Milliman

CITY OF BRISTOL RETIREMENT SYSTEM

Actuarial Valuation as of July 1, 2017
For Fiscal Year 2018-2019

Prepared by

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Table of Contents

Certification

We have performed an actuarial valuation of the Plan as of July 1, 2017 for fiscal year 2018-2019. This report presents the results of our valuation.

The ultimate cost of a pension plan is the total amount needed to provide benefits for plan members and beneficiaries and to pay the expenses of administering the plan. Pension costs are met by contributions and by investment return on plan assets. The principal purpose of this report is to set forth an actuarial recommendation of the contribution, or range of contributions, which will properly fund the plan, in accordance with applicable government regulations. In addition, this report provides:

- A valuation of plan assets and liabilities to review the year-to-year progress of funding.
- Information needed to meet disclosure requirements.
- Review of plan experience for the previous year to ascertain whether the assumptions and methods employed for valuation purposes are reflective of actual events and remain appropriate for prospective application.
- Assessment of the relative funded position of the plan, i.e., through a comparison of plan assets and projected plan liabilities.
- Comments on any other matters which may be of assistance in the funding and operation of the plan.

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In preparing this report, we relied on employee census data as of January 1, 2017 and financial information as of the valuation date, furnished by the City. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Certification

The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, such as judging benefit security at plan termination or meeting employer accounting requirements. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices.

I further certify that, in my opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, method, or technique were reasonable. 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 the actuarial assignment, we did not perform an analysis of the potential range of such future measurement.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impact the objectivity of our work.

I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Rebecca A. Sielman, FSA
Consulting Actuary

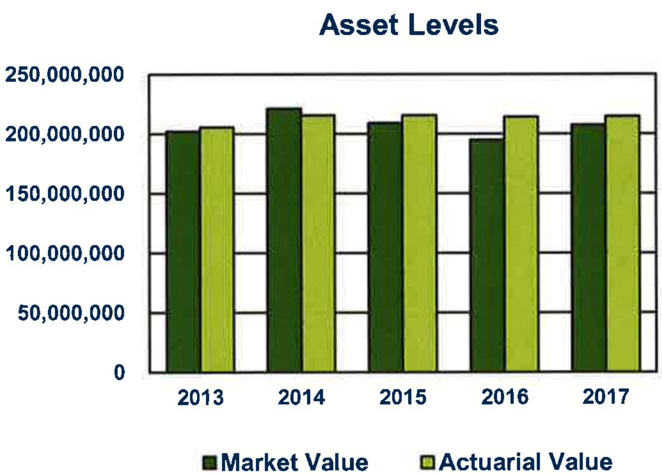
Section I - Executive Summary
A. Highlights

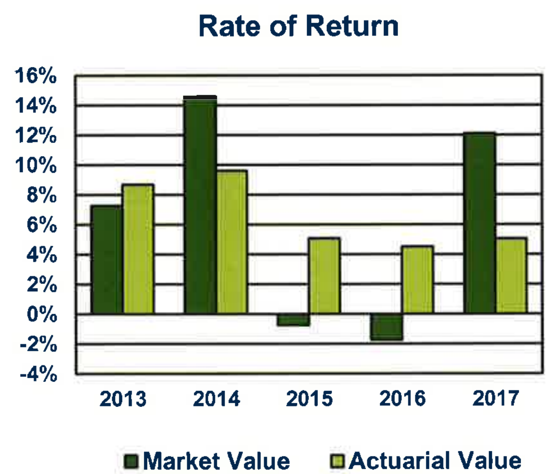
Assets

There are two different measures of the plan's assets that are used throughout this report. The **Market Value** is a snapshot of the plan's investments as of the valuation date. The **Actuarial Value** is a smoothed asset value designed to temper the volatile fluctuations in the market by recognizing investment gains or losses over four years.

	Market	Actuarial
Value as of July 1, 2016	$194,816,830	$214,377,524
Contributions	3,087,332	3,087,332
Investment Income	22,973,925	10,589,430
Benefit Payments	(13,163,534)	(13,163,534)
Value as of July 1, 2017	207,714,553	214,890,752

For fiscal year 2017, the plan's assets earned 12.11% on a Market Value basis and 5.06% on an Actuarial Value basis. The actuarial assumption for this period was 7.40%; the result is an asset gain of $8,935,400 on a Market Value basis and a loss of $4,897,100 on an Actuarial Value basis. Historical asset values are shown in the graph below to the left; historical returns are shown in the graph below to the right.



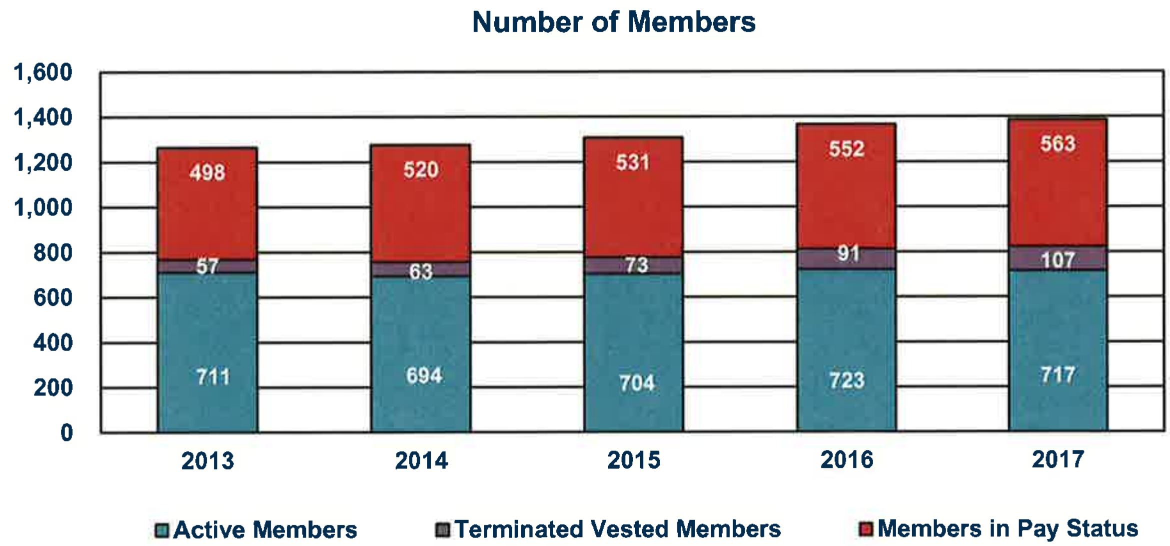


Please note that the Actuarial Value currently exceeds the Market Value by $7,176,200. This figure represents investment losses that will be gradually recognized over the next four years. This process will exert upward pressure on the City's contribution, unless there are offsetting market gains.

