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

Actuarial Valuation Report
for the Year Beginning July 1, 2016

September 8, 2017

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

Lt. Ernest W. Parsons, Jr.
Pension Board Secretary
City of Beckley Firemen's Pension and Relief Fund

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

Dear Mr. Trump and Lt. Parsons, Jr.:

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

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

- The sponsor's funding requirements for the fiscal year 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 4.50%. 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, 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 Firemen's Pension and Relief Fund ("Fund" or "Plan").

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

- The sponsor's funding requirements for the fiscal year ending June 30, 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).

The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2016
Assets	$16,966,940
Actuarial Accrued Liability	$44,889,600
Unfunded Actuarial Accrued Liability	$27,922,660
Funded Ratio	37.80%

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	$588,282
7% Increase in Alternative Contribution	$41,180
FYE 06/30/2017 Alternative Contribution	$629,462
Additional Contribution	$0
Final FYE 06/30/2017 Alternative Contribution	$629,462

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	$629,462
7% Increase in Alternative Contribution	$44,062
FYE 06/30/2018 Alternative Contribution	$673,524
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	$673,524
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	$673,524

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.

Executive Summary (Continued)

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.*

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 43% (using a testing interest rate of 5.50% for all plans using the Alternative funding policy), ratio of assets to benefits of 8.90, equity allocation of 56%, and 15-year projected funded ratio of 37%, resulted in a discount rate assumption of 4.50%.
- The Fund experienced an approximate annualized return of 4.81% on the market value of assets during the plan year ended June 30, 2016, which compares to the expected annualized return of 4.50%. The difference in actual versus expected return produced an asset (gain)/loss of ($50,077).
- 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 $266,140 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 4.50%:

- The funded ratio is projected to decrease from 38% at June 30, 2016, to 27% at June 30, 2034, and then increase to 84% at 2056.
- Employer contributions are expected to increase from $629,462 (or 30% of pay) for the fiscal year end June 30, 2017, to $8,809,209 (or 104% of pay) for fiscal year end June 30, 2056.

Please note that a funded ratio of only 38% at June 30, 2016, means that the plan is underfunded.

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

A funding policy consistent with generally accepted actuarial principles is typically based on the sponsor contributing the normal cost net of employee contributions plus an amortization of the unfunded actuarial liability. The annual amortization amount is generally 6% to 7% of the unfunded actuarial liability. Under state statute, the annual premium tax allocation can only be used to finance the amortization of the unfunded actuarial liability. For fiscal year end 2018, the Alternative funding policy contribution of $673,524 is sufficient to finance only 68% of the net employer normal cost of $991,604 and the state premium tax allocation of $443,192 is sufficient to finance only 1.6% of the unfunded actuarial liability of $27,922,660.

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 seriously consider making additional contributions (in excess of the minimum requirement) to ensure that there are sufficient assets available in the fund in all years to pay the promised benefits.

If the minimum employer contributions (calculated under the Alternative funding policy) are not made or investment return is less than the assumption of 4.50%, the funded ratio will be lower and the cash flow strain will be higher. If another significant market downtown occurs while the plan's funded ratio is low, the plan may need to liquidate a large amount of 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 4.50%, 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		4.50%		4.50%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$2,028,434		$2,080,112
Average Pay		$50,711		$53,336
Expected Benefit Payments		$1,861,234		$1,906,216
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	40	$15,632,031	39	$16,793,658
(b) Retirees	33	$22,856,192	35	$23,222,943
(c) Survivors	14	$1,822,763	12	$1,438,715
(d) Disabled Members	8	$3,102,376	8	$3,434,284
(e) Deferred Vested Members	0	$0	0	$0
(f) Total	95	$43,413,362	94	$44,889,600
2. Present Value of Future Normal Costs		$9,270,199		$9,907,497
3. Present Value of Benefits (1(f) + 2)		$52,683,561		$54,797,097
4. Market Value of Assets		$16,814,980		$16,966,940
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$26,598,382		$27,922,660
6. Funded Ratio (4 / 1(f))		38.73%		37.80%
7. Net Employer Normal Cost				
(a) Normal Cost		$1,076,769		$1,138,229
(b) Administrative Expenses		$8,076		$8,639
(c) Gross Normal Cost (a + b)		$1,084,845		$1,146,868
(d) Employee Contribution Rate [a]		7.39%		7.46%
(e) Expected Employee Contributions		$149,837		$155,264
(f) Net Employer Normal Cost (c - e)		$935,008		$991,604
(% of Compensation)		46.10%		47.67%
		FYE 2017		**FYE 2018**
8. Estimated Minimum Employer Contribution [b]				
(a) Prior Year Alternative Contribution		$588,282		$629,462
(b) Increase in Alternative Contribution		7.00%		7.00%
(c) Current Year Alternative Contribution		$629,462		$673,524
(d) Additional Contribution		$0		$0
(e) Alternative Contribution (c + d)		$629,462		$673,524

[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.

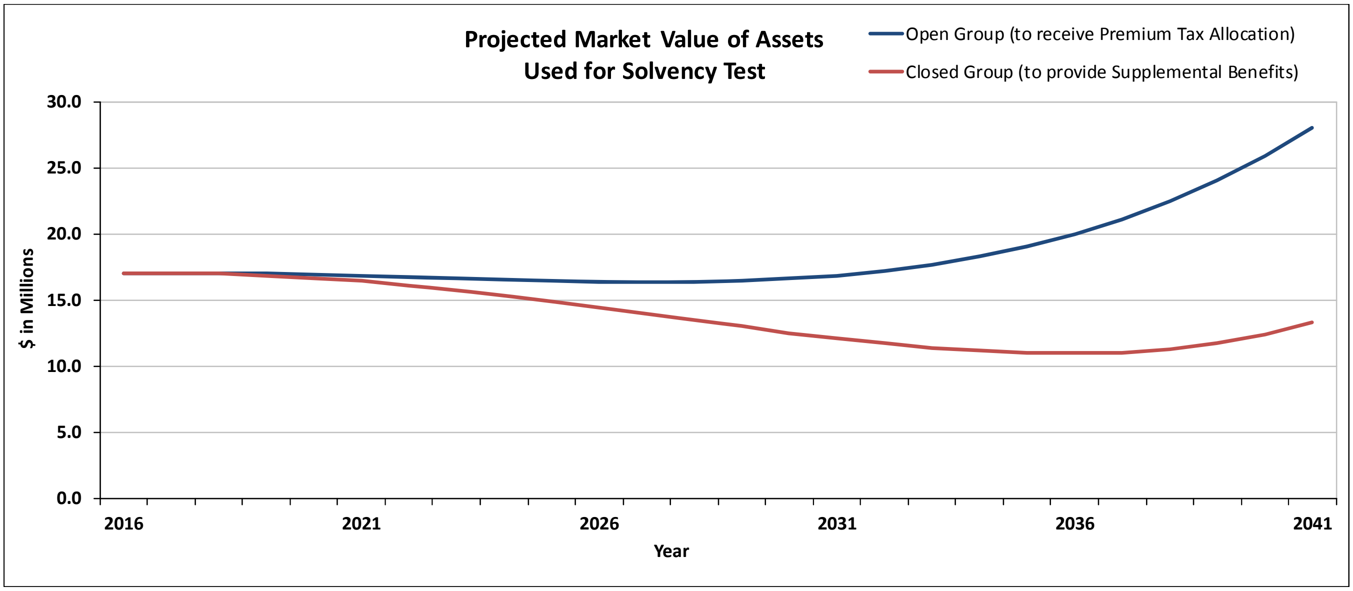
Schedule B: (Gain)/Loss Analysis

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

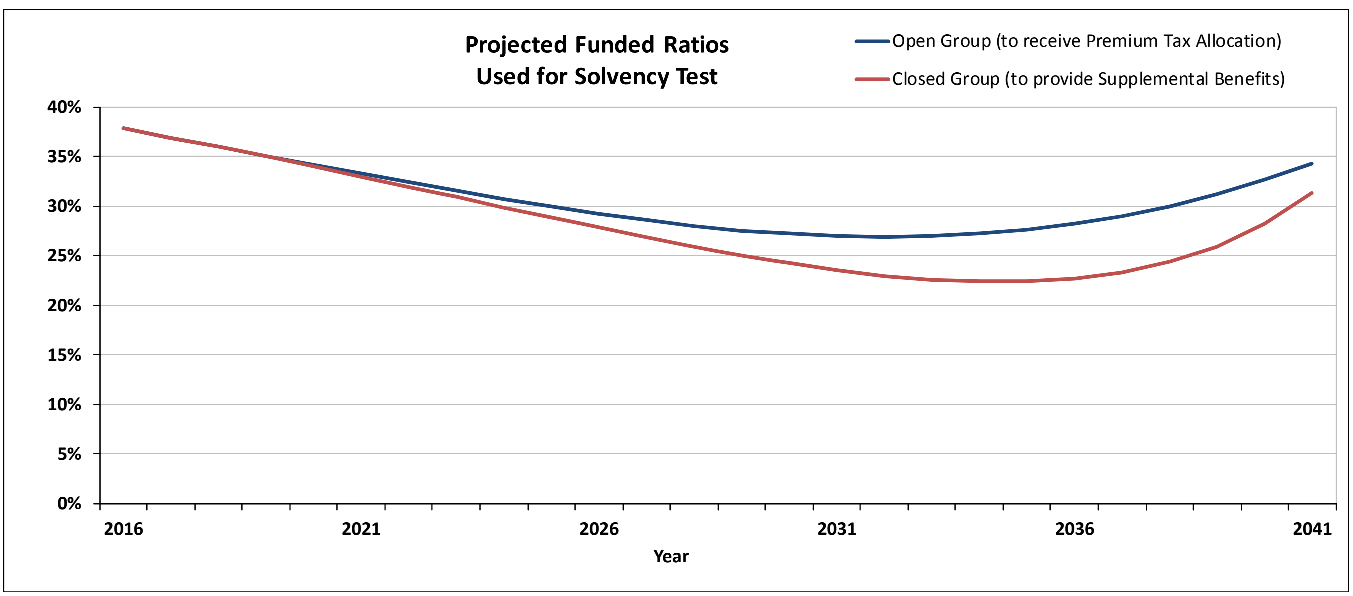
1.	(a)	Liability as of 7/1/2015	$43,413,362
	(b)	Normal Cost due 7/1/2015	$1,076,769
	(c)	Interest on (a) and (b) to 6/30/2016	$1,977,829
	(d)	Benefit Payments with interest to 6/30/2016	$1,844,500
	(e)	Effect of Assumption Changes	$0
	(f)	Expected Liability at 7/1/2016 [(a) + (b) + (c) - (d) + (e)]	$44,623,460
	(g)	Actual Liability at 7/1/2016	$44,889,600
	(h)	Liability (Gain)/Loss [(g) - (f)]	**$266,140**
2.	(a)	Market Value of Assets as of 7/1/2015	$16,814,980
	(b)	Interest on (a) to 6/30/2016	$753,243
	(c)	Contributions with interest to 6/30/2016	$1,193,140
	(d)	Benefit Payments with interest to 6/30/2016	$1,844,500
	(e)	Expected Assets at 6/30/2016 [(a) + (b) + (c) - (d)]	$16,916,863
	(f)	Actual Assets at 7/1/2016	$16,966,940
	(g)	Asset (Gain)/Loss [(e) - (f)]	**($50,077)**
3.		Total (Gain)/Loss [1(h) + 2(g)]	**$216,063**

