City Of Bluefield, West Virginia
Policemen's Pension and Relief Fund

Actuarial Valuation Report
for the Year Beginning July 1, 2017

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August 22, 2018

Ms. Kelly Davis
City Treasurer
200 Rogers Street
Bluefield, WV 24701

Chief Dennis M. Dillow, Jr.
Pension Board Secretary
City of Bluefield Policemen's Pension and Relief Fund

Subject: City of Bluefield Policemen's Pension and Relief Fund
Actuarial Valuation Report for the Year Beginning July 1, 2017

Dear Ms. Davis and Chief Dillow, Jr.:

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2017, for the City of Bluefield, West Virginia Policemen'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 fiscal year ending June 30, 2019, based on the selected funding policy, i.e. the Alternative funding policy as defined in West Virginia Code §8-22-20(c)(1)
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

This report also provides illustrative projections under two other funding policies available to the sponsor – the Optional funding policy as defined in West Virginia Code §8-22-20(e), and the Conservation funding policy as defined in West Virginia Code §8-22-20(f).

West Virginia Code §8-22-20 (c)(4), requires (1) a review of the actuarial assumptions and methods at least once every five years and (2) 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 actuarial valuation is based upon:

Plan Member Data – Data for active members and persons receiving benefits from the Fund as of June 30, 2017, was provided by the Fund's staff. We have tested this data for reasonableness.

Asset Values – A reconciliation of market value of assets during the plan year ended June 30, 2017, and a list of assets held as of June 30, 2017, by investment category, were provided by the Fund.

Plan Provisions – A summary of the key plan provisions valued are set forth in Section VII 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 actuarial valuation are set forth in Section VI of the report: Actuarial Assumptions and Methods.

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 6.00%. The assumptions used in the actuarial valuation are set forth in Section VI 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 actuarial 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, 2017

Executive Summary

Upon the request of the Municipal Pensions Oversight Board (MPOB), we have performed an actuarial valuation as of July 1, 2017, for the City of Bluefield, West Virginia Policemen'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 fiscal year ending June 30, 2019
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

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

The key features of the Alternative funding policy, effective as of June 30, 1991, are summarized below:

- The sponsor's initial Alternative contribution effective for plan year 1991 is the greater of 107% of the amount contributed for the plan year ended June 30, 1990, or the highest five-year average of contributions made since 1984.

- Sponsor contributions made in subsequent years cannot be less than 107% of the contribution made in the prior fiscal year.

- The actuary must certify in writing that the Fund is projected to be solvent under the Alternative funding policy for the next consecutive 15-year period. A plan is deemed to be solvent if projected assets are greater than zero over the 15-year projection period.

- Beginning September 1, 2003, any municipality which elected the Alternative funding policy has the option of reverting to the Standard funding policy if the plan's funded ratio is greater than 80%. In this case, the Standard minimum contribution equals the normal cost plus the amortization of the unfunded liability over a period of not more than 40 years commencing from July 1, 1991, less the allocable portion of the state premium tax fund for municipal pension and relief funds.

- Plan members hired before January 1, 2010, contribute 7.0% of pay; however, if elected by the Board of Trustees of the Plan, member contributions may be increased up to 9.5% of pay. Employees hired on or after January 1, 2010, contribute 9.5% of pay.

- The Plan also receives premium tax allocation assigned to the Fund for the plan year.

This report also provides illustrative projections under two other funding policies available to the sponsor – the Optional funding policy as defined in West Virginia Code §8-22-20(e), and the Conservation funding policy as defined in West Virginia Code §8-22-20(f).

The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2017
Assets	$5,633,794
Actuarial Accrued Liability	$12,188,011
Unfunded Actuarial Accrued Liability	$6,554,217
Funded Ratio	46.22%

The following table provides the employer contributions for the fiscal year ended June 30, 2018, under the Alternative funding policy:

Employer Contributions for FYE:	June 30, 2018
FYE 06/30/2017 Alternative Contribution	$315,470
7% Increase in Alternative Contribution	$22,083
FYE 06/30/2018 Alternative Contribution	$337,553
Additional Contribution	$0
Final FYE 06/30/2018 Alternative Contribution	$337,553

The following table provides the estimated employer contributions for the fiscal year ending June 30, 2019, under the Alternative funding policy:

Estimated Employer Contributions for FYE:	June 30, 2019
FYE 06/30/2018 Alternative Contribution	$337,553
7% Increase in Alternative Contribution	$23,629
FYE 06/30/2019 Alternative Contribution	$361,182
Additional Contribution to satisfy 15-year Solvency Test on an Open Group Basis (to receive 100% of the State Premium Tax Allocation)	$0
Estimated Employer Contribution for FYE 06/30/2019 to receive 100% of the State Premium Tax Allocation	$361,182
Additional Contribution to satisfy 15-year Solvency Test on a Closed Group Basis (to grant Supplemental Benefits; i.e. COLA increases)	$0
Estimated Employer Contribution for FYE 06/30/2019 to receive 100% of the State Premium Tax Allocation and to grant Supplemental Benefits; i.e. COLA increases	$361,182

Executive Summary (Continued)

A sponsor using the Alternative funding policy must satisfy the solvency test, as referenced in West Virginia Code section §8-22-20 (c)(1) in order to receive 100% of the State premium tax allocation, or grant Supplemental Benefits to plan members. We understand that the minimum requirement to satisfy the statutory solvency test includes a demonstration that the assets are projected to be greater than zero over a 15-year period. The statutes also require that an actuary perform the projection and certify the solvency test. However, the statutes provide little guidance on the parameters used to perform the solvency projections.

Under the current minimum statutory requirements, a sponsor of a poorly funded plan could provide Supplement Benefits to members, effectively deplete assets over a 15-year period, and have no available assets reserved to pay the benefits of current or future retirees after the 15-year period. For this reason, we recommend performing projections that include a margin for conservatism and satisfy the minimum statutory requirement for solvency. For this purpose we recommend performing projections that assume contributions for members hired after the actuarial valuation date will not be used to finance the unfunded liabilities of current members as of the actuarial valuation date. That is, assets and liabilities associated with new plan members are excluded from the solvency projections used to certify the solvency test for purposes of providing Supplemental Benefits. In this report projections that exclude new members are called “Closed Group Projections.”

The statutes also require that the Plan satisfy the solvency test in order to receive the State premium tax allocation. For this purpose we recommend using less conservatism in the projections in order to ensure that the Plan receives the greatest allowable State premium tax allocation. A projection that includes assets and liabilities for members hired after the valuation would be less conservative. In this report projections that include new members are called “Open Group Projections.”

The sponsor is projected to satisfy the 15-year solvency test without making additional annual contributions in excess of the minimum alternative contribution.

Commentary on 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 the Municipal Pensions Security Fund. Revenues which are specifically collected for the Fund, including employee payroll contributions, must be deposited within five days of receipt.

Based upon discussions with the 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 local Plan. 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, 2017, Actuarial Report from GRS is to be used by municipal pension plans to draw down the September 1, 2018 State Premium Tax Allocation which is allocated in Fiscal Year 2019. *The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statutes, including any additional amounts needed to satisfy the 15-year solvency test on an open group projection basis, 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 West Virginia Code, including any additional amounts needed to satisfy the 15-year solvency test on a closed group projection basis. *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 Supplemental benefits for plan year beginning July 1, 2019 will be based on the Consumer Price Index for calendar year 2018, and the projected results of the July 1, 2017 actuarial valuation.

Additional Remarks on the Actuarial Valuation Results

Following are additional remarks on the actuarial valuation results as of July 1, 2017:

- The actuarial 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 actuarial assumptions are fully disclosed in Section VI of the report.
- The interest rate used to discount liabilities remained the same for the July 1, 2016 and July 1, 2017 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 VI of the report. As of July 1, 2017, the Plan’s funded ratio of 43% (using a testing interest rate of 5.50% for all plans using the Alternative funding policy), ratio of assets to benefits of 9.02, equity allocation of 66%, and 15-year projected funded ratio of 73%, resulted in a discount rate assumption of 6.00%.
- The Fund experienced an approximate annualized return of 9.65% on the market value of assets during the plan year ended June 30, 2017, which compares to the expected annualized return of 6.00%. The difference in actual versus expected return produced an asset (gain)/loss of ($186,024).
- 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 ended June 30, 2017, the fund experienced a net liability (gain)/loss of $89,417 due to these events.

Alternative Funding

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

Based on the open group projections shown in Table 2, page II-2 and assuming that the sponsor makes the statutory required contributions, if all actuarial assumptions are realized in the future, including an investment return of 6.00%:

- The funded ratio is projected to increase from 46% at June 30, 2017, to 67% at June 30, 2027, and then increase to 100% at June 30, 2037.
- Employer contributions are expected to increase from $337,553 (or 35% of pay) for the fiscal year end June 30, 2018, to $1,140,911 (or 53% of pay) for fiscal year end June 30, 2036.

Executive Summary (Continued)

Please note that a funded ratio of only 46% at June 30, 2017, means that the plan is underfunded.

<u>The Alternative funding policy is not consistent with generally accepted actuarial principles because it does not recognize emerging gains or losses.</u>

A funding policy consistent with generally accepted actuarial principles is typically based on the sponsor contributing the normal cost net of employee contributions plus an amortization of the unfunded actuarial liability. The annual amortization amount is generally 6% to 7% of the unfunded actuarial liability. Under state statute, the annual premium tax allocation can only be used to finance the amortization of the unfunded actuarial liability. For fiscal year end 2019, the Alternative funding policy contribution of $361,182 is sufficient to finance 100% of the net employer normal cost of $242,117, but only 1.8% of the unfunded liability of $6,554,217. The state premium tax allocation of $272,344 is sufficient to finance only 4.2% of the unfunded actuarial liability of $6,554,217.

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 Alternative 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 Fund.

Please understand that minimum employer contribution calculated under the Alternative funding policy as defined in West Virginia Code 8-22-20 (c)(1) is just that – the minimum that needs to be contributed each and every year. Because this is an underfunded plan, we continue to recommend that the plan sponsor 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 Alternative funding policy) are not made or investment return is less than the assumption of 6.00%, the funded ratio will be lower and the cash flow strain could be higher. If another significant market downtown occurs while the plan's funded ratio is declining, the plan may need to liquidate assets in order to pay benefits which could have a further adverse effect on the funded status of the System.

Under the Alternative funding policy, City contributions increase by seven percent and do not change as a result of emerging actuarial experience. However, emerging experience gains and losses could impact the Plan's funded ratio as follows:

- If the actual return on assets is *less* than the assumed return of 6.00%, then contributions will generally *increase*. Conversely, if the actual return is *greater* than the assumed return, contributions will generally *decrease*.
- If salaries *increase* by more than assumed, contributions could *increase*. If salaries *decrease* by more than assumed, contributions could *decrease.*
- If active members retire *sooner* than expected, contributions will generally *increase.* If active members retire *later* than expected, contributions will generally *decrease*.
- If active members become disabled during the year, contributions could increase.

- 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*.

At least once every five years, GRS performs an experience review analysis and updates the actuarial valuation assumptions. For example, if salary increases were consistently lower than assumed during the experience period, then the salary increase rate would likely be lowered. Or if more members retired than assumed, then the retirement rates would likely be increased. Any change in actuarial assumption will also impact the City's funded ratio. The objective of a change in assumptions is to reduce the level of experience gains and losses in future actuarial valuations.

Schedule A: Summary of Key Valuation Results

	No.	July 1, 2016	No.	July 1, 2017
Valuation Date		**July 1, 2016**		**July 1, 2017**
Valuation Interest Rate		6.00%		6.00%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$1,025,108		$955,341
Average Pay		$39,427		$39,806
Expected Benefit Payments		$572,522		$624,386
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	26	$3,826,023	24	$2,759,382
(b) Retirees	14	$5,905,675	16	$7,221,504
(c) Survivors	6	$560,849	9	$835,453
(d) Disabled Members	3	$933,985	3	$926,473
(e) Deferred Vested Members	1	$432,868	1	$445,199
(f) Total	50	$11,659,400	53	$12,188,011
2. Present Value of Future Normal Costs		$3,931,684		$3,764,932
3. Present Value of Benefits (1(f) + 2)		$15,591,084		$15,952,943
4. Market Value of Assets		$5,058,689		$5,633,794
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$6,600,711		$6,554,217
6. Funded Ratio (4 / 1(f))		43.39%		46.22%
7. Net Employer Normal Cost				
(a) Normal Cost		$345,233		$319,814
(b) Administrative Expenses		$3,921		$3,949
(c) Gross Normal Cost (a + b)		$349,154		$323,763
(d) Employee Contribution Rate [a]		8.30%		8.55%
(e) Expected Employee Contributions		$85,093		$81,646
(f) Net Employer Normal Cost (c - e)		$264,061		$242,117
(% of Compensation)		25.76%		25.34%
		FYE 2018		**FYE 2019**
8. Estimated Minimum Employer Contribution [b]				
(a) Prior Year Alternative Contribution		$315,470		$337,553
(b) Increase in Alternative Contribution		7.00%		7.00%
(c) Current Year Alternative Contribution		$337,553		$361,182
(d) Additional Contribution		$0		$0
(e) Alternative Contribution (c + d)		$337,553		$361,182

[a] Blended rate reflecting 7.0% for members hired before January 1, 2010, and 9.5% for members hired after January 1, 2010.

[b] Estimated Minimum Employer Contribution is based on Alternative funding policy and is assumed to be made in plan year ending June 30, 2019.

