	35.9%	13.3%	12.5%	24.7%
Fiscal year ending June 30, 2022				
Adjustment for interest and inflation	201,519	30,804	37,138	269,461
Actuarially determined employer contribution	5,859,656	895,716	1,079,878	7,835,250
Fiscal year ending June 30, 2023				
Adjustment for interest and inflation	0	0	0	0
Actuarially determined employer contribution	5,859,656	895,716	1,079,878	7,835,250



## Determination of Actuarial Gain/Loss

The Actuarial Gain/Loss is the difference between the expected unfunded accrued liability and the actual unfunded accrued liability, without regard to any changes in actuarial methods, actuarial assumptions or plan provisions. This can also be referred to an Experience Gain/Loss, since it reflects the difference between what was expected and what was actually experienced.

Actuarial Gain / Loss	
<b>Expected unfunded accrued liability July 1, 2020</b>	
Expected unfunded accrued liability July 1, 2019	
Unfunded accrued liability July 1, 2018	\$38,226,054
Gross normal cost July 1, 2018	3,935,604
City and employee contributions for 2018-2019	(7,284,178)
Interest at 7.375% to July 1, 2019	2,862,409
Expected unfunded accrued liability July 1, 2019	37,739,889
Expected unfunded accrued liability July 1, 2020	
Expected unfunded accrued liability July 1, 2019	37,739,889
Expected gross normal cost July 1, 2019	3,935,604
City and employee contributions for 2019-2020	(7,609,809)
Interest at 7.375% to July 1, 2020	2,772,179
Expected unfunded accrued liability July 1, 2020	36,837,863
<b>Actuarial (gain) / loss July 1, 2020</b>	<b>30,952,562</b>
<b>Actual unfunded accrued liability July 1, 2020, prior to plan provision, assumption and method changes</b>	<b>67,790,425</b>
<b>Sources of (gain) / loss</b>	
Assets	7,984,167
Liabilities	22,968,395
Total (gain) / loss	30,952,562
<b>Assumption and method changes since prior valuation</b>	<b>569,574</b>
<b>Actual unfunded accrued liability July 1, 2020, after plan provision, assumption and method changes</b>	<b>68,359,999</b>



## Development of Asset Values

Summary of Fund Activity		
	July 1, 2018 - June 30, 2019	July 1, 2019 - June 30, 2020
<b>1. Beginning market value of assets</b>		
Trust assets	\$148,592,039	\$153,569,763
<b>2. Contributions</b>		
City contributions during year	4,061,085	5,722,359
Employee contributions during year	3,223,093	1,887,450
Total for plan year	7,284,178	7,609,809
<b>3. Disbursements</b>		
Benefit payments during year	11,664,799	14,912,538
Administrative expenses during year	27,100	27,892
Other disbursements	303,186	563,324
Total for plan year	11,995,085	15,503,754
<b>4. Net investment return</b>		
Interest and dividends	2,698,763	2,183,651
Net appreciation (depreciation)	7,603,338	1,999,243
Investment-related expenses	(613,470)	(1,037,128)
Total for plan year	9,688,631	3,145,766
<b>5. Ending market value of assets</b>		
Trust assets: (1) + (2) - (3) + (4)	153,569,763	148,821,584
<b>6. Approximate rate of return</b>	6.4%	1.7%



<b>Determination of the Actuarial Value of Assets</b>	
1. Actuarial value of assets July 1, 2018	\$163,664,645
2. City contributions during 2018-2019	4,061,085
3. Employee contributions during 2018-2019	3,223,093
4. Benefit payments, administrative expenses and other disbursements during 20	(11,995,085)
5. Expected return during 2018-2019	<u>11,868,386</u>
6. Expected actuarial value of assets July 1, 2019	170,822,124
7. Market value of assets July 1, 2019	153,569,763
8. Appreciation (depreciation) recognized: 20% x [(7) - (6)]	(3,450,472)
9. Actuarial value of assets July 1, 2019: (6) + (8)	167,371,652
10. City contributions during 2019-2020	5,722,359
11. Employee contributions during 2019-2020	1,887,450
12. Benefit payments, administrative expenses and other disbursements during 2	(15,503,754)
13. Expected return during 2019-2020	<u>12,063,814</u>
14. Expected actuarial value of assets July 1, 2020	171,541,521
15. Market value of assets July 1, 2020	148,821,584
16. Appreciation (depreciation) recognized: 20% x [(15) - (14)]	(4,543,987)
17. Preliminary actuarial value of assets July 1, 2020: (14) + (16)	166,997,534
18. Preliminary actuarial value of assets as a percentage of market value of assets	112.2%
19. Actuarial value of assets July 1, 2020	166,997,534
2018-2019 return on actuarial value of assets	5.2%
2019-2020 return on actuarial value of assets	4.6%

