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

Actuarial Valuation Report
for the Year Beginning July 1, 2016

GRS Retirement Consulting
P: 312.456.9800 | F: 312.683.3271 | www.grsconsulting.com

September 11, 2017

Mr. Billie L. Trump
City Treasurer, Recorder
409 So. 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, 2016

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, 2016, 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 end June 30, 2018, 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, 2018
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2018

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

This valuation is based upon:

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

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

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

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 5.50%. The assumptions used in the 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 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

Lance J. Weiss

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

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

Contents

SECTION I

ACTUARIAL VALUATION RESULTS AS OF JULY 1, 2016

Executive Summary

Upon the request of the Municipal Pensions Oversight Board (MPOB), we have performed an actuarial valuation as of July 1, 2016, 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, 2018
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2018
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2018

This report is based on the sponsor's election to finance benefit obligations using the 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).

Executive Summary (Continued)

The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2016
Assets	$20,031,672
Actuarial Accrued Liability	$35,088,168
Unfunded Actuarial Accrued Liability	$15,056,496
Funded Ratio	57.09%

The following table provides the employer contributions for the fiscal year ended June 30, 2017, under the Alternative funding policy:

Employer Contributions for FYE:	June 30, 2017
FYE 06/30/2016 Alternative Contribution	$448,977
7% Increase in Alternative Contribution	$31,428
FYE 06/30/2017 Alternative Contribution	$480,405
Additional Contribution	$0
Final FYE 06/30/2017 Alternative Contribution	$480,405

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

Estimated 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 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 06/30/2018 to receive 100% of the State Premium Tax Allocation	$514,033
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 06/30/2018 to receive 100% of the State Premium Tax Allocation and to grant Supplemental Benefits; i.e. COLA increases	$514,033

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 valuation date will not be used to finance the unfunded liabilities of current members as of the valuation date. That is, assets and liabilities associated with new plan members are excluded from the solvency projections used to certify the solvency test for purposes of providing Supplemental Benefits. In this report projections that exclude new members are called "Closed Group Projections."

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

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

Commentary on Premium Tax Allocation

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

Based upon discussions with the MPOB, we understand the annual premium tax allocation is determined by September 1st each year. Municipalities can begin invoicing the MPOB for their share of the premium tax allocation after receiving their state provided actuarial study and after the municipality has made employer contributions to the local Plan. Each municipal treasurer shall use the invoice template provided by the MPOB to begin drawing down the state allocation for the municipal pension plan. This July 1, 2016, Actuarial Report from GRS is to be used by municipal pension plans to draw down the September 1, 2017 State Premium Tax Allocation which is allocated in Fiscal Year 2018. *The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statues, 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.*

Executive Summary (Continued)

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

Additional Remarks on the Actuarial Valuation Results

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

- The assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, and approved by the Municipal Pensions Oversight Board and became effective beginning with the actuarial valuation as of July 1, 2015. The key assumptions are fully disclosed in Section VI of the report.
- The interest rate used to discount liabilities remained the same for the July 1, 2015, and July 1, 2016, actuarial valuations.
    - The interest rate assumption was developed by reviewing the Plan's current funded ratio, the 15-year projected funded ratio, the ratio of assets to benefits, the percentage of assets allocated to equities and the funding policy selected. The details of the methodology used to select the discount rate are presented in Section VI of the report. As of July 1, 2016, the Plan's funded ratio of 57% (using a testing interest rate of 5.50% for all plans using the Alternative funding policy), ratio of assets to benefits of 12.75, equity allocation of 50%, and 15-year projected funded ratio of 58%, resulted in a discount rate assumption of 5.50%.
- The Fund experienced an approximate annualized return of 4.79% on the market value of assets during the plan year ended June 30, 2016, which compares to the expected annualized return of 5.50%. The difference in actual versus expected return produced an asset (gain)/loss of $138,686.
- 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, 2016, the fund experienced a net liability (gain)/loss of ($572,684) due to these events.

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

Alternative Funding

Based on the open group projections shown in Table 2, page II-2 and assuming that the sponsor makes the statutory required contributions, if all actuarial assumptions are realized in the future, including an investment return of 5.50%:

- The funded ratio is projected to increase marginally from 57% at June 30, 2016, to 61% at June 30, 2034, and then increase to 100% at 2053.
- Employer contributions are expected to increase from $480,405 (or 22% of pay) for the fiscal year end June 30, 2017, to $4,652,857 (or 56% of pay) for fiscal year end June 30, 2053.

Please note that a funded ratio of only 57% at June 30, 2016, means that the plan is underfunded.

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

A funding policy consistent with generally accepted actuarial principles is typically based on the sponsor contributing the normal cost net of employee contributions plus an amortization of the unfunded actuarial liability. The annual amortization amount is generally 6% to 7% of the unfunded actuarial liability. Under state statute, the annual premium tax allocation can only be used to finance the amortization of the unfunded actuarial liability. For fiscal year end 2018, the Alternative funding policy contribution of $514,033 is sufficient to finance only 67% of the net employer normal cost of $771,250 and the state premium tax allocation of $515,032 is sufficient to finance only 3.4% of the unfunded actuarial liability of $15,056,496.

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

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

If the minimum employer contributions (calculated under the Alternative funding policy) are not made or investment return is less than the assumption of 5.50%, the funded ratio will be lower and the cash flow strain could be higher. If another significant market downtown occurs while the plan's funded ratio is declining, the plan may need to liquidate assets in order to pay benefits which could have a further adverse effect on the funded status of the System.

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

- If the actual return on assets is *less* than the assumed return of 5.50%, then the funded ratio will *decrease*. Conversely, if the actual return is *greater* than the assumed return, the funded ratio will *increase*.
- If salaries increase by *more* than assumed, the funded ratio will *decrease*. If salaries increase by *less* than assumed, the funded ratio will *increase.*
- If active members retire *sooner* than expected, the funded ratio will generally *decrease.* If active members retire *later* than expected, the funded ratio will generally *increase*.
- If active members become disabled during the year, the funded ratio will *decrease*.
- If retired members die *later* than expected, the funded ratio will *decrease*. If retired members die *sooner* than expected, the funded ratio will *increase*.

- If the general inflation is *greater* than assumed, supplemental benefits will be greater than assumed and the funded ratio will *decrease*. Conversely, if general inflation is *lower* than assumed, the funded ratio will *increase*.

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

Schedule A: Summary of Key Valuation Results

Valuation Date		**July 1, 2015**		**July 1, 2016**
Valuation Interest Rate		5.50%		5.50%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$2,100,749		$2,217,255
Average Pay		$44,697		$48,201
Expected Benefit Payments		$1,576,828		$1,571,207
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	47	$9,777,763	46	$10,366,578
(b) Retirees	27	$18,402,994	27	$18,052,676
(c) Survivors	12	$1,442,349	10	$1,347,040
(d) Disabled Members	13	$4,431,591	12	$4,211,462
(e) Deferred Vested Members	1	$432,901	2	$1,110,412
(f) Total	100	$34,487,598	97	$35,088,168
2. Present Value of Future Normal Costs		$9,768,523		$10,242,374
3. Present Value of Benefits (1(f) + 2)		$44,256,121		$45,330,542
4. Market Value of Assets		$19,595,635		$20,031,672
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$14,891,963		$15,056,496
6. Funded Ratio (4 / 1(f))		56.82%		57.09%
7. Net Employer Normal Cost				
(a) Normal Cost		$858,009		$932,441
(b) Administrative Expenses		$6,435		$10,892
(c) Gross Normal Cost (a + b)		$864,444		$943,333
(d) Employee Contribution Rate [a]		7.73%		7.76%
(e) Expected Employee Contributions		$162,450		$172,083
(f) Net Employer Normal Cost (c - e)		$701,994		$771,250
(% of Compensation)		33.42%		34.78%
		FYE 2017		**FYE 2018**
8. Estimated Minimum Employer Contribution [b]				
(a) Prior Year Alternative Contribution		$448,977		$480,405
(b) Increase in Alternative Contribution		7.00%		7.00%
(c) Current Year Alternative Contribution		$480,405		$514,033
(d) Additional Contribution		$0		$0
(e) Alternative Contribution (c + d)		$480,405		$514,033

[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, 2018.

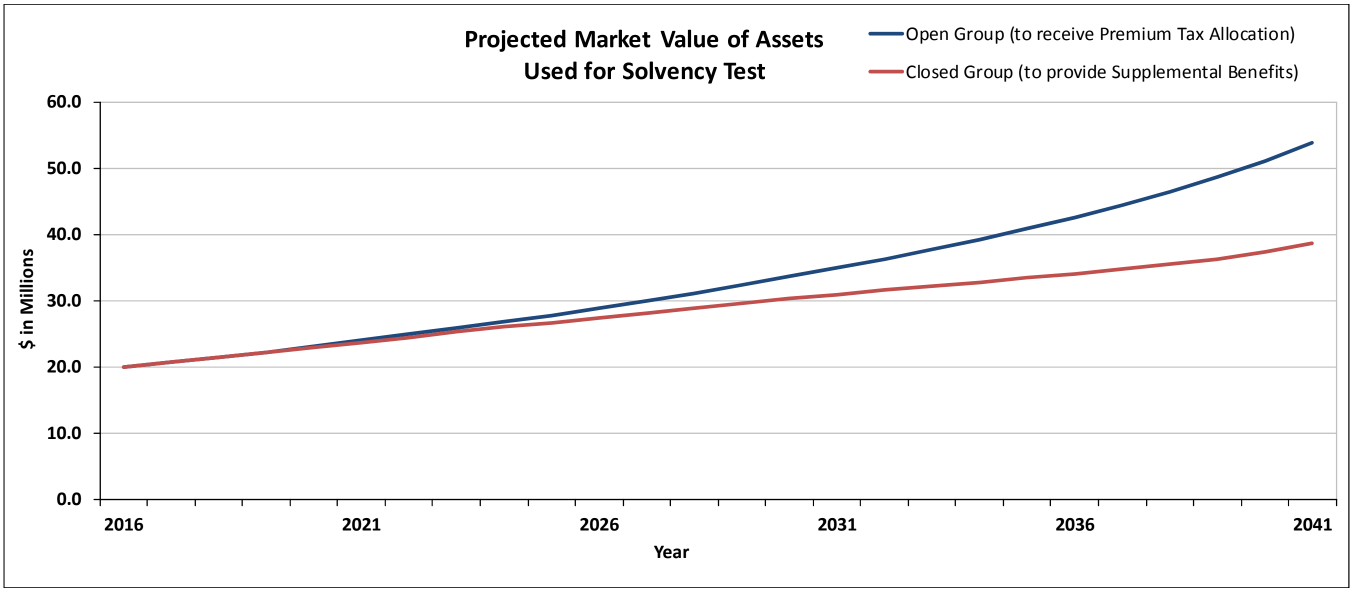
Schedule B: (Gain)/Loss Analysis

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

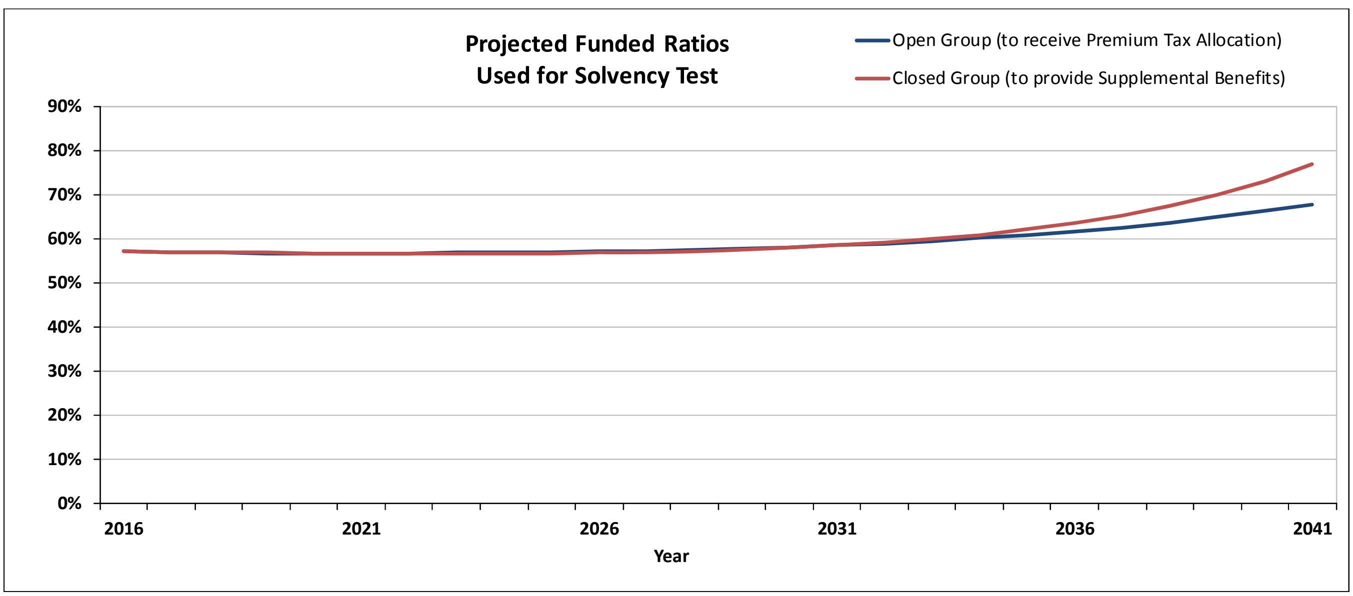
1.	(a) Liability as of 7/1/2015	$34,487,598
	(b) Normal Cost due 7/1/2015	$858,009
	(c) Interest on (a) and (b) to 6/30/2016	$1,920,413
	(d) Benefit Payments with interest to 6/30/2016	$1,605,168
	(e) Effect of Assumption Changes	$0
	(f) Expected Liability at 7/1/2016 [(a) + (b) + (c) - (d) + (e)]	$35,660,852
	(g) Actual Liability at 7/1/2016	$35,088,168
	(h) Liability (Gain)/Loss [(g) - (f)]	**($572,684)**
2.	(a) Market Value of Assets as of 7/1/2015	$19,595,635
	(b) Interest on (a) to 6/30/2016	$1,072,849
	(c) Contributions with interest to 6/30/2016	$1,107,042
	(d) Benefit Payments with interest to 6/30/2016	$1,605,168
	(e) Expected Assets at 6/30/2016 [(a) + (b) + (c) - (d)]	$20,170,358
	(f) Actual Assets at 7/1/2016	$20,031,672
	(g) Asset (Gain)/Loss [(e) - (f)]	**$138,686**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**($433,998)**