Section I - Executive Summary
A. Highlights

Membership

There are three basic categories of plan members included in the actuarial valuation: (1) active employees who have met the eligibility requirements for membership, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) members who are receiving monthly pension benefits.



From January 1, 2016 to January 1, 2017, the overall membership increased from 1,366 to 1,387. During this period, there were a total of 54 new members. There were 16 terminated members who received lump sum payments, 5 active members who terminated with a vested deferred benefit, 15 active members who terminated without vested rights who are due a return of employee contributions, 30 new retirees, 2 new beneficiary from active deaths and 21 retirees and beneficiaries who died.

Section I - Executive Summary
A. Highlights

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

The following actuarial method and assumption changes were reflected in this valuation based on recommendations resulting from the most recent experience study.

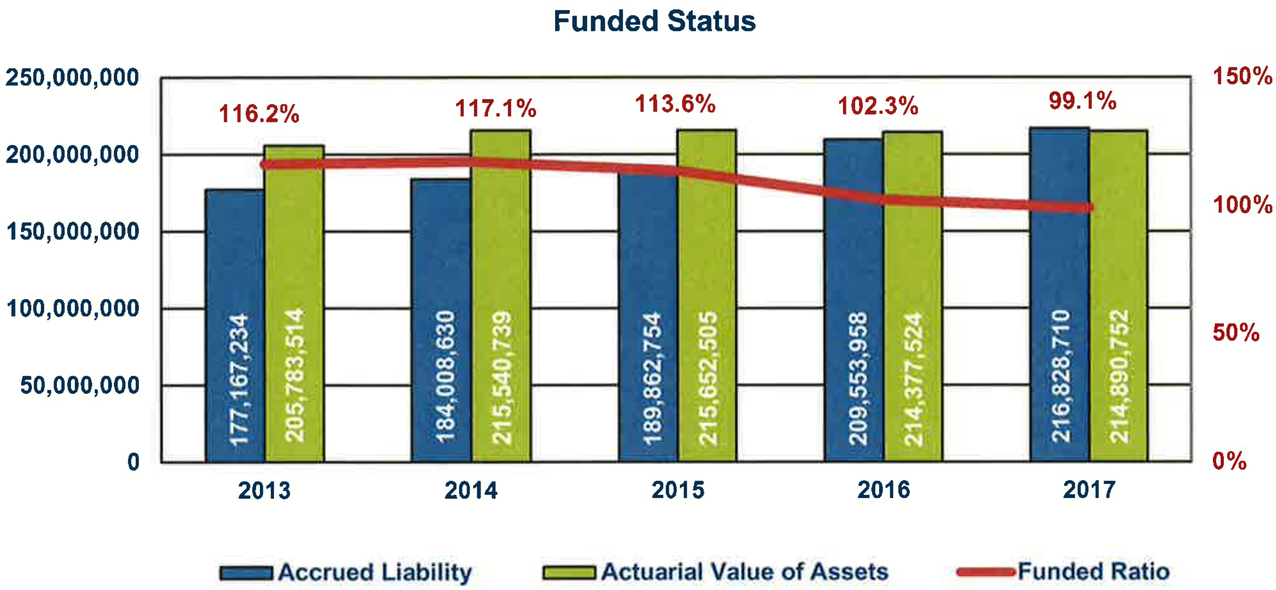
- We are phasing over 5 years a change to the interest rate assumption from 7.5% to 7.0%.
- We are phasing over 5 years a change to the generational mortality projection table from Scale AA to Scale BB.

The effect of these plan changes was an increase in the Unfunded Accrued Liability of $3,273,000 and an increase in the Actuarially Determined Contribution of $473,200.

Section I - Executive Summary
A. Highlights

Funded Status

The chart below shows the plan's Accrued Liability and Actuarial Value of Assets for the past several years.

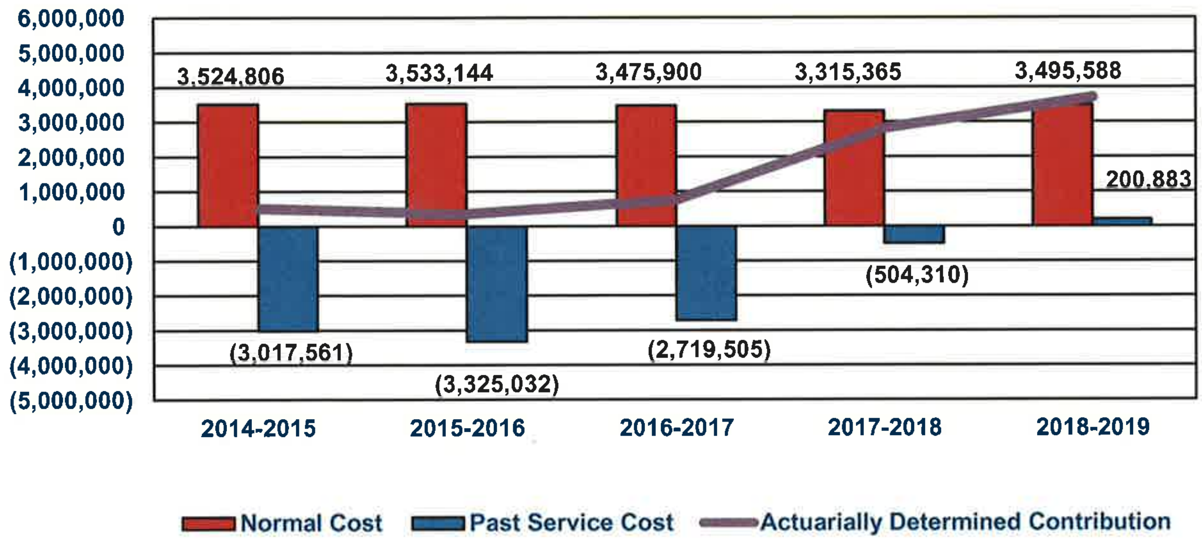


Section I - Executive Summary
A. Highlights

Actuarially Determined Contribution

The Actuarially Determined Contribution consists of three pieces: a **Normal Cost** payment to fund the benefits earned each year, a **Past Service Cost** to gradually reduce any unfunded or surplus liability, and **Interest** assuming payment is made mid-year. If the plan has a sufficiently large surplus, the Past Service Cost may be large enough to cover the Normal Cost, in which case no contribution is required.