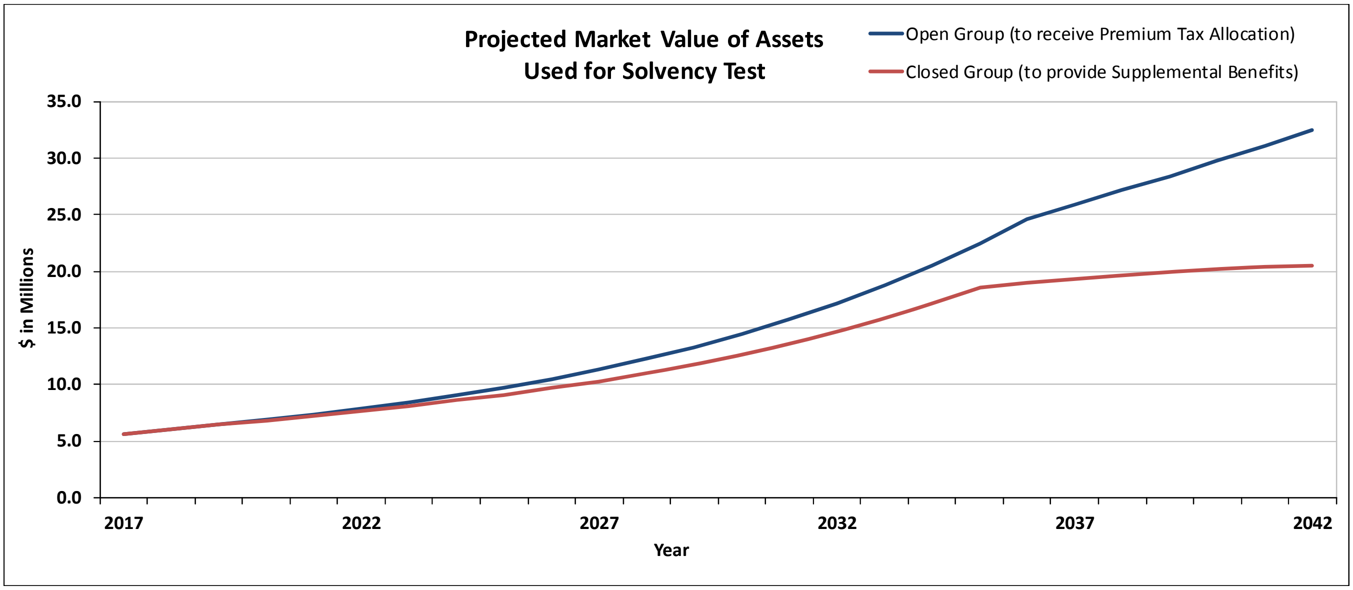
Schedule B: (Gain)/Loss Analysis

Experience (Gain)/Loss for Plan Year Ended June 30, 2017

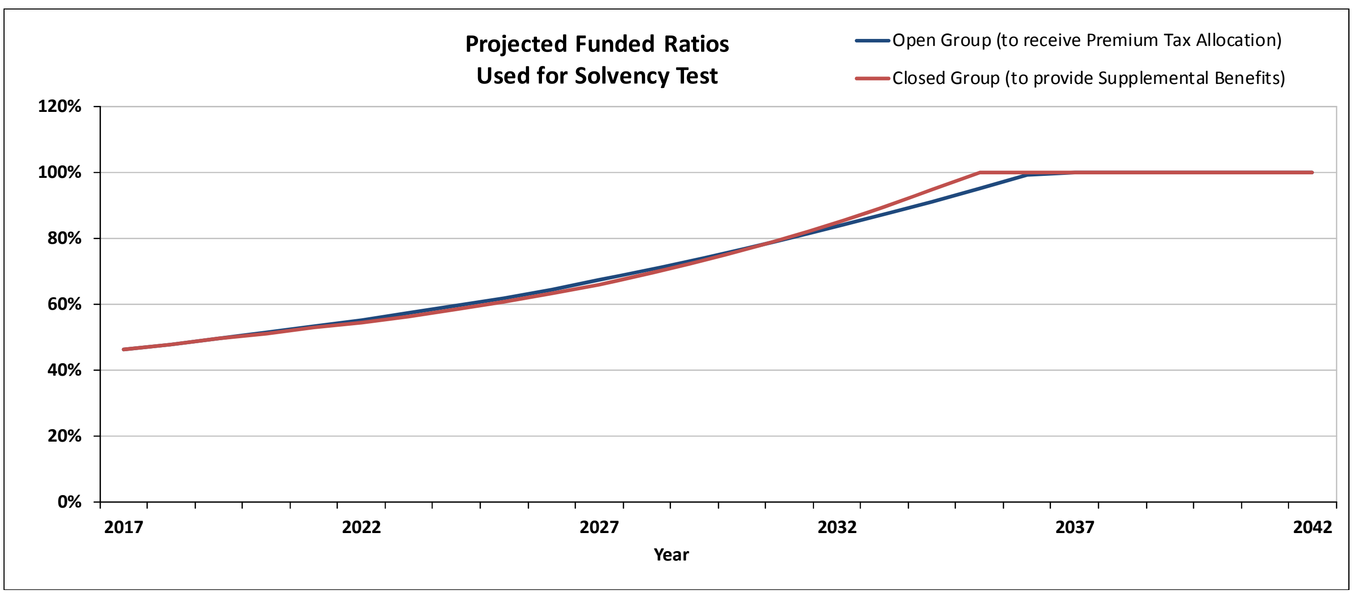
1.	(a) Actuarial Accrued Liability as of 7/1/2016	$11,659,400
	(b) Normal Cost due 7/1/2016	$345,233
	(c) Interest on (a) and (b) to 6/30/2017	$709,921
	(d) Benefit Payments with interest to 6/30/2017	$615,960
	(e) Effect of Assumption Changes	$0
	(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	$12,098,594
	(g) Actual Liability at 7/1/2017	$12,188,011
	(h) Liability (Gain)/Loss [(g) - (f)]	**$89,417**
2.	(a) Market Value of Assets as of 7/1/2016	$5,058,689
	(b) Interest on (a) to 6/30/2017	$303,521
	(c) Contributions with interest to 6/30/2017	$701,520
	(d) Benefit Payments with interest to 6/30/2017	$615,960
	(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	$5,447,770
	(f) Actual Assets at 7/1/2017	$5,633,794
	(g) Asset (Gain)/Loss [(e) - (f)]	**($186,024)**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**($96,607)**

Graphs 1A and 1B: Solvency Projections

Graph 1A



Graph 1B



SECTION II

ACTUARIAL PROJECTIONS

ALTERNATIVE FUNDING POLICY

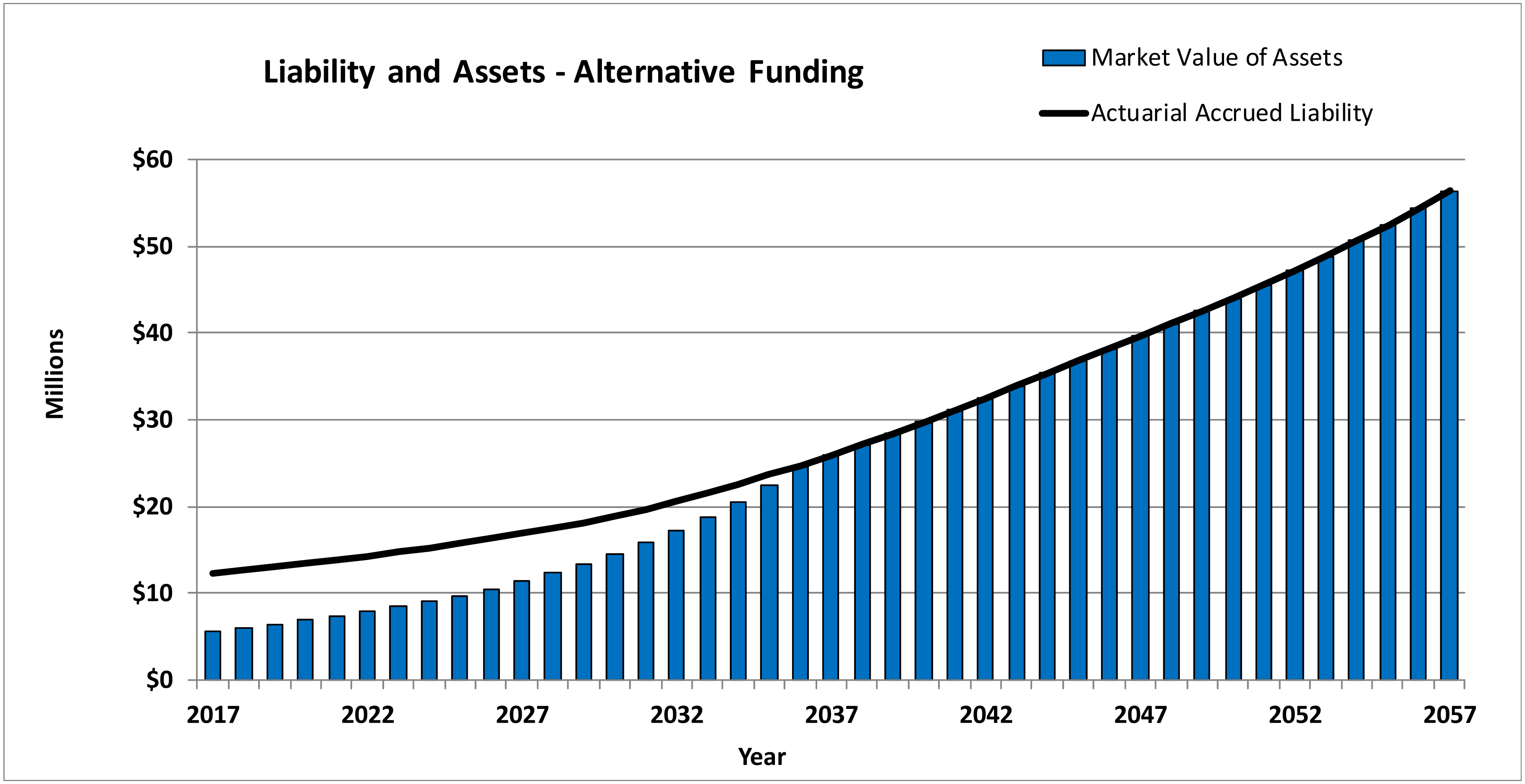
Alternative Funding on a Closed Group Basis, Table 1

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Payroll	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	24	29	$1,025,108	$5,058,689	$598,019	$300	$340,042	$97,183	$243,862	$492,337	$5,633,794	$12,188,011	$6,554,217	46%
2018	22	29	955,341	5,633,794	624,386	3,949	337,553	81,646	263,027	339,621	6,027,306	12,605,720	6,578,414	48%
2019	20	30	930,868	6,027,306	660,321	3,916	361,182	79,875	272,344	363,091	6,439,561	13,004,026	6,564,465	50%
2020	18	30	886,714	6,439,561	716,095	3,911	386,465	76,662	248,067	386,114	6,816,862	13,354,279	6,537,417	51%
2021	17	31	865,346	6,816,862	738,637	3,920	413,518	75,082	240,858	408,625	7,212,388	13,695,335	6,482,947	53%
2022	16	30	854,019	7,212,388	752,708	3,942	442,464	74,285	235,749	432,621	7,640,857	14,038,875	6,398,018	54%
2023	14	30	833,662	7,640,857	780,773	3,890	473,436	72,933	229,578	458,194	8,090,336	14,366,699	6,276,363	56%
2024	13	31	809,688	8,090,336	812,410	3,930	506,577	71,388	224,607	485,013	8,561,581	14,672,482	6,110,901	58%
2025	13	31	800,514	8,561,581	832,631	3,976	542,037	70,922	222,038	513,648	9,073,619	14,972,158	5,898,539	61%
2026	12	31	798,061	9,073,619	839,831	4,026	579,980	70,945	220,675	545,238	9,646,599	15,281,198	5,634,599	63%
2027	11	29	801,121	9,646,599	861,900	4,080	620,579	71,372	220,435	580,168	10,273,173	15,587,096	5,313,923	66%
2028	11	29	808,353	10,273,173	875,501	3,940	664,020	72,127	213,983	618,480	10,962,342	15,899,629	4,937,287	69%
2029	10	29	819,526	10,962,342	883,078	3,990	710,501	73,211	214,730	661,033	11,734,750	16,227,223	4,492,473	72%
2030	10	29	836,341	11,734,750	887,257	4,042	760,236	74,756	215,902	708,803	12,603,148	16,576,281	3,973,133	76%
2031	10	28	858,273	12,603,148	889,541	4,096	813,453	76,720	217,676	762,522	13,579,882	16,951,733	3,371,851	80%
2032	9	28	869,139	13,579,882	902,194	4,150	870,395	77,980	219,796	822,534	14,664,243	17,340,888	2,676,645	85%
2033	9	28	867,110	14,664,243	916,631	4,205	931,323	78,153	221,314	889,017	15,863,215	17,737,759	1,874,544	89%
2034	8	27	870,073	15,863,215	931,076	4,259	996,516	78,512	222,392	962,498	17,187,798	18,143,940	956,142	95%
2035	8	26	880,642	17,187,798	930,123	4,191	984,204	79,517	219,856	1,041,593	18,578,654	18,578,654	0	100%
2036	6	27	819,666	18,578,654	971,789	4,119	197,125	74,964	0	1,093,912	18,968,748	18,968,748	0	100%
2037	6	27	743,932	18,968,748	1,021,856	4,167	169,562	69,073	0	1,114,847	19,296,208	19,296,208	0	100%
2038	6	27	735,811	19,296,208	1,035,099	4,214	165,022	68,328	0	1,133,946	19,624,191	19,624,191	0	100%
2039	5	27	697,369	19,624,191	1,073,972	4,258	153,691	65,010	0	1,152,041	19,916,703	19,916,703	0	100%
2040	4	27	639,282	19,916,703	1,125,747	4,299	138,195	59,950	0	1,167,452	20,152,254	20,152,254	0	100%
2041	4	27	596,200	20,152,254	1,162,765	4,337	127,153	56,076	0	1,180,049	20,348,430	20,348,430	0	100%
2042	3	27	549,483	20,348,430	1,201,617	4,372	115,463	51,809	0	1,190,198	20,499,910	20,499,910	0	100%
2043	3	27	503,354	20,499,910	1,238,668	4,404	104,286	47,549	0	1,197,734	20,606,407	20,606,407	0	100%
2044	2	27	436,659	20,606,407	1,293,427	4,433	89,895	41,286	0	1,201,894	20,641,622	20,641,622	0	100%
2045	2	26	346,697	20,641,622	1,365,007	4,458	71,578	32,797	0	1,201,097	20,577,630	20,577,630	0	100%
2046	1	26	250,634	20,577,630	1,437,565	4,480	52,902	23,717	0	1,194,292	20,406,496	20,406,496	0	100%
2047	1	26	170,822	20,406,496	1,490,322	4,498	37,524	16,166	0	1,181,786	20,147,151	20,147,151	0	100%
2048	0	26	122,888	20,147,151	1,512,433	4,513	28,251	11,632	0	1,165,163	19,835,251	19,835,251	0	100%
2049	0	25	87,101	19,835,251	1,523,961	4,524	21,276	8,258	0	1,145,802	19,482,101	19,482,101	0	100%
2050	0	25	60,379	19,482,101	1,527,177	4,531	16,043	5,736	0	1,124,288	19,096,460	19,096,460	0	100%
2051	0	24	41,215	19,096,460	1,523,298	4,534	12,328	3,915	0	1,101,100	18,685,972	18,685,972	0	100%
2052	0	23	27,194	18,685,972	1,514,323	4,533	9,615	2,583	0	1,076,617	18,255,931	18,255,931	0	100%
2053	0	23	17,360	18,255,931	1,501,148	4,528	7,745	1,649	0	1,051,121	17,810,770	17,810,770	0	100%
2054	0	22	10,025	17,810,770	1,485,064	4,519	6,360	952	0	1,024,826	17,353,325	17,353,325	0	100%
2055	0	21	4,675	17,353,325	1,466,444	4,506	5,346	444	0	997,885	16,886,050	16,886,050	0	100%
2056	0	21	1,402	16,886,050	1,445,288	4,489	4,741	133	0	970,447	16,411,595	16,411,595	0	100%
2057	0	20	0	16,411,595	1,421,792	4,468	4,467	0	0	942,663	15,932,466	15,932,466	0	100%

