City Of Charleston, West Virginia Firemen's Pension and Relief Fund

Actuarial Valuation Report
for the Year Beginning July 1, 2016

GRS Retirement Consulting

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September 11, 2017

Honorable Victor Grigoraci
City Treasurer
501 Virginia Street, East
Charleston, WV 25301

Deputy Chief Robert "Scott" S. Fisher
Pension Board Secretary
City of Charleston Firemen's Pension and Relief Fund

Subject: City of Charleston Firemen's Pension and Relief Fund
Actuarial Valuation Report for the Year Beginning July 1, 2016

Dear Honorable Grigoraci and Deputy Chief Fisher:

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2016, for the City of Charleston, West Virginia Firemen's Pension and Relief Fund ("Fund" or "Plan"). This actuarial valuation has been performed in accordance with the West Virginia Code Chapter 8, Article 22, Sections 16 through 28, inclusive.

In accordance with West Virginia Code §8-22-20, this actuarial valuation report provides information on:

- The sponsor's funding requirements for the plan year ending June 30, 2018;
- The Fund's eligibility to receive an allocation of the premium tax for the plan year ending June 30, 2018; and
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2018.

West Virginia Code §8-22-20(c)(4) requires a review of the actuarial assumptions and methods at least once every five years and that the Actuary shall provide a report to the oversight board with recommendations on any changes to the actuarial process. Consequently, an experience review was performed for the period July 1, 2009, through June 30, 2014. The assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, approved by the Municipal Pensions Oversight Board, and became effective for the actuarial valuation as of July 1, 2015.

This report is based on the sponsor's election to finance benefit obligations using the Conservation funding policy as defined in West Virginia Code §8-22-20 (f)(1).

This valuation is based upon:

> **Plan Member Data –** Data for active members and persons receiving benefits from the Fund as of June 30, 2016, was provided by the Fund's staff. We have tested this data for reasonableness.

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Asset Values – A reconciliation of market value of assets during the plan year ended June 30, 2016, and assets held as of June 30, 2016, by investment category, were provided by the Fund.

Plan Provisions – A summary of the key plan provisions valued are set forth in Section VI of the report: Summary of Principal Plan Provisions.

Actuarial Methods – Fund liabilities were measured using the Entry-Age Normal Actuarial Cost Method. The actuarial valuation was based on the market value of assets. The actuarial methods used in the valuation are set forth in Section V of the report: Actuarial Assumptions and Methods.

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 4.50%. The assumptions used in the valuation are set forth in Section V of the report: Actuarial Assumptions and Methods.

The actuarial valuation results disclosed in this report are based on the data and actuarial assumptions and methods described above, and upon the provisions of the Plan as of the valuation date. Based on these items, we certify these results to be true and correct.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practices.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as 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.

This report should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the plan sponsor.

Alex Rivera and Lance J. Weiss are members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Sincerely,

Alex Rivera

Alex Rivera, FSA, EA, MAAA, FCA
Senior Consultant

Lance J. Weiss

Lance J. Weiss, EA, MAAA, FCA
Senior Consultant

Contents

SECTION I

ACTUARIAL VALUATION RESULTS AS OF JULY 1, 2016

Executive Summary

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2016, for the City of Charleston, West Virginia Firemen's Pension and Relief Fund ("Fund" or "Plan").

In accordance with West Virginia Code §8-22-20, this actuarial valuation report provides information on:

- The sponsor's funding requirements for the plan year ending June 30, 2018
- The Fund's eligibility to receive an allocation of the premium tax for the plan year ending June 30, 2018
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2018

This report is based on the sponsor's election to finance benefit obligations using the Conservation funding policy as defined in West Virginia Code §8-22-20 (f)(1).

The key features of the Conservation funding policy, effective for plan years beginning after April 1, 2011, are summarized below:

- The current local Plan is closed to new employees

- New employees are covered in the multiple employer statewide plan – *Municipal Police Officers and Firefighters Retirement System* ("MPFRS")

- Benefits and expenses in the closed local Plan are financed by contributions made to two asset accounts:

    - The first asset account (Benefit Payment Account) is used to finance benefits and expenses for the fiscal year on a pay-as-you-go basis. Sources to pay current year benefits and expenses include minimum employee contributions of 6.5% of pay, a portion of the premium tax allocation not assigned to the accumulation account as defined below, and employer contributions.

    - The second account (Accumulation Account) cannot be used to pay benefits and expenses until assets exceed actuarial liabilities. Contributions to the accumulation account include employee contributions of 1.5% of pay and a percentage of the premium tax allocation. The percentage of the premium tax allocation is based on the amounts needed to produce 100% funding of liabilities in 35 years when considering assets from both the Benefit Payment Account and the Accumulation Account. This account also includes the Fund's assets prior to the adoption of the Conservation funding policy.

We understand employer contributions will be made from the City's General Fund and will be used directly to pay benefits not covered by member contributions or the premium tax allocation. We also understand that the Plan's assets will accumulate in the closed Pension and Relief Fund and no benefits or expenses will be paid from this trust until the funded ratio exceeds 100%.

Executive Summary (Continued)

The following table provides the Plan's funded status as of July 1, 2016:

Assets	$14,985,518
Actuarial Liabilities	$180,918,230
Unfunded Liabilities	$165,932,712
Funded Ratio	8.28%

The following table provides the actual employer contributions, employee contributions and premium tax allocation for the plan year ended June 30, 2017. The premium tax allocation was based on the results of the July 1, 2015, actuarial valuation.

Plan year ending 2017	Benefit Payment Account	Accumulation Account	Total
Employee Contributions	$466,784	$107,721	$574,505
Premium Tax Allocations	$807,104	$903,225	$1,710,329
Employer Contributions	$5,974,752	$0	$5,974,752
Total	$7,248,640	$1,010,946	$8,259,586

The following table provides the estimated employer contributions, employee contributions and premium tax allocation for the plan year ending June 30, 2018. We have assumed that approximately 51.58% of the premium tax allocation of $1,735,139 is deposited into the Accumulation Account and the remainder will be used for Benefit Payments. The basis of the premium tax allocation between the Benefit Payment Account and the Accumulation Account is developed from the projection on page II-2 of the report.

Plan year ending 2018	Benefit Payment Account	Accumulation Account	Total
Employee Contributions	$457,519	$105,581	$563,100
Premium Tax Allocations	$840,107	$895,032	$1,735,139
Employer Contributions	$6,254,664	$0	$6,254,664
Total	$7,552,290	$1,000,613	$8,552,903

Commentary of Premium Tax Allocation

Under §8-22-19 of the West Virginia Code, the plan sponsor is required to deposit the statutory contribution on a monthly basis at a rate of one-twelfth of the annual requirement, in order to receive the premium tax allocation from Municipal Pensions Security Fund. However, revenues which are specifically collected for the Fund must be deposited within five days of receipt.

Based upon discussions with the Municipal Pensions Oversight Board ("MPOB"), we understand the annual premium tax allocation is determined by September 1st each year. Municipalities can begin invoicing the MPOB for their share of the premium tax allocation after receiving their state-provided actuarial study and after the municipality has made employer contributions to the Benefit Payment Account (for plans not using the Conservation funding policy, the employer contributions must have been paid into the Pension and Relief Fund). Each municipal treasurer shall use the invoice template provided by the MPOB to begin drawing down the state allocation for the municipal pension plan. This July 1, 2016 Actuarial Report from GRS is to be used by municipal pension plans to draw down the September 1, 2017 State Premium Tax Allocation which is allocated in Fiscal Year 2018. *The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statues, and will be eligible to receive the premium tax allocation.*

Commentary on Solvency Projections and Supplemental Benefits

Under § 8-22-26a of the West Virginia Code, all retirees, surviving spouses and disabled pensioners are eligible for Supplemental Benefits that include automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefit equals the percentage increase in the Consumer Price Index, limited to 4.0 percent (2.0 percent for certain disabled pensioners), multiplied by the sum of the allowable amount (first $15,000 of initial benefits paid) and the accumulated supplemental pensions paid in prior years.