Contribution levels for the current year and the past several fiscal years are shown below.

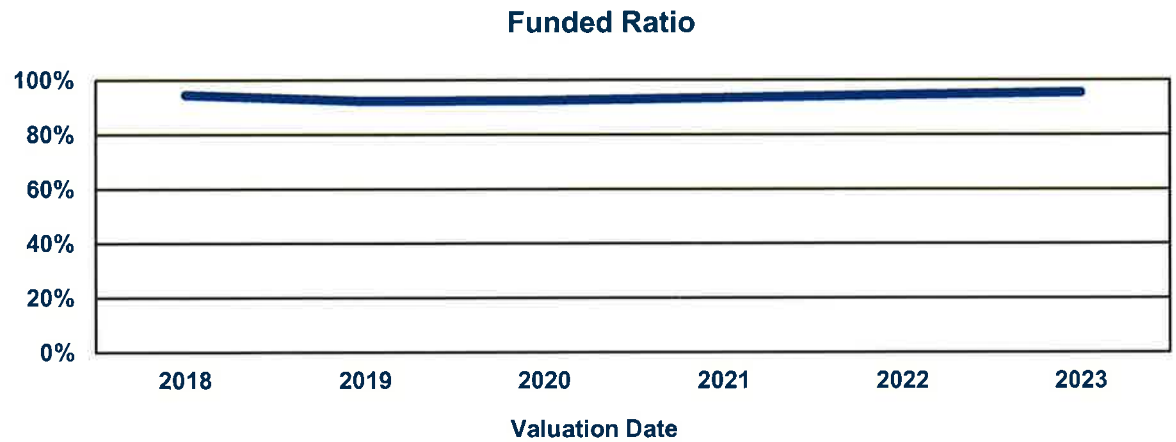


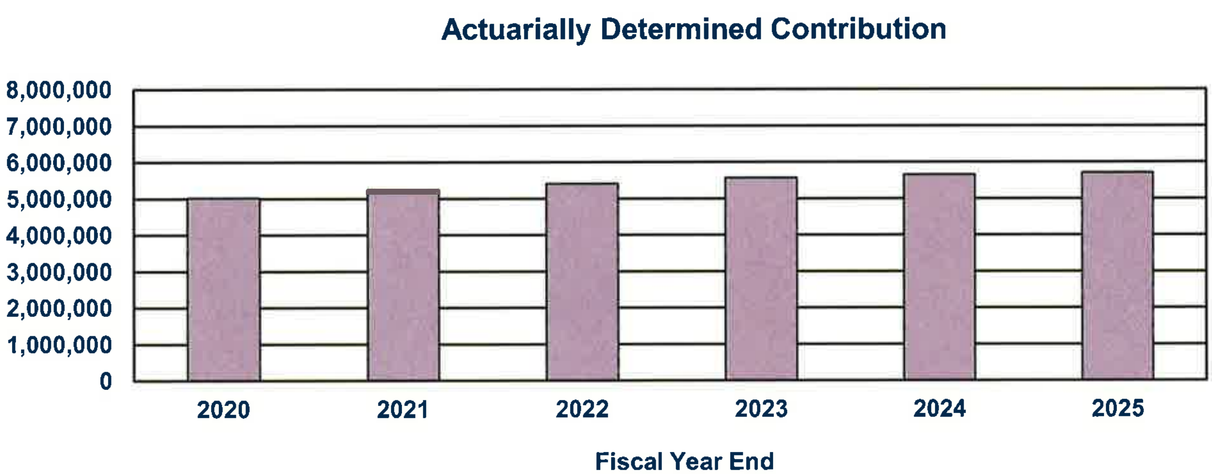
The City's contribution has increased from $2,811,055 to $3,696,471 since the last valuation.

Section I - Executive Summary
A. Highlights

Long Range Forecast

We expect the valuation results for the next several years to follow the patterns illustrated below:





To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

Section I - Executive Summary
B. Summary of Principal Results

Membership	January 1, 2016	January 1, 2017
Active Members	723	717
Terminated Vested Members	91	107
Members in Pay Status	552	563
Payroll as of Valuation Date	$33,423,670	$33,585,329
Assets and Liabilities	**July 1, 2016**	**July 1, 2017**
Market Value of Assets	$194,816,830	$207,714,553
Actuarial Value of Assets	214,377,524	214,890,752
Accrued Liability for Active Members	$92,391,683	$95,964,156
Accrued Liability for Terminated Vested Members	2,933,860	3,364,443
Accrued Liability for Members in Pay Status	114,228,415	117,500,111
Total Accrued Liability	209,553,958	216,828,710
Unfunded Accrued Liability / (Surplus)	(4,823,566)	1,937,958
Funded Ratio	102.3%	99.1%
Actuarially Determined Contribution for Fiscal Year	**2017-2018**	**2018-2019**
Normal Cost	$3,315,365	$3,495,588
Past Service Cost / (Credit)	(504,310)	200,883
Actuarially Determined Contribution	2,811,055	3,696,471
Estimated Payroll for Fiscal Year	$34,927,735	$35,096,669
Actuarially Determined Contribution as a Percent of Payroll	8.05%	10.53%
Allocation of Actuarially Determined Contribution		
General City	$1,428,664	$1,987,515
Board of Education	1,382,391*	1,708,956**
Total	2,811,055	3,696,471