Graphs 1A and 1B: Solvency Projections

Graph 1A



Graph 1B



SECTION II

ACTUARIAL PROJECTIONS

ALTERNATIVE FUNDING POLICY

Alternative Funding on a Closed Group Basis, Table 1

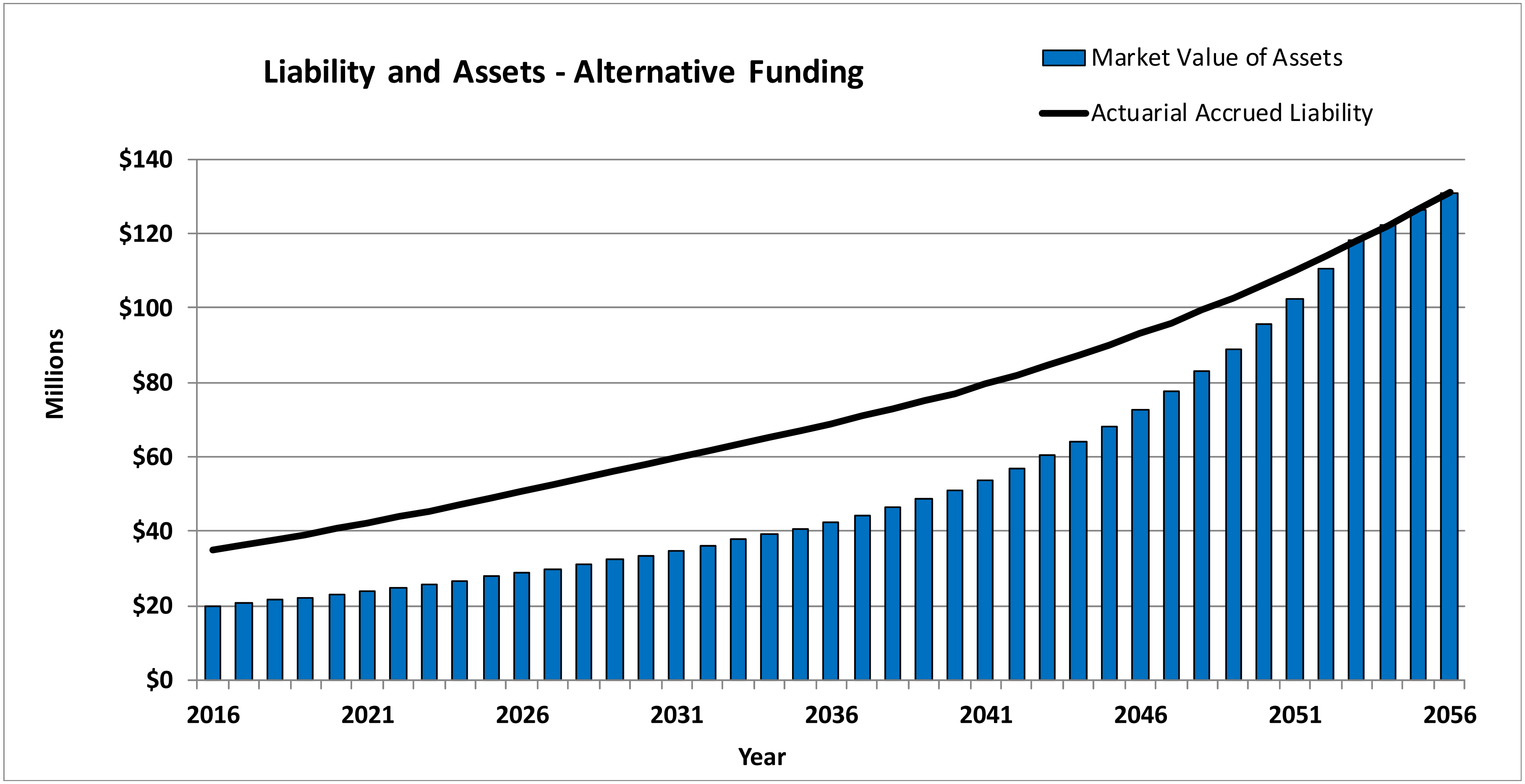
Valuation Plan Year End 30-Jun	Number			Total Assets										
	Active	Pay Status	Total Payroll	Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2016	46	51	$2,100,749	$19,595,635	$1,562,207	$5,487	$448,978	$183,395	$445,002	$926,356	$20,031,672	$35,088,168	$15,056,496	57%
2017	44	51	2,217,255	20,031,672	1,571,207	10,892	480,405	172,083	487,562	1,089,748	20,679,371	36,362,482	15,683,111	57%
2018	42	52	2,246,041	20,679,371	1,575,545	10,987	514,033	174,408	515,032	1,126,972	21,423,284	37,715,241	16,291,957	57%
2019	40	52	2,258,757	21,423,284	1,643,751	11,099	550,015	175,592	497,685	1,166,572	22,158,297	39,077,152	16,918,855	57%
2020	38	51	2,277,179	22,158,297	1,691,721	11,225	588,516	177,213	492,525	1,206,641	22,920,246	40,472,607	17,552,361	57%
2021	36	52	2,273,009	22,920,246	1,747,872	11,111	629,712	177,297	483,811	1,247,911	23,699,994	41,885,123	18,185,129	57%
2022	34	53	2,240,759	23,699,994	1,828,133	11,253	673,792	175,479	477,814	1,289,600	24,477,293	43,279,826	18,802,533	57%
2023	31	54	2,208,827	24,477,293	1,926,726	11,421	720,957	173,758	473,934	1,330,799	25,238,594	44,638,723	19,400,129	57%
2024	29	55	2,144,379	25,238,594	2,027,449	11,602	771,424	169,046	469,528	1,371,055	25,980,597	45,925,258	19,944,661	57%
2025	26	56	2,056,186	25,980,597	2,147,285	11,649	825,424	162,629	458,674	1,409,609	26,677,998	47,106,306	20,428,308	57%
2026	25	57	2,005,498	26,677,998	2,241,920	11,838	883,204	159,598	454,662	1,446,770	27,368,474	48,236,420	20,867,946	57%
2027	24	57	2,003,936	27,368,474	2,294,809	12,033	945,028	160,083	454,987	1,485,005	28,106,735	49,375,474	21,268,739	57%
2028	21	59	1,947,414	28,106,735	2,394,650	12,239	1,011,180	156,809	457,694	1,524,674	28,850,203	50,454,016	21,603,813	57%
2029	19	60	1,831,373	28,850,203	2,530,276	12,452	1,081,963	149,431	454,485	1,563,513	29,556,867	51,406,177	21,849,310	57%
2030	17	62	1,729,804	29,556,867	2,644,840	12,674	1,157,700	143,122	451,871	1,601,079	30,253,125	52,249,462	21,996,337	58%
2031	15	63	1,608,930	30,253,125	2,767,660	12,897	1,238,739	135,147	450,806	1,637,988	30,935,248	52,960,357	22,025,109	58%
2032	13	64	1,467,054	30,935,248	2,903,007	13,117	1,325,451	125,478	449,279	1,673,875	31,593,207	53,510,284	21,917,077	59%
2033	10	66	1,257,756	31,593,207	3,062,518	13,336	1,418,233	108,517	449,266	1,707,785	32,201,154	53,829,958	21,628,804	60%
2034	9	66	1,080,657	32,201,154	3,187,664	13,555	1,517,509	93,519	443,582	1,739,954	32,794,499	53,954,694	21,160,195	61%
2035	7	67	957,691	32,794,499	3,285,466	13,769	1,623,735	83,921	448,111	1,772,673	33,423,704	53,931,898	20,508,194	62%
2036	5	68	763,878	33,423,704	3,430,796	13,976	1,737,396	67,691	449,393	1,806,009	34,039,421	53,676,853	19,637,432	63%
2037	4	69	586,986	34,039,421	3,553,833	14,173	1,859,014	52,418	450,321	1,839,440	34,672,608	53,206,581	18,533,973	65%
2038	3	68	479,694	34,672,608	3,617,383	14,359	1,989,145	43,288	453,927	1,875,917	35,403,143	52,599,163	17,196,020	67%
2039	2	68	403,284	35,403,143	3,658,319	14,531	2,128,385	36,777	460,760	1,918,768	36,274,983	51,884,699	15,609,716	70%
2040	2	67	329,732	36,274,983	3,692,773	14,689	2,277,372	30,273	467,228	1,969,821	37,312,215	51,065,495	13,753,280	73%
2041	1	66	265,044	37,312,215	3,716,829	14,832	2,436,788	24,483	474,335	2,030,574	38,546,734	50,150,895	11,604,161	77%
2042	1	65	210,890	38,546,734	3,726,936	14,959	2,607,363	19,618	481,246	2,102,878	40,015,944	49,154,404	9,138,460	81%
2043	1	64	154,904	40,015,944	3,736,818	15,068	2,789,878	14,464	488,006	2,188,409	41,744,814	48,072,797	6,327,983	87%
2044	0	63	103,045	41,744,814	3,738,454	15,160	2,985,169	9,619	494,678	2,288,798	43,769,464	46,912,481	3,143,017	93%
2045	0	62	71,988	43,769,464	3,714,795	15,234	2,760,113	6,753	500,705	2,394,773	45,701,779	45,701,779	0	100%
2046	0	60	47,296	45,701,779	3,681,901	15,289	26,383	4,476	0	2,414,123	44,449,571	44,449,571	0	100%
2047	0	59	31,224	44,449,571	3,638,460	15,324	22,473	2,966	0	2,346,282	43,167,508	43,167,508	0	100%
2048	0	57	21,987	43,167,508	3,586,263	15,342	20,360	2,089	0	2,277,104	41,865,456	41,865,456	0	100%
2049	0	56	14,626	41,865,456	3,529,317	15,341	18,635	1,389	0	2,206,970	40,547,793	40,547,793	0	100%
2050	0	54	8,784	40,547,793	3,468,331	15,323	17,242	834	0	2,136,101	39,218,316	39,218,316	0	100%
2051	0	53	4,988	39,218,316	3,403,420	15,290	16,331	474	0	2,064,707	37,881,118	37,881,118	0	100%
2052	0	51	2,886	37,881,118	3,335,292	15,242	15,826	274	0	1,992,992	36,539,676	36,539,676	0	100%
2053	0	49	1,171	36,539,676	3,265,336	15,182	15,420	111	0	1,921,097	35,195,786	35,195,786	0	100%
2054	0	48	0	35,195,786	3,193,801	15,110	15,110	0	0	1,849,114	33,851,099	33,851,099	0	100%
2055	0	46	0	33,851,099	3,120,555	15,028	15,027	0	0	1,777,144	32,507,687	32,507,687	0	100%
2056	0	45	0	32,507,687	3,046,629	14,937	14,936	0	0	1,705,262	31,166,319	31,166,319	0	100%

