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

Actuarial Valuation Report
for the Year Beginning July 1, 2017

September 12, 2018

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

Captain Adrian Conner
Pension Board Secretary
City of Bluefield Firemen's Pension and Relief Fund

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

Dear Ms. Davis and Captain Conner:

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 Firemen's Pension and Relief Fund ("Fund" or "Plan"). This actuarial valuation has been performed in accordance with the West Virginia Code Chapter 8, Article 22, Sections 16 through 28, inclusive.

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

- The sponsor's funding requirements for the 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 5.00%. The actuarial 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, FSA, EA, MAAA, FCA
Senior Consultant

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

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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 Firemen's Pension and Relief Fund ("Fund" or "Plan").

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

- The sponsor's funding requirements for the 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	$4,219,912
Actuarial Accrued Liability	$17,632,108
Unfunded Actuarial Accrued Liability	$13,412,196
Funded Ratio	23.93%

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	$388,866
7% Increase in Alternative Contribution	$27,221
FYE 06/30/2018 Alternative Contribution	$416,087
Additional Contribution	$0
Final FYE 06/30/2018 Alternative Contribution	$416,087

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	$416,087
7% Increase in Alternative Contribution	$29,126
FYE 06/30/2019 Alternative Contribution	$445,213
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	$445,213
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	$445,213

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 actuarial 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. *<u>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.</u>*

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. *<u>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.</u>*

Executive Summary (Continued)

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 changed from 4.50% for the July 1, 2016 actuarial valuation to 5.00% for the July 1, 2017 actuarial valuation.
    - 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 26% (using a testing interest rate of 5.50% for all plans using the Alternative funding policy), ratio of assets to benefits of 4.99, equity allocation of 48%, and 15-year projected funded ratio of 43%, resulted in a discount rate assumption of 5.00%.
    - The change in interest rate used to discount liabilities from 4.50% as of July 1, 2016, to 5.00% as of July 1, 2017, decreased liabilities by $1,303,209.
- The Fund experienced an approximate annualized return of 9.45% on the market value of assets during the plan year ended June 30, 2017, which compares to the expected annualized return of 4.50%. The difference in actual versus expected return produced an asset (gain)/loss of ($193,648).
- 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 ($347,115) 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 5.00%:

- The funded ratio is projected to remain stable at 24% from June 30, 2017 to June 30, 2023, and then increase to 43% at June 30, 2034, and to 100% at June 30, 2045.
- Employer contributions are expected to increase from $416,087 (or 63% of pay) for the fiscal year end June 30, 2018, to $2,416,360 (or 141% of pay) for fiscal year end June 30, 2044.

Please note that a funded ratio of only 24% at June 30, 2017, means that the plan is underfunded.

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

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 accrued liability. The annual amortization amount is generally 6% to 7% of the unfunded actuarial accrued liability. Under state statute, the annual premium tax allocation can only be used to finance the amortization of the unfunded actuarial accrued liability. For fiscal year end 2019, the Alternative funding policy contribution of $445,213 is sufficient to finance 100% of the net employer normal cost of $241,516 and only 1.5% of the unfunded liability of $13,412,196. The state premium tax allocation of $222,060 is sufficient to finance only 1.7% of the unfunded actuarial accrued liability of $13,412,196.

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 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 5.00%, 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 5.00%, 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

Valuation Date		**July 1, 2016**		**July 1, 2017**
Valuation Interest Rate		4.50%		5.00%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$684,729		$657,549
Average Pay		$42,796		$41,097
Expected Benefit Payments		$838,548		$845,428
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	16	$3,405,831	16	$3,156,809
(b) Retirees	25	$10,485,390	24	$9,849,089
(c) Survivors	7	$1,201,428	9	$1,361,878
(d) Disabled Members	7	$2,696,165	7	$2,735,396
(e) Deferred Vested Members	2	$1,116,320	1	$528,936
(f) Total	57	$18,905,134	57	$17,632,108
2. Present Value of Future Normal Costs		$4,789,026		$3,717,212
3. Present Value of Benefits (1(f) + 2)		$23,694,160		$21,349,320
4. Market Value of Assets		$3,980,319		$4,219,912
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$14,924,815		$13,412,196
6. Funded Ratio (4 / 1(f))		21.05%		23.93%
7. Net Employer Normal Cost				
(a) Normal Cost		$343,894		$292,178
(b) Administrative Expenses		$3,808		$3,757
(c) Gross Normal Cost (a + b)		$347,702		$295,935
(d) Employee Contribution Rate [a]		8.32%		8.28%
(e) Expected Employee Contributions		$56,946		$54,419
(f) Net Employer Normal Cost (c - e)		$290,756		$241,516
(% of Compensation)		42.46%		36.73%
		FYE 2018		**FYE 2019**
8. Estimated Minimum Employer Contribution [b]				
(a) Prior Year Alternative Contribution		$388,866		$416,087
(b) Increase in Alternative Contribution		7.00%		7.00%
(c) Current Year Alternative Contribution		$416,087		$445,213
(d) Additional Contribution		$0		$0
(e) Alternative Contribution (c + d)		$416,087		$445,213

[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.

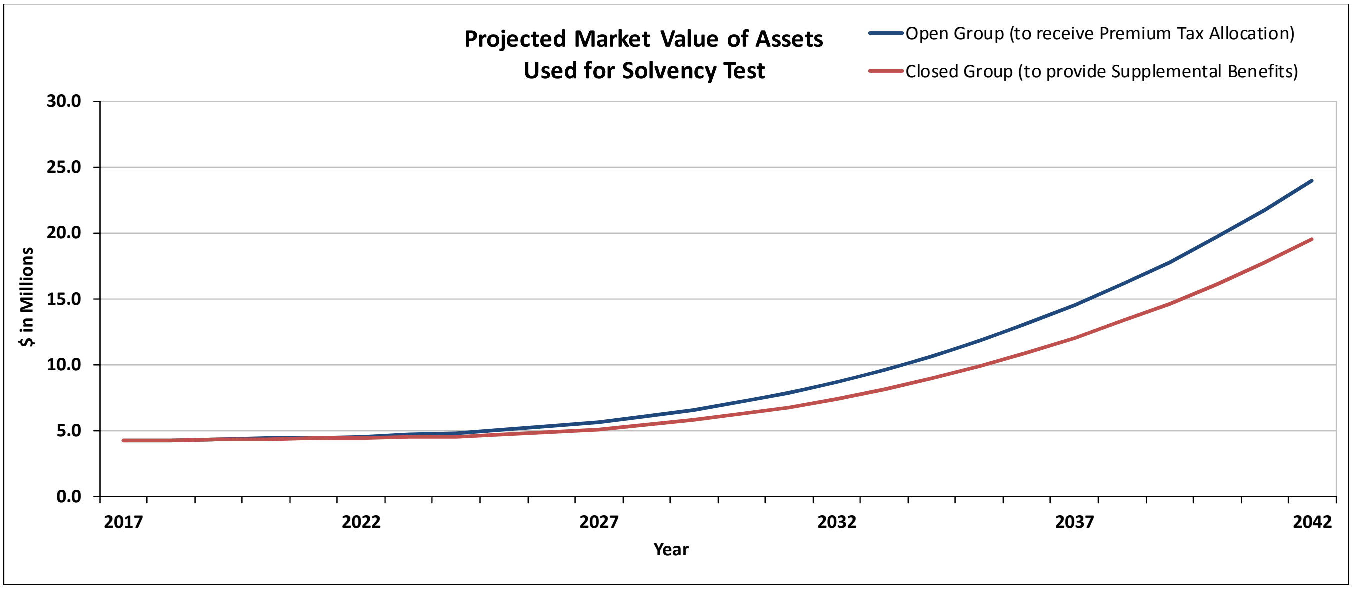
Schedule B: (Gain)/Loss Analysis

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

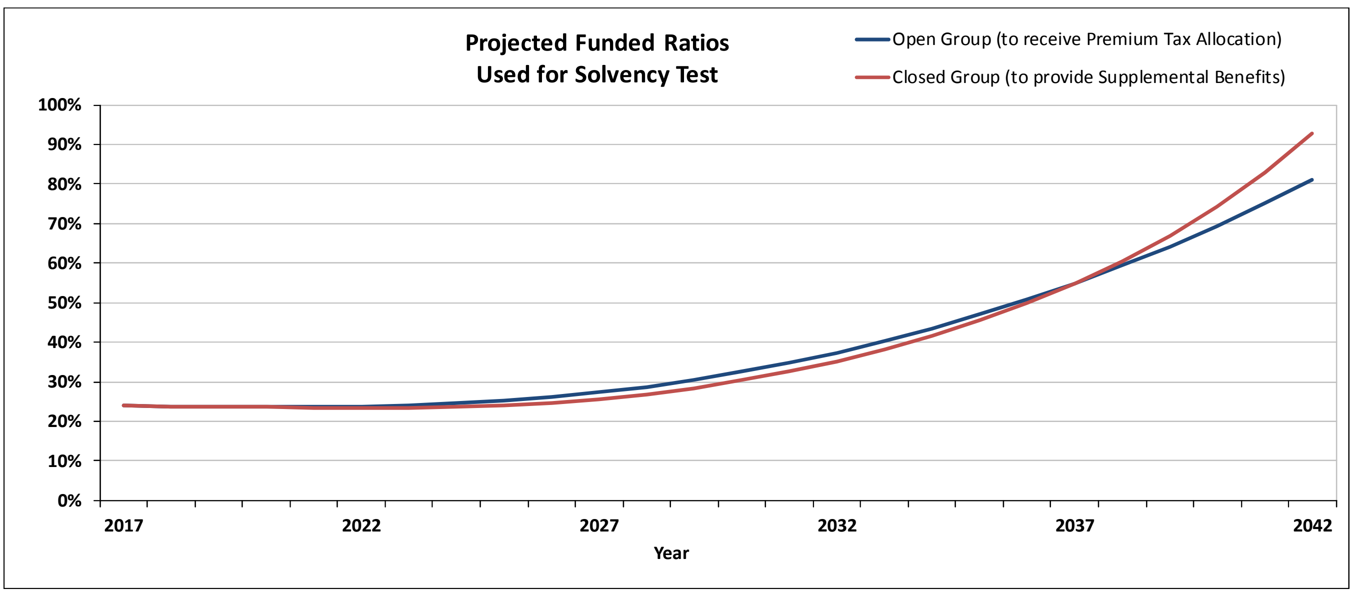
1.	(a) Actuarial Accrued Liability as of 7/1/2016	$18,905,134
	(b) Normal Cost due 7/1/2016	$343,894
	(c) Interest on (a) and (b) to 6/30/2017	$858,469
	(d) Benefit Payments with interest to 6/30/2017	$825,065
	(e) Effect of Assumption Changes	($1,303,209)
	(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	$17,979,223
	(g) Actual Liability at 7/1/2017	$17,632,108
	(h) Liability (Gain)/Loss [(g) - (f)]	**($347,115)**
2.	(a) Market Value of Assets as of 7/1/2016	$3,980,319
	(b) Interest on (a) to 6/30/2017	$179,114
	(c) Contributions with interest to 6/30/2017	$691,896
	(d) Benefit Payments with interest to 6/30/2017	$825,065
	(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	$4,026,264
	(f) Actual Assets at 7/1/2017	$4,219,912
	(g) Asset (Gain)/Loss [(e) - (f)]	**($193,648)**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**($540,763)**

