

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

**Actuarial Valuation Report
for the Year Beginning July 1, 2017**



August 23, 2018

Mr. James M. Goff
Finance Director
389 Spruce Street
Morgantown, WV 26505

Lt. Matthew D. Solomon
Pension Board Secretary
City of Morgantown Policemen's Pension and Relief Fund

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

Dear Mr. Goff and Lt. Solomon:

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

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

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

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

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

This actuarial valuation is based upon:

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

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

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

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

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 4.50%. The actuarial assumptions used in the actuarial valuation are set forth in Section VI of the report: Actuarial Assumptions and Methods.

The actuarial valuation results disclosed in this report are based on the data and actuarial assumptions and methods described above, and upon the provisions of the Plan as of the actuarial valuation date. Based on these items, we certify these results to be true and correct.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practices.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This report should not be relied on for any purpose other than the purpose stated.



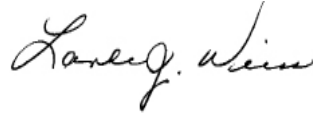
The signing actuaries are independent of the plan sponsor.

Alex Rivera and Lance J. Weiss are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Sincerely,



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



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

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SECTION I

ACTUARIAL VALUATION RESULTS AS OF JULY 1, 2017

Executive Summary

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

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

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

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

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

- The sponsor's initial Alternative contribution effective for plan year 1991 is the greater of 107% of the amount contributed for the plan year ended June 30, 1990, or the highest five-year average of contributions made since 1984.
- Sponsor contributions made in subsequent years cannot be less than 107% of the contribution made in the prior fiscal year.
- The actuary must certify in writing that the Fund is projected to be solvent under the Alternative funding policy for the next consecutive 15-year period. A plan is deemed to be solvent if projected assets are greater than zero over the 15-year projection period.
- Beginning September 1, 2003, any municipality which elected the Alternative funding policy has the option of reverting to the Standard funding policy if the plan's funded ratio is greater than 80%. In this case, the Standard minimum contribution equals the normal cost plus the amortization of the unfunded liability over a period of not more than 40 years commencing from July 1, 1991, less the allocable portion of the state premium tax fund for municipal pension and relief funds.
- Plan members hired before January 1, 2010, contribute 7.0% of pay; however, if elected by the Board of Trustees of the Plan, member contributions may be increased up to 9.5% of pay. The Board elected to increase member contributions to 9.5% of pay. Employees hired on or after January 1, 2010, contribute 9.5% of pay.
- The Plan also receives premium tax allocation assigned to the Fund for the plan year.

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

Executive Summary (Continued)

The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2017
Assets	\$15,181,765
Actuarial Accrued Liability	\$62,780,889
Unfunded Actuarial Accrued Liability	\$47,599,124
Funded Ratio	24.18%

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

Employer Contributions for FYE:	June 30, 2018
FYE 06/30/2017 Alternative Contribution	\$825,217
7% Increase in Alternative Contribution	\$57,765
FYE 06/30/2018 Alternative Contribution	\$882,982
Additional Contribution	\$0
Final FYE 06/30/2018 Alternative Contribution	\$882,982

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

Estimated Employer Contributions for FYE:	June 30, 2019
FYE 06/30/2018 Alternative Contribution	\$882,982
7% Increase in Alternative Contribution	\$61,809
FYE 06/30/2019 Alternative Contribution	\$944,791
Additional Contribution to satisfy 15-year Solvency Test on an Open Group Basis (to receive 100% of the State Premium Tax Allocation)	\$0
Estimated Employer Contribution for FYE 06/30/2019 to receive 100% of the State Premium Tax Allocation	\$944,791
Additional Contribution to satisfy 15-year Solvency Test on a Closed Group Basis (to grant Supplemental Benefits; i.e. COLA increases)	\$0
Estimated Employer Contribution for FYE 06/30/2019 to receive 100% of the State Premium Tax Allocation and to grant Supplemental Benefits; i.e. COLA increases	\$944,791

Executive Summary (Continued)

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

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

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

The sponsor is projected to satisfy the 15-year solvency test without making additional annual contributions in excess of the minimum alternative contribution. **However, given that the projected funded ratio is 24% as of June 30, 2017, 20% as of June 30, 2027, and 42% as of June 30, 2057, we recommend that the sponsor make additional contributions in excess of the statutory minimum.”**

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, 2017, Actuarial Report from GRS is to be used by municipal pension plans to draw down the September 1, 2018 State Premium Tax Allocation which is allocated in Fiscal Year 2019. The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statutes, including any additional amounts needed to satisfy the 15-year solvency test on an open group projection basis, and will be eligible to receive the premium tax allocation.