* Fiscal Year 2017-2018 BOE allocation is $85,065 for Cafeteria and $1,297,326 for all other BOE groups

** Fiscal Year 2018-2019 BOE allocation is $86,141 for Cafeteria and $1,622,815 for all other BOE groups

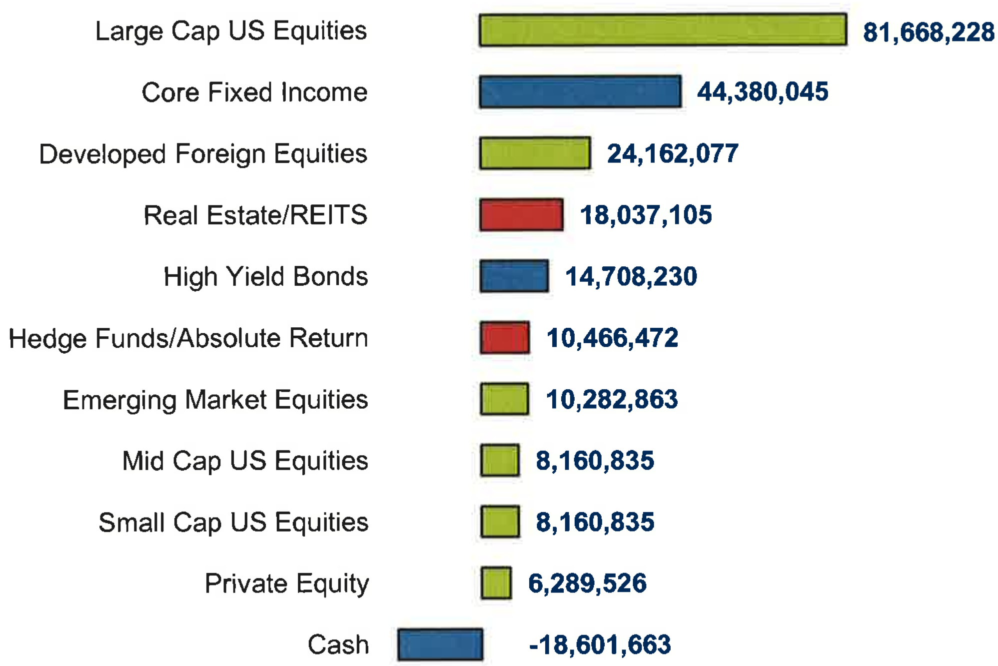
Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of July 1, 2016	$194,816,830
Fund Correction	0
Employer Contributions	1,064,936
Employee Contributions	2,022,396
Benefit Payments	(13,163,534)
Interest and Dividends	2,558,501
Unrealized Gains/(Losses)	24,824,296
Realized Gains/(Losses)	(2,702,131)
Expenses	(1,706,741)
Market Value as of July 1, 2017	207,714,553
Approximate Rate of Return	12.11%

Note: The rate shown here is not the dollar or time weighted investment yield rate which measures investment performance. It is an approximate net return assuming all activity occurred on average midway through the fiscal year.

Section II - Plan Assets
B. Asset Allocation

This table shows the allocation of assets as of July 1, 2017. Equity investments are shown in green, fixed income investments are shown in blue, and other types of investments are shown in red.



Section II - Plan Assets
C. Development of Actuarial Value of Assets

In order to minimize the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes gains and losses over a four year period. The Actuarial Value of Assets as of July 1, 2017 is determined below.

1.	Expected Market Value of Assets:	
	a. Market Value of Assets as of July 1, 2016	$194,816,830
	b. Employer and Employee Contributions	3,087,332
	c. Benefit Payments	(13,163,534)
	d. Expected Investment Return Based on 7.40% Interest	14,038,567
	e. Expected Market Value of Assets as of July 1, 2017	198,779,195
2.	Actual Market Value of Assets as of July 1, 2017	207,714,553
3.	Market Value (Gain)/Loss: (1e) - (2)	(8,935,358)
4.	Delayed Recognition of Market (Gains)/Losses:	

Plan Year End	(Gain)/Loss	Percent Not Recognized	Amount Not Recognized	
06/30/2017	($8,935,358)	75%	($6,701,519)	
06/30/2016	18,835,354	50%	9,417,677	
06/30/2015	17,840,162	25%	4,460,041	
				7,176,199

5.	Preliminary Actuarial Value as of July 1, 2017: (2) + (4)		214,890,752
6.	Corridor Limit:	80% of Market Value	166,171,642
		120% of Market Value	249,257,464
7.	Final Actuarial Value as of July 1, 2017: (5) constrained by (6)		214,890,752
8.	Approximate Rate of Return on Actuarial Value		5.06%
9.	Actuarial Value (Gain)/Loss		4,897,088

Section III - Development of Contribution
A. Past Service Cost

For determining the Past Service Cost, the Unfunded Accrued Liability is amortized as a level dollar amount over a period of 20 years.

		July 1, 2016	July 1, 2017
1.	Accrued Liability		
	Active Members	$92,391,683	$95,964,156
	Terminated Vested Members	2,933,860	3,364,443
	Terminated Non-Vested Members Due Refund	0	0
	Retired Members	112,028,060	115,149,821
	Beneficiaries of Deceased Members	2,200,355	2,350,290
	Total	209,553,958	216,828,710
2.	Actuarial Value of Assets (see Section II C)	214,377,524	214,890,752
3.	Unfunded Accrued Liability / (Surplus): (1) - (2)	(4,823,566)	1,937,958
4.	Funded Ratio: (2) / (1)	102.3%	99.1%
5.	Amortization Period	20	20
6.	Past Service Cost / (Credit): (3) amortized over (5)	(469,562)	187,216
7.	Interest on (6) to Following Fiscal Year	(34,748)	13,667
8.	Past Service Cost/(Credit) for Following Fiscal Year	(504,310)	200,883