Graphs 1A and 1B: Solvency Projections

Graph 1A



Graph 1B



SECTION II

ACTUARIAL PROJECTIONS

ALTERNATIVE FUNDING POLICY

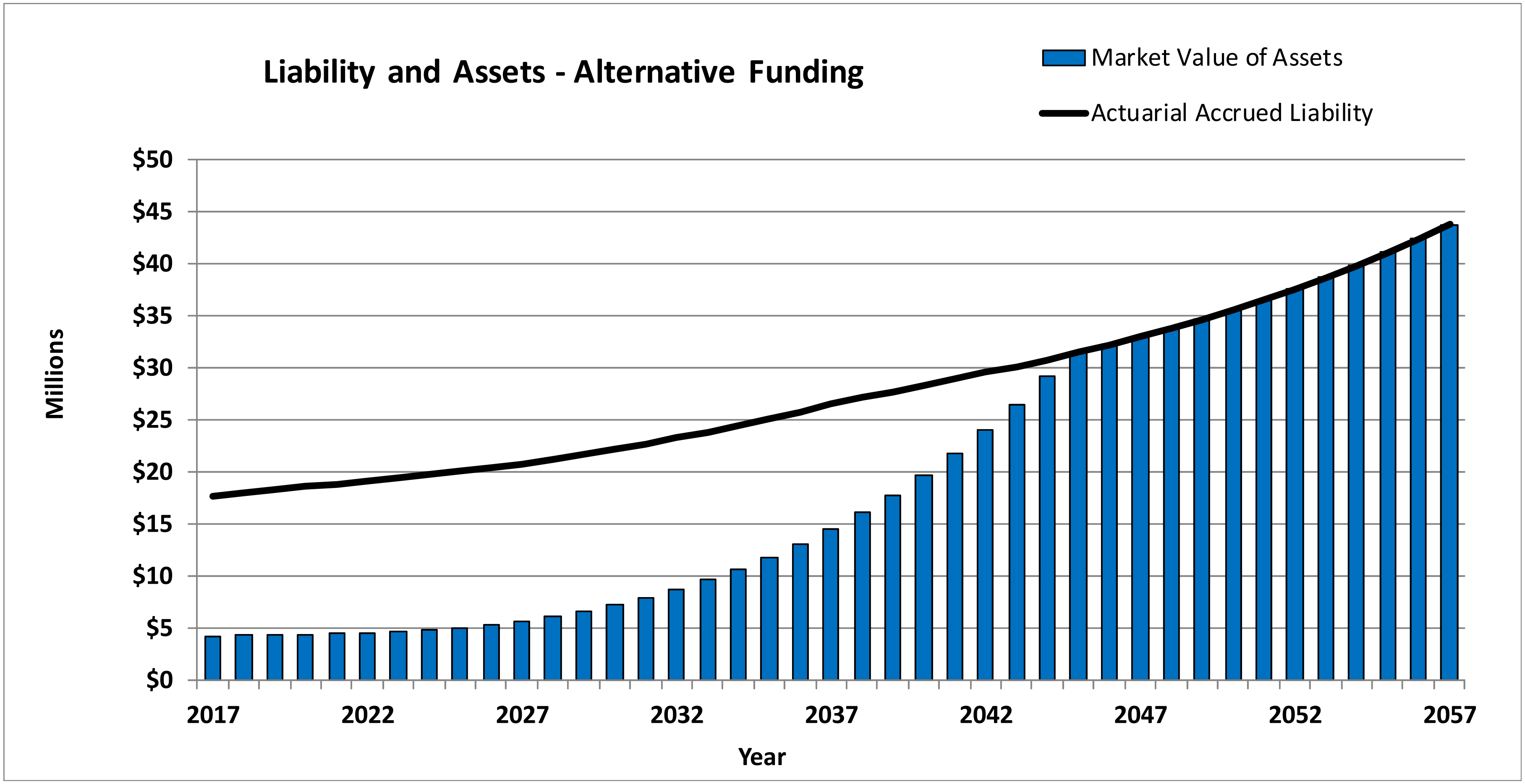
Alternative Funding on a Closed Group Basis, Table 1

Valuation Plan Year End 30-Jun	Number		Total Payroll	Total Assets								Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
	Active	Pay Status		Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)			
2017	16	41	$684,729	$3,980,319	$806,910	$0	$419,150	$54,175	$203,346	$369,832	$4,219,912	$17,632,108	$13,412,196	24%
2018	15	41	657,549	4,219,912	845,428	3,757	416,087	54,419	214,635	206,944	4,262,812	17,946,954	13,684,142	24%
2019	14	41	639,934	4,262,812	864,866	3,794	445,213	53,325	222,060	209,484	4,324,234	18,250,416	13,926,182	24%
2020	12	42	615,504	4,324,234	912,014	3,833	476,378	51,727	213,369	211,906	4,361,766	18,509,664	14,147,898	24%
2021	12	42	591,583	4,361,766	960,696	3,874	509,724	50,169	210,611	213,296	4,380,995	18,721,139	14,340,144	23%
2022	11	41	582,351	4,380,995	981,831	3,915	545,405	49,656	209,684	214,580	4,414,574	18,917,443	14,502,869	23%
2023	10	41	579,285	4,414,574	998,586	3,956	583,583	49,598	209,600	216,784	4,471,597	19,105,223	14,633,626	23%
2024	10	41	581,160	4,471,597	1,012,061	3,997	624,434	49,915	210,184	220,332	4,560,404	19,289,634	14,729,230	24%
2025	10	40	588,310	4,560,404	1,021,971	4,038	668,144	50,641	211,300	225,652	4,690,131	19,476,452	14,786,321	24%
2026	9	40	599,045	4,690,131	1,030,245	4,079	714,914	51,647	212,822	233,150	4,868,340	19,669,060	14,800,720	25%
2027	9	39	610,600	4,868,340	1,035,866	4,119	764,958	52,730	214,637	243,227	5,103,908	19,870,831	14,766,923	26%
2028	9	39	624,807	5,103,908	1,041,401	4,159	818,505	54,021	216,535	256,270	5,403,679	20,083,578	14,679,899	27%
2029	8	38	642,264	5,403,679	1,042,622	4,197	875,800	55,550	218,762	272,735	5,779,707	20,313,607	14,533,900	28%
2030	8	38	649,130	5,779,707	1,050,087	4,235	937,106	56,343	220,738	292,934	6,232,505	20,549,833	14,317,328	30%
2031	8	37	652,124	6,232,505	1,058,709	4,272	1,002,703	56,870	221,219	317,004	6,767,319	20,789,239	14,021,920	33%
2032	7	37	663,686	6,767,319	1,062,369	4,308	1,072,892	58,001	222,726	345,452	7,399,713	21,041,582	13,641,869	35%
2033	6	37	651,972	7,399,713	1,079,362	4,341	1,147,994	57,225	224,559	378,532	8,124,320	21,282,469	13,158,149	38%
2034	6	36	623,243	8,124,320	1,106,168	4,373	1,228,354	54,945	224,148	416,018	8,937,244	21,492,718	12,555,474	42%
2035	5	36	607,993	8,937,244	1,121,045	4,403	1,314,339	53,676	224,671	458,401	9,862,883	21,689,379	11,826,496	45%
2036	5	36	574,476	9,862,883	1,150,962	4,430	1,406,343	51,050	225,825	506,179	10,896,888	21,849,267	10,952,379	50%
2037	4	35	518,854	10,896,888	1,189,882	4,454	1,504,787	46,471	225,783	559,234	12,038,827	21,951,305	9,912,478	55%
2038	3	36	439,567	12,038,827	1,247,680	4,476	1,610,122	39,615	225,600	617,331	13,279,339	21,963,432	8,684,093	60%
2039	2	35	346,749	13,279,339	1,314,987	4,494	1,722,831	31,510	224,752	680,256	14,619,207	21,866,648	7,247,441	67%
2040	2	35	268,370	14,619,207	1,364,041	4,506	1,843,429	24,477	224,482	748,835	16,091,883	21,679,888	5,588,005	74%
2041	1	35	193,174	16,091,883	1,408,739	4,514	1,972,469	17,629	224,298	824,378	17,717,404	21,404,793	3,687,389	83%
2042	1	34	134,580	17,717,404	1,439,275	4,517	2,110,542	12,271	224,601	908,185	19,529,211	21,059,090	1,529,879	93%
2043	0	33	95,041	19,529,211	1,452,609	4,516	1,378,628	8,684	225,306	980,300	20,665,005	20,665,005	0	100%
2044	0	33	66,018	20,665,005	1,456,990	4,511	26,407	6,048	0	997,960	20,233,919	20,233,919	0	100%
2045	0	32	45,618	20,233,919	1,453,961	4,501	19,575	4,183	0	976,266	19,775,481	19,775,481	0	100%
2046	0	31	30,281	19,775,481	1,446,159	4,488	14,438	2,791	0	953,376	19,295,439	19,295,439	0	100%
2047	0	30	19,644	19,295,439	1,434,051	4,472	10,920	1,825	0	929,562	18,799,223	18,799,223	0	100%
2048	0	29	11,396	18,799,223	1,419,401	4,452	8,167	1,066	0	905,027	18,289,629	18,289,629	0	100%
2049	0	28	5,733	18,289,629	1,402,154	4,430	6,308	545	0	879,915	17,769,812	17,769,812	0	100%
2050	0	27	2,744	17,769,812	1,382,368	4,406	5,293	261	0	854,381	17,242,973	17,242,973	0	100%
2051	0	26	766	17,242,973	1,361,262	4,379	4,619	73	0	828,540	16,710,564	16,710,564	0	100%
2052	0	25	0	16,710,564	1,338,674	4,350	4,349	0	0	802,470	16,174,359	16,174,359	0	100%
2053	0	24	0	16,174,359	1,314,865	4,317	4,318	0	0	776,247	15,635,742	15,635,742	0	100%
2054	0	24	0	15,635,742	1,290,296	4,282	4,283	0	0	749,923	15,095,370	15,095,370	0	100%
2055	0	23	0	15,095,370	1,264,884	4,243	4,243	0	0	723,532	14,554,018	14,554,018	0	100%
2056	0	22	0	14,554,018	1,238,546	4,199	4,199	0	0	697,115	14,012,587	14,012,587	0	100%
2057	0	21	0	14,012,587	1,211,223	4,151	4,151	0	0	670,718	13,472,082	13,472,082	0	100%

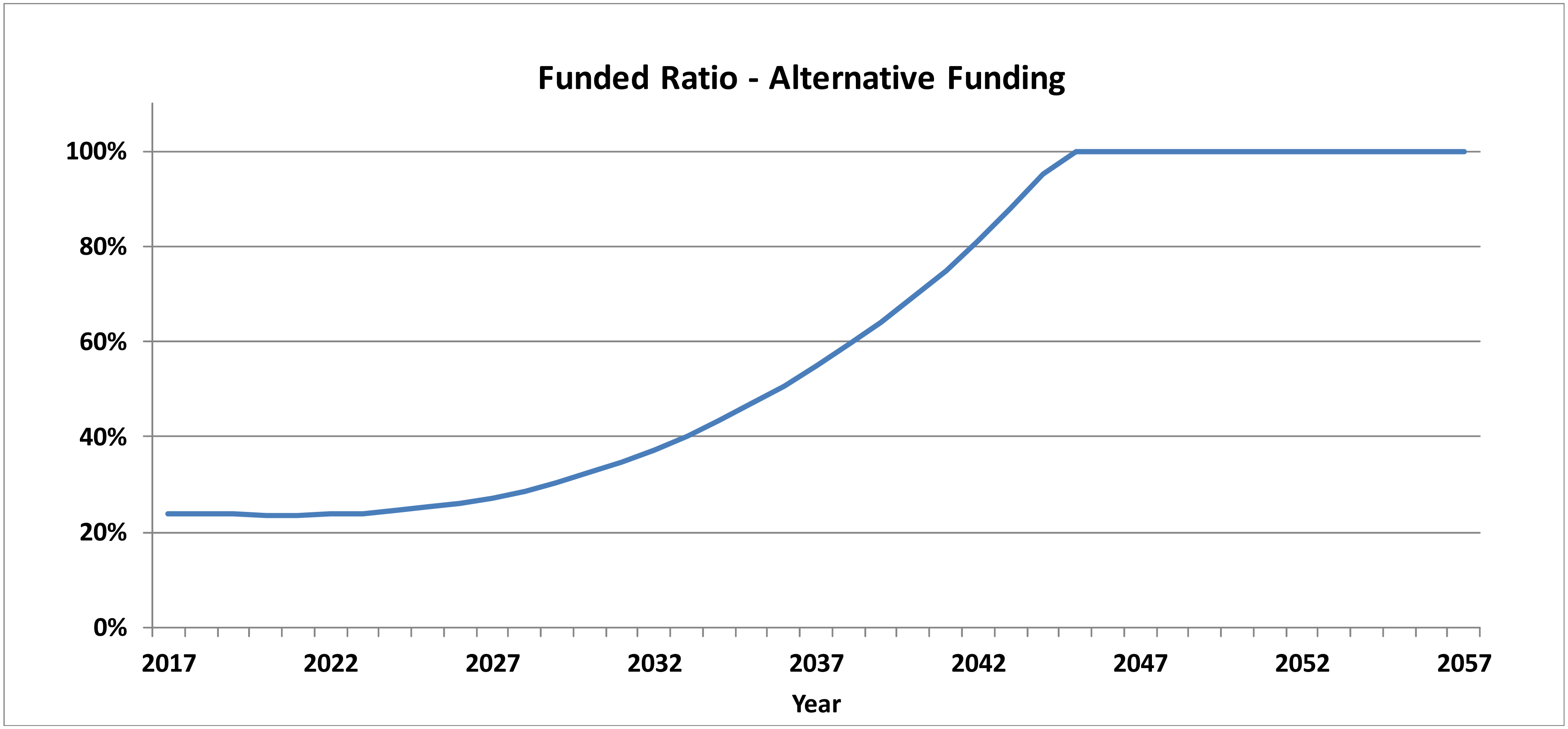
Alternative Funding on an Open Group Basis, Table 2