The Court of Appeals decision requires that Supplemental Benefits be provided on "the allowable amount of the first $15,000 of the total annual pension paid in addition to the accumulated supplemental pension from the previous years." The decision implies that compound cost-of-living increases should be applied to both the allowable amount of $15,000 and the accumulated supplemental pension amounts for prior years. Additional Supplemental Benefits are payable only if the Plan satisfies the minimum standard for actuarial soundness as defined in West Virginia Code § 8-22-20. This minimum standard requires that the fund remain "solvent" over the next 15-year projection period. Based on discussions with the West Virginia Municipal Pensions Oversight Board, and our understanding of the administrative practices of other local police and fire pension funds in West Virginia, the "solvency" requirement generally means that the fund's market value of assets is projected to be greater than zero for all plan years prior to the end of the 15-year projection period. The projection is based on the most recent actuarial valuation and assumes the plan sponsor will make contributions according to the funding policy elected by the sponsor as defined by the West Virginia Code. *Although the 15-year solvency test may satisfy the minimum standard for actuarial soundness under the statutes, it is not necessarily consistent with generally accepted actuarial principles.*

The City of Charleston has elected to fund benefits using the Conservation funding policy as defined in the West Virginia Code Section 8-22-20(f)(1). Under this funding methodology, the fund's market value of assets is projected to be greater than zero for all plan years prior to the end of the 15-year projection period. Accordingly, this contribution methodology satisfies the minimum standard for actuarial soundness.

The Supplemental benefits for plan year beginning July 1, 2018 will be based on the Consumer Price Index for calendar year 2017, and the projected results of the July 1, 2016 actuarial valuation.

Additional Remarks on the Actuarial Valuation Results

Following are additional remarks on the actuarial valuation results as of July 1, 2016:

- The assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, and approved by the Municipal Pensions Oversight Board and became effective beginning with the actuarial valuation as of July 1, 2015. The key assumptions are fully disclosed in Section V of the report.

- The interest rate used to discount liabilities remained the same for the July 1, 2015, and July 1, 2016, actuarial valuations.
    - The interest rate assumption was developed by reviewing the Plan's current funded ratio, the 15-year projected funded ratio, the ratio of assets to benefits, the percentage of assets allocated to equities and the funding policy selected. The details of the methodology used to select the discount rate are presented in Section V of the report. As of July 1, 2016, the Plan's funded ratio of 10% (using a testing interest rate of 5.50% for all plans using the Conservation funding policy), ratio of assets to benefits of 2.02, equity allocation of 66%, and 15-year projected funded ratio of 33%, resulted in a discount rate assumption of 4.50%.

- The sponsor changed from the Alternative funding policy to the Conservation funding policy effective for the plan year beginning on July 1, 2011.

- The Fund experienced an approximate annualized return of 4.77% on the market value of assets during the plan year ended June 30, 2016, which compares to the expected annualized return of 4.50%. The difference in actual versus expected return produced an asset (gain)/loss of ($38,695).

- An actuarial valuation is based on the expectation of certain events such as salary increases, retirement, disability, mortality, termination and cost of living increases. Demographic or liability experience (gains)/losses are generated when the actual occurrence of such events differs from the expectation. During the plan year ending June 30, 2016, the fund experienced a net liability (gain)/loss of ($308,606) due to these events.

Conservation Funding

Following are additional remarks on the actuarial valuation projections under the current funding policy:

Based on the closed group projections shown in Table 1, page II-1 and assuming that the sponsor makes the statutory required contributions, if all actuarial assumptions are realized in the future, including an investment return of 4.50%:

- The funded ratio is projected to increase slowly from 8% at June 30, 2016, to 25% at June 30, 2030, 57% at June 30, 2040, and 100% at June 30, 2046.
- Employer contributions are expected to increase from $5,974,752 for the fiscal year end June 30, 2017, to $10,342,880 for fiscal year end June 30, 2030, to $11,292,319 for fiscal year end June 30, 2040, and decrease to $10,120,118 for fiscal year end June 30, 2046.

Please note that a funded ratio of only 8% at June 30, 2016, means that the Plan is severely underfunded. Although the Plan is projected to be 100% funded by 2046, the funded ratio is projected to grow at a very slow rate. This policy is not consistent with generally accepted actuarial principles because benefit payments are effectively financed on a pay-as-you-go basis until 2046 through the Benefit Payment Account.

This actuarial valuation assumes that the City will be able to make future contributions on a timely basis. The ability of the Plan to become fully funded is heavily dependent on the City contributing the minimum employer contribution calculated under the Conservation funding policy for each and every future year. We did not perform an analysis of the ability of the City to make future contributions. Such an analysis is not within the scope of our assignment or within our analytical skill set. Failure to receive City contributions on a timely basis could jeopardize the sustainability of the Plan.

Please understand that the minimum employer contribution calculated under the Conservation funding policy as defined in West Virginia Code 8-22-20 (f)(1) is just that – the minimum that needs to be contributed each and every year. Because this Plan is severely underfunded, we continue to recommend that the plan sponsor seriously consider making additional contributions (in excess of the minimum requirement) to ensure that there are sufficient assets available in the fund in all years to pay the promised benefits.

If the minimum employer contributions (calculated under the Conservation funding policy) are not made or the investment return is less than the assumption of 4.50%, the funded ratio will be lower and the cash flow strain could be higher. If a significant market downtown occurs or a significant number of members retire or become disabled, the sponsor’s contributions are projected to increase.

Under the Conservation funding policy, the following experience could cause City contributions to change during the year:

- If the actual return on assets is *less* than the assumed return of 4.50%, then contributions could *increase slightly*. Conversely, if the actual return is *greater* than the assumed return, contributions could *decrease slightly*.

- If salaries increase by *more* than assumed, contributions could *increase slightly*. If salaries increase by *less* than assumed, contributions could *decrease slightly.*
- If active members retire *sooner* than expected, contributions could *increase significantly.* If active members retire *later* than expected, contributions could increase by *less* than expected.
- If active members become disabled during the year, contributions will *increase significantly*.
- If retired members die *later* than expected, contributions will *increase*. If retired members die *sooner* than expected, contributions will *decrease*.
- If the general inflation is *greater* than assumed, supplemental benefits will be greater than assumed and contributions will *increase*. Conversely, if general inflation is *lower* than assumed, contributions will *decrease*.

Once every four years GRS performs an experience review analysis and updates the actuarial valuation assumptions. The preceding experience outlined above becomes the basis for the updates to assumptions. For example, if salary increases were consistently lower than assumed during the four year experience period, then the salary increase rate assumption would likely be lowered. Or, if more members retired than assumed, then the retirement rates would likely be increased. The objective of the update to assumptions is to reduce the level of experience gains and losses in future actuarial valuations.

However, under the Conservation funding policy, sponsor contributions depend on benefits being paid to retirees, disabled members and surviving beneficiaries and not necessarily the economic or demographic experience. The updates to the actuarial assumptions will have a greater impact on the actuarial accrued liability and funded ratio.

Schedule A: Summary of Key Valuation Results

	No.		No.	
Valuation Date		**July 1, 2015**		**July 1, 2016**
Valuation Interest Rate		4.50%		4.50%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$7,273,171		$7,038,745
Average Pay		$54,277		$56,310
Expected Benefit Payments		$7,069,237		$7,400,742
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	134	$58,159,750	125	$58,123,908
(b) Retirees	140	$86,692,378	146	$91,766,657
(c) Survivors	49	$10,182,363	51	$9,987,629
(d) Disabled Members	41	$20,547,703	40	$20,282,243
(e) Deferred Vested Members	2	$985,191	1	$757,793
(f) Total	366	$176,567,385	363	$180,918,230
2. Present Value of Future Normal Costs		$34,154,266		$31,809,948
3. Present Value of Benefits (1(f) + 2)		$210,721,651		$212,728,178
4. Market Value of Assets		$13,888,494		$14,985,518
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$162,678,891		$165,932,712
6. Funded Ratio (4 / 1(f))		7.87%		8.28%
7. Net Employer Normal Cost				
(a) Normal Cost		$3,862,134		$3,763,586
(b) Administrative Expenses		$8,470		$10,009
(c) Gross Normal Cost (a + b)		$3,870,604		$3,773,595
(d) Employee Contribution Rate		8.00%		8.00%
(e) Expected Employee Contributions		$581,854		$563,100
(f) Net Employer Normal Cost (c - e)		$3,288,750		$3,210,495
(% of Compensation)		45.22%		45.61%
		FY 2017		**FY 2018**
8. Minimum Employer Contribution [a]		$5,974,752		$6,254,664
(% of Projected Compensation)		82%		89%
9. State Insurance Premium Tax Allocation		$1,710,329		$1,735,139
(% of Projected Compensation)		24%		25%

[a] Estimated Employer contribution for fiscal year end June 30, 2018.