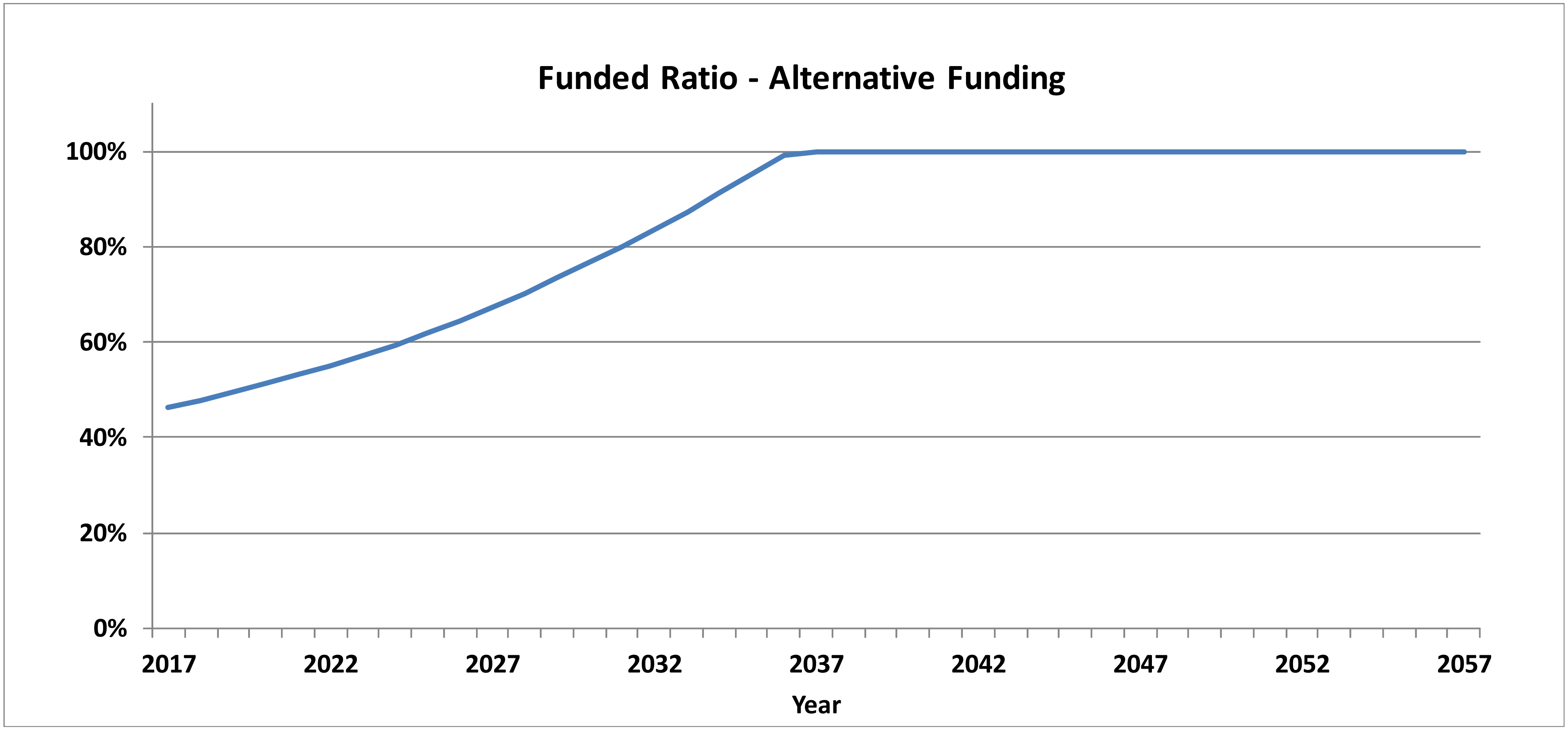
Alternative Funding on an Open Group Basis, Table 2

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Payroll	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	24	29	$1,025,108	$5,058,689	$598,019	$300	$340,042	$97,183	$243,862	$492,337	$5,633,794	$12,188,011	$6,554,217	46%
2018	24	29	955,341	5,633,794	624,386	3,949	337,553	81,646	263,027	339,621	6,027,306	12,605,720	6,578,414	48%
2019	24	30	984,933	6,027,306	660,321	4,045	361,182	85,332	272,344	363,250	6,445,048	13,022,429	6,577,381	49%
2020	24	30	1,031,081	6,445,048	716,340	4,236	386,465	90,913	282,553	387,866	6,872,269	13,422,646	6,550,377	51%
2021	24	31	1,084,306	6,872,269	739,688	4,384	413,518	96,300	289,571	413,972	7,341,558	13,841,382	6,499,824	53%
2022	24	30	1,141,459	7,341,558	755,046	4,527	442,464	101,951	296,388	442,895	7,865,682	14,289,667	6,423,985	55%
2023	24	30	1,184,542	7,865,682	784,670	4,581	473,436	106,625	300,271	474,634	8,431,396	14,749,105	6,317,709	57%
2024	24	31	1,244,983	8,431,396	818,017	4,772	506,577	113,302	308,991	509,020	9,046,497	15,222,094	6,175,597	59%
2025	24	31	1,310,440	9,046,497	840,148	4,934	542,037	119,976	316,836	546,745	9,727,008	15,723,186	5,996,178	62%
2026	24	31	1,379,098	9,727,008	849,507	5,090	579,980	126,840	324,520	588,845	10,492,596	16,268,528	5,775,932	64%
2027	24	29	1,450,632	10,492,596	873,969	5,240	620,579	133,869	332,211	635,689	11,335,735	16,846,583	5,510,848	67%
2028	24	29	1,525,341	11,335,735	890,239	5,190	664,020	141,140	333,031	687,321	12,265,818	17,468,763	5,202,945	70%
2029	24	29	1,604,501	12,265,818	900,694	5,328	710,501	148,822	340,675	744,640	13,304,434	18,145,781	4,841,347	73%
2030	24	29	1,688,897	13,304,434	907,949	5,464	760,236	156,956	348,100	808,668	14,464,981	18,886,203	4,421,222	77%
2031	24	29	1,777,782	14,464,981	913,453	5,596	813,453	165,479	355,575	880,181	15,760,619	19,697,348	3,936,729	80%
2032	24	29	1,856,713	15,760,619	929,311	5,728	870,395	173,428	363,159	959,589	17,192,151	20,569,560	3,377,409	84%
2033	24	29	1,940,471	17,192,151	947,016	5,893	931,323	182,086	372,405	1,047,283	18,772,340	21,505,605	2,733,265	87%
2034	24	28	2,034,574	18,772,340	964,972	6,059	996,516	191,383	381,759	1,144,038	20,515,005	22,512,063	1,997,058	91%
2035	24	26	2,135,477	20,515,005	967,846	6,095	1,066,272	201,215	386,777	1,251,012	22,446,340	23,611,211	1,164,871	95%
2036	24	28	2,165,593	22,446,340	1,013,733	6,122	1,140,911	205,590	391,406	1,368,008	24,532,400	24,733,634	201,234	99%
2037	24	28	2,262,142	24,532,400	1,068,440	6,426	533,087	216,056	217,463	1,468,743	25,892,883	25,892,883	0	100%
2038	24	28	2,368,860	25,892,883	1,086,904	6,605	565,106	224,676	0	1,544,594	27,133,750	27,133,750	0	100%
2039	24	28	2,434,306	27,133,750	1,134,990	6,793	570,652	230,643	0	1,617,959	28,411,222	28,411,222	0	100%
2040	24	28	2,517,047	28,411,222	1,204,534	7,062	582,354	239,243	0	1,693,144	29,714,367	29,714,367	0	100%
2041	24	29	2,605,675	29,714,367	1,264,994	7,300	600,181	247,780	0	1,770,318	31,060,352	31,060,352	0	100%
2042	24	29	2,695,452	31,060,352	1,329,414	7,545	618,031	256,164	0	1,849,940	32,447,529	32,447,529	0	100%
2043	24	29	2,789,294	32,447,529	1,394,739	7,797	635,861	264,613	0	1,932,009	33,877,475	33,877,475	0	100%
2044	24	30	2,862,411	33,877,475	1,481,839	8,056	647,070	270,942	0	2,015,741	35,321,333	35,321,333	0	100%
2045	24	30	2,934,818	35,321,333	1,593,199	8,365	658,233	277,425	0	2,099,594	36,755,021	36,755,021	0	100%
2046	24	31	3,003,193	36,755,021	1,714,537	8,678	671,164	283,339	0	2,182,576	38,168,885	38,168,885	0	100%
2047	24	31	3,097,780	38,168,885	1,823,905	9,013	689,619	291,603	0	2,264,954	39,582,143	39,582,143	0	100%
2048	24	32	3,202,893	39,582,143	1,911,311	9,315	708,257	300,892	0	2,347,983	41,018,649	41,018,649	0	100%
2049	24	32	3,313,676	41,018,649	1,998,256	9,613	730,138	311,256	0	2,432,547	42,484,721	42,484,721	0	100%
2050	24	32	3,434,236	42,484,721	2,084,599	9,912	757,733	322,917	0	2,519,110	43,989,971	43,989,971	0	100%
2051	24	32	3,563,934	43,989,971	2,167,826	10,206	790,614	335,177	0	2,608,291	45,546,022	45,546,022	0	100%
2052	24	32	3,699,042	45,546,022	2,247,133	10,497	822,902	347,935	0	2,700,633	47,159,862	47,159,862	0	100%
2053	24	32	3,842,332	47,159,862	2,325,247	10,795	856,046	361,869	0	2,796,537	48,838,272	48,838,272	0	100%
2054	24	32	3,994,476	48,838,272	2,404,016	11,095	893,826	376,821	0	2,896,462	50,590,270	50,590,270	0	100%
2055	24	32	4,156,701	50,590,270	2,481,143	11,398	936,594	391,626	0	3,000,996	52,426,945	52,426,945	0	100%
2056	24	32	4,316,279	52,426,945	2,555,217	11,701	971,843	406,608	0	3,110,482	54,348,960	54,348,960	0	100%
2057	24	32	4,492,106	54,348,960	2,631,936	12,030	1,009,371	424,240	0	3,225,156	56,363,762	56,363,762	0	100%

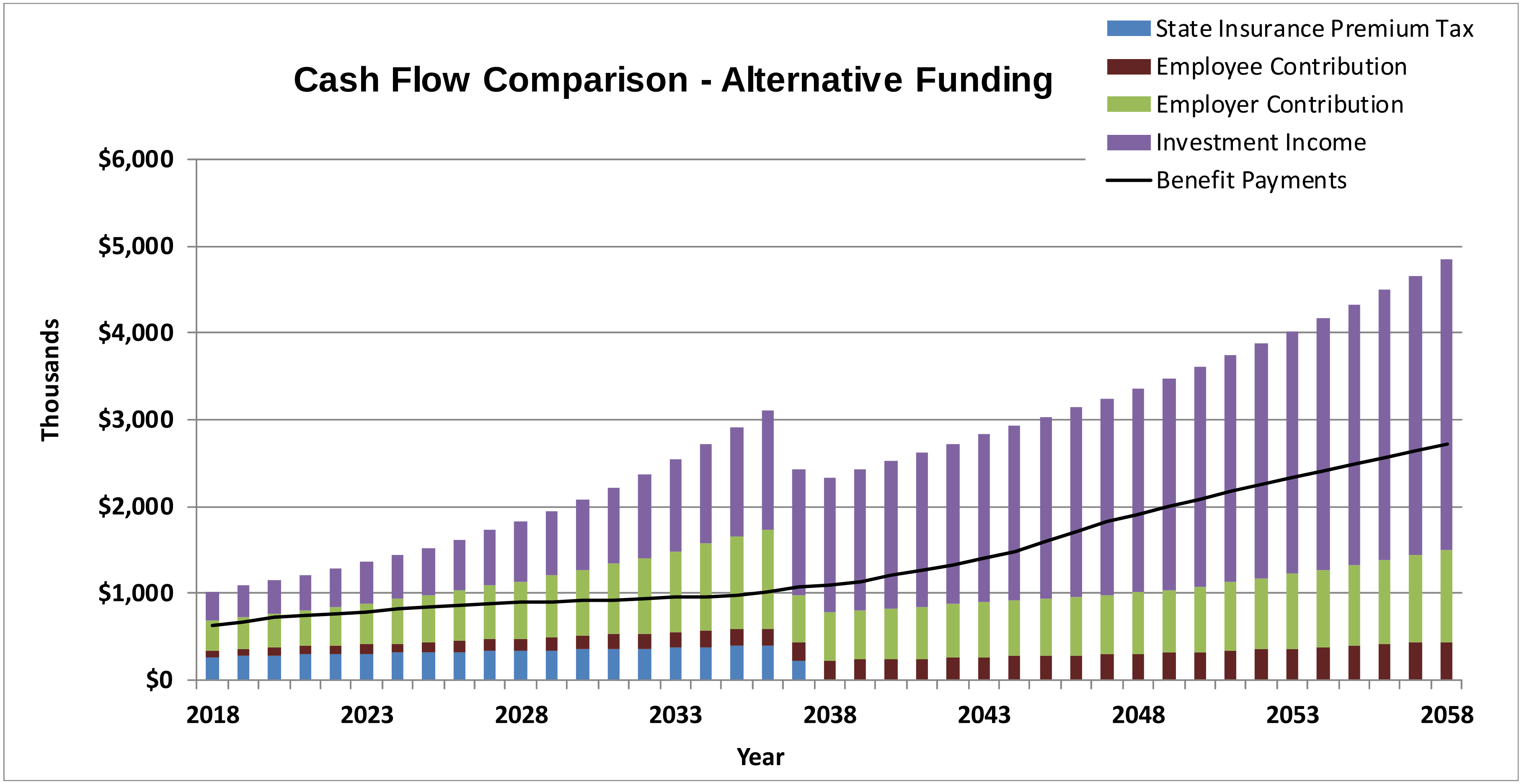
Open Group Actuarial Projections – Alternative Funding, Graph 2



Open Group Actuarial Projections – Alternative Funding, Graph 3



Open Group Actuarial Projections – Alternative Funding, Graph 4



SECTION III

FUNDING POLICY CHOICES

Actuarial Projections –Alternative/Optional/Conservation Funding

Funding Policy Choices

West Virginia Code §8-22-20 allows a municipality's governing body (City Council) the choice of changing from the Alternative funding policy to either the Optional funding policy or the Conservation funding policy. The Optional funding policy is defined in West Virginia Code §8-22-20(e)(1), and is effective for plan years beginning after January 1, 2010. The Conservation funding policy is defined in West Virginia Code §8-22-20(f)(1), and is effective for plan years beginning after April 1, 2011.

If the City Council elects either the Optional funding policy or the Conservation funding policy, the existing local Plan is closed, and new employees are covered in the multiple employer statewide plan - *Municipal Police Officers and Firefighters Retirement System.* Contributions to the statewide plan include:

- Employer contributions from 8.5% to 10.5% of pay. Currently, Employers contribute 8.5% of pay.
- Employee contributions of 8.5% of pay.

If the City Council elects the Optional funding policy, contributions to the closed local Plan include:

- Employer contributions equal to the normal cost, net of employee contributions, plus a 40-year closed period amortization from January 1, 2010, on a level dollar basis, of the unfunded actuarial accrued liability net of premium tax allocation applicable to the plan year.
- Employee contributions of 7% of pay if hired before January 1, 2010, which may be increased by up to 2.5% of pay if elected by the Board of trustees of the Plan. Employees hired after January 1, 2010, contribute 9.50% of pay.
- The premium tax allocation assigned to the Fund for the plan year.