Alternative Funding on an Open Group Basis, Table 2

Valuation Plan Year End 30-Jun	Number		Total Payroll	Total Assets								Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
	Active	Pay Status		Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)			
2016	46	51	$2,100,749	$19,595,635	$1,562,207	$5,487	$448,978	$183,395	$445,002	$926,356	$20,031,672	$35,088,168	$15,056,496	57%
2017	46	51	2,217,255	20,031,672	1,571,207	10,892	480,405	172,083	487,562	1,089,748	20,679,371	36,364,617	15,685,246	57%
2018	46	52	2,316,699	20,679,371	1,575,545	11,218	514,033	181,658	515,032	1,127,162	21,430,493	37,749,841	16,319,348	57%
2019	46	52	2,416,443	21,430,493	1,643,995	11,582	550,015	191,340	531,498	1,168,293	22,216,062	39,182,916	16,966,854	57%
2020	46	51	2,535,783	22,216,062	1,692,706	11,985	588,516	202,741	545,090	1,211,890	23,059,608	40,695,324	17,635,716	57%
2021	46	52	2,623,391	23,059,608	1,750,065	12,101	629,712	211,584	551,621	1,258,260	23,948,619	42,270,438	18,321,819	57%
2022	46	53	2,719,472	23,948,619	1,831,928	12,579	673,792	222,341	567,094	1,306,829	24,874,168	43,890,009	19,015,841	57%
2023	46	54	2,816,226	24,874,168	1,932,535	13,058	720,957	233,038	582,868	1,356,989	25,822,428	45,539,879	19,717,451	57%
2024	46	55	2,898,547	25,822,428	2,035,853	13,591	771,424	242,596	600,042	1,408,420	26,795,467	47,195,092	20,399,625	57%
2025	46	57	2,997,539	26,795,467	2,158,858	14,092	825,424	254,378	616,981	1,460,831	27,780,131	48,842,243	21,062,112	57%
2026	46	57	3,132,699	27,780,131	2,257,406	14,702	883,204	269,150	636,933	1,514,807	28,812,117	50,537,771	21,725,654	57%
2027	46	58	3,284,274	28,812,117	2,315,697	15,204	945,028	284,198	654,584	1,572,536	29,937,563	52,331,626	22,394,063	57%
2028	46	59	3,370,523	29,937,563	2,422,315	15,682	1,011,180	294,700	672,174	1,634,086	31,111,706	54,156,799	23,045,093	57%
2029	46	61	3,479,045	31,111,706	2,565,305	16,401	1,081,963	309,580	696,250	1,697,743	32,315,535	55,984,260	23,668,725	58%
2030	46	62	3,606,615	32,315,535	2,687,797	17,100	1,157,700	325,532	719,553	1,763,731	33,577,154	57,839,456	24,262,302	58%
2031	46	64	3,719,073	33,577,154	2,819,722	17,788	1,238,739	340,233	743,592	1,832,772	34,894,980	59,707,486	24,812,506	58%
2032	46	65	3,838,011	34,894,980	2,965,335	18,530	1,325,451	355,992	769,584	1,904,767	36,266,909	61,577,747	25,310,838	59%
2033	46	67	3,897,641	36,266,909	3,136,225	19,265	1,418,233	365,209	796,290	1,979,059	37,670,210	63,393,751	25,723,541	59%
2034	46	68	4,070,653	37,670,210	3,274,135	20,202	1,517,509	384,830	829,759	2,056,607	39,164,578	65,227,856	26,063,278	60%
2035	46	69	4,207,179	39,164,578	3,386,301	20,828	1,623,735	400,119	854,862	2,139,715	40,775,880	67,105,627	26,329,747	61%
2036	46	70	4,335,856	40,775,880	3,546,722	21,618	1,737,396	414,612	885,758	2,228,278	42,473,585	68,978,418	26,504,833	62%
2037	46	71	4,499,007	42,473,585	3,685,413	22,437	1,859,014	430,892	916,984	2,322,455	44,295,080	70,874,721	26,579,641	62%
2038	46	71	4,702,216	44,295,080	3,770,709	23,182	1,989,145	450,546	947,636	2,425,198	46,313,714	72,859,503	26,545,789	64%
2039	46	71	4,900,269	46,313,714	3,844,965	23,841	2,128,385	469,325	976,381	2,539,258	48,558,257	74,950,913	26,392,656	65%
2040	46	71	5,108,386	48,558,257	3,922,347	24,533	2,277,372	488,881	1,006,074	2,665,968	51,049,672	77,154,783	26,105,111	66%
2041	46	71	5,320,219	51,049,672	3,999,289	25,221	2,436,788	508,226	1,036,377	2,806,562	53,813,115	79,478,935	25,665,820	68%
2042	46	71	5,543,693	53,813,115	4,072,893	25,933	2,607,363	528,552	1,067,418	2,962,557	56,880,179	81,932,783	25,052,604	69%
2043	46	71	5,755,922	56,880,179	4,160,751	26,642	2,789,878	546,940	1,098,443	3,135,135	60,263,181	84,505,501	24,242,320	71%
2044	46	71	5,980,751	60,263,181	4,256,350	27,412	2,985,169	566,575	1,131,751	3,325,320	63,988,234	87,197,744	23,209,510	73%
2045	46	71	6,212,919	63,988,234	4,346,479	28,183	3,194,131	587,965	1,164,942	3,534,882	68,095,492	90,021,575	21,926,083	76%
2046	46	71	6,457,650	68,095,492	4,447,607	28,975	3,417,720	611,126	1,199,065	3,765,637	72,612,457	92,984,910	20,372,453	78%
2047	46	71	6,716,316	72,612,457	4,551,818	29,770	3,656,960	634,469	1,233,555	4,019,281	77,575,135	96,102,577	18,527,442	81%
2048	46	71	6,974,224	77,575,135	4,657,497	30,564	3,912,947	657,194	1,268,234	4,297,843	83,023,292	99,377,555	16,354,263	84%
2049	46	71	7,236,776	83,023,292	4,772,762	31,399	4,186,853	680,992	1,304,589	4,603,405	88,994,970	102,805,971	13,811,001	87%
2050	46	71	7,506,461	88,994,970	4,902,388	32,265	4,479,933	705,334	1,342,160	4,937,939	95,525,682	106,387,361	10,861,679	90%
2051	46	71	7,782,727	95,525,682	5,043,950	33,163	4,793,528	730,686	1,381,145	5,303,517	102,657,444	110,121,300	7,463,856	93%
2052	46	72	8,070,771	102,657,444	5,197,521	34,097	5,129,075	756,512	1,421,656	5,702,475	110,435,544	114,011,426	3,575,882	97%
2053	46	72	8,357,730	110,435,544	5,361,453	35,057	4,652,857	782,653	1,463,382	6,114,718	118,052,643	118,052,643	0	100%
2054	46	72	8,662,439	118,052,643	5,538,188	36,080	2,522,871	811,174	0	6,432,114	122,244,533	122,244,533	0	100%
2055	46	72	8,973,591	122,244,533	5,730,318	37,117	2,613,275	839,152	0	6,660,639	126,590,164	126,590,164	0	100%
2056	46	72	9,291,237	126,590,164	5,932,139	38,202	2,698,450	868,656	0	6,897,255	131,084,184	131,084,184	0	100%

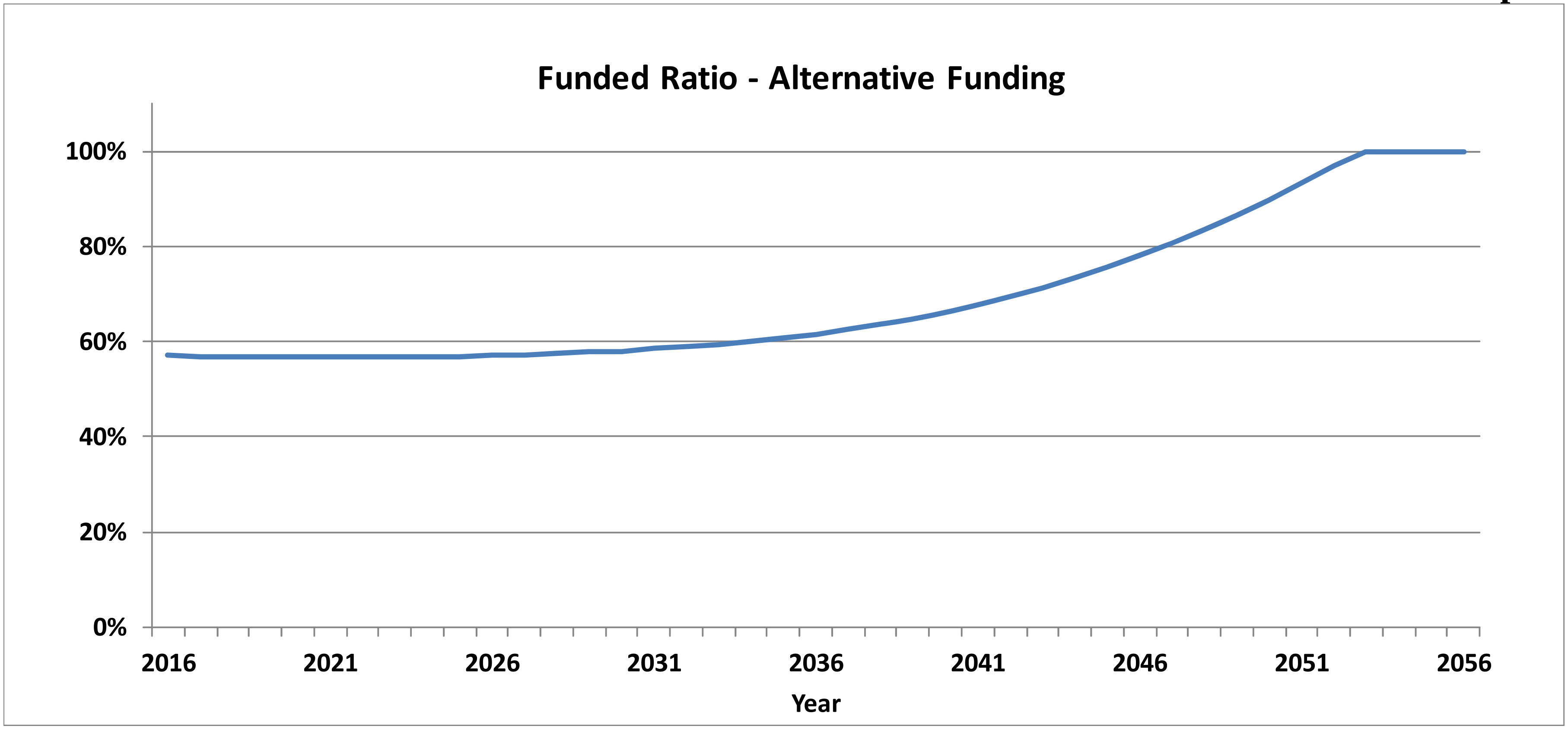
Open Group Actuarial Projections – Alternative Funding, Graph 1

Graph 1

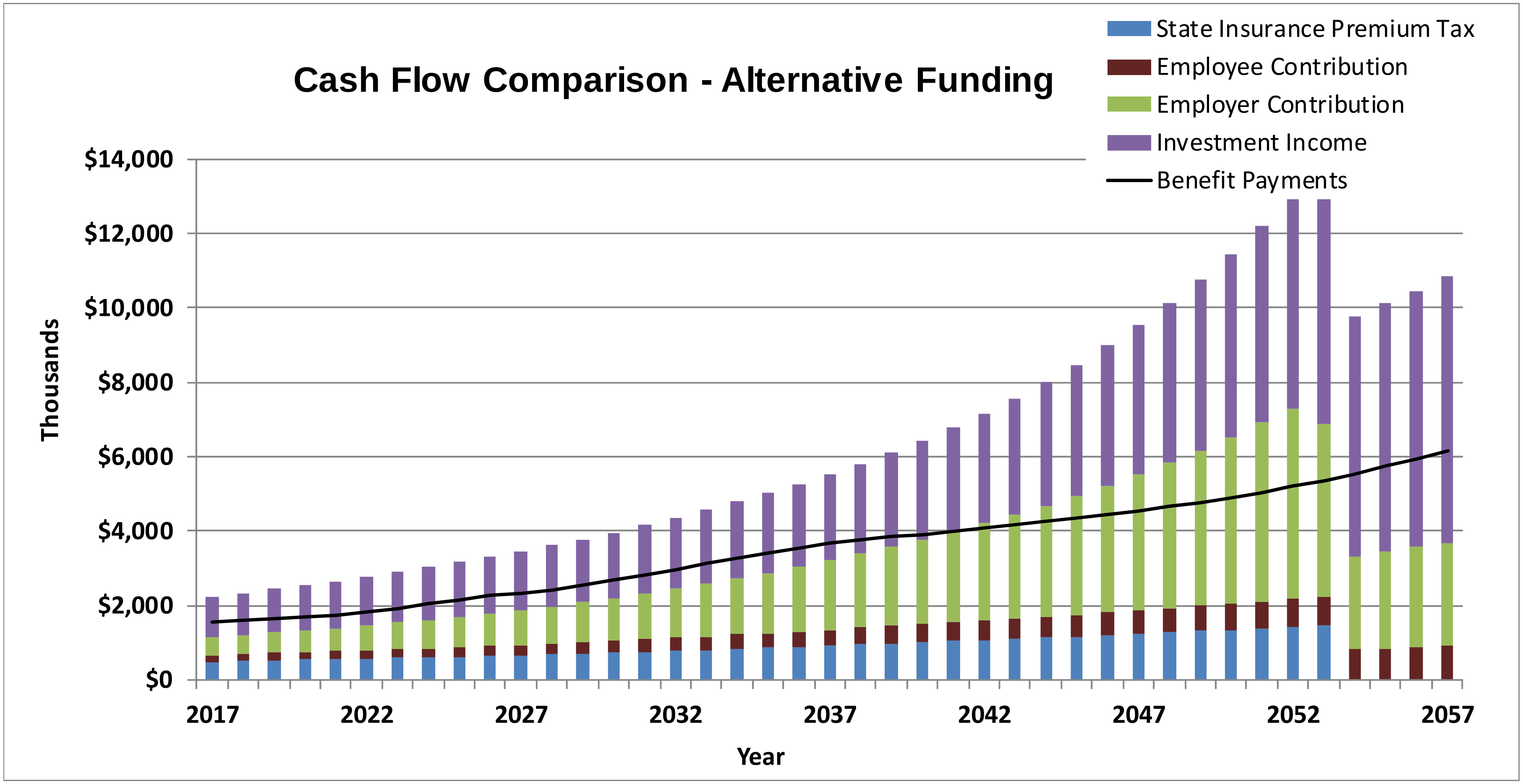


Open Group Actuarial Projections – Alternative Funding, Graph 2

Graph 2



Graph 3


Cash Flow Comparison - Alternative Funding
State Insurance Premium Tax
Employee Contribution
Employer Contribution
Investment Income
Benefit Payments
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Thousands
2017
2022
2027
2032
2037
2042
2047
2052
2057
Year

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 liability net of premium tax allocation applicable to the plan year.

- Employee contributions of 7% of pay if hired before January 1, 2010, which may be increased by up to 2.5% of pay if elected by the Board of trustees of the Plan. Employees hired after January 1, 2010, contribute 9.50% of pay.

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

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

- The first asset account (Benefit Payment Account) is used to finance benefits and expenses for the fiscal year on a pay-as-you-go basis. Sources to pay current year benefits and expenses include active member employee contributions of 5.5% (which is the current contribution rate of 7.0% of pay, less 1.5% which by law goes into the accumulation account), a portion of the premium tax allocation not assigned to the accumulation account as defined below, and employer contributions.

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

- Scenario I – The sponsor elects either the Optional funding policy or Conservation funding policy during fiscal year end June 30, 2018, and makes the newly elected contribution in fiscal year end June 30, 2018.

- 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.

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

The following table shows the employer contribution for the fiscal year end June 30, 2018, if the sponsor elects either the Optional or Conservation funding policy in fiscal year end June 30, 2018:

Total Employer Contributions for FYE June 30, 2018				
	Local Plan		Statewide Plan	
Funding Method	Amount	Percent of Pay	Amount	Percent of Pay
Alternative	$514,033	22.2%	NA	NA
Optional	$1,223,338	54.5%	$7,419	10.5%
Conservation	$930,783	41.4%	$7,419	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 $480,405 in fiscal year end 2017 to $5,129,075 in fiscal year end 2052. In fiscal year end 2053, the plan is projected to be 100% funded.

If the Optional funding policy is selected in fiscal year end 2018, employer contributions to the local plan for fiscal year end 2018 are projected to increase from $514,033 to $1,223,338. However, over the 40-year projection period, total employer contributions to both the local plan and the statewide plan are projected to decrease from $1,230,757 in fiscal year end 2018 to $752,465 in fiscal year end 2048, and the Plan is projected to be fully funded in 2048.