Section III - Development of Contribution
B. Actuarially Determined Contribution

Valuation Date	July 1, 2016			July 1, 2017		
For Fiscal Year	2017-2018			2018-2019		
	General City	Board of Education	Total	General City	Board of Education	Total
1. Total Normal Cost	$2,710,613	$2,156,872	$4,867,485	$2,793,586	$2,234,486	$5,028,072
2. Expected Employee Contributions	1,173,588	819,659	1,993,247	1,185,575	806,364	1,991,939
3. City Normal Cost: (1) - (2)	1,537,025	1,337,213	2,874,238	1,608,011	1,428,122	3,036,133
4. City Normal Cost at End of Year	1,650,765	1,436,167	3,086,932	1,725,396	1,532,375	3,257,771
5. City Normal Cost at End of Fiscal Year	1,772,922	1,542,443	3,315,365	1,851,350	1,644,238	3,495,588
6. Past Service Cost at End of Fiscal Year (see Section III A)	(344,258)	(160,052)	(504,310)	136,165	64,718	200,883
7. Actuarially Determined Contribution at End of Fiscal Year: (5) + (6), not less than zero	1,428,664	1,382,391	2,811,055	1,987,515	1,708,956	3,696,471
8. Estimated Payroll for Fiscal Year	20,670,226	14,257,509	34,927,735	20,998,740	14,097,929	35,096,669
9. City Normal Cost as a % of Payroll: (5) / (8)	8.58%	10.82%	9.49%	8.82%	11.66%	9.96%
10. Actuarially Determined Contribution at End of Fiscal Year as a % of Payroll: (7) / (8)	6.91%	9.70%	8.05%	9.46%	12.12%	10.53%

Section III - Development of Contribution
C. Changes in Unfunded Accrued Liability/Surplus

1.	Unfunded Accrued Liability / (Surplus) as of July 1, 2016	($4,823,566)
2.	Total Normal Cost as of July 1, 2016	4,867,485
3.	Interest on (1) and (2)	3,250
4.	Contributions for the 2017 Fiscal Year	3,087,332
5.	Interest on (4) assuming mid-year payment	112,193
6.	Expected Unfunded Accrued Liability / (Surplus) as of June 30, 2017: (1) + (2) + (3) - (4) - (5)	(3,152,356)
7.	Asset (Gain) / Loss (see Section II C)	4,897,088
8.	Liability (Gain) / Loss	(3,079,409)
9.	Actual Unfunded Accrued Liability / (Surplus) as of July 1, 2017 before any changes: (6) + (7) + (8)	(1,334,677)
10.	Change in Unfunded Accrued Liability / (Surplus) as of July 1, 2017 due to assumption changes	3,272,635
11.	Change in Unfunded Accrued Liability / (Surplus) as of July 1, 2017 due to plan changes	0
12.	Final Unfunded Accrued Liability / (Surplus) as of July 1, 2017 after changes: (9) + (10) + (11)	1,937,958

Section III - Development of Contribution
D. Summary of Experience During Year

The principal sources of the net actuarial loss of approximately $1,818,000 are as follows:

	Gains	Losses
Investment Income		$4,897,000
New Entrants		431,000
Retirement and Deferred Retirements		364,000
Salary Increase	$2,221,000	
Retired Mortality	721,000	
Other Sources	680,000	
Terminations	252,000	
Totals	3,874,000	5,692,000
Net Actuarial Loss During Year		1,818,000

While the fund earned 12.11% on a Market Value basis, the recognition of investment losses from the two prior years resulted in a return of just 5.06% on an Actuarial Value basis. The actuarial assumption during the 2016-17 year was 7.40%; the result is an actuarial asset loss of $4,897,000.

There were 54 new entrants who produced a loss of approximately $431,000.

While the overall number of retirements was reasonably close to the number expected from the actuarial assumptions, there were an unexpected number of members at young ages who retired. This generated an actuarial loss.

The average rate of salary increase during the year was approximately 1.8% lower than the average actuarially expected increase, resulting in an actuarial gain.

The overall rate of deaths among retired plan members was in line with the actuarial assumption. However, the year saw a few deaths of younger retirees with relatively larger benefits, so overall the retired mortality experience generated a modest actuarial gain.

Section III - Development of Contribution
E. Long Range Forecast

This forecast is based on the results of the July 1, 2017 actuarial valuation and assumes that the City will pay the Actuarially Determined Contribution each year, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

		Values as of the Valuation Date					Cash Flows Projected to the Following Fiscal Year			
Valuation Date	Interest Rate	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year Ending	City Contributions	Employee Contributions	Benefit Payments	Net Cash Flows
7/1/2017	7.300%	$216,828,710	$214,890,752	$1,937,958	99.1%	2019	$3,696,471	$2,038,000	($14,167,000)	($8,432,529)
7/1/2018	7.200%	226,372,000	213,900,000	12,472,000	94.5%	2020	4,961,000	2,064,000	(14,745,000)	(7,720,000)
7/1/2019	7.100%	236,328,000	218,072,000	18,256,000	92.3%	2021	5,704,000	2,085,000	(15,419,000)	(7,630,000)
7/1/2020	7.000%	246,529,000	227,954,000	18,575,000	92.5%	2022	5,870,000	2,124,000	(16,043,000)	(8,049,000)
7/1/2021	7.000%	252,662,000	236,013,000	16,649,000	93.4%	2023	5,733,000	2,151,000	(16,778,000)	(8,894,000)
7/1/2022	7.000%	258,670,000	244,203,000	14,467,000	94.4%	2024	5,534,000	2,186,000	(17,476,000)	(9,756,000)
7/1/2023	7.000%	264,267,000	252,091,000	12,176,000	95.4%	2025	5,352,000	2,224,000	(18,190,000)	(10,614,000)
7/1/2024	7.000%	269,612,000	259,641,000	9,971,000	96.3%	2026	5,167,000	2,262,000	(18,903,000)	(11,474,000)
7/1/2025	7.000%	274,761,000	266,830,000	7,931,000	97.1%	2027	5,021,000	2,293,000	(19,615,000)	(12,301,000)
7/1/2026	7.000%	279,523,000	273,632,000	5,891,000	97.9%	2028	4,830,000	2,350,000	(20,207,000)	(13,027,000)
7/1/2027	7.000%	283,979,000	280,056,000	3,923,000	98.6%	2029	4,722,000	2,402,000	(20,729,000)	(13,605,000)
7/1/2028	7.000%	288,322,000	286,176,000	2,146,000	99.3%	2030	4,625,000	2,466,000	(21,180,000)	(14,089,000)
7/1/2029	7.000%	292,663,000	292,126,000	537,000	99.8%	2031	4,574,000	2,521,000	(21,656,000)	(14,561,000)
7/1/2030	7.000%	297,081,000	297,992,000	(911,000)	100.3%	2032	4,516,000	2,595,000	(22,036,000)	(14,925,000)
7/1/2031	7.000%	301,468,000	303,781,000	(2,313,000)	100.8%	2033	4,512,000	2,668,000	(22,396,000)	(15,216,000)
7/1/2032	7.000%	306,057,000	309,597,000	(3,540,000)	101.2%	2034	4,525,000	2,748,000	(22,692,000)	(15,419,000)
7/1/2033	7.000%	310,899,000	315,521,000	(4,622,000)	101.5%	2035	4,571,000	2,837,000	(22,874,000)	(15,466,000)
7/1/2034	7.000%	316,001,000	321,649,000	(5,648,000)	101.8%	2036	4,631,000	2,926,000	(23,059,000)	(15,502,000)
7/1/2035	7.000%	321,612,000	328,157,000	(6,545,000)	102.0%	2037	4,715,000	3,021,000	(23,190,000)	(15,454,000)
7/1/2036	7.000%	327,663,000	335,083,000	(7,420,000)	102.3%	2038	4,820,000	3,118,000	(23,318,000)	(15,380,000)