Graphs 1A and 1B: Solvency Projections

Graph 1A



Graph 1B



SECTION II

ACTUARIAL PROJECTIONS

ALTERNATIVE FUNDING POLICY

Alternative Funding on a Closed Group Basis, Table 1

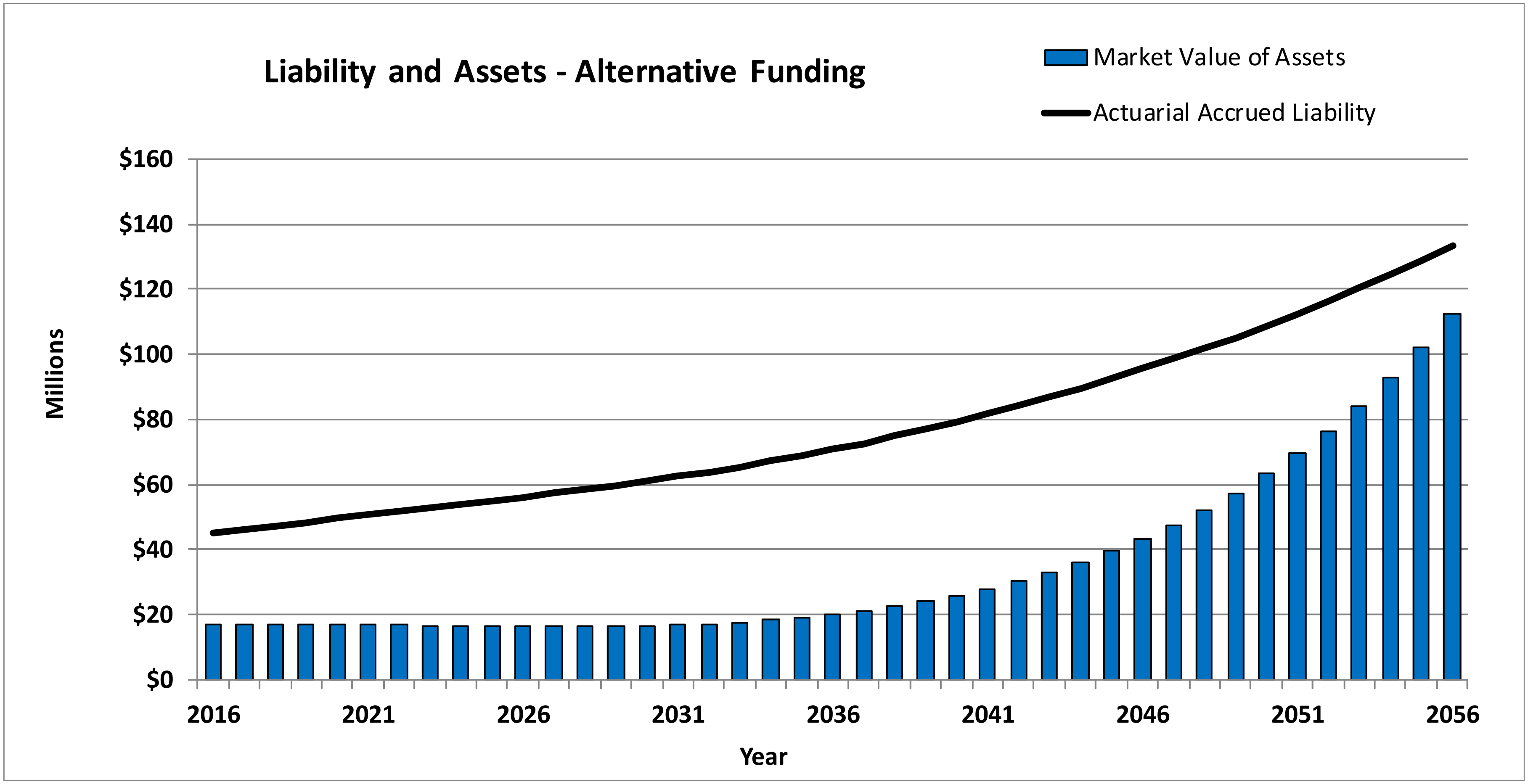
Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Payroll	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2016	39	55	$2,028,434	$16,814,980	$1,803,912	$295	$588,285	$167,650	$410,943	$789,289	$16,966,940	$44,889,600	$27,922,660	38%
2017	34	59	2,080,112	16,966,940	1,906,216	8,639	629,462	155,264	428,814	747,906	17,013,531	46,124,568	29,111,037	37%
2018	31	61	1,932,988	17,013,531	2,041,096	8,748	673,524	145,222	443,192	748,076	16,973,702	47,185,908	30,212,206	36%
2019	28	62	1,859,364	16,973,702	2,134,032	8,869	720,671	140,247	408,673	744,384	16,844,776	48,154,854	31,310,078	35%
2020	26	64	1,770,505	16,844,776	2,228,423	8,995	771,118	134,223	403,321	737,348	16,653,367	49,015,880	32,362,513	34%
2021	24	64	1,683,865	16,653,367	2,313,513	9,131	825,096	128,389	395,837	727,743	16,407,788	49,773,697	33,365,909	33%
2022	21	65	1,597,919	16,407,788	2,399,403	9,167	882,853	122,626	389,607	715,798	16,110,102	50,426,384	34,316,282	32%
2023	19	65	1,498,729	16,110,102	2,492,752	9,312	944,653	115,964	385,018	701,446	15,755,119	50,956,942	35,201,823	31%
2024	17	65	1,398,699	15,755,119	2,590,640	9,350	1,010,779	109,269	379,053	684,483	15,338,713	51,355,401	36,016,688	30%
2025	15	66	1,314,788	15,338,713	2,674,191	9,383	1,081,534	103,709	372,022	665,179	14,877,583	51,639,415	36,761,832	29%
2026	14	66	1,259,967	14,877,583	2,731,867	9,523	1,157,241	100,193	371,939	644,746	14,410,312	51,846,552	37,436,240	28%
2027	12	67	1,189,734	14,410,312	2,800,104	9,665	1,238,248	95,626	372,587	623,912	13,930,917	51,954,748	38,023,831	27%
2028	11	67	1,126,349	13,930,917	2,860,645	9,806	1,324,925	91,588	372,706	602,831	13,452,516	51,971,076	38,518,560	26%
2029	10	67	1,052,796	13,452,516	2,921,917	9,944	1,417,670	86,881	375,086	581,949	12,982,241	51,885,411	38,903,170	25%
2030	9	67	962,673	12,982,241	2,989,521	10,080	1,516,907	80,629	374,692	561,339	12,516,207	51,677,538	39,161,331	24%
2031	8	67	888,092	12,516,207	3,037,317	10,212	1,623,090	75,172	376,535	541,583	12,085,059	51,369,453	39,284,394	24%
2032	7	67	818,646	12,085,059	3,076,762	10,337	1,736,706	70,000	378,471	523,758	11,706,895	50,967,869	39,260,974	23%
2033	6	67	742,619	11,706,895	3,114,226	10,455	1,858,275	63,655	381,366	508,533	11,394,043	50,466,111	39,072,068	23%
2034	5	66	667,104	11,394,043	3,142,241	10,563	1,988,354	57,076	383,495	496,624	11,166,788	49,869,516	38,702,728	22%
2035	4	66	581,650	11,166,788	3,186,176	10,666	2,127,539	50,392	386,940	488,443	11,023,260	49,156,247	38,132,987	22%
2036	3	65	477,775	11,023,260	3,235,994	10,756	2,276,467	42,269	390,544	484,087	10,969,876	48,305,683	37,335,807	23%
2037	2	65	377,170	10,969,876	3,268,010	10,832	2,435,820	33,628	392,391	484,365	11,037,238	47,328,745	36,291,507	23%
2038	2	64	297,036	11,037,238	3,281,219	10,893	2,606,327	26,671	394,610	490,790	11,263,523	46,250,217	34,986,694	24%
2039	1	63	249,270	11,263,523	3,267,999	10,938	2,788,770	22,618	398,431	505,320	11,699,725	45,110,461	33,410,736	26%
2040	1	61	209,990	11,699,725	3,244,264	10,965	2,983,984	19,231	401,949	529,824	12,379,484	43,921,706	31,542,222	28%
2041	1	60	183,272	12,379,484	3,207,474	10,974	3,192,863	16,918	405,142	565,899	13,341,859	42,702,008	29,360,149	31%
2042	1	58	140,262	13,341,859	3,185,506	10,963	3,416,363	13,007	408,156	614,649	14,597,565	41,430,030	26,832,465	35%
2043	0	57	89,302	14,597,565	3,164,376	10,932	3,655,508	8,270	410,040	676,885	16,172,959	40,099,707	23,926,748	40%
2044	0	55	61,142	16,172,959	3,116,578	10,882	3,911,394	5,665	411,216	754,504	18,128,278	38,745,325	20,617,047	47%
2045	0	53	40,114	18,128,278	3,060,604	10,813	4,185,192	3,753	411,537	849,798	20,507,141	37,377,563	16,870,422	55%
2046	0	51	27,224	20,507,141	2,996,353	10,726	4,478,155	2,586	411,262	964,766	23,356,831	36,008,250	12,651,419	65%
2047	0	49	19,108	23,356,831	2,926,783	10,623	4,791,626	1,815	410,381	1,101,490	26,724,738	34,644,879	7,920,141	77%
2048	0	47	12,877	26,724,738	2,854,497	10,505	5,127,040	1,223	408,800	1,262,073	30,658,872	33,291,327	2,632,455	92%
2049	0	45	8,645	30,658,872	2,779,990	10,375	2,297,523	821	406,637	1,377,749	31,951,237	31,951,237	0	100%
2050	0	44	5,801	31,951,237	2,704,169	10,234	12,083	551	0	1,377,685	30,627,152	30,627,152	0	100%
2051	0	42	3,891	30,627,152	2,627,716	10,085	11,319	370	0	1,319,784	29,320,824	29,320,824	0	100%
2052	0	40	1,575	29,320,824	2,551,910	9,929	10,435	150	0	1,262,666	28,032,235	28,032,235	0	100%
2053	0	38	0	28,032,235	2,476,171	9,768	9,767	0	0	1,206,350	26,762,413	26,762,413	0	100%
2054	0	37	0	26,762,413	2,400,135	9,603	9,603	0	0	1,150,900	25,513,178	25,513,178	0	100%
2055	0	35	0	25,513,178	2,325,037	9,436	9,435	0	0	1,096,355	24,284,496	24,284,496	0	100%
2056	0	33	0	24,284,496	2,250,904	9,267	9,268	0	0	1,042,714	23,076,307	23,076,307	0	100%