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

If the Conservation funding policy is selected in fiscal year end 2018, employer contributions to the local plan for fiscal year end 2018 are projected to increase from $514,033 to $930,783. During the 35-year projection period, total employer contributions to both the local plan and the statewide plan are projected to increase from $938,202 in fiscal year end 2018 to $2,608,101 in fiscal year end 2034 and the Plan is projected to be fully funded in 2035.

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 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 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.

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

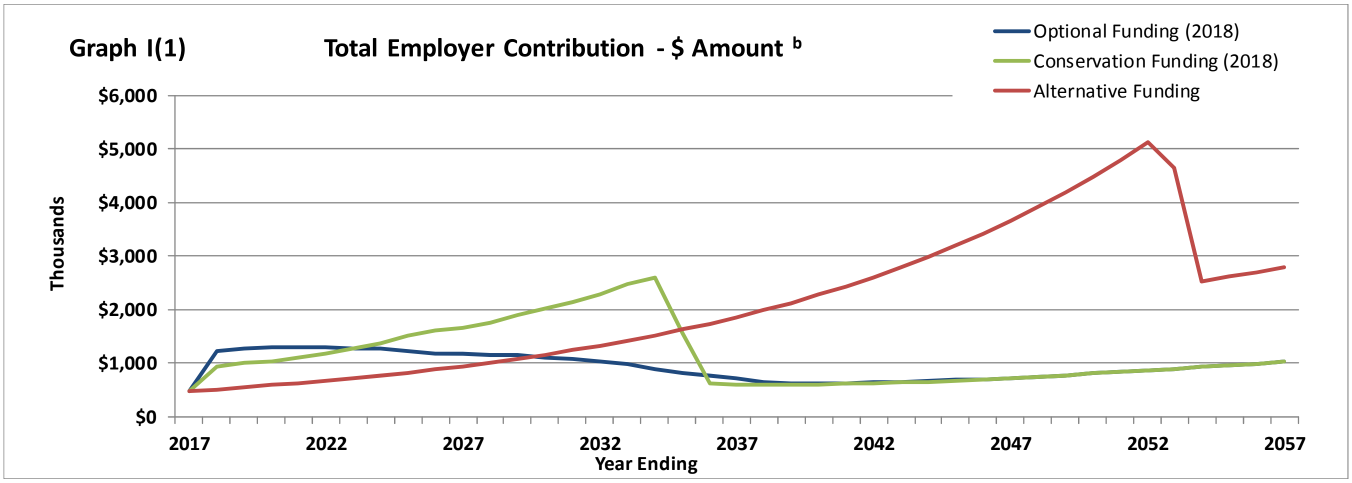
Under Scenario II, the plan sponsor is assumed to make contributions under the Alternative funding policy in future years, until the first year that either the Optional or Conservation policy produces a lower contribution. Under this assumption, the employer contributions under the Optional funding policy are not projected to be lower than contributions under the Alternative funding policy. In plan year end 2042, the employer contributions under the Conservation funding policy of $2,606,479 are projected to be lower than contributions under the Alternative funding policy of $2,607,363.

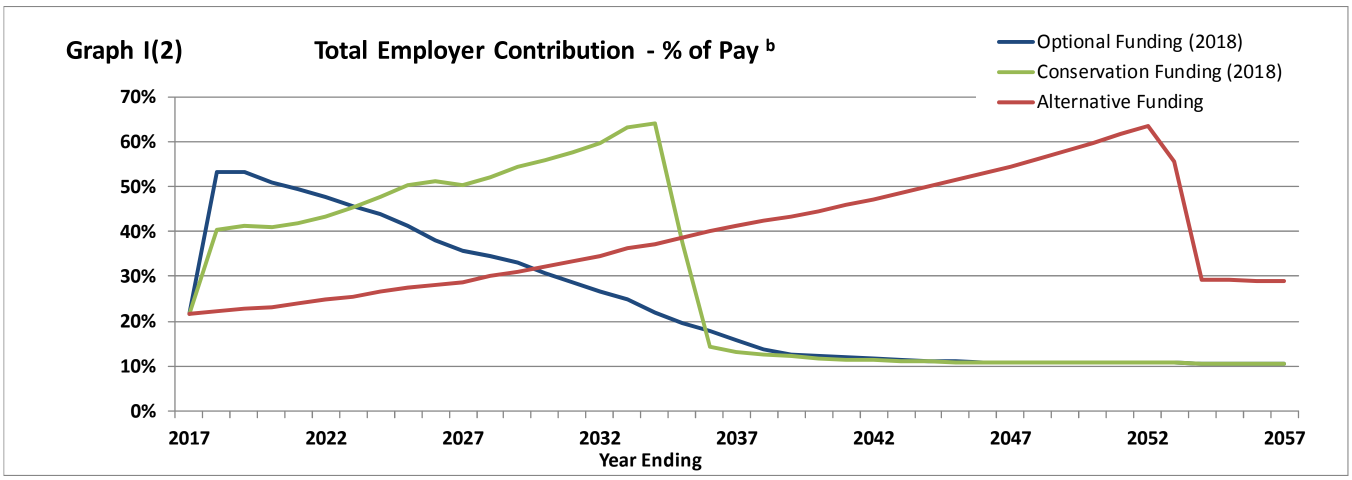
Graphs II(1), II(2), and III(3) show the projected contribution pattern and funded ratio. Based on these projections, the Conservation funding policy has lower projected employer contributions than the Alternative funding policy beginning in 2042. After 2042, the funded ratio under the Conservation funding policy increases at a lower rate than the Alternative funding policy. As stated above, however, the Conservation funding policy is dependent on expected benefits payments when considering the <u>*expected number of retirement and disabilities.*</u> The ultimate employer contributions depend on the <u>*actual number of retirement and disabilities*</u>, which could result in a more volatile contribution pattern when compared to the Optional funding policy.

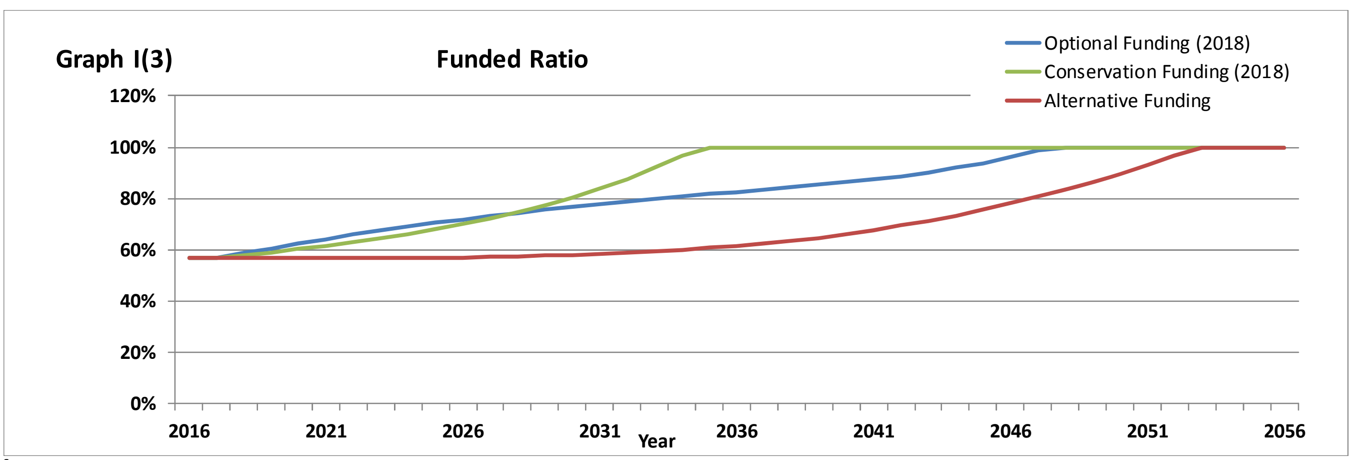
The details of the Scenario II projections can be found in the Appendix.

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

Scenario I



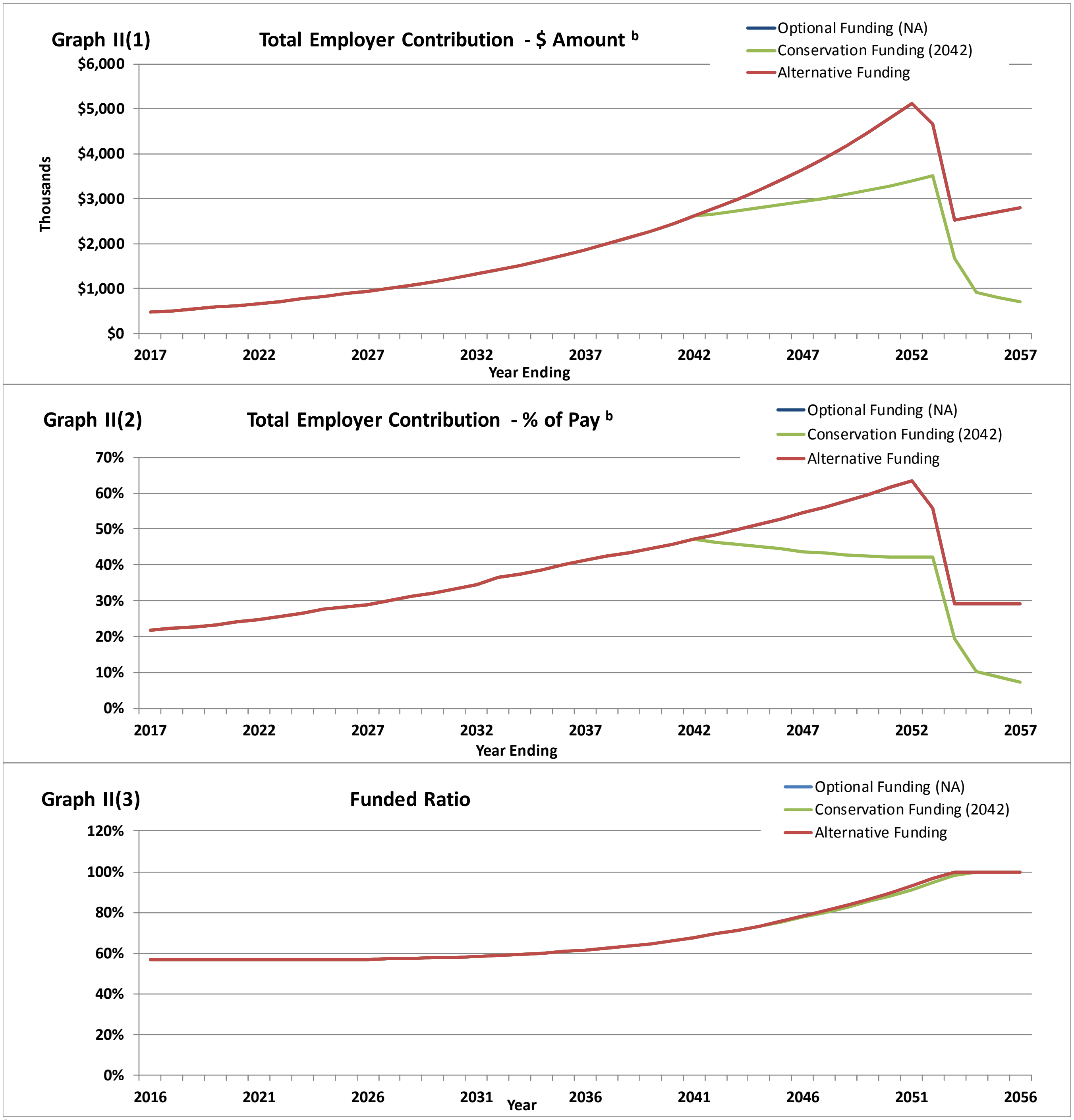




[a] *Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in fiscal year end June 30, 2018, and makes the newly elected contribution in fiscal year end June 30,2018.*
[b] *Based on total pay and includes contributions for future members projected to participate in 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, 2015**	**July 1, 2016**
Valuation Interest Rate	5.50%	5.50%
Cost-of-Living Adjustment	2.75%	2.75%
Wage Inflation	3.75%	3.75%
Actuarial Value of Assets	Market	Market
Actuarial Cost Method	Entry Age Normal	Entry Age Normal
Remaining Amortization Period [a]	25 Years, Level % of Pay	24 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	**July 1, 2015**	**July 1, 2016**
1. Market Value of Assets	$19,595,635	$20,031,672
2. Actuarial Accrued Liability	$34,487,598	$35,088,168
3. Unfunded Actuarial Accrued Liability (2 - 1)	$14,891,963	$15,056,496
4. Funded Ratio (1/2)	57%	57%
5. Expected Payroll	$2,100,749	$2,217,255
6. UAAL as Percentage of Covered Payroll (3/5)	709%	679%
Schedule of Employer Contributions [c]	**FY 2016**	**FY 2017**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$701,994	$771,250
(b) Amortization of Unfunded Actuarial Accrued Liability	$722,819	$755,345
(c) Actuarially Determined Contribution (ADC) (a + b)	$1,424,813	$1,526,595
2. Employer Contribution [b]	$448,978	$480,405
3. Premium Tax Allocation	$445,002	$487,562
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	63%	63%

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

[b] *Estimated employer contribution for fiscal year end June 30, 2016.*

[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, 2016

Actuarial Valuation Data as of July 1, 2016
Schedule D: Reconciliation of Assets

Plan Year Ending	June 30, 2015	June 30, 2016
A. Market Value of Assets Beginning of Year	$19,553,486	$19,595,635
Adjustment to Market Value of Assets at Beginning of Year	$0	$0
Market Value of Assets Beginning of Year	$19,553,486	$19,595,635
1. Revenue During Fiscal Year		
(a) Employee Contribution	$163,569	$183,395
(b) Governmental Contribution		
(i) From Local Government	$419,606	$448,978
(ii) From State Government	$450,841	$407,889
(iii) Reallocation from State Government	$0	$0
(iv) Total	$870,447	$856,867
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	($24,501)	$4,074
(ii) Bond Interest	$178,935	$124,084
(iii) Dividends	$414,373	$424,199
(iv) Net Realized Gain (Loss) on Sale/Exchange	$81,595	$390,345
(v) Other	$0	$0
(vi) Less Investment Expense	$0	($67,126)
(vii) Total	$650,402	$875,576
(d) Other Revenue	$0	$0
(e) Net Receivable Investment Income	$0	$50,780
(f) Receivable Contribution [a]		
(i) From Employee Contributions	$0	$0
(ii) From Local Government	$0	$0
(iii) From State Government	$0	$37,113
(iv) Total	$0	$37,113
(g) Total Revenue (sum of (a) through (f))	$1,684,418	$2,003,731
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$1,548,023	$1,550,422
(b) Withdrawals	$25,921	$11,785
(c) Administrative Expenses	$68,325	$5,487
(d) Payable Benefits and Withdrawals	$0	$0
(e) Payable Administrative Expenses	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$1,642,269	$1,567,694
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	$19,595,635	$20,031,672
C. Approximate Return on Assets	3.02%	4.79%