Schedule B: (Gain)/Loss Analysis

Experience (Gain)/Loss for Plan Year Ended June 30, 2016

1.	(a) Liability as of 7/1/2015	$176,567,385
	(b) Normal Cost due 7/1/2015	$3,862,134
	(c) Interest on (a) and (b) to 6/30/2016	$8,032,430
	(d) Benefit Payments with interest to 6/30/2016	$7,235,113
	(e) Effect of Assumption Changes	$0
	(f) Expected Liability at 7/1/2016 [(a) + (b) + (c) - (d) + (e)]	$181,226,836
	(g) Actual Liability at 7/1/2016	$180,918,230
	(h) Liability (Gain)/Loss [(g) - (f)]	**($308,606)**
2.	(a) Market Value of Assets as of 7/1/2015	$13,888,494
	(b) Interest on (a) to 6/30/2016	$624,611
	(c) Contributions with interest to 6/30/2016	$7,668,831
	(d) Benefit Payments with interest to 6/30/2016	$7,235,113
	(e) Expected Assets at 6/30/2016 [(a) + (b) + (c) - (d)]	$14,946,823
	(f) Actual Assets at 7/1/2016	$14,985,518
	(g) Asset (Gain)/Loss [(e) - (f)]	**($38,695)**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**($347,301)**

SECTION II

ACTUARIAL PROJECTIONS

Actuarial Projections
Table 1

Valuation Plan Year End	Number		Total Assets								Actuarial		
30-Jun	Active	Pay Status	Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2016	125	238	$13,888,494	$7,075,905	$9,741	$5,300,144	$580,188	$1,606,659	$695,679	14,985,518	$180,918,230	$165,932,712	8%
2017	118	240	14,985,518	7,238,404	7,580	5,974,752	574,505	1,710,329	1,717,102	17,716,222	185,342,921	167,626,699	10%
2018	110	243	17,716,222	7,542,145	10,145	6,254,664	563,100	1,735,139	819,496	19,536,331	189,769,752	170,233,421	10%
2019	103	246	19,536,331	7,793,573	10,284	6,478,994	556,881	1,801,830	902,141	21,472,320	194,048,597	172,576,277	11%
2020	93	251	21,472,320	8,168,487	10,429	6,839,522	544,577	1,852,489	989,790	23,519,782	197,996,107	174,476,325	12%
2021	83	257	23,519,782	8,583,788	10,575	7,243,540	524,172	1,910,337	1,082,505	25,685,973	201,486,433	175,800,460	13%
2022	74	261	25,685,973	8,977,746	10,724	7,632,911	493,742	1,971,185	1,180,555	27,975,896	204,508,066	176,532,170	14%
2023	65	266	27,975,896	9,389,832	10,877	8,041,078	462,496	2,032,028	1,284,169	30,394,958	207,009,744	176,614,786	15%
2024	57	269	30,394,958	9,787,382	11,030	8,434,864	429,405	2,095,648	1,393,619	32,950,082	208,978,869	176,028,787	16%
2025	52	271	32,950,082	10,112,214	11,183	8,756,265	395,811	2,159,427	1,509,192	35,647,380	210,514,550	174,867,170	17%
2026	44	274	35,647,380	10,468,320	11,337	9,105,207	369,311	2,219,012	1,631,144	38,492,397	211,542,324	173,049,927	18%
2027	37	276	38,492,397	10,868,049	11,494	9,496,720	338,631	2,287,788	1,759,831	41,495,824	211,953,079	170,457,255	20%
2028	32	277	41,495,824	11,173,343	11,650	9,798,503	301,516	2,357,646	1,895,632	44,664,128	211,859,957	167,195,829	21%
2029	27	278	44,664,128	11,437,877	11,808	10,055,687	271,493	2,423,536	2,038,837	48,003,996	211,292,792	163,288,796	23%
2030	22	279	48,003,996	11,734,561	11,965	10,342,880	243,488	2,490,458	2,189,782	51,524,078	210,170,468	158,646,390	25%
2031	17	279	51,524,078	12,029,140	12,121	10,629,498	211,056	2,561,647	2,348,868	55,233,886	208,470,752	153,236,866	26%
2032	14	278	55,233,886	12,279,160	12,271	10,871,982	178,185	2,632,685	2,516,487	59,141,794	206,238,876	147,097,082	29%
2033	10	277	59,141,794	12,529,149	12,415	11,111,663	148,703	2,703,746	2,693,036	63,257,378	203,452,715	140,195,337	31%
2034	7	275	63,257,378	12,744,857	12,553	11,315,023	118,621	2,780,014	2,878,987	67,592,613	200,138,541	132,545,928	34%
2035	5	272	67,592,613	12,867,745	12,683	11,425,864	90,541	2,852,285	3,074,785	72,155,660	196,419,649	124,263,989	37%
2036	4	268	72,155,660	12,935,558	12,805	11,475,364	70,402	2,924,157	3,280,863	76,958,083	192,365,968	115,407,885	40%
2037	3	264	76,958,083	12,966,283	12,917	11,486,113	54,891	2,991,676	3,497,682	82,009,245	188,018,613	106,009,368	44%
2038	2	260	82,009,245	12,964,909	13,020	11,459,907	42,020	3,064,777	3,725,770	87,323,790	183,410,417	96,086,627	48%
2039	1	255	87,323,790	12,924,976	13,112	11,391,885	31,133	3,141,248	3,965,757	92,915,725	178,584,114	85,668,389	52%
2040	1	250	92,915,725	12,855,549	13,192	11,292,319	22,652	3,217,895	4,218,238	98,798,088	173,571,067	74,772,979	57%
2041	1	245	98,798,088	12,761,436	13,260	11,163,964	15,869	3,300,141	4,483,861	104,987,227	168,396,062	63,408,835	62%
2042	0	239	104,987,227	12,632,837	13,316	10,999,182	10,316	3,384,306	4,763,315	111,498,193	163,099,188	51,600,995	68%
2043	0	233	111,498,193	12,483,557	13,358	10,810,566	6,846	3,471,462	5,057,294	118,347,446	157,701,643	39,354,197	75%
2044	0	227	118,347,446	12,314,904	13,387	10,599,746	4,297	3,562,890	5,366,549	125,552,637	152,223,424	26,670,787	82%
2045	0	221	125,552,637	12,127,220	13,401	10,368,198	2,549	3,656,448	5,691,849	133,131,060	146,685,232	13,554,172	91%
2046	0	215	133,131,060	11,925,000	13,400	10,120,118	1,606	3,752,745	6,033,980	141,101,109	141,101,109	0	100%
2047	0	209	141,101,109	11,709,579	13,383	15,417	990	0	6,089,051	135,483,605	135,483,605	0	100%
2048	0	202	135,483,605	11,481,570	13,350	14,243	568	0	5,841,302	129,844,798	129,844,798	0	100%
2049	0	196	129,844,798	11,240,982	13,298	13,683	279	0	5,592,892	124,197,372	124,197,372	0	100%
2050	0	189	124,197,372	10,988,546	13,229	13,370	129	0	5,344,366	118,553,462	118,553,462	0	100%
2051	0	183	118,553,462	10,724,838	13,140	13,090	52	0	5,096,252	112,924,878	112,924,878	0	100%
2052	0	176	112,924,878	10,449,883	13,030	13,031	0	0	4,849,084	107,324,080	107,324,080	0	100%

