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

Actuarial Valuation Report for the Year Beginning July 1, 2017

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September 11, 2018

Mr. Billie L. Trump
City Treasurer, Recorder
409 S. Kanawha Street
Beckley, WV 25801

Captain Jamel (Jake) Corey
Pension Board Secretary
City of Beckley Policemen's Pension and Relief Fund

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

Dear Mr. Trump and Captain Corey:

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2017, for the City of Beckley, West Virginia Policemen's Pension and Relief Fund ("Fund" or "Plan"). This actuarial valuation has been performed in accordance with the West Virginia Code Chapter 8, Article 22, Sections 16 through 28, inclusive.

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

- The sponsor's funding requirements for the fiscal year ending June 30, 2019, based on the selected funding policy, i.e. the Alternative funding policy as defined in West Virginia Code §8-22-20(c)(1)
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

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

West Virginia Code §8-22-20 (c)(4), requires (1) a review of the actuarial assumptions and methods at least once every five years and (2) that the Actuary shall provide a report to the oversight board with recommendations on any changes to the actuarial process. Consequently, an experience review was performed for the period July 1, 2009, through June 30, 2014. The assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, approved by the Municipal Pensions Oversight Board, and became effective for the actuarial valuation as of July 1, 2015.

This actuarial valuation is based upon:

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

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

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

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

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 6.00%. The 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

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

Lance J. Weiss

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

Contents

SECTION I

ACTUARIAL VALUATION RESULTS AS OF JULY 1, 2017

Executive Summary

Upon the request of the Municipal Pensions Oversight Board (MPOB), we have performed an actuarial valuation as of July 1, 2017, for the City of Beckley, West Virginia Policemen's Pension and Relief Fund ("Fund" or "Plan").

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

- The sponsor's funding requirements for the fiscal year ending June 30, 2019
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

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

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

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

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

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

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

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

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

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

The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2017
Assets	$21,082,534
Actuarial Accrued Liability	$33,526,320
Unfunded Actuarial Accrued Liability	$12,443,786
Funded Ratio	62.88%

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	$480,405
7% Increase in Alternative Contribution	$33,628
FYE 06/30/2018 Alternative Contribution	$514,033
Additional Contribution	$0
Final FYE 06/30/2018 Alternative Contribution	$514,033

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	$514,033
7% Increase in Alternative Contribution	$35,982
FYE 06/30/2019 Alternative Contribution	$550,015
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	$550,015
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	$550,015

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. *The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statutes, including any additional amounts needed to satisfy the 15-year solvency test on an open group projection basis, and will be eligible to receive the premium tax allocation.*

Commentary on Solvency Projections and Supplemental Benefits

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

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

The Supplemental benefits for plan year beginning July 1, 2019 will be based on the Consumer Price Index for calendar year 2018, and the projected results of the July 1, 2017 actuarial valuation.

Additional Remarks on the Actuarial Valuation Results

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

- The actuarial assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, and approved by the Municipal Pensions Oversight Board and became effective beginning with the actuarial valuation as of July 1, 2015. The key actuarial assumptions are fully disclosed in Section VI of the report.
- The interest rate used to discount liabilities changed from 5.50% for the July 1, 2016 actuarial valuation to 6.00% 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 59% (using a testing interest rate of 5.50% for all plans using the Alternative funding policy), ratio of assets to benefits of 13.36, equity allocation of 54%, and 15-year projected funded ratio of 60%, resulted in a discount rate assumption of 6.00%.
    - The change in interest rate used to discount liabilities from 5.50% as of July 1, 2016, to 6.00% as of July 1, 2017, decreased liabilities by $2,336,497.
- The Fund experienced an approximate annualized return of 7.12% on the market value of assets during the plan year ended June 30, 2017, which compares to the expected annualized return of 5.50%. The difference in actual versus expected return produced an asset (gain)/loss of ($321,273).
- 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 ($539,578) due to these events.

Alternative Funding

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

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

- The funded ratio is projected to increase from 63% at June 30, 2017, to 71% at June 30, 2034, and 100% at June 30, 2049.
- Employer contributions are expected to increase from $514,033 (or 20% of pay) for the fiscal year end June 30, 2018, to $3,912,947 (or 49% of pay) for fiscal year end June 30, 2048.

Please note that a funded ratio of 63% at June 30, 2017, means that the plan is underfunded.

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

A funding policy consistent with generally accepted actuarial principles is typically based on the sponsor contributing the normal cost net of employee contributions plus an amortization of the unfunded actuarial 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 $550,015 is sufficient to finance only 72% of the net employer normal cost of $764,880. The state premium tax allocation of $528,508 is sufficient to finance only 4.2% of the unfunded actuarial accrued liability of $12,443,786.

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 6.00%, the funded ratio will be lower and the cash flow strain could be higher. If another significant market downtown occurs while the plan's funded ratio is declining, the plan may need to liquidate assets in order to pay benefits which could have a further adverse effect on the funded status of the System.

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

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

- If retired members die *later* than expected, contributions will increase. If retired members die *sooner* than expected, contributions will decrease.
- If the general inflation is *greater* than assumed, supplemental benefits will be greater than assumed and contributions will *increase*. Conversely, if general inflation is *lower* than assumed, contributions will *decrease*.

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

Schedule A: Summary of Key Valuation Results

	No.	July 1, 2016	No.	July 1, 2017
Valuation Date		**July 1, 2016**		**July 1, 2017**
Valuation Interest Rate		5.50%		6.00%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$2,217,255		$2,580,777
Average Pay		$48,201		$47,792
Expected Benefit Payments		$1,571,207		$1,578,247
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	46	$10,366,578	54	$10,794,410
(b) Retirees	27	$18,052,676	27	$16,220,993
(c) Survivors	10	$1,347,040	12	$1,559,438
(d) Disabled Members	12	$4,211,462	10	$3,795,610
(e) Deferred Vested Members	2	$1,110,412	2	$1,155,869
(f) Total	97	$35,088,168	105	$33,526,320
2. Present Value of Future Normal Costs		$10,242,374		$10,117,807
3. Present Value of Benefits (1(f) + 2)		$45,330,542		$43,644,127
4. Market Value of Assets		$20,031,672		$21,082,534
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$15,056,496		$12,443,786
6. Funded Ratio (4 / 1(f))		57.09%		62.88%
7. Net Employer Normal Cost				
(a) Normal Cost		$932,441		$960,176
(b) Administrative Expenses		$10,892		$10,554
(c) Gross Normal Cost (a + b)		$943,333		$970,730
(d) Employee Contribution Rate [a]		7.76%		7.98%
(e) Expected Employee Contributions		$172,083		$205,850
(f) Net Employer Normal Cost (c - e)		$771,250		$764,880
(% of Compensation)		34.78%		29.64%
		FYE 2018		**FYE 2019**
8. Estimated Minimum Employer Contribution [b]				
(a) Prior Year Alternative Contribution		$480,405		$514,033
(b) Increase in Alternative Contribution		7.00%		7.00%
(c) Current Year Alternative Contribution		$514,033		$550,015
(d) Additional Contribution		$0		$0
(e) Alternative Contribution (c + d)		$514,033		$550,015

[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.

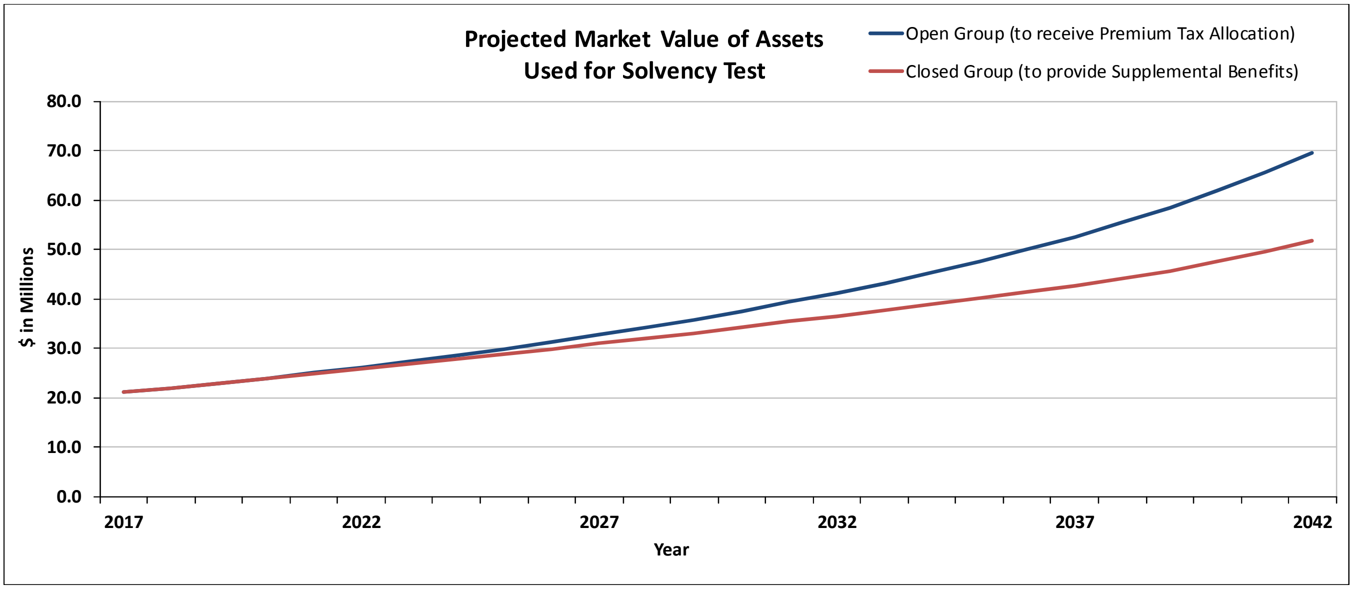
Schedule B: (Gain)/Loss Analysis

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

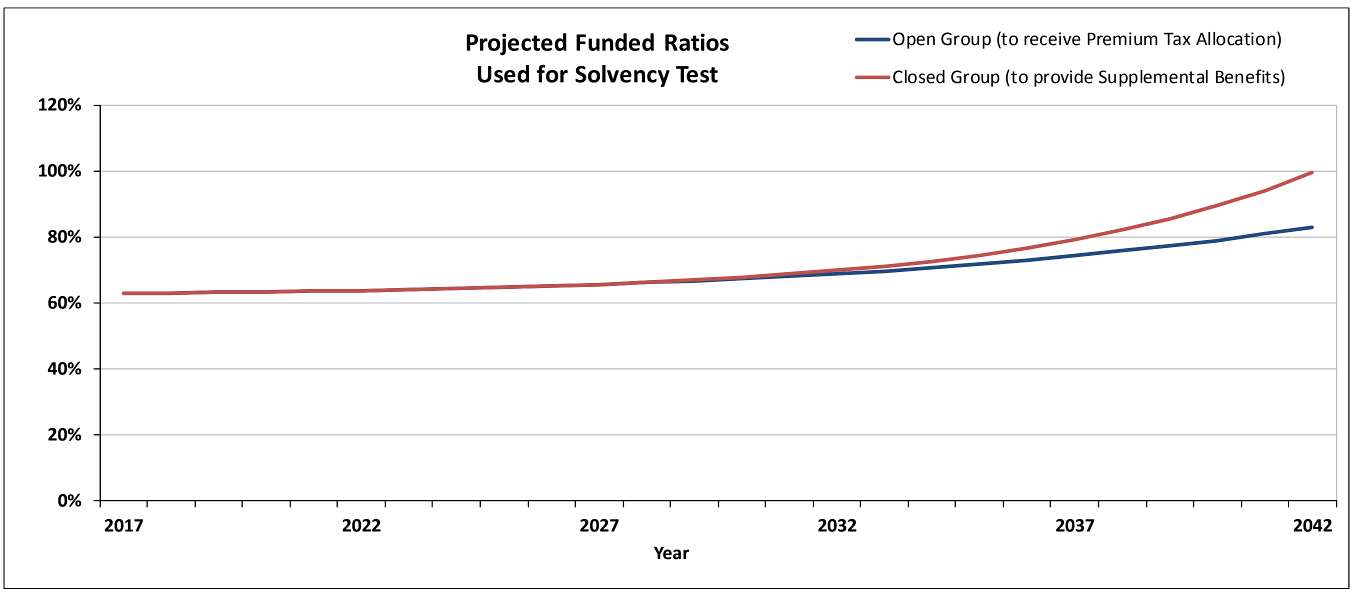
1.	(a) Actuarial Accrued Liability as of 7/1/2016	$35,088,168
	(b) Normal Cost due 7/1/2016	$932,441
	(c) Interest on (a) and (b) to 6/30/2017	$1,955,491
	(d) Benefit Payments with interest to 6/30/2017	$1,573,705
	(e) Effect of Assumption Changes	($2,336,497)
	(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	$34,065,898
	(g) Actual Liability at 7/1/2017	$33,526,320
	(h) Liability (Gain)/Loss [(g) - (f)]	**($539,578)**
2.	(a) Market Value of Assets as of 7/1/2016	$20,031,672
	(b) Interest on (a) to 6/30/2017	$1,096,908
	(c) Contributions with interest to 6/30/2017	$1,206,386
	(d) Benefit Payments with interest to 6/30/2017	$1,573,705
	(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	$20,761,261
	(f) Actual Assets at 7/1/2017	$21,082,534
	(g) Asset (Gain)/Loss [(e) - (f)]	**($321,273)**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**($860,851)**