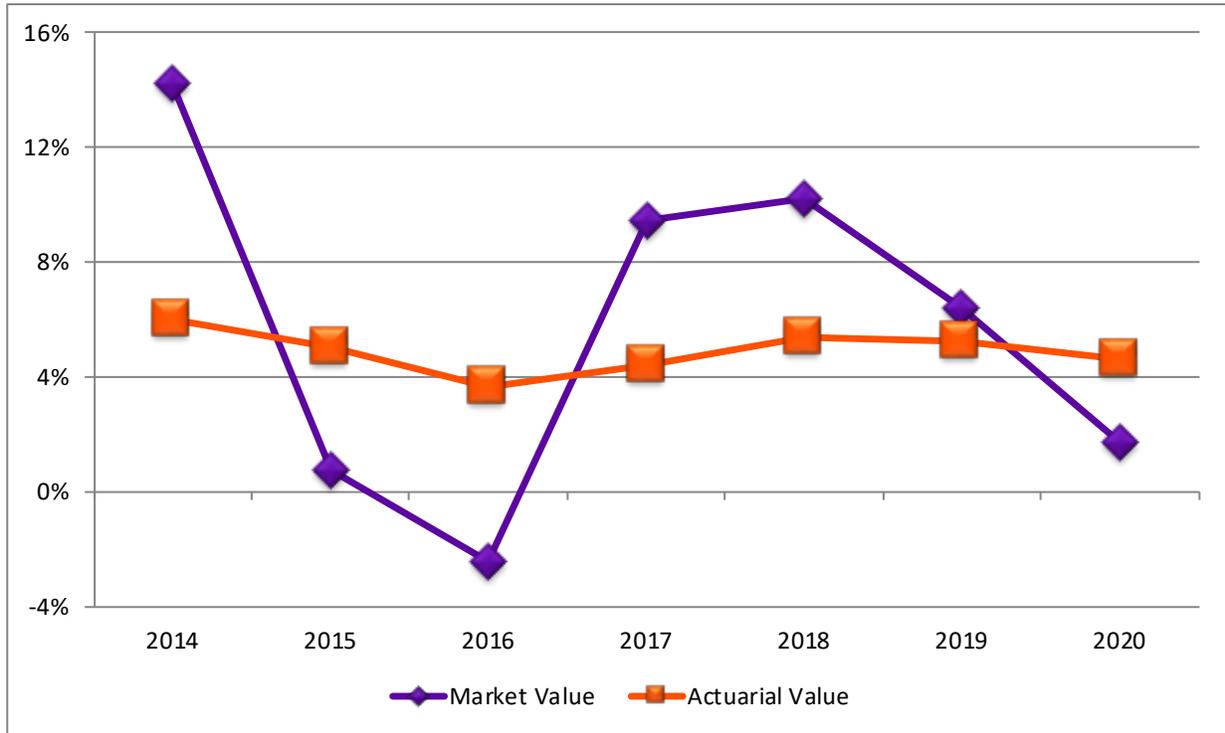


<b>Rate of Return on Market Value of Assets</b>					
<b>Period Ending</b>	<b>Average Annual Effective Rate of Return</b>				
	<b>June 30</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>10 Years</b>
2011	19.7%	3.1%	6.3%	N/A	N/A
2012	-3.5%	9.8%	2.3%	N/A	N/A
2013	4.0%	6.3%	1.9%	N/A	N/A
2014	14.2%	4.7%	9.5%	N/A	N/A
2015	0.8%	6.2%	6.7%	N/A	N/A
2016	-2.4%	3.9%	2.4%	4.4%	4.4%
2017	9.5%	2.5%	5.0%	3.7%	3.7%
2018	10.2%	5.6%	6.3%	4.1%	4.1%
2019	6.4%	8.7%	4.8%	7.1%	7.1%
2020	1.7%	6.1%	5.0%	5.8%	5.8%