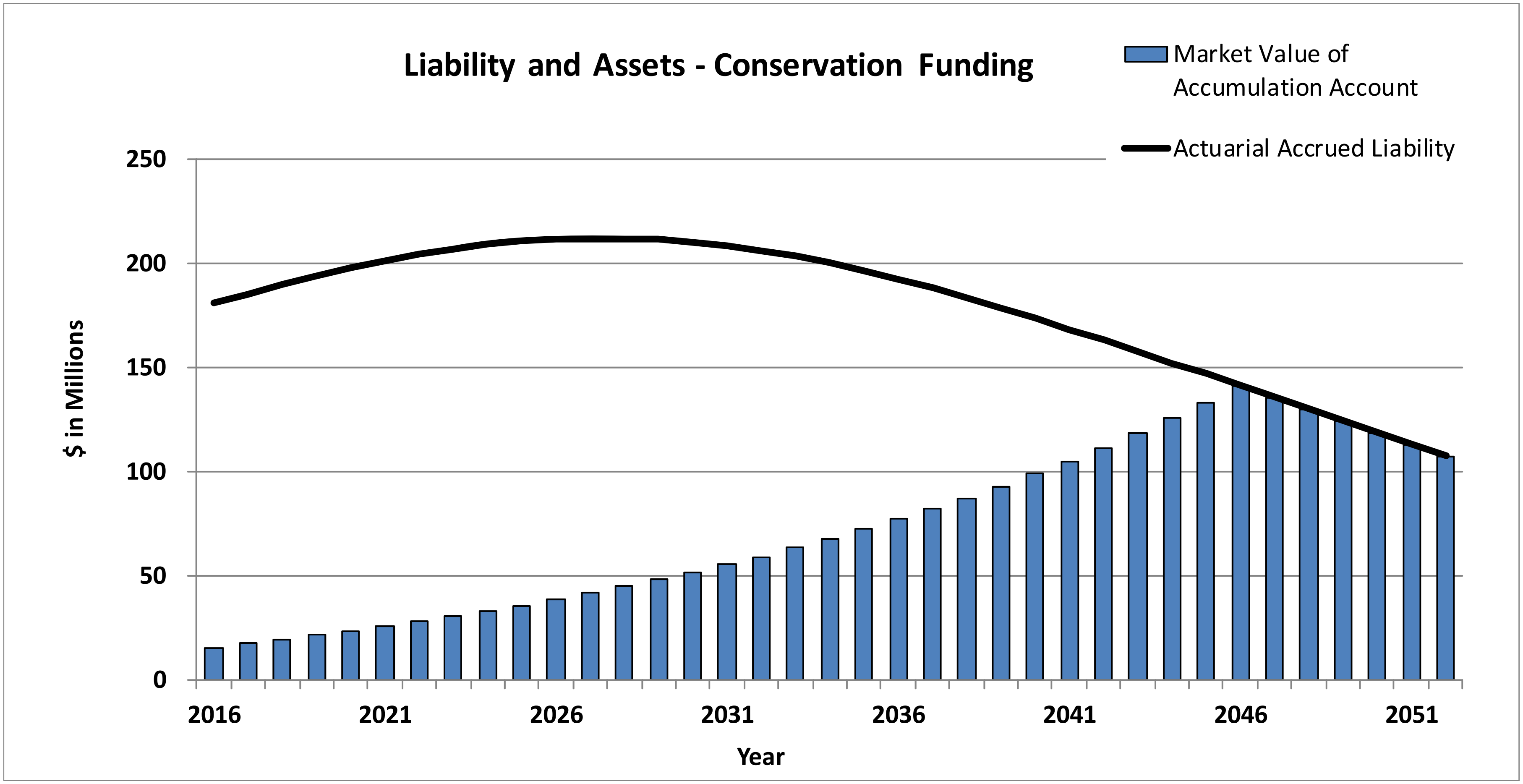
Actuarial Projections
Table 2

	Benefit Payment Account [a]							Accumulation Account [b]					
Plan Year End 30-Jun	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contributions	6.50% of Pay Employee Contributions	48.42% of Premium Tax Allocation	Investment Income	Transfer (To)/From Accumulation Account	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contributions	1.50% of Pay Employee Contributions	51.58% of Premium Tax Allocation	Investment Income
2018	($311,597)	$7,552,290	$6,254,664	$457,519	$840,107	($14,022)	$325,619	$18,027,819	$0	$0	$105,581	$895,032	$833,518
2019	$0	$7,803,857	$6,478,994	$452,466	$872,397	$0	$0	$19,536,331	$0	$0	$104,415	$929,433	$902,141
2020	0	8,178,916	6,839,522	442,469	896,925	0	0	21,472,320	0	0	102,108	955,564	989,790
2021	0	8,594,363	7,243,540	425,890	924,933	0	0	23,519,782	0	0	98,282	985,404	1,082,505
2022	0	8,988,470	7,632,911	401,165	954,394	0	0	25,685,973	0	0	92,577	1,016,791	1,180,555
2023	0	9,400,709	8,041,078	375,778	983,853	0	0	27,975,896	0	0	86,718	1,048,175	1,284,169
2024	0	9,798,412	8,434,864	348,892	1,014,656	0	0	30,394,958	0	0	80,513	1,080,992	1,393,619
2025	0	10,123,397	8,756,265	321,596	1,045,536	0	0	32,950,082	0	0	74,215	1,113,891	1,509,192
2026	0	10,479,657	9,105,207	300,065	1,074,385	0	0	35,647,380	0	0	69,246	1,144,627	1,631,144
2027	0	10,879,543	9,496,720	275,138	1,107,685	0	0	38,492,397	0	0	63,493	1,180,103	1,759,831
2028	0	11,184,993	9,798,503	244,982	1,141,508	0	0	41,495,824	0	0	56,534	1,216,138	1,895,632
2029	0	11,449,685	10,055,687	220,588	1,173,410	0	0	44,664,128	0	0	50,905	1,250,126	2,038,837
2030	0	11,746,526	10,342,880	197,834	1,205,812	0	0	48,003,996	0	0	45,654	1,284,646	2,189,782
2031	0	12,041,261	10,629,498	171,483	1,240,280	0	0	51,524,078	0	0	39,573	1,321,367	2,348,868
2032	0	12,291,431	10,871,982	144,775	1,274,674	0	0	55,233,886	0	0	33,410	1,358,011	2,516,487
2033	0	12,541,564	11,111,663	120,821	1,309,080	0	0	59,141,794	0	0	27,882	1,394,666	2,693,036
2034	0	12,757,410	11,315,023	96,380	1,346,007	0	0	63,257,378	0	0	22,241	1,434,007	2,878,987
2035	0	12,880,428	11,425,864	73,565	1,380,999	0	0	67,592,613	0	0	16,976	1,471,286	3,074,785
2036	0	12,948,363	11,475,364	57,202	1,415,797	0	0	72,155,660	0	0	13,200	1,508,360	3,280,863
2037	0	12,979,200	11,486,113	44,599	1,448,488	0	0	76,958,083	0	0	10,292	1,543,188	3,497,682
2038	0	12,977,929	11,459,907	34,141	1,483,881	0	0	82,009,245	0	0	7,879	1,580,896	3,725,770
2039	0	12,938,088	11,391,885	25,296	1,520,907	0	0	87,323,790	0	0	5,837	1,620,341	3,965,757
2040	0	12,868,741	11,292,319	18,405	1,558,017	0	0	92,915,725	0	0	4,247	1,659,878	4,218,238
2041	0	12,774,696	11,163,964	12,894	1,597,838	0	0	98,798,088	0	0	2,975	1,702,303	4,483,861
2042	0	12,646,153	10,999,182	8,382	1,638,589	0	0	104,987,227	0	0	1,934	1,745,717	4,763,315
2043	0	12,496,915	10,810,566	5,562	1,680,787	0	0	111,498,193	0	0	1,284	1,790,675	5,057,294
2044	0	12,328,291	10,599,746	3,491	1,725,054	0	0	118,347,446	0	0	806	1,837,836	5,366,549
2045	0	12,140,621	10,368,198	2,071	1,770,352	0	0	125,552,637	0	0	478	1,886,096	5,691,849
2046	0	11,938,400	10,120,118	1,305	1,816,977	0	0	133,131,060	0	0	301	1,935,768	6,033,980
2047	0	0	0	0	0	0	0	141,101,109	11,722,962	15,417	990	0	6,089,051
2048	0	0	0	0	0	0	0	135,483,605	11,494,920	14,243	568	0	5,841,302
2049	0	0	0	0	0	0	0	129,844,798	11,254,280	13,683	279	0	5,592,892
2050	0	0	0	0	0	0	0	124,197,372	11,001,775	13,370	129	0	5,344,366
2051	0	0	0	0	0	0	0	118,553,462	10,737,978	13,090	52	0	5,096,252
2052	0	0	0	0	0	0	0	112,924,878	10,462,913	13,031	0	0	4,849,084