Graphs 1A and 1B: Solvency Projections

Graph 1A



Graph 1B



SECTION II

ACTUARIAL PROJECTIONS

ALTERNATIVE FUNDING POLICY

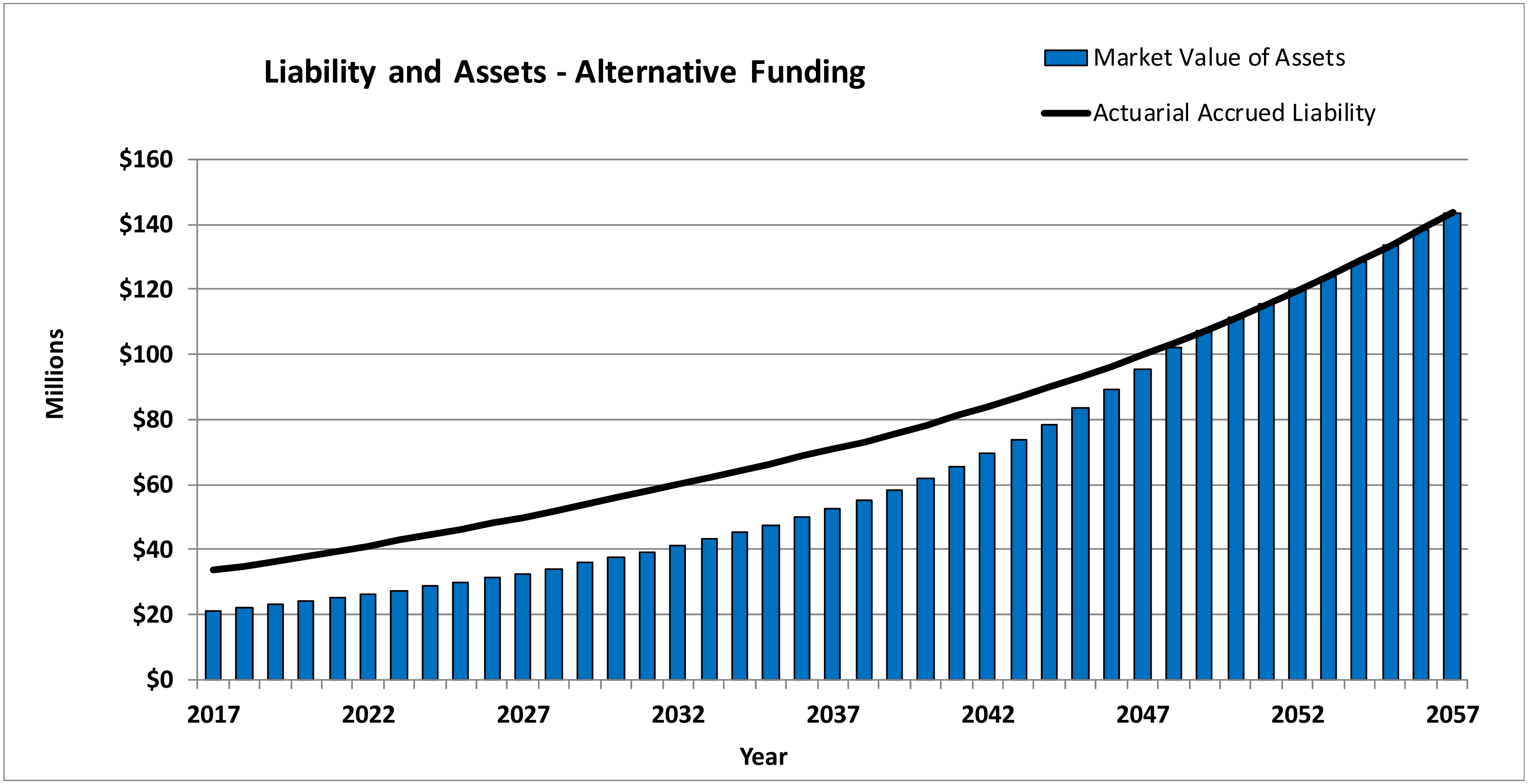
Alternative Funding on a Closed Group Basis, Table 1

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Payroll	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	54	51	$2,217,255	$20,031,672	$1,531,586	$24	$480,407	$204,974	$487,562	$1,409,529	$21,082,534	$33,526,320	$12,443,786	63%
2018	51	52	2,580,777	21,082,534	1,578,247	10,554	514,033	205,850	515,032	1,254,490	21,983,138	34,902,338	12,919,200	63%
2019	48	52	2,589,443	21,983,138	1,636,334	10,606	550,015	206,804	528,508	1,308,298	22,929,823	36,303,520	13,373,697	63%
2020	46	51	2,602,439	22,929,823	1,688,131	10,688	588,516	208,032	505,685	1,364,065	23,897,301	37,740,376	13,843,075	63%
2021	43	52	2,593,432	23,897,301	1,746,910	10,568	629,712	207,767	495,108	1,421,277	24,893,688	39,199,654	14,305,966	64%
2022	41	53	2,557,930	24,893,688	1,828,313	10,677	673,792	205,743	487,629	1,479,673	25,901,534	40,650,024	14,748,490	64%
2023	38	55	2,525,242	25,901,534	1,927,256	10,813	720,957	204,028	482,330	1,538,401	26,909,180	42,075,109	15,165,929	64%
2024	35	56	2,458,524	26,909,180	2,029,383	10,963	771,424	199,179	477,216	1,597,034	27,913,686	43,438,713	15,525,027	64%
2025	32	57	2,365,367	27,913,686	2,153,074	10,999	825,424	192,467	466,133	1,654,717	28,888,353	44,705,525	15,817,172	65%
2026	30	58	2,312,756	28,888,353	2,249,081	11,162	883,204	189,448	461,545	1,711,837	29,874,145	45,932,626	16,058,481	65%
2027	29	58	2,314,041	29,874,145	2,300,515	11,336	945,028	190,299	461,181	1,771,301	30,930,103	47,182,995	16,252,892	66%
2028	26	60	2,268,773	30,930,103	2,395,428	11,522	1,011,180	188,020	463,157	1,833,794	32,019,304	48,396,277	16,376,973	66%
2029	24	62	2,177,341	32,019,304	2,518,101	11,716	1,081,963	182,598	460,297	1,897,361	33,111,705	49,523,969	16,412,264	67%
2030	22	63	2,101,358	33,111,705	2,620,379	11,918	1,157,700	178,333	458,023	1,961,921	34,235,385	50,584,829	16,349,444	68%
2031	20	64	1,997,095	34,235,385	2,739,256	12,122	1,238,739	171,792	456,871	2,027,990	35,379,399	51,546,299	16,166,900	69%
2032	17	66	1,867,683	35,379,399	2,873,947	12,325	1,325,451	163,278	455,497	2,094,914	36,532,268	52,377,384	15,845,116	70%
2033	15	67	1,675,476	36,532,268	3,029,649	12,528	1,418,233	147,926	455,505	2,161,767	37,673,523	53,017,627	15,344,104	71%
2034	14	68	1,523,880	37,673,523	3,146,040	12,730	1,517,509	135,328	451,018	2,229,225	38,847,833	53,510,945	14,663,112	73%
2035	12	69	1,427,583	38,847,833	3,235,601	12,929	1,623,735	128,264	456,100	2,300,111	40,107,514	53,904,108	13,796,594	74%
2036	9	71	1,198,911	40,107,514	3,402,544	13,122	1,737,396	108,790	457,571	2,373,579	41,369,184	54,058,726	12,689,542	77%
2037	7	71	976,155	41,369,184	3,553,298	13,312	1,859,014	89,241	454,206	2,447,735	42,652,771	53,978,599	11,325,828	79%
2038	6	71	875,640	42,652,771	3,617,199	13,496	1,989,145	80,790	457,474	2,526,550	44,076,034	53,788,579	9,712,545	82%
2039	5	70	796,006	44,076,034	3,666,255	13,669	2,128,385	73,988	463,383	2,614,580	45,676,446	53,507,211	7,830,765	85%
2040	4	70	703,162	45,676,446	3,720,486	13,829	2,277,372	65,668	468,628	2,713,311	47,467,110	53,118,607	5,651,497	89%
2041	3	70	606,676	47,467,110	3,774,493	13,976	2,436,788	56,882	473,724	2,823,753	49,469,788	52,616,132	3,146,344	94%
2042	3	69	496,508	49,469,788	3,834,310	14,108	2,607,363	46,716	478,890	2,947,036	51,701,376	51,983,070	281,694	99%
2043	2	69	384,152	51,701,376	3,893,101	14,224	120,486	36,220	264,232	2,999,014	51,214,003	51,214,003	0	100%
2044	1	68	286,687	51,214,003	3,935,026	14,326	74,151	27,050	0	2,959,077	50,324,930	50,324,930	0	100%
2045	1	66	215,707	50,324,930	3,946,330	14,411	58,752	20,397	0	2,904,744	49,348,083	49,348,083	0	100%
2046	1	65	154,433	49,348,083	3,946,541	14,479	45,785	14,651	0	2,845,572	48,293,070	48,293,070	0	100%
2047	0	64	103,852	48,293,070	3,934,510	14,532	35,484	9,866	0	2,782,179	47,171,557	47,171,557	0	100%
2048	0	62	73,779	47,171,557	3,901,632	14,569	29,419	7,009	0	2,715,596	46,007,380	46,007,380	0	100%
2049	0	61	50,631	46,007,380	3,860,701	14,591	24,680	4,810	0	2,646,749	44,808,327	44,808,327	0	100%
2050	0	59	33,125	44,808,327	3,813,092	14,599	21,062	3,147	0	2,576,057	43,580,902	43,580,902	0	100%
2051	0	58	20,949	43,580,902	3,759,478	14,594	18,590	1,990	0	2,503,890	42,331,299	42,331,299	0	100%
2052	0	56	12,214	42,331,299	3,701,650	14,578	16,814	1,160	0	2,430,546	41,063,592	41,063,592	0	100%
2053	0	54	6,273	41,063,592	3,640,499	14,552	15,672	596	0	2,356,242	39,781,051	39,781,051	0	100%
2054	0	53	2,845	39,781,051	3,576,509	14,517	15,021	270	0	2,281,154	38,486,470	38,486,470	0	100%
2055	0	51	1,455	38,486,470	3,510,183	14,474	14,720	138	0	2,205,428	37,182,099	37,182,099	0	100%
2056	0	50	591	37,182,099	3,442,677	14,424	14,525	56	0	2,129,155	35,868,734	35,868,734	0	100%
2057	0	48	0	35,868,734	3,374,157	14,367	14,366	0	0	2,052,374	34,546,950	34,546,950	0	100%

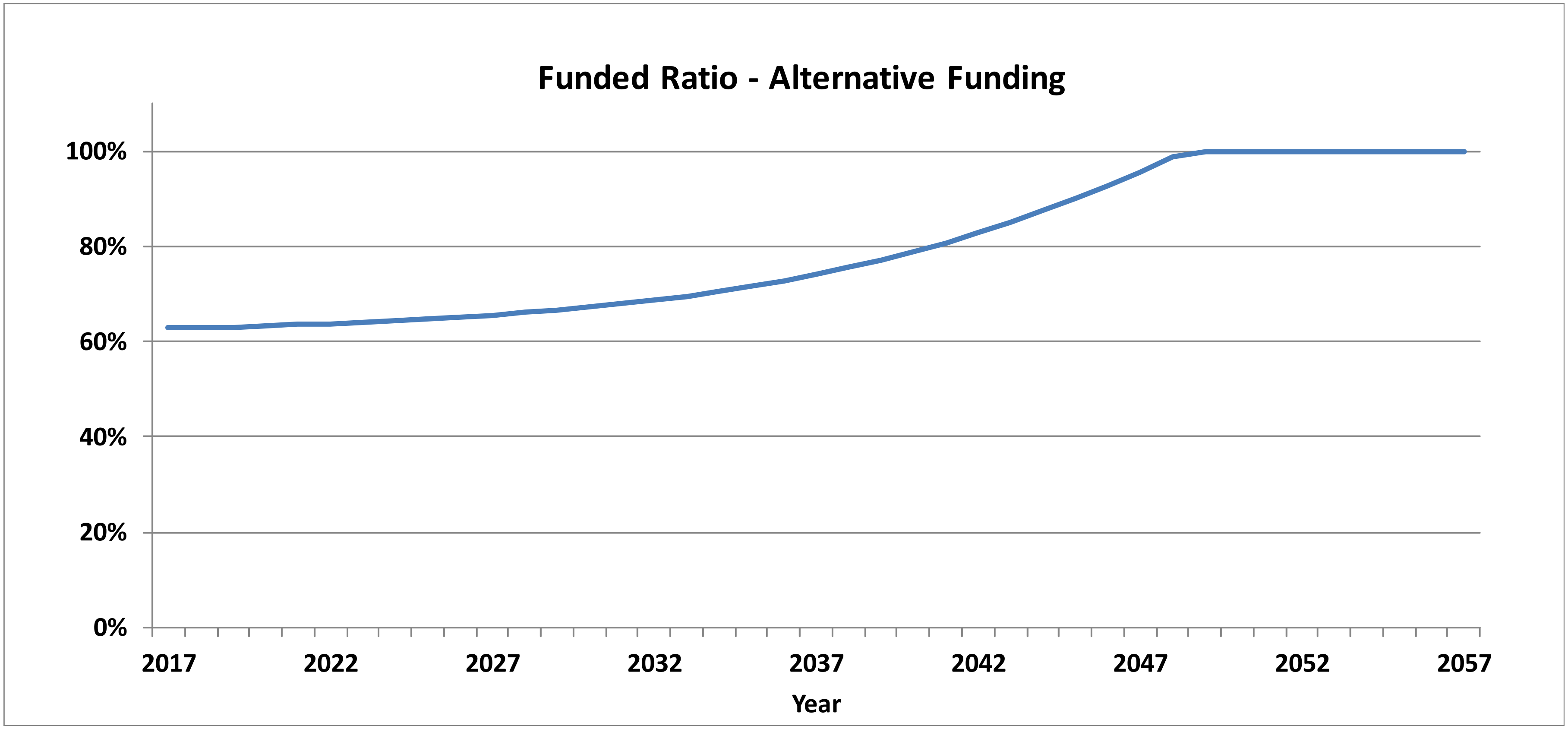
Alternative Funding on an Open Group Basis, Table 2