Commentary on Solvency Projections and Supplemental Benefits

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

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

Executive Summary (Continued)

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

Additional Remarks on the Actuarial Valuation Results

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

- The actuarial assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, and approved by the Municipal Pensions Oversight Board and became effective beginning with the actuarial valuation as of July 1, 2015. The key actuarial assumptions are fully disclosed in Section VI of the report.
- The interest rate used to discount liabilities remained the same for the July 1, 2016 and July 1, 2017 actuarial valuations.
 - The interest rate assumption was developed by reviewing the Plan's current funded ratio, the 15-year projected funded ratio, the ratio of assets to benefits, the percentage of assets allocated to equities and the funding policy selected. The details of the methodology used to select the discount rate are presented in Section VI of the report. As of July 1, 2017, the Plan's funded ratio of 28% (using a testing interest rate of 5.50% for all plans using the Alternative funding policy), ratio of assets to benefits of 6.71, equity allocation of 52%, and 15-year projected funded ratio of 27%, resulted in a discount rate assumption of 4.50%.
- The Fund experienced an approximate annualized return of 9.75% on the market value of assets during the plan year ended June 30, 2017, which compares to the expected annualized return of 4.50%. The difference in actual versus expected return produced an asset (gain)/loss of (\$725,413).
- An actuarial valuation is based on the expectation of certain events such as salary increases, retirement, disability, mortality, termination, and cost of living increases. Demographic or liability experience (gains)/losses are generated when the actual occurrence of such events differs from the expectation. During the plan year ended June 30, 2017, the fund experienced a net liability (gain)/loss of \$1,036,203 due to these events.

Alternative Funding

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

Based on the open group projections shown in Table 2, page II-2 and assuming that the sponsor makes the statutory required contributions, if all actuarial assumptions are realized in the future, including an investment return of 4.50%:

- The funded ratio is projected to decrease from 24% at June 30, 2017 to 20% at June 30, 2027 and then increase gradually to 42% at 2057.
- Employer contributions are expected to increase from \$882,982 (or 20% of pay) for the fiscal year end June 30, 2018, to \$12,357,163 (or 67% of pay) for fiscal year end June 30, 2057.

Executive Summary (Continued)

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

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

A funding policy consistent with generally accepted actuarial principles is typically based on the sponsor contributing the normal cost net of employee contributions plus an amortization of the unfunded actuarial accrued liability. The annual amortization amount is generally 6% to 7% of the unfunded actuarial accrued liability. Under state statute, the annual premium tax allocation can only be used to finance the amortization of the unfunded actuarial accrued liability. For fiscal year end 2019, the Alternative funding policy contribution of \$944,791 is sufficient to finance only 54% of the net employer normal cost of \$1,745,560. The state premium tax allocation of \$705,979 is sufficient to finance only 1.5% of the unfunded actuarial accrued liability of \$47,599,124.

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

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

If the minimum employer contributions (calculated under the Alternative funding policy) are not made or investment return is less than the assumption of 4.50%, the funded ratio will be lower and the cash flow strain could be higher. If another significant market downturn occurs while the plan's funded ratio is declining, the plan may need to liquidate assets in order to pay benefits which could have a further adverse effect on the funded status of the System.

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

- If the actual return on assets is *less* than the assumed return of 4.50%, then contributions will generally *increase*. Conversely, if the actual return is *greater* than the assumed return, contributions will generally *decrease*.
- If salaries *increase* by more than assumed, contributions could *increase*. If salaries *decrease* by more than assumed, contributions could *decrease*.
- If active members retire *sooner* than expected, contributions will generally *increase*. If active members retire *later* than expected, contributions will generally *decrease*.
- If active members become disabled during the year, contributions could increase.

Executive Summary (Continued)

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

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

Schedule A: Summary of Key Valuation Results

Valuation Date	July 1, 2016		July 1, 2017	
Valuation Interest Rate	4.50%		4.50%	
Cost-of-Living Adjustment	2.75%		2.75%	
Wage Inflation	3.75%		3.75%	
Expected Payroll	\$4,054,650		\$4,424,620	
Average Pay	\$58,763		\$61,453	
Expected Benefit Payments	\$2,159,228		\$2,261,662	
1. Actuarial Accrued Liability	<u>No.</u>		<u>No.</u>	
(a) Actives	69	\$24,298,924	72	\$26,468,189
(b) Retirees	45	\$29,080,945	44	\$30,707,799
(c) Survivors	11	\$2,277,941	12	\$2,399,005
(d) Disabled Members	8	\$3,537,460	7	\$3,205,896
(e) Deferred Vested Members	0	\$0	0	\$0
(f) Total	133	\$59,195,270	135	\$62,780,889
2. Present Value of Future Normal Costs		\$23,473,959		\$25,397,212
3. Present Value of Benefits (1(f) + 2)		\$82,669,229		\$88,178,101
4. Market Value of Assets		\$13,826,768		\$15,181,765
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		\$45,368,502		\$47,599,124
6. Funded Ratio (4 / 1(f))		23.36%		24.18%
7. Net Employer Normal Cost				
(a) Normal Cost		\$2,007,775		\$2,164,296
(b) Administrative Expenses		\$2,048		\$1,603
(c) Gross Normal Cost (a + b)		\$2,009,823		\$2,165,899
(d) Employee Contribution Rate ^a		9.50%		9.50%
(e) Expected Employee Contributions		\$385,192		\$420,339
(f) Net Employer Normal Cost (c - e)		\$1,624,631		\$1,745,560
(% of Compensation)		40.07%		39.45%
		<u>FYE 2018</u>		<u>FYE 2019</u>
8. Estimated Minimum Employer Contribution ^b				
(a) Prior Year Alternative Contribution		\$825,217		\$882,982
(b) Increase in Alternative Contribution		7.00%		7.00%
(c) Current Year Alternative Contribution		\$882,982		\$944,791
(d) Additional Contribution		\$0		\$0
(e) Alternative Contribution (c + d)		\$882,982		\$944,791