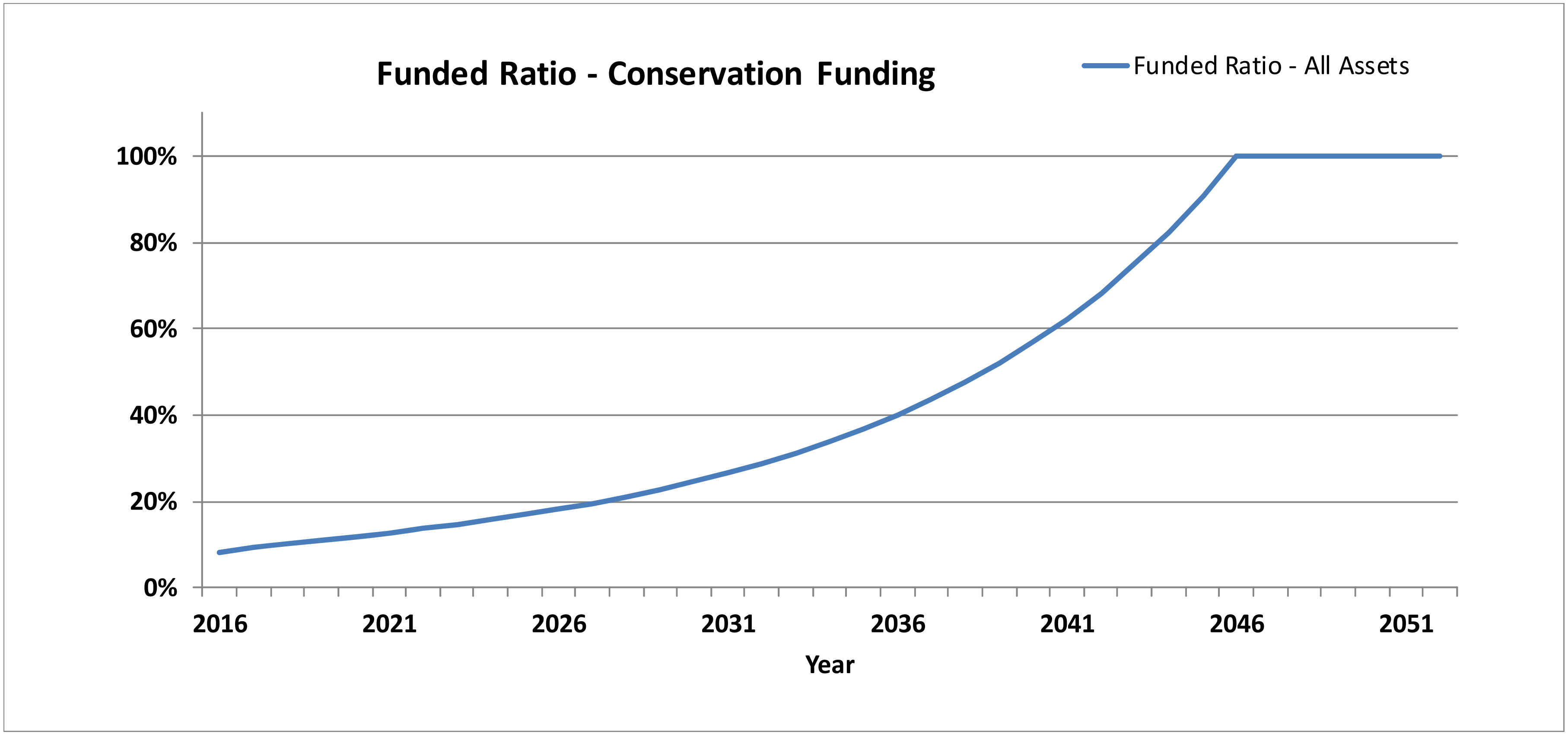
[a] *Employer contributions paid from the City's General Fund are used to finance benefits not covered by the applicable employee contributions or premium tax allocation.*