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)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	54	51	$2,217,255	$20,031,672	$1,531,586	$24	$480,407	$204,974	$487,562	$1,409,529	$21,082,534	$33,526,320	$12,443,786	63%
2018	54	52	2,580,777	21,082,534	1,578,247	10,554	514,033	205,850	515,032	1,254,490	21,983,138	34,904,796	12,921,658	63%
2019	54	52	2,693,232	21,983,138	1,636,334	10,907	550,015	217,427	528,508	1,308,603	22,940,450	36,347,723	13,407,273	63%
2020	54	51	2,826,605	22,940,450	1,688,502	11,296	588,516	230,344	548,260	1,366,592	23,974,364	37,873,300	13,898,936	63%
2021	54	52	2,928,705	23,974,364	1,748,389	11,435	629,712	240,664	555,161	1,428,580	25,068,657	39,468,453	14,399,796	64%
2022	54	53	3,040,157	25,068,657	1,831,439	11,892	673,792	252,960	570,604	1,493,891	26,216,574	41,116,985	14,900,411	64%
2023	54	55	3,154,052	26,216,574	1,932,558	12,350	720,957	265,347	586,235	1,561,986	27,406,191	42,806,301	15,400,110	64%
2024	54	56	3,251,395	27,406,191	2,037,429	12,854	771,424	276,401	603,666	1,632,582	28,639,980	44,510,850	15,870,870	64%
2025	54	57	3,361,498	28,639,980	2,164,520	13,331	825,424	289,526	620,451	1,705,319	29,902,849	46,213,205	16,310,356	65%
2026	54	58	3,512,537	29,902,849	2,264,764	13,906	883,204	305,976	640,187	1,780,888	31,234,434	47,975,009	16,740,575	65%
2027	54	59	3,681,345	31,234,434	2,321,314	14,379	945,028	322,580	657,511	1,861,929	32,685,788	49,849,586	17,163,798	66%
2028	54	61	3,793,315	32,685,788	2,423,051	14,839	1,011,180	335,469	674,970	1,948,841	34,218,358	51,777,361	17,559,003	66%
2029	54	62	3,940,418	34,218,358	2,554,116	15,512	1,081,963	353,620	699,119	2,040,244	35,823,676	53,743,518	17,919,842	67%
2030	54	64	4,108,297	35,823,676	2,665,431	16,169	1,157,700	373,024	722,651	2,136,761	37,532,212	55,775,239	18,243,027	67%
2031	54	65	4,252,087	37,532,212	2,794,449	16,815	1,238,739	390,581	746,353	2,239,055	39,335,675	57,848,748	18,513,073	68%
2032	54	67	4,399,034	39,335,675	2,940,448	17,512	1,325,451	409,006	772,049	2,346,794	41,231,015	59,950,765	18,719,750	69%
2033	54	69	4,492,418	41,231,015	3,108,488	18,206	1,418,233	421,453	798,681	2,459,425	43,202,113	62,033,341	18,831,228	70%
2034	54	69	4,694,705	43,202,113	3,238,771	19,047	1,517,509	443,764	830,121	2,578,338	45,314,027	64,170,935	18,856,908	71%
2035	54	70	4,864,841	45,314,027	3,343,776	19,620	1,623,735	462,310	854,844	2,706,351	47,597,871	66,393,301	18,795,430	72%
2036	54	72	4,969,188	47,597,871	3,526,864	20,348	1,737,396	475,601	884,736	2,842,584	49,990,976	68,599,135	18,608,159	73%
2037	54	73	5,180,621	49,990,976	3,694,228	21,286	1,859,014	497,226	921,769	2,986,525	52,539,996	70,836,477	18,296,481	74%
2038	54	73	5,423,179	52,539,996	3,777,268	21,985	1,989,145	519,354	952,460	3,142,399	55,344,101	73,201,972	17,857,871	76%
2039	54	74	5,645,679	55,344,101	3,855,177	22,629	2,128,385	540,549	981,553	3,313,926	58,430,708	75,697,243	17,266,535	77%
2040	54	74	5,876,922	58,430,708	3,953,441	23,337	2,277,372	562,382	1,013,272	3,502,184	61,809,140	78,316,909	16,507,769	79%
2041	54	75	6,110,217	61,809,140	4,061,077	24,064	2,436,788	584,085	1,045,873	3,708,005	65,498,750	81,058,084	15,559,334	81%
2042	54	75	6,340,882	65,498,750	4,185,820	24,826	2,607,363	605,544	1,080,082	3,932,359	69,513,452	83,907,107	14,393,655	83%
2043	54	76	6,578,501	69,513,452	4,322,950	25,614	2,789,878	626,169	1,115,064	4,176,204	73,872,202	86,861,957	12,989,755	85%
2044	54	76	6,820,228	73,872,202	4,457,355	26,415	2,985,169	646,782	1,150,967	4,441,176	78,612,526	89,925,314	11,312,788	87%
2045	54	77	7,078,360	78,612,526	4,584,732	27,238	3,194,131	670,553	1,187,374	4,729,762	83,782,376	93,111,357	9,328,981	90%
2046	54	77	7,344,569	83,782,376	4,726,423	28,063	3,417,720	695,773	1,224,195	5,044,184	89,409,762	96,425,982	7,016,220	93%
2047	54	77	7,633,819	89,409,762	4,872,060	28,906	3,656,960	721,777	1,261,833	5,386,451	95,535,817	99,888,104	4,352,287	96%
2048	54	77	7,925,632	95,535,817	5,008,372	29,731	3,912,947	747,288	1,299,203	5,759,386	102,216,538	103,510,401	1,293,863	99%
2049	54	78	8,223,483	102,216,538	5,154,130	30,596	2,165,844	774,311	1,214,304	6,102,535	107,288,805	107,288,805	0	100%
2050	54	78	8,531,962	107,288,805	5,315,802	31,492	2,115,516	802,408	0	6,365,508	111,224,943	111,224,943	0	100%
2051	54	78	8,850,532	111,224,943	5,489,475	32,417	2,187,124	831,976	0	6,599,507	115,321,658	115,321,658	0	100%
2052	54	78	9,184,187	115,321,658	5,674,712	33,375	2,266,964	862,299	0	6,843,061	119,585,895	119,585,895	0	100%
2053	54	79	9,520,590	119,585,895	5,868,413	34,357	2,343,471	893,603	0	7,096,347	124,016,547	124,016,547	0	100%
2054	54	79	9,880,674	124,016,547	6,074,115	35,395	2,425,032	927,738	0	7,359,495	128,619,302	128,619,302	0	100%
2055	54	79	10,249,253	128,619,302	6,293,046	36,443	2,518,339	960,125	0	7,632,873	133,401,150	133,401,150	0	100%
2056	54	80	10,614,987	133,401,150	6,520,454	37,539	2,596,050	993,863	0	7,916,323	138,349,393	138,349,393	0	100%
2057	54	80	11,005,885	138,349,393	6,769,178	38,707	2,683,893	1,031,719	0	8,209,546	143,466,667	143,466,667	0	100%

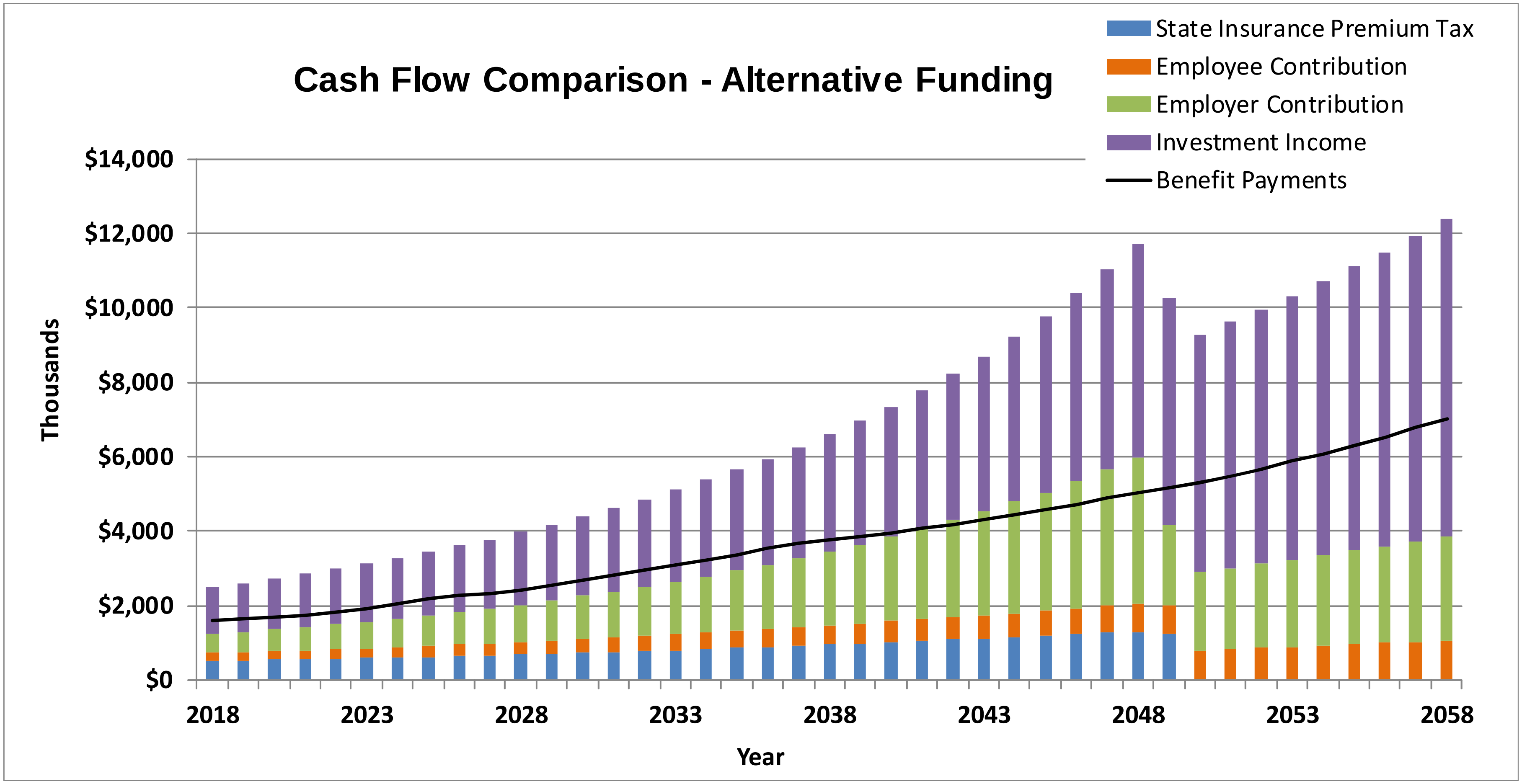
Open Group Actuarial Projections – Alternative Funding, Graph 2



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.

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

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

Total Employer Contributions for FYE June 30, 2019				
	Local Plan		Statewide Plan	
Funding Method	**Amount**	**Percent of Pay**	**Amount**	**Percent of Pay**
Alternative	$550,015	20.4%	NA	NA
Optional	$1,090,045	42.1%	$10,898	10.5%
Conservation	$950,470	36.7%	$10,898	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 $514,033 in fiscal year end 2018 to $3,912,947 in fiscal year end 2048. In fiscal year end 2049, 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 $550,015 to $1,090,045. However, over the 40-year projection period, total employer contributions to both the local plan and the statewide plan are projected to decrease from $1,100,943 in fiscal year end 2019 to $813,718 in fiscal year end 2046, and the Plan is projected to be fully funded in 2046.

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 $550,015 to $950,470. During the 35-year projection period, total employer contributions to both the local plan and the statewide plan are projected to increase from $961,368 in fiscal year end 2019 to $2,244,752 in fiscal year end 2032 and the Plan is projected to be fully funded in 2033.

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

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

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

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

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

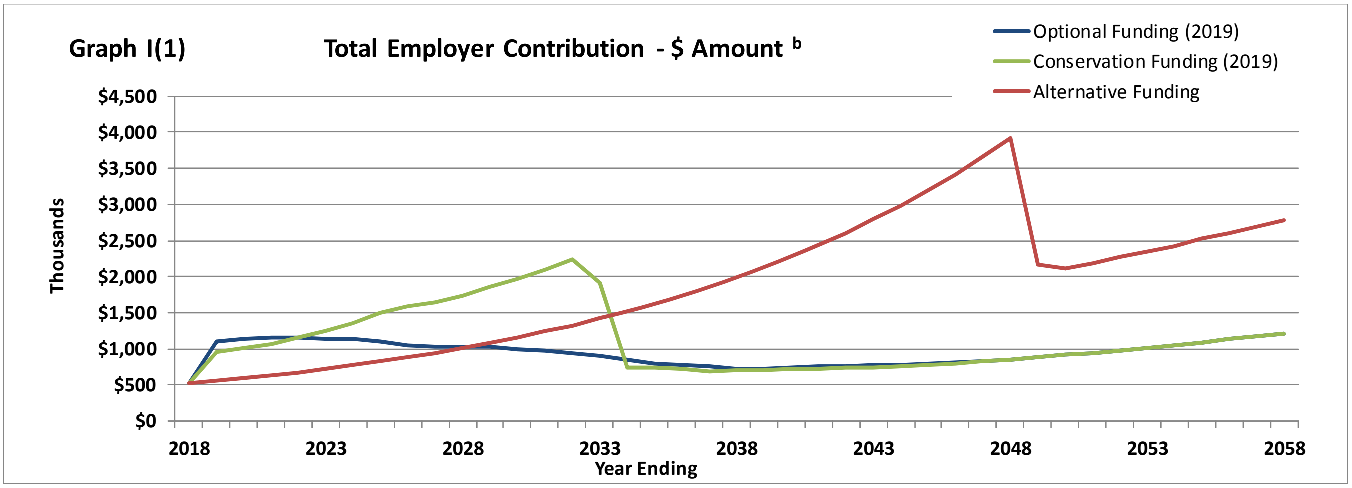
Under Scenario II, the plan sponsor is assumed to make contributions under the Alternative funding policy in future years, until the first year that either the Optional or Conservation policy produces a lower contribution. Under this assumption, in plan year end 2045, the employer contributions under the Optional funding policy of $3,072,280 are projected to be lower than contributions under the Alternative funding policy of $3,194,131. Similarly, in plan year end 2043, the employer contributions under the Conservation funding policy of $2,732,539 are projected to be lower than contributions under the Alternative funding policy of $2,789,878.