Alternative Funding on an Open Group Basis, Table 2

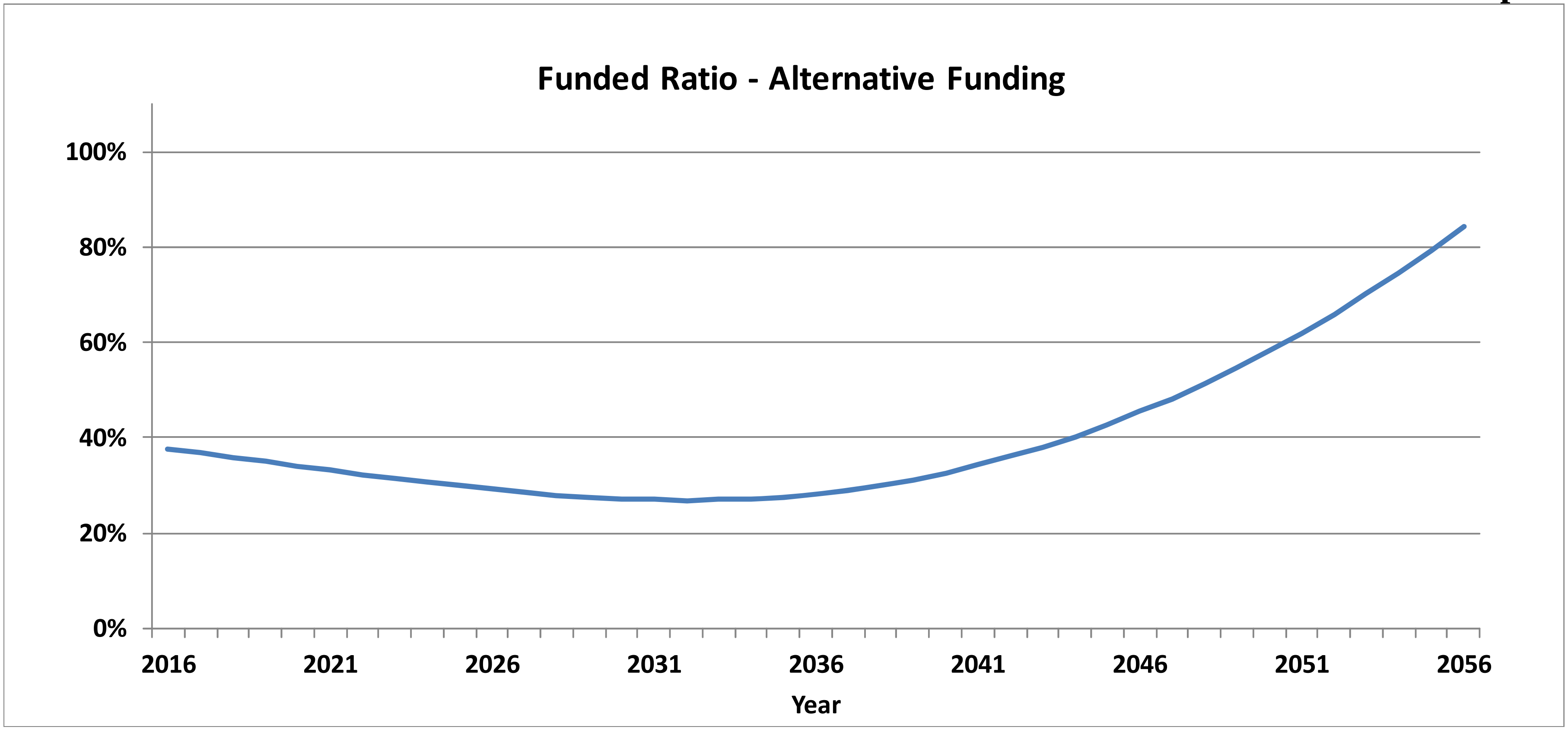
Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Payroll	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2016	39	55	$2,028,434	$16,814,980	$1,803,912	$295	$588,285	$167,650	$410,943	$789,289	$16,966,940	$44,889,600	$27,922,660	38%
2017	39	59	2,080,112	16,966,940	1,906,216	8,639	629,462	155,264	428,814	747,906	17,013,531	46,124,568	29,111,037	37%
2018	39	61	2,135,949	17,013,531	2,041,096	9,252	673,524	166,225	443,192	748,533	16,994,657	47,293,249	30,298,592	36%
2019	39	62	2,205,660	16,994,657	2,134,706	9,661	720,671	174,692	472,249	747,475	16,965,378	48,449,155	31,483,777	35%
2020	39	64	2,254,053	16,965,378	2,230,839	10,053	771,118	181,735	487,278	745,623	16,910,240	49,576,709	32,666,469	34%
2021	39	64	2,332,617	16,910,240	2,318,222	10,511	825,096	191,981	504,305	742,995	16,845,883	50,698,600	33,852,717	33%
2022	39	65	2,390,218	16,845,883	2,406,958	10,799	882,853	199,926	516,404	739,850	16,767,158	51,805,440	35,038,282	32%
2023	39	65	2,462,487	16,767,158	2,503,618	11,254	944,653	210,039	533,737	736,131	16,676,847	52,898,651	36,221,804	32%
2024	39	65	2,529,181	16,676,847	2,605,402	11,571	1,010,779	219,496	546,956	731,771	16,568,876	53,970,156	37,401,280	31%
2025	39	66	2,636,841	16,568,876	2,693,457	11,928	1,081,534	232,713	561,867	727,146	16,466,751	55,055,296	38,588,545	30%
2026	39	66	2,748,340	16,466,751	2,756,225	12,315	1,157,241	245,174	577,821	723,462	16,401,909	56,183,493	39,781,584	29%
2027	39	67	2,850,639	16,401,909	2,830,162	12,711	1,238,248	257,388	594,518	721,337	16,370,527	57,340,943	40,970,416	29%
2028	39	67	2,981,463	16,370,527	2,896,914	13,144	1,324,925	272,412	612,961	721,102	16,391,869	58,551,512	42,159,643	28%
2029	39	68	3,082,742	16,391,869	2,964,981	13,513	1,417,670	284,636	629,344	723,240	16,468,265	59,800,710	43,332,445	28%
2030	39	68	3,211,151	16,468,265	3,040,091	13,971	1,516,907	299,988	648,255	727,967	16,607,320	61,097,297	44,489,977	27%
2031	39	68	3,342,829	16,607,320	3,096,033	14,375	1,623,090	314,609	666,288	736,060	16,836,959	62,463,618	45,626,659	27%
2032	39	68	3,489,831	16,836,959	3,144,482	14,783	1,736,706	330,635	684,793	748,604	17,178,431	63,918,748	46,740,317	27%
2033	39	68	3,630,314	17,178,431	3,191,744	15,170	1,858,275	345,470	703,254	766,355	17,644,872	65,463,170	47,818,298	27%
2034	39	68	3,796,717	17,644,872	3,230,694	15,588	1,988,354	362,753	723,612	790,201	18,263,509	67,123,809	48,860,300	27%
2035	39	67	3,946,385	18,263,509	3,286,101	15,967	2,127,539	379,102	742,838	820,688	19,031,607	68,883,804	49,852,197	28%
2036	39	67	4,101,581	19,031,607	3,348,386	16,370	2,276,467	393,869	763,762	857,965	19,958,914	70,744,138	50,785,224	28%
2037	39	67	4,246,010	19,958,914	3,393,895	16,768	2,435,820	405,229	783,864	902,919	21,076,082	72,705,650	51,629,568	29%
2038	39	67	4,415,435	21,076,082	3,432,539	17,237	2,606,327	420,450	807,765	956,986	22,417,834	74,776,764	52,358,930	30%
2039	39	67	4,591,569	22,417,834	3,471,454	17,671	2,788,770	435,592	830,933	1,021,402	24,005,406	76,975,625	52,970,219	31%
2040	39	66	4,763,575	24,005,406	3,516,761	18,109	2,983,984	450,369	854,092	1,097,013	25,855,994	79,297,312	53,441,318	33%
2041	39	66	4,948,180	25,855,994	3,566,915	18,570	3,192,863	466,763	878,742	1,184,724	27,993,600	81,748,210	53,754,610	34%
2042	39	66	5,105,342	27,993,600	3,650,494	19,021	3,416,363	480,293	902,884	1,284,858	30,408,483	84,292,786	53,884,303	36%
2043	39	66	5,279,169	30,408,483	3,749,913	19,535	3,655,508	495,724	929,474	1,397,561	33,117,302	86,927,572	53,810,270	38%
2044	39	66	5,462,467	33,117,302	3,839,393	20,027	3,911,394	511,937	955,479	1,524,089	36,160,780	89,671,352	53,510,572	40%
2045	39	65	5,653,485	36,160,780	3,935,530	20,529	4,185,192	529,500	981,689	1,665,961	39,567,063	92,525,836	52,958,773	43%
2046	39	65	5,855,049	39,567,063	4,038,832	21,033	4,478,155	548,204	1,008,082	1,824,457	43,366,096	95,499,155	52,133,059	45%
2047	39	64	6,063,338	43,366,096	4,148,059	21,535	4,791,626	567,774	1,034,625	2,000,973	47,591,500	98,597,152	51,005,652	48%
2048	39	64	6,283,321	47,591,500	4,263,056	22,048	5,127,040	588,645	1,061,732	2,197,078	52,280,890	101,827,267	49,546,377	51%
2049	39	64	6,511,127	52,280,890	4,383,243	22,563	5,485,933	610,070	1,089,092	2,414,486	57,474,664	105,197,244	47,722,580	55%
2050	39	63	6,749,782	57,474,664	4,506,844	23,093	5,869,948	632,957	1,117,133	2,655,122	63,219,886	108,713,459	45,493,573	58%
2051	39	63	7,000,700	63,219,886	4,636,714	23,635	6,280,844	657,162	1,145,871	2,921,077	69,564,491	112,385,488	42,820,997	62%
2052	39	62	7,263,388	69,564,491	4,771,501	24,190	6,720,503	682,401	1,175,288	3,214,572	76,561,564	116,222,623	39,661,059	66%
2053	39	62	7,538,655	76,561,564	4,909,958	24,760	7,190,938	709,011	1,205,550	3,538,081	84,270,425	120,235,217	35,964,792	70%
2054	39	62	7,829,380	84,270,425	5,051,843	25,349	7,694,304	737,138	1,236,922	3,894,333	92,755,931	124,436,217	31,680,286	75%
2055	39	61	8,132,655	92,755,931	5,198,015	25,953	8,232,905	766,284	1,269,266	4,286,269	102,086,687	128,836,857	26,750,170	79%
2056	39	61	8,449,943	102,086,687	5,348,229	26,582	8,809,208	796,317	1,302,959	4,717,039	112,337,399	133,448,099	21,110,700	84%

Open Group Actuarial Projections – Alternative Funding, Graph 1

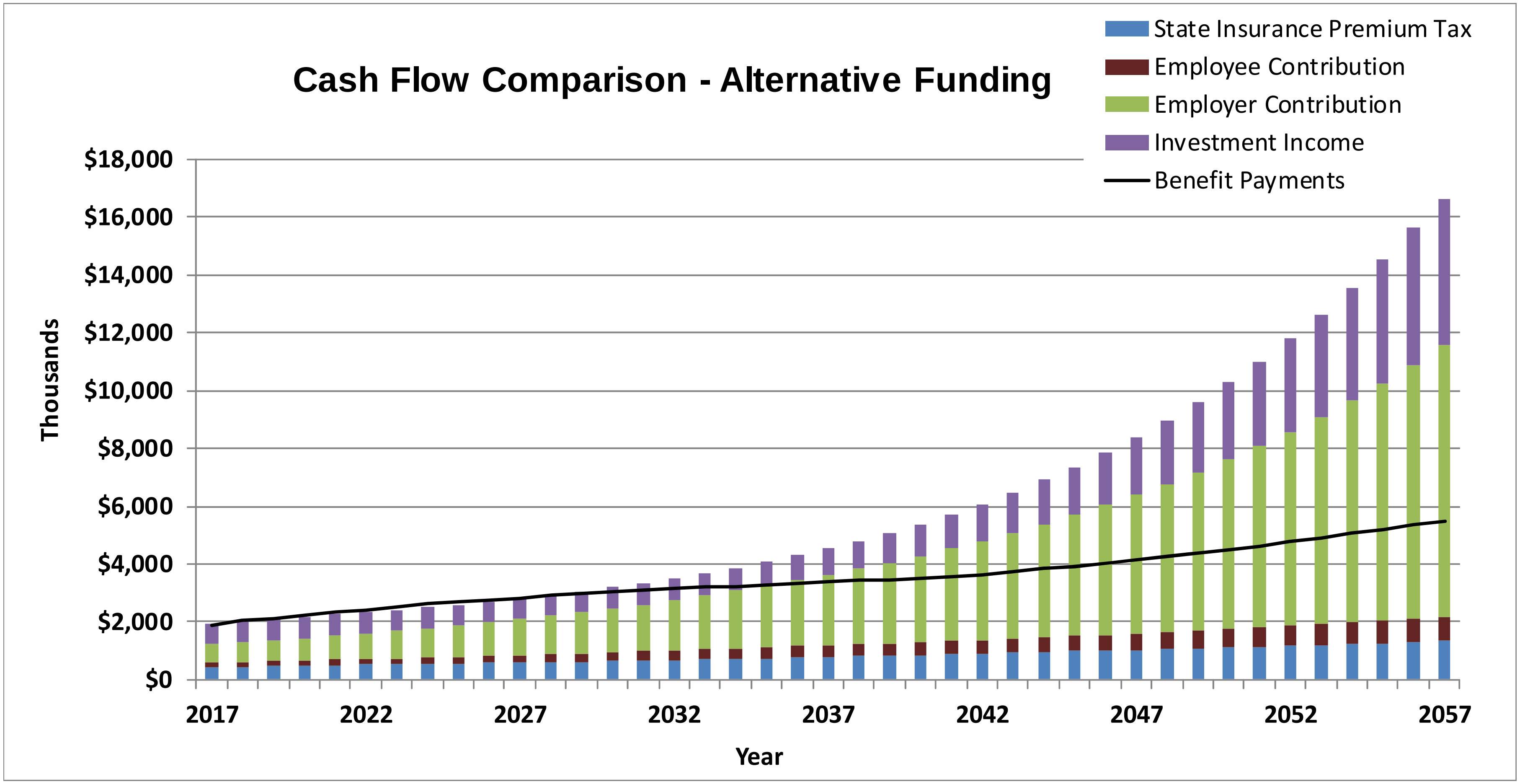
Graph 1



Graph 2


Funded Ratio - Alternative Funding
100%
80%
60%
40%
20%
0%
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year

Graph 3


Cash Flow Comparison - Alternative Funding
State Insurance Premium Tax
Employee Contribution
Employer Contribution
Investment Income
Benefit Payments
Thousands
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
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.

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

The following table shows the employer contribution for the fiscal year end June 30, 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	$673,524	31.5%	NA	NA
Optional	$2,142,411	110.8%	$21,311	10.5%
Conservation	$1,490,424	77.1%	$21,311	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 $629,462 in fiscal year end 2017 to $8,809,208 in fiscal year end 2056. In fiscal year end 2056, the plan is projected to be 84% 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 $673,524 to $2,142,411. However, over the 40-year projection period, total employer contributions to both the local plan and the statewide plan are projected to decrease from $2,163,722 in fiscal year end 2018 to $721,245 in fiscal year end 2050, and the Plan is projected to be fully funded in 2050.

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

If the Conservation funding policy is selected in fiscal year end 2018, employer contributions to the local plan for fiscal year end 2018 are projected to increase from $673,524 to $1,490,424. During the 35-year projection period, total employer contributions to both the local plan and the statewide plan are projected to increase from $1,511,735 in fiscal year end 2018 to $2,894,563 in fiscal year end 2038 and the Plan is projected to be fully funded in 2039.

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.

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

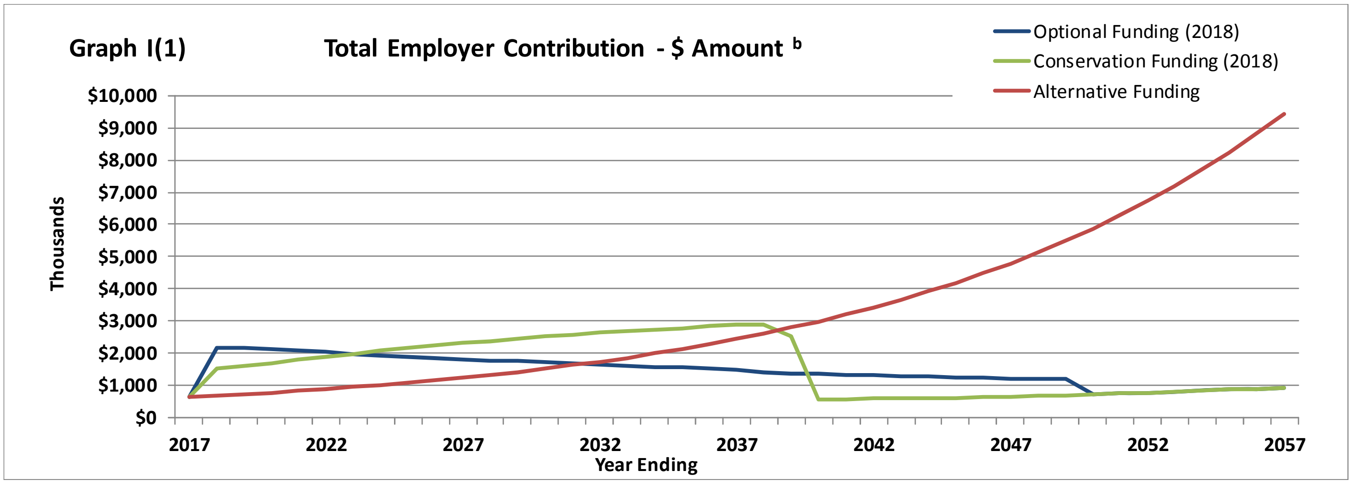
Under Scenario II, the plan sponsor is assumed to make contributions under the Alternative funding policy in future years, until the first year that either the Optional or Conservation policy produces a lower contribution. Under this assumption, the employer contributions under the Optional funding policy are not projected to be lower than contributions under the Alternative funding policy. In plan year end 2037, the employer contributions under the Conservation funding policy of $2,299,760 are projected to be lower than contributions under the Alternative funding policy of $2,435,820.