If the City Council elects the Conservation funding policy, contributions to the closed local Plan are made to two asset accounts as follows:

- 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 active member employee contributions of 5.5% (which is the current contribution rate of 7.0% of pay, less 1.5% which by law goes into the accumulation account), 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 accrued 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 premium tax allocation is based on the amounts needed to produce 100% funding of liabilities in 35 years, from adoption, 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 Conservation funding policy.

Actuarial Projections –Alternative/Optional/Conservation Funding (Continued)

For purposes of evaluating the implication of selecting either the Optional funding policy or the Conservation funding policy, we have generated actuarial projections under the following two illustrative scenarios.

- Scenario I – The sponsor elects either the Optional funding policy or Conservation funding policy during fiscal year end June 30, 2019, and makes the newly elected contribution in fiscal year end June 30, 2019.

- Scenario II – The sponsor elects either the Optional funding policy or the Conservation funding policy at some future date when/if contributions are projected to be less than under the current Alternative funding policy.

It is important to note that the plan sponsor can make only one election to either the Optional funding policy or the Conservation funding policy, and that the election is irrevocable. The projections assume employer contributions of 10.5% of pay for future members covered under the statewide plan.

<u>Scenario I – Sponsor Immediately Elects either the Optional or Conservation Funding Policy</u>

The following table shows the employer contribution for the fiscal year end June 30, 2019, if the sponsor elects either the Optional or Conservation funding policy in fiscal year end June 30, 2019:

Total Employer Contributions for FYE June 30, 2019				
	Local Plan		Statewide Plan	
Funding Method	**Amount**	**Percent of Pay**	**Amount**	**Percent of Pay**
Alternative	$361,182	36.7%	NA	NA
Optional	$419,408	45.1%	$5,677	10.5%
Conservation	$325,981	35.0%	$5,677	10.5%

Graphs I(1), I(2), and I(3) on the following pages show the projected contribution and funded ratio pattern of the three separate funding policies. If the sponsor continues to make contributions under the Alternative policy, employer contributions are projected to increase from $337,553 in fiscal year end 2018 to $1,140,911 in fiscal year end 2036. In fiscal year end 2037, the plan is projected to be 100% funded.

If the Optional funding policy is selected in fiscal year end 2019, employer contributions to the local plan for fiscal year end 2019 are projected to increase from $361,182 to $419,408. However, over the 40-year projection period, total employer contributions to both the local plan and the statewide plan are projected to decrease from $425,085 in fiscal year end 2019 to $360,933 in fiscal year end 2048, and the Plan is projected to be fully funded in 2048.

Actuarial Projections –Alternative/Optional/Conservation Funding (Continued)

If the Conservation funding policy is selected in fiscal year end 2019, employer contributions to the local plan for fiscal year end 2019 are projected to decrease from $361,182 to $325,981. During the 35-year projection period, total employer contributions to both the local plan and the statewide plan are projected to increase from $331,658 in fiscal year end 2019 to $720,556 in fiscal year end 2037 and the Plan is projected to be fully funded in 2038.

The Optional funding policy is consistent with actuarial standards of practice and produces a relatively stable dollar contribution pattern and reasonable growth in the funded ratio.

The Conservation funding policy produces a less stable contribution pattern and faster growth in the funded ratio when compared to the Optional funding policy. The projections of employer contributions under the Conservation funding policy are dependent on the expected number of retirements, disabilities, and resulting benefit payments. Actual experience could produce a significantly higher number of retirements, disabilities, and benefit payments, which would increase the employer's required contribution under the Conservation funding policy. Unlike the Optional funding policy, the Conservation funding policy does not have a built-in feature to smooth out emerging gains and losses.

The Alternative funding policy produces a higher funded ratio when compared to the Optional funding policy and a slightly higher funded ratio when compared to the Conservation funding policy. However, the 7% annual increases in employer contributions may eventually be cost prohibitive.

The details of the Optional and Conservation funding policy projections can be found in the Appendix. The details of the Alternative funding policy projection were presented in Section II.

Scenario II – Sponsor Elects Optional or Conservation Policy if/when Contributions are Lower

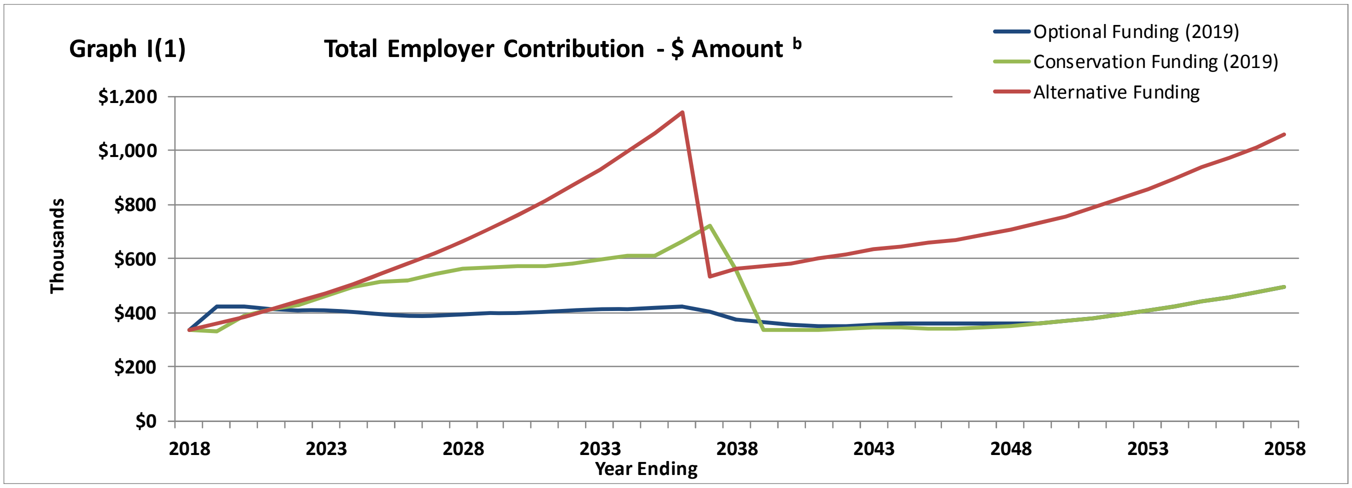
Under Scenario II, the plan sponsor is assumed to make contributions under the Alternative funding policy in future years, until the first year that either the Optional or Conservation policy produces a lower contribution. Under this assumption, in plan year end 2022, the employer contributions under the Optional funding policy of $442,199 are projected to be lower than contributions under the Alternative funding policy of $442,464. Similarly, in plan year end 2019, the employer contributions under the Conservation funding policy of $325,981 are projected to be lower than contributions under the Alternative funding policy of $361,182.

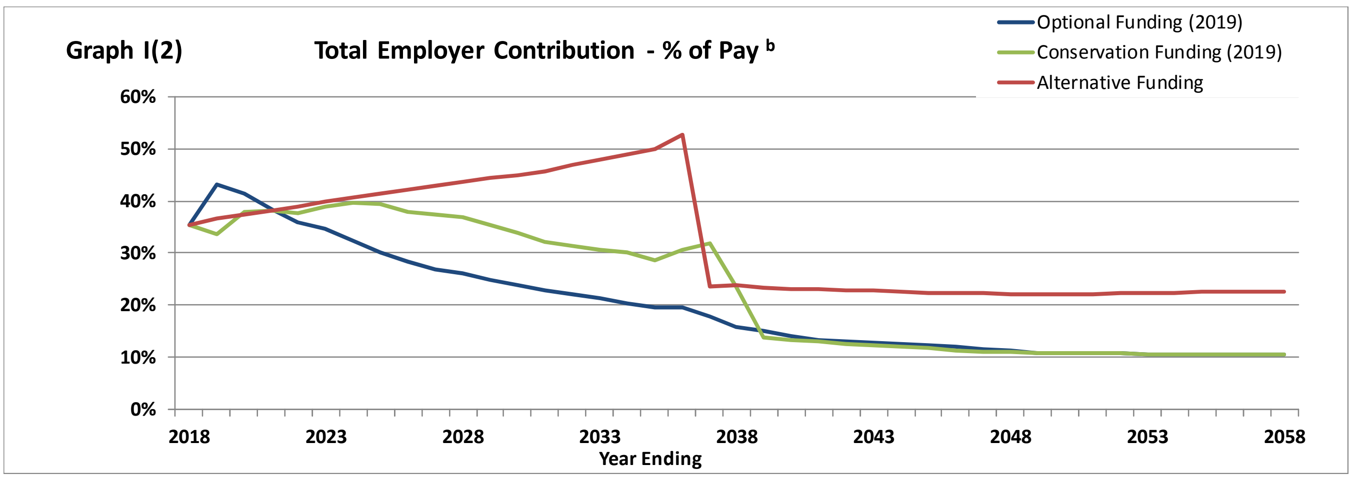
Graphs II(1), II(2), and III(3) show the projected contribution pattern and funded ratio. Based on these projections, electing the Optional funding policy in 2022 appears to produce a relatively stable and actuarially sound contribution pattern as compared to either the Alternative funding policy or the Conservation funding policy. The Conservation funding policy has lower projected employer contributions than the Alternative funding policy beginning in 2019. After 2019, the funded ratio under the Conservation funding policy increases at a lower rate than the Alternative funding policy. As stated above, however, the Conservation funding policy is dependent on expected benefits payments when considering the *expected number of retirement and disabilities.* The ultimate employer contributions depend on the *actual number of retirement and disabilities*, which could result in a more volatile contribution pattern when compared to the Optional funding policy.

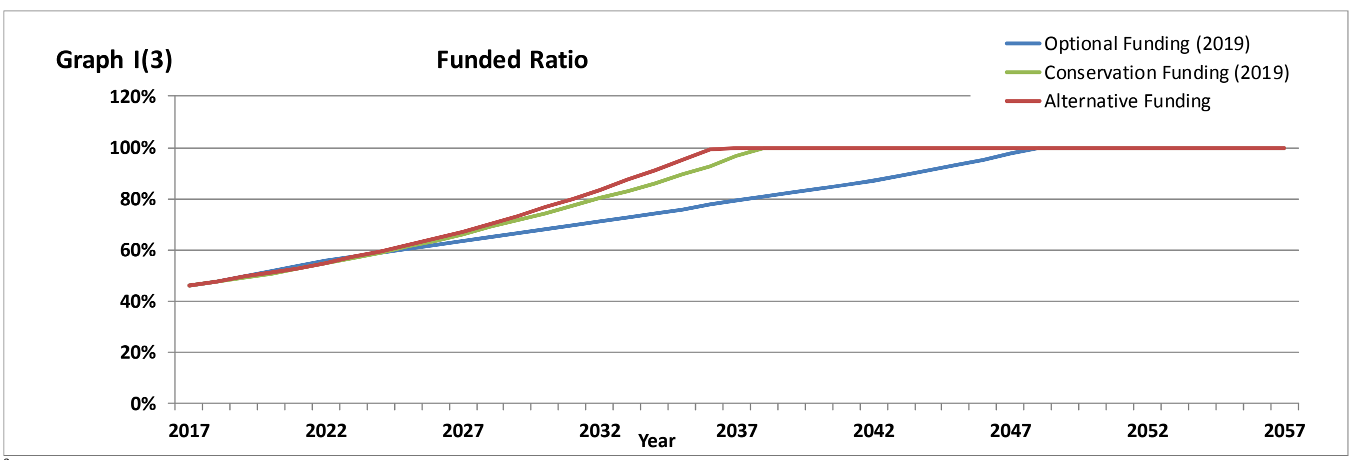
The details of the Scenario II projections can be found in the Appendix.

Actuarial Projections –Alternative/Optional/Conservation Funding [a] (Continued)