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

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

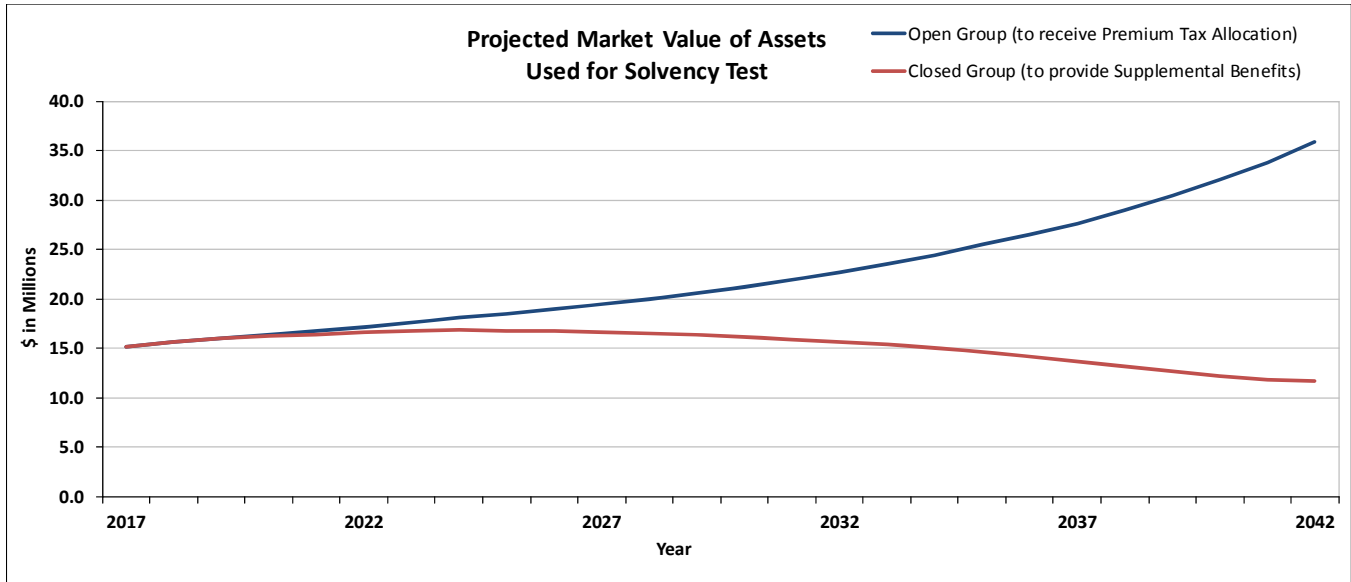
Schedule B: (Gain)/Loss Analysis

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

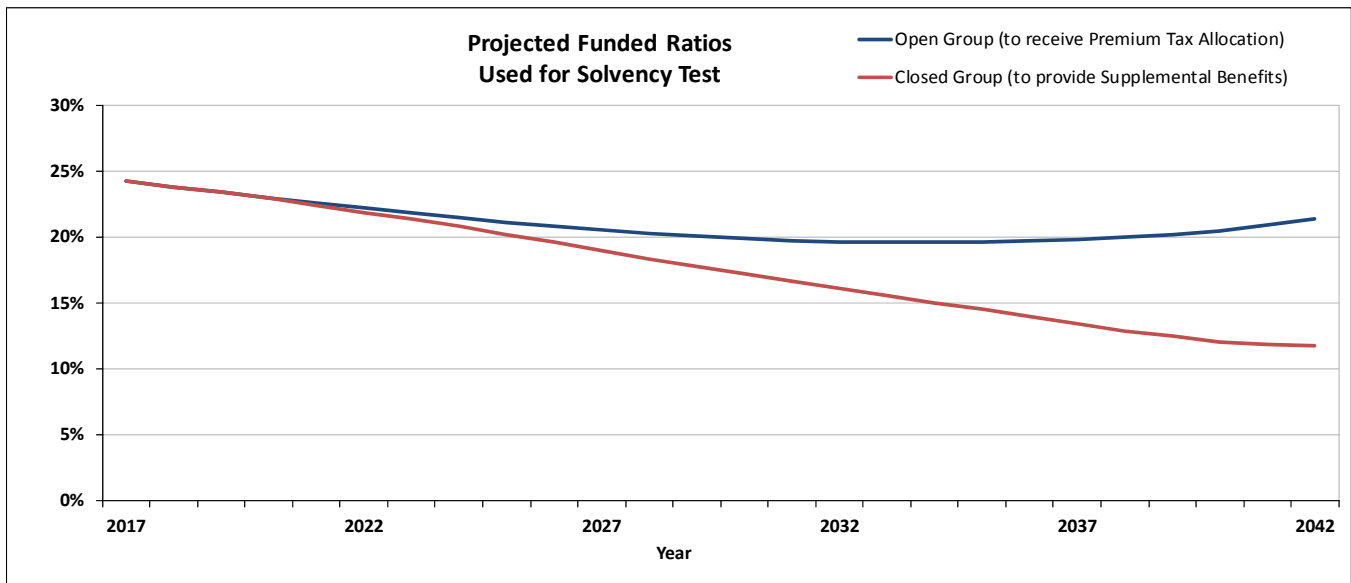
1. (a) Actuarial Accrued Liability as of 7/1/2016	\$59,195,270
(b) Normal Cost due 7/1/2016	\$2,007,775
(c) Interest on (a) and (b) to 6/30/2017	\$2,708,962
(d) Benefit Payments with interest to 6/30/2017	\$2,167,321
(e) Effect of Assumption Changes	\$0
(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	\$61,744,686
(g) Actual Liability at 7/1/2017	\$62,780,889