<b>Rate of Return on Actuarial Value of Assets</b>					
<b>Period Ending</b>	<b>Average Annual Effective Rate of Return</b>				
	<b>June 30</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>10 Years</b>
2011	6.5%	4.3%	5.9%	N/A	N/A
2012	4.5%	5.0%	5.1%	N/A	N/A
2013	4.4%	5.1%	4.3%	N/A	N/A
2014	6.0%	5.0%	5.1%	N/A	N/A
2015	5.0%	5.1%	5.3%	N/A	N/A
2016	3.7%	4.9%	4.7%	5.3%	5.3%
2017	4.4%	4.4%	4.7%	4.9%	4.9%
2018	5.4%	4.5%	4.9%	4.6%	4.6%
2019	5.2%	5.0%	4.7%	4.9%	4.9%
2020	4.6%	5.1%	4.6%	5.0%	5.0%



### Actual Rate of Return on Assets





## Target Allocation and Expected Rate of Return July 1, 2020

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
Core Fixed Income	15.00%	1.45%	0.22%
Global Fixed Income	5.00%	1.65%	0.08%
U.S. Large Cap Equity	28.00%	4.75%	1.33%
U.S. Small Cap Equity	7.00%	5.15%	0.36%
International Developed Equity	18.00%	5.45%	0.98%
Emerging Markets Equity	7.00%	6.25%	0.44%
Private Real Estate	5.00%	4.10%	0.21%
Hedge Funds	10.00%	3.60%	0.36%
Private Equity	5.00%	7.60%	0.38%
	100.00%		4.36%
Long-Term Inflation Expectation			2.40%
Long-Term Expected Nominal Return			6.76%

*\*Long-Term Real Returns are provided by Fiduciary Investment Advisors. The returns are geometric means.*

The long-term expected rate of return on pension plan investments was determined using a building block method in which best-estimate ranges of expected future real rates of return are developed. Best estimates of the real rates of return for each major asset class are included in the pension plan's target asset allocation.

The information above is based on geometric means and does not reflect additional returns through investment selection, asset allocation and rebalancing. An expected rate of return of 7.25% was used.



## Amortization of Unfunded Liability

Schedule of Amortization Bases				
	Date established	Amortization installment	Years remaining	Present value of remaining installments as of July 1, 2020
2020 base	July 1, 2020	5,593,212	25	68,359,999