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

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

Plan Year Ending	June 30, 2015		June 30, 2016	
1. Cash and Short-term Investments	$381,307	2%	$669,696	3%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$2,321,114		$1,634,426	
(b) US State and Local Governmental Debt Securities	$218,451		$164,162	
(c) Foreign Governmental Debt Securities	$0		$0	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$2,539,565	13%	$1,798,588	9%
3. Corporate Fixed Income				
(a) US Bonds	$5,168,363		$5,602,668	
(b) US Mortgage or other Asset Backed Securities	$0		$0	
(c) US Mutual Fund Shares (Bonds)	$1,195,394		$1,199,778	
(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))	$6,363,757	33%	$6,802,446	34%
4. Corporate Equity				
(a) US Equity	$6,046,243		$6,555,184	
(b) US Mutual Fund Shares (Equity)	$3,209,220		$3,153,453	
(c) US Exchange Traded Funds (Equity)	$0		$0	
(d) International Equity	$125,947		$26,876	
(e) International Mutual Fund Shares (Equity)	$284,760		$248,013	
(f) International Exchange Traded Funds (Equity)	$0		$0	
(g) Total Corporate Equity (sum of (a) through (f))	$9,666,170	49%	$9,983,526	50%
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	$555,543		$689,523	
(e) Total Alternative Investments (sum of (a) through (d))	$555,543	3%	$689,523	4%
6. Other	$0	0%	$0	0%
7. Receivable Contributions				
(a) From Employee Contributions	$0		$0	
(b) From Local Government	$0		$0	
(c) From State Government	$37,600		$37,113	
(d) Total Receivable Contributions (sum of (a) through (c))	$37,600	0%	$37,113	0%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	$51,693		$50,780	
(b) Less Payable	$0		$0	
(c) Total	$51,693	0%	$50,780	0%
Market Value of Assets End of Year [sum of (1) through (8)]	**$19,595,635**		**$20,031,672**	

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

	Actives	Retirees	Disabled	Deferred Vested	Spouses and Beneficiaries	Totals
Total Participants July 1, 2015:	**47**	**27**	**13**	**1**	**12**	**100**
New Actives:						**0**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:						**0**
Vested Terminations:	(1)			1		**0**
Non-Vested Terminations:						**0**
Disabled:						**0**
Retirements:						**0**
Deaths with Beneficiary:			(1)		1	**0**
Deaths w/o Beneficiary:					(3)	**(3)**
Expired Annuity or Stop Payment:						**0**
Net Changes:	(1)	0	(1)	1	(2)	**(3)**
Total Participants June 30, 2016:	**46**	**27**	**12**	**2**	**10**	**97**

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

Attained Age	Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Valuation Payroll[a]
	Years of Service to Valuation Date										
Under 20											$ 0
20-24		2								2	$ 75,564
25-29		3								3	$ 115,827
30-34		3	6	1						10	$ 433,107
35-39		2	5	5	1					13	$ 615,538
40-44		2	2	1	5	1				11	$ 572,310
45-49				1	3					4	$ 227,666
50-54						1				1	$ 58,566
55-59		1			1					2	$ 98,868
60-64											$ 0
65-69											$ 0
Over 70											$ 0
Totals	**0**	**13**	**13**	**8**	**10**	**2**	**0**	**0**	**0**	**46**	**$ 2,197,446**

Averages

Age:	38.3	years
Service:	9.7	years
Annual Pay:	$47,771	[a]

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

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

Active Participants	July 1, 2015	July 1, 2016
Number of Actives	47	46
Total Annual Pay	$2,100,749	$2,197,446
Average Age	37.5	38.3
Average Service	9.7	9.7

Inactive Participants	July 1, 2015		July 1, 2016[a]	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	27	$1,141,905	27	$1,142,434
Survivors	12	$125,296	10	$110,373
Disabled Members	13	$295,275	12	$278,301
Deferred Vested Members	1	$31,989	2	$70,302

[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, 2016

Discount Rate

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

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

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

As of June 30, 2016	
Assets	$20,031,672
Liabilities using a 5.50% discount rate	$35,088,168
Funded Ratio	57%
Expected Benefit Payments	$1,571,207
Liquidity Ratio	12.75
Equity Exposure	50%
Projected Funded Ratio after 15 years	58%

Discount Rate	5.50%

The premium tax allocation is projected using the following methodology:

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

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

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

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

(5) For the plan year ending June 30, 2017, all Pension and Relief Funds reported a total of 1,711 eligible active members, and 2,166 eligible retired members. The City of Beckley Policemen's Pension and Relief Fund reported 50 eligible active members, and 56 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2017. The Fund is eligible to receive a premium tax allocation of $515,032 for the fiscal year ending June 30, 2018.

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

General Inflation	2.75%
Expected Salary Increase	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.
Increase in State Insurance Premium Tax Allocation	2.75% on and after year 1
Cost Method	Entry-Age-Normal, Level-Percentage-of-Pay
Amortization Policies:	
Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 30 – Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 24 years remaining as of July 1, 2016).
Standard Plans and former Standard Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from July 1, 1991 – 15 years remaining as of July 1, 2016)
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 33.5 years remaining as of July 1, 2016). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 24 years remaining as of July 1, 2016)

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

Administrative Expenses	Plan year 2017 administrative expenses assumed to be equal to 15% of all reported 2016 expenses. Future expenses assumed to increase by the general inflation assumption.
Refunds Paid	Assumes non-vested inactive members as of July 1, 2016, with accumulated member contribution balances will receive a refund of their contributions during plan year end June 30, 2017.
Data Adjustments and Assumptions	Used prior year's pay for one member with very low reported pay.
Child Beneficiaries	Future survivor widow benefits are loaded by 12% to estimate impact of benefits provided to survivor children. The load assumes 90% of members are married with two children at time of death, and benefits for each child are paid for approximately 8 years.
General Projection Methodology	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, 2016, will receive a refund during plan year end June 30, 2017. 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.

SECTION VII

SUMMARY OF PRINCIPAL PLAN PROVISIONS

Summary of Principal Plan Provisions
Actuarial Valuation as of July 1, 2016

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, 2016 (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 2018
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
2016	46	51	$19,595,635	$1,562,207	$5,487	$448,978	$183,395	$445,002	$926,356	$20,031,672	$35,088,168	$15,056,496	57%
2017	44	51	20,031,672	1,571,207	10,892	480,405	172,083	487,562	1,089,748	20,679,371	36,362,482	15,683,111	57%
2018	42	52	20,679,371	1,575,545	10,987	1,223,338	174,408	515,032	1,146,217	22,151,834	37,715,241	15,563,407	59%
2019	40	52	22,151,834	1,643,751	11,099	1,269,007	175,592	531,498	1,227,067	23,700,148	39,077,152	15,377,004	61%
2020	38	51	23,700,148	1,691,721	11,225	1,263,431	177,213	545,090	1,311,181	25,294,117	40,472,607	15,178,490	62%
2021	36	52	25,294,117	1,747,872	11,111	1,263,452	177,297	551,621	1,397,509	26,925,013	41,885,123	14,960,110	64%
2022	34	53	26,925,013	1,828,133	11,253	1,246,376	175,479	567,094	1,484,933	28,559,509	43,279,826	14,720,317	66%
2023	31	54	28,559,509	1,926,726	11,421	1,219,771	173,758	582,868	1,571,810	30,169,570	44,638,723	14,469,153	68%
2024	29	55	30,169,570	2,027,449	11,602	1,192,575	169,046	600,042	1,657,227	31,749,409	45,925,258	14,175,849	69%
2025	26	56	31,749,409	2,147,285	11,649	1,137,481	162,629	616,981	1,739,656	33,247,221	47,106,306	13,859,085	71%
2026	25	57	33,247,221	2,241,920	11,838	1,069,349	159,598	636,933	1,818,073	34,677,415	48,236,420	13,559,005	72%
2027	24	57	34,677,415	2,294,809	12,033	1,033,135	160,083	654,584	1,894,803	36,113,178	49,375,474	13,262,296	73%
2028	21	59	36,113,178	2,394,650	12,239	1,014,931	156,809	672,174	1,970,950	37,521,153	50,454,016	12,932,863	74%
2029	19	60	37,521,153	2,530,276	12,452	974,138	149,431	696,250	2,044,049	38,842,293	51,406,177	12,563,884	76%
2030	17	62	38,842,293	2,644,840	12,674	911,933	143,122	719,553	2,112,372	40,071,759	52,249,462	12,177,703	77%
2031	15	63	40,071,759	2,767,660	12,897	848,785	135,147	743,592	2,175,376	41,194,102	52,960,357	11,766,255	78%
2032	13	64	41,194,102	2,903,007	13,117	776,492	125,478	769,584	2,231,908	42,181,439	53,510,284	11,328,845	79%
2033	10	66	42,181,439	3,062,518	13,336	696,202	108,517	796,290	2,279,964	42,986,558	53,829,958	10,843,400	80%
2034	9	66	42,986,558	3,187,664	13,555	580,887	93,519	829,759	2,318,216	43,607,720	53,954,694	10,346,974	81%
2035	7	67	43,607,720	3,285,466	13,769	481,619	83,921	854,862	2,347,448	44,076,335	53,931,898	9,855,563	82%
2036	5	68	44,076,335	3,430,796	13,976	400,781	67,691	885,758	2,367,478	44,353,271	53,676,853	9,323,582	83%
2037	4	69	44,353,271	3,553,833	14,173	301,324	52,418	916,984	2,377,100	44,433,092	53,206,581	8,773,489	84%
2038	3	68	44,433,092	3,617,383	14,359	206,037	43,288	947,636	2,377,760	44,376,072	52,599,163	8,223,091	84%
2039	2	68	44,376,072	3,658,319	14,531	148,001	36,777	976,381	2,372,537	44,236,918	51,884,699	7,647,781	85%
2040	2	67	44,236,918	3,692,773	14,689	123,970	30,273	1,006,074	2,363,921	44,053,694	51,065,495	7,011,801	86%
2041	1	66	44,053,694	3,716,829	14,832	101,317	24,483	1,036,377	2,353,238	43,837,448	50,150,895	6,313,447	87%
2042	1	65	43,837,448	3,726,936	14,959	82,328	19,618	1,067,418	2,341,262	43,606,179	49,154,404	5,548,225	89%
2043	1	64	43,606,179	3,736,818	15,068	66,675	14,464	1,098,443	2,328,548	43,362,422	48,072,797	4,710,375	90%
2044	0	63	43,362,422	3,738,454	15,160	52,305	9,619	1,131,751	2,315,478	43,117,961	46,912,481	3,794,520	92%
2045	0	62	43,117,961	3,714,795	15,234	40,166	6,753	1,164,942	2,303,165	42,902,958	45,701,779	2,798,821	94%
2046	0	60	42,902,958	3,681,901	15,289	32,532	4,476	1,199,065	2,292,888	42,734,729	44,449,571	1,714,842	96%
2047	0	59	42,734,729	3,638,460	15,324	26,372	2,966	1,233,555	2,285,541	42,629,379	43,167,508	538,129	99%
2048	0	57	42,629,379	3,586,263	15,342	22,480	2,089	550,610	2,262,503	41,865,456	41,865,456	0	100%
2049	0	56	41,865,456	3,529,317	15,341	18,636	1,389	0	2,206,970	40,547,793	40,547,793	0	100%
2050	0	54	40,547,793	3,468,331	15,323	17,241	834	0	2,136,101	39,218,316	39,218,316	0	100%
2051	0	53	39,218,316	3,403,420	15,290	16,331	474	0	2,064,707	37,881,118	37,881,118	0	100%
2052	0	51	37,881,118	3,335,292	15,242	15,826	274	0	1,992,992	36,539,676	36,539,676	0	100%
2053	0	49	36,539,676	3,265,336	15,182	15,419	111	0	1,921,097	35,195,786	35,195,786	0	100%
2054	0	48	35,195,786	3,193,801	15,110	15,109	0	0	1,849,115	33,851,098	33,851,099	0	100%
2055	0	46	33,851,098	3,120,555	15,028	15,027	0	0	1,777,144	32,507,687	32,507,687	0	100%
2056	0	45	32,507,687	3,046,629	14,937	14,936	0	0	1,705,261	31,166,319	31,166,319	0	100%