(h) Liability (Gain)/Loss [(g) - (f)]	\$1,036,203
2. (a) Market Value of Assets as of 7/1/2016	\$13,826,768
(b) Interest on (a) to 6/30/2017	\$622,205
(c) Contributions with interest to 6/30/2017	\$2,174,700
(d) Benefit Payments with interest to 6/30/2017	\$2,167,321
(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	\$14,456,352
(f) Actual Assets at 7/1/2017	\$15,181,765
(g) Asset (Gain)/Loss [(e) - (f)]	(\$725,413)
3. Total (Gain)/Loss [1(h) + 2(g)]	\$310,790

Graphs 1A and 1B: Solvency Projections

Graph 1A



Graph 1B



SECTION II

ACTUARIAL PROJECTIONS

ALTERNATIVE FUNDING POLICY

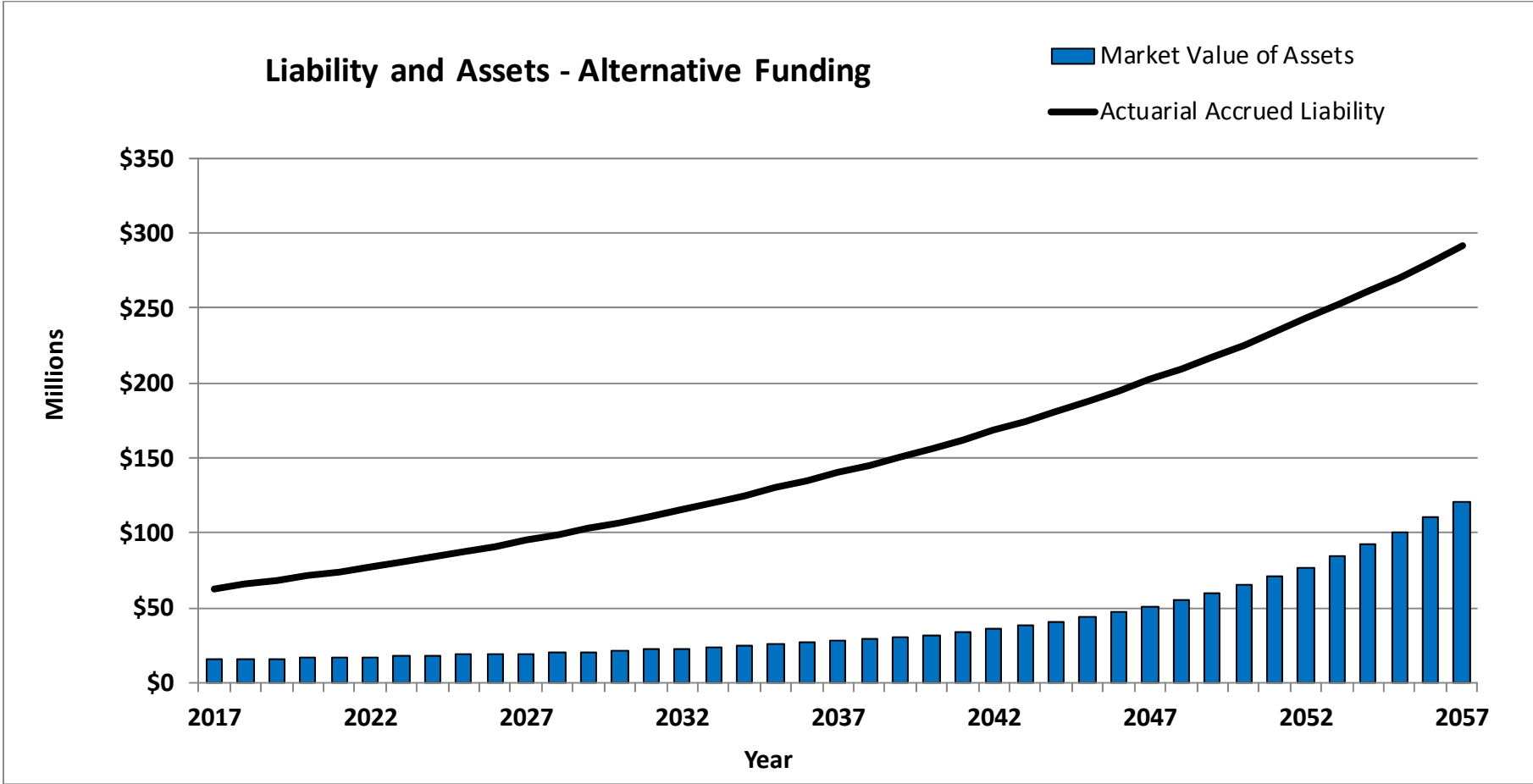
Alternative Funding on a Closed Group Basis, Table 1