Scenario I



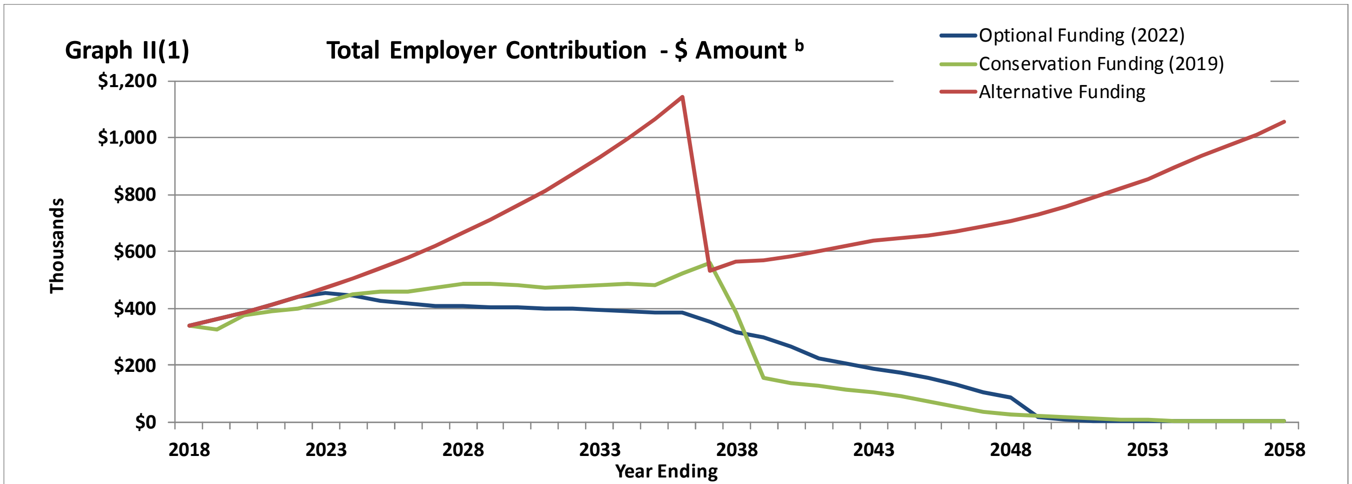


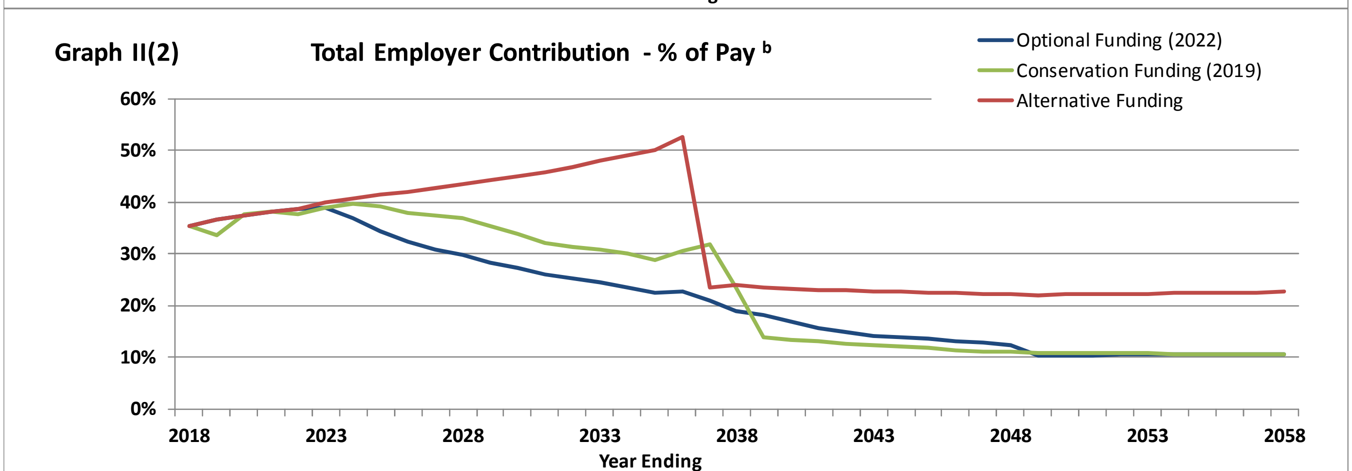


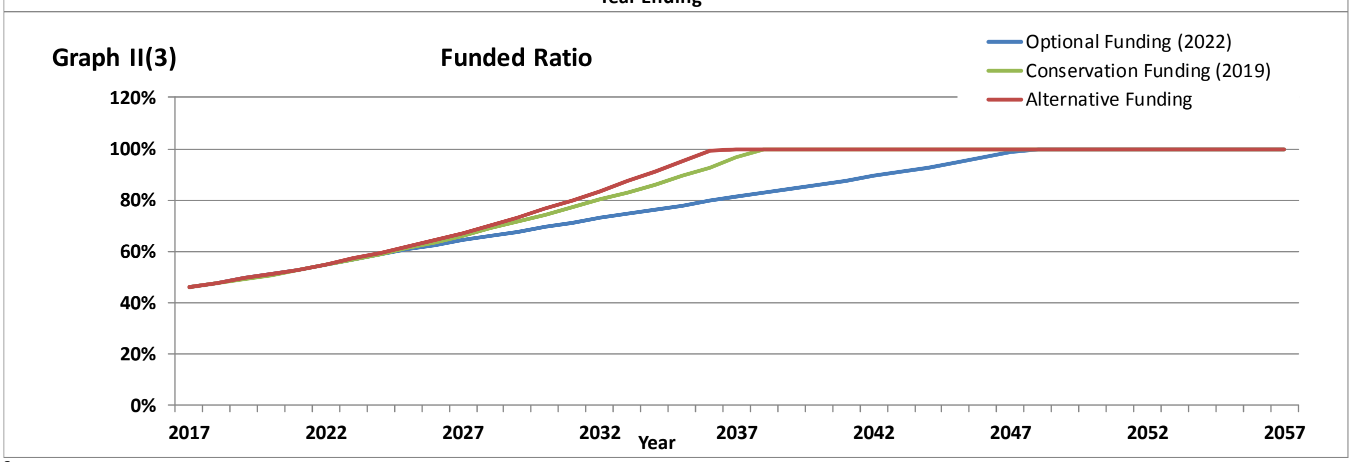
[a] *Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in fiscal year end June 30, 2019, and makes the newly elected contribution in fiscal year end June 30, 2019.*
[b] *Based on total pay and includes contributions for future members projected to participate in the statewide plan.*

Actuarial Projections –Alternative/Optional/Conservation Funding [a] (Continued)

Scenario II







[a] *Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in the first year that contributions are lower than under the Alternative funding policy.*

[b] *Based on total pay and includes contributions for future members projected to participate in the statewide plan.*

SECTION IV

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

Actuarially Determined Contribution for GASB Statement Nos. 67 and 68 Reporting
Schedule C: Funding Progress and Employer Contributions

Valuation Date	**July 1, 2016**	**July 1, 2017**
Valuation Interest Rate	6.00%	6.00%
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]	24 Years, Level % of Pay	23 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	**July 1, 2016**	**July 1, 2017**
1. Market Value of Assets	$5,058,689	$5,633,794
2. Actuarial Accrued Liability	$11,659,400	$12,188,011
3. Unfunded Actuarial Accrued Liability (2 - 1)	$6,600,711	$6,554,217
4. Funded Ratio (1/2)	43%	46%
5. Expected Payroll	$1,025,108	$955,341
6. UAAL as Percentage of Covered Payroll (3/5)	644%	686%
Schedule of Employer Contributions [c]	**FYE 2017**	**FYE 2018**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$264,061	$242,117
(b) Amortization of Unfunded Actuarial Accrued Liability	$348,141	$357,190
(c) Actuarially Determined Contribution (ADC) (a + b)	$612,202	$599,307
2. Employer Contribution [b]	$340,042	$337,553
3. Premium Tax Allocation	$243,862	$263,027
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	91%	100%

[a] *Suggested amortization policy to comply with GASB Statement Nos. 67 and 68 Standards.*
[b] *Estimated employer contribution for fiscal year end June 30, 2018.*
[c] *The Alternative minimum contribution plus the premium tax allocation for fiscal year end 2018 appears to satisfy the Actuarially Determined Contribution as defined by GASB Statement Nos. 67 and 68.*

SECTION V

ACTUARIAL VALUATION DATA AS OF JULY 1, 2017

Actuarial Valuation Data as of July 1, 2017
Schedule D: Reconciliation of Assets

Plan Year Ending	June 30, 2016	June 30, 2017
A. Market Value of Assets Beginning of Year	$4,875,150	$5,058,689
Adjustment to Market Value of Assets at Beginning of Year	$0	$0
Market Value of Assets Beginning of Year	$4,875,150	$5,058,689
1. Revenue During Fiscal Year		
(a) Employee Contribution	$88,383	$97,183
(b) Governmental Contribution		
(i) From Local Government	$270,265	$340,042
(ii) From State Government	$250,670	$243,862
(iii) Reallocation from State Government	$0	$0
(iv) Total	$520,935	$583,904
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	$73,128	$391,851
(ii) Bond Interest	$29,501	$24,844
(iii) Dividends	$63,121	$76,358
(iv) Net Realized Gain (Loss) on Sale/Exchange	($3,381)	($1,672)
(v) Other	($517)	($335)
(vi) Less Investment Expense	($4,660)	($4,923)
(vii) Total	$157,192	$486,123
(d) Other Revenue	$2,566	$6,214
(e) Net Receivable Investment Income	$0	$0
(f) Receivable Contribution [a]		
(i) From Employee Contributions	$0	$0
(ii) From Local Government	$0	$0
(iii) From State Government	$0	$0
(iv) Total	$0	$0
(g) Total Revenue (sum of (a) through (f))	$769,076	$1,173,424
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$519,917	$541,505
(b) Withdrawals	$65,320	$56,514
(c) Administrative Expenses	$300	$300
(d) Payable Benefits and Withdrawals	$0	$0
(e) Payable Administrative Expenses	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$585,537	$598,319
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	$5,058,689	$5,633,794
C. Approximate Return on Assets	3.26%	9.65%

[a] *Receivable contributions for each respective plan year ending.*

Actuarial Valuation Data as of July 1, 2017
Schedule E: Assets Held by Category

Plan Year Ending	June 30, 2016		June 30, 2017	
1. Cash and Short-term Investments	$191,373	4%	$127,050	2%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$468,189		$463,965	
(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))	$468,189	9%	$463,965	8%
3. Corporate Fixed Income				
(a) US Bonds	$1,189,752		$1,339,493	
(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))	$1,189,752	24%	$1,339,493	24%
4. Corporate Equity				
(a) US Equity	$2,767,232		$3,185,534	
(b) US Mutual Fund Shares (Equity)	$0		$0	
(c) US Exchange Traded Funds (Equity)	$442,143		$517,752	
(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))	$3,209,375	63%	$3,703,286	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	$0			
(a) From Employee Contributions	$0		$0	
(b) From Local Government	$0		$0	
(c) From State Government	$0		$0	
(d) Total Receivable Contributions (sum of (a) through (c))	$0	0%	$0	0%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	$0		$0	
(b) Less Payable	$0		$0	
(c) Total	$0	0%	$0	0%
Market Value of Assets End of Year [sum of (1) through (8)]	**$5,058,689**		**$5,633,794**	

Actuarial Valuation Data as of July 1, 2017
Schedule F: Summary of Participant Activity

	Actives	Retirees	Disabled	Deferred Vested	Spouses and Beneficiaries	Totals
Total Participants July 1, 2016:	**26**	**14**	**3**	**1**	**6**	**50**
New Actives:	3					**3**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:						**0**
Vested Terminations:						**0**
Non-Vested Terminations:	(2)					**(2)**
Disabled:						**0**
Retirements:	(2)	2				**0**
Deaths with Beneficiary:	(1)				3	**2**
Deaths w/o Beneficiary:						**0**
Expired Annuity or Stop Payment:						**0**
Net Changes:	(2)	2	0	0	3	**3**
Total Participants June 30, 2017:	**24**	**16**	**3**	**1**	**9**	**53**

Actuarial Valuation Data as of July 1, 2017
Schedule G: Distribution of Active Employees by Age and Length of Service

Attained Age	Years of Service to Valuation Date: Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Valuation Payroll[a]
Under 20											**$ 0**
20-24	3	6								**9**	**$ 314,869**
25-29		4	1							**5**	**$ 206,923**
30-34		1								**1**	**$ 36,266**
35-39		2		1						**3**	**$ 112,372**
40-44		1				1				**2**	**$ 85,352**
45-49				1	1	1	1			**4**	**$ 193,327**
50-54											**$ 0**
55-59											**$ 0**
60-64											**$ 0**
65-69											**$ 0**
Over 70											**$ 0**
Totals	**3**	**14**	**1**	**2**	**1**	**2**	**1**	**0**	**0**	**24**	**$ 949,108**

Averages

Age:	31.6	years
Service:	6.2	years
Annual Pay:	$39,546	[a]

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

Actuarial Valuation Data as of July 1, 2017
Schedule H: Participants Summary

Active Participants	July 1, 2016	July 1, 2017
Number of Actives	26	24
Total Annual Pay	$1,030,362	$949,108
Average Age	33.1	31.6
Average Service	7.5	6.2

Inactive Participants	July 1, 2016		July 1, 2017[a]	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	14	$409,743	16	$493,841
Survivors	6	$51,883	9	$77,847
Disabled Members	3	$54,854	3	$55,560
Deferred Vested Members	1	$27,000	1	$27,000

[a]Data provided includes 1 non-vested member with an accumulated contributions balance of $2,453.

SECTION VI

ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2017

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 actuarial valuation date divided by expected benefit payments for the year.
[3]Based on investment policy.

As of June 30, 2017	
Assets	$5,633,794
Liabilities using a 5.50% discount rate	$13,016,678
Funded Ratio	43%
Expected Benefit Payments	$624,386
Liquidity Ratio	9.02
Equity Exposure	66%
Projected Funded Ratio after 15 years	73%

Discount Rate	6.00%

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, 2019.

(4) The total available premium tax allocation, net of expenses, as of September 1, 2018, includes a Base Allocation of $8,709,689, an Excess Allocation of $9,570,473, and an Expired Premium Tax Allocation of $237,031.

(5) For the plan year ending June 30, 2018, all Pension and Relief Funds reported a total of 1,717 eligible active members and 2,165 eligible retired members. The City of Bluefield Policemen’s Pension and Relief Fund reported 27 eligible active members and 28 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2018. The Fund is eligible to receive a premium tax allocation of $272,344 for the fiscal year ending June 30, 2019.

(6) The total premium tax allocation was assumed to increase by 2.75% in calendar years ending on and after 2019.

General Inflation	2.75%
Expected Salary Increase	General Inflation: 2.75% *plus* Wage Inflation Increment: 1.00% *plus*
Service-based Increase:	Years of Service / Increase 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. Assumed to be payable to all members receiving payments.
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 – 23 years remaining as of July 1, 2017).
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 – 14 years remaining as of July 1, 2017)
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 32.5 years remaining as of July 1, 2017). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017)

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. Also assumes 10% of non-duty disabled members receive a 20% reduction in benefits due to gainful employment.*
Percent Married	90%
Spouse Age	Females 3 years younger than males

Administrative Expenses	Administrative expenses used are equal to 0.25% of expected pay plus 0.25% of expected benefits. Future expenses assumed to increase by the general inflation assumption.
Refunds Paid	Assumes non-vested inactive members as of July 1, 2017, with accumulated member contribution balances will receive a refund of their contributions during plan year end June 30, 2018.
Data Adjustments and Assumptions	None
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	Open group projections assume: (i) Salaries will increase and members will decrement as specified in the actuarial assumption section. (ii) Active members who retire, become disabled, die or terminate during the year are replaced with new entrants such that the number of active members remains stable during the projection period. Pay for new entrants in future years is increased by the wage inflation assumption. The average age of a new entrant is based on observed experience over the last five years. (iii) Assets grow at the assumed rate of return. (iv) The sponsor makes the statutory required contribution on a monthly basis. (v) Non-vested members with accumulated plan balances as of July 1, 2017, will receive a refund during plan year end June 30, 2018. Closed group projections are the same as the open group projections except active members who retire, become disabled, die, or terminate are <u>not</u> replaced with new entrants.
Decrement Timing	Mid-Year

SECTION VII

SUMMARY OF PRINCIPAL PLAN PROVISIONS

Summary of Principal Plan Provisions
Actuarial Valuation as of July 1, 2017

Employee Eligibility — All compensated employees of the Police Department are eligible to participate in the Policemen'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 7.0% of compensation. Participating employees hired on or after January 1, 2010 contribute 9.5% of compensation. The municipality has elected to contribute the minimum employer contribution under the Alternative 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.

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 eighteen or marries; to each dependent orphaned child, 25 percent of the participant's benefit until the child attains 18 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 fifty dollars per month (but a total not to exceed $100 per month) until such individual attains the age of eighteen 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.