[b] *Assets accumulate in the Accumulation Account.*

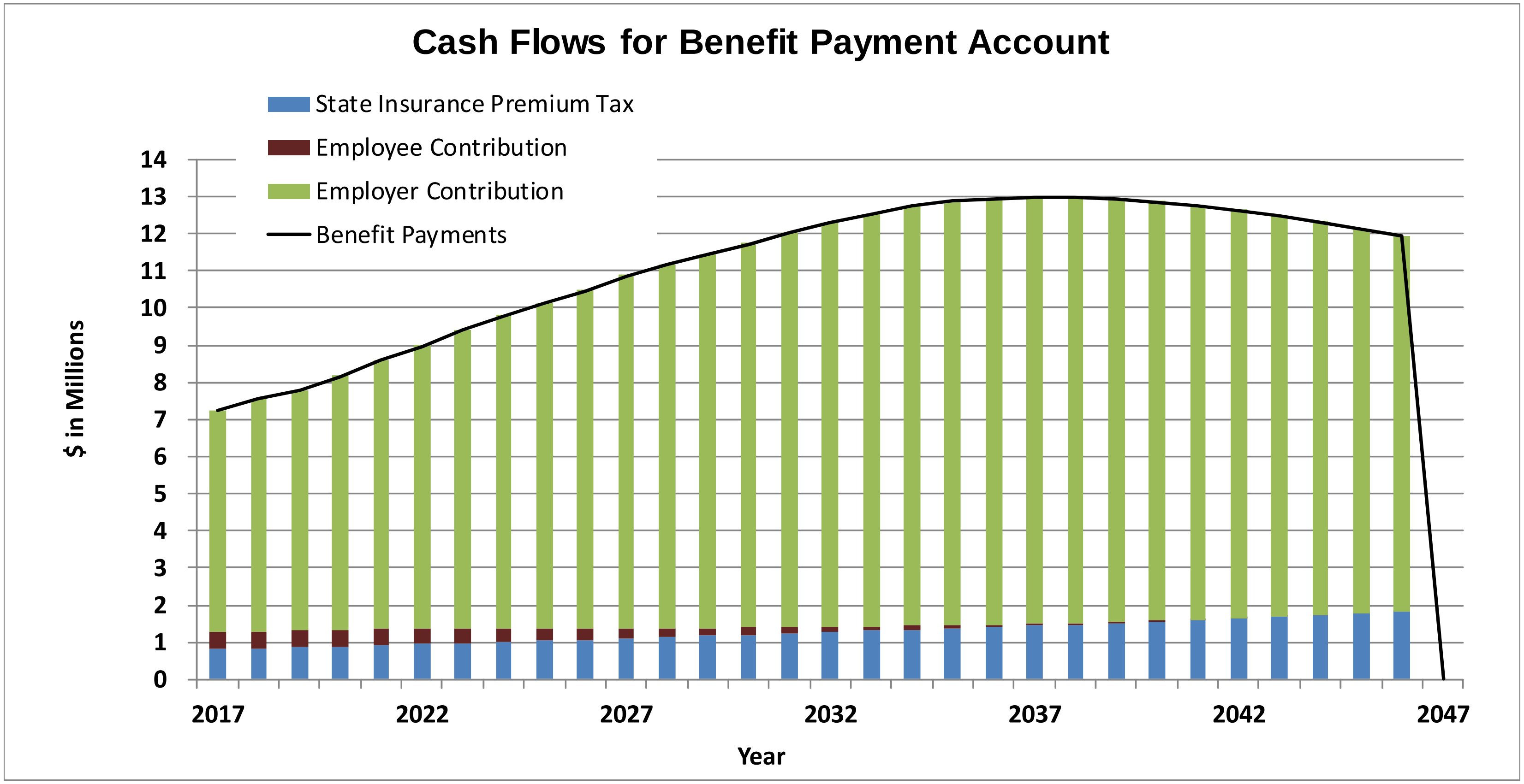
Actuarial Projections
Graph 1



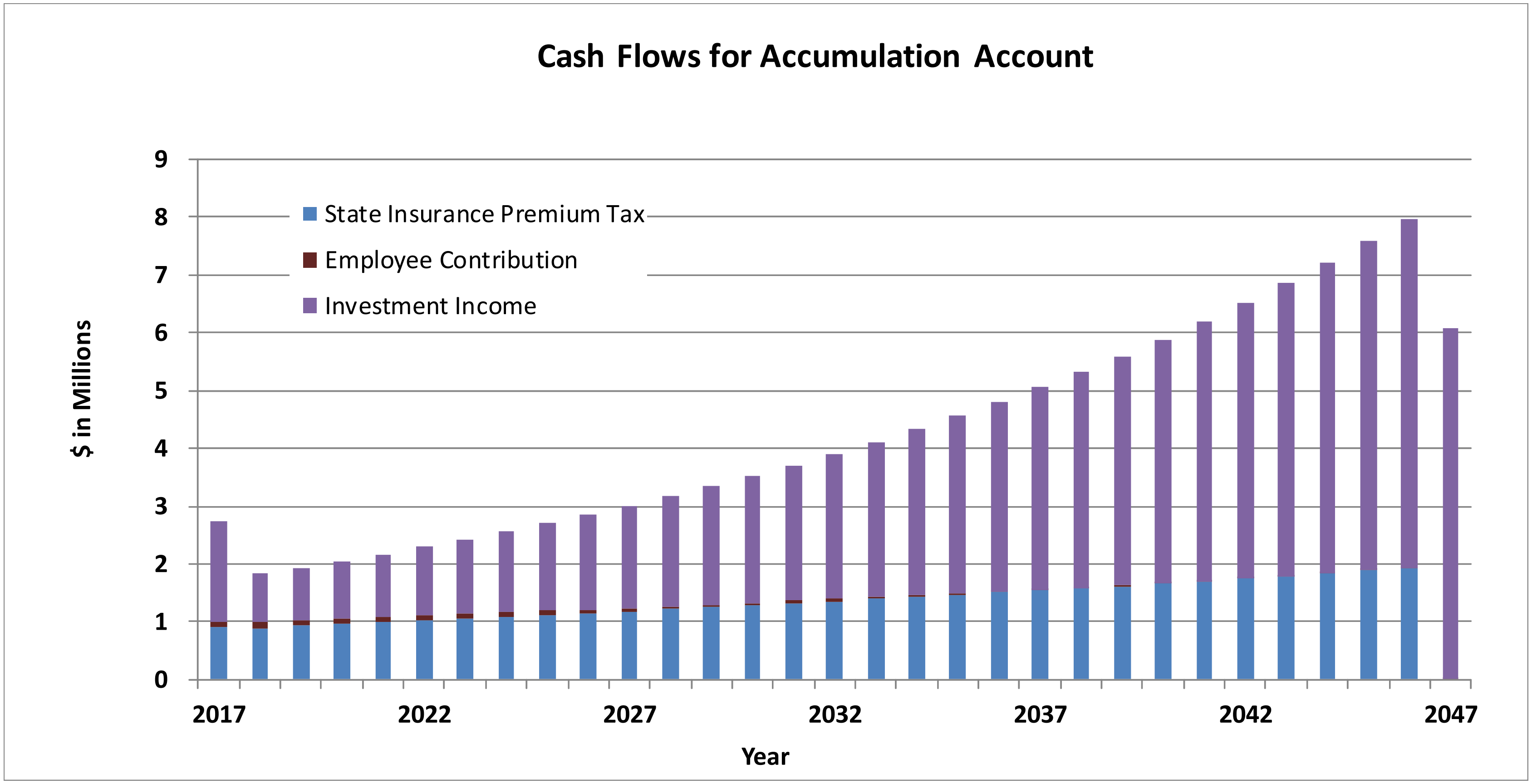
Actuarial Projections
Graph 2



Actuarial Projections
Graph 3



Actuarial Projections
Graph 4



SECTION III

ACTUARIALLY DETERMINED CONTRIBUTION FOR GASB STATEMENT NOS. 67 AND 68 REPORTING

Actuarial Determined Contribution for GASB Statement for GASB Statement Nos. 67 and 68 Reporting

Schedule C: Funding Progress and Employer Contributions

Valuation Date	**July 1, 2015**	**July 1, 2016**
Valuation Interest Rate	4.50%	4.50%
Cost-of-Living Adjustment	2.75%	2.75%
Wage Inflation	3.75%	3.75%
Actuarial Value of Assets	Market	Market
Actuarial Cost Method	Entry Age Normal	Entry Age Normal
Remaining Amortization Period [a]	25 Years, Level % of Pay	24 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	**July 1, 2015**	**July 1, 2016**
1. Market Value of Assets	$13,888,494	$14,985,518
2. Actuarial Accrued Liability	$176,567,385	$180,918,230
3. Unfunded Actuarial Accrued Liability (2 - 1)	$162,678,891	$165,932,712
4. Funded Ratio (1/2)	8%	8%
5. Expected Payroll	$7,273,171	$7,038,745
6. UAAL as Percentage of Covered Payroll (3/5)	2237%	2357%
Schedule of Employer Contributions [c]	**FY 2016**	**FY 2017**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$3,288,750	$3,210,495
(b) Amortization of Unfunded Actuarial Accrued Liability	$7,085,063	$7,501,622
(c) Actuarially Determined Contribution (ADC) (a + b)	$10,373,813	$10,712,117
2. Employer Contribution [b]	$5,300,144	$5,974,752
3. Premium Tax Allocation	$1,606,659	$1,710,329
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	67%	72%

[a] *Suggested amortization policy to comply with GASB Statement Nos. 67 and 68 Standards.*

[b] *Actual employer contribution for fiscal year end June 30, 2016, and June 30, 2017.*

[c] *The Conservation contribution plus premium tax allocation does not satisfy the Actuarially Determined Contribution as defined by GASB Statement Nos. 67 and 68.*

SECTION IV

ACTUARIAL VALUATION DATA AS OF JULY 1, 2016

Actuarial Valuation Data as of July 1, 2016
Schedule D(1): Reconciliation of Assets for Plan Year Ending June 30, 2015

Plan Year Ending	Benefit Account	Accumulation Account	Total June 30, 2015
A. Market Value of Assets Beginning of Year	($213,509)	$13,190,362	$12,976,853
Adjustment to Market Value of Assets at Beginning of Year	$0	$0	$0
Market Value of Assets Beginning of Year	($213,509)	$13,190,362	$12,976,853
1. Revenue During Fiscal Year			
(a) Employee Contribution	$481,808	$111,188	$592,996
(b) Governmental Contribution			
(i) From Local Government	$5,004,065	$0	$5,004,065
(ii) From State Government	$1,237,616	$320,168	$1,557,784
(iii) Reallocation from State Government	$0	$0	$0
(iv) Total	$6,241,681	$320,168	$6,561,849
(c) Earnings on Investments			
(i) Net Appreciation/(Depreciation)	$0	$461,352	$461,352
(ii) Bond Interest	$77	$81,380	$81,457
(iii) Dividends	$0	$143,326	$143,326
(iv) Net Realized Gain (Loss) on Sale/Exchange	$0	$0	$0
(v) Other	$0	$0	$0
(vi) Less Investment Expense	$0	($63,691)	($63,691)
(vii) Total	$77	$622,367	$622,444
(d) Other Revenue	$0	$0	$0
(e) Net Receivable Investment Income	$0	$0	$0
(f) Receivable Contribution [a]			
(i) From Employee Contributions	$0	$0	$0
(ii) From Local Government	$0	$0	$0
(iii) From State Government	$0	$0	$0
(iv) Total	$0	$0	$0
(g) Total Revenue (sum of (a) through (f))	$6,723,566	$1,053,723	$7,777,289
2. Expenditures During Fiscal Year			
(a) Benefits Paid	$6,842,553	$0	$6,842,553
(b) Withdrawals	$17,231	$0	$17,231
(c) Administrative Expenses	$5,864	$0	$5,864
(d) Payable Benefits and Withdrawals	$0	$0	$0
(e) Payable Administrative Expenses	$0	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$6,865,648	$0	$6,865,648
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	($355,591)	$14,244,085	$13,888,494
C. Approximate Return on Assets			4.72%

Actuarial Valuation Data as of July 1, 2016
Schedule D(2): Reconciliation of Assets for Plan Year Ending June 30, 2016