Valuation			Total Assets											Actuarial		
Year End	Number		Total Payroll	Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Accrued Liability	Unfunded Liability	Funded Ratio		
	Plan	Pay													Status	
30-Jun	Active	Status														
2017	72	63	\$4,054,650	\$13,826,768	\$2,119,629	\$1,560	\$1,073,218	\$423,661	\$629,967	\$1,349,340	\$15,181,765	\$62,780,889	\$47,599,124	24%		
2018	68	64	4,424,620	15,181,765	2,261,662	1,603	882,982	420,339	691,798	677,212	15,590,831	65,506,453	49,915,622	24%		
2019	63	67	4,362,620	15,590,831	2,383,676	1,610	944,791	414,449	705,979	694,465	15,965,229	68,200,870	52,235,641	23%		
2020	58	68	4,255,129	15,965,229	2,528,884	1,620	1,010,926	404,237	665,343	708,421	16,223,652	70,815,263	54,591,611	23%		
2021	55	69	4,193,808	16,223,652	2,646,349	1,621	1,081,691	398,412	648,386	718,504	16,422,675	73,396,609	56,973,934	22%		
2022	51	71	4,160,588	16,422,675	2,730,056	1,638	1,157,409	395,256	640,004	727,026	16,610,676	75,990,119	59,379,443	22%		
2023	48	72	4,094,577	16,610,676	2,848,110	1,659	1,238,428	388,985	631,552	734,334	16,754,206	78,542,490	61,788,284	21%		
2024	44	74	4,001,132	16,754,206	2,997,585	1,667	1,325,118	380,108	620,390	738,949	16,819,518	81,006,144	64,186,626	21%		
2025	41	75	3,903,255	16,819,518	3,147,781	1,691	1,417,876	370,809	612,782	740,233	16,811,747	83,373,021	66,561,274	20%		
2026	38	77	3,811,788	16,811,747	3,284,925	1,715	1,517,127	362,120	606,238	738,701	16,749,293	85,654,167	68,904,874	20%		
2027	35	78	3,714,917	16,749,293	3,425,597	1,740	1,623,326	352,917	601,278	734,807	16,634,284	87,839,350	71,205,066	19%		
2028	33	79	3,634,815	16,634,284	3,545,933	1,765	1,736,959	345,307	597,537	729,230	16,495,619	89,953,159	73,457,540	18%		
2029	30	81	3,542,578	16,495,619	3,679,462	1,791	1,858,546	336,545	596,378	722,503	16,328,338	91,973,769	75,645,431	18%		
2030	27	82	3,419,329	16,328,338	3,838,426	1,818	1,988,644	324,836	593,447	714,007	16,109,029	93,859,171	77,750,142	17%		
2031	25	83	3,311,360	16,109,029	3,978,371	1,845	2,127,849	314,579	592,884	703,880	15,868,005	95,630,734	79,762,729	17%		
2032	23	83	3,201,906	15,868,005	4,110,132	1,872	2,276,798	304,181	592,433	693,174	15,622,587	97,287,634	81,665,047	16%		
2033	21	84	3,045,342	15,622,587	4,276,568	1,898	2,436,174	289,307	592,967	681,654	15,344,223	98,767,030	83,422,807	16%		
2034	18	85	2,839,612	15,344,223	4,477,274	1,924	2,606,706	269,763	592,393	668,008	15,001,895	100,003,411	85,001,516	15%		
2035	16	86	2,631,110	15,001,895	4,666,832	1,950	2,789,175	249,955	593,166	652,021	14,617,430	100,996,668	86,379,238	14%		
2036	13	87	2,382,809	14,617,430	4,875,003	1,975	2,984,417	226,367	595,283	633,954	14,180,474	101,697,724	87,517,250	14%		
2037	11	88	2,078,582	14,180,474	5,111,772	1,999	3,193,326	197,465	595,540	613,033	13,666,067	102,035,843	88,369,776	13%		
2038	10	88	1,837,128	13,666,067	5,290,465	2,024	3,416,859	174,527	596,848	590,401	13,152,213	102,084,929	88,932,716	13%		
2039	7	88	1,597,946	13,152,213	5,464,337	2,047	3,656,039	151,805	601,540	568,329	12,663,542	101,838,761	89,175,219	12%		
2040	6	88	1,339,319	12,663,542	5,650,325	2,068	3,911,962	127,235	604,567	547,415	12,202,328	101,264,821	89,062,493	12%		
2041	5	88	1,139,887	12,202,328	5,782,928	2,089	4,185,799	108,289	610,192	529,507	11,851,098	100,433,636	88,582,538	12%		
2042	4	87	947,125	11,851,098	5,901,353	2,108	4,478,805	89,977	616,119	517,310	11,649,848	99,350,407	87,700,559	12%		
2043	3	86	794,680	11,649,848	5,980,351	2,125	4,792,321	75,495	621,650	513,273	11,670,110	98,063,381	86,393,271	12%		
2044	2	85	645,393	11,670,110	6,055,581	2,141	5,127,783	61,312	628,583	519,813	11,949,880	96,571,074	84,621,194	12%		
2045	1	84	455,834	11,949,880	6,163,729	2,156	5,486,728	43,304	634,857	537,722	12,486,607	94,816,272	82,329,665	13%		
2046	1	83	305,278	12,486,607	6,227,896	2,169	5,870,799	29,001	641,392	568,821	13,366,556	92,851,064	79,484,508	14%		
2047	1	81	212,541	13,366,556	6,233,641	2,180	6,281,755	20,191	647,911	617,384	14,697,977	90,750,350	76,052,373	16%		
2048	0	79	148,951	14,697,977	6,213,608	2,190	6,721,478	14,150	654,758	687,546	16,560,112	88,547,453	71,987,341	19%		
2049	0	78	102,882	16,560,112	6,176,397	2,198	7,191,981	9,774	661,533	782,694	19,027,498	86,263,124	67,235,626	22%		
2050	0	76	68,291	19,027,498	6,126,604	2,205	7,695,420	6,488	668,043	906,108	22,174,748	83,911,633	61,736,885	26%		
2051	0	74	44,124	22,174,748	6,065,436	2,210	8,234,099	4,192	674,265	1,061,170	26,080,828	81,506,245	55,425,417	32%		
2052	0	72	26,709	26,080,828	5,995,743	2,213	8,810,486	2,537	680,104	1,251,413	30,827,412	79,056,213	48,228,801	39%		
2053	0	70	16,389	30,827,412	5,917,496	2,215	9,427,220	1,557	685,511	1,480,573	36,502,561	76,571,425	40,068,864	48%		
2054	0	68	9,148	36,502,561	5,833,664	2,216	10,087,125	869	690,479	1,752,600	43,197,754	74,057,451	30,859,697	58%		
2055	0	66	2,566	43,197,754	5,745,878	2,215	10,793,224	244	694,962	2,071,636	51,009,727	71,517,334	20,507,607	71%		
2056	0	65	0	51,009,727	5,651,723	2,212	11,548,750	0	698,936	2,442,165	60,045,643	68,958,128	8,912,485	87%		
2057	0	63	0	60,045,643	5,552,214	2,208	8,410,629	0	702,388	2,781,241	66,385,480	66,385,480	0	100%		