SECTION VIII

APPENDIX – PROJECTION DATA

Actuarial Projections – Optional Funding in 2019

Table A-1

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Assets: Assets (boy)	Total Assets: Benefit Payments	Total Assets: Expenses	Total Assets: Employer Contribs.	Total Assets: Employee Contribs.	Total Assets: Premium Tax Allocation Contribs.	Total Assets: Investment Income	Total Assets: Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	24	29	$5,058,689	$598,019	$300	$340,042	$97,183	$243,862	$492,337	$5,633,794	$12,188,011	$6,554,217	46%
2018	22	29	5,633,794	624,386	3,949	337,553	81,646	263,027	339,621	6,027,306	12,605,720	6,578,414	48%
2019	20	30	6,027,306	660,321	3,916	419,408	79,875	272,344	364,813	6,499,509	13,004,026	6,504,517	50%
2020	18	30	6,499,509	716,095	3,911	410,243	76,662	282,553	391,432	6,940,392	13,354,279	6,413,887	52%
2021	17	31	6,940,392	738,637	3,920	392,253	75,082	289,571	416,847	7,371,588	13,695,335	6,323,747	54%
2022	16	30	7,371,588	752,708	3,942	379,466	74,285	296,388	442,103	7,807,181	14,038,875	6,231,694	56%
2023	14	30	7,807,181	780,773	3,890	372,618	72,933	300,271	467,283	8,235,624	14,366,699	6,131,075	57%
2024	13	31	8,235,624	812,410	3,930	357,857	71,388	308,991	491,829	8,649,349	14,672,482	6,023,133	59%
2025	13	31	8,649,349	832,631	3,976	342,188	70,922	316,836	515,807	9,058,495	14,972,158	5,913,663	61%
2026	12	31	9,058,495	839,831	4,026	330,793	70,945	324,520	540,033	9,480,928	15,281,198	5,800,270	62%
2027	11	29	9,480,928	861,900	4,080	321,725	71,372	332,211	564,697	9,904,953	15,587,096	5,682,143	64%
2028	11	29	9,904,953	875,501	3,940	321,347	72,127	333,031	589,776	10,341,793	15,899,629	5,557,836	65%
2029	10	29	10,341,793	883,078	3,990	315,239	73,211	340,675	615,838	10,799,689	16,227,223	5,427,534	67%
2030	10	29	10,799,689	887,257	4,042	310,791	74,756	348,100	643,320	11,285,357	16,576,281	5,290,924	68%
2031	10	28	11,285,357	889,541	4,096	308,028	76,720	355,575	672,589	11,804,632	16,951,733	5,147,101	70%
2032	9	28	11,804,632	902,194	4,150	306,566	77,980	363,159	703,588	12,349,581	17,340,888	4,991,307	71%
2033	9	28	12,349,581	916,631	4,205	300,740	78,153	372,405	735,962	12,916,006	17,737,759	4,821,753	73%
2034	8	27	12,916,006	931,076	4,259	290,808	78,512	381,759	769,513	13,501,264	18,143,940	4,642,676	74%
2035	8	26	13,501,264	930,123	4,191	285,761	79,517	386,777	804,688	14,123,693	18,578,654	4,454,961	76%
2036	6	27	14,123,693	971,789	4,119	283,218	74,964	391,406	840,731	14,738,105	18,968,748	4,230,643	78%
2037	6	27	14,738,105	1,021,856	4,167	245,301	69,073	406,965	875,279	15,308,701	19,296,208	3,987,507	79%
2038	6	27	15,308,701	1,035,099	4,214	204,117	68,328	418,144	908,212	15,868,189	19,624,191	3,756,002	81%
2039	5	27	15,868,189	1,073,972	4,258	184,488	65,010	429,777	940,297	16,409,532	19,916,703	3,507,171	82%
2040	4	27	16,409,532	1,125,747	4,299	156,919	59,950	444,983	970,731	16,912,069	20,152,254	3,240,185	84%
2041	4	27	16,912,069	1,162,765	4,337	138,202	56,076	459,050	999,536	17,397,831	20,348,430	2,950,599	85%
2042	3	27	17,397,831	1,201,617	4,372	127,152	51,809	473,585	1,027,508	17,871,895	20,499,910	2,628,015	87%
2043	3	27	17,871,895	1,238,668	4,404	115,464	47,549	488,437	1,054,823	18,335,095	20,606,407	2,271,312	89%
2044	2	27	18,335,095	1,293,427	4,433	104,308	41,286	503,807	1,080,935	18,767,571	20,641,622	1,874,051	91%
2045	2	26	18,767,571	1,365,007	4,458	89,873	32,797	521,266	1,104,605	19,146,647	20,577,630	1,430,983	93%
2046	1	26	19,146,647	1,437,565	4,480	71,577	23,717	539,098	1,124,922	19,463,916	20,406,496	942,580	95%
2047	1	26	19,463,916	1,490,322	4,498	52,902	16,166	558,059	1,142,183	19,738,405	20,147,151	408,746	98%
2048	0	26	19,738,405	1,512,433	4,513	37,532	11,632	411,549	1,153,079	19,835,251	19,835,251	0	100%
2049	0	25	19,835,251	1,523,961	4,524	21,276	8,258	0	1,145,802	19,482,101	19,482,101	0	100%
2050	0	25	19,482,101	1,527,177	4,531	16,043	5,736	0	1,124,288	19,096,460	19,096,460	0	100%
2051	0	24	19,096,460	1,523,298	4,534	12,328	3,915	0	1,101,100	18,685,972	18,685,972	0	100%
2052	0	23	18,685,972	1,514,323	4,533	9,615	2,583	0	1,076,617	18,255,931	18,255,931	0	100%
2053	0	23	18,255,931	1,501,148	4,528	7,745	1,649	0	1,051,121	17,810,771	17,810,770	0	100%
2054	0	22	17,810,771	1,485,064	4,519	6,360	952	0	1,024,826	17,353,326	17,353,325	0	100%
2055	0	21	17,353,326	1,466,444	4,506	5,346	444	0	997,885	16,886,051	16,886,050	0	100%
2056	0	21	16,886,051	1,445,288	4,489	4,741	133	0	970,447	16,411,596	16,411,595	0	100%
2057	0	20	16,411,596	1,421,792	4,468	4,467	0	0	942,663	15,932,466	15,932,466	0	100%

Actuarial Projections – Optional Funding in 2019
Table A-2

Employer Contributions

Valuation Plan Year End 30-Jun[a]	Closed Group Payroll	New Entrant Payroll	Total Payroll	Employee Contributions	Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Premium Tax Allocation Contributions	Net Employer Amortization	Expenses	Optional Employer Contribution	Statewide Employer Contribution
2018	$955,341	$0	$955,341	$81,646	$319,814	$238,168	$449,635	$272,344	$177,291	$3,949	$419,408	$0
2019	930,868	54,065	984,933	79,875	312,610	232,735	456,144	282,553	173,591	3,916	410,243	5,677
2020	886,714	144,368	1,031,081	76,662	298,358	221,696	456,216	289,571	166,645	3,911	392,253	15,159
2021	865,346	218,960	1,084,306	75,082	291,595	216,513	455,421	296,388	159,033	3,920	379,466	22,991
2022	854,019	287,440	1,141,459	74,285	288,251	213,966	454,982	300,271	154,711	3,942	372,618	30,181
2023	833,662	350,879	1,184,542	72,933	281,132	208,199	454,760	308,991	145,769	3,890	357,857	36,842
2024	809,688	435,295	1,244,983	71,388	272,190	200,802	454,292	316,836	137,456	3,930	342,188	45,706
2025	800,514	509,926	1,310,440	70,922	268,576	197,654	453,683	324,520	129,163	3,976	330,793	53,542
2026	798,061	581,036	1,379,098	70,945	267,460	196,515	453,395	332,211	121,184	4,026	321,725	61,009
2027	801,121	649,510	1,450,632	71,372	268,386	197,014	453,284	333,031	120,253	4,080	321,347	68,199
2028	808,353	716,987	1,525,341	72,127	270,773	198,646	453,328	340,675	112,653	3,940	315,239	75,284
2029	819,526	784,976	1,604,501	73,211	274,663	201,452	453,449	348,100	105,349	3,990	310,791	82,422
2030	836,341	852,556	1,688,897	74,756	280,610	205,854	453,707	355,575	98,132	4,042	308,028	89,518
2031	858,273	919,510	1,777,782	76,720	288,225	211,505	454,124	363,159	90,965	4,096	306,566	96,549
2032	869,139	987,574	1,856,713	77,980	292,297	214,317	454,678	372,405	82,273	4,150	300,740	103,695
2033	867,110	1,073,362	1,940,471	78,153	291,519	213,366	454,997	381,759	73,238	4,205	290,808	112,703
2034	870,073	1,164,501	2,034,574	78,512	291,850	213,338	454,942	386,777	68,165	4,259	285,761	122,273
2035	880,642	1,254,835	2,135,477	79,517	295,007	215,490	454,943	391,406	63,537	4,191	283,218	131,758
2036	819,666	1,345,928	2,165,593	74,964	267,953	192,989	455,159	406,965	48,194	4,119	245,301	141,322
2037	743,932	1,518,209	2,262,142	69,073	234,469	165,396	452,698	418,144	34,554	4,167	204,117	159,412
2038	735,811	1,633,049	2,368,860	68,328	229,162	160,834	449,218	429,777	19,441	4,214	184,488	171,470
2039	697,369	1,736,938	2,434,306	65,010	214,422	149,412	448,232	444,983	3,249	4,258	156,919	182,378
2040	639,282	1,877,765	2,517,047	59,950	193,853	133,903	446,614	459,050	0	4,299	138,202	197,165
2041	596,200	2,009,475	2,605,675	56,076	178,891	122,815	444,201	473,585	0	4,337	127,152	210,995
2042	549,483	2,145,969	2,695,452	51,809	162,900	111,091	440,223	488,437	0	4,372	115,464	225,327
2043	503,354	2,285,940	2,789,294	47,549	147,452	99,903	432,588	503,807	0	4,404	104,308	240,024
2044	436,659	2,425,752	2,862,411	41,286	126,726	85,440	419,833	521,266	0	4,433	89,873	254,704
2045	346,697	2,588,121	2,934,818	32,797	99,916	67,119	398,304	539,098	0	4,458	71,577	271,753
2046	250,634	2,752,559	3,003,193	23,717	72,139	48,422	361,558	558,059	0	4,480	52,902	289,019
2047	170,822	2,926,958	3,097,780	16,166	49,199	33,033	297,745	411,549	0	4,498	37,532 [b]	307,331
2048	122,888	3,080,005	3,202,893	11,632	35,362	23,730	0	0	0	4,513	21,276 [b]	323,401
2049	87,101	3,226,576	3,313,676	8,258	25,007	16,749	0	0	0	4,524	16,043 [b]	338,790
2050	60,379	3,373,858	3,434,236	5,736	17,252	11,516	0	0	0	4,531	12,328 [b]	354,255
2051	41,215	3,522,719	3,563,934	3,915	11,705	7,790	0	0	0	4,534	9,615 [b]	369,886
2052	27,194	3,671,847	3,699,042	2,583	7,672	5,089	0	0	0	4,533	7,745 [b]	385,544
2053	17,360	3,824,972	3,842,332	1,649	4,872	3,223	0	0	0	4,528	6,360 [b]	401,622
2054	10,025	3,984,450	3,994,476	952	2,790	1,838	0	0	0	4,519	5,346 [b]	418,367
2055	4,675	4,152,026	4,156,701	444	1,284	840	0	0	0	4,506	4,741 [b]	435,963
2056	1,402	4,314,877	4,316,279	133	384	251	0	0	0	4,489	4,467 [b]	453,062
2057	0	4,492,106	4,492,106	0	0	0	0	0	0	4,468	4,441 [b]	471,671

[a] *Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year.*

[b] *Amount required to remain at 100% funded.*

Actuarial Projections – Conservation Funding in 2019
Table A-3

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	24	29	$5,058,689	$598,019	$300	$340,042	$97,183	$243,862	$492,337	$5,633,794	$12,188,011	$6,554,217	46%
2018	22	29	5,633,794	624,386	3,949	337,553	81,646	263,027	339,621	6,027,306	12,605,720	6,578,414	48%
2019	20	30	6,027,306	660,321	3,916	325,981	79,875	272,344	362,051	6,403,320	13,004,026	6,600,706	49%
2020	18	30	6,403,320	716,095	3,911	374,092	76,662	282,553	384,592	6,801,213	13,354,279	6,553,066	51%
2021	17	31	6,801,213	738,637	3,920	390,884	75,082	289,571	408,457	7,222,650	13,695,335	6,472,685	53%
2022	16	30	7,222,650	752,708	3,942	398,787	74,285	296,388	433,738	7,669,198	14,038,875	6,369,677	55%
2023	14	30	7,669,198	780,773	3,890	423,964	72,933	300,271	460,522	8,142,225	14,366,699	6,224,474	57%
2024	13	31	8,142,225	812,410	3,930	448,106	71,388	308,991	488,893	8,643,263	14,672,482	6,029,219	59%
2025	13	31	8,643,263	832,631	3,976	460,857	70,922	316,836	518,951	9,174,222	14,972,158	5,797,936	61%
2026	12	31	9,174,222	839,831	4,026	460,363	70,945	324,520	550,807	9,737,000	15,281,198	5,544,198	64%
2027	11	29	9,737,000	861,900	4,080	474,414	71,372	332,211	584,575	10,333,592	15,587,096	5,253,504	66%
2028	11	29	10,333,592	875,501	3,940	486,408	72,127	333,031	620,374	10,966,091	15,899,629	4,933,538	69%
2029	10	29	10,966,091	883,078	3,990	485,475	73,211	340,675	658,329	11,636,713	16,227,223	4,590,510	72%
2030	10	29	11,636,713	887,257	4,042	480,988	74,756	348,100	698,574	12,347,832	16,576,281	4,228,449	74%
2031	10	28	12,347,832	889,541	4,096	474,216	76,720	355,575	741,251	13,101,957	16,951,733	3,849,776	77%
2032	9	28	13,101,957	902,194	4,150	478,242	77,980	363,159	786,503	13,901,497	17,340,888	3,439,391	80%
2033	9	28	13,901,497	916,631	4,205	483,285	78,153	372,405	834,474	14,748,978	17,737,759	2,988,781	83%
2034	8	27	14,748,978	931,076	4,259	488,115	78,512	381,759	885,325	15,647,354	18,143,940	2,496,586	86%
2035	8	26	15,647,354	930,123	4,191	481,230	79,517	386,777	939,232	16,599,796	18,578,654	1,978,858	89%
2036	6	27	16,599,796	971,789	4,119	521,833	74,964	391,406	996,351	17,608,442	18,968,748	1,360,306	93%
2037	6	27	17,608,442	1,021,856	4,167	561,144	69,073	406,965	1,056,836	18,676,437	19,296,208	619,771	97%
2038	6	27	18,676,437	1,035,099	4,214	384,972	68,328	418,144	1,115,623	19,624,191	19,624,191	0	100%
2039	5	27	19,624,191	1,073,972	4,258	153,691	65,010	0	1,152,041	19,916,703	19,916,703	0	100%
2040	4	27	19,916,703	1,125,747	4,299	138,195	59,950	0	1,167,452	20,152,253	20,152,254	0	100%
2041	4	27	20,152,253	1,162,765	4,337	127,153	56,076	0	1,180,049	20,348,429	20,348,430	0	100%
2042	3	27	20,348,429	1,201,617	4,372	115,462	51,809	0	1,190,198	20,499,909	20,499,910	0	100%
2043	3	27	20,499,909	1,238,668	4,404	104,286	47,549	0	1,197,734	20,606,406	20,606,407	0	100%
2044	2	27	20,606,406	1,293,427	4,433	89,895	41,286	0	1,201,894	20,641,620	20,641,622	0	100%
2045	2	26	20,641,620	1,365,007	4,458	71,579	32,797	0	1,201,097	20,577,628	20,577,630	0	100%
2046	1	26	20,577,628	1,437,565	4,480	52,902	23,717	0	1,194,292	20,406,494	20,406,496	0	100%
2047	1	26	20,406,494	1,490,322	4,498	37,523	16,166	0	1,181,786	20,147,150	20,147,151	0	100%
2048	0	26	20,147,150	1,512,433	4,513	28,251	11,632	0	1,165,163	19,835,250	19,835,251	0	100%
2049	0	25	19,835,250	1,523,961	4,524	21,275	8,258	0	1,145,802	19,482,100	19,482,101	0	100%
2050	0	25	19,482,100	1,527,177	4,531	16,043	5,736	0	1,124,288	19,096,459	19,096,460	0	100%
2051	0	24	19,096,459	1,523,298	4,534	12,328	3,915	0	1,101,100	18,685,970	18,685,972	0	100%
2052	0	23	18,685,970	1,514,323	4,533	9,616	2,583	0	1,076,617	18,255,930	18,255,931	0	100%
2053	0	23	18,255,930	1,501,148	4,528	7,744	1,649	0	1,051,121	17,810,769	17,810,770	0	100%
2054	0	22	17,810,769	1,485,064	4,519	6,361	952	0	1,024,826	17,353,325	17,353,325	0	100%
2055	0	21	17,353,325	1,466,444	4,506	5,346	444	0	997,885	16,886,050	16,886,050	0	100%
2056	0	21	16,886,050	1,445,288	4,489	4,742	133	0	970,447	16,411,595	16,411,595	0	100%
2057	0	20	16,411,595	1,421,792	4,468	4,468	0	0	942,663	15,932,466	15,932,466	0	100%