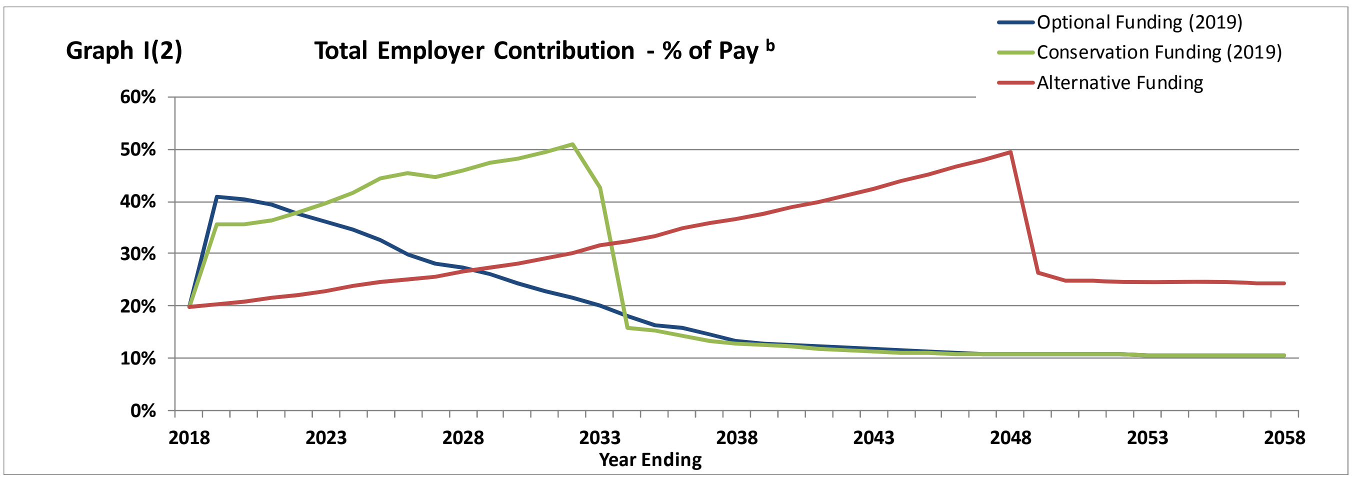
Graphs II(1), II(2), and III(3) show the projected contribution pattern and funded ratio. Based on the these projections, Optional funding policy contributions are less than Alternative funding policy contribution starting in plan year 2045, and Conservation funding policy contributions are less than Alternative funding contributions starting in plan year 2043. Because the Plan is projected to be fully funded by 2049 under either the Optional funding policy or the Conservation funding policy, the contribution pattern under either funding policy is not significantly different. 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.

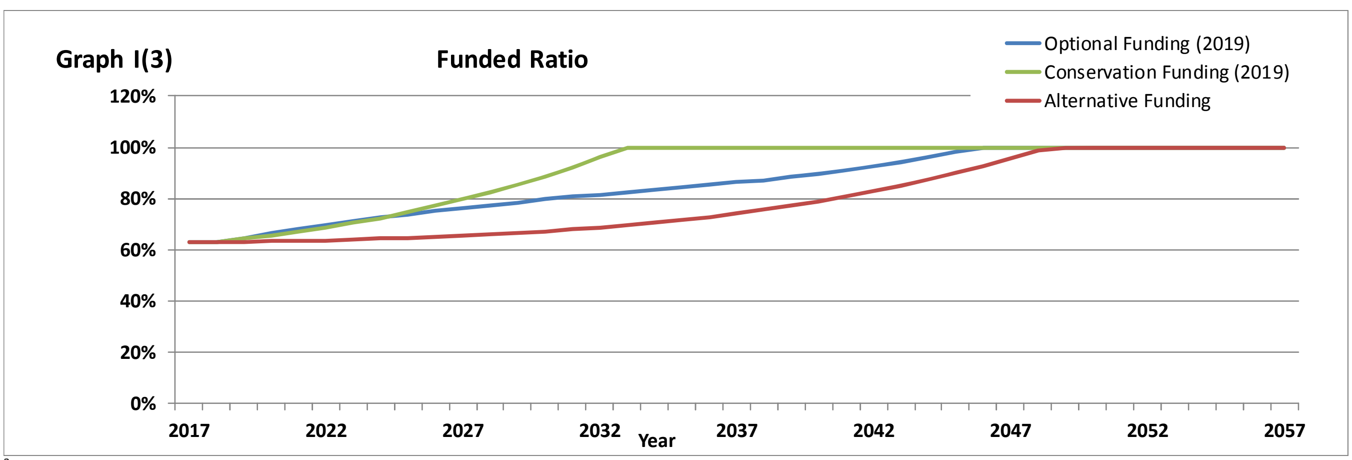
The details of the Scenario II projections can be found in the Appendix.

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

Scenario I



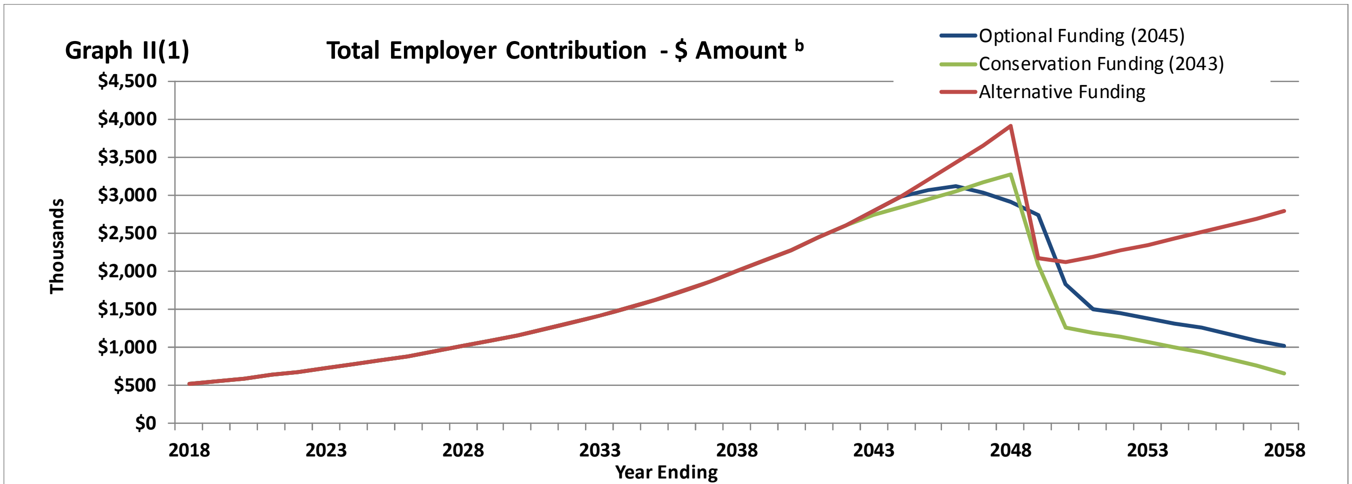


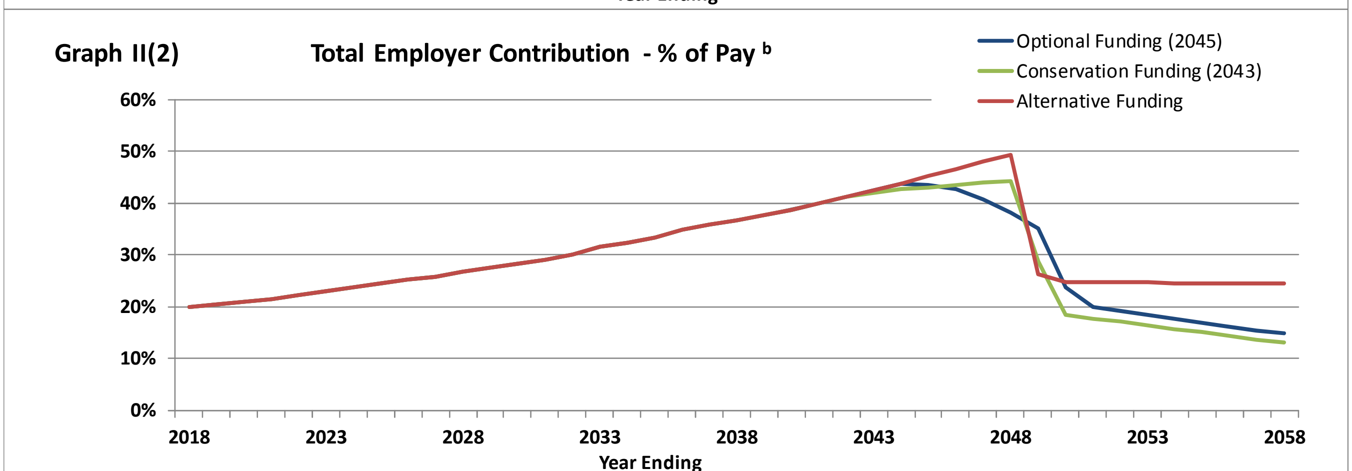


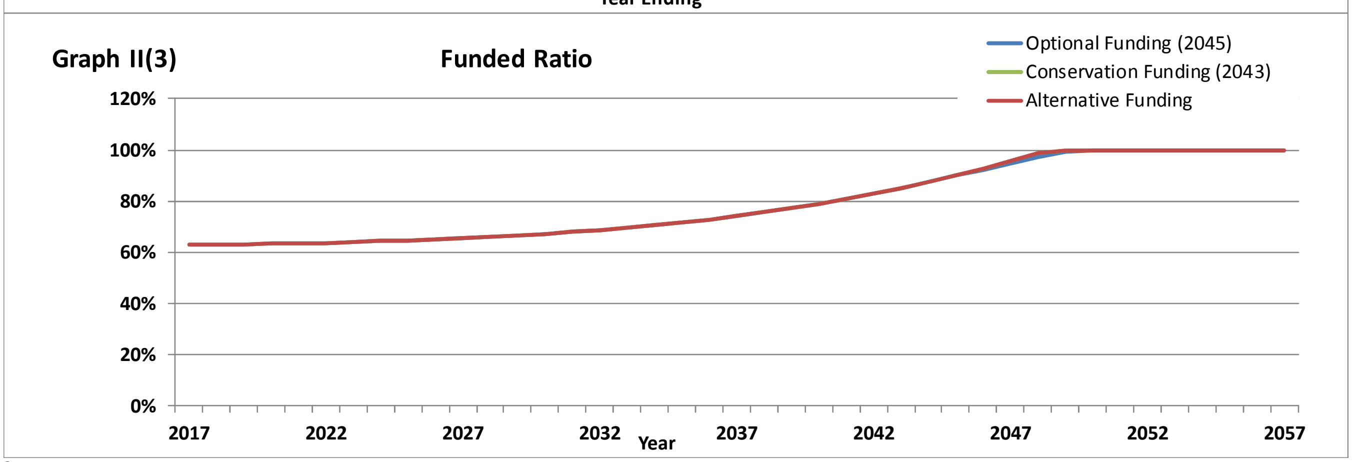
[a] *Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in fiscal year end June 30, 2019, and makes the newly elected contribution in fiscal year end June 30, 2019.*
[b] *Based on total pay and includes contributions for future members projected to participate in 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	5.50%	6.00%
Cost-of-Living Adjustment	2.75%	2.75%
Wage Inflation	3.75%	3.75%
Actuarial Value of Assets	Market	Market
Actuarial Cost Method	Entry Age Normal	Entry Age Normal
Remaining Amortization Period [a]	24 Years, Level % of Pay	23 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	**July 1, 2016**	**July 1, 2017**
1. Market Value of Assets	$20,031,672	$21,082,534
2. Actuarial Accrued Liability	$35,088,168	$33,526,320
3. Unfunded Actuarial Accrued Liability (2 - 1)	$15,056,496	$12,443,786
4. Funded Ratio (1/2)	57%	63%
5. Expected Payroll	$2,217,255	$2,580,777
6. UAAL as Percentage of Covered Payroll (3/5)	679%	482%
Schedule of Employer Contributions [c]	**FYE 2017**	**FYE 2018**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$771,250	$764,880
(b) Amortization of Unfunded Actuarial Accrued Liability	$755,345	$678,158
(c) Actuarially Determined Contribution (ADC) (a + b)	$1,526,595	$1,443,038
2. Employer Contribution [b]	$480,407	$514,033
3. Premium Tax Allocation	$487,562	$515,032
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	63%	71%

[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	$19,595,635	$20,031,672
Adjustment to Market Value of Assets at Beginning of Year	$0	$0
Market Value of Assets Beginning of Year	$19,595,635	$20,031,672
1. Revenue During Fiscal Year		
(a) Employee Contribution	$183,395	$204,974
(b) Governmental Contribution		
(i) From Local Government	$448,978	$480,407
(ii) From State Government	$407,889	$487,562
(iii) Reallocation from State Government	$0	$0
(iv) Total	$856,867	$967,969
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	$4,074	$193,431
(ii) Bond Interest	$124,084	$121,685
(iii) Dividends	$424,199	$469,640
(iv) Net Realized Gain (Loss) on Sale/Exchange	$390,345	$650,372
(v) Other	$0	$0
(vi) Less Investment Expense	($67,126)	($70,338)
(vii) Total	$875,576	$1,364,790
(d) Other Revenue	$0	$0
(e) Net Receivable Investment Income	$50,780	$44,739
(f) Receivable Contribution [a]		
(i) From Employee Contributions	$0	$0
(ii) From Local Government	$0	$0
(iii) From State Government	$37,113	$0
(iv) Total	$37,113	$0
(g) Total Revenue (sum of (a) through (f))	$2,003,731	$2,582,472
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$1,550,422	$1,522,138
(b) Withdrawals	$11,785	$9,448
(c) Administrative Expenses	$5,487	$24
(d) Payable Benefits and Withdrawals	$0	$0
(e) Payable Administrative Expenses	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$1,567,694	$1,531,610
B. Market Value of Assets End of Year		
[A + 1(g) - 2(f)]	$20,031,672	$21,082,534
C. Approximate Return on Assets	4.79%	7.12%