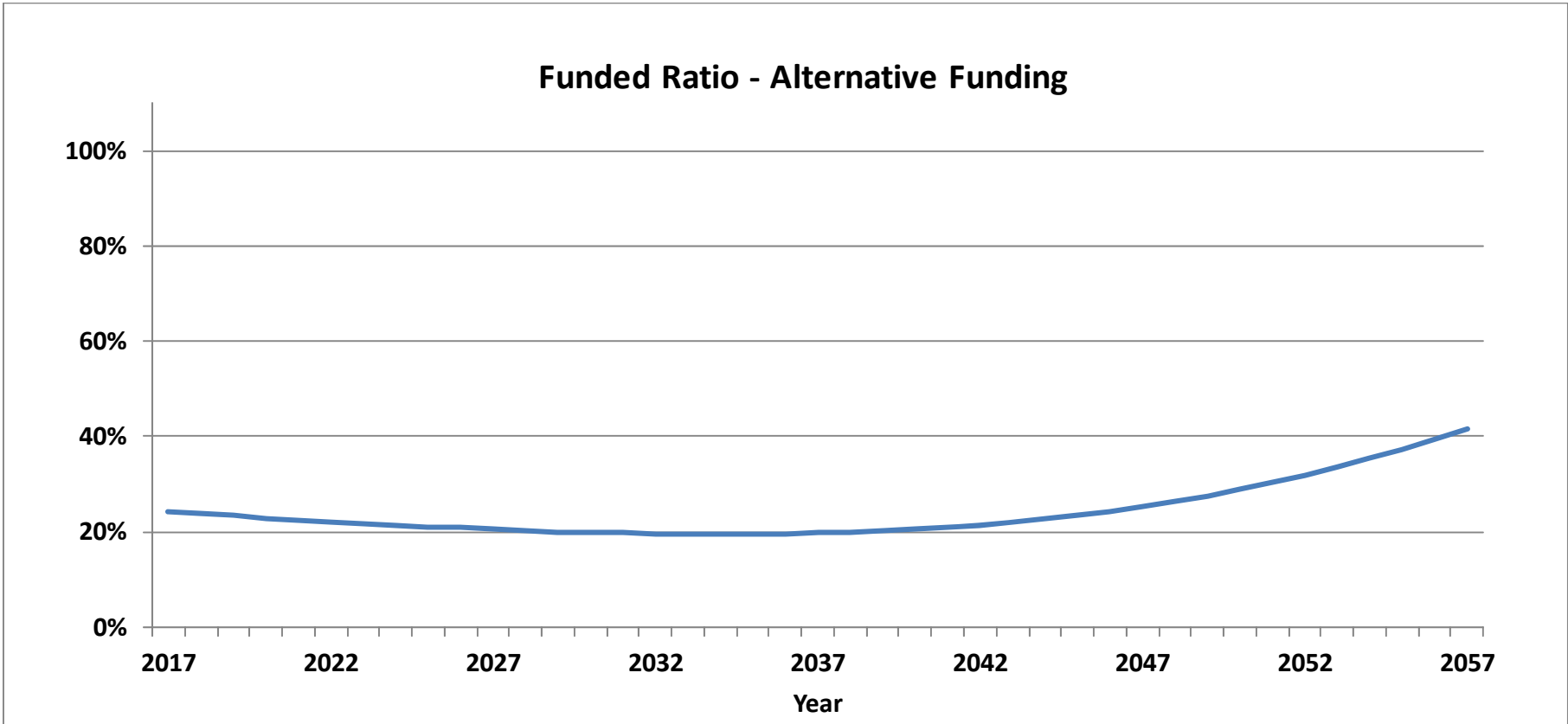
Alternative Funding on an Open Group Basis, Table 2