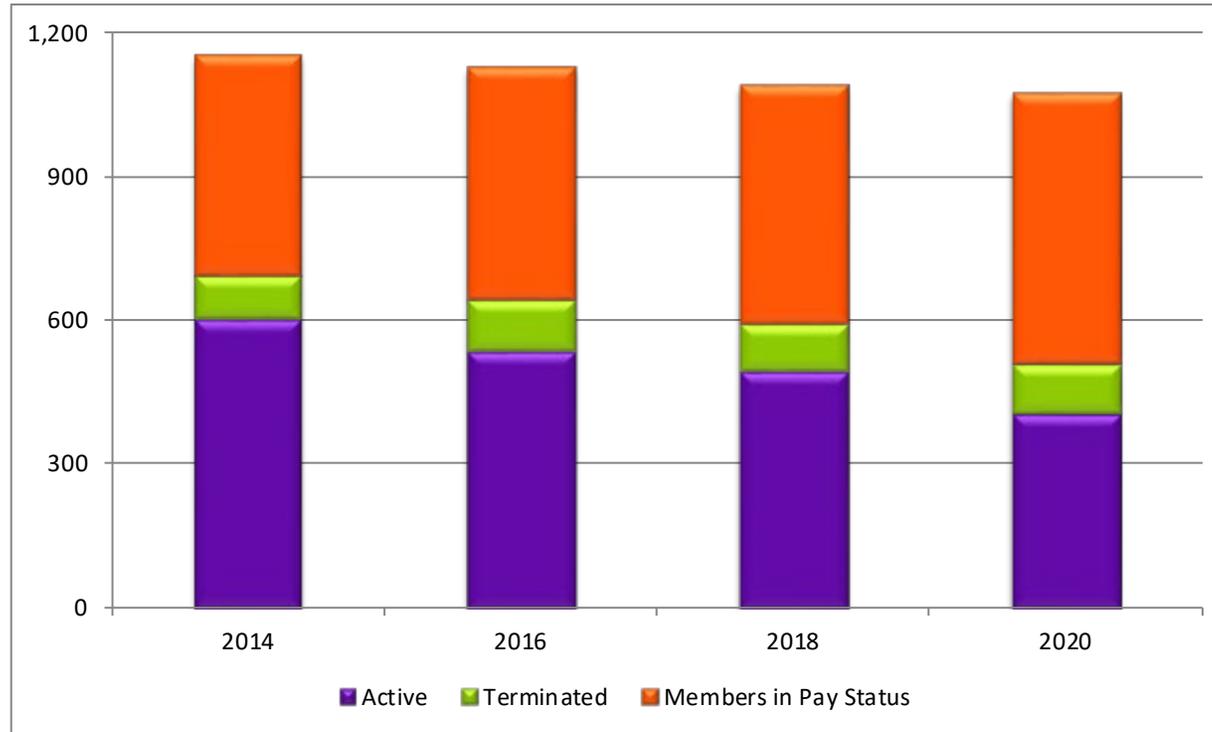
## Member Data

The data reported by the Plan Sponsor for this valuation includes 403 active employees who met the Plan's minimum age and service requirements as of July 1, 2020.

Member Data							
	Active	Terminated vested	Due refund of contributions	Retirees	Disabilities	Beneficiaries	Total
<b>Total members July 1, 2018</b>	491	29	69	457	6	34	1,086
Adjustments	0	+2	-2	0	0	0	0
Retirements	-90	-7	-1	+98	N/A	N/A	0
Disabilities	-1	N/A	N/A	N/A	+1	N/A	0
Terminations							
Vested	-8	+8	N/A	N/A	N/A	N/A	0
Lump sum payments	-10	0	-1	N/A	N/A	N/A	-11
Due contributions only	-7	N/A	+7	N/A	N/A	N/A	0
Deaths							
With death benefit	0	0	0	-2	0	0	-2
Without death benefit	-1	-1	0	-26	0	-3	-31
Transfers	0	0	0	N/A	N/A	N/A	0
Rehires	+1	-1	0	N/A	N/A	N/A	0
New beneficiaries	N/A	N/A	N/A	N/A	N/A	+2	+2
New entrants	+28	N/A	0	N/A	N/A	N/A	+28
<b>Total members July 1, 2020</b>	<b>403</b>	<b>30</b>	<b>72</b>	<b>527</b>	<b>7</b>	<b>33</b>	<b>1,072</b>



### Member Counts by Status





<b>Member Data</b>						
	<b>Active</b>	<b>Terminated vested</b>	<b>Due refund of contributions</b>	<b>Retirees</b>	<b>Disabilities</b>	<b>Beneficiaries</b>
<b>Average age</b>						
July 1, 2018	49.4	57.6	49.5	74.3	49.9	77.5
July 1, 2020	47.7	56.0	50.0	73.4	49.7	79.4
<b>Average service</b>						
July 1, 2018	16.0	N/A	N/A	N/A	N/A	N/A
July 1, 2020	14.9	N/A	N/A	N/A	N/A	N/A
<b>Covered employee payroll</b>						
July 1, 2018	\$33,003,112	N/A	N/A	N/A	N/A	N/A
July 1, 2020	29,331,811	N/A	N/A	N/A	N/A	N/A
<b>Total annual benefits</b>						
July 1, 2018	N/A	\$347,334	\$426,590	\$10,589,541	\$168,971	\$425,114
July 1, 2020	N/A	613,735	430,082	14,441,183	210,884	483,891