Section IV - Accounting Information
A. Notes to Required Supplementary Information

The information presented in Section IV has been determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	July 1, 2017
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level dollar amount
Amortization Period	Open 20 years
Asset Valuation Method	4 Year Smoothed Market Value
Actuarial Assumptions	
Investment Rate of Return	7.30%
Projected Salary Increases	Age based scale
Inflation	2.70%

Section IV - Accounting Information
B. Historical Schedule of Funding Progress

		(1)	(2)	(3)	(4)	(5)	(6)
Actuarial Valuation Date	For Fiscal Year Ending	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) (2) - (1)	Funded Ratio (1) / (2)	Covered Payroll	UAAL as a Percentage of Covered Payroll (3) / (5)
07/01/2010	2012	$202,903,999	$156,145,128	($46,758,871)	129.9%	$30,610,018	-152.8%
07/01/2011	2013	200,861,550	161,266,223	(39,595,327)	124.6%	31,279,794	-126.6%
07/01/2012	2014	198,148,851	170,641,187	(27,507,664)	116.1%	31,094,775	-88.5%
07/01/2013	2015	205,783,514	177,167,234	(28,616,280)	116.2%	30,661,306	-93.3%
07/01/2014	2016	215,540,739	184,008,630	(31,532,109)	117.1%	30,661,306	-102.8%
07/01/2015	2017	215,652,505	189,862,754	(25,789,751)	113.6%	30,263,226	-85.2%
07/01/2016	2018	214,377,524	209,553,958	(4,823,566)	102.3%	33,423,670	-14.4%
07/01/2017	2019	214,890,752	216,828,710	1,937,958	99.1%	33,585,329	5.8%

Section IV - Accounting Information
C. Schedule of Employer Contributions

Fiscal Year Ending June 30	(1) Actuarially Determined Contribution	(2) Contribution in Relation to the Actuarially Determined Contribution	(3) Contribution Deficiency/ (Excess) (1) - (2)	(4) Covered Payroll	(5) Contribution as a Percentage of Covered Payroll (2) / (4)
2010	$0	$0	$0	$31,268,158	0.00%
2011	0	0	0	30,783,005	0.00%
2012	0	0	0	30,610,018	0.00%
2013	0	0	0	31,279,794	0.00%
2014	604,612	227,500	377,112	31,094,775	0.73%
2015	507,245	127,325	379,920	30,661,306	0.42%
2016	352,543	44,000	308,543	30,661,306	0.14%
2017	756,393	1,064,936	(308,543)	30,263,226	3.52%
2018	2,811,055	TBD	TBD	33,423,670	TBD
2019	3,696,471	TBD	TBD	33,585,329	TBD

Section IV - Accounting Information
D. Accrued and Vested Benefits

The actuarially computed Value of Accrued Benefits represents the present value of (a) the benefits based on earnings and service to date expected to become payable at future dates to present employees, (b) the benefits expected to become payable to former employees who have terminated service with vested rights or who have become inactive, and (c) the benefits currently payable to retired participants and beneficiaries.

		As of July 1, 2016	As of July 1, 2017
1.	Value of Vested Benefits		
	Active Members	$64,524,927	$68,694,606
	Terminated Vested Members	2,933,860	3,364,443
	Terminated Non-Vested Due Refund	0	0
	Retired Members	112,028,060	115,149,821
	Beneficiaries of Deceased Members	2,200,355	2,350,290
	Total Value of Vested Benefits	181,687,202	189,559,160
2.	Value of Non-Vested Benefits	4,064,729	4,396,299
3.	Total Value of Accrued Benefits: (1) + (2)	185,751,931	193,955,459
4.	Market Value of Assets	194,816,830	207,714,553
5.	Vested Funded Ratio: (4) / (1)	107.2%	109.6%
6.	Accrued Funded Ratio: (4) / (3)	104.9%	107.1%

Section IV - Accounting Information
E. Statement of Changes in Accrued Plan Benefits

Increase/(Decrease) during the 2016-2017 plan year attributable to:

Increase for interest due to the decrease in the discount period	$13,267,284
Benefits Accumulated/(Forfeited)	5,238,739
Benefit Payments	(13,163,534)
Plan Amendments	0
Changes in Actuarial Assumptions	2,861,039
Net Increase/(Decrease)	8,203,528

Value of Accrued Plan Benefits:

July 1, 2017	$193,955,459
July 1, 2016	185,751,931
Net Increase/(Decrease)	8,203,528

Section V - Membership Data
A. Reconciliation of Membership from Prior Valuation

Details of the changes in the Plan membership since the last valuation are shown below. Additional details on the Plan membership are provided in the remainder of Section V.