Plan Year Ending	Benefit Account	Accumulation Account	Total June 30, 2016
A. Market Value of Assets End of Prior Year	($355,591)	$14,244,085	$13,888,494
Adjustment to Market Value of Assets at Beginning of Year	$14,972	($14,972)	$0
Market Value of Assets Beginning of Year	($340,619)	$14,229,113	$13,888,494
1. Revenue During Fiscal Year			
(a) Employee Contribution	$471,402	$108,786	$580,188
(b) Governmental Contribution			
(i) From Local Government	$5,300,144	$0	$5,300,144
(ii) From State Government	$1,264,882	$341,777	$1,606,659
(iii) Reallocation from State Government	$0	$0	$0
(iv) Total	$6,565,026	$341,777	$6,906,803
(c) Earnings on Investments			
(i) Net Appreciation/(Depreciation)	$0	$505,646	$505,646
(ii) Bond Interest	$53	$80,535	$80,588
(iii) Dividends	$0	$166,085	$166,085
(iv) Net Realized Gain (Loss) on Sale/Exchange	$0	$0	$0
(v) Other	$0	$0	$0
(vi) Less Investment Expense	$0	($66,234)	($66,234)
(vii) Total	$53	$686,032	$686,085
(d) Other Revenue	$0	$0	$0
(e) Net Receivable Investment Income	$0	$9,594	$9,594
(f) Receivable Contribution [a]			
(i) From Employee Contributions	$0	$0	$0
(ii) From Local Government	$0	$0	$0
(iii) From State Government	$0	$0	$0
(iv) Total	$0	$0	$0
(g) Total Revenue (sum of (a) through (f))	$7,036,481	$1,146,189	$8,182,670
2. Expenditures During Fiscal Year			
(a) Benefits Paid	$7,018,296	$0	$7,018,296
(b) Withdrawals	$0	$57,609	$57,609
(c) Administrative Expenses	$9,741	$0	$9,741
(d) Payable Benefits and Withdrawals	$0	$0	$0
(e) Payable Administrative Expenses	$0	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$7,028,037	$57,609	$7,085,646
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	($332,175)	$15,317,693	$14,985,518
C. Approximate Return on Assets			4.77%

Actuarial Valuation Data as of July 1, 2016
Schedule E: Assets Held by Category

Plan Year Ending	June 30, 2015		June 30, 2016	
1. Cash and Short-term Investments	$2,578,392	18%	$2,470,110	16%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$2,314,699		$1,754,029	
(b) US State and Local Governmental Debt Securities	$0		$0	
(c) Foreign Governmental Debt Securities	$0		$0	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$2,314,699	17%	$1,754,029	12%
3. Corporate Fixed Income				
(a) US Bonds	$1,483,138		$1,517,355	
(b) US Mortgage or other Asset Backed Securities	$0		$0	
(c) US Mutual Fund Shares (Bonds)	$0		$0	
(d) US Exchange Traded Funds (Bonds)	$0		$0	
(e) International Bonds	$0		$0	
(f) International Mutual Fund Shares (Bonds)	$0		$0	
(g) International Exchange Traded Funds (Bonds)	$0		$0	
(h) Total Corporate Fixed Income (sum of (a) through (g))	$1,483,138	11%	$1,517,355	10%
4. Corporate Equity				
(a) US Equity	$2,908,417		$2,805,856	
(b) US Mutual Fund Shares (Equity)	$0		$0	
(c) US Exchange Traded Funds (Equity)	$4,595,606		$7,024,715	
(d) International Equity	$0		$0	
(e) International Mutual Fund Shares (Equity)	$0		$0	
(f) International Exchange Traded Funds (Equity)	$0		$0	
(g) Total Corporate Equity (sum of (a) through (f))	$7,504,023	54%	$9,830,571	66%
5. Alternative Investments				
(a) Real Estate Investment Trust	$0		$0	
(b) Private Equity Fund	$0		$0	
(c) Hedge Funds	$0		$0	
(d) Other Alternative Investments	$0		$0	
(e) Total Alternative Investments (sum of (a) through (d))	$0	0%	$0	0%
6. Other	$0	0%	$0	0%
7. Receivable Contributions				
(a) From Employee Contributions	$0		$0	
(b) From Local Government	$0		$0	
(c) From State Government	$103,135		$0	
(d) Total Receivable Contributions (sum of (a) through (c))	$103,135	1%	$0	0%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	$8,242		$9,594	
(b) Less Payable	($103,135)		($596,141)	
(c) Total	($94,893)	-1%	($586,547)	-4%
Market Value of Assets End of Year [sum of (1) through (8)]	**$13,888,494**		**$14,985,518**	

Actuarial Valuation Data as of July 1, 2016
Schedule F: Summary of Participant Activity

	Actives	Retirees	Disabled	Deferred Vested	Spouses and Beneficiaries	Totals
Total Participants July 1, 2015:	**134**	**140**	**41**	**2**	**49**	**366**
New Actives:						**0**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:						**0**
Vested Terminations:						**0**
Non-Vested Terminations:	(1)			(1)		**(2)**
Disabled:						**0**
Retirements:	(8)	8				**0**
Deaths with Beneficiary:		(2)	(1)		3	**0**
Deaths w/o Beneficiary:					(1)	**(1)**
Expired Annuity or Stop Payment:						**0**
Net Changes:	(9)	6	(1)	(1)	2	**(3)**
Total Participants June 30, 2016:	**125**	**146**	**40**	**1**	**51**	**363**

Actuarial Valuation Data as of July 1, 2016
Schedule G: Distribution of Active Employees by Age and Length of Service

Attained Age	Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Valuation Payroll[a]
			Years of Service to Valuation Date								
Under 20											$ 0
20-24											$ 0
25-29			3							**3**	**$ 142,016**
30-34			9	4	1					**14**	**$ 703,414**
35-39			11	9	2					**22**	**$ 1,088,490**
40-44			4	12	12	5				**33**	**$ 1,869,456**
45-49				8	11	17	8			**44**	**$ 2,694,841**
50-54					4	3				**7**	**$ 416,264**
55-59						1	1			**2**	**$ 123,935**
60-64											$ 0
65-69											$ 0
Over 70											$ 0
Totals	**0**	**0**	**27**	**33**	**30**	**26**	**9**	**0**	**0**	**125**	**$ 7,038,415**

Averages

Age:	42.7	years
Service:	15.0	years
Annual Pay:	$56,307	[a]

[a] *Based on payroll at beginning of plan year.*

Actuarial Valuation Data as of July 1, 2016
Schedule H: Participants Summary

Active Participants	July 1, 2015	July 1, 2016
Number of Actives	134	125
Total Annual Pay	$7,273,171	$7,038,415
Average Age	42.1	42.7
Average Service	14.4	15.0

Inactive Participants	July 1, 2015		July 1, 2016[a]	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	140	$5,111,973	146	$5,428,663
Survivors	49	$767,346	51	$771,399
Disabled Members	41	$1,031,296	40	$1,022,378
Deferred Vested Members	2	$56,385	1	$40,190

[a]Data provided includes 3 non-vested members with accumulated contributions balances of $65,594.

SECTION V

ACTUARIAL ASSUMPTIONS AND METHODS

Discount Rate

The following table outlines the factors used to determine the discount rate:

Funded Ratio as of Valuation Date [1]	Liquidity Ratio [2]	Equity Exposure [3]	Projected Funded Ratio after 15 Years [1]	Discount Rate
60% or more	10	50% or more	70% or more	6.5%
40% or more	8	40% or more	60% or more	6.0%
30% or more	6	30% or more	50% or more	5.5%
15% or more	4	n/a	40% or more	5.0%
Less than 15%	n/a	n/a	15% or more	4.5%
Less than 15%	n/a	n/a	Less than 15%	4.0%

[1]Funded ratios based on a 6.0% investment return assumption for plans using an actuarially sound policy (standard or optional) and a 5.5% investment return assumption for other plans (alternative or conservation).
[2]Liquidity ratio equals assets as of the valuation date divided by expected benefit payments for the year.
[3]Based on investment policy.

As of June 30, 2016	
Assets	$14,985,518
Liabilities using a 5.50% Discount Rate	$157,513,578
Funded Ratio	10%
Expected Benefit Payments	$7,400,742
Liquidity Ratio	2.02
Equity Exposure	66%
Projected Funded Ratio after 15 years	33%

Discount Rate	4.50%

The premium tax allocation is projected using the following methodology:

(1) The Base Allocation for all Pension and Relief Funds is a fixed amount equal to $8,709,689 in all future years. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible members, which includes active members covered in either the Pension and Relief Fund or the statewide plan, Municipal Police Officers and Firefighters Retirement System (“MPFRS”).

(2) The Excess Allocation is equal to the excess of the current year premium tax assigned to all Pension and Relief Funds over the total Base Allocation. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible active and retired members covered in either the Pension and Relief Fund or the MPFRS.