Valuation	Number			Total Assets								Actuarial		
Plan Year End 30-Jun	Active	Pay Status	Total Payroll	Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Accrued Liability	Unfunded Liability	Funded Ratio
2017	16	41	$684,729	$3,980,319	$806,910	$0	$419,150	$54,175	$203,346	$369,832	$4,219,912	$17,632,108	$13,412,196	24%
2018	16	41	657,549	4,219,912	845,428	3,757	416,087	54,419	214,635	206,944	4,262,812	17,946,954	13,684,142	24%
2019	16	41	679,746	4,262,812	864,866	3,883	445,213	57,351	222,060	209,582	4,328,269	18,267,867	13,939,598	24%
2020	16	42	694,283	4,328,269	912,187	3,997	476,378	59,443	231,440	212,736	4,392,081	18,562,294	14,170,213	24%
2021	16	42	719,753	4,392,081	961,332	4,131	509,724	62,613	238,418	215,783	4,453,156	18,831,945	14,378,789	24%
2022	16	42	751,479	4,453,156	983,210	4,240	545,405	65,928	244,406	219,405	4,540,849	19,106,716	14,565,867	24%
2023	16	41	786,009	4,540,849	1,000,884	4,341	583,583	69,426	250,111	224,521	4,663,266	19,392,720	14,729,454	24%
2024	16	41	824,031	4,663,266	1,015,387	4,436	624,434	73,203	255,828	231,524	4,828,433	19,695,433	14,867,000	25%
2025	16	40	865,473	4,828,433	1,026,371	4,526	668,144	77,230	261,327	240,824	5,045,062	20,020,766	14,975,704	25%
2026	16	40	909,237	5,045,062	1,035,799	4,611	714,914	81,435	266,661	252,811	5,320,473	20,372,517	15,052,044	26%
2027	16	39	953,923	5,320,473	1,042,624	4,693	764,958	85,734	272,051	267,886	5,663,785	20,755,073	15,091,288	27%
2028	16	39	1,003,067	5,663,785	1,049,448	4,778	818,505	90,419	277,747	286,460	6,082,690	21,172,036	15,089,346	29%
2029	16	38	1,054,488	6,082,690	1,052,073	4,856	875,800	95,237	283,304	309,009	6,589,111	21,630,379	15,041,268	30%
2030	16	38	1,096,683	6,589,111	1,061,052	4,936	937,106	99,471	288,748	335,860	7,184,307	22,120,736	14,936,429	32%
2031	16	37	1,151,734	7,184,307	1,071,286	5,046	1,002,703	105,137	295,572	367,293	7,878,680	22,648,688	14,770,008	35%
2032	16	37	1,209,435	7,878,680	1,076,682	5,136	1,072,892	110,714	301,701	403,898	8,686,067	23,222,972	14,536,905	37%
2033	16	37	1,244,193	8,686,067	1,095,588	5,223	1,147,994	114,454	308,009	445,901	9,601,614	23,820,894	14,219,280	40%
2034	16	36	1,291,701	9,601,614	1,124,435	5,364	1,228,354	119,714	316,668	493,291	10,629,843	24,437,926	13,808,083	43%
2035	16	36	1,349,837	10,629,843	1,141,651	5,486	1,314,339	125,515	325,148	546,751	11,794,459	25,091,978	13,297,519	47%
2036	16	36	1,385,788	11,794,459	1,174,338	5,594	1,406,343	129,579	333,044	606,738	13,090,231	25,760,301	12,670,070	51%
2037	16	36	1,422,060	13,090,231	1,216,411	5,738	1,504,787	133,853	342,585	673,257	14,522,565	26,434,113	11,911,548	55%
2038	16	36	1,437,592	14,522,565	1,277,588	5,879	1,610,122	135,835	352,461	746,253	16,083,770	27,085,409	11,001,639	59%
2039	16	36	1,468,129	16,083,770	1,348,629	6,068	1,722,831	139,240	364,650	825,723	17,781,517	27,708,280	9,926,763	64%
2040	16	36	1,500,439	17,781,517	1,404,075	6,228	1,843,429	142,298	375,656	912,562	19,645,160	28,315,966	8,670,806	69%
2041	16	36	1,535,060	19,645,160	1,458,921	6,386	1,972,469	145,629	386,687	1,007,928	21,692,567	28,909,161	7,216,594	75%
2042	16	35	1,585,016	21,692,567	1,503,548	6,540	2,110,542	150,428	397,603	1,112,991	23,954,043	29,505,236	5,551,193	81%
2043	16	35	1,643,400	23,954,043	1,534,219	6,671	2,258,280	155,892	407,340	1,229,327	26,463,992	30,122,559	3,658,567	88%
2044	16	34	1,707,965	26,463,992	1,558,618	6,794	2,416,360	161,842	416,831	1,358,504	29,252,117	30,770,598	1,518,481	95%
2045	16	34	1,776,157	29,252,117	1,578,977	6,911	1,715,118	168,080	425,812	1,480,463	31,455,702	31,455,702	0	100%
2046	16	33	1,847,011	31,455,702	1,598,943	7,026	604,563	174,458	0	1,552,364	32,181,117	32,181,117	0	100%
2047	16	33	1,919,943	32,181,117	1,619,291	7,142	623,890	181,184	0	1,588,772	32,948,530	32,948,530	0	100%
2048	16	32	1,995,564	32,948,530	1,642,920	7,260	645,847	188,293	0	1,627,274	33,759,764	33,759,764	0	100%
2049	16	32	2,075,447	33,759,764	1,668,112	7,381	670,771	195,865	0	1,668,014	34,618,920	34,618,920	0	100%
2050	16	31	2,159,090	34,618,920	1,693,627	7,502	697,924	203,860	0	1,711,206	35,530,780	35,530,780	0	100%
2051	16	31	2,246,658	35,530,780	1,719,752	7,626	726,778	212,260	0	1,757,071	36,499,511	36,499,511	0	100%
2052	16	30	2,338,961	36,499,511	1,745,949	7,752	757,496	221,112	0	1,805,835	37,530,253	37,530,253	0	100%
2053	16	30	2,435,293	37,530,253	1,772,244	7,880	790,148	230,258	0	1,857,751	38,628,287	38,628,287	0	100%
2054	16	29	2,534,943	38,628,287	1,798,496	8,011	822,310	239,645	0	1,913,028	39,796,762	39,796,762	0	100%
2055	16	29	2,638,262	39,796,762	1,826,164	8,148	854,974	249,338	0	1,971,811	41,038,573	41,038,573	0	100%
2056	16	28	2,745,115	41,038,573	1,855,756	8,288	888,778	259,303	0	2,034,248	42,356,857	42,356,857	0	100%
2057	16	28	2,855,286	42,356,857	1,887,138	8,434	922,878	269,383	0	2,100,474	43,754,019	43,754,020	0	100%

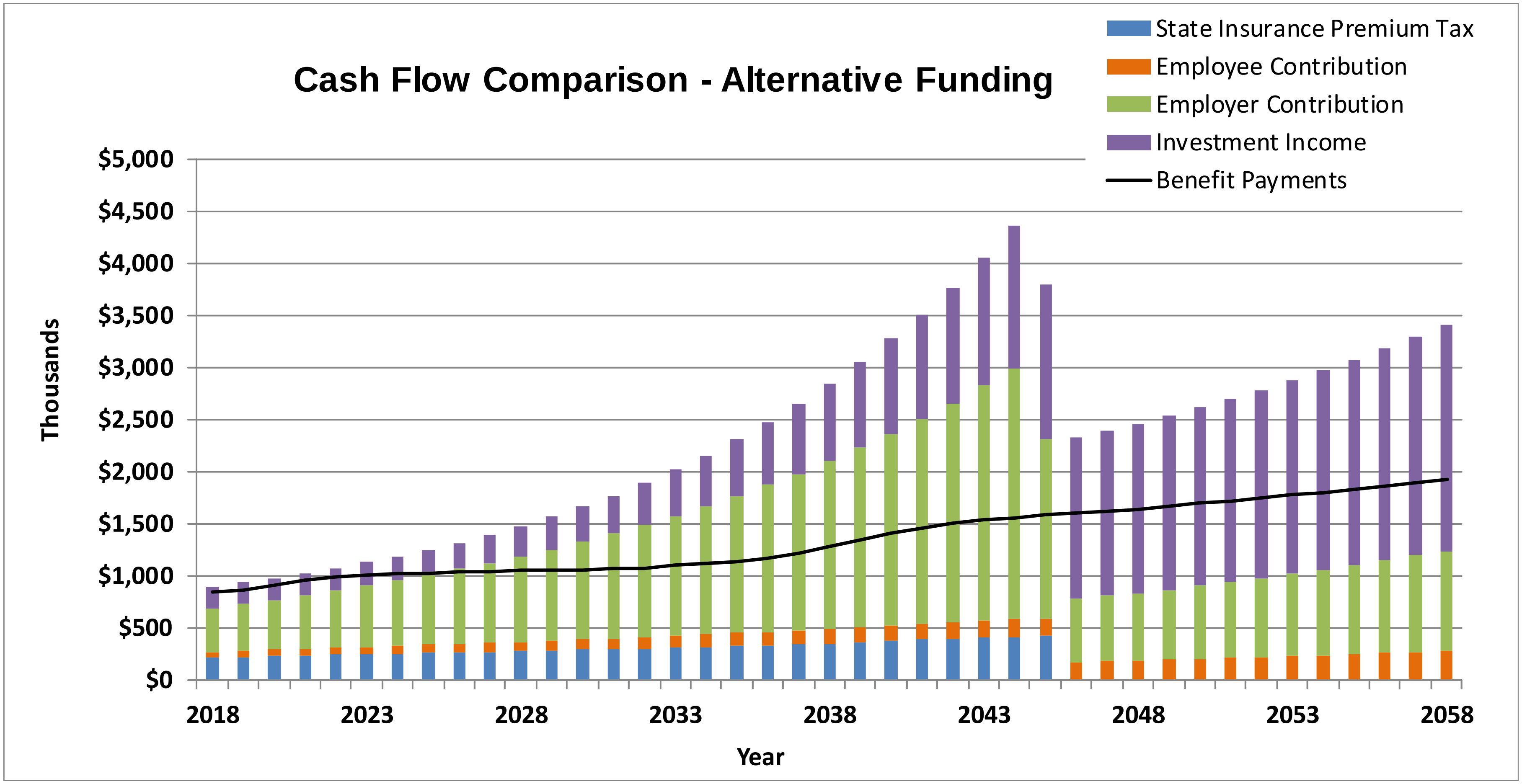
Open Group Actuarial Projections – Alternative Funding, Graph 2



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 in excess of 1.5% of pay, a portion of the premium tax allocation not assigned to the accumulation account as defined below, and employer contributions.

- The second account (Accumulation Account) cannot be used to pay benefits and expenses until assets exceed actuarial 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.

Given that the funded ratio as of June 30, 2017 is only 23.9% and that the ratio of assets to expected benefits for the year is only 4.99, we strongly recommend that the sponsor make additional contributions in excess of the statutory minimum under both the Alternative and Conservation funding policies.

Scenario I – Sponsor Immediately Elects either the Optional or Conservation Funding Policy

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	$445,213	65.5%	NA	NA
Optional	$842,463	131.6%	$4,180	10.5%
Conservation	$602,874	94.2%	$4,180	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 $416,087 in fiscal year end 2018 to $2,416,360 in fiscal year end 2044. In fiscal year end 2045, 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 $445,213 to $842,463. However, over the 40-year projection period, total employer contributions to both the local plan and the statewide plan are projected to decrease from $846,643 in fiscal year end 2019 to $575,824 in fiscal year end 2049, and the Plan is projected to be fully funded in 2050.

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 increase from $445,213 to $602,874. During the 35-year projection period, total employer contributions to both the local plan and the statewide plan are projected to increase from $607,054 in fiscal year end 2019 to $1,192,776 in fiscal year end 2047 and the Plan is projected to be fully funded in 2048.

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 slower 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 lower funded ratio until 2040 when compared to the Optional funding policy and a lower funded ratio until 2035 when compared to the Conservation funding policy. However, the 7% annual increases in employer contributions under the Alternative funding policy 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

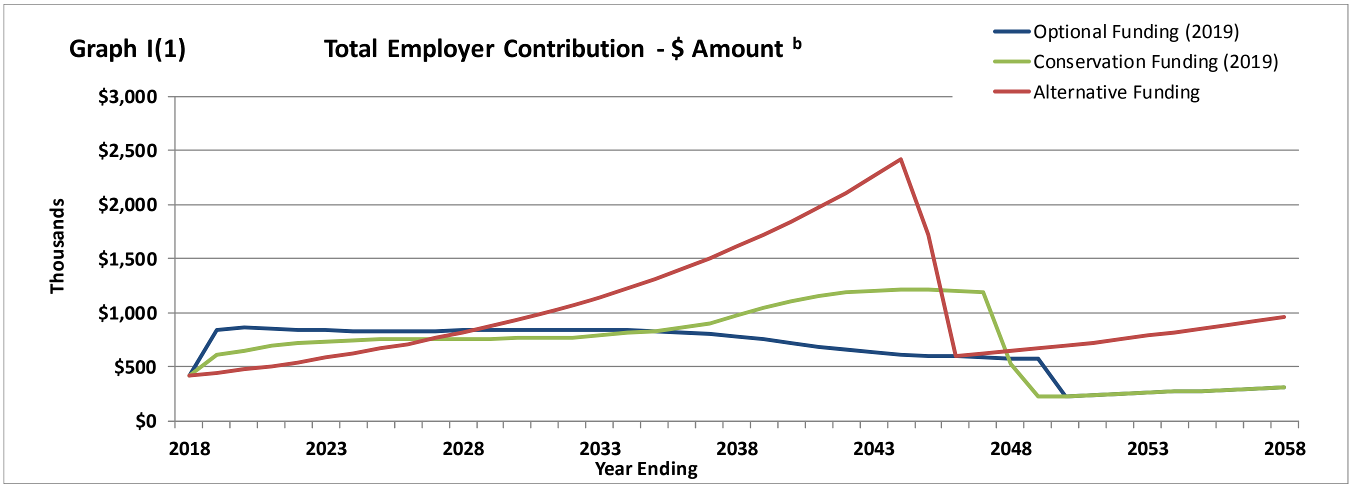
Under Scenario II, the plan sponsor is assumed to make contributions under the Alternative funding policy in future years, until the first year that either the Optional or Conservation policy produces a lower contribution. Under this assumption, in plan year end 2037, the employer contributions under the Optional funding policy of $1,418,320 are projected to be lower than contributions under the Alternative funding policy of $1,504,787. Similarly, in plan year end 2026, the employer contributions under the Conservation funding policy of $708,498 are projected to be lower than contributions under the Alternative funding policy of $714,914.