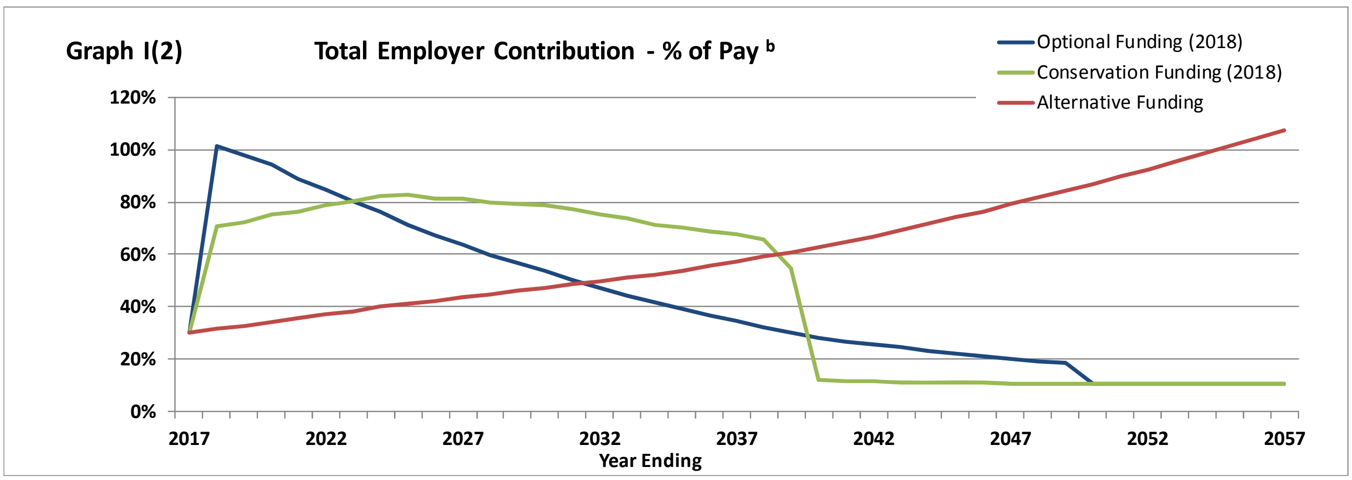
Graphs II(1), II(2), and III(3) show the projected contribution pattern and funded ratio. Based on these projections, the Conservation funding policy has lower projected employer contributions than the Alternative funding policy beginning in 2037. After 2037, the funded ratio under the Conservation funding policy increases at a lower rate than the Alternative funding policy. As stated above, however, the Conservation funding policy is dependent on expected benefits payments when considering the *expected number of retirement and disabilities.* The ultimate employer contributions depend on the *actual number of retirement and disabilities*, which could result in a more volatile contribution pattern when compared to the Optional funding policy.

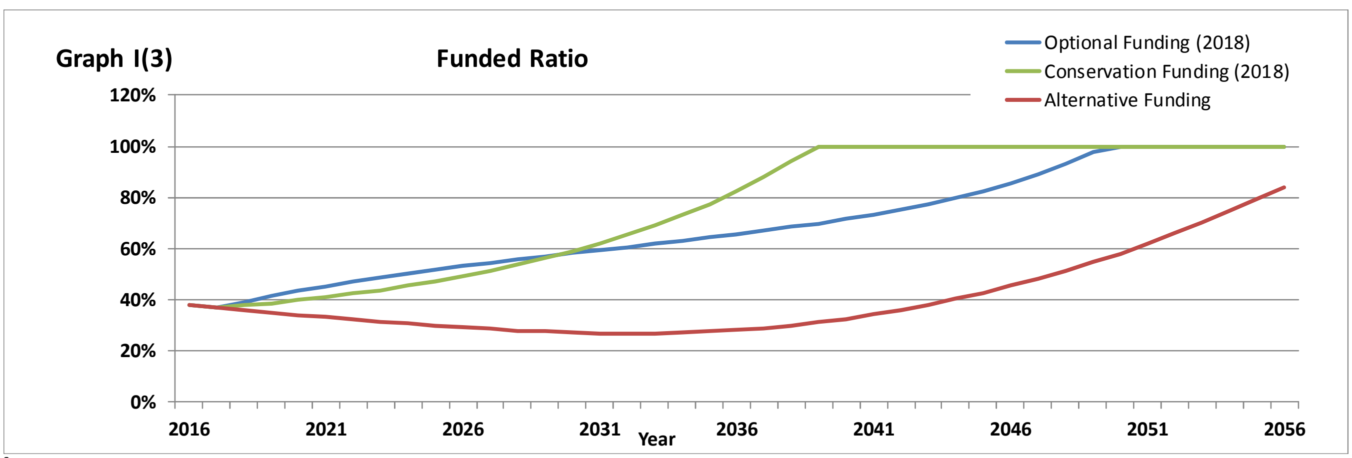
The details of the Scenario II projections can be found in the Appendix.

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

Scenario I



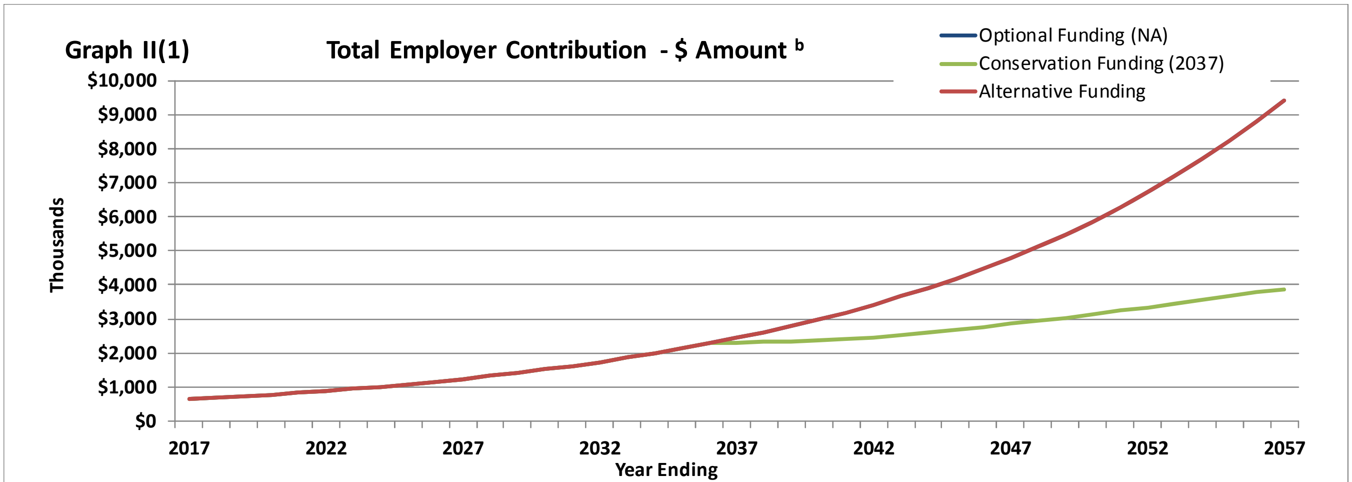


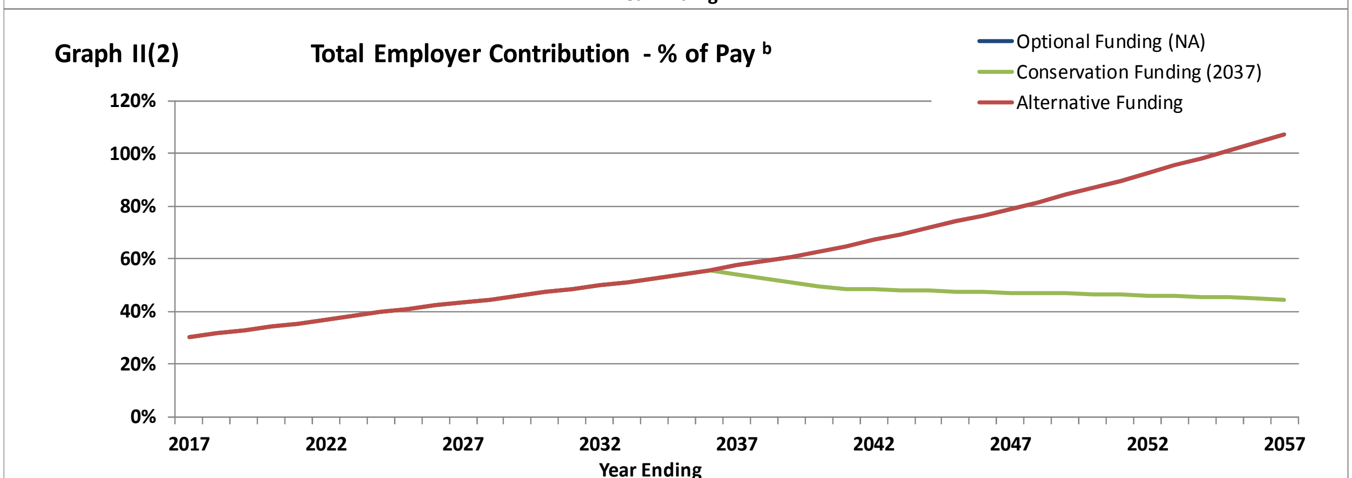


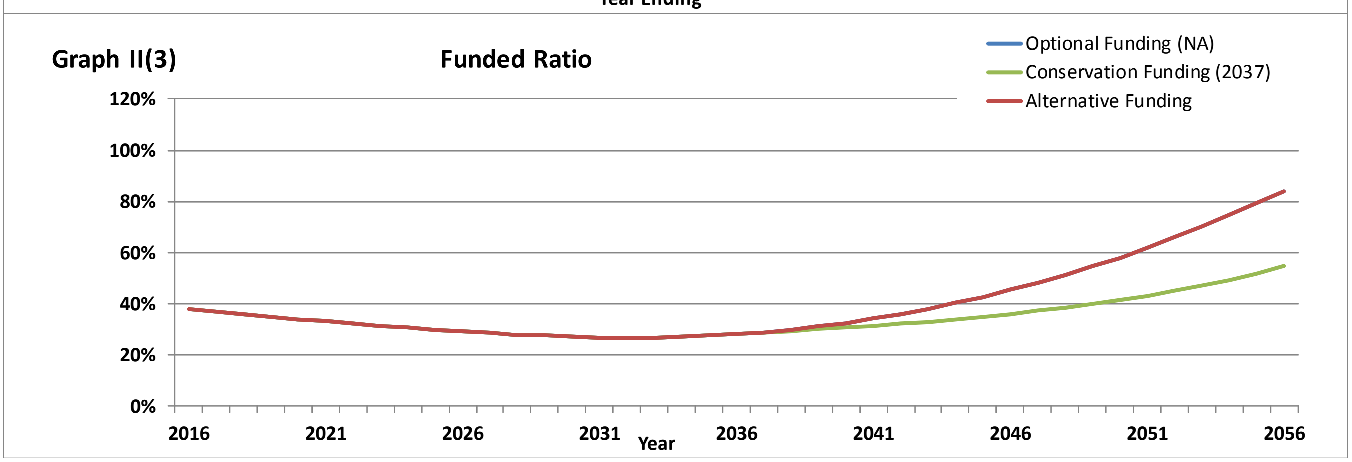
[a] *Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in fiscal year end June 30, 2018, and makes the newly elected contribution in fiscal year end June 30,2018.*
[b] *Based on total pay and includes contributions for future members projected to participate in 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	4.50%	4.50%
Cost-of-Living Adjustment	2.75%	2.75%
Wage Inflation	3.75%	3.75%
Actuarial Value of Assets	Market	Market
Actuarial Cost Method	Entry Age Normal	Entry Age Normal
Remaining Amortization Period [a]	25 Years, Level % of Pay	24 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	**July 1, 2015**	**July 1, 2016**
1. Market Value of Assets	$16,814,980	$16,966,940
2. Actuarial Accrued Liability	$43,413,362	$44,889,600
3. Unfunded Actuarial Accrued Liability (2 - 1)	$26,598,382	$27,922,660
4. Funded Ratio (1/2)	39%	38%
5. Expected Payroll	$2,028,434	$2,080,112
6. UAAL as Percentage of Covered Payroll (3/5)	1311%	1342%
Schedule of Employer Contributions [c]	**FY 2016**	**FY 2017**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$935,008	$991,604
(b) Amortization of Unfunded Actuarial Accrued Liability	$1,158,425	$1,262,351
(c) Actuarially Determined Contribution (ADC) (a + b)	$2,093,433	$2,253,955
2. Employer Contribution [b]	$588,285	$629,462
3. Premium Tax Allocation	$376,670	$428,814
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	46%	47%

[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	$16,958,929	$16,814,980
Adjustment to Market Value of Assets at Beginning of Year	$0	$0
Market Value of Assets Beginning of Year	$16,958,929	$16,814,980
1. Revenue During Fiscal Year		
(a) Employee Contribution	$152,499	$167,650
(b) Governmental Contribution		
(i) From Local Government	$549,799	$588,285
(ii) From State Government	$394,051	$376,670
(iii) Reallocation from State Government	$0	$0
(iv) Total	$943,850	$964,955
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	$19,251	($14,806)
(ii) Bond Interest	$143,171	$97,143
(iii) Dividends	$419,528	$418,485
(iv) Net Realized Gain (Loss) on Sale/Exchange	$8,628	$304,114
(v) Other	$0	$0
(vi) Less Investment Expense	$0	($57,301)
(vii) Total	$590,578	$747,635
(d) Other Revenue	$0	$0
(e) Net Receivable Investment Income	$0	$41,654
(f) Receivable Contribution [a]		
(i) From Employee Contributions	$0	$0
(ii) From Local Government	$0	$0
(iii) From State Government	$0	$34,273
(iv) Total	$0	$34,273
(g) Total Revenue (sum of (a) through (f))	$1,686,927	$1,956,167
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$1,771,874	$1,787,888
(b) Withdrawals	$0	$16,024
(c) Administrative Expenses	$59,002	$295
(d) Payable Benefits and Withdrawals	$0	$0
(e) Payable Administrative Expenses	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$1,830,876	$1,804,207
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	$16,814,980	$16,966,940
C. Approximate Return on Assets	3.20%	4.81%