[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	$669,696	3%	$1,202,399	6%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$1,634,426		$1,853,886	
(b) US State and Local Governmental Debt Securities	$164,162		$155,350	
(c) Foreign Governmental Debt Securities	$0		$0	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$1,798,588	9%	$2,009,236	9%
3. Corporate Fixed Income				
(a) US Bonds	$5,602,668		$4,717,676	
(b) US Mortgage or other Asset Backed Securities	$0		$0	
(c) US Mutual Fund Shares (Bonds)	$1,199,778		$1,200,854	
(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))	$6,802,446	34%	$5,918,530	28%
4. Corporate Equity				
(a) US Equity	$6,555,184		$7,462,878	
(b) US Mutual Fund Shares (Equity)	$3,153,453		$3,556,330	
(c) US Exchange Traded Funds (Equity)	$0		$0	
(d) International Equity	$26,876		$0	
(e) International Mutual Fund Shares (Equity)	$248,013		$341,646	
(f) International Exchange Traded Funds (Equity)	$0		$0	
(g) Total Corporate Equity (sum of (a) through (f))	$9,983,526	50%	$11,360,854	54%
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	$689,523		$546,776	
(e) Total Alternative Investments (sum of (a) through (d))	$689,523	4%	$546,776	3%
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	$37,113		$0	
(d) Total Receivable Contributions (sum of (a) through (c))	$37,113	0%	$0	0%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	$50,780		$44,739	
(b) Less Payable	$0		$0	
(c) Total	$50,780	0%	$44,739	0%
Market Value of Assets End of Year [sum of (1) through (8)]	**$20,031,672**		**$21,082,534**	

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:	**46**	**27**	**12**	**2**	**10**	**97**
New Actives:	3					**3**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:	5					**5**
Vested Terminations:						**0**
Non-Vested Terminations:						**0**
Disabled:						**0**
Retirements:						**0**
Deaths with Beneficiary:			(2)		2	**0**
Deaths w/o Beneficiary:						**0**
Expired Annuity or Stop Payment:						**0**
Net Changes:	8	0	(2)	0	2	**8**
Total Participants June 30, 2017:	**54**	**27**	**10**	**2**	**12**	**105**

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		3	1							4	$ 165,752
25-29	3	5								8	$ 301,863
30-34		3	4	1						8	$ 339,592
35-39		1	3	4	4					12	$ 536,035
40-44		3	3		5	1				12	$ 655,691
45-49		1	1		2	3				7	$ 396,896
50-54						1				1	$ 66,944
55-59		1			1					2	$ 108,458
60-64											$ 0
65-69											$ 0
Over 70											$ 0
Totals	**3**	**17**	**12**	**5**	**12**	**5**	**0**	**0**	**0**	**54**	**$ 2,571,230**

Averages

Age:	37.5	years
Service:	9.2	years
Annual Pay:	$47,615	[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	46	54
Total Annual Pay	$2,197,446	$2,571,230
Average Age	38.3	37.5
Average Service	9.7	9.2

Inactive Participants	July 1, 2016		July 1, 2017[a]	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	27	$1,142,434	27	$1,149,450
Survivors	10	$110,373	12	$138,179
Disabled Members	12	$278,301	10	$237,642
Deferred Vested Members	2	$70,302	2	$77,648

[a]Data provided includes 1 non-vested member with an accumulated contributions balance of $22,922.

SECTION VI

ACTUARIAL ASSUMPTIONS AND METHODS

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

Discount Rate

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

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

[1] Funded ratios based on a 6.0% investment return assumption for plans using an actuarially sound policy (standard or optional) and a 5.5% investment return assumption for other plans (alternative or conservation).

[2] Liquidity ratio equals assets as of the actuarial valuation date divided by expected benefit payments for the year.

[3] Based on investment policy.

As of June 30, 2017	
Assets	$21,082,534
Liabilities using a 5.50% discount rate	$35,862,817
Funded Ratio	59%
Expected Benefit Payments	$1,578,247
Liquidity Ratio	13.36
Equity Exposure	54%
Projected Funded Ratio after 15 years	60%

Discount Rate	6.00%

The premium tax allocation is projected using the following methodology:

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

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

(3) We have assumed all Pension and Relief Funds will make the minimum statutory contribution requirement and will receive 100% of both the Base Allocation and the Excess Allocation assigned to the individual plan. Consequently, the projections do not include any reallocation of Expired Premium Tax Allocation for plan years beginning on and after July 1, 2019.

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

(5) For the plan year ending June 30, 2018, all Pension and Relief Funds reported a total of 1,717 eligible active members and 2,165 eligible retired members. The City of Beckley Policemen's Pension and Relief Fund reported 52 eligible active members and 54 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 $528,508 for the fiscal year ending June 30, 2019.

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

General Inflation	2.75%
Expected Salary Increase	General Inflation: 2.75% *plus* Wage Inflation Increment: 1.00% *plus*
Service-based Increase:	Years of Service / Increase 1: 20.00% 2: 6.50% 3: 3.50% 4: 2.75% 5-9: 2.50% 10-29: 2.00% 30-34: 1.25% after 34 years of service: 0.00%
Post-retirement COLA	2.75% on first $15,000 of Annual Benefit and on the accumulated supplemental pension amounts for prior years. Assumed to be payable to all members receiving payments.
Increase in State Insurance Premium Tax Allocation	2.75% on and after year 1
Cost Method	Entry-Age-Normal, Level-Percentage-of-Pay
Amortization Policies:	
Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 30 – Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017).
Standard Plans and former Standard Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from July 1, 1991 – 14 years remaining as of July 1, 2017)
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 32.5 years remaining as of July 1, 2017). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017)

Asset Method	Market Value
Turnover	Sample Rates – Age / Rates 25 / 9% 35 / 4% 45 / 2% 50 / 0%
Retirement	Age / Rates[a] 50 / 45% 51-55 / 30% 56-59 / 35% 60 / 100% [a]*Terminated vested participants are assumed to retire at age 50.*
Mortality	Active: RP-2014 Blue Collar Healthy Employee[b] Post-Retirement: RP-2014 Blue Collar Healthy Annuitant Disabled: RP-2014 Blue Collar Healthy Annuitant set forward four years Tables above incorporate generational mortality improvement using MP-2014 2-dimensional mortality improvement scales [b]*Assumes 10% of deaths are duty-related and 90% are non-duty related.*
Disability	Sample Rates – Age / Rates[c] 30 / 0.22% 40 / 0.50% 50 / 0.79% [c] *Assumes 60% duty related and 40% non-duty related. Also assumes 10% of non-duty disabled members receive a 20% reduction in benefits due to gainful employment.*
Percent Married	90%
Spouse Age	Females 3 years younger than males

Administrative Expenses	Plan year 2018 administrative expenses assumed to be equal to 15% of all reported 2017 expenses. 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. Six newly hired active members as of July 1, 2016 did not appear in data 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 Police Department are eligible to participate in the Policemen's Pension and Relief Fund.

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

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

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

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

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

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

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

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

Contributions — Participating employees contribute 7.0% of compensation. Participating employees hired on or after January 1, 2010 contribute 9.5% of compensation. The municipality has elected to contribute the minimum employer contribution under the Alternative funding policy.

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

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

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	54	51	$20,031,672	$1,531,586	$24	$480,407	$204,974	$487,562	$1,409,529	$21,082,534	$33,526,320	$12,443,786	63%
2018	51	52	21,082,534	1,578,247	10,554	514,033	205,850	515,032	1,254,490	21,983,138	34,902,338	12,919,200	63%
2019	48	52	21,983,138	1,636,334	10,606	1,090,045	206,804	528,508	1,324,263	23,485,818	36,303,520	12,817,702	65%
2020	46	51	23,485,818	1,688,131	10,688	1,114,588	208,032	548,260	1,414,236	25,072,114	37,740,376	12,668,262	66%
2021	43	52	25,072,114	1,746,910	10,568	1,114,624	207,767	555,161	1,507,877	26,700,065	39,199,654	12,499,589	68%
2022	41	53	26,700,065	1,828,313	10,677	1,096,592	205,743	570,604	1,603,008	28,337,021	40,650,024	12,313,003	70%
2023	38	55	28,337,021	1,927,256	10,813	1,070,551	204,028	586,235	1,697,938	29,957,703	42,075,109	12,117,406	71%
2024	35	56	29,957,703	2,029,383	10,963	1,044,170	199,179	603,666	1,791,747	31,556,118	43,438,713	11,882,595	73%
2025	32	57	31,556,118	2,153,074	10,999	991,099	192,467	620,451	1,882,723	33,078,784	44,705,525	11,626,741	74%
2026	30	58	33,078,784	2,249,081	11,162	925,378	189,448	640,187	1,969,791	34,543,345	45,932,626	11,389,281	75%
2027	29	58	34,543,345	2,300,515	11,336	891,293	190,299	657,511	2,055,668	36,026,265	47,182,995	11,156,730	76%
2028	26	60	36,026,265	2,395,428	11,522	874,237	188,020	674,970	2,141,777	37,498,319	48,396,277	10,897,958	77%
2029	24	62	37,498,319	2,518,101	11,716	838,637	182,598	699,119	2,225,969	38,914,824	49,523,969	10,609,145	79%
2030	22	63	38,914,824	2,620,379	11,918	788,614	178,333	722,651	2,307,020	40,279,145	50,584,829	10,305,684	80%
2031	20	64	40,279,145	2,739,256	12,122	738,765	171,792	746,353	2,384,393	41,569,070	51,546,299	9,977,229	81%
2032	17	66	41,569,070	2,873,947	12,325	677,987	163,278	772,049	2,456,511	42,752,624	52,377,384	9,624,760	82%
2033	15	67	42,752,624	3,029,649	12,528	608,881	147,926	798,681	2,521,207	43,787,142	53,017,627	9,230,485	83%
2034	14	68	43,787,142	3,146,040	12,730	510,985	135,328	830,121	2,577,494	44,682,300	53,510,945	8,828,645	84%
2035	12	69	44,682,300	3,235,601	12,929	428,987	128,264	854,844	2,626,648	45,472,513	53,904,108	8,431,595	84%
2036	9	71	45,472,513	3,402,544	13,122	383,656	108,790	884,736	2,668,087	46,102,115	54,058,726	7,956,611	85%
2037	7	71	46,102,115	3,553,298	13,312	315,688	89,241	921,769	2,699,909	46,562,112	53,978,599	7,416,487	86%
2038	6	71	46,562,112	3,617,199	13,496	249,114	80,790	952,460	2,724,303	46,938,083	53,788,579	6,850,496	87%
2039	5	70	46,938,083	3,666,255	13,669	219,673	73,988	981,553	2,745,194	47,278,567	53,507,211	6,228,644	88%
2040	4	70	47,278,567	3,720,486	13,829	197,965	65,668	1,013,272	2,764,066	47,585,223	53,118,607	5,533,384	90%
2041	3	70	47,585,223	3,774,493	13,976	172,960	56,882	1,045,873	2,780,829	47,853,298	52,616,132	4,762,834	91%
2042	3	69	47,853,298	3,834,310	14,108	147,950	46,716	1,080,082	2,795,112	48,074,740	51,983,070	3,908,330	92%
2043	2	69	48,074,740	3,893,101	14,224	120,486	36,220	1,115,064	2,806,570	48,245,754	51,214,003	2,968,249	94%
2044	1	68	48,245,754	3,935,026	14,326	94,694	27,050	1,150,967	2,815,616	48,384,729	50,324,930	1,940,201	96%
2045	1	66	48,384,729	3,946,330	14,411	74,166	20,397	1,187,374	2,823,890	48,529,815	49,348,083	818,268	98%
2046	1	65	48,529,815	3,946,541	14,479	58,754	14,651	829,489	2,821,382	48,293,070	48,293,070	0	100%
2047	0	64	48,293,070	3,934,510	14,532	35,484	9,866	0	2,782,179	47,171,557	47,171,557	0	100%
2048	0	62	47,171,557	3,901,632	14,569	29,419	7,009	0	2,715,596	46,007,380	46,007,380	0	100%
2049	0	61	46,007,380	3,860,701	14,591	24,680	4,810	0	2,646,749	44,808,327	44,808,327	0	100%
2050	0	59	44,808,327	3,813,092	14,599	21,062	3,147	0	2,576,057	43,580,902	43,580,902	0	100%
2051	0	58	43,580,902	3,759,478	14,594	18,590	1,990	0	2,503,890	42,331,299	42,331,299	0	100%
2052	0	56	42,331,299	3,701,650	14,578	16,814	1,160	0	2,430,546	41,063,592	41,063,592	0	100%
2053	0	54	41,063,592	3,640,499	14,552	15,672	596	0	2,356,242	39,781,051	39,781,051	0	100%
2054	0	53	39,781,051	3,576,509	14,517	15,021	270	0	2,281,154	38,486,470	38,486,470	0	100%
2055	0	51	38,486,470	3,510,183	14,474	14,720	138	0	2,205,428	37,182,100	37,182,099	0	100%
2056	0	50	37,182,100	3,442,677	14,424	14,525	56	0	2,129,155	35,868,735	35,868,734	0	100%
2057	0	48	35,868,735	3,374,157	14,367	14,366	0	0	2,052,374	34,546,950	34,546,950	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	$2,580,777	$0	$2,580,777	$205,850	$960,176	$754,326	$853,673	$528,508	$325,165	$10,554	$1,090,045	$0
2019	2,589,443	103,789	2,693,232	206,804	963,236	756,432	895,810	548,260	347,550	10,606	1,114,588	10,898
2020	2,602,439	224,166	2,826,605	208,032	968,117	760,085	899,012	555,161	343,851	10,688	1,114,624	23,537
2021	2,593,432	335,272	2,928,705	207,767	964,880	757,113	899,515	570,604	328,911	10,568	1,096,592	35,204
2022	2,557,930	482,227	3,040,157	205,743	952,528	746,785	899,323	586,235	313,088	10,677	1,070,551	50,634
2023	2,525,242	628,810	3,154,052	204,028	942,504	738,476	898,546	603,666	294,880	10,813	1,044,170	66,025
2024	2,458,524	792,871	3,251,395	199,179	901,906	702,727	897,859	620,451	277,408	10,963	991,099	83,251
2025	2,365,367	996,132	3,361,498	192,467	851,995	659,528	895,038	640,187	254,851	10,999	925,378	104,594
2026	2,312,756	1,199,781	3,512,537	189,448	835,679	646,231	891,411	657,511	233,900	11,162	891,293	125,977
2027	2,314,041	1,367,304	3,681,345	190,299	838,111	647,812	890,059	674,970	215,089	11,336	874,237	143,567
2028	2,268,773	1,524,541	3,793,315	188,020	824,158	636,138	890,096	699,119	190,977	11,522	838,637	160,077
2029	2,177,341	1,763,077	3,940,418	182,598	793,011	610,413	889,136	722,651	166,485	11,716	788,614	185,123
2030	2,101,358	2,006,939	4,108,297	178,333	764,675	586,342	886,857	746,353	140,504	11,918	738,765	210,729
2031	1,997,095	2,254,992	4,252,087	171,792	725,161	553,369	884,545	772,049	112,496	12,122	677,987	236,774
2032	1,867,683	2,531,350	4,399,034	163,278	677,159	513,881	881,356	798,681	82,675	12,325	608,881	265,792
2033	1,675,476	2,816,942	4,492,418	147,926	599,132	451,206	877,373	830,121	47,252	12,528	510,985	295,779
2034	1,523,880	3,170,825	4,694,705	135,328	535,514	400,186	870,915	854,844	16,071	12,730	428,987	332,937
2035	1,427,583	3,437,258	4,864,841	128,264	498,991	370,727	865,132	884,736	0	12,929	383,656	360,912
2036	1,198,911	3,770,277	4,969,188	108,790	411,356	302,566	861,448	921,769	0	13,122	315,688	395,879
2037	976,155	4,204,466	5,180,621	89,241	325,044	235,803	851,393	952,460	0	13,312	249,114	441,469
2038	875,640	4,547,540	5,423,179	80,790	286,966	206,176	835,514	981,553	0	13,496	219,673	477,492
2039	796,006	4,849,673	5,645,679	73,988	258,284	184,296	817,522	1,013,272	0	13,669	197,965	509,216
2040	703,162	5,173,761	5,876,922	65,668	224,799	159,131	793,175	1,045,873	0	13,829	172,960	543,245
2041	606,676	5,503,541	6,110,217	56,882	190,856	133,974	758,579	1,080,082	0	13,976	147,950	577,872
2042	496,508	5,844,374	6,340,882	46,716	153,094	106,378	710,604	1,115,064	0	14,108	120,486	613,659
2043	384,152	6,194,349	6,578,501	36,220	116,690	80,470	643,336	1,150,967	0	14,224	94,694	650,407
2044	286,687	6,533,541	6,820,228	27,050	86,891	59,841	548,656	1,187,374	0	14,326	74,166	686,022
2045	215,707	6,862,653	7,078,360	20,397	64,741	44,344	412,363	829,489	0	14,411	58,754	[b] 720,579
2046	154,433	7,190,136	7,344,569	14,651	45,947	31,296	0	0	0	14,479	35,484	[b] 754,964
2047	103,852	7,529,967	7,633,819	9,866	30,825	20,959	0	0	0	14,532	29,419	[b] 790,646
2048	73,779	7,851,853	7,925,632	7,009	21,854	14,845	0	0	0	14,569	24,680	[b] 824,445
2049	50,631	8,172,852	8,223,483	4,810	14,894	10,084	0	0	0	14,591	21,062	[b] 858,149
2050	33,125	8,498,837	8,531,962	3,147	9,615	6,468	0	0	0	14,599	18,590	[b] 892,378
2051	20,949	8,829,583	8,850,532	1,990	5,983	3,993	0	0	0	14,594	16,814	[b] 927,106
2052	12,214	9,171,974	9,184,187	1,160	3,400	2,240	0	0	0	14,578	15,672	[b] 963,057
2053	6,273	9,514,317	9,520,590	596	1,711	1,115	0	0	0	14,552	15,021	[b] 999,003
2054	2,845	9,877,829	9,880,674	270	775	505	0	0	0	14,517	14,720	[b] 1,037,172
2055	1,455	10,247,797	10,249,253	138	386	248	0	0	0	14,474	14,525	[b] 1,076,019
2056	591	10,614,396	10,614,987	56	157	101	0	0	0	14,424	14,366	[b] 1,114,512
2057	0	11,005,885	11,005,885	0	0	0	0	0	0	14,367	14,304	[b] 1,155,618