Member Data - City							
	Active	Terminated vested	Due refund of contributions	Retirees	Disabilities	Beneficiaries	Total
<b>Total members July 1, 2018</b>	345	28	64	456	2	34	929
Adjustments	0	+2	-2	0	0	0	0
Retirements	-89	-7	-1	+97	N/A	N/A	0
Disabilities	0	N/A	N/A	N/A	0	N/A	0
Terminations							
Vested	-7	+7	N/A	N/A	N/A	N/A	0
Lump sum payments	-5	0	-1	N/A	N/A	N/A	-6
Due contributions only	-2	N/A	+2	N/A	N/A	N/A	0
Deaths							
With death benefit	0	0	0	-2	0	0	-2
Without death benefit	-1	-1	0	-26	0	-3	-31
Transfers	0	0	0	N/A	N/A	N/A	0
Rehires	+1	-1	0	N/A	N/A	N/A	0
New beneficiaries	N/A	N/A	N/A	N/A	N/A	+2	+2
New entrants	+1	N/A	0	N/A	N/A	N/A	+1
<b>Total members July 1, 2020</b>	243	28	62	525	2	33	893



Member Data - Fire							
	Active	Terminated vested	Due refund of contributions	Retirees	Disabilities	Beneficiaries	Total
<b>Total members July 1, 2018</b>	58	0	0	0	0	0	58
Adjustments	0	0	0	0	0	0	0
Retirements	0	0	N/A	0	N/A	N/A	0
Disabilities	-1	N/A	N/A	N/A	+1	N/A	0
Terminations							
Vested	0	0	N/A	N/A	N/A	N/A	0
Lump sum payments	0	0	0	N/A	N/A	N/A	0
Due contributions only	0	N/A	0	N/A	N/A	N/A	0
Deaths							
With death benefit	0	0	0	0	0	0	0
Without death benefit	0	0	0	0	0	0	0
Transfers	0	0	0	N/A	N/A	N/A	0
Rehires	0	0	0	N/A	N/A	N/A	0
New beneficiaries	N/A	N/A	N/A	N/A	N/A	0	0
New entrants	+8	N/A	0	N/A	N/A	N/A	+8
<b>Total members July 1, 2020</b>	65	0	0	0	1	0	66



Member Data - Police							
	Active	Terminated vested	Due refund of contributions	Retirees	Disabilities	Beneficiaries	Total
<b>Total members July 1, 2018</b>	88	1	5	1	4	0	99
Adjustments	0	0	0	0	0	0	0
Retirements	-1	0	N/A	+1	N/A	N/A	0
Disabilities	0	N/A	N/A	N/A	0	N/A	0
Terminations							
Vested	-1	+1	N/A	N/A	N/A	N/A	0
Lump sum payments	-5	0	0	N/A	N/A	N/A	-5
Due contributions only	-5	N/A	+5	N/A	N/A	N/A	0
Deaths							
With death benefit	0	0	0	0	0	0	0
Without death benefit	0	0	0	0	0	0	0
Transfers	0	0	0	N/A	N/A	N/A	0
Rehires	0	0	0	N/A	N/A	N/A	0
New beneficiaries	N/A	N/A	N/A	N/A	N/A	0	0
New entrants	+19	N/A	0	N/A	N/A	N/A	+19
<b>Total members July 1, 2020</b>	95	2	10	2	4	0	113



## Description of Actuarial Methods

### Asset Valuation Method

The Actuarial Value of assets used in the development of plan contributions phases in the recognition of differences between the Market Value and Expected Actuarial Value by recognizing 20% of the difference each year.

### Actuarial Cost Method

Changes in Actuarial Cost Method: None.

Description of Current Actuarial Cost Method: Entry Age Normal (level percentage of salary)

Normal Cost: Under this method, the total normal cost is the sum of amounts necessary to fund each active member's normal retirement benefit if paid annually from entry age to assumed retirement age. Entry age is the age at which the employee would have been first eligible for the plan, if it had always been in effect. The normal cost for each participant is expected to remain a level percentage of the employee's salary. The normal cost for the plan is the difference between the total normal cost for the year and the anticipated member contributions for that year.