[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	$85,547	1%	$272,301	2%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$1,860,636		$1,185,300	
(b) US State and Local Governmental Debt Securities	$72,463		$25,672	
(c) Foreign Governmental Debt Securities	$0		$0	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$1,933,099	12%	$1,210,972	7%
3. Corporate Fixed Income				
(a) US Bonds	$4,268,663		$4,739,186	
(b) US Mortgage or other Asset Backed Securities	$0		$0	
(c) US Mutual Fund Shares (Bonds)	$763,419		$668,848	
(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))	$5,032,082	30%	$5,408,034	32%
4. Corporate Equity				
(a) US Equity	$5,232,845		$5,684,211	
(b) US Mutual Fund Shares (Equity)	$3,515,921		$3,456,867	
(c) US Exchange Traded Funds (Equity)	$0		$0	
(d) International Equity	$96,792		$18,776	
(e) International Mutual Fund Shares (Equity)	$286,912		$249,953	
(f) International Exchange Traded Funds (Equity)	$0		$0	
(g) Total Corporate Equity (sum of (a) through (f))	$9,132,470	54%	$9,409,807	56%
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		$589,899	
(e) Total Alternative Investments (sum of (a) through (d))	$555,543	3%	$589,899	3%
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	$32,864		$34,273	
(d) Total Receivable Contributions (sum of (a) through (c))	$32,864	0%	$34,273	0%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	$43,375		$41,654	
(b) Less Payable	$0		$0	
(c) Total	$43,375	0%	$41,654	0%
Market Value of Assets End of Year [sum of (1) through (8)]	**$16,814,980**		**$16,966,940**	

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:	**40**	**33**	**8**	**0**	**14**	**95**
New Actives:	2					**2**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:						**0**
Vested Terminations:						**0**
Non-Vested Terminations:	(1)					**(1)**
Disabled:	(1)		1			**0**
Retirements:	(1)	2	(1)			**0**
Deaths with Beneficiary:						**0**
Deaths w/o Beneficiary:					(2)	**(2)**
Expired Annuity or Stop Payment:						**0**
Net Changes:	(1)	2	0	0	(2)	**(1)**
Total Participants June 30, 2016:	**39**	**35**	**8**	**0**	**12**	**94**

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**	**$ 95,266**
25-29		1								**1**	**$ 40,266**
30-34	1	1	3							**5**	**$ 241,322**
35-39	1	1	1	5						**8**	**$ 382,120**
40-44			1	2	2	3				**8**	**$ 450,432**
45-49				1	4	2				**7**	**$ 431,735**
50-54						1	2			**3**	**$ 220,442**
55-59						3	1	1		**5**	**$ 323,562**
60-64											**$ 0**
65-69											**$ 0**
Over 70											**$ 0**
Totals	**2**	**5**	**5**	**8**	**6**	**9**	**3**	**1**	**0**	**39**	**$ 2,185,145**

Averages

Age:	42.7	years
Service:	13.8	years
Annual Pay:	$56,029	[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	40	39
Total Annual Pay	$2,028,434	$2,185,145
Average Age	42.5	42.7
Average Service	13.9	13.8

Inactive Participants	July 1, 2015		July 1, 2016	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	33	$1,427,137	35	$1,479,935
Survivors	14	$197,705	12	$154,667
Disabled Members	8	$166,199	8	$171,124
Deferred Vested Members	0	$0	0	$0

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	$16,966,940
Liabilities using a 5.50% discount rate	$39,414,329
Funded Ratio	43%
Expected Benefit Payments	$1,906,216
Liquidity Ratio	8.90
Equity Exposure	56%
Projected Funded Ratio after 15 years	37%

Discount Rate	4.50%

The premium tax allocation is projected using the following methodology:

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

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

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

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

(5) For the plan year ending June 30, 2017, all Pension and Relief Funds reported a total of 1,711 eligible active members, and 2,166 eligible retired members. The City of Beckley Firemen's Pension and Relief Fund reported 40 eligible active members, and 60 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 $443,192 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.

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

General Inflation	2.75%
Expected Salary Increase Service-based Increase:	General Inflation: 2.75% *plus* Wage Inflation Increment: 1.00% *plus* Years of Service — Increase 1 — 20.00% 2 — 6.50% 3 — 3.50% 4 — 2.75% 5-9 — 2.50% 10-29 — 2.00% 30-34 — 1.25% after 34 years of service — 0.00%
Post-retirement COLA	2.75% on first $15,000 of Annual Benefit and on the accumulated supplemental pension amounts for prior years.
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

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

Administrative Expenses	The sponsor did not appear to provide separate investment and 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	None
Child Beneficiaries	Future survivor widow benefits are loaded by 12% to estimate impact of benefits provided to survivor children. The load assumes 90% of members are married with two children at time of death, and benefits for each child are paid for approximately 8 years.
General Projection Methodology	Open group projections assume: (i) Salaries will increase and members will decrement as specified in the actuarial assumption section. (ii) Active members who retire, become disabled, die or terminate during the year are replaced with new entrants such that the number of active members remains stable during the projections 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 Fire Department are eligible to participate in the Firemen's Pension and Relief Fund.

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

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

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

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

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

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

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

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

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

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

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

Summary of Principal Plan Provisions
Actuarial Valuation as of July 1, 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	39	55	$16,814,980	$1,803,912	$295	$588,285	$167,650	$410,943	$789,289	$16,966,940	$44,889,600	$27,922,660	38%
2017	34	59	16,966,940	1,906,216	8,639	629,462	155,264	428,814	747,906	17,013,531	46,124,568	29,111,037	37%
2018	31	61	17,013,531	2,041,096	8,748	2,142,411	145,222	443,192	780,762	18,475,275	47,185,908	28,710,633	39%
2019	28	62	18,475,275	2,134,032	8,869	2,124,552	140,247	472,249	844,608	19,914,031	48,154,854	28,240,823	41%
2020	26	64	19,914,031	2,228,423	8,995	2,071,222	134,223	487,278	906,263	21,275,598	49,015,880	27,740,282	43%
2021	24	64	21,275,598	2,313,513	9,131	2,003,958	128,389	504,305	964,390	22,553,996	49,773,697	27,219,701	45%
2022	21	65	22,553,996	2,399,403	9,167	1,940,971	122,626	516,404	1,018,745	23,744,172	50,426,384	26,682,212	47%
2023	19	65	23,744,172	2,492,752	9,312	1,875,989	115,964	533,737	1,069,013	24,836,812	50,956,942	26,120,130	49%
2024	17	65	24,836,812	2,590,640	9,350	1,811,610	109,269	546,956	1,114,716	25,819,373	51,355,401	25,536,028	50%
2025	15	66	25,819,373	2,674,191	9,383	1,745,550	103,709	561,867	1,155,809	26,702,735	51,639,415	24,936,680	52%
2026	14	66	26,702,735	2,731,867	9,523	1,685,699	100,193	577,821	1,193,219	27,518,277	51,846,552	24,328,275	53%
2027	12	67	27,518,277	2,800,104	9,665	1,639,665	95,626	594,518	1,227,642	28,265,960	51,954,748	23,688,788	54%
2028	11	67	28,265,960	2,860,645	9,806	1,586,243	91,588	612,961	1,259,070	28,945,370	51,971,076	23,025,706	56%
2029	10	67	28,945,370	2,921,917	9,944	1,537,388	86,881	629,344	1,287,449	29,554,571	51,885,411	22,330,840	57%
2030	9	67	29,554,571	2,989,521	10,080	1,481,789	80,629	648,255	1,312,400	30,078,043	51,677,538	21,599,495	58%
2031	8	67	30,078,043	3,037,317	10,212	1,419,117	75,172	666,288	1,333,775	30,524,867	51,369,453	20,844,586	59%
2032	7	67	30,524,867	3,076,762	10,337	1,361,720	70,000	684,793	1,352,021	30,906,302	50,967,869	20,061,567	61%
2033	6	67	30,906,302	3,114,226	10,455	1,306,906	63,655	703,254	1,367,399	31,222,836	50,466,111	19,243,275	62%
2034	5	66	31,222,836	3,142,241	10,563	1,247,086	57,076	723,612	1,379,993	31,477,798	49,869,516	18,391,718	63%
2035	4	66	31,477,798	3,186,176	10,666	1,188,475	50,392	742,838	1,389,461	31,652,122	49,156,247	17,504,125	64%
2036	3	65	31,652,122	3,235,994	10,756	1,126,809	42,269	763,762	1,395,108	31,733,320	48,305,683	16,572,363	66%
2037	2	65	31,733,320	3,268,010	10,832	1,057,961	33,628	783,864	1,396,770	31,726,701	47,328,745	15,602,044	67%
2038	2	64	31,726,701	3,281,219	10,893	983,668	26,671	807,765	1,394,901	31,647,594	46,250,217	14,602,623	68%
2039	1	63	31,647,594	3,267,999	10,938	919,044	22,618	830,933	1,390,622	31,531,874	45,110,461	13,578,587	70%
2040	1	61	31,531,874	3,244,264	10,965	869,629	19,231	854,092	1,385,283	31,404,880	43,921,706	12,516,826	72%
2041	1	60	31,404,880	3,207,474	10,974	823,712	16,918	878,742	1,379,862	31,285,666	42,702,008	11,416,342	73%
2042	1	58	31,285,666	3,185,506	10,963	784,346	13,007	902,884	1,374,561	31,163,995	41,430,030	10,266,035	75%
2043	0	57	31,163,995	3,164,376	10,932	740,046	8,270	929,474	1,369,057	31,035,533	40,099,707	9,064,174	77%
2044	0	55	31,035,533	3,116,578	10,882	693,704	5,665	955,479	1,363,829	30,926,750	38,745,325	7,818,575	80%
2045	0	53	30,926,750	3,060,604	10,813	653,615	3,753	981,689	1,359,830	30,854,220	37,377,563	6,523,343	83%
2046	0	51	30,854,220	2,996,353	10,726	616,703	2,586	1,008,082	1,357,738	30,832,250	36,008,250	5,176,000	86%
2047	0	49	30,832,250	2,926,783	10,623	583,057	1,815	1,034,625	1,358,125	30,872,466	34,644,879	3,772,413	89%
2048	0	47	30,872,466	2,854,497	10,505	550,891	1,223	1,061,732	1,361,420	30,982,730	33,291,327	2,308,597	93%
2049	0	45	30,982,730	2,779,990	10,375	519,154	821	1,089,092	1,367,936	31,169,368	31,951,237	781,869	98%
2050	0	44	31,169,368	2,704,169	10,234	13,127	551	798,223	1,360,286	30,627,152	30,627,152	0	100%
2051	0	42	30,627,152	2,627,716	10,085	11,319	370	0	1,319,784	29,320,824	29,320,824	0	100%
2052	0	40	29,320,824	2,551,910	9,929	10,434	150	0	1,262,666	28,032,234	28,032,235	0	100%
2053	0	38	28,032,234	2,476,171	9,768	9,767	0	0	1,206,350	26,762,412	26,762,413	0	100%
2054	0	37	26,762,412	2,400,135	9,603	9,603	0	0	1,150,900	25,513,177	25,513,178	0	100%
2055	0	35	25,513,177	2,325,037	9,436	9,435	0	0	1,096,355	24,284,495	24,284,496	0	100%
2056	0	33	24,284,495	2,250,904	9,267	9,267	0	0	1,042,714	23,076,306	23,076,307	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	$2,080,112	$0	$2,080,112	$155,264	$1,138,229	$982,965	$1,593,999	$443,192	$1,150,807	$8,639	$2,142,411	$0
2018	1,932,988	202,961	2,135,949	145,222	1,048,940	903,718	1,684,336	472,249	1,212,087	8,748	2,124,552	21,311
2019	1,859,364	346,296	2,205,660	140,247	1,004,872	864,625	1,685,006	487,278	1,197,728	8,869	2,071,222	36,361
2020	1,770,505	483,548	2,254,053	134,223	950,825	816,602	1,682,665	504,305	1,178,360	8,995	2,003,958	50,773
2021	1,683,865	648,752	2,332,617	128,389	897,072	768,683	1,679,561	516,404	1,163,157	9,131	1,940,971	68,119
2022	1,597,919	792,299	2,390,218	122,626	846,825	724,199	1,676,361	533,737	1,142,624	9,167	1,875,989	83,191
2023	1,498,729	963,758	2,462,487	115,964	791,912	675,948	1,673,306	546,956	1,126,350	9,312	1,811,610	101,195
2024	1,398,699	1,130,482	2,529,181	109,269	737,369	628,100	1,669,967	561,867	1,108,100	9,350	1,745,550	118,701
2025	1,314,788	1,322,053	2,636,841	103,709	691,299	587,590	1,666,548	577,821	1,088,727	9,383	1,685,699	138,816
2026	1,259,967	1,488,373	2,748,340	100,193	661,296	561,103	1,663,557	594,518	1,069,039	9,523	1,639,665	156,279
2027	1,189,734	1,660,906	2,850,639	95,626	623,656	528,030	1,661,509	612,961	1,048,548	9,665	1,586,243	174,395
2028	1,126,349	1,855,114	2,981,463	91,588	589,510	497,922	1,659,004	629,344	1,029,660	9,806	1,537,388	194,787
2029	1,052,796	2,029,946	3,082,742	86,881	550,363	463,482	1,656,618	648,255	1,008,363	9,944	1,481,789	213,144
2030	962,673	2,248,478	3,211,151	80,629	502,116	421,487	1,653,838	666,288	987,550	10,080	1,419,117	236,090
2031	888,092	2,454,736	3,342,829	75,172	461,119	385,947	1,650,354	684,793	965,561	10,212	1,361,720	257,747
2032	818,646	2,671,186	3,489,831	70,000	422,614	352,614	1,647,209	703,254	943,955	10,337	1,306,906	280,475
2033	742,619	2,887,695	3,630,314	63,655	379,735	316,080	1,644,163	723,612	920,551	10,455	1,247,086	303,208
2034	667,104	3,129,612	3,796,717	57,076	337,099	280,023	1,640,726	742,838	897,888	10,563	1,188,475	328,609
2035	581,650	3,364,736	3,946,385	50,392	293,157	242,765	1,637,141	763,762	873,379	10,666	1,126,809	353,297
2036	477,775	3,623,805	4,101,581	42,269	240,083	197,814	1,633,255	783,864	849,391	10,756	1,057,961	380,500
2037	377,170	3,868,840	4,246,010	33,628	185,873	152,245	1,628,357	807,765	820,592	10,832	983,668	406,228
2038	297,036	4,118,399	4,415,435	26,671	142,753	116,082	1,623,002	830,933	792,069	10,893	919,044	432,432
2039	249,270	4,342,299	4,591,569	22,618	117,098	94,480	1,618,303	854,092	764,211	10,938	869,629	455,941
2040	209,990	4,553,586	4,763,575	19,231	95,609	76,378	1,615,111	878,742	736,369	10,965	823,712	478,126
2041	183,272	4,764,908	4,948,180	16,918	80,865	63,947	1,612,310	902,884	709,426	10,974	784,346	500,315
2042	140,262	4,965,079	5,105,342	13,007	61,448	48,441	1,610,116	929,474	680,642	10,963	740,046	521,333
2043	89,302	5,189,867	5,279,169	8,270	39,237	30,967	1,607,283	955,479	651,804	10,932	693,704	544,936
2044	61,142	5,401,324	5,462,467	5,665	26,481	20,816	1,603,606	981,689	621,917	10,882	653,615	567,139
2045	40,114	5,613,371	5,653,485	3,753	17,025	13,272	1,600,699	1,008,082	592,617	10,813	616,703	589,404
2046	27,224	5,827,825	5,855,049	2,586	11,476	8,890	1,598,066	1,034,625	563,441	10,726	583,057	611,922
2047	19,108	6,044,230	6,063,338	1,815	7,990	6,175	1,595,826	1,061,732	534,094	10,623	550,891	634,644
2048	12,877	6,270,445	6,283,321	1,223	5,323	4,100	1,593,641	1,089,092	504,549	10,505	519,154	658,397
2049	8,645	6,502,482	6,511,127	821	3,573	2,752	1,590,560	798,223	473,427	10,375	13,127 [b]	682,761
2050	5,801	6,743,981	6,749,782	551	2,398	1,847	0	0	0	10,234	11,319 [b]	708,118
2051	3,891	6,996,809	7,000,700	370	1,608	1,238	0	0	0	10,085	10,434 [b]	734,665
2052	1,575	7,261,813	7,263,388	150	652	502	0	0	0	9,929	9,767 [b]	762,490
2053	0	7,538,655	7,538,655	0	0	0	0	0	0	9,768	9,603 [b]	791,559
2054	0	7,829,380	7,829,380	0	0	0	0	0	0	9,603	9,435 [b]	822,085
2055	0	8,132,655	8,132,655	0	0	0	0	0	0	9,436	9,267 [b]	853,929
2056	0	8,449,943	8,449,943	0	0	0	0	0	0	9,267	9,097 [b]	887,244