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

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

Actuarial Projections – Conservation Funding in 2019
Table A-3

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	54	51	$20,031,672	$1,531,586	$24	$480,407	$204,974	$487,562	$1,409,529	$21,082,534	$33,526,320	$12,443,786	63%
2018	51	52	21,082,534	1,578,247	10,554	514,033	205,850	515,032	1,254,490	21,983,138	34,902,338	12,919,200	63%
2019	48	52	21,983,138	1,636,334	10,606	950,470	206,804	528,508	1,320,137	23,342,117	36,303,520	12,961,403	64%
2020	46	51	23,342,117	1,688,131	10,688	981,564	208,032	548,260	1,401,681	24,782,835	37,740,376	12,957,541	66%
2021	43	52	24,782,835	1,746,910	10,568	1,033,451	207,767	555,161	1,488,120	26,309,856	39,199,654	12,889,798	67%
2022	41	53	26,309,856	1,828,313	10,677	1,101,012	205,743	570,604	1,579,726	27,927,951	40,650,024	12,722,073	69%
2023	38	55	27,927,951	1,927,256	10,813	1,185,685	204,028	586,235	1,676,797	29,642,627	42,075,109	12,432,482	70%
2024	35	56	29,642,627	2,029,383	10,963	1,274,379	199,179	603,666	1,779,648	31,459,153	43,438,713	11,979,560	72%
2025	32	57	31,459,153	2,153,074	10,999	1,386,635	192,467	620,451	1,888,598	33,383,231	44,705,525	11,322,294	75%
2026	30	58	33,383,231	2,249,081	11,162	1,465,299	189,448	640,187	2,004,019	35,421,941	45,932,626	10,510,685	77%
2027	29	58	35,421,941	2,300,515	11,336	1,498,752	190,299	657,511	2,126,343	37,582,995	47,182,995	9,600,000	80%
2028	26	60	37,582,995	2,395,428	11,522	1,577,992	188,020	674,970	2,255,986	39,873,013	48,396,277	8,523,264	82%
2029	24	62	39,873,013	2,518,101	11,716	1,680,760	182,598	699,119	2,393,346	42,299,019	49,523,969	7,224,950	85%
2030	22	63	42,299,019	2,620,379	11,918	1,762,833	178,333	722,651	2,538,873	44,869,412	50,584,829	5,715,417	89%
2031	20	64	44,869,412	2,739,256	12,122	1,863,189	171,792	746,353	2,693,050	47,592,418	51,546,299	3,953,881	92%
2032	17	66	47,592,418	2,873,947	12,325	1,978,960	163,278	772,049	2,856,373	50,476,806	52,377,384	1,900,578	96%
2033	15	67	50,476,806	3,029,649	12,528	1,621,789	147,926	798,681	3,014,602	53,017,627	53,017,627	0	100%
2034	14	68	53,017,627	3,146,040	12,730	412,879	135,328	0	3,103,882	53,510,946	53,510,945	0	100%
2035	12	69	53,510,946	3,235,601	12,929	383,673	128,264	0	3,129,755	53,904,108	53,904,108	0	100%
2036	9	71	53,904,108	3,402,544	13,122	315,676	108,790	0	3,145,818	54,058,727	54,058,726	0	100%
2037	7	71	54,058,727	3,553,298	13,312	249,154	89,241	0	3,148,088	53,978,600	53,978,599	0	100%
2038	6	71	53,978,600	3,617,199	13,496	219,623	80,790	0	3,140,263	53,788,580	53,788,579	0	100%
2039	5	70	53,788,580	3,666,255	13,669	198,001	73,988	0	3,126,566	53,507,211	53,507,211	0	100%
2040	4	70	53,507,211	3,720,486	13,829	172,954	65,668	0	3,107,089	53,118,607	53,118,607	0	100%
2041	3	70	53,118,607	3,774,493	13,976	147,939	56,882	0	3,081,173	52,616,132	52,616,132	0	100%
2042	3	69	52,616,132	3,834,310	14,108	120,500	46,716	0	3,048,140	51,983,070	51,983,070	0	100%
2043	2	69	51,983,070	3,893,101	14,224	94,696	36,220	0	3,007,342	51,214,003	51,214,003	0	100%
2044	1	68	51,214,003	3,935,026	14,326	74,151	27,050	0	2,959,077	50,324,930	50,324,930	0	100%
2045	1	66	50,324,930	3,946,330	14,411	58,754	20,397	0	2,904,744	49,348,084	49,348,083	0	100%
2046	1	65	49,348,084	3,946,541	14,479	45,784	14,651	0	2,845,572	48,293,071	48,293,070	0	100%
2047	0	64	48,293,071	3,934,510	14,532	35,484	9,866	0	2,782,179	47,171,558	47,171,557	0	100%
2048	0	62	47,171,558	3,901,632	14,569	29,419	7,009	0	2,715,596	46,007,381	46,007,380	0	100%
2049	0	61	46,007,381	3,860,701	14,591	24,679	4,810	0	2,646,749	44,808,327	44,808,327	0	100%
2050	0	59	44,808,327	3,813,092	14,599	21,063	3,147	0	2,576,057	43,580,903	43,580,902	0	100%
2051	0	58	43,580,903	3,759,478	14,594	18,590	1,990	0	2,503,890	42,331,301	42,331,299	0	100%
2052	0	56	42,331,301	3,701,650	14,578	16,814	1,160	0	2,430,546	41,063,593	41,063,592	0	100%
2053	0	54	41,063,593	3,640,499	14,552	15,672	596	0	2,356,242	39,781,051	39,781,051	0	100%
2054	0	53	39,781,051	3,576,509	14,517	15,021	270	0	2,281,154	38,486,470	38,486,470	0	100%
2055	0	51	38,486,470	3,510,183	14,474	14,720	138	0	2,205,428	37,182,099	37,182,099	0	100%
2056	0	50	37,182,099	3,442,677	14,424	14,525	56	0	2,129,155	35,868,734	35,868,734	0	100%
2057	0	48	35,868,734	3,374,157	14,367	14,366	0	0	2,052,374	34,546,950	34,546,950	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.	6.48%[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	$21,082,534	$1,588,801	$514,033	$205,850	$515,032	$1,254,490	$0	$0	$0	$0	$0	$0	$0	$0
2019	21,983,138	1,646,940	950,470	167,962	528,508	1,318,988	(23,302,126)	23,302,126	0	0	38,842	0	1,148	10,898
2020	0	1,698,819	981,564	168,995	548,260	0	0	23,342,116	0	0	39,037	0	1,401,681	23,537
2021	0	1,757,478	1,033,451	168,866	555,161	0	0	24,782,834	0	0	38,901	0	1,488,120	35,204
2022	0	1,838,990	1,101,012	167,374	570,604	0	0	26,309,855	0	0	38,369	0	1,579,726	50,634
2023	0	1,938,069	1,185,685	166,149	586,235	0	0	27,927,950	0	0	37,879	0	1,676,797	66,025
2024	0	2,040,346	1,274,379	162,301	603,666	0	0	29,642,626	0	0	36,878	0	1,779,648	83,251
2025	0	2,164,073	1,386,635	156,987	620,451	0	0	31,459,152	0	0	35,480	0	1,888,598	104,594
2026	0	2,260,243	1,465,299	154,757	640,187	0	0	33,383,230	0	0	34,691	0	2,004,019	125,977
2027	0	2,311,851	1,498,752	155,588	657,511	0	0	35,421,940	0	0	34,711	0	2,126,343	143,567
2028	0	2,406,950	1,577,992	153,988	674,970	0	0	37,582,994	0	0	34,032	0	2,255,986	160,077
2029	0	2,529,817	1,680,760	149,938	699,119	0	0	39,873,012	0	0	32,660	0	2,393,346	185,123
2030	0	2,632,297	1,762,833	146,813	722,651	0	0	42,299,018	0	0	31,520	0	2,538,873	210,729
2031	0	2,751,378	1,863,189	141,836	746,353	0	0	44,869,411	0	0	29,956	0	2,693,050	236,774
2032	0	2,886,272	1,978,960	135,263	772,049	0	0	47,592,417	0	0	28,015	0	2,856,373	265,792
2033	0	2,543,264	1,621,789	122,794	798,681	0	0	50,476,805	498,913	0	25,132	0	3,014,602	295,779
2034	0	0	0	0	0	0	0	53,017,626	3,158,770	412,879	135,328	0	3,103,881	332,937
2035	0	0	0	0	0	0	0	53,510,944	3,248,530	383,673	128,264	0	3,129,755	360,912
2036	0	0	0	0	0	0	0	53,904,106	3,415,666	315,676	108,790	0	3,145,817	395,879
2037	0	0	0	0	0	0	0	54,058,723	3,566,610	249,154	89,241	0	3,148,088	441,469
2038	0	0	0	0	0	0	0	53,978,596	3,630,695	219,623	80,790	0	3,140,263	477,492
2039	0	0	0	0	0	0	0	53,788,577	3,679,924	198,001	73,988	0	3,126,566	509,216
2040	0	0	0	0	0	0	0	53,507,208	3,734,315	172,954	65,668	0	3,107,089	543,245
2041	0	0	0	0	0	0	0	53,118,604	3,788,469	147,939	56,882	0	3,081,173	577,872
2042	0	0	0	0	0	0	0	52,616,129	3,848,418	120,500	46,716	0	3,048,140	613,659
2043	0	0	0	0	0	0	0	51,983,067	3,907,325	94,696	36,220	0	3,007,342	650,407
2044	0	0	0	0	0	0	0	51,214,000	3,949,352	74,151	27,050	0	2,959,077	686,022
2045	0	0	0	0	0	0	0	50,324,926	3,960,741	58,754	20,397	0	2,904,744	720,579
2046	0	0	0	0	0	0	0	49,348,080	3,961,020	45,784	14,651	0	2,845,572	754,964
2047	0	0	0	0	0	0	0	48,293,067	3,949,042	35,484	9,866	0	2,782,179	790,646
2048	0	0	0	0	0	0	0	47,171,554	3,916,201	29,419	7,009	0	2,715,595	824,445
2049	0	0	0	0	0	0	0	46,007,376	3,875,292	24,679	4,810	0	2,646,749	858,149
2050	0	0	0	0	0	0	0	44,808,322	3,827,691	21,063	3,147	0	2,576,057	892,378
2051	0	0	0	0	0	0	0	43,580,898	3,774,072	18,590	1,990	0	2,503,889	927,106
2052	0	0	0	0	0	0	0	42,331,295	3,716,228	16,814	1,160	0	2,430,546	963,057
2053	0	0	0	0	0	0	0	41,063,587	3,655,051	15,672	596	0	2,356,242	999,003
2054	0	0	0	0	0	0	0	39,781,046	3,591,026	15,021	270	0	2,281,153	1,037,172
2055	0	0	0	0	0	0	0	38,486,464	3,524,657	14,720	138	0	2,205,428	1,076,019
2056	0	0	0	0	0	0	0	37,182,093	3,457,101	14,525	56	0	2,129,154	1,114,512
2057	0	0	0	0	0	0	0	35,868,727	3,388,524	14,366	0	0	2,052,373	1,155,618