Actuarial Projections – Conservation Funding in 2019
Table A-4

	Benefit Payment Account [a]							Accumulation Account [b]						
Plan Year End 30-Jun	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	5.50% of Pay Employee Contribs.	100.00% of Premium Tax Allocation	Investment Income	Transfer (To)/From Accumulation Account	Assets (boy)[c]	Net Benefit Pmts and Expenses	Employer Contribs.	1.50% of Pay Employee Contribs.	0.00% of Premium Tax Allocation	Investment Income	Statewide Employer Contribution
2018	$5,633,794	$628,335	$337,553	$81,646	$263,027	$339,621	$0	$0	$0	$0	$0	$0	$0	$0
2019	6,027,306	664,237	325,981	65,912	272,344	361,638	(6,388,944)	6,388,944	0	0	13,963	0	413	5,677
2020	0	720,006	374,092	63,361	282,553	0	0	6,403,320	0	0	13,301	0	384,592	15,159
2021	0	742,557	390,884	62,102	289,571	0	0	6,801,213	0	0	12,980	0	408,457	22,991
2022	0	756,650	398,787	61,475	296,388	0	0	7,222,650	0	0	12,810	0	433,738	30,181
2023	0	784,663	423,964	60,428	300,271	0	0	7,669,198	0	0	12,505	0	460,522	36,842
2024	0	816,340	448,106	59,243	308,991	0	0	8,142,225	0	0	12,145	0	488,893	45,706
2025	0	836,607	460,857	58,914	316,836	0	0	8,643,263	0	0	12,008	0	518,951	53,542
2026	0	843,857	460,363	58,974	324,520	0	0	9,174,222	0	0	11,971	0	550,807	61,009
2027	0	865,980	474,414	59,355	332,211	0	0	9,737,000	0	0	12,017	0	584,575	68,199
2028	0	879,441	486,408	60,002	333,031	0	0	10,333,592	0	0	12,125	0	620,374	75,284
2029	0	887,068	485,475	60,918	340,675	0	0	10,966,091	0	0	12,293	0	658,329	82,422
2030	0	891,299	480,988	62,211	348,100	0	0	11,636,713	0	0	12,545	0	698,574	89,518
2031	0	893,637	474,216	63,846	355,575	0	0	12,347,832	0	0	12,874	0	741,251	96,549
2032	0	906,344	478,242	64,943	363,159	0	0	13,101,957	0	0	13,037	0	786,503	103,695
2033	0	920,836	483,285	65,146	372,405	0	0	13,901,497	0	0	13,007	0	834,474	112,703
2034	0	935,335	488,115	65,461	381,759	0	0	14,748,978	0	0	13,051	0	885,325	122,273
2035	0	934,314	481,230	66,307	386,777	0	0	15,647,354	0	0	13,210	0	939,232	131,758
2036	0	975,908	521,833	62,669	391,406	0	0	16,599,796	0	0	12,295	0	996,351	141,322
2037	0	1,026,023	561,144	57,914	406,965	0	0	17,608,442	0	0	11,159	0	1,056,836	159,412
2038	0	860,406	384,972	57,291	418,144	0	0	18,676,437	178,907	0	11,037	0	1,115,624	171,470
2039	0	0	0	0	0	0	0	19,624,191	1,078,230	153,691	65,010	0	1,152,041	182,378
2040	0	0	0	0	0	0	0	19,916,703	1,130,046	138,195	59,950	0	1,167,452	197,165
2041	0	0	0	0	0	0	0	20,152,254	1,167,102	127,153	56,076	0	1,180,049	210,995
2042	0	0	0	0	0	0	0	20,348,430	1,205,989	115,462	51,809	0	1,190,198	225,327
2043	0	0	0	0	0	0	0	20,499,910	1,243,072	104,286	47,549	0	1,197,734	240,024
2044	0	0	0	0	0	0	0	20,606,407	1,297,860	89,895	41,286	0	1,201,894	254,704
2045	0	0	0	0	0	0	0	20,641,622	1,369,465	71,579	32,797	0	1,201,097	271,753
2046	0	0	0	0	0	0	0	20,577,630	1,442,045	52,902	23,717	0	1,194,292	289,019
2047	0	0	0	0	0	0	0	20,406,496	1,494,820	37,523	16,166	0	1,181,786	307,331
2048	0	0	0	0	0	0	0	20,147,151	1,516,946	28,251	11,632	0	1,165,163	323,401
2049	0	0	0	0	0	0	0	19,835,251	1,528,485	21,275	8,258	0	1,145,802	338,790
2050	0	0	0	0	0	0	0	19,482,101	1,531,708	16,043	5,736	0	1,124,288	354,255
2051	0	0	0	0	0	0	0	19,096,460	1,527,832	12,328	3,915	0	1,101,100	369,886
2052	0	0	0	0	0	0	0	18,685,971	1,518,856	9,616	2,583	0	1,076,617	385,544
2053	0	0	0	0	0	0	0	18,255,931	1,505,676	7,744	1,649	0	1,051,121	401,622
2054	0	0	0	0	0	0	0	17,810,769	1,489,583	6,361	952	0	1,024,826	418,367
2055	0	0	0	0	0	0	0	17,353,325	1,470,950	5,346	444	0	997,885	435,963
2056	0	0	0	0	0	0	0	16,886,050	1,449,777	4,742	133	0	970,447	453,062
2057	0	0	0	0	0	0	0	16,411,595	1,426,260	4,468	0	0	942,663	471,671

[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 Pension and Relief Fund.*

[c] *Includes transfer from Benefit Payment Account to Accumulation Account in Plan Year End June 30, 2018*

Actuarial Projections – Optional Funding in 2022
Table A-5

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Assets: Assets (boy)	Total Assets: Benefit Payments	Total Assets: Expenses	Total Assets: Employer Contribs.	Total Assets: Employee Contribs.	Total Assets: Premium Tax Allocation Contribs.	Total Assets: Investment Income	Total Assets: Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	24	29	$5,058,689	$598,019	$300	$340,042	$97,183	$243,862	$492,337	$5,633,794	$12,188,011	$6,554,217	46%
2018	24	29	5,633,794	624,386	3,949	337,553	81,646	263,027	339,621	6,027,306	12,605,720	6,578,414	48%
2019	24	30	6,027,306	660,321	4,045	361,182	85,332	272,344	363,250	6,445,048	13,022,429	6,577,381	49%
2020	24	30	6,445,048	716,340	4,236	386,465	90,913	282,553	387,866	6,872,269	13,422,646	6,550,377	51%
2021	24	31	6,872,269	739,688	4,384	413,518	96,300	289,571	413,972	7,341,558	13,841,382	6,499,824	53%
2022	22	30	7,341,558	755,046	4,527	442,199	101,951	296,388	442,887	7,865,409	14,289,667	6,424,258	55%
2023	20	30	7,865,409	784,670	4,445	455,329	100,602	300,271	473,908	8,406,404	14,728,796	6,322,392	57%
2024	19	31	8,406,404	817,747	4,462	443,625	99,116	308,991	505,257	8,941,184	15,151,843	6,210,659	59%
2025	18	31	8,941,184	839,057	4,490	428,390	98,849	316,836	536,486	9,478,198	15,575,471	6,097,273	61%
2026	17	31	9,478,198	847,146	4,528	417,282	99,206	324,520	568,376	10,035,908	16,016,107	5,980,199	63%
2027	16	29	10,035,908	870,059	4,572	408,857	100,056	332,211	601,164	10,603,565	16,462,062	5,858,497	64%
2028	15	29	10,603,565	884,620	4,425	409,528	101,274	333,031	634,877	11,193,230	16,923,809	5,730,579	66%
2029	15	29	11,193,230	893,252	4,469	404,758	102,853	340,675	670,133	11,813,928	17,410,409	5,596,481	68%
2030	14	29	11,813,928	898,551	4,517	401,772	104,950	348,100	707,410	12,473,091	17,929,027	5,455,936	70%
2031	14	28	12,473,091	901,886	4,568	400,524	107,562	355,575	747,120	13,177,418	18,485,725	5,308,307	71%
2032	13	29	13,177,418	915,318	4,620	400,697	109,591	363,159	789,271	13,920,198	19,069,043	5,148,845	73%
2033	13	29	13,920,198	930,381	4,675	396,776	110,653	372,405	833,579	14,698,555	19,674,226	4,975,671	75%
2034	12	27	14,698,555	945,423	4,731	389,104	112,001	381,759	879,924	15,511,190	20,304,095	4,792,905	76%
2035	12	26	15,511,190	945,116	4,667	386,669	114,075	386,777	928,831	16,377,759	20,978,782	4,601,023	78%
2036	10	27	16,377,759	987,772	4,599	387,034	110,664	391,406	979,612	17,254,105	21,626,087	4,371,982	80%
2037	10	27	17,254,105	1,039,112	4,652	352,215	105,201	406,965	1,029,943	18,104,665	22,229,267	4,124,602	81%
2038	9	27	18,104,665	1,053,666	4,705	315,111	103,384	418,144	1,079,724	18,962,657	22,845,783	3,883,126	83%
2039	8	28	18,962,657	1,097,292	4,757	298,010	98,159	429,777	1,129,597	19,816,152	23,425,224	3,609,072	85%
2040	7	28	19,816,152	1,161,978	4,808	266,617	90,909	444,983	1,178,200	20,630,075	23,937,152	3,307,077	86%
2041	6	28	20,630,075	1,216,836	4,859	226,332	85,319	459,050	1,224,472	21,403,553	24,395,539	2,991,986	88%
2042	5	28	21,403,553	1,275,160	4,908	206,074	80,143	473,585	1,268,833	22,152,119	24,798,079	2,645,960	89%
2043	5	28	22,152,119	1,330,050	4,955	187,044	74,765	488,437	1,311,840	22,879,200	25,152,357	2,273,157	91%
2044	4	29	22,879,200	1,398,059	4,998	172,454	66,649	503,807	1,353,236	23,572,289	25,428,968	1,856,679	93%
2045	3	29	23,572,289	1,485,315	5,039	154,928	55,718	521,266	1,391,915	24,205,762	25,590,724	1,384,962	95%
2046	2	29	24,205,762	1,579,959	5,077	131,904	43,477	539,098	1,426,610	24,761,814	25,622,211	860,397	97%
2047	2	29	24,761,814	1,659,430	5,111	107,501	32,227	558,059	1,457,128	25,252,188	25,532,868	280,680	99%
2048	1	29	25,252,188	1,714,020	5,143	84,834	24,035	234,554	1,474,460	25,350,909	25,350,909	0	100%
2049	1	28	25,350,909	1,762,015	5,171	16,334	17,278	0	1,469,805	25,087,140	25,087,140	0	100%
2050	1	28	25,087,140	1,800,414	5,195	6,688	12,084	0	1,452,404	24,752,707	24,752,707	0	100%
2051	0	28	24,752,707	1,828,160	5,216	3,902	8,416	0	1,431,327	24,362,976	24,362,976	0	100%
2052	0	27	24,362,976	1,843,435	5,233	4,671	5,786	0	1,407,436	23,932,200	23,932,200	0	100%
2053	0	26	23,932,200	1,846,621	5,247	4,644	3,880	0	1,381,437	23,470,293	23,470,293	0	100%
2054	0	26	23,470,293	1,842,010	5,257	3,802	2,446	0	1,353,792	22,983,066	22,983,066	0	100%
2055	0	25	22,983,066	1,832,048	5,264	3,129	1,398	0	1,324,802	22,475,083	22,475,083	0	100%
2056	0	25	22,475,083	1,817,476	5,266	2,977	700	0	1,294,728	21,950,745	21,950,745	0	100%
2057	0	24	21,950,745	1,798,843	5,266	3,125	302	0	1,263,811	21,413,875	21,413,875	0	100%

Actuarial Projections – Optional Funding in 2022
Table A-6

	Employer Contributions								Minimum Payment			
Valuation Plan Year End 30-Jun [a,b]	Total Payroll	Employee Contributions	Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Premium Tax Allocation Contributions	Net Employer Amortization	Expenses	Optional Employer Contribution	Alternative Employer Contribution	Minimum Employer Contribution	Statewide Employer Contribution
2018	$955,341	$81,646	$319,814	$238,168	$449,635	$272,344	$177,291	$3,949	$419,408	$361,182	$361,182	$0
2019	984,933	85,332	330,735	245,403	456,144	282,553	173,591	4,045	423,040	386,465	386,465	0
2020	1,031,081	90,913	346,872	255,959	461,326	289,571	171,755	4,236	431,950	413,518	413,518	0
2021	1,084,306	96,300	365,391	269,090	465,112	296,388	168,724	4,384	442,199	442,464	442,199	0
2022	1,141,459	101,951	385,372	283,422	467,651	300,271	167,380	4,527	455,329	473,436	455,329	0
2023	1,184,542	100,602	379,961	279,359	468,813	308,991	159,822	4,445	443,625	506,577	443,625	6,265
2024	1,244,983	99,116	371,411	272,295	468,468	316,836	151,632	4,462	428,390	542,037	428,390	15,125
2025	1,310,440	98,849	368,354	269,504	467,808	324,520	143,288	4,490	417,282	579,980	417,282	22,896
2026	1,379,098	99,206	368,274	269,069	467,472	332,211	135,261	4,528	408,857	620,579	408,857	30,142
2027	1,450,632	100,056	370,697	270,641	467,346	333,031	134,315	4,572	409,528	664,020	409,528	36,963
2028	1,525,341	101,274	374,886	273,612	467,397	340,675	126,722	4,425	404,758	710,501	404,758	43,580
2029	1,604,501	102,853	380,712	277,859	467,543	348,100	119,443	4,469	401,772	760,236	401,772	50,207
2030	1,688,897	104,950	388,701	283,751	467,830	355,575	112,255	4,517	400,524	813,453	400,524	56,756
2031	1,777,782	107,562	398,563	291,001	468,287	363,159	105,128	4,568	400,697	870,395	400,697	63,177
2032	1,856,713	109,591	405,234	295,642	468,918	372,405	96,513	4,620	396,776	931,323	396,776	69,607
2033	1,940,471	110,653	407,483	296,830	469,358	381,759	87,599	4,675	389,104	996,516	389,104	77,764
2034	2,034,574	112,001	411,252	299,251	469,464	386,777	82,687	4,731	386,669	1,066,272	386,669	86,352
2035	2,135,477	114,075	418,184	304,109	469,664	391,406	78,258	4,667	387,034	1,140,911	387,034	94,743
2036	2,165,593	110,664	395,164	284,499	470,082	406,965	63,117	4,599	352,215	1,220,775	352,215	103,127
2037	2,262,142	105,201	365,981	260,781	467,822	418,144	49,678	4,652	315,111	1,306,229	315,111	119,954
2038	2,368,860	103,384	361,804	258,420	464,662	429,777	34,885	4,705	298,010	1,397,665	298,010	131,540
2039	2,434,306	98,159	341,599	243,440	463,403	444,983	18,420	4,757	266,617	1,495,502	266,617	143,633
2040	2,517,047	90,909	311,893	220,984	459,590	459,050	540	4,808	226,332	1,600,187	226,332	160,527
2041	2,605,675	85,319	286,534	201,215	453,372	473,585	0	4,859	206,074	1,712,200	206,074	176,777
2042	2,695,452	80,143	262,278	182,136	446,398	488,437	0	4,908	187,044	1,832,054	187,044	193,006
2043	2,789,294	74,765	242,264	167,500	435,542	503,807	0	4,955	172,454	1,960,298	172,454	208,707
2044	2,862,411	66,649	216,578	149,929	420,174	521,266	0	4,998	154,928	1,500,122	154,928	224,623
2045	2,934,818	55,718	182,583	126,865	394,612	539,098	0	5,039	131,904	967,595	131,904	243,720
2046	3,003,193	43,477	145,901	102,425	349,930	558,059	0	5,077	107,501	380,121	107,501	263,685
2047	3,097,780	32,227	111,950	79,723	271,785	234,554	0	5,111	84,834	84,834	84,834	285,491
2048	3,202,893	24,035	85,762	61,726	0	0	0	5,143	16,334 [c]	16,334	16,334	305,648
2049	3,313,676	17,278	63,623	46,345	0	0	0	5,171	6,688 [c]	6,688	6,688	325,082
2050	3,434,236	12,084	45,206	33,122	0	0	0	5,195	3,902 [c]	3,902	3,902	344,285
2051	3,563,934	8,416	31,347	22,931	0	0	0	5,216	4,671 [c]	4,671	4,671	362,869
2052	3,699,042	5,786	21,593	15,807	0	0	0	5,233	4,644 [c]	4,644	4,644	380,569
2053	3,842,332	3,880	14,755	10,876	0	0	0	5,247	3,802 [c]	3,802	3,802	398,082
2054	3,994,476	2,446	9,647	7,201	0	0	0	5,257	3,129 [c]	3,129	3,129	415,902
2055	4,156,701	1,398	5,847	4,449	0	0	0	5,264	2,977 [c]	2,977	2,977	434,311
2056	4,316,279	700	3,271	2,571	0	0	0	5,266	3,125 [c]	3,125	3,125	452,008
2057	4,492,106	302	1,691	1,389	0	0	0	5,266	3,571 [c]	3,571	3,571	471,045