[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 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	39	55	$16,814,980	$1,803,912	$295	$588,285	$167,650	$410,943	$789,289	$16,966,940	$44,889,600	$27,922,660	38%
2017	34	59	16,966,940	1,906,216	8,639	629,462	155,264	428,814	747,906	17,013,531	46,124,568	29,111,036	37%
2018	31	61	17,013,531	2,041,096	8,748	1,490,424	145,222	443,192	766,254	17,808,780	47,185,908	29,377,128	38%
2019	28	62	17,808,780	2,134,032	8,869	1,558,295	140,247	472,249	802,016	18,638,687	48,154,854	29,516,167	39%
2020	26	64	18,638,687	2,228,423	8,995	1,642,476	134,223	487,278	839,332	19,504,576	49,015,880	29,511,304	40%
2021	24	64	19,504,576	2,313,513	9,131	1,715,208	128,389	504,305	878,268	20,408,102	49,773,697	29,365,595	41%
2022	21	65	20,408,102	2,399,403	9,167	1,793,509	122,626	516,404	918,898	21,350,969	50,426,384	29,075,415	42%
2023	19	65	21,350,969	2,492,752	9,312	1,874,844	115,964	533,737	961,294	22,334,744	50,956,942	28,622,198	44%
2024	17	65	22,334,744	2,590,640	9,350	1,964,746	109,269	546,956	1,005,530	23,361,254	51,355,401	27,994,146	45%
2025	15	66	23,361,254	2,674,191	9,383	2,037,719	103,709	561,867	1,051,695	24,432,671	51,639,415	27,206,744	47%
2026	14	66	24,432,671	2,731,867	9,523	2,082,275	100,193	577,821	1,099,891	25,551,462	51,846,552	26,295,090	49%
2027	12	67	25,551,462	2,800,104	9,665	2,137,471	95,626	594,518	1,150,213	26,719,521	51,954,748	25,235,227	51%
2028	11	67	26,719,521	2,860,645	9,806	2,182,798	91,588	612,961	1,202,754	27,939,170	51,971,076	24,031,906	54%
2029	10	67	27,939,170	2,921,917	9,944	2,231,428	86,881	629,344	1,257,614	29,212,576	51,885,411	22,672,835	56%
2030	9	67	29,212,576	2,989,521	10,080	2,285,158	80,629	648,255	1,314,887	30,541,903	51,677,538	21,135,635	59%
2031	8	67	30,541,903	3,037,317	10,212	2,319,389	75,172	666,288	1,374,682	31,929,906	51,369,453	19,439,546	62%
2032	7	67	31,929,906	3,076,762	10,337	2,344,585	70,000	684,793	1,437,119	33,379,305	50,967,869	17,588,564	65%
2033	6	67	33,379,305	3,114,226	10,455	2,368,910	63,655	703,254	1,502,317	34,892,761	50,466,111	15,573,350	69%
2034	5	66	34,892,761	3,142,241	10,563	2,382,123	57,076	723,612	1,570,397	36,473,165	49,869,516	13,396,352	73%
2035	4	66	36,473,165	3,186,176	10,666	2,412,337	50,392	742,838	1,641,487	38,123,377	49,156,247	11,032,870	78%
2036	3	65	38,123,377	3,235,994	10,756	2,447,885	42,269	763,762	1,715,711	39,846,254	48,305,683	8,459,429	82%
2037	2	65	39,846,254	3,268,010	10,832	2,467,008	33,628	783,864	1,793,207	41,645,119	47,328,745	5,683,626	88%
2038	2	64	41,645,119	3,281,219	10,893	2,462,132	26,671	807,765	1,874,130	43,523,704	46,250,217	2,726,513	94%
2039	1	63	43,523,704	3,267,999	10,938	2,061,668	22,618	830,933	1,950,473	45,110,459	45,110,461	0	100%
2040	1	61	45,110,459	3,244,264	10,965	87,338	19,231	0	1,959,905	43,921,704	43,921,706	0	100%
2041	1	60	43,921,704	3,207,474	10,974	74,929	16,918	0	1,906,902	42,702,006	42,702,008	0	100%
2042	1	58	42,702,006	3,185,506	10,963	59,410	13,007	0	1,852,073	41,430,028	41,430,030	0	100%
2043	0	57	41,430,028	3,164,376	10,932	41,906	8,270	0	1,794,810	40,099,706	40,099,707	0	100%
2044	0	55	40,099,706	3,116,578	10,882	31,690	5,665	0	1,735,724	38,745,323	38,745,325	0	100%
2045	0	53	38,745,323	3,060,604	10,813	24,089	3,753	0	1,675,813	37,377,562	37,377,563	0	100%
2046	0	51	37,377,562	2,996,353	10,726	19,611	2,586	0	1,615,569	36,008,248	36,008,250	0	100%
2047	0	49	36,008,248	2,926,783	10,623	16,799	1,815	0	1,555,421	34,644,878	34,644,879	0	100%
2048	0	47	34,644,878	2,854,497	10,505	14,607	1,223	0	1,495,619	33,291,326	33,291,327	0	100%
2049	0	45	33,291,326	2,779,990	10,375	13,126	821	0	1,436,328	31,951,236	31,951,237	0	100%
2050	0	44	31,951,236	2,704,169	10,234	12,082	551	0	1,377,685	30,627,151	30,627,152	0	100%
2051	0	42	30,627,151	2,627,716	10,085	11,319	370	0	1,319,785	29,320,824	29,320,824	0	100%
2052	0	40	29,320,824	2,551,910	9,929	10,433	150	0	1,262,666	28,032,234	28,032,235	0	100%
2053	0	38	28,032,234	2,476,171	9,768	9,767	0	0	1,206,350	26,762,413	26,762,413	0	100%
2054	0	37	26,762,413	2,400,135	9,603	9,603	0	0	1,150,900	25,513,178	25,513,178	0	100%
2055	0	35	25,513,178	2,325,037	9,436	9,436	0	0	1,096,355	24,284,496	24,284,496	0	100%
2056	0	33	24,284,496	2,250,904	9,267	9,267	0	0	1,042,714	23,076,307	23,076,307	0	100%

Actuarial Projections – Conservation Funding in 2018
Table A-4

	Benefit Payment Account [a]							Accumulation Account [b]						
Plan Year End 30-Jun	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	5.50% of Pay Employee Contribs.	100.00% of Premium Tax Allocation	Investment Income	Transfer (To)/From Accumulation Account	Assets (boy)[c]	Net Benefit Pmts and Expenses	Employer Contribs.	1.50% of Pay Employee Contribs.	0.00% of Premium Tax Allocation	Investment Income	Statewide Employer Contribution
2017	$16,966,940	$1,914,855	$629,462	$155,264	$428,814	$747,906	$0	$0	$0	$0	$0	$0	$0	$0
2018	17,013,531	2,049,844	1,490,424	116,228	443,192	765,609	(17,779,140)	17,779,140	0	0	28,995	0	645	21,311
2019	0	2,142,901	1,558,295	112,357	472,249	0	0	17,808,780	0	0	27,890	0	802,016	36,361
2020	0	2,237,419	1,642,476	107,665	487,278	0	0	18,638,686	0	0	26,558	0	839,332	50,773
2021	0	2,322,644	1,715,208	103,131	504,305	0	0	19,504,576	0	0	25,258	0	878,268	68,119
2022	0	2,408,570	1,793,509	98,658	516,404	0	0	20,408,102	0	0	23,969	0	918,898	83,191
2023	0	2,502,064	1,874,844	93,483	533,737	0	0	21,350,969	0	0	22,481	0	961,294	101,195
2024	0	2,599,990	1,964,746	88,288	546,956	0	0	22,334,743	0	0	20,980	0	1,005,530	118,701
2025	0	2,683,573	2,037,719	83,988	561,867	0	0	23,361,254	0	0	19,722	0	1,051,695	138,816
2026	0	2,741,390	2,082,275	81,294	577,821	0	0	24,432,671	0	0	18,900	0	1,099,891	156,279
2027	0	2,809,769	2,137,471	77,780	594,518	0	0	25,551,461	0	0	17,846	0	1,150,213	174,395
2028	0	2,870,451	2,182,798	74,693	612,961	0	0	26,719,520	0	0	16,895	0	1,202,754	194,787
2029	0	2,931,861	2,231,428	71,089	629,344	0	0	27,939,169	0	0	15,792	0	1,257,614	213,144
2030	0	2,999,602	2,285,158	66,189	648,255	0	0	29,212,575	0	0	14,440	0	1,314,887	236,090
2031	0	3,047,528	2,319,389	61,851	666,288	0	0	30,541,903	0	0	13,321	0	1,374,682	257,747
2032	0	3,087,098	2,344,585	57,720	684,793	0	0	31,929,906	0	0	12,280	0	1,437,119	280,475
2033	0	3,124,680	2,368,910	52,516	703,254	0	0	33,379,305	0	0	11,139	0	1,502,317	303,208
2034	0	3,152,804	2,382,123	47,069	723,612	0	0	34,892,761	0	0	10,007	0	1,570,397	328,609
2035	0	3,196,842	2,412,337	41,668	742,838	0	0	36,473,164	0	0	8,725	0	1,641,487	353,297
2036	0	3,246,750	2,447,885	35,102	763,762	0	0	38,123,376	0	0	7,167	0	1,715,711	380,500
2037	0	3,278,843	2,467,008	27,971	783,864	0	0	39,846,254	0	0	5,658	0	1,793,207	406,228
2038	0	3,292,112	2,462,132	22,215	807,765	0	0	41,645,118	0	0	4,456	0	1,874,130	432,432
2039	0	2,903,304	2,061,668	18,879	830,933	(8,177)	0	43,523,704	375,634	0	3,739	0	1,958,650	455,941
2040	0	0	0	0	0	0	0	45,110,459	3,255,229	87,338	19,231	0	1,959,905	478,126
2041	0	0	0	0	0	0	0	43,921,704	3,218,448	74,929	16,918	0	1,906,902	500,315
2042	0	0	0	0	0	0	0	42,702,006	3,196,469	59,410	13,007	0	1,852,073	521,333
2043	0	0	0	0	0	0	0	41,430,027	3,175,308	41,906	8,270	0	1,794,810	544,936
2044	0	0	0	0	0	0	0	40,099,704	3,127,460	31,690	5,665	0	1,735,724	567,139
2045	0	0	0	0	0	0	0	38,745,323	3,071,417	24,089	3,753	0	1,675,813	589,404
2046	0	0	0	0	0	0	0	37,377,560	3,007,079	19,611	2,586	0	1,615,569	611,922
2047	0	0	0	0	0	0	0	36,008,248	2,937,406	16,799	1,815	0	1,555,421	634,644
2048	0	0	0	0	0	0	0	34,644,877	2,865,002	14,607	1,223	0	1,495,619	658,397
2049	0	0	0	0	0	0	0	33,291,324	2,790,365	13,126	821	0	1,436,328	682,761
2050	0	0	0	0	0	0	0	31,951,234	2,714,403	12,082	551	0	1,377,685	708,118
2051	0	0	0	0	0	0	0	30,627,149	2,637,801	11,319	370	0	1,319,785	734,665
2052	0	0	0	0	0	0	0	29,320,822	2,561,839	10,433	150	0	1,262,666	762,490
2053	0	0	0	0	0	0	0	28,032,232	2,485,939	9,767	0	0	1,206,350	791,559
2054	0	0	0	0	0	0	0	26,762,410	2,409,738	9,603	0	0	1,150,900	822,085
2055	0	0	0	0	0	0	0	25,513,175	2,334,473	9,436	0	0	1,096,355	853,929
2056	0	0	0	0	0	0	0	24,284,493	2,260,171	9,267	0	0	1,042,714	887,244