Past Service Liability: The present value of future benefits that relates to service before the valuation date is the total past service liability. The unfunded past service liability is the difference between the total past service liability and any assets (including accumulated member contributions). This amount is amortized over 25 years on a closed basis as of July 1, 2020. Future changes in the unfunded liability will be amortized over a closed 20 year period at each occurrence.

Experience Gains and Losses: All experience gains and losses (the financial effect of the difference between the actual experience during the prior period and the result expected by the actuarial assumptions for that prior period) appear directly in the past service liability and are amortized at the same rate the plan is amortizing the remaining unfunded past service liability.



## Description of Actuarial Assumptions

### Changes in Actuarial Assumptions

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Mortality
- Investment rate of return
- Salary Scale
- Inflation

The assumptions indicated were changed to represent the Enrolled Actuary's current best estimate of anticipated experience of the plan.

### Investment rate of return (net of investment-related and administrative expenses)

7.25% (Prior: 7.375%)

### Salary Scale

Merit tables shown below, plus an annual inflation assumption of 2.40% for all groups.

City		Fire		Police	
Completed Years of Service	Rate	Completed Years of Service	Rate	Completed Years of Service	Rate
0	7.85%	0	7.85%	0	7.85%
1	4.85%	1	5.85%	1	6.35%
2	3.85%	2	3.85%	2	4.85%
3	2.85%	3	1.35%	3	3.85%
4	2.85%	4	1.35%	4	1.85%
5	2.35%	5	1.35%	5	0.85%
6	1.85%	6	1.35%	6	0.35%
7	1.60%	7	1.10%	7	0.35%
8	1.35%	8	1.10%	8	0.35%
9	1.10%	9	1.10%	9	0.35%
10	0.85%	10	1.10%	10	0.35%
11	0.60%	11	1.10%	11	0.35%
12	0.60%	12	1.10%	12	0.35%
13	0.60%	13	0.85%	13	0.35%
14	0.35%	14	0.85%	14+	0.10%
15	0.10%	15+	0.35%		
16	0.00%				



**Salary Scale (cont.)**

Prior: Merit tables shown below, plus an annual inflation assumption of 2.60% for all groups.

City		Fire		Police	
Completed Years of Service	Rate	Completed Years of Service	Rate	Completed Years of Service	Rate
0	7.85%	0	7.85%	0	7.85%
1	4.85%	1	5.85%	1	6.35%
2	3.85%	2	3.85%	2	4.85%
3	2.85%	3	1.35%	3	3.85%
4	2.85%	4	1.35%	4	1.85%
5	2.35%	5	1.35%	5	0.85%
6	1.85%	6	1.35%	6	0.35%
7	1.60%	7	1.10%	7	0.35%
8	1.35%	8	1.10%	8	0.35%
9	1.10%	9	1.10%	9	0.35%
10	0.85%	10	1.10%	10	0.35%
11	0.60%	11	1.10%	11	0.35%
12	0.60%	12	1.10%	12	0.35%
13	0.60%	13	0.85%	13	0.35%
14	0.35%	14	0.85%	14+	0.10%
15	0.10%	15+	0.35%		
16	0.00%				

The actuarial assumption in regards to salary scale shown above is based on the results of an actuarial experience study for the period July 1, 2008 through July 1, 2014.

**Inflation**

2.40%. (Prior: 2.60%)

This assumption is consistent with the Social Security Administration’s current best estimate of the ultimate long-term (75-year horizon) annual percentage increase in CPI, as published in the 2020 OASDI Trustees Report. The assumption was changed to better reflect expected experience.

**Mortality**

City Retirement: RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2020.

(Prior City Retirement: RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2018.)

Fire and Police Retirements: RP-2014 Adjusted to 2006 Blue Collar Mortality Table, projected to the valuation date with Scale MP-2020.

(Prior Fire and Police Retirements: RP-2014 Adjusted to 2006 Blue Collar Mortality Table, projected to the valuation date with Scale MP-2018.)

Disabilities: RP-2014 Adjusted to 2006 Disabled Mortality Table, projected to the valuation date with Scale MP-2020.

(Prior Disabilities: RP-2014 Adjusted to 2006 Disabled Mortality Table, projected to the valuation date with Scale MP-2018.)