[a] *Assumes sponsor selects Optional funding policy if contributions are lower.*

[b] *Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year.*

[c] *Amount required to remain at 100% funded.*

Actuarial Projections – Conservation Funding in 2019
Table A-7

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	24	29	$5,058,689	$598,019	$300	$340,042	$97,183	$243,862	$492,337	$5,633,794	$12,188,011	$6,554,217	46%
2018	22	29	5,633,794	624,386	3,949	337,553	81,646	263,027	339,621	6,027,306	12,605,720	6,578,414	48%
2019	20	30	6,027,306	660,321	3,916	325,981	79,875	272,344	362,051	6,403,320	13,004,026	6,600,706	49%
2020	18	30	6,403,320	716,095	3,911	374,092	76,662	282,553	384,592	6,801,213	13,354,279	6,553,066	51%
2021	17	31	6,801,213	738,637	3,920	390,884	75,082	289,571	408,457	7,222,650	13,695,335	6,472,685	53%
2022	16	30	7,222,650	752,708	3,942	398,787	74,285	296,388	433,738	7,669,198	14,038,875	6,369,677	55%
2023	14	30	7,669,198	780,773	3,890	423,964	72,933	300,271	460,522	8,142,225	14,366,699	6,224,474	57%
2024	13	31	8,142,225	812,410	3,930	448,106	71,388	308,991	488,893	8,643,263	14,672,482	6,029,219	59%
2025	13	31	8,643,263	832,631	3,976	460,857	70,922	316,836	518,951	9,174,222	14,972,158	5,797,936	61%
2026	12	31	9,174,222	839,831	4,026	460,363	70,945	324,520	550,807	9,737,000	15,281,198	5,544,198	64%
2027	11	29	9,737,000	861,900	4,080	474,414	71,372	332,211	584,575	10,333,592	15,587,096	5,253,504	66%
2028	11	29	10,333,592	875,501	3,940	486,408	72,127	333,031	620,374	10,966,091	15,899,629	4,933,538	69%
2029	10	29	10,966,091	883,078	3,990	485,475	73,211	340,675	658,329	11,636,713	16,227,223	4,590,510	72%
2030	10	29	11,636,713	887,257	4,042	480,988	74,756	348,100	698,574	12,347,832	16,576,281	4,228,449	74%
2031	10	28	12,347,832	889,541	4,096	474,216	76,720	355,575	741,251	13,101,957	16,951,733	3,849,776	77%
2032	9	28	13,101,957	902,194	4,150	478,242	77,980	363,159	786,503	13,901,497	17,340,888	3,439,391	80%
2033	9	28	13,901,497	916,631	4,205	483,285	78,153	372,405	834,474	14,748,978	17,737,759	2,988,781	83%
2034	8	27	14,748,978	931,076	4,259	488,115	78,512	381,759	885,325	15,647,354	18,143,940	2,496,586	86%
2035	8	26	15,647,354	930,123	4,191	481,230	79,517	386,777	939,232	16,599,796	18,578,654	1,978,858	89%
2036	6	27	16,599,796	971,789	4,119	521,833	74,964	391,406	996,351	17,608,442	18,968,748	1,360,306	93%
2037	6	27	17,608,442	1,021,856	4,167	561,144	69,073	406,965	1,056,836	18,676,437	19,296,208	619,771	97%
2038	6	27	18,676,437	1,035,099	4,214	384,972	68,328	418,144	1,115,623	19,624,191	19,624,191	0	100%
2039	5	27	19,624,191	1,073,972	4,258	153,691	65,010	0	1,152,041	19,916,703	19,916,703	0	100%
2040	4	27	19,916,703	1,125,747	4,299	138,195	59,950	0	1,167,452	20,152,254	20,152,254	0	100%
2041	4	27	20,152,254	1,162,765	4,337	127,153	56,076	0	1,180,049	20,348,430	20,348,430	0	100%
2042	3	27	20,348,430	1,201,617	4,372	115,462	51,809	0	1,190,198	20,499,910	20,499,910	0	100%
2043	3	27	20,499,910	1,238,668	4,404	104,286	47,549	0	1,197,734	20,606,407	20,606,407	0	100%
2044	2	27	20,606,407	1,293,427	4,433	89,895	41,286	0	1,201,894	20,641,622	20,641,622	0	100%
2045	2	26	20,641,622	1,365,007	4,458	71,579	32,797	0	1,201,097	20,577,630	20,577,630	0	100%
2046	1	26	20,577,630	1,437,565	4,480	52,902	23,717	0	1,194,292	20,406,496	20,406,496	0	100%
2047	1	26	20,406,496	1,490,322	4,498	37,523	16,166	0	1,181,786	20,147,151	20,147,151	0	100%
2048	0	26	20,147,151	1,512,433	4,513	28,251	11,632	0	1,165,163	19,835,251	19,835,251	0	100%
2049	0	25	19,835,251	1,523,961	4,524	21,275	8,258	0	1,145,802	19,482,101	19,482,101	0	100%
2050	0	25	19,482,101	1,527,177	4,531	16,043	5,736	0	1,124,288	19,096,460	19,096,460	0	100%
2051	0	24	19,096,460	1,523,298	4,534	12,328	3,915	0	1,101,100	18,685,971	18,685,972	0	100%
2052	0	23	18,685,971	1,514,323	4,533	9,616	2,583	0	1,076,617	18,255,931	18,255,931	0	100%
2053	0	23	18,255,931	1,501,148	4,528	7,744	1,649	0	1,051,121	17,810,769	17,810,770	0	100%
2054	0	22	17,810,769	1,485,064	4,519	6,361	952	0	1,024,826	17,353,325	17,353,325	0	100%
2055	0	21	17,353,325	1,466,444	4,506	5,346	444	0	997,885	16,886,050	16,886,050	0	100%
2056	0	21	16,886,050	1,445,288	4,489	4,742	133	0	970,447	16,411,595	16,411,595	0	100%
2057	0	20	16,411,595	1,421,792	4,468	4,468	0	0	942,663	15,932,466	15,932,466	0	100%

Actuarial Projections – Conservation Funding in 2019

Table A-8

	Benefit Payment Account[a]						Accumulation Account[b]						Minimum Payment			
Plan Year End 30-Jun	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	5.50% of Pay Employee Contribs.	100.00% of Premium Tax Allocation	Investment Income	Assets (boy)[c]	Net Benefit Pmts and Expenses	Employer Contribs.	1.50% of Pay Employee Contribs.	0.00% of Premium Tax Allocation	Investment Income	Conservation Employer Cont.	Alternative Employer Cont.	Minimum Alt /Cons Cont.	Statewide Employer Contribution
2018	$5,633,794	$628,335	$337,553	$81,646	$263,027	$339,621	$0	$0	$0	$0	$0	$0	NA	$337,553	$337,553	$0
2019	6,027,306	664,237	325,981	65,912	272,344	361,638	6,388,944	0	0	13,963	0	413	325,981	361,182	325,981	5,677
2020	0	720,006	374,092	63,361	282,553	0	6,403,320	0	0	13,301	0	384,592	374,092	386,465	374,092	15,159
2021	0	742,557	390,884	62,102	289,571	0	6,801,213	0	0	12,980	0	408,457	390,884	413,518	390,884	22,991
2022	0	756,650	398,787	61,475	296,388	0	7,222,650	0	0	12,810	0	433,738	398,787	442,464	398,787	30,181
2023	0	784,663	423,964	60,428	300,271	0	7,669,198	0	0	12,505	0	460,522	423,964	473,436	423,964	36,842
2024	0	816,340	448,106	59,243	308,991	0	8,142,225	0	0	12,145	0	488,893	448,106	506,577	448,106	45,706
2025	0	836,607	460,857	58,914	316,836	0	8,643,263	0	0	12,008	0	518,951	460,857	542,037	460,857	53,542
2026	0	843,857	460,363	58,974	324,520	0	9,174,222	0	0	11,971	0	550,807	460,363	579,980	460,363	61,009
2027	0	865,980	474,414	59,355	332,211	0	9,737,000	0	0	12,017	0	584,575	474,414	620,579	474,414	68,199
2028	0	879,441	486,408	60,002	333,031	0	10,333,592	0	0	12,125	0	620,374	486,408	664,020	486,408	75,284
2029	0	887,068	485,475	60,918	340,675	0	10,966,091	0	0	12,293	0	658,329	485,475	710,501	485,475	82,422
2030	0	891,299	480,988	62,211	348,100	0	11,636,713	0	0	12,545	0	698,574	480,988	760,236	480,988	89,518
2031	0	893,637	474,216	63,846	355,575	0	12,347,832	0	0	12,874	0	741,251	474,216	813,453	474,216	96,549
2032	0	906,344	478,242	64,943	363,159	0	13,101,957	0	0	13,037	0	786,503	478,242	870,395	478,242	103,695
2033	0	920,836	483,285	65,146	372,405	0	13,901,497	0	0	13,007	0	834,474	483,285	931,323	483,285	112,703
2034	0	935,335	488,115	65,461	381,759	0	14,748,978	0	0	13,051	0	885,325	488,115	996,516	488,115	122,273
2035	0	934,314	481,230	66,307	386,777	0	15,647,354	0	0	13,210	0	939,232	481,230	1,066,272	481,230	131,758
2036	0	975,908	521,833	62,669	391,406	0	16,599,796	0	0	12,295	0	996,351	521,833	1,140,911	521,833	141,322
2037	0	1,026,023	561,144	57,914	406,965	0	17,608,442	0	0	11,159	0	1,056,836	561,144	1,185,994	561,144	159,412
2038	0	860,406	384,972	57,291	418,144	0	18,676,437	178,907	0	11,037	0	1,115,624	384,972	384,401	384,972	171,470
2039	0	0	0	0	0	0	19,624,191	1,078,230	153,691	65,010	0	1,152,041	153,691	158,213	153,691	182,378
2040	0	0	0	0	0	0	19,916,703	1,130,046	138,195	59,950	0	1,167,452	138,195	142,288	138,195	197,165
2041	0	0	0	0	0	0	20,152,254	1,167,102	127,153	56,076	0	1,180,049	127,153	130,911	127,153	210,995
2042	0	0	0	0	0	0	20,348,430	1,205,989	115,462	51,809	0	1,190,198	115,462	118,876	115,462	225,327
2043	0	0	0	0	0	0	20,499,910	1,243,072	104,286	47,549	0	1,197,734	104,286	107,391	104,286	240,024
2044	0	0	0	0	0	0	20,606,406	1,297,860	89,895	41,286	0	1,201,894	89,895	92,530	89,895	254,704
2045	0	0	0	0	0	0	20,641,621	1,369,465	71,579	32,797	0	1,201,097	71,579	73,693	71,579	271,753
2046	0	0	0	0	0	0	20,577,629	1,442,045	52,902	23,717	0	1,194,292	52,902	54,466	52,902	289,019
2047	0	0	0	0	0	0	20,406,495	1,494,820	37,523	16,166	0	1,181,786	37,523	38,641	37,523	307,331
2048	0	0	0	0	0	0	20,147,150	1,516,946	28,251	11,632	0	1,165,163	28,251	29,078	28,251	323,401
2049	0	0	0	0	0	0	19,835,251	1,528,485	21,275	8,258	0	1,145,802	21,275	21,902	21,275	338,790
2050	0	0	0	0	0	0	19,482,101	1,531,708	16,043	5,736	0	1,124,288	16,043	16,521	16,043	354,255
2051	0	0	0	0	0	0	19,096,460	1,527,832	12,328	3,915	0	1,101,100	12,328	12,688	12,328	369,886
2052	0	0	0	0	0	0	18,685,971	1,518,856	9,616	2,583	0	1,076,617	9,616	9,906	9,616	385,544
2053	0	0	0	0	0	0	18,255,931	1,505,676	7,744	1,649	0	1,051,121	7,744	7,980	7,744	401,622
2054	0	0	0	0	0	0	17,810,770	1,489,583	6,361	952	0	1,024,826	6,361	6,545	6,361	418,367
2055	0	0	0	0	0	0	17,353,326	1,470,950	5,346	444	0	997,885	5,346	5,504	5,346	435,963
2056	0	0	0	0	0	0	16,886,050	1,449,777	4,742	133	0	970,447	4,742	4,880	4,742	453,062
2057	0	0	0	0	0	0	16,411,595	1,426,260	4,468	0	0	942,663	4,468	4,600	4,468	471,671

[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 Pension and Relief Fund.*

[c] *Includes transfer from Benefit Payment Account to Accumulation Account in Plan Year End June 30, 2019.*