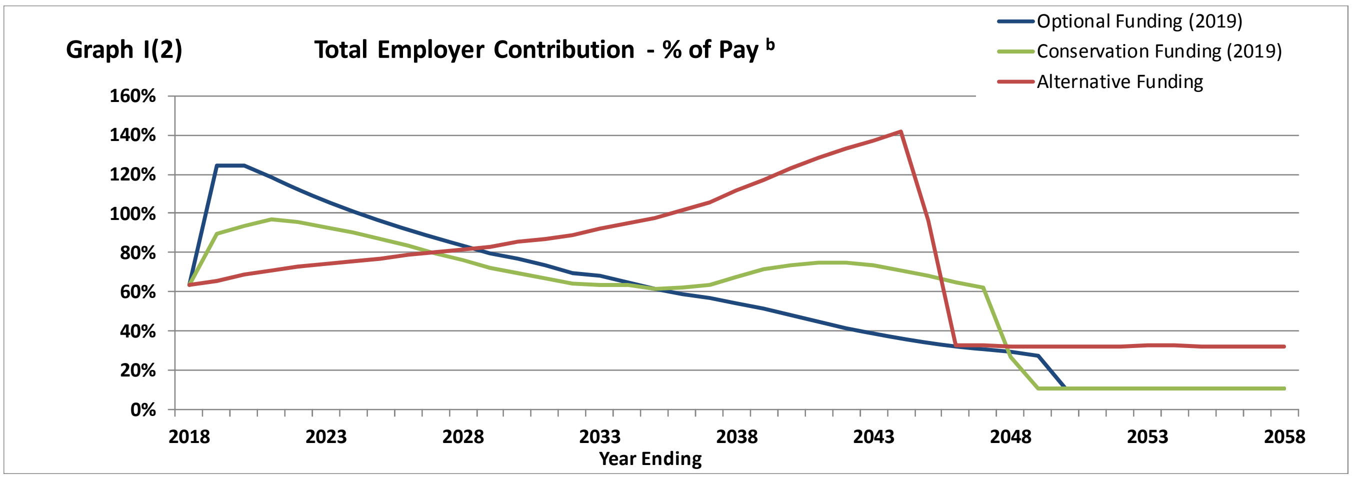
Graphs II(1), II(2), and III(3) show the projected contribution pattern and funded ratio. Based on these projections, electing the Optional funding policy in 2037 appears to produce a relatively stable and actuarially sound contribution pattern as compared to either the Alternative funding policy or the Conservation funding policy. The Conservation funding policy has lower projected employer contributions than the Alternative funding policy beginning in 2026. After 2026, 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.

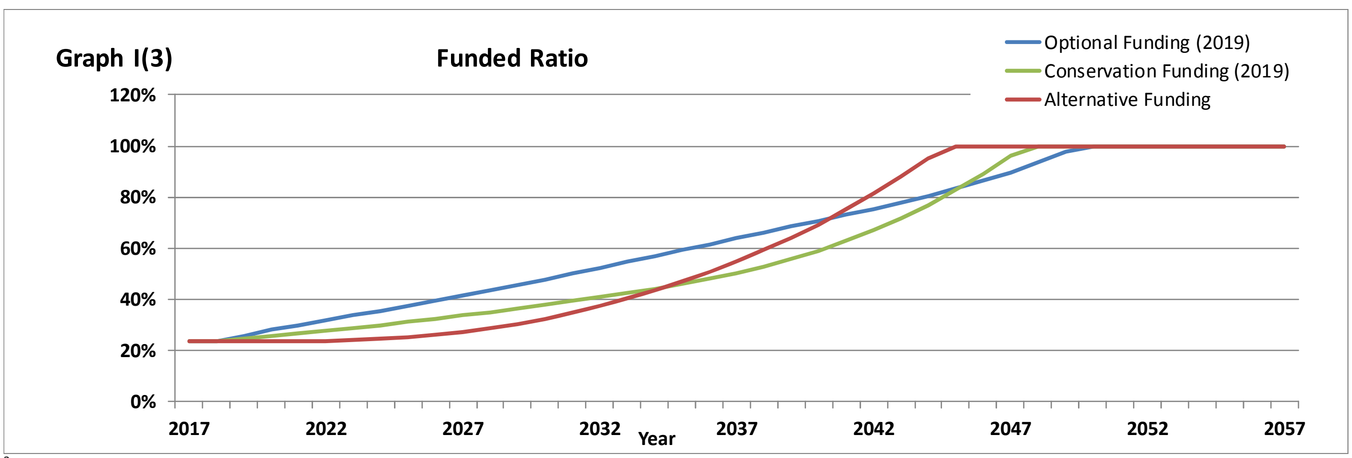
The details of the Scenario II projections can be found in the Appendix.

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

Scenario I



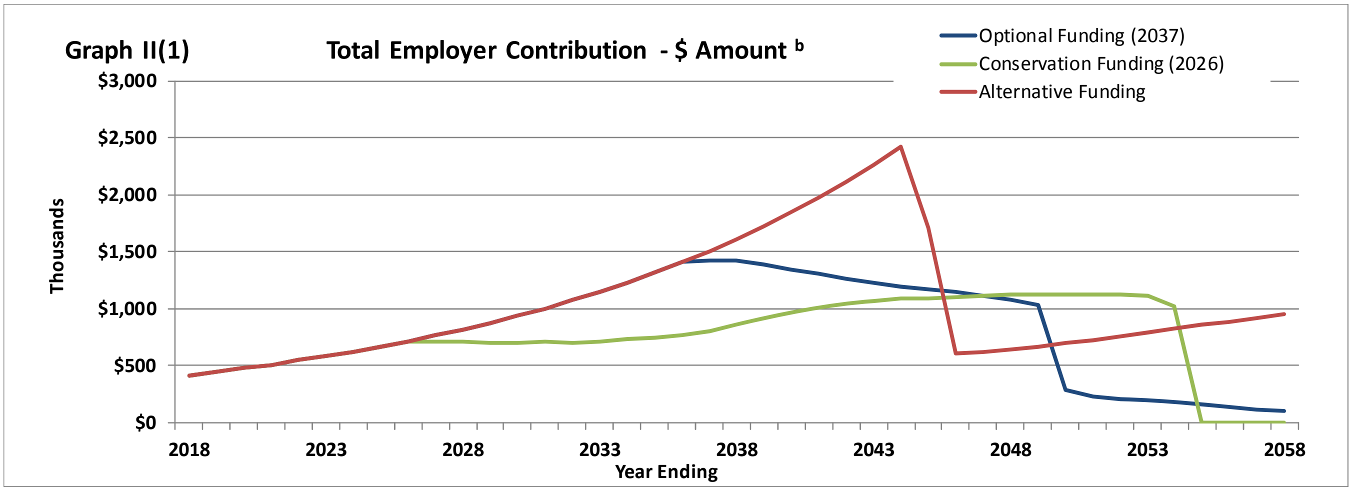


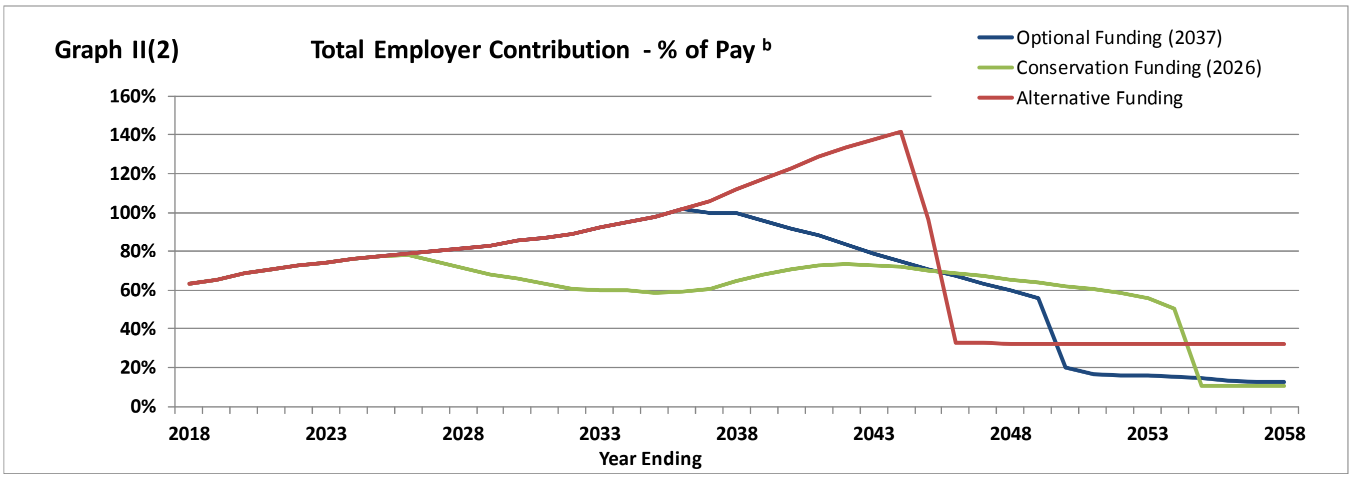


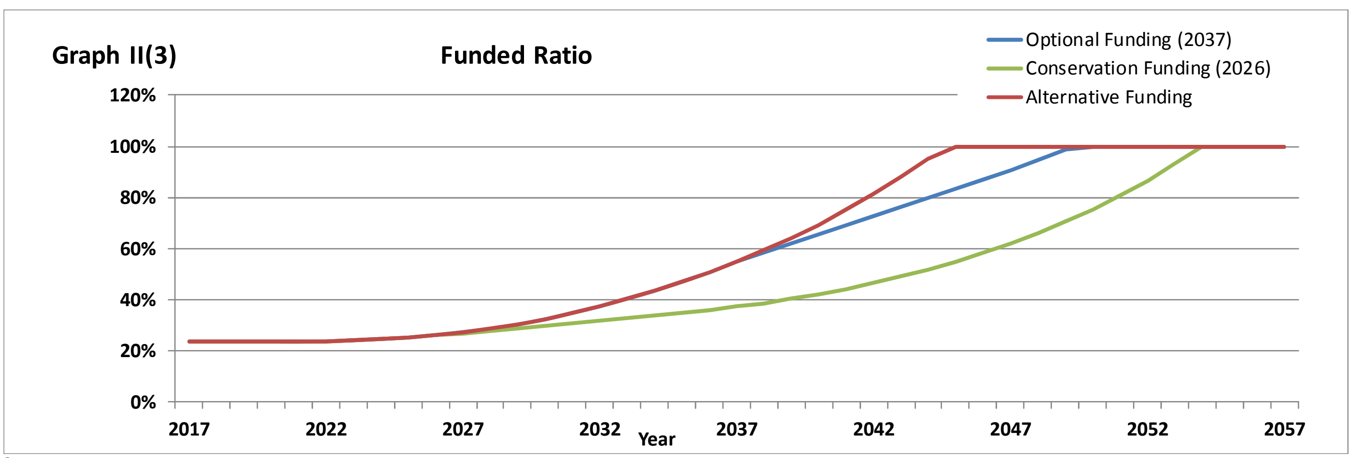
[a] *Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in fiscal year end June 30, 2019, and makes the newly elected contribution in fiscal year end June 30, 2019.*
[b] *Based on total pay and includes contributions for future members projected to participate in 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	4.50%	5.00%
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	$3,980,319	$4,219,912
2. Actuarial Accrued Liability	$18,905,134	$17,632,108
3. Unfunded Actuarial Accrued Liability (2 - 1)	$14,924,815	$13,412,196
4. Funded Ratio (1/2)	21%	24%
5. Expected Payroll	$684,729	$657,549
6. UAAL as Percentage of Covered Payroll (3/5)	2,180%	2,040%
Schedule of Employer Contributions [c]	**FYE 2017**	**FYE 2018**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$290,756	$241,516
(b) Amortization of Unfunded Actuarial Accrued Liability	$674,733	$663,156
(c) Actuarially Determined Contribution (ADC) (a + b)	$965,489	$904,672
2. Employer Contribution [b]	$419,150	$416,087
3. Premium Tax Allocation	$203,346	$214,635
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	64%	70%