Survivors: RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2020.

(Prior Survivors: RP-2014 Adjusted to 2006 Total Dataset Mortality Table, projected to the valuation date with Scale MP-2018.)



### Mortality Improvement

All: Projected to date of decrement using Scale MP-2020 (generational mortality).

(Prior All: Projected to date of decrement using Scale MP-2018 (generational mortality).)

We have selected this mortality assumption because it is based on a recently published pension mortality study released by the Society of Actuaries. The group composition of the Plan is consistent with the collar adjustment selected.

### Retirement age

City – Sample Rates:

Age	Completed Years of Service				
	10	15	20	25	30
50	0%	0%	0%	10%	15%
55	2.5%	2.5%	3.5%	10%	7%
60	2.5%	2.5%	10%	7%	10%
65	15%	15%	15%	35%	35%
70	20%	20%	20%	25%	25%
75	20%	20%	20%	50%	50%
80	100%	100%	100%	100%	100%

Fire – Sample Rates:

Age	Completed Years of Service			
	<25	25	30	35
50	0%	5%	5%	5%
55	0%	20%	20%	20%
60	0%	20%	20%	30%
65	0%	100%	100%	100%

Police – Sample Rates:

Age	Completed Years of Service					
	10	15	20	25	30	33
40	0%	0%	0%	50%	10%	25%
45	0%	0%	0%	50%	10%	25%
50	0%	0%	0%	50%	10%	25%
55	0%	0%	0%	50%	5%	25%
60	0%	0%	5%	50%	25%	25%
65	100%	100%	100%	100%	100%	100%



### Termination prior to retirement

70% of the Vaughn Select & Ultimate Withdrawal Table for City employees

City – Sample Rates:

Age	Completed Years of Service			
	0	1	2	3
20	20.86%	17.50%	14.70%	13.02%
25	19.46%	15.75%	12.95%	9.52%
30	18.06%	14.00%	11.20%	7.07%
35	16.66%	12.46%	9.66%	5.53%
40	15.26%	11.06%	8.26%	4.55%
45	13.86%	9.87%	7.07%	3.85%
50	12.46%	8.82%	6.02%	3.15%
55	0.00%	0.00%	0.00%	0.00%

Fire and Police: None.

### Disability

City: None.

Fire and Police: 1985 Pension Disability Study Class 4 Unisex Table.

The actuarial assumptions in regards to rates of decrement shown above are based on the results of an actuarial experience study for the period July 1, 2008 through July 1, 2014.

### Administrative expenses

We have included estimated administrative expenses in the development of the normal cost.

The estimate is based on actual expenses paid from the trust in the prior year.

### Payroll growth

0%.

### Percent of active employees married

75% of male participants and 65% of female participants.

### Spouse's age

Husbands are assumed to be 3 years older than wives.

The assumption changes listed above increased liabilities by about 0.3%.



## Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

### Plan identification

Single-employer pension plan.

### Eligibility for participation

Regular full-time employees (other than Members of the State Teachers' Retirement System), including elected and appointed officials, are eligible at hire. City Employees hired on or after July 1, 2011 are not eligible.

### Years of service

Year and months (rounded) of employment during which employee has made required contributions.

### Base rate of pay

Salary or wages including elective deferrals under 401(k) or Sec. 125, limited by IRC 401(a)(17).

### Average annual pay

Police hired on or after July 1, 2012: Highest paid calendar year out of the last ten years.

All Others: Average of three highest paid calendar years out of the last ten years.

### Accrued benefit

Firefighters and BOE: 2% of Average Final Pay times Years of Service with a maximum of 30 years.

Police hired prior to July 1, 2012 and non-BOE City: 2% of Average Final Pay times Years of Service for the first 20 years, plus 2.5% of Average Final Pay times Years of Service for years 21 through 32.

Police hired on or after July 1, 2012: 2% of Average Final Pay times Years of Service with a maximum of 25 years.