Actuarial Projections – Optional Funding in 2018
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
2017	$2,217,255	$0	$2,217,255	$172,083	$932,441	$760,358	$967,120	$515,032	$452,088	$10,892	$1,223,338	$0
2018	2,246,041	70,658	2,316,699	174,408	945,377	770,969	1,018,549	531,498	487,051	10,987	1,269,007	7,419
2019	2,258,757	157,686	2,416,443	175,592	950,265	774,673	1,022,749	545,090	477,659	11,099	1,263,431	16,557
2020	2,277,179	258,604	2,535,783	177,213	957,773	780,560	1,023,288	551,621	471,667	11,225	1,263,452	27,153
2021	2,273,009	350,382	2,623,391	177,297	955,909	778,612	1,023,747	567,094	456,653	11,111	1,246,376	36,790
2022	2,240,759	478,713	2,719,472	175,479	943,233	767,754	1,023,632	582,868	440,764	11,253	1,219,771	50,265
2023	2,208,827	607,398	2,816,226	173,758	932,099	758,341	1,022,855	600,042	422,813	11,421	1,192,575	63,777
2024	2,144,379	754,167	2,898,547	169,046	889,771	720,725	1,022,136	616,981	405,155	11,602	1,137,481	79,188
2025	2,056,186	941,353	2,997,539	162,629	837,947	675,318	1,019,314	636,933	382,381	11,649	1,069,349	98,842
2026	2,005,498	1,127,201	3,132,699	159,598	819,790	660,192	1,015,689	654,584	361,105	11,838	1,033,135	118,356
2027	2,003,936	1,280,337	3,284,274	160,083	820,893	660,810	1,014,262	672,174	342,088	12,033	1,014,931	134,435
2028	1,947,414	1,423,109	3,370,523	156,809	800,748	643,939	1,014,210	696,250	317,960	12,239	974,138	149,426
2029	1,831,373	1,647,672	3,479,045	149,431	755,597	606,166	1,012,868	719,553	293,315	12,452	911,933	173,006
2030	1,729,804	1,876,811	3,606,615	143,122	713,166	570,044	1,009,659	743,592	266,067	12,674	848,785	197,065
2031	1,608,930	2,110,143	3,719,073	135,147	661,984	526,837	1,006,342	769,584	236,758	12,897	776,492	221,565
2032	1,467,054	2,370,957	3,838,011	125,478	602,564	477,086	1,002,289	796,290	205,999	13,117	696,202	248,951
2033	1,257,756	2,639,885	3,897,641	108,517	508,387	399,870	997,440	829,759	167,681	13,336	580,887	277,188
2034	1,080,657	2,989,997	4,070,653	93,519	426,675	333,156	989,770	854,862	134,908	13,555	481,619	313,950
2035	957,691	3,249,488	4,207,179	83,921	374,155	290,234	982,536	885,758	96,778	13,769	400,781	341,196
2036	763,878	3,571,978	4,335,856	67,691	294,575	226,884	977,448	916,984	60,464	13,976	301,324	375,058
2037	586,986	3,912,021	4,499,007	52,418	221,761	169,343	970,157	947,636	22,521	14,173	206,037	410,762
2038	479,694	4,222,522	4,702,216	43,288	176,931	133,643	962,868	976,381	0	14,359	148,001	443,365
2039	403,284	4,496,985	4,900,269	36,777	146,216	109,439	957,750	1,006,074	0	14,531	123,970	472,183
2040	329,732	4,778,654	5,108,386	30,273	116,901	86,628	952,290	1,036,377	0	14,689	101,317	501,759
2041	265,044	5,055,175	5,320,219	24,483	91,979	67,496	941,750	1,067,418	0	14,832	82,328	530,793
2042	210,890	5,332,803	5,543,693	19,618	71,334	51,716	924,658	1,098,443	0	14,959	66,675	559,944
2043	154,904	5,601,018	5,755,922	14,464	51,700	37,236	898,313	1,131,751	0	15,068	52,305	588,107
2044	103,045	5,877,706	5,980,751	9,619	34,625	25,006	858,174	1,164,942	0	15,160	40,166	617,159
2045	71,988	6,140,931	6,212,919	6,753	24,051	17,298	796,567	1,199,065	0	15,234	32,532	644,798
2046	47,296	6,410,354	6,457,650	4,476	15,559	11,083	699,975	1,233,555	0	15,289	26,372	673,087
2047	31,224	6,685,092	6,716,316	2,966	10,122	7,156	537,359	550,610	0	15,324	22,480 [b]	701,935
2048	21,987	6,952,237	6,974,224	2,089	7,110	5,021	0	0	0	15,342	18,636 [b]	729,985
2049	14,626	7,222,150	7,236,776	1,389	4,687	3,298	0	0	0	15,341	17,241 [b]	758,326
2050	8,784	7,497,677	7,506,461	834	2,748	1,914	0	0	0	15,323	16,331 [b]	787,256
2051	4,988	7,777,739	7,782,727	474	1,515	1,041	0	0	0	15,290	15,826 [b]	816,663
2052	2,886	8,067,884	8,070,771	274	861	587	0	0	0	15,242	15,419 [b]	847,128
2053	1,171	8,356,559	8,357,730	111	348	237	0	0	0	15,182	15,109 [b]	877,439
2054	0	8,662,439	8,662,439	0	0	0	0	0	0	15,110	15,027 [b]	909,556
2055	0	8,973,591	8,973,591	0	0	0	0	0	0	15,028	14,936 [b]	942,227
2056	0	9,291,237	9,291,237	0	0	0	0	0	0	14,937	14,836 [b]	975,580

[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 2018

Table A-3

Valuation	Number		Total Assets										
Plan Year End 30-Jun	Active	Pay Status	Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax Allocation Contribs.	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2016	46	51	$19,595,635	$1,562,207	$5,487	$448,978	$183,395	$445,002	$926,356	$20,031,672	$35,088,168	$15,056,496	57%
2017	44	51	20,031,672	1,571,207	10,892	480,405	172,083	487,562	1,089,748	20,679,371	36,362,482	15,683,111	57%
2018	42	52	20,679,371	1,575,545	10,987	930,783	174,408	515,032	1,138,280	21,851,342	37,715,241	15,863,899	58%
2019	40	52	21,851,342	1,643,751	11,099	981,641	175,592	531,498	1,202,743	23,087,966	39,077,152	15,989,186	59%
2020	38	51	23,087,966	1,691,721	11,225	1,014,801	177,213	545,090	1,270,765	24,392,889	40,472,607	16,079,718	60%
2021	36	52	24,392,889	1,747,872	11,111	1,064,160	177,297	551,621	1,342,534	25,769,518	41,885,123	16,115,605	62%
2022	34	53	25,769,518	1,828,133	11,253	1,130,424	175,479	567,094	1,418,235	27,221,364	43,279,826	16,058,462	63%
2023	31	54	27,221,364	1,926,726	11,421	1,214,653	173,758	582,868	1,498,074	28,752,570	44,638,723	15,886,153	64%
2024	29	55	28,752,570	2,027,449	11,602	1,302,129	169,046	600,042	1,582,264	30,367,000	45,925,258	15,558,258	66%
2025	26	56	30,367,000	2,147,285	11,649	1,410,167	162,629	616,981	1,671,022	32,068,865	47,106,306	15,037,441	68%
2026	25	57	32,068,865	2,241,920	11,838	1,487,309	159,598	636,933	1,764,604	33,863,551	48,236,420	14,372,869	70%
2027	24	57	33,863,551	2,294,809	12,033	1,522,234	160,083	654,584	1,863,311	35,756,921	49,375,474	13,618,553	72%
2028	21	59	35,756,921	2,394,650	12,239	1,607,117	156,809	672,174	1,967,423	37,753,555	50,454,016	12,700,461	75%
2029	19	60	37,753,555	2,530,276	12,452	1,724,518	149,431	696,250	2,077,191	39,858,217	51,406,177	11,547,960	78%
2030	17	62	39,858,217	2,644,840	12,674	1,820,786	143,122	719,553	2,192,906	42,077,070	52,249,462	10,172,392	81%
2031	15	63	42,077,070	2,767,660	12,897	1,925,952	135,147	743,592	2,314,894	44,416,098	52,960,357	8,544,259	84%
2032	13	64	44,416,098	2,903,007	13,117	2,043,068	125,478	769,584	2,443,482	46,881,586	53,510,284	6,628,698	88%
2033	10	66	46,881,586	3,062,518	13,336	2,189,913	108,517	796,290	2,578,999	49,479,451	53,829,958	4,350,507	92%
2034	9	66	49,479,451	3,187,664	13,555	2,294,151	93,519	829,759	2,721,810	52,217,471	53,954,694	1,737,223	97%
2035	7	67	52,217,471	3,285,466	13,769	1,233,495	83,921	854,862	2,841,384	53,931,898	53,931,898	0	100%
2036	5	68	53,931,898	3,430,796	13,976	240,873	67,691	0	2,881,163	53,676,853	53,676,853	0	100%
2037	4	69	53,676,853	3,553,833	14,173	183,496	52,418	0	2,861,821	53,206,581	53,206,581	0	100%
2038	3	68	53,206,581	3,617,383	14,359	148,019	43,288	0	2,833,016	52,599,162	52,599,163	0	100%
2039	2	68	52,599,162	3,658,319	14,531	123,946	36,777	0	2,797,663	51,884,697	51,884,699	0	100%
2040	2	67	51,884,697	3,692,773	14,689	101,346	30,273	0	2,756,639	51,065,493	51,065,495	0	100%
2041	1	66	51,065,493	3,716,829	14,832	82,325	24,483	0	2,710,253	50,150,894	50,150,895	0	100%
2042	1	65	50,150,894	3,726,936	14,959	66,671	19,618	0	2,659,116	49,154,403	49,154,404	0	100%
2043	1	64	49,154,403	3,736,818	15,068	52,306	14,464	0	2,603,508	48,072,796	48,072,797	0	100%
2044	0	63	48,072,796	3,738,454	15,160	40,167	9,619	0	2,543,512	46,912,480	46,912,481	0	100%
2045	0	62	46,912,480	3,714,795	15,234	32,525	6,753	0	2,480,049	45,701,778	45,701,779	0	100%
2046	0	60	45,701,778	3,681,901	15,289	26,383	4,476	0	2,414,123	44,449,570	44,449,571	0	100%
2047	0	59	44,449,570	3,638,460	15,324	22,472	2,966	0	2,346,282	43,167,506	43,167,508	0	100%
2048	0	57	43,167,506	3,586,263	15,342	20,362	2,089	0	2,277,104	41,865,456	41,865,456	0	100%
2049	0	56	41,865,456	3,529,317	15,341	18,635	1,389	0	2,206,970	40,547,792	40,547,793	0	100%
2050	0	54	40,547,792	3,468,331	15,323	17,242	834	0	2,136,101	39,218,315	39,218,316	0	100%
2051	0	53	39,218,315	3,403,420	15,290	16,331	474	0	2,064,707	37,881,117	37,881,118	0	100%
2052	0	51	37,881,117	3,335,292	15,242	15,826	274	0	1,992,992	36,539,675	36,539,676	0	100%
2053	0	49	36,539,675	3,265,336	15,182	15,420	111	0	1,921,097	35,195,786	35,195,786	0	100%
2054	0	48	35,195,786	3,193,801	15,110	15,109	0	0	1,849,114	33,851,098	33,851,099	0	100%
2055	0	46	33,851,098	3,120,555	15,028	15,028	0	0	1,777,144	32,507,687	32,507,687	0	100%
2056	0	45	32,507,687	3,046,629	14,937	14,937	0	0	1,705,262	31,166,320	31,166,319	0	100%

Actuarial Projections – Conservation Funding in 2018
Table A-4

Plan Year End 30-Jun	Benefit Payment Account [a]: Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	5.50% of Pay Employee Contribs.	100.00% of Premium Tax Allocation	Investment Income	Transfer (To)/From Accumulation Account	Accumulation Account [b]: 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
2017	$20,031,672	$1,582,099	$480,405	$172,083	$487,562	$1,089,748	$0	$0	$0	$0	$0	$0	$0	$0
2018	20,679,371	1,586,532	930,783	140,717	515,032	1,137,365	(21,816,736)	21,816,736	0	0	33,691	0	914	7,419
2019	0	1,654,850	981,641	141,711	531,498	0	0	21,851,341	0	0	33,881	0	1,202,743	16,557
2020	0	1,702,946	1,014,801	143,055	545,090	0	0	23,087,965	0	0	34,158	0	1,270,765	27,153
2021	0	1,758,983	1,064,160	143,202	551,621	0	0	24,392,888	0	0	34,095	0	1,342,534	36,790
2022	0	1,839,386	1,130,424	141,868	567,094	0	0	25,769,517	0	0	33,611	0	1,418,235	50,265
2023	0	1,938,147	1,214,653	140,626	582,868	0	0	27,221,363	0	0	33,132	0	1,498,074	63,777
2024	0	2,039,051	1,302,129	136,880	600,042	0	0	28,752,569	0	0	32,166	0	1,582,264	79,188
2025	0	2,158,934	1,410,167	131,786	616,981	0	0	30,366,999	0	0	30,843	0	1,671,022	98,842
2026	0	2,253,758	1,487,309	129,516	636,933	0	0	32,068,864	0	0	30,082	0	1,764,604	118,356
2027	0	2,306,842	1,522,234	130,024	654,584	0	0	33,863,550	0	0	30,059	0	1,863,311	134,435
2028	0	2,406,889	1,607,117	127,598	672,174	0	0	35,756,920	0	0	29,211	0	1,967,423	149,426
2029	0	2,542,728	1,724,518	121,960	696,250	0	0	37,753,554	0	0	27,471	0	2,077,191	173,006
2030	0	2,657,514	1,820,786	117,175	719,553	0	0	39,858,216	0	0	25,947	0	2,192,906	197,065
2031	0	2,780,557	1,925,952	111,013	743,592	0	0	42,077,069	0	0	24,134	0	2,314,894	221,565
2032	0	2,916,124	2,043,068	103,472	769,584	0	0	44,416,097	0	0	22,006	0	2,443,482	248,951
2033	0	3,075,854	2,189,913	89,651	796,290	0	0	46,881,585	0	0	18,866	0	2,578,999	277,188
2034	0	3,201,219	2,294,151	77,309	829,759	0	0	49,479,450	0	0	16,210	0	2,721,810	313,950
2035	0	2,126,946	1,233,495	69,556	854,862	(30,966)	0	52,217,470	1,172,289	0	14,365	0	2,872,351	341,196
2036	0	0	0	0	0	0	0	53,931,897	3,444,772	240,873	67,691	0	2,881,163	375,058
2037	0	0	0	0	0	0	0	53,676,852	3,568,006	183,496	52,418	0	2,861,821	410,762
2038	0	0	0	0	0	0	0	53,206,581	3,631,742	148,019	43,288	0	2,833,016	443,365
2039	0	0	0	0	0	0	0	52,599,162	3,672,850	123,946	36,777	0	2,797,663	472,183
2040	0	0	0	0	0	0	0	51,884,698	3,707,462	101,346	30,273	0	2,756,639	501,759
2041	0	0	0	0	0	0	0	51,065,494	3,731,661	82,325	24,483	0	2,710,253	530,793
2042	0	0	0	0	0	0	0	50,150,894	3,741,895	66,671	19,618	0	2,659,116	559,944
2043	0	0	0	0	0	0	0	49,154,404	3,751,886	52,306	14,464	0	2,603,508	588,107
2044	0	0	0	0	0	0	0	48,072,796	3,753,614	40,167	9,619	0	2,543,512	617,159
2045	0	0	0	0	0	0	0	46,912,480	3,730,029	32,525	6,753	0	2,480,049	644,798
2046	0	0	0	0	0	0	0	45,701,778	3,697,190	26,383	4,476	0	2,414,123	673,087
2047	0	0	0	0	0	0	0	44,449,570	3,653,784	22,472	2,966	0	2,346,282	701,935
2048	0	0	0	0	0	0	0	43,167,506	3,601,605	20,362	2,089	0	2,277,103	729,985
2049	0	0	0	0	0	0	0	41,865,455	3,544,658	18,635	1,389	0	2,206,970	758,326
2050	0	0	0	0	0	0	0	40,547,791	3,483,654	17,242	834	0	2,136,101	787,256
2051	0	0	0	0	0	0	0	39,218,314	3,418,710	16,331	474	0	2,064,707	816,663
2052	0	0	0	0	0	0	0	37,881,116	3,350,534	15,826	274	0	1,992,992	847,128
2053	0	0	0	0	0	0	0	36,539,674	3,280,518	15,420	111	0	1,921,097	877,439
2054	0	0	0	0	0	0	0	35,195,784	3,208,911	15,109	0	0	1,849,114	909,556
2055	0	0	0	0	0	0	0	33,851,096	3,135,583	15,028	0	0	1,777,144	942,227
2056	0	0	0	0	0	0	0	32,507,685	3,061,566	14,937	0	0	1,705,262	975,580