[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, 2017*

Actuarial Projections – Optional Funding in (N/A)
Table A-5

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	39	55	$16,814,980	$1,803,912	$295	$588,285	$167,650	$410,943	$789,289	$16,966,940	$44,889,600	$27,922,660	38%
2017	39	59	16,966,940	1,906,216	8,639	629,462	155,264	428,814	747,906	17,013,531	46,124,568	29,111,037	37%
2018	39	61	17,013,531	2,041,096	9,252	673,524	166,225	443,192	748,533	16,994,657	47,293,249	30,298,592	36%
2019	39	62	16,994,657	2,134,706	9,661	720,671	174,692	472,249	747,475	16,965,378	48,449,155	31,483,777	35%
2020	39	64	16,965,378	2,230,839	10,053	771,118	181,735	487,278	745,623	16,910,240	49,576,709	32,666,469	34%
2021	39	64	16,910,240	2,318,222	10,511	825,096	191,981	504,305	742,995	16,845,883	50,698,600	33,852,717	33%
2022	39	65	16,845,883	2,406,958	10,799	882,853	199,926	516,404	739,850	16,767,158	51,805,440	35,038,282	32%
2023	39	65	16,767,158	2,503,618	11,254	944,653	210,039	533,737	736,131	16,676,847	52,898,651	36,221,804	32%
2024	39	65	16,676,847	2,605,402	11,571	1,010,779	219,496	546,956	731,771	16,568,876	53,970,156	37,401,280	31%
2025	39	66	16,568,876	2,693,457	11,928	1,081,534	232,713	561,867	727,146	16,466,751	55,055,296	38,588,545	30%
2026	39	66	16,466,751	2,756,225	12,315	1,157,241	245,174	577,821	723,462	16,401,909	56,183,493	39,781,584	29%
2027	39	67	16,401,909	2,830,162	12,711	1,238,248	257,388	594,518	721,337	16,370,527	57,340,943	40,970,416	29%
2028	39	67	16,370,527	2,896,914	13,144	1,324,925	272,412	612,961	721,102	16,391,869	58,551,512	42,159,643	28%
2029	39	68	16,391,869	2,964,981	13,513	1,417,670	284,636	629,344	723,240	16,468,265	59,800,710	43,332,445	28%
2030	39	68	16,468,265	3,040,091	13,971	1,516,907	299,988	648,255	727,967	16,607,320	61,097,297	44,489,977	27%
2031	39	68	16,607,320	3,096,033	14,375	1,623,090	314,609	666,288	736,060	16,836,959	62,463,618	45,626,659	27%
2032	39	68	16,836,959	3,144,482	14,783	1,736,706	330,635	684,793	748,604	17,178,431	63,918,748	46,740,317	27%
2033	39	68	17,178,431	3,191,744	15,170	1,858,275	345,470	703,254	766,355	17,644,872	65,463,170	47,818,298	27%
2034	39	68	17,644,872	3,230,694	15,588	1,988,354	362,753	723,612	790,201	18,263,509	67,123,809	48,860,300	27%
2035	39	67	18,263,509	3,286,101	15,967	2,127,539	379,102	742,838	820,688	19,031,607	68,883,804	49,852,197	28%
2036	39	67	19,031,607	3,348,386	16,370	2,276,467	393,869	763,762	857,965	19,958,914	70,744,138	50,785,224	28%
2037	39	67	19,958,914	3,393,895	16,768	2,435,820	405,229	783,864	902,919	21,076,082	72,705,650	51,629,568	29%
2038	39	67	21,076,082	3,432,539	17,237	2,606,327	420,450	807,765	956,986	22,417,834	74,776,764	52,358,930	30%
2039	39	67	22,417,834	3,471,454	17,671	2,788,770	435,592	830,933	1,021,402	24,005,406	76,975,625	52,970,219	31%
2040	39	66	24,005,406	3,516,761	18,109	2,983,984	450,369	854,092	1,097,013	25,855,994	79,297,312	53,441,318	33%
2041	39	66	25,855,994	3,566,915	18,570	3,192,863	466,763	878,742	1,184,724	27,993,600	81,748,210	53,754,610	34%
2042	39	66	27,993,600	3,650,494	19,021	3,416,363	480,293	902,884	1,284,858	30,408,483	84,292,786	53,884,303	36%
2043	39	66	30,408,483	3,749,913	19,535	3,655,508	495,724	929,474	1,397,561	33,117,302	86,927,572	53,810,270	38%
2044	39	66	33,117,302	3,839,393	20,027	3,911,394	511,937	955,479	1,524,089	36,160,780	89,671,352	53,510,572	40%
2045	39	65	36,160,780	3,935,530	20,529	4,185,192	529,500	981,689	1,665,961	39,567,063	92,525,836	52,958,773	43%
2046	39	65	39,567,063	4,038,832	21,033	4,478,155	548,204	1,008,082	1,824,457	43,366,096	95,499,155	52,133,059	45%
2047	39	64	43,366,096	4,148,059	21,535	4,791,626	567,774	1,034,625	2,000,973	47,591,500	98,597,152	51,005,652	48%
2048	39	64	47,591,500	4,263,056	22,048	5,127,040	588,645	1,061,732	2,197,078	52,280,890	101,827,267	49,546,377	51%
2049	39	64	52,280,890	4,383,243	22,563	5,485,933	610,070	1,089,092	2,414,486	57,474,664	105,197,244	47,722,580	55%
2050	39	63	57,474,664	4,506,844	23,093	5,869,948	632,957	1,117,133	2,655,122	63,219,886	108,713,459	45,493,573	58%
2051	39	63	63,219,886	4,636,714	23,635	6,280,844	657,162	1,145,871	2,921,077	69,564,491	112,385,488	42,820,997	62%
2052	39	62	69,564,491	4,771,501	24,190	6,720,503	682,401	1,175,288	3,214,572	76,561,564	116,222,623	39,661,059	66%
2053	39	62	76,561,564	4,909,958	24,760	7,190,938	709,011	1,205,550	3,538,081	84,270,425	120,235,217	35,964,792	70%
2054	39	62	84,270,425	5,051,843	25,349	7,694,304	737,138	1,236,922	3,894,333	92,755,931	124,436,217	31,680,286	75%
2055	39	61	92,755,931	5,198,015	25,953	8,232,905	766,284	1,269,266	4,286,269	102,086,687	128,836,857	26,750,170	79%
2056	39	61	102,086,687	5,348,229	26,582	8,809,208	796,317	1,302,959	4,717,039	112,337,399	133,448,099	21,110,700	84%