[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, 2043.*

[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 2045
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	54	51	$20,031,672	$1,531,586	$24	$480,407	$204,974	$487,562	$1,409,529	$21,082,534	$33,526,320	$12,443,786	63%
2018	54	52	21,082,534	1,578,247	10,554	514,033	205,850	515,032	1,254,490	21,983,138	34,904,796	12,921,658	63%
2019	54	52	21,983,138	1,636,334	10,907	550,015	217,427	528,508	1,308,603	22,940,450	36,347,723	13,407,273	63%
2020	54	51	22,940,450	1,688,502	11,296	588,516	230,344	548,260	1,366,592	23,974,364	37,873,300	13,898,936	63%
2021	54	52	23,974,364	1,748,389	11,435	629,712	240,664	555,161	1,428,580	25,068,657	39,468,453	14,399,796	64%
2022	54	53	25,068,657	1,831,439	11,892	673,792	252,960	570,604	1,493,891	26,216,574	41,116,985	14,900,411	64%
2023	54	55	26,216,574	1,932,558	12,350	720,957	265,347	586,235	1,561,986	27,406,191	42,806,301	15,400,110	64%
2024	54	56	27,406,191	2,037,429	12,854	771,424	276,401	603,666	1,632,582	28,639,980	44,510,850	15,870,870	64%
2025	54	57	28,639,980	2,164,520	13,331	825,424	289,526	620,451	1,705,319	29,902,849	46,213,205	16,310,356	65%
2026	54	58	29,902,849	2,264,764	13,906	883,204	305,976	640,187	1,780,888	31,234,434	47,975,009	16,740,575	65%
2027	54	59	31,234,434	2,321,314	14,379	945,028	322,580	657,511	1,861,929	32,685,788	49,849,586	17,163,798	66%
2028	54	61	32,685,788	2,423,051	14,839	1,011,180	335,469	674,970	1,948,841	34,218,358	51,777,361	17,559,003	66%
2029	54	62	34,218,358	2,554,116	15,512	1,081,963	353,620	699,119	2,040,244	35,823,676	53,743,518	17,919,842	67%
2030	54	64	35,823,676	2,665,431	16,169	1,157,700	373,024	722,651	2,136,761	37,532,212	55,775,239	18,243,027	67%
2031	54	65	37,532,212	2,794,449	16,815	1,238,739	390,581	746,353	2,239,055	39,335,675	57,848,748	18,513,073	68%
2032	54	67	39,335,675	2,940,448	17,512	1,325,451	409,006	772,049	2,346,794	41,231,015	59,950,765	18,719,750	69%
2033	54	69	41,231,015	3,108,488	18,206	1,418,233	421,453	798,681	2,459,425	43,202,113	62,033,341	18,831,228	70%
2034	54	69	43,202,113	3,238,771	19,047	1,517,509	443,764	830,121	2,578,338	45,314,027	64,170,935	18,856,908	71%
2035	54	70	45,314,027	3,343,776	19,620	1,623,735	462,310	854,844	2,706,351	47,597,871	66,393,301	18,795,430	72%
2036	54	72	47,597,871	3,526,864	20,348	1,737,396	475,601	884,736	2,842,584	49,990,976	68,599,135	18,608,159	73%
2037	54	73	49,990,976	3,694,228	21,286	1,859,014	497,226	921,769	2,986,525	52,539,996	70,836,477	18,296,481	74%
2038	54	73	52,539,996	3,777,268	21,985	1,989,145	519,354	952,460	3,142,399	55,344,101	73,201,972	17,857,871	76%
2039	54	74	55,344,101	3,855,177	22,629	2,128,385	540,549	981,553	3,313,926	58,430,708	75,697,243	17,266,535	77%
2040	54	74	58,430,708	3,953,441	23,337	2,277,372	562,382	1,013,272	3,502,184	61,809,140	78,316,909	16,507,769	79%
2041	54	75	61,809,140	4,061,077	24,064	2,436,788	584,085	1,045,873	3,708,005	65,498,750	81,058,084	15,559,334	81%
2042	54	75	65,498,750	4,185,820	24,826	2,607,363	605,544	1,080,082	3,932,359	69,513,452	83,907,107	14,393,655	83%
2043	54	76	69,513,452	4,322,950	25,614	2,789,878	626,169	1,115,064	4,176,204	73,872,202	86,861,957	12,989,755	85%
2044	54	76	73,872,202	4,457,355	26,415	2,985,169	646,782	1,150,967	4,441,176	78,612,526	89,925,314	11,312,788	87%
2045	50	77	78,612,526	4,584,732	27,238	3,072,280	670,553	1,187,374	4,726,159	83,656,922	93,103,155	9,446,233	90%
2046	47	77	83,656,922	4,726,423	27,291	3,109,072	660,322	1,224,195	5,026,507	88,923,304	96,278,806	7,355,502	92%
2047	44	77	88,923,304	4,870,821	27,375	3,033,385	648,815	1,261,833	5,336,753	94,305,894	99,449,824	5,143,930	95%
2048	41	77	94,305,894	5,003,489	27,485	2,908,313	636,678	1,299,203	5,652,832	99,771,946	102,617,970	2,846,024	97%
2049	38	77	99,771,946	5,143,770	27,616	2,730,215	623,377	1,338,197	5,972,138	105,264,487	105,760,520	496,033	100%
2050	36	78	105,264,487	5,298,360	27,766	1,822,219	608,733	252,717	6,237,751	108,859,781	108,859,781	0	100%
2051	33	78	108,859,781	5,463,465	27,931	1,505,654	593,111	0	6,431,290	111,898,440	111,898,440	0	100%
2052	31	78	111,898,440	5,638,225	28,112	1,447,463	575,529	0	6,606,198	114,861,294	114,861,294	0	100%
2053	28	78	114,861,294	5,819,435	28,308	1,377,723	557,205	0	6,776,003	117,724,482	117,724,483	0	100%
2054	26	79	117,724,482	6,010,555	28,521	1,311,442	538,589	0	6,939,628	120,475,065	120,475,065	0	100%
2055	24	79	120,475,065	6,209,314	28,749	1,257,318	516,475	0	7,096,526	123,107,321	123,107,322	0	100%
2056	22	79	123,107,321	6,410,876	28,992	1,173,909	492,055	0	7,245,308	125,578,725	125,578,725	0	100%
2057	20	79	125,578,725	6,631,778	29,250	1,087,427	466,752	0	7,383,750	127,855,626	127,855,626	0	100%

Actuarial Projections – Optional Funding in 2045

Table A-6

	Employer Contributions								Minimum Payment			
Valuation Plan Year End 30-Jun[a,b]	Total Payroll	Employee Contributions	Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Premium Tax Allocation Contributions	Net Employer Amortization	Expenses	Optional Employer Contribution	Alternative Employer Contribution	Minimum Employer Contribution	Statewide Employer Contribution
2018	$2,580,777	$205,850	$960,176	$754,326	$853,673	$528,508	$325,165	$10,554	$1,090,045	$550,015	$550,015	$0
2019	2,693,232	217,427	1,001,423	783,997	895,981	548,260	347,721	10,907	1,142,625	588,516	588,516	0
2020	2,826,605	230,344	1,050,888	820,544	940,363	555,161	385,202	11,296	1,217,042	629,712	629,712	0
2021	2,928,705	240,664	1,089,108	848,444	986,899	570,604	416,295	11,435	1,276,173	673,792	673,792	0
2022	3,040,157	252,960	1,131,609	878,649	1,036,040	586,235	449,805	11,892	1,340,346	720,957	720,957	0
2023	3,154,052	265,347	1,176,587	911,240	1,087,363	603,666	483,697	12,350	1,407,287	771,424	771,424	0
2024	3,251,395	276,401	1,197,674	921,273	1,141,097	620,451	520,646	12,854	1,454,773	825,424	825,424	0
2025	3,361,498	289,526	1,224,148	934,622	1,195,449	640,187	555,262	13,331	1,503,215	883,204	883,204	0
2026	3,512,537	305,976	1,284,730	978,753	1,250,499	657,511	592,988	13,906	1,585,648	945,028	945,028	0
2027	3,681,345	322,580	1,349,953	1,027,373	1,308,256	674,970	633,286	14,379	1,675,039	1,011,180	1,011,180	0
2028	3,793,315	335,469	1,393,890	1,058,420	1,369,346	699,119	670,227	14,839	1,743,487	1,081,963	1,081,963	0
2029	3,940,418	353,620	1,450,650	1,097,030	1,432,593	722,651	709,942	15,512	1,822,483	1,157,700	1,157,700	0
2030	4,108,297	373,024	1,512,219	1,139,195	1,497,984	746,353	751,631	16,169	1,906,995	1,238,739	1,238,739	0
2031	4,252,087	390,581	1,564,037	1,173,456	1,565,813	772,049	793,764	16,815	1,984,036	1,325,451	1,325,451	0
2032	4,399,034	409,006	1,617,854	1,208,847	1,635,384	798,681	836,703	17,512	2,063,063	1,418,233	1,418,233	0
2033	4,492,418	421,453	1,644,710	1,223,257	1,706,453	830,121	876,332	18,206	2,117,795	1,517,509	1,517,509	0
2034	4,694,705	443,764	1,710,952	1,267,189	1,776,764	854,844	921,920	19,047	2,208,155	1,623,735	1,623,735	0
2035	4,864,841	462,310	1,772,929	1,310,619	1,847,817	884,736	963,081	19,620	2,293,321	1,737,396	1,737,396	0
2036	4,969,188	475,601	1,808,867	1,333,266	1,920,311	921,769	998,542	20,348	2,352,156	1,859,014	1,859,014	0
2037	5,180,621	497,226	1,882,850	1,385,623	1,991,157	952,460	1,038,697	21,286	2,445,607	1,989,145	1,989,145	0
2038	5,423,179	519,354	1,970,224	1,450,870	2,061,213	981,553	1,079,660	21,985	2,552,514	2,128,385	2,128,385	0
2039	5,645,679	540,549	2,050,756	1,510,207	2,131,115	1,013,272	1,117,843	22,629	2,650,679	2,277,372	2,277,372	0
2040	5,876,922	562,382	2,133,788	1,571,407	2,198,773	1,045,873	1,152,900	23,337	2,747,644	2,436,788	2,436,788	0
2041	6,110,217	584,085	2,217,589	1,633,504	2,263,071	1,080,082	1,182,989	24,064	2,840,557	2,607,363	2,607,363	0
2042	6,340,882	605,544	2,300,352	1,694,808	2,321,419	1,115,064	1,206,355	24,826	2,925,989	2,789,878	2,789,878	0
2043	6,578,501	626,169	2,388,135	1,761,967	2,369,288	1,150,967	1,218,321	25,614	3,005,902	2,985,169	2,985,169	0
2044	6,820,228	646,782	2,478,975	1,832,193	2,401,046	1,187,374	1,213,672	26,415	3,072,280	3,194,131	3,072,280	0
2045	7,078,360	670,553	2,572,206	1,901,653	2,404,377	1,224,195	1,180,182	27,238	3,109,072	3,417,720	3,109,072	0
2046	7,344,569	660,322	2,541,525	1,881,204	2,386,724	1,261,833	1,124,891	27,291	3,033,385	3,656,960	3,033,385	36,371
2047	7,633,819	648,815	2,505,477	1,856,662	2,323,478	1,299,203	1,024,275	27,375	2,908,313	3,912,947	2,908,313	77,010
2048	7,925,632	636,678	2,466,218	1,829,540	2,211,387	1,338,197	873,190	27,485	2,730,215	3,212,005	2,730,215	118,238
2049	8,223,483	623,377	2,417,980	1,794,603	1,981,755	252,717	603,079	27,616	1,822,219	1,822,219	1,822,219	162,199
2050	8,531,962	608,733	2,363,945	1,755,212	0	0	0	27,766	1,505,654 [c]	1,505,654	1,505,654	208,699
2051	8,850,532	593,111	2,303,437	1,710,326	0	0	0	27,931	1,447,463 [c]	1,447,463	1,447,463	257,774
2052	9,184,187	575,529	2,237,224	1,661,695	0	0	0	28,112	1,377,723 [c]	1,377,723	1,377,723	309,714
2053	9,520,590	557,205	2,161,719	1,604,514	0	0	0	28,308	1,311,442 [c]	1,311,442	1,311,442	364,174
2054	9,880,674	538,589	2,086,598	1,548,009	0	0	0	28,521	1,257,318 [c]	1,257,318	1,257,318	421,973
2055	10,249,253	516,475	2,014,143	1,497,668	0	0	0	28,749	1,173,909 [c]	1,173,909	1,173,909	481,035
2056	10,614,987	492,055	1,926,396	1,434,341	0	0	0	28,992	1,087,427 [c]	1,087,427	1,087,427	543,824
2057	11,005,885	466,752	1,829,418	1,362,665	0	0	0	29,250	1,011,006 [c]	1,011,006	1,011,006	611,830