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

[b] *Assets accumulate in the Pension and Relief Fund.*

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

Actuarial Projections – Optional Funding in (N/A)
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
2016	46	51	$19,595,635	$1,562,207	$5,487	$448,978	$183,395	$445,002	$926,356	$20,031,672	$35,088,168	$15,056,496	57%
2017	46	51	20,031,672	1,571,207	10,892	480,405	172,083	487,562	1,089,748	20,679,371	36,364,617	15,685,246	57%
2018	46	52	20,679,371	1,575,545	11,218	514,033	181,658	515,032	1,127,162	21,430,493	37,749,841	16,319,348	57%
2019	46	52	21,430,493	1,643,995	11,582	550,015	191,340	531,498	1,168,293	22,216,062	39,182,916	16,966,854	57%
2020	46	51	22,216,062	1,692,706	11,985	588,516	202,741	545,090	1,211,890	23,059,608	40,695,324	17,635,716	57%
2021	46	52	23,059,608	1,750,065	12,101	629,712	211,584	551,621	1,258,260	23,948,619	42,270,438	18,321,819	57%
2022	46	53	23,948,619	1,831,928	12,579	673,792	222,341	567,094	1,306,829	24,874,168	43,890,009	19,015,841	57%
2023	46	54	24,874,168	1,932,535	13,058	720,957	233,038	582,868	1,356,989	25,822,428	45,539,879	19,717,451	57%
2024	46	55	25,822,428	2,035,853	13,591	771,424	242,596	600,042	1,408,420	26,795,467	47,195,092	20,399,625	57%
2025	46	57	26,795,467	2,158,858	14,092	825,424	254,378	616,981	1,460,831	27,780,131	48,842,243	21,062,112	57%
2026	46	57	27,780,131	2,257,406	14,702	883,204	269,150	636,933	1,514,807	28,812,117	50,537,771	21,725,654	57%
2027	46	58	28,812,117	2,315,697	15,204	945,028	284,198	654,584	1,572,536	29,937,563	52,331,626	22,394,063	57%
2028	46	59	29,937,563	2,422,315	15,682	1,011,180	294,700	672,174	1,634,086	31,111,706	54,156,799	23,045,093	57%
2029	46	61	31,111,706	2,565,305	16,401	1,081,963	309,580	696,250	1,697,743	32,315,535	55,984,260	23,668,725	58%
2030	46	62	32,315,535	2,687,797	17,100	1,157,700	325,532	719,553	1,763,731	33,577,154	57,839,456	24,262,302	58%
2031	46	64	33,577,154	2,819,722	17,788	1,238,739	340,233	743,592	1,832,772	34,894,980	59,707,486	24,812,506	58%
2032	46	65	34,894,980	2,965,335	18,530	1,325,451	355,992	769,584	1,904,767	36,266,909	61,577,747	25,310,838	59%
2033	46	67	36,266,909	3,136,225	19,265	1,418,233	365,209	796,290	1,979,059	37,670,210	63,393,751	25,723,541	59%
2034	46	68	37,670,210	3,274,135	20,202	1,517,509	384,830	829,759	2,056,607	39,164,578	65,227,856	26,063,278	60%
2035	46	69	39,164,578	3,386,301	20,828	1,623,735	400,119	854,862	2,139,715	40,775,880	67,105,627	26,329,747	61%
2036	46	70	40,775,880	3,546,722	21,618	1,737,396	414,612	885,758	2,228,278	42,473,585	68,978,418	26,504,833	62%
2037	46	71	42,473,585	3,685,413	22,437	1,859,014	430,892	916,984	2,322,455	44,295,080	70,874,721	26,579,641	62%
2038	46	71	44,295,080	3,770,709	23,182	1,989,145	450,546	947,636	2,425,198	46,313,714	72,859,503	26,545,789	64%
2039	46	71	46,313,714	3,844,965	23,841	2,128,385	469,325	976,381	2,539,258	48,558,257	74,950,913	26,392,656	65%
2040	46	71	48,558,257	3,922,347	24,533	2,277,372	488,881	1,006,074	2,665,968	51,049,672	77,154,783	26,105,111	66%
2041	46	71	51,049,672	3,999,289	25,221	2,436,788	508,226	1,036,377	2,806,562	53,813,115	79,478,935	25,665,820	68%
2042	46	71	53,813,115	4,072,893	25,933	2,607,363	528,552	1,067,418	2,962,557	56,880,179	81,932,783	25,052,604	69%
2043	46	71	56,880,179	4,160,751	26,642	2,789,878	546,940	1,098,443	3,135,135	60,263,181	84,505,501	24,242,320	71%
2044	46	71	60,263,181	4,256,350	27,412	2,985,169	566,575	1,131,751	3,325,320	63,988,234	87,197,744	23,209,510	73%
2045	46	71	63,988,234	4,346,479	28,183	3,194,131	587,965	1,164,942	3,534,882	68,095,492	90,021,575	21,926,083	76%
2046	46	71	68,095,492	4,447,607	28,975	3,417,720	611,126	1,199,065	3,765,637	72,612,457	92,984,910	20,372,453	78%
2047	46	71	72,612,457	4,551,818	29,770	3,656,960	634,469	1,233,555	4,019,281	77,575,135	96,102,577	18,527,442	81%
2048	46	71	77,575,135	4,657,497	30,564	3,912,947	657,194	1,268,234	4,297,843	83,023,292	99,377,555	16,354,263	84%
2049	46	71	83,023,292	4,772,762	31,399	4,186,853	680,992	1,304,589	4,603,405	88,994,970	102,805,971	13,811,001	87%
2050	46	71	88,994,970	4,902,388	32,265	4,479,933	705,334	1,342,160	4,937,939	95,525,682	106,387,361	10,861,679	90%
2051	46	71	95,525,682	5,043,950	33,163	4,793,528	730,686	1,381,145	5,303,517	102,657,444	110,121,300	7,463,856	93%
2052	46	72	102,657,444	5,197,521	34,097	5,129,075	756,512	1,421,656	5,702,475	110,435,544	114,011,426	3,575,882	97%
2053	46	72	110,435,544	5,361,453	35,057	4,652,857	782,653	1,463,382	6,114,718	118,052,643	118,052,643	0	100%
2054	46	72	118,052,643	5,538,188	36,080	2,522,871	811,174	0	6,432,114	122,244,533	122,244,533	0	100%
2055	46	72	122,244,533	5,730,318	37,117	2,613,275	839,152	0	6,660,639	126,590,164	126,590,164	0	100%
2056	46	72	126,590,164	5,932,139	38,202	2,698,450	868,656	0	6,897,255	131,084,184	131,084,184	0	100%

Actuarial Projections – Optional Funding in (N/A)
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
2017	$2,217,255	$172,083	$932,441	$760,358	$967,120	$515,032	$452,088	$10,892	$1,223,338	$514,033	$514,033	$0
2018	2,316,699	181,658	974,721	793,064	1,018,687	531,498	487,189	11,218	1,291,471	550,015	550,015	0
2019	2,416,443	191,340	1,015,948	824,607	1,072,425	545,090	527,335	11,582	1,363,524	588,516	588,516	0
2020	2,535,783	202,741	1,065,762	863,021	1,129,087	551,621	577,466	11,985	1,452,472	629,712	629,712	0
2021	2,623,391	211,584	1,102,613	891,029	1,189,480	567,094	622,386	12,101	1,525,516	673,792	673,792	0
2022	2,719,472	222,341	1,143,981	921,640	1,253,654	582,868	670,786	12,579	1,605,005	720,957	720,957	0
2023	2,816,226	233,038	1,187,280	954,242	1,321,333	600,042	721,291	13,058	1,688,591	771,424	771,424	0
2024	2,898,547	242,596	1,207,108	964,512	1,392,888	616,981	775,907	13,591	1,754,010	825,424	825,424	0
2025	2,997,539	254,378	1,234,473	980,096	1,466,835	636,933	829,902	14,092	1,824,090	883,204	883,204	0
2026	3,132,699	269,150	1,294,456	1,025,306	1,543,576	654,584	888,992	14,702	1,929,000	945,028	945,028	0
2027	3,284,274	284,198	1,359,395	1,075,197	1,625,156	672,174	952,982	15,204	2,043,383	1,011,180	1,011,180	0
2028	3,370,523	294,700	1,398,614	1,103,914	1,712,545	696,250	1,016,295	15,682	2,135,892	1,081,963	1,081,963	0
2029	3,479,045	309,580	1,446,838	1,137,258	1,804,832	719,553	1,085,279	16,401	2,238,938	1,157,700	1,157,700	0
2030	3,606,615	325,532	1,499,664	1,174,131	1,902,066	743,592	1,158,474	17,100	2,349,706	1,238,739	1,238,739	0
2031	3,719,073	340,233	1,545,304	1,205,071	2,004,990	769,584	1,235,406	17,788	2,458,265	1,325,451	1,325,451	0
2032	3,838,011	355,992	1,594,151	1,238,159	2,113,613	796,290	1,317,323	18,530	2,574,011	1,418,233	1,418,233	0
2033	3,897,641	365,209	1,611,196	1,245,987	2,228,476	829,759	1,398,717	19,265	2,663,969	1,517,509	1,517,509	0
2034	4,070,653	384,830	1,674,216	1,289,386	2,348,009	854,862	1,493,147	20,202	2,802,734	1,623,735	1,623,735	0
2035	4,207,179	400,119	1,729,613	1,329,494	2,474,936	885,758	1,589,178	20,828	2,939,500	1,737,396	1,737,396	0
2036	4,335,856	414,612	1,784,703	1,370,090	2,611,312	916,984	1,694,328	21,618	3,086,036	1,859,014	1,859,014	0
2037	4,499,007	430,892	1,852,763	1,421,872	2,757,936	947,636	1,810,300	22,437	3,254,608	1,989,145	1,989,145	0
2038	4,702,216	450,546	1,935,034	1,484,488	2,917,049	976,381	1,940,668	23,182	3,448,338	2,128,385	2,128,385	0
2039	4,900,269	469,325	2,016,012	1,546,687	3,091,809	1,006,074	2,085,735	23,841	3,656,263	2,277,372	2,277,372	0
2040	5,108,386	488,881	2,100,742	1,611,861	3,286,374	1,036,377	2,249,997	24,533	3,886,391	2,436,788	2,436,788	0
2041	5,320,219	508,226	2,187,031	1,678,805	3,506,158	1,067,418	2,438,740	25,221	4,142,766	2,607,363	2,607,363	0
2042	5,543,693	528,552	2,276,848	1,748,296	3,758,977	1,098,443	2,660,534	25,933	4,434,763	2,789,878	2,789,878	0
2043	5,755,922	546,940	2,364,161	1,817,222	4,056,264	1,131,751	2,924,513	26,642	4,768,376	2,985,169	2,985,169	0
2044	5,980,751	566,575	2,458,034	1,891,459	4,416,658	1,164,942	3,251,716	27,412	5,170,588	3,194,131	3,194,131	0
2045	6,212,919	587,965	2,551,949	1,963,983	4,872,271	1,199,065	3,673,206	28,183	5,665,373	3,417,720	3,417,720	0
2046	6,457,650	611,126	2,651,081	2,039,955	5,483,635	1,233,555	4,250,080	28,975	6,319,010	3,656,960	3,656,960	0
2047	6,716,316	634,469	2,756,949	2,122,480	6,383,865	1,268,234	5,115,631	29,770	7,267,880	3,912,947	3,912,947	0
2048	6,974,224	657,194	2,862,541	2,205,347	7,918,969	1,304,589	6,614,380	30,564	8,850,290	4,186,853	4,186,853	0
2049	7,236,776	680,992	2,969,712	2,288,720	11,347,868	1,342,160	10,005,708	31,399	12,325,827	4,479,933	4,479,933	0
2050	7,506,461	705,334	3,080,005	2,374,671	14,185,716	1,381,145	12,804,571	32,265	12,060,225	4,793,528	4,793,528	0
2051	7,782,727	730,686	3,192,976	2,462,290	11,156,375	1,421,656	9,734,719	33,163	8,610,499	5,129,075	5,129,075	0
2052	8,070,771	756,512	3,310,419	2,553,906	7,666,363	1,463,382	6,202,981	34,097	4,652,857	4,652,857	4,652,857	0
2053	8,357,730	782,653	3,426,679	2,644,026	0	0	0	35,057	2,522,871 [c]	2,522,871	2,522,871	0
2054	8,662,439	811,174	3,550,522	2,739,349	0	0	0	36,080	2,613,275 [c]	2,613,275	2,613,275	0
2055	8,973,591	839,152	3,677,558	2,838,406	0	0	0	37,117	2,698,450 [c]	2,698,450	2,698,450	0
2056	9,291,237	868,656	3,807,320	2,938,665	0	0	0	38,202	2,698,450 [c]	2,698,450	2,792,405	0