Valuation Plan Year End 30-Jun	Number		Total Payroll	Total Assets							Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
	Active	Status		Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Employer Contributions							
2017	72	63	\$4,054,650	\$13,826,768	\$2,119,629	\$1,560	\$1,073,218	\$423,661	\$629,967	\$1,349,340	\$15,181,765	\$62,780,889	\$47,599,124	24%		
2018	72	64	4,424,620	15,181,765	2,261,662	1,603	882,982	420,339	691,798	677,212	15,590,831	65,548,569	49,957,738	24%		
2019	72	67	4,568,826	15,590,831	2,383,676	1,664	944,791	434,736	705,979	694,915	15,985,912	68,398,551	52,412,639	23%		
2020	72	68	4,730,240	15,985,912	2,529,729	1,739	1,010,926	450,274	736,476	711,938	16,364,058	71,305,617	54,941,559	23%		
2021	72	69	4,942,255	16,364,058	2,649,745	1,802	1,081,691	470,375	754,916	728,715	16,748,208	74,315,811	57,567,603	23%		
2022	72	71	5,144,701	16,748,208	2,737,509	1,867	1,157,409	489,476	773,850	746,579	17,176,145	77,474,012	60,297,867	22%		
2023	72	72	5,338,438	17,176,145	2,860,670	1,941	1,238,428	508,069	794,991	765,780	17,620,803	80,744,868	63,124,065	22%		
2024	72	74	5,535,541	17,620,803	3,016,031	2,008	1,325,118	527,134	815,247	785,135	18,055,398	84,099,969	66,044,571	21%		
2025	72	76	5,750,447	18,055,398	3,173,113	2,092	1,417,876	547,953	839,618	804,265	18,489,905	87,546,584	69,056,679	21%		
2026	72	77	5,982,464	18,489,905	3,318,212	2,177	1,517,127	570,413	864,221	823,843	18,945,120	91,108,278	72,163,158	21%		
2027	72	79	6,218,387	18,945,120	3,467,939	2,261	1,623,326	593,272	889,535	844,429	19,425,483	94,789,068	75,363,585	20%		
2028	72	80	6,487,902	19,425,483	3,598,393	2,347	1,736,959	619,412	916,016	866,840	19,963,970	98,624,037	78,660,067	20%		
2029	72	81	6,730,507	19,963,970	3,743,043	2,427	1,858,546	642,988	941,730	891,653	20,553,417	102,608,108	82,054,691	20%		
2030	72	82	6,998,602	20,553,417	3,914,095	2,519	1,988,644	669,335	969,994	918,480	21,183,256	106,724,482	85,541,226	20%		
2031	72	83	7,280,781	21,183,256	4,067,175	2,608	2,127,849	696,922	998,013	947,750	21,884,008	111,007,643	89,123,635	20%		
2032	72	84	7,572,025	21,884,008	4,213,291	2,696	2,276,798	725,478	1,026,434	980,613	22,677,344	115,476,239	92,798,895	20%		
2033	72	85	7,841,079	22,677,344	4,395,296	2,786	2,436,174	752,061	1,056,681	1,017,072	23,541,250	120,098,337	96,557,087	20%		
2034	72	87	8,118,365	23,541,250	4,612,923	2,886	2,606,706	779,618	1,089,515	1,056,241	24,457,522	124,843,770	100,386,248	20%		
2035	72	87	8,422,451	24,457,522	4,821,159	2,987	2,789,175	809,690	1,124,872	1,098,355	25,455,468	129,736,653	104,281,185	20%		
2036	72	89	8,691,841	25,455,468	5,050,098	3,085	2,984,417	836,443	1,159,779	1,143,882	26,526,805	134,759,815	108,233,010	20%		