[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 does not 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	$4,080,587	$3,980,319
Adjustment to Market Value of Assets at Beginning of Year	$0	$0
Market Value of Assets Beginning of Year	$4,080,587	$3,980,319
1. Revenue During Fiscal Year		
(a) Employee Contribution	$54,875	$54,175
(b) Governmental Contribution		
(i) From Local Government	$333,140	$419,150
(ii) From State Government	$235,509	$203,346
(iii) Reallocation from State Government	$0	$0
(iv) Total	$568,649	$622,496
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	($23,123)	$203,519
(ii) Bond Interest	$97,571	$52,935
(iii) Dividends	$47,322	$50,618
(iv) Net Realized Gain (Loss) on Sale/Exchange	($33,013)	$25,808
(v) Other	$0	$36,116
(vi) Less Investment Expense	$0	$0
(vii) Total	$88,757	$368,996
(d) Other Revenue	$1,342	$836
(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))	$713,623	$1,046,503
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$785,233	$806,910
(b) Withdrawals	$28,508	$0
(c) Administrative Expenses	$150	$0
(d) Payable Benefits and Withdrawals	$0	$0
(e) Payable Administrative Expenses	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$813,891	$806,910
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	$3,980,319	$4,219,912
C. Approximate Return on Assets	2.26%	9.45%

[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	$517,482	13%	$214,642	5%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$452,259		$448,191	
(b) US State and Local Governmental Debt Securities	$24,809		$104,880	
(c) Foreign Governmental Debt Securities	$0		$46,613	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$477,068	12%	$599,684	14%
3. Corporate Fixed Income				
(a) US Bonds	$1,317,150		$1,359,981	
(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))	$1,317,150	33%	$1,359,981	33%
4. Corporate Equity				
(a) US Equity	$28,590		$97,817	
(b) US Mutual Fund Shares (Equity)	$1,463,858		$1,947,788	
(c) US Exchange Traded Funds (Equity)	$0		$0	
(d) International Equity	$176,171		$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))	$1,668,619	42%	$2,045,605	48%
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)]	**$3,980,319**		**$4,219,912**	

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:	**16**	**25**	**7**	**2**	**7**	**57**
New Actives:	2					**2**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:	(1)					**(1)**
Vested Terminations:						**0**
Non-Vested Terminations:	(1)					**(1)**
Disabled:						**0**
Retirements:		1		(1)		**0**
Deaths with Beneficiary:		(2)			2	**0**
Deaths w/o Beneficiary:						**0**
Expired Annuity or Stop Payment:						**0**
Net Changes:	0	(1)	0	(1)	2	**0**
Total Participants June 30, 2017:	**16**	**24**	**7**	**1**	**9**	**57**

Actuarial Valuation Data as of July 1, 2017

Schedule G: Distribution of Active Employees by Age and Length of Service

Attained Age	Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Valuation Payroll[a]
				Years of Service to Valuation Date							
Under 20											$ 0
20-24											$ 0
25-29	1	3	1	1						6	$ 235,536
30-34	1	2	2	1						6	$ 229,334
35-39			1							1	$ 33,607
40-44											$ 0
45-49						1				1	$ 56,300
50-54							2			2	$ 112,639
55-59											$ 0
60-64											$ 0
65-69											$ 0
Over 70											$ 0
Totals	**2**	**5**	**4**	**2**	**0**	**1**	**2**	**0**	**0**	**16**	**$ 667,415**

Averages

Age:	34.7	years
Service:	8.9	years
Annual Pay:	$41,713	[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	16	16
Total Annual Pay	$699,595	$667,415
Average Age	34.2	34.7
Average Service	8.3	8.9

Inactive Participants	July 1, 2016		July 1, 2017[a]	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	25	$596,824	24	$592,609
Survivors	7	$84,229	9	$104,804
Disabled Members	7	$117,712	7	$118,898
Deferred Vested Members	2	$51,373	1	$28,815

[a]Data provided includes 1 non-vested member with an accumulated contributions balance of $10,499.

SECTION VI

ACTUARIAL ASSUMPTIONS AND METHODS

Discount Rate

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

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

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

As of June 30, 2017	
Assets	$4,219,912
Liabilities using a 5.50% discount rate	$16,470,903
Funded Ratio	26%
Expected Benefit Payments	$845,428
Liquidity Ratio	4.99
Equity Exposure	48%
Projected Funded Ratio after 15 years	43%

Discount Rate	5.00%

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

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 Firemen's Pension and Relief Fund reported 16 eligible active members and 40 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 $222,060 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.

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

General Inflation	2.75%
Expected Salary Increase Service-based Increase:	General Inflation: 2.75% *plus* Wage Inflation Increment: 1.00% *plus* 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)

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

Asset Method	Market Value
Turnover	Sample Rates – Age / Rates 25 / 9% 35 / 4% 45 / 2% 50 / 0%
Retirement	Age / Rates[a] 50 / 45% 51-55 / 30% 56-59 / 35% 60 / 100% [a]*Terminated vested participants are assumed to retire at age 50.*
Mortality	Active: RP-2014 Blue Collar Healthy Employee[b] Post-Retirement: RP-2014 Blue Collar Healthy Annuitant Disabled: RP-2014 Blue Collar Healthy Annuitant set forward four years Tables above incorporate generational mortality improvement using MP-2014 2-dimensional mortality improvement scales [b]*Assumes 10% of deaths are duty-related and 90% are non-duty related.*
Disability	Sample Rates – Age / Rates[c] 30 / 0.22% 40 / 0.50% 50 / 0.79% [c] *Assumes 60% duty related and 40% non-duty related. 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	The sponsor did not appear to provide separate investment and 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	One member marked active as of July 1, 2016 was corrected to be terminated non-vested as of July 1, 2016.
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 not 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 Fire Department are eligible to participate in the Firemen's Pension and Relief Fund.

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

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

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

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

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

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

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

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

Contributions — Participating employees contribute 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.

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

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

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

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

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

The benefit is equal to 60% of the participant's benefit, but not less than $300 per month, payable to the spouse until death or remarriage. Other dependents (children, parents, brothers and sisters) are also eligible for death benefits. To each dependent child, 20 percent of the participant's benefit until the child attains 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)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	16	41	$3,980,319	$806,910	$0	$419,150	$54,175	$203,346	$369,832	$4,219,912	$17,632,108	$13,412,196	24%
2018	15	41	4,219,912	845,428	3,757	416,087	54,419	214,635	206,944	4,262,812	17,946,954	13,684,142	24%
2019	14	41	4,262,812	864,866	3,794	842,463	53,325	222,060	219,294	4,731,294	18,250,416	13,519,122	26%
2020	12	42	4,731,294	912,014	3,833	854,851	51,727	231,440	242,051	5,195,515	18,509,664	13,314,149	28%
2021	12	42	5,195,515	960,696	3,874	840,295	50,169	238,418	263,833	5,623,660	18,721,139	13,097,479	30%
2022	11	41	5,623,660	981,831	3,915	824,744	49,656	244,406	284,469	6,041,189	18,917,443	12,876,254	32%
2023	10	41	6,041,189	998,586	3,956	815,034	49,598	250,111	304,831	6,458,221	19,105,223	12,647,002	34%
2024	10	41	6,458,221	1,012,061	3,997	807,955	49,915	255,828	325,322	6,881,183	19,289,634	12,408,451	36%
2025	10	40	6,881,183	1,021,971	4,038	803,074	50,641	261,327	346,258	7,316,474	19,476,452	12,159,978	38%
2026	9	40	7,316,474	1,030,245	4,079	800,381	51,647	266,661	367,907	7,768,745	19,669,060	11,900,315	39%
2027	9	39	7,768,745	1,035,866	4,119	799,035	52,730	272,051	390,507	8,243,084	19,870,831	11,627,747	41%
2028	9	39	8,243,084	1,041,401	4,159	797,777	54,021	277,747	414,229	8,741,298	20,083,578	11,342,280	44%
2029	8	38	8,741,298	1,042,622	4,197	797,648	55,550	283,304	439,280	9,270,261	20,313,607	11,043,346	46%
2030	8	38	9,270,261	1,050,087	4,235	798,881	56,343	288,748	465,727	9,825,637	20,549,833	10,724,196	48%
2031	8	37	9,825,637	1,058,709	4,272	794,091	56,870	295,572	493,346	10,402,534	20,789,239	10,386,705	50%
2032	7	37	10,402,534	1,062,369	4,308	787,850	58,001	301,701	522,124	11,005,534	21,041,582	10,036,048	52%
2033	6	37	11,005,534	1,079,362	4,341	785,036	57,225	308,009	551,921	11,624,021	21,282,469	9,658,448	55%
2034	6	36	11,624,021	1,106,168	4,373	771,012	54,945	316,668	581,993	12,238,099	21,492,718	9,254,619	57%
2035	5	36	12,238,099	1,121,045	4,403	749,476	53,676	325,148	611,975	12,852,927	21,689,379	8,836,452	59%
2036	5	36	12,852,927	1,150,962	4,430	733,022	51,050	333,044	641,701	13,456,352	21,849,267	8,392,915	62%
2037	4	35	13,456,352	1,189,882	4,454	709,745	46,471	342,585	670,458	14,031,275	21,951,305	7,920,030	64%
2038	3	36	14,031,275	1,247,680	4,476	677,676	39,615	352,461	697,060	14,545,931	21,963,432	7,417,501	66%
2039	2	35	14,545,931	1,314,987	4,494	635,029	31,510	364,650	720,178	14,977,817	21,866,648	6,888,831	68%
2040	2	35	14,977,817	1,364,041	4,506	589,025	24,477	375,656	739,522	15,337,950	21,679,888	6,341,938	71%
2041	1	35	15,337,950	1,408,739	4,514	546,647	17,629	386,687	755,482	15,631,142	21,404,793	5,773,651	73%
2042	1	34	15,631,142	1,439,275	4,517	505,960	12,271	397,603	768,519	15,871,704	21,059,090	5,187,386	75%
2043	0	33	15,871,704	1,452,609	4,516	472,256	8,684	407,340	779,537	16,082,396	20,665,005	4,582,609	78%
2044	0	33	16,082,396	1,456,990	4,511	445,420	6,048	416,831	789,471	16,278,665	20,233,919	3,955,254	80%
2045	0	32	16,278,665	1,453,961	4,501	423,393	4,183	425,812	798,991	16,472,582	19,775,481	3,302,899	83%
2046	0	31	16,472,582	1,446,159	4,488	404,825	2,791	434,766	808,608	16,672,925	19,295,439	2,622,514	86%
2047	0	30	16,672,925	1,434,051	4,472	388,267	1,825	443,748	818,713	16,886,955	18,799,223	1,912,268	90%
2048	0	29	16,886,955	1,419,401	4,452	373,141	1,066	452,939	829,612	17,119,860	18,289,629	1,169,769	94%
2049	0	28	17,119,860	1,402,154	4,430	358,504	545	462,250	841,539	17,376,113	17,769,812	393,699	98%
2050	0	27	17,376,113	1,382,368	4,406	6,309	261	402,406	844,659	17,242,973	17,242,973	0	100%
2051	0	26	17,242,973	1,361,262	4,379	4,619	73	0	828,540	16,710,564	16,710,564	0	100%
2052	0	25	16,710,564	1,338,674	4,350	4,349	0	0	802,470	16,174,359	16,174,359	0	100%
2053	0	24	16,174,359	1,314,865	4,317	4,318	0	0	776,247	15,635,741	15,635,742	0	100%
2054	0	24	15,635,741	1,290,296	4,282	4,283	0	0	749,923	15,095,370	15,095,370	0	100%
2055	0	23	15,095,370	1,264,884	4,243	4,243	0	0	723,532	14,554,018	14,554,018	0	100%
2056	0	22	14,554,018	1,238,546	4,199	4,199	0	0	697,115	14,012,587	14,012,587	0	100%
2057	0	21	14,012,587	1,211,223	4,151	4,151	0	0	670,718	13,472,081	13,472,082	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	$657,549	$0	$657,549	$54,419	$292,178	$237,759	$823,007	$222,060	$600,947	$3,757	$842,463	$0
2019	639,934	39,812	679,746	53,325	285,173	231,848	850,649	231,440	619,209	3,794	854,851	4,180
2020	615,504	78,779	694,283	51,727	274,545	222,818	852,062	238,418	613,644	3,833	840,295	8,272
2021	591,583	128,170	719,753	50,169	263,883	213,714	851,562	244,406	607,156	3,874	824,744	13,458
2022	582,351	169,127	751,479	49,656	259,960	210,304	850,926	250,111	600,815	3,915	815,034	17,758
2023	579,285	206,725	786,009	49,598	258,775	209,177	850,651	255,828	594,823	3,956	807,955	21,706
2024	581,160	242,871	824,031	49,915	259,762	209,847	850,557	261,327	589,230	3,997	803,074	25,502
2025	588,310	277,163	865,473	50,641	263,042	212,401	850,602	266,661	583,941	4,038	800,381	29,102
2026	599,045	310,192	909,237	51,647	267,862	216,215	850,792	272,051	578,741	4,079	799,035	32,570
2027	610,600	343,323	953,923	52,730	273,048	220,318	851,088	277,747	573,341	4,119	797,777	36,049
2028	624,807	378,260	1,003,067	54,021	279,395	225,374	851,419	283,304	568,115	4,159	797,648	39,717
2029	642,264	412,224	1,054,488	55,550	287,143	231,593	851,839	288,748	563,091	4,197	798,881	43,284
2030	649,130	447,553	1,096,683	56,343	289,404	233,061	852,366	295,572	556,794	4,235	794,091	46,993
2031	652,124	499,610	1,151,734	56,870	289,616	232,746	852,533	301,701	550,832	4,272	787,850	52,459
2032	663,686	545,749	1,209,435	58,001	294,215	236,214	852,523	308,009	544,514	4,308	785,036	57,304
2033	651,972	592,221	1,244,193	57,225	287,736	230,511	852,828	316,668	536,160	4,341	771,012	62,183
2034	623,243	668,459	1,291,701	54,945	272,856	217,911	852,341	325,148	527,193	4,373	749,476	70,188
2035	607,993	741,844	1,349,837	53,676	264,227	210,551	851,112	333,044	518,068	4,403	733,022	77,894
2036	574,476	811,312	1,385,788	51,050	248,682	197,632	850,269	342,585	507,684	4,430	709,745	85,188
2037	518,854	903,206	1,422,060	46,471	223,311	176,840	848,843	352,461	496,382	4,454	677,676	94,837
2038	439,567	998,025	1,437,592	39,615	188,403	148,788	846,415	364,650	481,765	4,476	635,029	104,793
2039	346,749	1,121,381	1,468,129	31,510	148,829	117,319	842,868	375,656	467,212	4,494	589,025	117,745
2040	268,370	1,232,068	1,500,439	24,477	114,803	90,326	838,502	386,687	451,815	4,506	546,647	129,367
2041	193,174	1,341,886	1,535,060	17,629	82,402	64,773	834,276	397,603	436,673	4,514	505,960	140,898
2042	134,580	1,450,436	1,585,016	12,271	57,458	45,187	829,892	407,340	422,552	4,517	472,256	152,296
2043	95,041	1,548,359	1,643,400	8,684	40,438	31,754	825,981	416,831	409,150	4,516	445,420	162,578
2044	66,018	1,641,947	1,707,965	6,048	27,952	21,904	822,790	425,812	396,978	4,511	423,393	172,404
2045	45,618	1,730,540	1,776,157	4,183	19,256	15,073	820,017	434,766	385,251	4,501	404,825	181,707
2046	30,281	1,816,730	1,847,011	2,791	12,739	9,948	817,579	443,748	373,831	4,488	388,267	190,757
2047	19,644	1,900,299	1,919,943	1,825	8,266	6,441	815,167	452,939	362,228	4,472	373,141	199,531
2048	11,396	1,984,168	1,995,564	1,066	4,781	3,715	812,586	462,250	350,336	4,452	358,504	208,338
2049	5,733	2,069,714	2,075,447	545	2,423	1,878	808,811	402,406	337,167	4,430	6,309 [b]	217,320
2050	2,744	2,156,346	2,159,090	261	1,148	887	0	0	0	4,406	4,619 [b]	226,416
2051	766	2,245,892	2,246,658	73	313	240	0	0	0	4,379	4,349 [b]	235,819
2052	0	2,338,961	2,338,961	0	0	0	0	0	0	4,350	4,318 [b]	245,591
2053	0	2,435,293	2,435,293	0	0	0	0	0	0	4,317	4,283 [b]	255,706
2054	0	2,534,943	2,534,943	0	0	0	0	0	0	4,282	4,243 [b]	266,169
2055	0	2,638,262	2,638,262	0	0	0	0	0	0	4,243	4,199 [b]	277,018
2056	0	2,745,115	2,745,115	0	0	0	0	0	0	4,199	4,151 [b]	288,237
2057	0	2,855,286	2,855,286	0	0	0	0	0	0	4,151	4,098 [b]	299,805