[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 2042
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
2016	46	51	$19,595,635	$1,562,207	$5,487	$448,978	$183,395	$445,002	$926,356	$20,031,672	$35,088,168	$15,056,496	57%
2017	46	51	20,031,672	1,571,207	10,892	480,405	172,083	487,562	1,089,748	20,679,371	36,364,617	15,685,246	57%
2018	46	52	20,679,371	1,575,545	11,218	514,033	181,658	515,032	1,127,163	21,430,494	37,749,841	16,319,347	57%
2019	46	52	21,430,494	1,643,995	11,582	550,015	191,340	531,498	1,168,293	22,216,063	39,182,916	16,966,853	57%
2020	46	51	22,216,063	1,692,706	11,985	588,516	202,741	545,090	1,211,890	23,059,609	40,695,324	17,635,715	57%
2021	46	52	23,059,609	1,750,065	12,101	629,712	211,584	551,621	1,258,260	23,948,620	42,270,438	18,321,818	57%
2022	46	53	23,948,620	1,831,928	12,579	673,792	222,341	567,094	1,306,829	24,874,169	43,890,009	19,015,840	57%
2023	46	54	24,874,169	1,932,535	13,058	720,957	233,038	582,868	1,356,990	25,822,429	45,539,879	19,717,450	57%
2024	46	55	25,822,429	2,035,853	13,591	771,424	242,596	600,042	1,408,421	26,795,468	47,195,092	20,399,624	57%
2025	46	57	26,795,468	2,158,858	14,092	825,424	254,378	616,981	1,460,831	27,780,132	48,842,243	21,062,111	57%
2026	46	57	27,780,132	2,257,406	14,702	883,204	269,150	636,933	1,514,807	28,812,118	50,537,771	21,725,653	57%
2027	46	58	28,812,118	2,315,697	15,204	945,028	284,198	654,584	1,572,536	29,937,563	52,331,626	22,394,063	57%
2028	46	59	29,937,563	2,422,315	15,682	1,011,180	294,700	672,174	1,634,087	31,111,707	54,156,799	23,045,092	57%
2029	46	61	31,111,707	2,565,305	16,401	1,081,963	309,580	696,250	1,697,743	32,315,537	55,984,260	23,668,723	58%
2030	46	62	32,315,537	2,687,797	17,100	1,157,700	325,532	719,553	1,763,731	33,577,156	57,839,456	24,262,300	58%
2031	46	64	33,577,156	2,819,722	17,788	1,238,739	340,233	743,592	1,832,772	34,894,982	59,707,486	24,812,504	58%
2032	46	65	34,894,982	2,965,335	18,530	1,325,451	355,992	769,584	1,904,767	36,266,911	61,577,747	25,310,836	59%
2033	46	67	36,266,911	3,136,225	19,265	1,418,233	365,209	796,290	1,979,059	37,670,212	63,393,751	25,723,539	59%
2034	46	68	37,670,212	3,274,135	20,202	1,517,509	384,830	829,759	2,056,607	39,164,580	65,227,856	26,063,276	60%
2035	46	69	39,164,580	3,386,301	20,828	1,623,735	400,119	854,862	2,139,715	40,775,882	67,105,627	26,329,745	61%
2036	46	70	40,775,882	3,546,722	21,618	1,737,396	414,612	885,758	2,228,278	42,473,586	68,978,418	26,504,832	62%
2037	46	71	42,473,586	3,685,413	22,437	1,859,014	430,892	916,984	2,322,455	44,295,081	70,874,721	26,579,640	62%
2038	46	71	44,295,081	3,770,709	23,182	1,989,145	450,546	947,636	2,425,199	46,313,716	72,859,503	26,545,787	64%
2039	46	71	46,313,716	3,844,965	23,841	2,128,385	469,325	976,381	2,539,258	48,558,259	74,950,913	26,392,654	65%
2040	46	71	48,558,259	3,922,347	24,533	2,277,372	488,881	1,006,074	2,665,968	51,049,674	77,154,783	26,105,109	66%
2041	43	71	51,049,674	3,999,289	25,221	2,436,788	508,226	1,036,377	2,806,562	53,813,117	79,471,660	25,658,543	68%
2042	41	71	53,813,117	4,072,893	25,310	2,606,479	503,850	1,067,418	2,961,880	56,854,541	81,815,896	24,961,355	69%
2043	38	71	56,854,541	4,159,921	25,423	2,668,971	496,711	1,098,443	3,129,137	60,062,459	84,161,655	24,099,196	71%
2044	36	71	60,062,459	4,253,107	25,552	2,737,031	487,567	1,131,751	3,305,543	63,445,692	86,489,919	23,044,227	73%
2045	33	71	63,445,692	4,339,489	25,694	2,797,539	479,247	1,164,942	3,491,590	67,013,827	88,800,985	21,787,158	75%
2046	31	71	67,013,827	4,435,612	25,845	2,866,865	470,841	1,199,065	3,687,804	70,776,945	91,087,580	20,310,635	78%
2047	29	71	70,776,945	4,533,699	26,001	2,938,859	461,391	1,233,555	3,894,743	74,745,793	93,351,109	18,605,316	80%
2048	27	71	74,745,793	4,631,870	26,161	3,012,343	450,167	1,268,234	4,112,991	78,931,497	95,580,288	16,648,791	83%
2049	25	71	78,931,497	4,738,259	26,326	3,093,375	437,590	1,304,589	4,343,158	83,345,624	97,749,760	14,404,136	85%
2050	23	71	83,345,624	4,857,570	26,495	3,187,439	423,471	1,342,160	4,585,882	88,000,511	99,844,451	11,843,940	88%
2051	21	71	88,000,511	4,984,852	26,670	3,289,402	407,782	1,381,145	4,841,841	92,909,159	101,848,372	8,939,213	91%
2052	20	71	92,909,159	5,120,249	26,849	3,400,094	389,703	1,421,656	5,111,750	98,085,264	103,741,577	5,656,313	95%
2053	18	71	98,085,264	5,264,193	27,033	3,519,972	369,378	1,463,382	5,396,358	103,543,128	105,494,788	1,951,660	98%
2054	16	71	103,543,128	5,419,322	27,224	1,669,716	347,271	1,324,947	5,637,770	107,076,287	107,076,287	0	100%
2055	14	71	107,076,287	5,588,078	27,419	909,231	322,262	0	5,770,249	108,462,532	108,462,532	0	100%
2056	13	71	108,462,532	5,764,495	27,620	811,344	294,966	0	5,838,304	109,615,031	109,615,031	0	100%

Actuarial Projections – Conservation Funding in 2042
Table A-8

	Benefit Payment Account [a]						Accumulation Account [b]						Minimum Payment			
Plan Year End 30-Jun	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	5.50% of Pay Employee Contribs.	100.00% of Premium Tax Allocation	Investment Income	Assets (boy)[c]	Net Benefit Pmts and Expenses	Employer Contribs.	1.50% of Pay Employee Contribs.	0.00% of Premium Tax Allocation	Investment Income	Conservation Employer Cont.	Alternative Employer Cont.	Minimum Alt /Cons Cont.	Statewide Employer Contribution
2017	$20,031,672	$1,582,099	$480,405	$172,083	$487,562	$1,089,748	$0	$0	$0	$0	$0	$0	NA	$480,405	$480,405	$0
2018	20,679,371	1,586,763	514,033	181,658	515,032	1,127,163	0	0	0	0	0	0	NA	514,033	514,033	0
2019	21,430,494	1,655,577	550,015	191,340	531,498	1,168,293	0	0	0	0	0	0	NA	550,015	550,015	0
2020	22,216,063	1,704,691	588,516	202,741	545,090	1,211,890	0	0	0	0	0	0	NA	588,516	588,516	0
2021	23,059,609	1,762,166	629,712	211,584	551,621	1,258,260	0	0	0	0	0	0	NA	629,712	629,712	0
2022	23,948,620	1,844,507	673,792	222,341	567,094	1,306,829	0	0	0	0	0	0	NA	673,792	673,792	0
2023	24,874,169	1,945,593	720,957	233,038	582,868	1,356,990	0	0	0	0	0	0	NA	720,957	720,957	0
2024	25,822,429	2,049,444	771,424	242,596	600,042	1,408,421	0	0	0	0	0	0	NA	771,424	771,424	0
2025	26,795,468	2,172,950	825,424	254,378	616,981	1,460,831	0	0	0	0	0	0	NA	825,424	825,424	0
2026	27,780,132	2,272,108	883,204	269,150	636,933	1,514,807	0	0	0	0	0	0	NA	883,204	883,204	0
2027	28,812,118	2,330,901	945,028	284,198	654,584	1,572,536	0	0	0	0	0	0	NA	945,028	945,028	0
2028	29,937,563	2,437,997	1,011,180	294,700	672,174	1,634,087	0	0	0	0	0	0	NA	1,011,180	1,011,180	0
2029	31,111,707	2,581,706	1,081,963	309,580	696,250	1,697,743	0	0	0	0	0	0	NA	1,081,963	1,081,963	0
2030	32,315,537	2,704,897	1,157,700	325,532	719,553	1,763,731	0	0	0	0	0	0	NA	1,157,700	1,157,700	0
2031	33,577,156	2,837,510	1,238,739	340,233	743,592	1,832,772	0	0	0	0	0	0	NA	1,238,739	1,238,739	0
2032	34,894,982	2,983,865	1,325,451	355,992	769,584	1,904,767	0	0	0	0	0	0	NA	1,325,451	1,325,451	0
2033	36,266,910	3,155,490	1,418,233	365,209	796,290	1,979,059	0	0	0	0	0	0	NA	1,418,233	1,418,233	0
2034	37,670,211	3,294,337	1,517,509	384,830	829,759	2,056,607	0	0	0	0	0	0	NA	1,517,509	1,517,509	0
2035	39,164,579	3,407,129	1,623,735	400,119	854,862	2,139,715	0	0	0	0	0	0	NA	1,623,735	1,623,735	0
2036	40,775,881	3,568,340	1,737,396	414,612	885,758	2,228,278	0	0	0	0	0	0	NA	1,737,396	1,737,396	0
2037	42,473,585	3,707,850	1,859,014	430,892	916,984	2,322,455	0	0	0	0	0	0	NA	1,859,014	1,859,014	0
2038	44,295,081	3,793,891	1,989,145	450,546	947,636	2,425,199	0	0	0	0	0	0	NA	1,989,145	1,989,145	0
2039	46,313,716	3,868,806	2,128,385	469,325	976,381	2,539,258	0	0	0	0	0	0	NA	2,128,385	2,128,385	0
2040	48,558,259	3,946,880	2,277,372	488,881	1,006,074	2,665,968	0	0	0	0	0	0	NA	2,277,372	2,277,372	0
2041	51,049,675	4,024,510	2,436,788	508,226	1,036,377	2,806,562	0	0	0	0	0	0	NA	2,436,788	2,436,788	0
2042	53,813,117	4,098,203	2,606,479	424,306	1,067,418	2,959,721	56,772,838	0	0	79,544	0	2,158	2,606,479	2,607,363	2,606,479	25,281
2043	0	4,185,344	2,668,971	417,930	1,098,443	0	56,854,540	0	0	78,781	0	3,129,137	2,668,971	2,789,878	2,668,971	52,903
2044	0	4,278,659	2,737,031	409,877	1,131,751	0	60,062,458	0	0	77,690	0	3,305,543	2,737,031	2,985,169	2,737,031	84,149
2045	0	4,365,183	2,797,539	402,702	1,164,942	0	63,445,691	0	0	76,545	0	3,491,590	2,797,539	3,194,131	2,797,539	116,540
2046	0	4,461,457	2,866,865	395,527	1,199,065	0	67,013,826	0	0	75,314	0	3,687,804	2,866,865	3,417,720	2,866,865	150,857
2047	0	4,559,700	2,938,859	387,286	1,233,555	0	70,776,944	0	0	74,105	0	3,894,743	2,938,859	3,656,960	2,938,859	186,479
2048	0	4,658,031	3,012,343	377,454	1,268,234	0	74,745,792	0	0	72,713	0	4,112,991	3,012,343	3,912,947	3,012,343	223,305
2049	0	4,764,585	3,093,375	366,621	1,304,589	0	78,931,496	0	0	70,969	0	4,343,158	3,093,375	4,186,853	3,093,375	263,082
2050	0	4,884,065	3,187,439	354,466	1,342,160	0	83,345,623	0	0	69,005	0	4,585,882	3,187,439	4,479,933	3,187,439	305,140
2051	0	5,011,522	3,289,402	340,975	1,381,145	0	88,000,510	0	0	66,807	0	4,841,841	3,289,402	4,793,528	3,289,402	349,538
2052	0	5,147,098	3,400,094	325,348	1,421,656	0	92,909,158	0	0	64,355	0	5,111,750	3,400,094	5,129,075	3,400,094	396,945
2053	0	5,291,226	3,519,972	307,872	1,463,382	0	98,085,263	0	0	61,506	0	5,396,358	3,519,972	5,488,110	3,519,972	447,018
2054	0	3,224,946	1,669,716	288,966	1,324,947	(58,684)	103,543,127	2,221,600	0	58,305	0	5,696,454	1,669,716	1,729,160	1,669,716	501,420
2055	0	0	0	0	0	0	107,076,286	5,615,497	909,231	322,262	0	5,770,249	909,231	1,191,030	909,231	558,401
2056	0	0	0	0	0	0	108,462,531	5,792,115	811,344	294,966	0	5,838,304	811,344	1,105,243	811,344	619,395

[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.*