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	$2,080,112	$155,264	$1,138,229	$982,965	$1,593,999	$443,192	$1,150,807	$8,639	$2,142,411	$673,524	$673,524	$0
2018	2,135,949	166,225	1,154,607	988,382	1,684,336	472,249	1,212,087	9,252	2,209,720	720,671	720,671	0
2019	2,205,660	174,692	1,185,447	1,010,755	1,778,202	487,278	1,290,924	9,661	2,311,340	771,118	771,118	0
2020	2,254,053	181,735	1,203,283	1,021,548	1,875,889	504,305	1,371,584	10,053	2,403,185	825,096	825,096	0
2021	2,332,617	191,981	1,236,075	1,044,094	1,977,822	516,404	1,461,418	10,511	2,516,024	882,853	882,853	0
2022	2,390,218	199,926	1,261,244	1,061,318	2,084,864	533,737	1,551,127	10,799	2,623,244	944,653	944,653	0
2023	2,462,487	210,039	1,296,376	1,086,337	2,197,336	546,956	1,650,380	11,254	2,747,971	1,010,779	1,010,779	0
2024	2,529,181	219,496	1,329,543	1,110,047	2,315,808	561,867	1,753,941	11,571	2,875,559	1,081,534	1,081,534	0
2025	2,636,841	232,713	1,384,232	1,151,518	2,440,905	577,821	1,863,084	11,928	3,026,531	1,157,241	1,157,241	0
2026	2,748,340	245,174	1,441,982	1,196,808	2,574,290	594,518	1,979,772	12,315	3,188,894	1,238,248	1,238,248	0
2027	2,850,639	257,388	1,495,417	1,238,029	2,716,899	612,961	2,103,938	12,711	3,354,678	1,324,925	1,324,925	0
2028	2,981,463	272,412	1,563,722	1,291,310	2,869,293	629,344	2,239,949	13,144	3,544,403	1,417,670	1,417,670	0
2029	3,082,742	284,636	1,617,055	1,332,419	3,033,238	648,255	2,384,983	13,513	3,730,915	1,516,907	1,516,907	0
2030	3,211,151	299,988	1,684,107	1,384,118	3,209,232	666,288	2,542,944	13,971	3,941,034	1,623,090	1,623,090	0
2031	3,342,829	314,609	1,752,142	1,437,533	3,399,349	684,793	2,714,556	14,375	4,166,464	1,736,706	1,736,706	0
2032	3,489,831	330,635	1,828,059	1,497,424	3,605,571	703,254	2,902,317	14,783	4,414,524	1,858,275	1,858,275	0
2033	3,630,314	345,470	1,899,718	1,554,248	3,830,643	723,612	3,107,031	15,170	4,676,449	1,988,354	1,988,354	0
2034	3,796,717	362,753	1,984,936	1,622,183	4,077,098	742,838	3,334,260	15,588	4,972,032	2,127,539	2,127,539	0
2035	3,946,385	379,102	2,065,447	1,686,345	4,349,306	763,762	3,585,544	15,967	5,287,856	2,276,467	2,276,467	0
2036	4,101,581	393,869	2,149,425	1,755,557	4,651,553	783,864	3,867,689	16,370	5,639,616	2,435,820	2,435,820	0
2037	4,246,010	405,229	2,223,927	1,818,698	4,990,024	807,765	4,182,259	16,768	6,017,725	2,606,327	2,606,327	0
2038	4,415,435	420,450	2,310,180	1,889,730	5,370,763	830,933	4,539,830	17,237	6,446,797	2,788,770	2,788,770	0
2039	4,591,569	435,592	2,399,776	1,964,183	5,802,563	854,092	4,948,471	17,671	6,930,325	2,983,984	2,983,984	0
2040	4,763,575	450,369	2,486,356	2,035,988	6,300,566	878,742	5,421,824	18,109	7,475,921	3,192,863	3,192,863	0
2041	4,948,180	466,763	2,579,287	2,112,524	6,883,850	902,884	5,980,966	18,570	8,112,061	3,416,363	3,416,363	0
2042	5,105,342	480,293	2,661,627	2,181,334	7,581,340	929,474	6,651,866	19,021	8,852,221	3,655,508	3,655,508	0
2043	5,279,169	495,724	2,754,004	2,258,280	8,436,296	955,479	7,480,817	19,535	9,758,631	3,911,394	3,911,394	0
2044	5,462,467	511,937	2,848,968	2,337,032	9,519,947	981,689	8,538,258	20,027	10,895,316	4,185,192	4,185,192	0
2045	5,653,485	529,500	2,948,044	2,418,545	10,955,235	1,008,082	9,947,153	20,529	12,386,227	4,478,155	4,478,155	0
2046	5,855,049	548,204	3,053,192	2,504,988	12,973,655	1,034,625	11,939,030	21,033	14,465,051	4,791,626	4,791,626	0
2047	6,063,338	567,774	3,161,979	2,594,205	16,073,276	1,061,732	15,011,544	21,535	17,627,284	5,127,040	5,127,040	0
2048	6,283,321	588,645	3,277,252	2,688,607	21,547,138	1,089,092	20,458,046	22,048	23,168,702	5,485,933	5,485,933	0
2049	6,511,127	610,070	3,396,793	2,786,722	34,136,109	1,117,133	33,018,976	22,563	35,828,262	5,869,948	5,869,948	0
2050	6,749,782	632,957	3,522,002	2,889,045	48,784,522	1,145,871	47,638,651	23,093	48,169,713	6,280,844	6,280,844	0
2051	7,000,700	657,162	3,653,786	2,996,624	46,505,914	1,175,288	45,330,626	23,635	45,518,219	6,720,503	6,720,503	0
2052	7,263,388	682,401	3,792,034	3,109,633	43,773,867	1,205,550	42,568,317	24,190	42,372,848	7,190,938	7,190,938	0
2053	7,538,655	709,011	3,936,948	3,227,937	40,543,612	1,236,922	39,306,690	24,760	38,684,973	7,694,304	7,694,304	0
2054	7,829,380	737,138	4,089,848	3,352,709	36,765,094	1,269,266	35,495,828	25,349	34,400,778	8,232,905	8,232,905	0
2055	8,132,655	766,284	4,249,467	3,483,184	32,385,248	1,302,959	31,082,289	25,953	29,460,370	8,809,208	8,809,208	0
2056	8,449,943	796,317	4,416,419	3,620,102	27,345,426	1,337,931	26,007,495	26,582	29,460,370	8,809,208	9,425,853	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 2037
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	39	55	$16,814,980	$1,803,912	$295	$588,285	$167,650	$410,943	$789,289	$16,966,940	$44,889,600	$27,922,660	38%
2017	39	59	16,966,940	1,906,216	8,639	629,462	155,264	428,814	747,906	17,013,531	46,124,568	29,111,037	37%
2018	39	61	17,013,531	2,041,096	9,252	673,524	166,225	443,192	748,532	16,994,656	47,293,249	30,298,593	36%
2019	39	62	16,994,656	2,134,706	9,661	720,671	174,692	472,249	747,475	16,965,377	48,449,155	31,483,778	35%
2020	39	64	16,965,377	2,230,839	10,053	771,118	181,735	487,278	745,623	16,910,239	49,576,709	32,666,470	34%
2021	39	64	16,910,239	2,318,222	10,511	825,096	191,981	504,305	742,995	16,845,882	50,698,600	33,852,718	33%
2022	39	65	16,845,882	2,406,958	10,799	882,853	199,926	516,404	739,849	16,767,156	51,805,440	35,038,284	32%
2023	39	65	16,767,156	2,503,618	11,254	944,653	210,039	533,737	736,132	16,676,846	52,898,651	36,221,805	32%
2024	39	65	16,676,846	2,605,402	11,571	1,010,779	219,496	546,956	731,772	16,568,876	53,970,156	37,401,280	31%
2025	39	66	16,568,876	2,693,457	11,928	1,081,534	232,713	561,867	727,146	16,466,751	55,055,296	38,588,545	30%
2026	39	66	16,466,751	2,756,225	12,315	1,157,241	245,174	577,821	723,462	16,401,909	56,183,493	39,781,584	29%
2027	39	67	16,401,909	2,830,162	12,711	1,238,248	257,388	594,518	721,336	16,370,526	57,340,943	40,970,417	29%
2028	39	67	16,370,526	2,896,914	13,144	1,324,925	272,412	612,961	721,102	16,391,868	58,551,512	42,159,644	28%
2029	39	68	16,391,868	2,964,981	13,513	1,417,670	284,636	629,344	723,240	16,468,264	59,800,710	43,332,446	28%
2030	39	68	16,468,264	3,040,091	13,971	1,516,907	299,988	648,255	727,967	16,607,319	61,097,297	44,489,978	27%
2031	39	68	16,607,319	3,096,033	14,375	1,623,090	314,609	666,288	736,060	16,836,958	62,463,618	45,626,660	27%
2032	39	68	16,836,958	3,144,482	14,783	1,736,706	330,635	684,793	748,603	17,178,429	63,918,748	46,740,319	27%
2033	39	68	17,178,429	3,191,744	15,170	1,858,275	345,470	703,254	766,355	17,644,870	65,463,170	47,818,300	27%
2034	39	68	17,644,870	3,230,694	15,588	1,988,354	362,753	723,612	790,201	18,263,507	67,123,809	48,860,302	27%
2035	39	67	18,263,507	3,286,101	15,967	2,127,539	379,102	742,838	820,688	19,031,605	68,883,804	49,852,199	28%
2036	37	67	19,031,605	3,348,386	16,370	2,276,467	393,869	763,762	857,965	19,958,912	70,744,138	50,785,226	28%
2037	34	67	19,958,912	3,393,895	16,421	2,299,760	387,865	783,864	899,512	20,919,597	72,616,910	51,697,313	29%
2038	32	67	20,919,597	3,431,982	16,481	2,319,801	381,284	807,765	942,726	21,922,711	74,478,829	52,556,118	29%
2039	30	67	21,922,711	3,469,114	16,544	2,339,142	375,314	830,933	987,851	22,970,293	76,344,466	53,374,173	30%
2040	28	66	22,970,293	3,511,526	16,606	2,365,095	367,784	854,092	1,034,972	24,064,104	78,197,915	54,133,811	31%
2041	26	66	24,064,104	3,557,869	16,665	2,394,117	359,460	878,742	1,084,171	25,206,059	80,027,684	54,821,625	31%
2042	24	66	25,206,059	3,636,777	16,719	2,459,319	347,482	902,884	1,135,523	26,397,771	81,787,598	55,389,827	32%
2043	22	66	26,397,771	3,730,559	16,767	2,539,377	332,626	929,474	1,189,105	27,641,027	83,443,102	55,802,075	33%
2044	20	65	27,641,027	3,813,307	16,807	2,608,818	317,947	955,479	1,245,006	28,938,164	85,000,763	56,062,599	34%
2045	19	65	28,938,164	3,901,548	16,840	2,684,105	302,502	981,689	1,303,328	30,291,402	86,442,657	56,151,255	35%
2046	17	65	30,291,402	3,995,799	16,865	2,765,668	286,494	1,008,082	1,364,172	31,703,153	87,758,310	56,055,157	36%
2047	15	64	31,703,153	4,094,727	16,885	2,852,308	269,793	1,034,625	1,427,646	33,175,913	88,935,199	55,759,286	37%
2048	14	64	33,175,913	4,198,178	16,900	2,943,612	252,239	1,061,732	1,493,862	34,712,280	89,958,782	55,246,502	39%
2049	12	63	34,712,280	4,305,401	16,912	3,039,382	233,603	1,089,092	1,562,937	36,314,981	90,816,290	54,501,309	40%
2050	11	63	36,314,981	4,414,624	16,923	3,137,132	214,124	1,117,133	1,634,994	37,986,817	91,489,520	53,502,703	42%
2051	9	62	37,986,817	4,528,573	16,935	3,239,572	193,845	1,145,871	1,710,158	39,730,755	91,963,145	52,232,390	43%
2052	8	62	39,730,755	4,645,768	16,949	3,345,532	172,469	1,175,288	1,788,564	41,549,891	92,220,837	50,670,946	45%
2053	7	61	41,549,891	4,764,596	16,966	3,453,066	150,155	1,205,550	1,870,351	43,447,450	92,245,084	48,797,634	47%
2054	5	61	43,447,450	4,885,138	16,989	3,562,007	126,906	1,236,922	1,955,663	45,426,822	92,019,072	46,592,250	49%
2055	4	60	45,426,822	5,008,072	17,018	3,671,354	104,507	1,269,266	2,044,653	47,491,513	91,523,318	44,031,805	52%
2056	3	60	47,491,513	5,132,990	17,053	3,778,563	85,022	1,302,959	2,137,485	49,645,499	90,757,151	41,111,652	55%

Actuarial Projections – Conservation Funding in 2037

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	$16,966,940	$1,914,855	$629,462	$155,264	$428,814	$747,906	$0	$0	$0	$0	$0	$0	NA	$629,462	$629,462	$0
2018	17,013,531	2,050,348	673,524	166,225	443,192	748,532	0	0	0	0	0	0	NA	673,524	673,524	0
2019	16,994,656	2,144,367	720,671	174,692	472,249	747,475	0	0	0	0	0	0	NA	720,671	720,671	0
2020	16,965,377	2,240,892	771,118	181,735	487,278	745,623	0	0	0	0	0	0	NA	771,118	771,118	0
2021	16,910,239	2,328,733	825,096	191,981	504,305	742,995	0	0	0	0	0	0	NA	825,096	825,096	0
2022	16,845,883	2,417,757	882,853	199,926	516,404	739,849	0	0	0	0	0	0	NA	882,853	882,853	0
2023	16,767,157	2,514,872	944,653	210,039	533,737	736,132	0	0	0	0	0	0	NA	944,653	944,653	0
2024	16,676,846	2,616,973	1,010,779	219,496	546,956	731,772	0	0	0	0	0	0	NA	1,010,779	1,010,779	0
2025	16,568,876	2,705,385	1,081,534	232,713	561,867	727,146	0	0	0	0	0	0	NA	1,081,534	1,081,534	0
2026	16,466,751	2,768,540	1,157,241	245,174	577,821	723,462	0	0	0	0	0	0	NA	1,157,241	1,157,241	0
2027	16,401,909	2,842,873	1,238,248	257,388	594,518	721,336	0	0	0	0	0	0	NA	1,238,248	1,238,248	0
2028	16,370,526	2,910,058	1,324,925	272,412	612,961	721,102	0	0	0	0	0	0	NA	1,324,925	1,324,925	0
2029	16,391,868	2,978,494	1,417,670	284,636	629,344	723,240	0	0	0	0	0	0	NA	1,417,670	1,417,670	0
2030	16,468,264	3,054,062	1,516,907	299,988	648,255	727,967	0	0	0	0	0	0	NA	1,516,907	1,516,907	0
2031	16,607,319	3,110,408	1,623,090	314,609	666,288	736,060	0	0	0	0	0	0	NA	1,623,090	1,623,090	0
2032	16,836,958	3,159,265	1,736,706	330,635	684,793	748,603	0	0	0	0	0	0	NA	1,736,706	1,736,706	0
2033	17,178,429	3,206,914	1,858,275	345,470	703,254	766,355	0	0	0	0	0	0	NA	1,858,275	1,858,275	0
2034	17,644,869	3,246,282	1,988,354	362,753	723,612	790,201	0	0	0	0	0	0	NA	1,988,354	1,988,354	0
2035	18,263,506	3,302,068	2,127,539	379,102	742,838	820,688	0	0	0	0	0	0	NA	2,127,539	2,127,539	0
2036	19,031,604	3,364,756	2,276,467	393,869	763,762	857,965	0	0	0	0	0	0	NA	2,276,467	2,276,467	0
2037	19,958,911	3,410,316	2,299,760	326,692	783,864	898,151	20,857,063	0	0	61,173	0	1,361	2,299,760	2,435,820	2,299,760	17,618
2038	0	3,448,463	2,319,801	320,897	807,765	0	20,919,597	0	0	60,388	0	942,726	2,319,801	2,606,327	2,319,801	40,907
2039	0	3,485,658	2,339,142	315,583	830,933	0	21,922,711	0	0	59,731	0	987,851	2,339,142	2,788,770	2,339,142	64,000
2040	0	3,528,132	2,365,095	308,945	854,092	0	22,970,293	0	0	58,839	0	1,034,972	2,365,095	2,983,984	2,365,095	88,305
2041	0	3,574,534	2,394,117	301,676	878,742	0	24,064,103	0	0	57,784	0	1,084,171	2,394,117	3,192,863	2,394,117	115,073
2042	0	3,653,496	2,459,319	291,293	902,884	0	25,206,058	0	0	56,189	0	1,135,523	2,459,319	3,416,363	2,459,319	142,735
2043	0	3,747,326	2,539,377	278,474	929,474	0	26,397,771	0	0	54,151	0	1,189,105	2,539,377	3,655,508	2,539,377	175,253
2044	0	3,830,114	2,608,818	265,816	955,479	0	27,641,027	0	0	52,131	0	1,245,006	2,608,818	3,911,394	2,608,818	208,640
2045	0	3,918,388	2,684,105	252,593	981,689	0	28,938,164	0	0	49,910	0	1,303,328	2,684,105	4,185,192	2,684,105	244,249
2046	0	4,012,664	2,765,668	238,915	1,008,082	0	30,291,402	0	0	47,579	0	1,364,172	2,765,668	4,478,155	2,765,668	281,725
2047	0	4,111,612	2,852,308	224,678	1,034,625	0	31,703,153	0	0	45,114	0	1,427,646	2,852,308	4,791,626	2,852,308	320,852
2048	0	4,215,078	2,943,612	209,734	1,061,732	0	33,175,913	0	0	42,505	0	1,493,862	2,943,612	5,127,040	2,943,612	362,211
2049	0	4,322,313	3,039,382	193,840	1,089,092	0	34,712,281	0	0	39,764	0	1,562,937	3,039,382	5,485,933	3,039,382	405,322
2050	0	4,431,547	3,137,132	177,282	1,117,133	0	36,314,981	0	0	36,842	0	1,634,994	3,137,132	5,869,948	3,137,132	450,833
2051	0	4,545,508	3,239,572	160,065	1,145,871	0	37,986,817	0	0	33,780	0	1,710,158	3,239,572	6,280,844	3,239,572	498,610
2052	0	4,662,717	3,345,532	141,897	1,175,288	0	39,730,756	0	0	30,572	0	1,788,564	3,345,532	6,720,503	3,345,532	548,649
2053	0	4,781,562	3,453,066	122,947	1,205,550	0	41,549,892	0	0	27,208	0	1,870,351	3,453,066	7,190,938	3,453,066	601,100
2054	0	4,902,127	3,562,007	103,198	1,236,922	0	43,447,452	0	0	23,709	0	1,955,663	3,562,007	7,694,304	3,562,007	656,124
2055	0	5,025,090	3,671,354	84,469	1,269,266	0	45,426,823	0	0	20,038	0	2,044,653	3,671,354	8,232,905	3,671,354	713,664
2056	0	5,150,043	3,778,563	68,521	1,302,959	0	47,491,514	0	0	16,501	0	2,137,485	3,778,563	8,809,208	3,778,563	771,736

[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, 2038.*