[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		Total Assets								Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
	Active	Pay Status	Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)			
2017	16	41	$3,980,319	$806,910	$0	$419,150	$54,175	$203,346	$369,832	$4,219,912	$17,632,108	$13,412,196	24%
2018	15	41	4,219,912	845,428	3,757	416,087	54,419	214,635	206,945	4,262,813	17,946,954	13,684,141	24%
2019	14	41	4,262,813	864,866	3,794	602,874	53,325	222,060	213,378	4,485,790	18,250,416	13,764,626	25%
2020	12	42	4,485,790	912,014	3,833	641,913	51,727	231,440	224,518	4,719,541	18,509,664	13,790,123	25%
2021	12	42	4,719,541	960,696	3,874	684,857	50,169	238,418	236,196	4,964,611	18,721,139	13,756,528	27%
2022	11	41	4,964,611	981,831	3,915	700,419	49,656	244,406	248,446	5,221,792	18,917,443	13,695,651	28%
2023	10	41	5,221,792	998,586	3,956	711,522	49,598	250,111	261,304	5,491,785	19,105,223	13,613,438	29%
2024	10	41	5,491,785	1,012,061	3,997	719,032	49,915	255,828	274,805	5,775,307	19,289,634	13,514,327	30%
2025	10	40	5,775,307	1,021,971	4,038	722,866	50,641	261,327	288,983	6,073,115	19,476,452	13,403,337	31%
2026	9	40	6,073,115	1,030,245	4,079	725,002	51,647	266,661	303,878	6,385,979	19,669,060	13,283,081	32%
2027	9	39	6,385,979	1,035,866	4,119	724,363	52,730	272,051	319,525	6,714,663	19,870,831	13,156,168	34%
2028	9	39	6,714,663	1,041,401	4,159	723,164	54,021	277,747	335,965	7,060,000	20,083,578	13,023,578	35%
2029	8	38	7,060,000	1,042,622	4,197	717,599	55,550	283,304	353,238	7,422,872	20,313,607	12,890,735	37%
2030	8	38	7,422,872	1,050,087	4,235	718,968	56,343	288,748	371,384	7,803,993	20,549,833	12,745,840	38%
2031	8	37	7,803,993	1,058,709	4,272	720,321	56,870	295,572	390,441	8,204,216	20,789,239	12,585,023	39%
2032	7	37	8,204,216	1,062,369	4,308	716,930	58,001	301,701	410,457	8,624,628	21,041,582	12,416,954	41%
2033	6	37	8,624,628	1,079,362	4,341	728,249	57,225	308,009	431,473	9,065,881	21,282,469	12,216,588	43%
2034	6	36	9,065,881	1,106,168	4,373	748,277	54,945	316,668	453,525	9,528,755	21,492,718	11,963,963	44%
2035	5	36	9,528,755	1,121,045	4,403	755,744	53,676	325,148	476,663	10,014,538	21,689,379	11,674,841	46%
2036	5	36	10,014,538	1,150,962	4,430	779,915	51,050	333,044	500,940	10,524,095	21,849,267	11,325,172	48%
2037	4	35	10,524,095	1,189,882	4,454	813,063	46,471	342,585	526,397	11,058,275	21,951,305	10,893,030	50%
2038	3	36	11,058,275	1,247,680	4,476	866,674	39,615	352,461	553,077	11,617,946	21,963,432	10,345,486	53%
2039	2	35	11,617,946	1,314,987	4,494	928,522	31,510	364,650	581,026	12,204,173	21,866,648	9,662,475	56%
2040	2	35	12,204,173	1,364,041	4,506	972,440	24,477	375,656	610,308	12,818,507	21,679,888	8,861,381	59%
2041	1	35	12,818,507	1,408,739	4,514	1,011,835	17,629	386,687	640,997	13,462,402	21,404,793	7,942,391	63%
2042	1	34	13,462,402	1,439,275	4,517	1,035,937	12,271	397,603	673,170	14,137,591	21,059,090	6,921,499	67%
2043	0	33	14,137,591	1,452,609	4,516	1,042,527	8,684	407,340	706,915	14,845,932	20,665,005	5,819,073	72%
2044	0	33	14,845,932	1,456,990	4,511	1,039,612	6,048	416,831	742,321	15,589,243	20,233,919	4,644,676	77%
2045	0	32	15,589,243	1,453,961	4,501	1,029,151	4,183	425,812	779,479	16,369,406	19,775,481	3,406,075	83%
2046	0	31	16,369,406	1,446,159	4,488	1,013,544	2,791	434,766	818,482	17,188,342	19,295,439	2,107,097	89%
2047	0	30	17,188,342	1,434,051	4,472	993,245	1,825	443,748	859,424	18,048,061	18,799,223	751,161	96%
2048	0	29	18,048,061	1,419,401	4,452	324,938	1,066	452,939	886,477	18,289,629	18,289,629	0	100%
2049	0	28	18,289,629	1,402,154	4,430	6,307	545	0	879,915	17,769,811	17,769,812	0	100%
2050	0	27	17,769,811	1,382,368	4,406	5,293	261	0	854,381	17,242,972	17,242,973	0	100%
2051	0	26	17,242,972	1,361,262	4,379	4,619	73	0	828,540	16,710,563	16,710,564	0	100%
2052	0	25	16,710,563	1,338,674	4,350	4,350	0	0	802,470	16,174,359	16,174,359	0	100%
2053	0	24	16,174,359	1,314,865	4,317	4,317	0	0	776,247	15,635,741	15,635,742	0	100%
2054	0	24	15,635,741	1,290,296	4,282	4,283	0	0	749,923	15,095,370	15,095,370	0	100%
2055	0	23	15,095,370	1,264,884	4,243	4,243	0	0	723,532	14,554,018	14,554,018	0	100%
2056	0	22	14,554,018	1,238,546	4,199	4,199	0	0	697,115	14,012,587	14,012,587	0	100%
2057	0	21	14,012,587	1,211,223	4,151	4,151	0	0	670,718	13,472,082	13,472,082	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.	6.78%[d] 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	$4,219,912	$849,185	$416,087	$54,419	$214,635	$206,945	$0	$0	$0	$0	$0	$0	$0	$0
2019	4,262,813	868,660	602,874	43,726	222,060	213,141	(4,475,954)	4,475,954	0	0	9,599	0	237	4,180
2020	0	915,847	641,913	42,494	231,440	0	0	4,485,790	0	0	9,233	0	224,518	8,272
2021	0	964,570	684,857	41,295	238,418	0	0	4,719,541	0	0	8,874	0	236,196	13,458
2022	0	985,746	700,419	40,921	244,406	0	0	4,964,611	0	0	8,735	0	248,446	17,758
2023	0	1,002,542	711,522	40,909	250,111	0	0	5,221,792	0	0	8,689	0	261,304	21,706
2024	0	1,016,058	719,032	41,198	255,828	0	0	5,491,785	0	0	8,717	0	274,805	25,502
2025	0	1,026,009	722,866	41,816	261,327	0	0	5,775,307	0	0	8,825	0	288,983	29,102
2026	0	1,034,324	725,002	42,661	266,661	0	0	6,073,115	0	0	8,986	0	303,878	32,570
2027	0	1,039,985	724,363	43,571	272,051	0	0	6,385,979	0	0	9,159	0	319,525	36,049
2028	0	1,045,560	723,164	44,649	277,747	0	0	6,714,663	0	0	9,372	0	335,965	39,717
2029	0	1,046,819	717,599	45,916	283,304	0	0	7,060,000	0	0	9,634	0	353,238	43,284
2030	0	1,054,322	718,968	46,606	288,748	0	0	7,422,872	0	0	9,737	0	371,384	46,993
2031	0	1,062,981	720,321	47,088	295,572	0	0	7,803,993	0	0	9,782	0	390,441	52,459
2032	0	1,066,677	716,930	48,046	301,701	0	0	8,204,216	0	0	9,955	0	410,457	57,304
2033	0	1,083,703	728,249	47,445	308,009	0	0	8,624,628	0	0	9,780	0	431,473	62,183
2034	0	1,110,541	748,277	45,596	316,668	0	0	9,065,881	0	0	9,349	0	453,525	70,188
2035	0	1,125,448	755,744	44,556	325,148	0	0	9,528,755	0	0	9,120	0	476,663	77,894
2036	0	1,155,392	779,915	42,433	333,044	0	0	10,014,538	0	0	8,617	0	500,940	85,188
2037	0	1,194,336	813,063	38,688	342,585	0	0	10,524,095	0	0	7,783	0	526,397	94,837
2038	0	1,252,156	866,674	33,021	352,461	0	0	11,058,275	0	0	6,594	0	553,077	104,793
2039	0	1,319,481	928,522	26,309	364,650	0	0	11,617,946	0	0	5,201	0	581,026	117,745
2040	0	1,368,547	972,440	20,451	375,656	0	0	12,204,173	0	0	4,026	0	610,308	129,367
2041	0	1,413,253	1,011,835	14,731	386,687	0	0	12,818,507	0	0	2,898	0	640,997	140,898
2042	0	1,443,792	1,035,937	10,252	397,603	0	0	13,462,402	0	0	2,019	0	673,170	152,296
2043	0	1,457,125	1,042,527	7,258	407,340	0	0	14,137,591	0	0	1,426	0	706,915	162,578
2044	0	1,461,501	1,039,612	5,058	416,831	0	0	14,845,932	0	0	990	0	742,321	172,404
2045	0	1,458,462	1,029,151	3,499	425,812	0	0	15,589,243	0	0	684	0	779,479	181,707
2046	0	1,450,647	1,013,544	2,337	434,766	0	0	16,369,406	0	0	454	0	818,482	190,757
2047	0	1,438,523	993,245	1,530	443,748	0	0	17,188,342	0	0	295	0	859,424	199,531
2048	0	778,772	324,938	895	452,939	0	0	18,048,061	645,081	0	171	0	886,477	208,338
2049	0	0	0	0	0	0	0	18,289,628	1,406,584	6,307	545	0	879,915	217,320
2050	0	0	0	0	0	0	0	17,769,811	1,386,774	5,293	261	0	854,381	226,416
2051	0	0	0	0	0	0	0	17,242,972	1,365,641	4,619	73	0	828,540	235,819
2052	0	0	0	0	0	0	0	16,710,563	1,343,024	4,350	0	0	802,469	245,591
2053	0	0	0	0	0	0	0	16,174,358	1,319,182	4,317	0	0	776,247	255,706
2054	0	0	0	0	0	0	0	15,635,740	1,294,578	4,283	0	0	749,923	266,169
2055	0	0	0	0	0	0	0	15,095,368	1,269,127	4,243	0	0	723,532	277,018
2056	0	0	0	0	0	0	0	14,554,016	1,242,745	4,199	0	0	697,115	288,237
2057	0	0	0	0	0	0	0	14,012,585	1,215,374	4,151	0	0	670,718	299,805