	Active	Term. Vested	Due Refund	Retired	Bene-ficiaries	Total
Count as of January 1, 2016	723	37	54	523	29	1,366
Terminated, not vested	(2)	-	-	-	-	(2)
Terminated, benefits due	(20)	5	15	-	-	0
Retired	(26)	(4)	-	30	-	0
Died, with beneficiary	(2)	-	-	-	2	0
Died, no beneficiary	-	-	-	(18)	(3)	(21)
New member	54	-	5	-	-	59
New beneficiary	-	-	-	-	-	0
Lump sum paid	(11)	(1)	(4)	-	-	(16)
Rehired	2	-	-	-	-	2
New QDRO	-	-	-	-	-	0
Adjustment	(1)	1	(1)	-	-	(1)
Count as of January 1, 2017	717	38	69	535	28	1,387

Section V - Membership Data
B. Statistics of Membership

	As of January 1, 2016	As of January 1, 2017
Active Members		
Number	723	717
Average Age	50.4	50.4
Average Service	11.4	11.5
Total Annual Compensation	$33,423,670	$33,585,329
Average Annual Compensation	46,229	46,841
Terminated Vested Members *		
Number	91	107
Total Annual Benefit	$423,161	$436,900
Average Annual Benefit	11,437	11,497
Average Age	46.8	44.9
Retired Members		
Number	506	520
Total Annual Benefit	$12,256,841	$12,560,335
Average Annual Benefit	24,223	24,154
Average Age	72.4	72.5
Disabled Members		
Number	17	15
Total Annual Benefit	$170,052	$154,850
Average Annual Benefit	10,003	10,323
Average Age	73.1	73.2
Beneficiaries of Deceased Members		
Number	29	28
Total Annual Benefit	$334,254	$333,340
Average Annual Benefit	11,526	11,905
Average Age	79.3	78.2

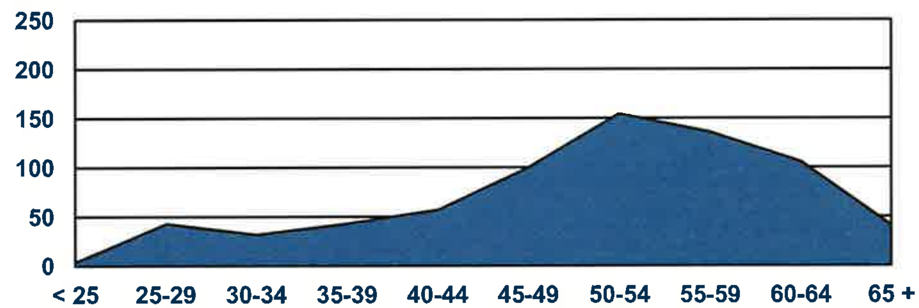
* Participant count includes 54 Terminated Vested Members due a return of employee contributions as of January 1, 2016, and 69 as of January 1, 2017.

Section V - Membership Data

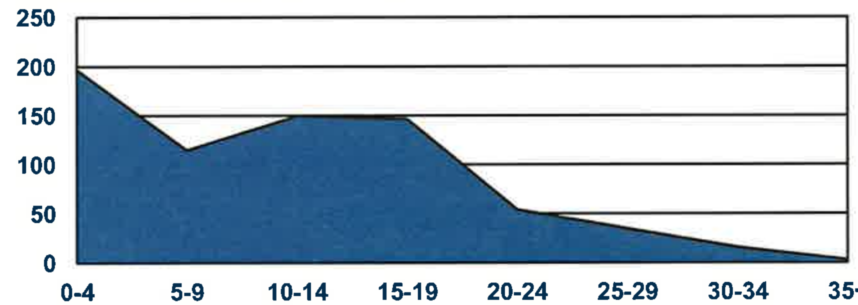
C. Distribution of Active Members as of January 1, 2017

	Years of Service								
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total
< 25	4	0	0	0	0	0	0	0	4
25-29	40	3	0	0	0	0	0	0	43
30-34	22	7	3	0	0	0	0	0	32
35-39	21	13	7	2	0	0	0	0	43
40-44	20	16	15	6	0	0	0	0	57
45-49	29	20	24	13	7	6	1	0	100
50-54	26	21	40	31	15	16	6	0	155
55-59	22	13	27	49	16	3	5	1	136
60-64	8	18	21	39	11	7	2	0	106
65 +	5	4	13	7	5	3	2	2	41
Total	197	115	150	147	54	35	16	3	717

Distribution By Age



Distribution by Years of Service



Section V - Membership Data
D. Distribution of Inactive Members as of January 1, 2017

	Age	Number	Annual Benefits
Terminated Vested Members *	< 30	10	$0
	30 - 39	27	16,421
	40 - 49	33	202,485
	50 - 59	22	158,976
	60 - 64	8	31,850
	65 +	7	27,168
	Total	107	436,900
Retired Members	< 50	0	$0
	50 - 59	24	966,691
	60 - 69	205	5,697,364
	70 - 79	181	4,187,012
	80 - 89	97	1,558,885
	90 +	28	305,233
	Total	535	12,715,185
Beneficiaries	< 50	1	7,428
	50 - 59	1	16,168
	60 - 69	2	33,920
	70 - 79	8	77,141
	80 - 89	13	186,188
	90 +	3	12,495
	Total	28	333,340

* Participant count includes 53 Terminated Vested Members due a return of employee contributions.

Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is the **Entry Age Normal Cost Method**. Recommended annual contributions until the accrued liability is completely funded will consist of three pieces: Normal Cost plus a payment towards the Unfunded Accrued Liability plus interest to adjust for the lag between the valuation date and the start of the fiscal year.

The **Normal Cost** is determined by calculating the present value of future benefits for present active Members that will become payable as the result of death, disability, retirement or termination. This cost is then spread as a level percentage of earnings from entry age to termination as an Active Member. If Normal Costs had been paid at this level for all prior years, a fund would have accumulated. Because this fund represents the portion of benefits that would have been funded to date, it is termed the **Accrued Liability**. In fact, it is calculated by adding the present value of benefits for Retired Members and Terminated Vested Members to the present value of benefits for Active Members and subtracting the present value of future Normal Cost contributions.