### Normal retirement

Age & Service Requirements:

City: Earlier of

- Later of 10 Years of Service and age 65
- Any combination of Years of Service and age equaling 80, with a minimum of 10 Years of Service

Police Officers hired prior to July 1, 2012: Earlier of

- Completion of 25 Years of Service
- Any combination of Years of Service and age equaling 80, with a minimum of 10 Years of Service
- Age 65

Police Officers hired on or after July 1, 2012: Earlier of

- Completion of 25 Years of Service
- Later of 10 Years of Service and age 65

Firefighters: Earlier of

- Completion of 25 Years of Service
- Age 65

Benefit: Accrued Benefit



## Early retirement

### Eligibility:

Police hired prior to July 1, 2012 and City: completion of 10 Years of Service and age 55

Police hired on or after July 1, 2012 and Firefighters: None

### Benefit: Accrued Benefit reduced by the following percentages:

- City: 6.67% per year for each year between 65 and 60, plus 3.33% for each year between 60 and 55.
- Police hired prior to July 1, 2012: 5% per year for years between early retirement date and date Member would have completed 25 Years of Service.

## Termination

Prior to completion of 10 Years of Service: Return of employee contributions plus regular interest.

After completion of 10 Years of Service: Member may elect to receive either

- Return of employee contributions plus regular interest, or
- Accrued Benefit.

## Disability

### Eligibility:

Police hired on or after July 1, 2012: Completion of 10 Years of Service.

All Others: None if service-related; otherwise completion of 10 Years of Service.

### Benefit:

#### City and Firefighters:

- Service-related: greater of Accrued Benefit, or 50% of annual rate of Pay at time of disability.
- Non-Service related: Accrued Benefit.

#### Police:

- Service-related: if disabled from employment as police officer hired prior to July 1, 2012: 50% of annual rate of Pay at time of disability. Hired on or after July 1, 2012: 40% of annual rate of Pay at time of disability.
- Service-related: if disabled from any gainful employment hired prior to July 1, 2012: Accrued Benefit as if Officer had no less than 25 Years of Service. Hired on or after July 1, 2012: Accrued Benefit as if Officer had no less than 20 Years of Service.
- Non-Service related: Accrued Benefit as if Officer had no less than 20 Years of Service.

## Death prior to retirement

Prior to completion of 10 Years of Service: Return of employee contributions plus regular interest.

City Employees after eligibility for Early or Normal Retirement: Surviving spouse may elect to receive either

- Return of employee contributions plus regular interest, or
- 50% of benefit Member would have received if retired day before death and elected 50% Joint and Survivor option.

Police Officer and Firefighter Service-related death: Surviving spouse receives 100% of Accrued Benefit as if Officer had at least 25 Years of Service. Upon attainment of date Officer or Firefighter would have attained 25 Years, spouse's benefit decreases to 50% of the pension amount. Payable until death or remarriage.



### **Death after retirement and after age 65**

Firefighters and BOE: \$1,000 lump sum payable to beneficiary in addition to any other benefits under plan.

Police and non-BOE City: \$5,000 lump sum payable to beneficiary in addition to any other benefits under plan.

### **Normal form of retirement benefit**

Single life annuity.

### **Optional forms of benefits**

Actuarial equivalent of Normal Form paid as

- Ten year certain and continuous annuity
- Joint and Survivor annuity with 100%, 66-2/3% or 50% of pension continued to designated beneficiary

### **Employee contributions**

Firefighters: 6% of Pay, split between Pension and OPEB at the City's discretion.

BOE: 8% of Pay, split between Pension and OPEB at the City's discretion.

Non-BOE City: 11% of Pay, split between Pension and OPEB at the City's discretion.

Police: 10% of Pay for employees hired before July 1, 2012, split between Pension and OPEB at the City's discretion. 7% of Pay for employees hired on or after July 1, 2012, for Pension only.

### **COLA**

Police hired on or after July 1, 2012: None.

Retirement prior to July 1, 1989: None.

Retirement after July 1, 1989 and prior to July 1, 2000: 3% every other year, beginning after the later of 3 years from retirement date or age 65.

Retirement after July 1, 2000: 2% every year, beginning after the later of 2 years from retirement date or age 62. For Police and Firefighters with 25 Years of Service, beginning 1 year from retirement.

Lifetime cap of 50% of original pension.

### **Retirement windows**

Retirement windows were offered in 1999, 2007, and 2019.