[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, 2026.*

[d] *Blended employee contribution rate of 7.51% of pay less 1.50% of pay going into the Accumulation Account.*

Actuarial Projections – Optional Funding in 2037
Table A-5

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	16	41	$3,980,319	$806,910	$0	$419,150	$54,175	$203,346	$369,832	$4,219,912	$17,632,108	$13,412,196	24%
2018	16	41	4,219,912	845,428	3,757	416,087	54,419	214,635	206,944	4,262,812	17,946,954	13,684,142	24%
2019	16	41	4,262,812	864,866	3,883	445,213	57,351	222,060	209,582	4,328,269	18,267,867	13,939,598	24%
2020	16	42	4,328,269	912,187	3,997	476,378	59,443	231,440	212,736	4,392,081	18,562,294	14,170,213	24%
2021	16	42	4,392,081	961,332	4,131	509,724	62,613	238,418	215,783	4,453,156	18,831,945	14,378,789	24%
2022	16	42	4,453,156	983,210	4,240	545,405	65,928	244,406	219,405	4,540,849	19,106,716	14,565,867	24%
2023	16	41	4,540,849	1,000,884	4,341	583,583	69,426	250,111	224,521	4,663,266	19,392,720	14,729,454	24%
2024	16	41	4,663,266	1,015,387	4,436	624,434	73,203	255,828	231,524	4,828,433	19,695,433	14,867,000	25%
2025	16	40	4,828,433	1,026,371	4,526	668,144	77,230	261,327	240,824	5,045,062	20,020,766	14,975,704	25%
2026	16	40	5,045,062	1,035,799	4,611	714,914	81,435	266,661	252,811	5,320,473	20,372,517	15,052,044	26%
2027	16	39	5,320,473	1,042,624	4,693	764,958	85,734	272,051	267,886	5,663,785	20,755,073	15,091,288	27%
2028	16	39	5,663,785	1,049,448	4,778	818,505	90,419	277,747	286,460	6,082,690	21,172,036	15,089,346	29%
2029	16	38	6,082,690	1,052,073	4,856	875,800	95,237	283,304	309,009	6,589,111	21,630,379	15,041,268	30%
2030	16	38	6,589,111	1,061,052	4,936	937,106	99,471	288,748	335,860	7,184,307	22,120,736	14,936,429	32%
2031	16	37	7,184,307	1,071,286	5,046	1,002,703	105,137	295,572	367,293	7,878,680	22,648,688	14,770,008	35%
2032	16	37	7,878,680	1,076,682	5,136	1,072,892	110,714	301,701	403,898	8,686,067	23,222,972	14,536,905	37%
2033	16	37	8,686,067	1,095,588	5,223	1,147,994	114,454	308,009	445,901	9,601,614	23,820,894	14,219,280	40%
2034	16	36	9,601,614	1,124,435	5,364	1,228,354	119,714	316,668	493,291	10,629,843	24,437,926	13,808,083	43%
2035	16	36	10,629,843	1,141,651	5,486	1,314,339	125,515	325,148	546,751	11,794,459	25,091,978	13,297,519	47%
2036	16	36	11,794,459	1,174,338	5,594	1,406,343	129,579	333,044	606,738	13,090,231	25,760,301	12,670,070	51%
2037	15	36	13,090,231	1,216,411	5,738	1,418,320	133,853	342,585	671,121	14,433,962	26,434,113	12,000,151	55%
2038	13	36	14,433,962	1,277,588	5,733	1,421,226	127,925	352,461	736,967	15,789,220	27,051,127	11,261,907	58%
2039	12	36	15,789,220	1,348,289	5,732	1,388,890	120,335	364,650	802,299	17,111,373	27,588,649	10,477,276	62%
2040	11	36	17,111,373	1,402,665	5,733	1,347,677	113,507	375,656	866,149	18,405,964	28,061,597	9,655,633	66%
2041	10	36	18,405,964	1,455,742	5,736	1,307,236	106,639	386,687	928,672	19,673,721	28,467,473	8,793,752	69%
2042	9	35	19,673,721	1,498,159	5,739	1,266,116	101,080	397,603	990,129	20,924,752	28,820,749	7,895,997	73%
2043	8	35	20,924,752	1,526,279	5,742	1,229,948	97,022	407,340	1,051,233	22,178,273	29,141,034	6,962,761	76%
2044	8	34	22,178,273	1,547,876	5,745	1,198,908	93,499	416,831	1,112,757	23,446,647	29,435,908	5,989,261	80%
2045	7	34	23,446,647	1,565,196	5,747	1,170,634	90,276	425,812	1,175,192	24,737,617	29,709,342	4,971,725	83%
2046	6	33	24,737,617	1,581,908	5,749	1,142,653	86,919	434,766	1,238,775	26,053,073	29,960,699	3,907,626	87%
2047	6	33	26,053,073	1,598,749	5,750	1,112,249	83,555	443,748	1,303,519	27,391,646	30,187,169	2,795,523	91%
2048	5	32	27,391,646	1,618,515	5,750	1,076,110	80,090	452,939	1,369,209	28,745,730	30,385,354	1,639,624	95%
2049	5	32	28,745,730	1,639,471	5,750	1,028,484	76,591	462,250	1,435,363	30,103,196	30,553,843	450,647	99%
2050	5	31	30,103,196	1,660,410	5,751	291,147	73,115	407,621	1,483,075	30,691,993	30,691,993	0	100%
2051	4	31	30,691,993	1,681,688	5,751	223,509	69,516	0	1,500,164	30,797,743	30,797,743	0	100%
2052	4	30	30,797,743	1,702,721	5,751	209,938	65,779	0	1,504,505	30,869,492	30,869,492	0	100%
2053	3	29	30,869,492	1,723,493	5,750	196,393	61,755	0	1,507,146	30,905,542	30,905,542	0	100%
2054	3	29	30,905,542	1,743,734	5,749	180,084	57,279	0	1,507,935	30,901,357	30,901,357	0	100%
2055	3	28	30,901,357	1,764,716	5,747	161,530	52,275	0	1,506,626	30,851,325	30,851,325	0	100%
2056	2	28	30,851,325	1,786,851	5,743	140,367	46,946	0	1,502,924	30,748,968	30,748,968	0	100%
2057	2	27	30,748,968	1,810,338	5,736	116,844	41,616	0	1,496,513	30,587,866	30,587,866	0	100%

Actuarial Projections – Optional Funding in 2037
Table A-6

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
	Employer Contributions								Minimum Payment			
2018	$657,549	$54,419	$292,178	$237,759	$823,007	$222,060	$600,947	$3,757	$842,463	$445,213	$445,213	$0
2019	679,746	57,351	302,377	245,025	850,649	231,440	619,209	3,883	868,118	476,378	476,378	0
2020	694,283	59,443	308,659	249,216	878,563	238,418	640,145	3,997	893,358	509,724	509,724	0
2021	719,753	62,613	319,467	256,854	906,315	244,406	661,909	4,131	922,895	545,405	545,405	0
2022	751,479	65,928	333,434	267,506	934,171	250,111	684,060	4,240	955,806	583,583	583,583	0
2023	786,009	69,426	348,722	279,296	962,273	255,828	706,445	4,341	990,081	624,434	624,434	0
2024	824,031	73,203	365,585	292,382	990,609	261,327	729,282	4,436	1,026,099	668,144	668,144	0
2025	865,473	77,230	383,965	306,735	1,019,136	266,661	752,475	4,526	1,063,736	714,914	714,914	0
2026	909,237	81,435	403,363	321,927	1,047,798	272,051	775,747	4,611	1,102,285	764,958	764,958	0
2027	953,923	85,734	423,194	337,460	1,076,494	277,747	798,747	4,693	1,140,900	818,505	818,505	0
2028	1,003,067	90,419	444,992	354,573	1,105,030	283,304	821,726	4,778	1,181,077	875,800	875,800	0
2029	1,054,488	95,237	467,799	372,562	1,133,255	288,748	844,507	4,856	1,221,926	937,106	937,106	0
2030	1,096,683	99,471	485,732	386,261	1,160,940	295,572	865,368	4,936	1,256,566	1,002,703	1,002,703	0
2031	1,151,734	105,137	508,870	403,733	1,187,389	301,701	885,688	5,046	1,294,467	1,072,892	1,072,892	0
2032	1,209,435	110,714	533,887	423,173	1,212,297	308,009	904,288	5,136	1,332,598	1,147,994	1,147,994	0
2033	1,244,193	114,454	547,997	433,543	1,235,294	316,668	918,626	5,223	1,357,391	1,228,354	1,228,354	0
2034	1,291,701	119,714	566,585	446,871	1,254,826	325,148	929,678	5,364	1,381,912	1,314,339	1,314,339	0
2035	1,349,837	125,515	590,256	464,741	1,269,877	333,044	936,833	5,486	1,407,061	1,406,343	1,406,343	0
2036	1,385,788	129,579	605,364	475,786	1,279,525	342,585	936,940	5,594	1,418,320	1,504,787	1,418,320	0
2037	1,422,060	133,853	620,376	486,523	1,281,426	352,461	928,965	5,738	1,421,226	1,610,122	1,421,226	0
2038	1,437,592	127,925	593,276	465,351	1,282,457	364,650	917,807	5,733	1,388,890	1,722,831	1,388,890	8,212
2039	1,468,129	120,335	558,220	437,885	1,279,716	375,656	904,060	5,732	1,347,677	1,843,429	1,347,677	20,140
2040	1,500,439	113,507	526,412	412,906	1,275,285	386,687	888,598	5,733	1,307,236	1,972,469	1,307,236	31,192
2041	1,535,060	106,639	494,433	387,794	1,270,190	397,603	872,587	5,736	1,266,116	2,110,542	1,266,116	42,497
2042	1,585,016	101,080	468,635	367,555	1,263,994	407,340	856,654	5,739	1,229,948	2,258,280	1,229,948	53,916
2043	1,643,400	97,022	449,750	352,728	1,257,269	416,831	840,438	5,742	1,198,908	2,416,360	1,198,908	64,420
2044	1,707,965	93,499	434,062	340,562	1,250,138	425,812	824,326	5,745	1,170,634	2,585,505	1,170,634	74,768
2045	1,776,157	90,276	420,232	329,956	1,241,715	434,766	806,949	5,747	1,142,653	2,766,490	1,142,653	85,049
2046	1,847,011	86,919	406,497	319,578	1,230,670	443,748	786,922	5,749	1,112,249	2,960,144	1,112,249	95,602
2047	1,919,943	83,555	392,232	308,676	1,214,624	452,939	761,685	5,750	1,076,110	2,676,220	1,076,110	106,548
2048	1,995,564	80,090	377,164	297,074	1,187,910	462,250	725,660	5,750	1,028,484	1,468,270	1,028,484	118,004
2049	2,075,447	76,591	361,987	285,396	1,133,682	407,621	662,038	5,750	291,147	291,147	291,147	129,977
2050	2,159,090	73,115	346,731	273,616	0	0	0	5,751	223,509 [c]	223,509	223,509	142,365
2051	2,246,658	69,516	330,906	261,390	0	0	0	5,751	209,938 [c]	209,938	209,938	155,295
2052	2,338,961	65,779	314,543	248,764	0	0	0	5,751	196,393 [c]	196,393	196,393	168,838
2053	2,435,293	61,755	297,204	235,449	0	0	0	5,750	180,084 [c]	180,084	180,084	183,003
2054	2,534,943	57,279	278,014	220,735	0	0	0	5,749	161,530 [c]	161,530	161,530	197,914
2055	2,638,262	52,275	256,527	204,252	0	0	0	5,747	140,367 [c]	140,367	140,367	213,709
2056	2,745,115	46,946	232,385	185,439	0	0	0	5,743	116,844 [c]	116,844	116,844	230,459
2057	2,855,286	41,616	206,730	165,114	0	0	0	5,736	97,121 [c]	97,121	97,121	247,918