The funding cost of the Plan is derived by making certain specific assumptions as to rates of interest, mortality, turnover, etc. which are assumed to hold for many years into the future. Since actual experience may differ somewhat from the assumptions, the costs determined by the valuation must be regarded as estimates of the true costs of the Plan.

The unfunded liability for the plan is the excess of the Accrued Liability over the assets which have been accumulated for the plan. This Unfunded Accrued Liability is amortized as a level dollar with an amortization period of 20 years.

The **Actuarial Value of Assets** is determined by recognizing asset gains and losses over four years. The resulting value is constrained to within +/- 20% of the market value of assets.

Appendix B - Actuarial Assumptions

Each of the assumptions used in this valuation was set based on a formal study of the plan's experience for the period July 1, 2011 through June 30, 2015 which reflected industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Interest Rate

7.3% (Prior: 7.4%) This assumption will decline by 0.1% until it reaches 7.0%.

Salary Scale

Salaries are assumed to increase at the following rates:

Age	Rate
25 and below	6.75%
30	5.75%
35	5.00%
40	4.50%
45	4.00%
50	3.75%
55	3.50%
60 and above	3.25%

Expenses

None.

Mortality

Current: RP-2000 Mortality Table for Employees and Healthy Annuitants with generational projection 40% phase-in from Scale AA to BB. The projection scale will continue to be phased in by 20% each year. This assumption includes a margin for mortality improvements beyond the valuation date.

Prior: RP-2000 Mortality Table for Employees and Healthy Annuitants with generational projection 20% phase-in from Scale AA to BB.

Pre-Retirement Disability

50% of the 1985 Pension Disability Table (DP-85) Class 1. 40% of disabilities are assumed to be service-connected and 60% are assumed to be non-service-connected.

Percent Married

80% of active members are assumed to have an eligible spouse.

Age of Spouse

The female spouse is assumed to be three years younger than the male spouse.

Form of Payment

Retirement benefits are assumed to be paid as a life annuity for current active members. The actual payment form elected is reflected for current retired members.

Appendix B - Actuarial Assumptions

Turnover

Rates according to the following table:

Age	Rate
20	18.00%
25	18.00%
30	12.00%
35	7.00%
40	5.00%
45	2.50%
50	1.75%
55	1.00%

Assumed Retirement Age

Members are assumed to retire according to the following rates:

Age	Attained Rule of 80	Not Yet Attained
53-54	10%	0%
55-56	22%	1%
57-59	20%	1%
60-61	25%	2%
62	25%	5%
63	28%	5%
64	25%	5%
65	20%	10%
66-69	30%	10%
70	100%	100%

Compensated Absences

The Actuarial Accrued Liability and Normal Cost have been increased by 5% for active Board of Education members and 13% for active General City members in order to reflect an explicit assumption regarding compensated absences.

Appendix C - 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. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Eligibility

Membership is compulsory for all full-time employees except firemen, policemen and teachers except that no employee over age 65 at date of hire shall be eligible. Membership is optional with officials.

Effective September 24, 1981, full-time definition means minimum employment of 720 hours and at least nine months a year and eligible for City payment of Health Insurance benefits.

Compensation

Salary for service with the City including grants and allowances for maintenance, but not including any general temporary increase or reduction thereof.

Final Average Earnings

The average of the 3 highest years out of the final 10 years.

Credited Service

Years and months of continuous service.

Member Contributions

6.0% of pay on a pre-tax basis. No interest is credited. Effective upon creation of a retiree health account, 1½% of employee contributions shall be applied to the retiree health account. In the event the City's pension actuary recommends that any General City department make contributions to the pension fund, future contributions to the retiree health account will be directed into the pension fund.

Normal Form of Annuity

Life Annuity.

Normal Retirement Date

Any member who has attained age 55, whose age plus service total 80, or any member hired before November 23, 1988 whose age plus service total 85 is eligible for normal retirement.

Normal Retirement Benefit

2.4% of Final Average Earnings multiplied by the number of completed years of Credited Service.

Early Retirement Eligibility

Age 55 with 10 years of Credited Service.

Early Retirement Benefit

Accrued Benefit, actuarially reduced if payments begin prior to the member's Normal Retirement Date.

Appendix C - Summary of Plan Provisions

Disability Retirement Eligiblity	Ten years of continuous service and total and permanent disability.
Disability Retirement Benefit	The pension during continuance of disability is computed with the same formula as normal retirement except that if disability was service-connected, there is no service requirement and the minimum pension is 50% of the member's annual rate of regular compensation at date of disability, including Social Security and Workmens' Compensation payments.
Pre-Retirement Spouse's Death Benefit	If an employee works beyond the date of eligibility for early or normal retirement, and dies before actually retiring, then benefits shall be paid to his designated contingent annuitant, if any, as if the employee had retired immediately prior to his death. If no contingent annuitant has been designated, but the deceased employee leaves a surviving spouse from whom he has not been divorced, then benefits shall be paid to the surviving spouse as if the employee had designated such spouse as his contingent annuitant and had retired immediately prior to death. The benefits payable to a designated contingent annuitant or surviving spouse shall be 50% of the actuarially reduced benefit payable had the employee retired immediately prior to his death. This benefit is in lieu of the return of employee contributions with interest on death before retirement.
Vesting	A member terminating after at least 10 years of Credited Service, provided the member elects to leave all accumulated contributions in the retirement fund, is entitled to a vested deferred pension, to commence at the earliest normal retirement age.
Prior Service Purchase	Members' dates of participation are adjusted to reflect periods purchased.
Ad hoc Retiree Cost-of-Living Adjustment (COLA)	Effective January 1, 2002, the City granted ad hoc COLAs to General City retirees who were in pay status as of December 31, 2000 equal to 50% of CPI-W from year of retirement through September 2001, with a maximum increase per year equal to 3%. The minimum benefit increase equaled $10 per month, and the maximum benefit increase equaled $300 per month. Effective June 1, 2008, the City granted ad hoc COLAs to General City retirees who were in pay status as of December 31, 2006 equal to 75% of CPI-W from September 2001 (or year of retirement if later) through August 2007, with a minimum benefit increase of $10 per month, and a maximum benefit increase of $350 per month.