[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 2043
Table A-7

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	54	51	$20,031,672	$1,531,586	$24	$480,407	$204,974	$487,562	$1,409,529	$21,082,534	$33,526,320	$12,443,786	63%
2018	54	52	21,082,534	1,578,247	10,554	514,033	205,850	515,032	1,254,490	21,983,138	34,904,796	12,921,658	63%
2019	54	52	21,983,138	1,636,334	10,907	550,015	217,427	528,508	1,308,603	22,940,450	36,347,723	13,407,273	63%
2020	54	51	22,940,450	1,688,502	11,296	588,516	230,344	548,260	1,366,592	23,974,364	37,873,300	13,898,936	63%
2021	54	52	23,974,364	1,748,389	11,435	629,712	240,664	555,161	1,428,579	25,068,656	39,468,453	14,399,797	64%
2022	54	53	25,068,656	1,831,439	11,892	673,792	252,960	570,604	1,493,891	26,216,572	41,116,985	14,900,413	64%
2023	54	55	26,216,572	1,932,558	12,350	720,957	265,347	586,235	1,561,986	27,406,189	42,806,301	15,400,112	64%
2024	54	56	27,406,189	2,037,429	12,854	771,424	276,401	603,666	1,632,582	28,639,979	44,510,850	15,870,871	64%
2025	54	57	28,639,979	2,164,520	13,331	825,424	289,526	620,451	1,705,319	29,902,848	46,213,205	16,310,357	65%
2026	54	58	29,902,848	2,264,764	13,906	883,204	305,976	640,187	1,780,888	31,234,433	47,975,009	16,740,576	65%
2027	54	59	31,234,433	2,321,314	14,379	945,028	322,580	657,511	1,861,928	32,685,787	49,849,586	17,163,799	66%
2028	54	61	32,685,787	2,423,051	14,839	1,011,180	335,469	674,970	1,948,841	34,218,357	51,777,361	17,559,004	66%
2029	54	62	34,218,357	2,554,116	15,512	1,081,963	353,620	699,119	2,040,244	35,823,675	53,743,518	17,919,843	67%
2030	54	64	35,823,675	2,665,431	16,169	1,157,700	373,024	722,651	2,136,761	37,532,211	55,775,239	18,243,028	67%
2031	54	65	37,532,211	2,794,449	16,815	1,238,739	390,581	746,353	2,239,055	39,335,675	57,848,748	18,513,073	68%
2032	54	67	39,335,675	2,940,448	17,512	1,325,451	409,006	772,049	2,346,794	41,231,015	59,950,765	18,719,750	69%
2033	54	69	41,231,015	3,108,488	18,206	1,418,233	421,453	798,681	2,459,424	43,202,112	62,033,341	18,831,229	70%
2034	54	69	43,202,112	3,238,771	19,047	1,517,509	443,764	830,121	2,578,338	45,314,026	64,170,935	18,856,909	71%
2035	54	70	45,314,026	3,343,776	19,620	1,623,735	462,310	854,844	2,706,351	47,597,870	66,393,301	18,795,431	72%
2036	54	72	47,597,870	3,526,864	20,348	1,737,396	475,601	884,736	2,842,584	49,990,975	68,599,135	18,608,160	73%
2037	54	73	49,990,975	3,694,228	21,286	1,859,014	497,226	921,769	2,986,525	52,539,995	70,836,477	18,296,482	74%
2038	54	73	52,539,995	3,777,268	21,985	1,989,145	519,354	952,460	3,142,399	55,344,100	73,201,972	17,857,872	76%
2039	54	74	55,344,100	3,855,177	22,629	2,128,385	540,549	981,553	3,313,926	58,430,707	75,697,243	17,266,536	77%
2040	54	74	58,430,707	3,953,441	23,337	2,277,372	562,382	1,013,272	3,502,184	61,809,139	78,316,909	16,507,770	79%
2041	54	75	61,809,139	4,061,077	24,064	2,436,788	584,085	1,045,873	3,708,005	65,498,749	81,058,084	15,559,335	81%
2042	50	75	65,498,749	4,185,820	24,826	2,607,363	605,544	1,080,082	3,932,359	69,513,451	83,899,720	14,386,269	83%
2043	47	76	69,513,451	4,322,950	24,898	2,732,539	594,243	1,115,064	4,173,586	73,781,035	86,729,438	12,948,403	85%
2044	44	76	73,781,035	4,456,239	24,997	2,841,512	581,166	1,150,967	4,429,594	78,303,038	89,530,575	11,227,537	87%
2045	41	77	78,303,038	4,580,338	25,119	2,939,487	569,323	1,187,374	4,700,864	83,094,629	92,301,619	9,206,990	90%
2046	38	77	83,094,629	4,717,042	25,258	3,049,282	557,812	1,224,195	4,988,309	88,171,927	95,035,480	6,863,553	93%
2047	36	77	88,171,927	4,856,179	25,408	3,161,883	545,191	1,261,833	5,292,897	93,552,144	97,735,154	4,183,010	96%
2048	33	77	93,552,144	4,984,664	25,568	3,264,952	531,709	1,299,203	5,615,660	99,253,436	100,401,423	1,147,987	99%
2049	31	77	99,253,436	5,120,954	25,737	2,081,448	516,779	412,033	5,892,047	103,009,052	103,009,052	0	100%
2050	29	78	103,009,052	5,271,455	25,915	1,249,503	500,817	0	6,075,682	105,537,684	105,537,683	0	100%
2051	26	78	105,537,684	5,432,094	26,103	1,191,599	484,306	0	6,220,445	107,975,837	107,975,837	0	100%
2052	24	78	107,975,837	5,599,293	26,301	1,139,597	465,751	0	6,359,700	110,315,291	110,315,290	0	100%
2053	22	78	110,315,291	5,769,871	26,508	1,074,036	445,655	0	6,492,486	112,531,089	112,531,088	0	100%
2054	20	78	112,531,089	5,950,520	26,726	1,002,794	424,280	0	6,617,349	114,598,266	114,598,265	0	100%
2055	18	78	114,598,266	6,142,799	26,952	937,084	398,960	0	6,732,997	116,497,556	116,497,556	0	100%
2056	16	78	116,497,556	6,341,551	27,186	844,650	370,929	0	6,837,510	118,181,908	118,181,908	0	100%
2057	14	79	118,181,908	6,559,452	27,430	748,917	341,682	0	6,928,428	119,614,053	119,614,053	0	100%

Actuarial Projections – Conservation Funding in 2043
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.	6.48%[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	$21,082,534	$1,588,801	$514,033	$205,850	$515,032	$1,254,490	$0	$0	$0	$0	$0	$0	NA	$514,033	$514,033	$0
2019	21,983,138	1,647,241	550,015	217,427	528,508	1,308,603	0	0	0	0	0	0	NA	550,015	550,015	0
2020	22,940,450	1,699,798	588,516	230,344	548,260	1,366,592	0	0	0	0	0	0	NA	588,516	588,516	0
2021	23,974,364	1,759,824	629,712	240,664	555,161	1,428,579	0	0	0	0	0	0	NA	629,712	629,712	0
2022	25,068,656	1,843,331	673,792	252,960	570,604	1,493,891	0	0	0	0	0	0	NA	673,792	673,792	0
2023	26,216,572	1,944,908	720,957	265,347	586,235	1,561,986	0	0	0	0	0	0	NA	720,957	720,957	0
2024	27,406,189	2,050,283	771,424	276,401	603,666	1,632,582	0	0	0	0	0	0	NA	771,424	771,424	0
2025	28,639,979	2,177,851	825,424	289,526	620,451	1,705,319	0	0	0	0	0	0	NA	825,424	825,424	0
2026	29,902,847	2,278,670	883,204	305,976	640,187	1,780,888	0	0	0	0	0	0	NA	883,204	883,204	0
2027	31,234,432	2,335,693	945,028	322,580	657,511	1,861,928	0	0	0	0	0	0	NA	945,028	945,028	0
2028	32,685,786	2,437,890	1,011,180	335,469	674,970	1,948,841	0	0	0	0	0	0	NA	1,011,180	1,011,180	0
2029	34,218,356	2,569,628	1,081,963	353,620	699,119	2,040,244	0	0	0	0	0	0	NA	1,081,963	1,081,963	0
2030	35,823,674	2,681,600	1,157,700	373,024	722,651	2,136,761	0	0	0	0	0	0	NA	1,157,700	1,157,700	0
2031	37,532,210	2,811,264	1,238,739	390,581	746,353	2,239,055	0	0	0	0	0	0	NA	1,238,739	1,238,739	0
2032	39,335,674	2,957,960	1,325,451	409,006	772,049	2,346,794	0	0	0	0	0	0	NA	1,325,451	1,325,451	0
2033	41,231,014	3,126,694	1,418,233	421,453	798,681	2,459,424	0	0	0	0	0	0	NA	1,418,233	1,418,233	0
2034	43,202,111	3,257,818	1,517,509	443,764	830,121	2,578,338	0	0	0	0	0	0	NA	1,517,509	1,517,509	0
2035	45,314,025	3,363,396	1,623,735	462,310	854,844	2,706,351	0	0	0	0	0	0	NA	1,623,735	1,623,735	0
2036	47,597,869	3,547,212	1,737,396	475,601	884,736	2,842,584	0	0	0	0	0	0	NA	1,737,396	1,737,396	0
2037	49,990,973	3,715,514	1,859,014	497,226	921,769	2,986,525	0	0	0	0	0	0	NA	1,859,014	1,859,014	0
2038	52,539,993	3,799,253	1,989,145	519,354	952,460	3,142,399	0	0	0	0	0	0	NA	1,989,145	1,989,145	0
2039	55,344,098	3,877,806	2,128,385	540,549	981,553	3,313,926	0	0	0	0	0	0	NA	2,128,385	2,128,385	0
2040	58,430,705	3,976,778	2,277,372	562,382	1,013,272	3,502,184	0	0	0	0	0	0	NA	2,277,372	2,277,372	0
2041	61,809,137	4,085,141	2,436,788	584,085	1,045,873	3,708,005	0	0	0	0	0	0	NA	2,436,788	2,436,788	0
2042	65,498,748	4,210,646	2,607,363	605,544	1,080,082	3,932,359	0	0	0	0	0	0	NA	2,607,363	2,607,363	0
2043	69,513,449	4,347,848	2,732,539	500,245	1,115,064	4,170,807	73,684,258	0	0	93,998	0	2,779	2,732,539	2,789,878	2,732,539	32,754
2044	0	4,481,236	2,841,512	488,757	1,150,967	0	73,781,035	0	0	92,409	0	4,429,594	2,841,512	2,985,169	2,841,512	69,260
2045	0	4,605,457	2,939,487	478,596	1,187,374	0	78,303,038	0	0	90,727	0	4,700,864	2,939,487	3,194,131	2,939,487	108,135
2046	0	4,742,300	3,049,282	468,823	1,224,195	0	83,094,629	0	0	88,989	0	4,988,309	3,049,282	3,417,720	3,049,282	148,256
2047	0	4,881,587	3,161,883	457,871	1,261,833	0	88,171,927	0	0	87,320	0	5,292,897	3,161,883	3,656,960	3,161,883	190,311
2048	0	5,010,232	3,264,952	446,077	1,299,203	0	93,552,144	0	0	85,632	0	5,615,660	3,264,952	3,912,947	3,264,952	232,769
2049	0	2,926,653	2,081,448	433,172	412,033	0	99,253,436	2,220,038	0	83,607	0	5,892,047	2,081,448	1,554,269	2,081,448	278,218
2050	0	0	0	0	0	0	103,009,052	5,297,370	1,249,503	500,817	0	6,075,682	1,249,503	1,507,029	1,249,503	326,517
2051	0	0	0	0	0	0	105,537,684	5,458,197	1,191,599	484,306	0	6,220,445	1,191,599	1,458,510	1,191,599	377,050
2052	0	0	0	0	0	0	107,975,837	5,625,594	1,139,597	465,751	0	6,359,700	1,139,597	1,411,901	1,139,597	429,971
2053	0	0	0	0	0	0	110,315,291	5,796,379	1,074,036	445,655	0	6,492,486	1,074,036	1,357,656	1,074,036	485,509
2054	0	0	0	0	0	0	112,531,088	5,977,246	1,002,794	424,280	0	6,617,349	1,002,794	1,298,694	1,002,794	545,265
2055	0	0	0	0	0	0	114,598,265	6,169,751	937,084	398,960	0	6,732,997	937,084	1,238,925	937,084	607,376
2056	0	0	0	0	0	0	116,497,555	6,368,737	844,650	370,929	0	6,837,510	844,650	1,164,512	844,650	673,709
2057	0	0	0	0	0	0	118,181,906	6,586,882	748,917	341,682	0	6,928,428	748,917	1,080,288	748,917	745,705

[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, 2043.*

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