[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 2026
Table A-7

Valuation Plan Year End 30-Jun	Number		Total Assets										
	Active	Pay Status	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	16	41	$3,980,319	$806,910	$0	$419,150	$54,175	$203,346	$369,832	$4,219,912	$17,632,108	$13,412,196	24%
2018	16	41	4,219,912	845,428	3,757	416,087	54,419	214,635	206,945	4,262,813	17,946,954	13,684,141	24%
2019	16	41	4,262,813	864,866	3,883	445,213	57,351	222,060	209,581	4,328,269	18,267,867	13,939,598	24%
2020	16	42	4,328,269	912,187	3,997	476,378	59,443	231,440	212,736	4,392,082	18,562,294	14,170,212	24%
2021	16	42	4,392,082	961,332	4,131	509,724	62,613	238,418	215,784	4,453,158	18,831,945	14,378,787	24%
2022	16	42	4,453,158	983,210	4,240	545,405	65,928	244,406	219,405	4,540,852	19,106,716	14,565,864	24%
2023	16	41	4,540,852	1,000,884	4,341	583,583	69,426	250,111	224,521	4,663,268	19,392,720	14,729,452	24%
2024	16	41	4,663,268	1,015,387	4,436	624,434	73,203	255,828	231,525	4,828,435	19,695,433	14,866,998	25%
2025	15	40	4,828,435	1,026,371	4,526	668,144	77,230	261,327	240,824	5,045,063	20,020,766	14,975,703	25%
2026	15	40	5,045,063	1,035,799	4,547	708,498	78,371	266,661	252,579	5,310,826	20,359,235	15,048,409	26%
2027	14	39	5,310,826	1,042,492	4,572	708,739	79,653	272,051	265,872	5,590,077	20,714,113	15,124,036	27%
2028	13	39	5,590,077	1,048,955	4,601	708,200	81,232	277,747	279,840	5,883,540	21,087,939	15,204,399	28%
2029	13	38	5,883,540	1,051,020	4,630	703,143	83,133	283,304	294,521	6,191,991	21,487,851	15,295,860	29%
2030	12	38	6,191,991	1,059,322	4,662	704,957	84,371	288,748	309,948	6,516,031	21,903,558	15,387,527	30%
2031	12	37	6,516,031	1,068,786	4,694	706,700	85,415	295,572	326,152	6,856,390	22,332,889	15,476,499	31%
2032	11	37	6,856,390	1,073,269	4,727	703,625	87,132	301,701	343,177	7,214,029	22,786,460	15,572,431	32%
2033	10	37	7,214,029	1,091,081	4,758	715,203	87,006	308,009	361,057	7,589,465	23,240,734	15,651,269	33%
2034	10	36	7,589,465	1,118,714	4,789	735,440	85,446	316,668	379,820	7,983,336	23,677,365	15,694,029	34%
2035	9	36	7,983,336	1,134,487	4,819	743,127	84,967	325,148	399,511	8,396,783	24,114,247	15,717,464	35%
2036	8	36	8,396,783	1,165,404	4,848	767,564	83,202	333,044	420,174	8,830,515	24,529,033	15,698,518	36%
2037	7	36	8,830,515	1,205,466	4,874	801,216	79,398	342,585	441,843	9,285,217	24,901,745	15,616,528	37%
2038	6	36	9,285,217	1,264,380	4,899	855,589	73,022	352,461	464,552	9,761,562	25,200,508	15,438,946	39%
2039	5	36	9,761,562	1,332,869	4,921	918,730	64,886	364,650	488,337	10,260,375	25,403,184	15,142,809	40%
2040	5	36	10,260,375	1,385,323	4,940	966,582	57,320	375,656	513,248	10,782,918	25,523,234	14,740,316	42%
2041	4	36	10,782,918	1,436,705	4,955	1,013,533	49,523	386,687	539,346	11,330,347	25,556,356	14,226,009	44%
2042	3	35	11,330,347	1,477,443	4,968	1,048,990	42,873	397,603	566,692	11,904,094	25,515,271	13,611,177	47%
2043	3	35	11,904,094	1,503,808	4,977	1,070,115	37,588	407,340	595,359	12,505,711	25,417,939	12,912,228	49%
2044	2	34	12,505,711	1,523,484	4,983	1,084,363	32,827	416,831	625,423	13,136,688	25,270,121	12,133,433	52%
2045	2	34	13,136,688	1,538,906	4,987	1,094,461	28,533	425,812	656,956	13,798,557	25,074,655	11,276,098	55%
2046	2	33	13,798,557	1,553,666	4,987	1,103,780	24,406	434,766	690,034	14,492,890	24,832,371	10,339,481	58%
2047	1	32	14,492,890	1,566,821	4,984	1,111,228	20,537	443,748	724,736	15,221,334	24,543,595	9,322,261	62%
2048	1	32	15,221,334	1,580,281	4,979	1,118,678	16,769	452,939	761,144	15,985,604	24,207,989	8,222,385	66%
2049	1	31	15,985,604	1,592,410	4,971	1,124,468	13,228	462,250	799,344	16,787,513	23,826,446	7,038,933	70%
2050	1	30	16,787,513	1,602,455	4,962	1,127,692	10,125	471,644	839,426	17,628,983	23,401,142	5,772,159	75%
2051	0	29	17,628,983	1,610,692	4,950	1,128,562	7,462	481,187	881,488	18,512,040	22,935,357	4,423,317	81%
2052	0	29	18,512,040	1,614,966	4,936	1,124,825	5,327	490,917	925,631	19,438,838	22,434,486	2,995,648	87%
2053	0	28	19,438,838	1,614,457	4,920	1,115,634	3,777	500,807	971,963	20,411,642	21,904,477	1,492,835	93%
2054	0	27	20,411,642	1,609,072	4,901	1,022,027	2,637	510,937	1,018,647	21,351,917	21,351,917	0	100%
2055	0	26	21,351,917	1,597,965	4,878	3,124	1,791	0	1,028,135	20,782,124	20,782,124	0	100%
2056	0	25	20,782,124	1,582,228	4,852	2,845	1,195	0	1,000,013	20,199,097	20,199,097	0	100%
2057	0	24	20,199,097	1,562,905	4,821	3,035	771	0	971,334	19,606,511	19,606,511	0	100%

Actuarial Projections – Conservation Funding in 2026
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.	6.78%[d] 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	$4,219,912	$849,185	$416,087	$54,419	$214,635	$206,945	$0	$0	$0	$0	$0	$0	NA	$416,087	$416,087	$0
2019	4,262,813	868,749	445,213	57,351	222,060	209,581	0	0	0	0	0	0	NA	445,213	445,213	0
2020	4,328,269	916,184	476,378	59,443	231,440	212,736	0	0	0	0	0	0	NA	476,378	476,378	0
2021	4,392,082	965,463	509,724	62,613	238,418	215,784	0	0	0	0	0	0	NA	509,724	509,724	0
2022	4,453,158	987,450	545,405	65,928	244,406	219,405	0	0	0	0	0	0	NA	545,405	545,405	0
2023	4,540,852	1,005,225	583,583	69,426	250,111	224,521	0	0	0	0	0	0	NA	583,583	583,583	0
2024	4,663,268	1,019,823	624,434	73,203	255,828	231,525	0	0	0	0	0	0	NA	624,434	624,434	0
2025	4,828,435	1,030,897	668,144	77,230	261,327	240,824	0	0	0	0	0	0	NA	668,144	668,144	0
2026	5,045,063	1,040,346	708,498	65,187	266,661	252,253	5,297,316	0	0	13,184	0	326	708,498	714,914	708,498	3,182
2027	0	1,047,064	708,739	66,274	272,051	0	5,310,826	0	0	13,379	0	265,872	708,739	764,958	708,739	6,512
2028	0	1,053,556	708,200	67,609	277,747	0	5,590,077	0	0	13,623	0	279,840	708,200	818,505	708,200	9,961
2029	0	1,055,650	703,143	69,203	283,304	0	5,883,540	0	0	13,930	0	294,521	703,143	875,800	703,143	13,209
2030	0	1,063,984	704,957	70,279	288,748	0	6,191,991	0	0	14,092	0	309,948	704,957	937,106	704,957	16,507
2031	0	1,073,480	706,700	71,208	295,572	0	6,516,031	0	0	14,207	0	326,152	706,700	1,002,703	706,700	21,480
2032	0	1,077,996	703,625	72,670	301,701	0	6,856,390	0	0	14,462	0	343,177	703,625	1,072,892	703,625	25,753
2033	0	1,095,839	715,203	72,627	308,009	0	7,214,029	0	0	14,379	0	361,057	715,203	1,147,994	715,203	29,986
2034	0	1,123,503	735,440	71,395	316,668	0	7,589,465	0	0	14,051	0	379,820	735,440	1,228,354	735,440	37,272
2035	0	1,139,306	743,127	71,031	325,148	0	7,983,336	0	0	13,936	0	399,511	743,127	1,314,339	743,127	44,182
2036	0	1,170,252	767,564	69,644	333,044	0	8,396,783	0	0	13,558	0	420,174	767,564	1,406,343	767,564	50,603
2037	0	1,210,340	801,216	66,539	342,585	0	8,830,515	0	0	12,859	0	441,843	801,216	1,504,787	801,216	59,300
2038	0	1,269,279	855,589	61,229	352,461	0	9,285,217	0	0	11,793	0	464,552	855,589	1,610,122	855,589	68,399
2039	0	1,337,790	918,730	54,410	364,650	0	9,761,562	0	0	10,476	0	488,337	918,730	1,722,831	918,730	80,822
2040	0	1,390,263	966,582	48,025	375,656	0	10,260,375	0	0	9,295	0	513,248	966,582	1,843,429	966,582	92,478
2041	0	1,441,660	1,013,533	41,440	386,687	0	10,782,918	0	0	8,083	0	539,346	1,013,533	1,972,469	1,013,533	104,598
2042	0	1,482,411	1,048,990	35,818	397,603	0	11,330,347	0	0	7,055	0	566,692	1,048,990	2,110,542	1,048,990	117,045
2043	0	1,508,785	1,070,115	31,330	407,340	0	11,904,094	0	0	6,258	0	595,359	1,070,115	2,258,280	1,070,115	128,754
2044	0	1,528,467	1,084,363	27,273	416,831	0	12,505,711	0	0	5,554	0	625,423	1,084,363	2,416,360	1,084,363	140,458
2045	0	1,543,893	1,094,461	23,620	425,812	0	13,136,688	0	0	4,913	0	656,956	1,094,461	2,585,505	1,094,461	152,108
2046	0	1,558,653	1,103,780	20,107	434,766	0	13,798,557	0	0	4,299	0	690,034	1,103,780	2,766,490	1,103,780	163,844
2047	0	1,571,805	1,111,228	16,829	443,748	0	14,492,890	0	0	3,708	0	724,736	1,111,228	2,960,144	1,111,228	175,641
2048	0	1,585,260	1,118,678	13,643	452,939	0	15,221,334	0	0	3,126	0	761,144	1,118,678	3,167,354	1,118,678	187,656
2049	0	1,597,381	1,124,468	10,663	462,250	0	15,985,604	0	0	2,565	0	799,344	1,124,468	3,389,069	1,124,468	199,964
2050	0	1,607,417	1,127,692	8,081	471,644	0	16,787,513	0	0	2,044	0	839,426	1,127,692	3,626,304	1,127,692	212,398
2051	0	1,615,642	1,128,562	5,893	481,187	0	17,628,983	0	0	1,569	0	881,488	1,128,562	3,880,145	1,128,562	224,916
2052	0	1,619,902	1,124,825	4,160	490,917	0	18,512,040	0	0	1,167	0	925,631	1,124,825	4,151,755	1,124,825	237,424
2053	0	1,619,377	1,115,634	2,936	500,807	0	19,438,838	0	0	841	0	971,963	1,115,634	2,645,297	1,115,634	249,818
2054	0	1,535,005	1,022,027	2,041	510,937	0	20,411,642	78,968	0	596	0	1,018,647	1,022,027	1,051,158	1,022,027	261,994
2055	0	0	0	0	0	0	21,351,917	1,602,843	3,124	1,791	0	1,028,135	3,124	14,063	3,124	274,103
2056	0	0	0	0	0	0	20,782,124	1,587,080	2,845	1,195	0	1,000,013	2,845	11,113	2,845	286,258
2057	0	0	0	0	0	0	20,199,097	1,567,726	3,035	771	0	971,334	3,035	9,032	3,035	298,484

[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, 2026.*

[d] *Blended employee contribution rate of 7.51% of pay less 1.50% of pay going into the Accumulation Account.*