(3) We have assumed all Pension and Relief Funds will make the minimum statutory contribution requirement and will receive 100% of both the Base Allocation and the Excess Allocation assigned to the individual plan. Consequently, the projections do not include any reallocation of Expired Premium Tax Allocation for plan years beginning on and after July 1, 2018.

(4) The total available premium tax allocation, net of expenses, as of September 1, 2017, includes a Base Allocation of $8,709,689, an Excess Allocation of $9,190,019, and an Expired Premium Tax Allocation of $289,303.

(5) For the plan year ending June 30, 2017, all Pension and Relief Funds reported a total of 1,711 eligible active members, and 2,166 eligible retired members. The City of Charleston Firemen’s Pension and Relief Fund reported 153 eligible active members, and 237 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2017. The Fund is eligible to receive a premium tax allocation of $1,735,139 for the fiscal year ending June 30, 2018.

(6) The total premium tax allocation was assumed to increase by 2.75% in calendar years ending on and after 2018.

General Inflation	2.75%
Expected Salary Increase Service-based Increase:	General Inflation: 2.75% *plus* Wage Inflation Increment: 1.00% *plus* Years of <u>Service</u> <u>Increase</u> 1 20.00% 2 6.50% 3 3.50% 4 2.75% 5-9 2.50% 10-29 2.00% 30-34 1.25% after 34 years of service 0.00%
Post-retirement COLA	2.75% on first $15,000 of Annual Benefit and on the accumulated supplemental pension amounts for prior years.
Increase in State Insurance Premium Tax Allocation	2.75% on and after year 1
Cost Method	Entry-Age-Normal, Level-Percentage-of-Pay
Amortization Policies:	
Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 30 – Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 24 years remaining as of July 1, 2016).
Standard Plans and former Standard Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from July 1, 1991 – 15 years remaining as of July 1, 2016)
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 33.5 years remaining as of July 1, 2016). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 24 years remaining as of July 1, 2016)

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2016 (Continued)

Asset Method	Market Value
Turnover	Sample Rates – Age / Rates 25 / 9% 35 / 4% 45 / 2% 50 / 0%
Retirement	Age / Rates[a] 50 / 45% 51-55 / 30% 56-59 / 35% 60 / 100% *[a]Terminated vested participants are assumed to retire at age 50.*
Mortality	Active: RP-2014 Blue Collar Healthy Employee[b] Post-Retirement: RP-2014 Blue Collar Healthy Annuitant Disabled: RP-2014 Blue Collar Healthy Annuitant set forward four years Tables above incorporate generational mortality improvement using MP-2014 2-dimensional mortality improvement scales *[b]Assumes 10% of deaths are duty-related and 90% are non-duty related.*
Disability	Sample Rates – Age / Rates[c] 30 / 0.22% 40 / 0.50% 50 / 0.79% *[c] Assumes 60% duty related and 40% non-duty related.*
Percent Married	90%
Spouse Age	Females 3 years younger than males

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2016 (Continued)

Administrative Expenses	Plan year end June 30, 2017, expense based on plan year end June 30, 2016, expense increased by general inflation assumption.
Refunds Paid	Assumes non-vested inactive members as of July 1, 2016, with accumulated member contribution balances will receive a refund of their contributions during plan year end June 30, 2017.
Data Adjustments and Assumptions	One disabled member's benefit was estimated based on historical pay.
Child Beneficiaries	Future survivor widow benefits are loaded by 12% to estimate impact of benefits provided to survivor children. The load assumes 90% of members are married with two children at time of death, and benefits for each child are paid for approximately 8 years.
General Projection Methodology	Closed group projections assume: (i) Salaries will increase and members will decrement as specified in the actuarial assumption section. (ii) Assets grow at the assumed rate of return. (iii) The sponsor makes the statutory required contribution on a timely basis. (iv) Non-vested members with accumulated plan balances as of July 1, 2016, will receive a refund during plan year end June 30, 2017.

SECTION VI

SUMMARY OF PRINCIPAL PLAN PROVISIONS

Summary of Principal Plan Provisions

Employee Eligibility — All compensated employees of the Fire Department hired before June 1, 2011 are eligible to participate in the Firemen's Pension and Relief Fund.

Average Annual Compensation — The average of any three twelve-consecutive-month periods of employment which produces the highest average annual compensation.

Each twelve-consecutive-month annual compensation is limited to 120% of the *Average Adjusted Salary* received by the member in the two consecutive twelve-consecutive-month periods immediately preceding the twelve-consecutive-month period used in determining benefits.

The *Average Adjusted Salary* is base salary (exclusive of all overtime and other pay) of the year used in determining benefits multiplied by the ratio of total salary (includes all overtime and other pay) to base salary from the respective preceding twelve-consecutive-month period.

Determining Years of Service Credit (Credited Service**)** — The number of years that the member has contributed to the employees retirement and benefit fund.

Prior Military Service — A city may provide that members who have been honorably discharged from the military shall receive up to two years prior service credit for military service prior to their employment with the city.

Current Military Service — Any current member who has been on qualified military service in the armed forces of the United States with an honorable discharge may, within six months from his or her date of discharge, be given credit for continuous service in the paid police or fire department.

Any member who has served in active duty with the armed forces of the United States, whether prior to or subsequent to becoming a member of a paid police or fire department, shall receive one additional percent for each year so served in active military duty, up to a maximum of four additional percent.

Absence from the service because of sickness or injury for a period of two years or less shall not be construed as time out of service.

Contributions — Participating employees contribute 8.0% of compensation. Participating employees hired on or after January 1, 2010, contribute 9.5% of pay. The municipality has elected to contribute the minimum employer contribution under the Conservation funding policy.

Normal Retirement — Members are eligible at the earlier of age 50 with 20 years of credited service or age 65.

Benefit Commencement — Annual retirement pension benefits commence upon retirement or upon the member attaining age fifty, whichever is later, payable in twelve monthly installments.

Summary of Principal Plan Provisions (Continued)

Accrued Benefit — The annual retirement benefit equals 60% of average annual compensation, not less than $6,000, plus an additional percentage of average annual compensation for service over 20 years equal to 2% for each year of service between 20 and 25 and 1% for each year of service between 25 and 30 years. Employees serving in the military are eligible for an additional 1% of average annual compensation for each year of military service up to four years. The maximum benefit is limited to 75% of average annual compensation. Benefits continue for life.

Disability Retirement — Members are eligible after earning five years of service. No service requirement if disability is service related.

The monthly disability benefit equals the greater of 60% of monthly salary at disability or $500. Employees serving in the military are eligible for an additional benefit of 1% of monthly salary at disability for each year of military service up to four years. Disability benefits, when aggregated with monthly state workers compensation benefits, shall not exceed 100% of the member's monthly compensation at the time of disability. Benefits continue for life or until recovery.

Death Benefits — Members are eligible after earning five years of service. No service requirement if death is service related. Retirees and terminated vested participants are also eligible.

The benefit is equal to 60% of the participant's benefit, but not less than $300 per month, payable to the spouse until death or remarriage. Other dependents (children, parents, brothers and sisters) are also eligible for death benefits. To each dependent child, 20 percent of the participant's benefit until the child attains 18 or marries; to each dependent orphaned child, 25 percent of the participant's benefit until the child attains eighteen or marries; to each dependent parent, 10 percent of the participant's benefit for life, and to each dependent brother or sister, the sum of 50 dollars per month (but a total not to exceed $100 per month) until such individual attains the age of 18 years or marries.

In no case shall the payments to the surviving spouse and children be reduced below 65 percent of the total amount paid to all dependents.

Supplemental Pension Benefits — All retirees, surviving beneficiaries and disability pensioners are eligible for automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefits equal the percentage increase in the Consumer Price Index, limited to 4% (2% for some disability retirees), multiplied by the sum of the allowable amount which is the first $15,000 of the total annual benefits paid and the accumulated supplemental pension amounts for prior years.

Termination Benefits — Any member who terminates employment prior to retirement will be entitled to a refund of contributions without interest.

Refunds — Any member who terminates from their department without receiving a retirement pension shall be refunded all deductions made from his salary, without interest. Any member who receives such a refund and subsequently wishes to reenter the department must repay to the pension fund all sums refunded with interest at the rate of eight percent annual.