2037	72	90	8,978,721	26,526,805	5,310,027	3,196	3,193,326	864,157	1,198,357	1,192,430	27,661,851	139,884,133	112,222,282	20%		
2038	72	90	9,339,794	27,661,851	5,514,313	3,306	3,416,859	897,233	1,238,476	1,245,561	28,942,361	145,194,342	116,251,981	20%		
2039	72	91	9,637,252	28,942,361	5,716,854	3,403	3,656,039	923,804	1,275,295	1,305,408	30,382,650	150,686,176	120,303,526	20%		
2040	72	92	9,995,626	30,382,650	5,947,743	3,520	3,911,962	956,618	1,318,382	1,372,464	31,990,813	156,339,812	124,348,999	20%		
2041	72	92	10,369,494	31,990,813	6,145,096	3,628	4,185,799	990,083	1,359,483	1,448,190	33,825,644	162,212,240	128,386,596	21%		
2042	72	93	10,748,000	33,825,644	6,351,092	3,740	4,478,805	1,023,744	1,401,871	1,534,384	35,909,617	168,307,093	132,397,476	21%		
2043	72	93	11,184,256	35,909,617	6,542,546	3,858	4,792,321	1,062,486	1,446,173	1,632,724	38,296,917	174,661,339	136,364,422	22%		
2044	72	94	11,580,104	38,296,917	6,758,196	3,972	5,127,783	1,096,948	1,489,722	1,744,552	40,993,755	181,255,654	140,261,899	23%		
2045	72	95	11,968,011	40,993,755	7,039,093	4,098	5,486,728	1,130,788	1,536,480	1,869,437	43,973,996	188,026,963	144,052,967	23%		
2046	72	95	12,401,343	43,973,996	7,311,059	4,230	5,870,799	1,168,902	1,585,404	2,007,976	47,291,788	195,005,495	147,713,707	24%		
2047	72	96	12,860,753	47,291,788	7,561,046	4,361	6,281,755	1,209,755	1,634,080	2,162,848	51,014,819	202,237,390	151,222,571	25%		
2048	72	96	13,341,001	51,014,819	7,821,259	4,493	6,721,478	1,253,110	1,684,097	2,336,454	55,184,206	209,736,528	154,552,322	26%		
2049	72	97	13,836,809	55,184,206	8,097,511	4,629	7,191,981	1,298,329	1,735,213	2,530,540	59,838,129	217,513,986	157,675,857	28%		
2050	72	97	14,352,826	59,838,129	8,388,081	4,769	7,695,420	1,346,056	1,788,130	2,746,940	65,021,825	225,578,696	160,556,871	29%		
2051	72	97	14,890,936	65,021,825	8,692,367	4,913	8,234,099	1,396,109	1,842,506	2,987,743	70,785,002	233,944,928	163,159,926	30%		
2052	72	98	15,450,003	70,785,002	9,008,880	5,060	8,810,486	1,448,043	1,898,462	3,255,265	77,183,319	242,626,566	165,443,247	32%		
2053	72	98	16,032,106	77,183,319	9,335,800	5,211	9,427,220	1,502,211	1,956,209	3,552,126	84,280,074	251,638,581	167,358,507	33%		
2054	72	99	16,633,305	84,280,074	9,675,900	5,367	10,087,125	1,558,383	2,015,692	3,881,166	92,141,174	260,992,672	168,851,498	35%		
2055	72	99	17,258,436	92,141,174	10,030,996	5,527	10,793,224	1,616,795	2,077,526	4,245,399	100,837,595	270,700,625	169,863,030	37%		
2056	72	99	17,907,969	100,837,595	10,398,286	5,692	11,548,750	1,677,238	2,141,416	4,648,140	110,449,161	280,779,525	170,330,364	39%		
2057	72	100	18,580,126	110,449,161	10,777,464	5,862	12,357,163	1,740,254	2,207,560	5,093,083	121,063,896	291,241,534	170,177,638	42%		

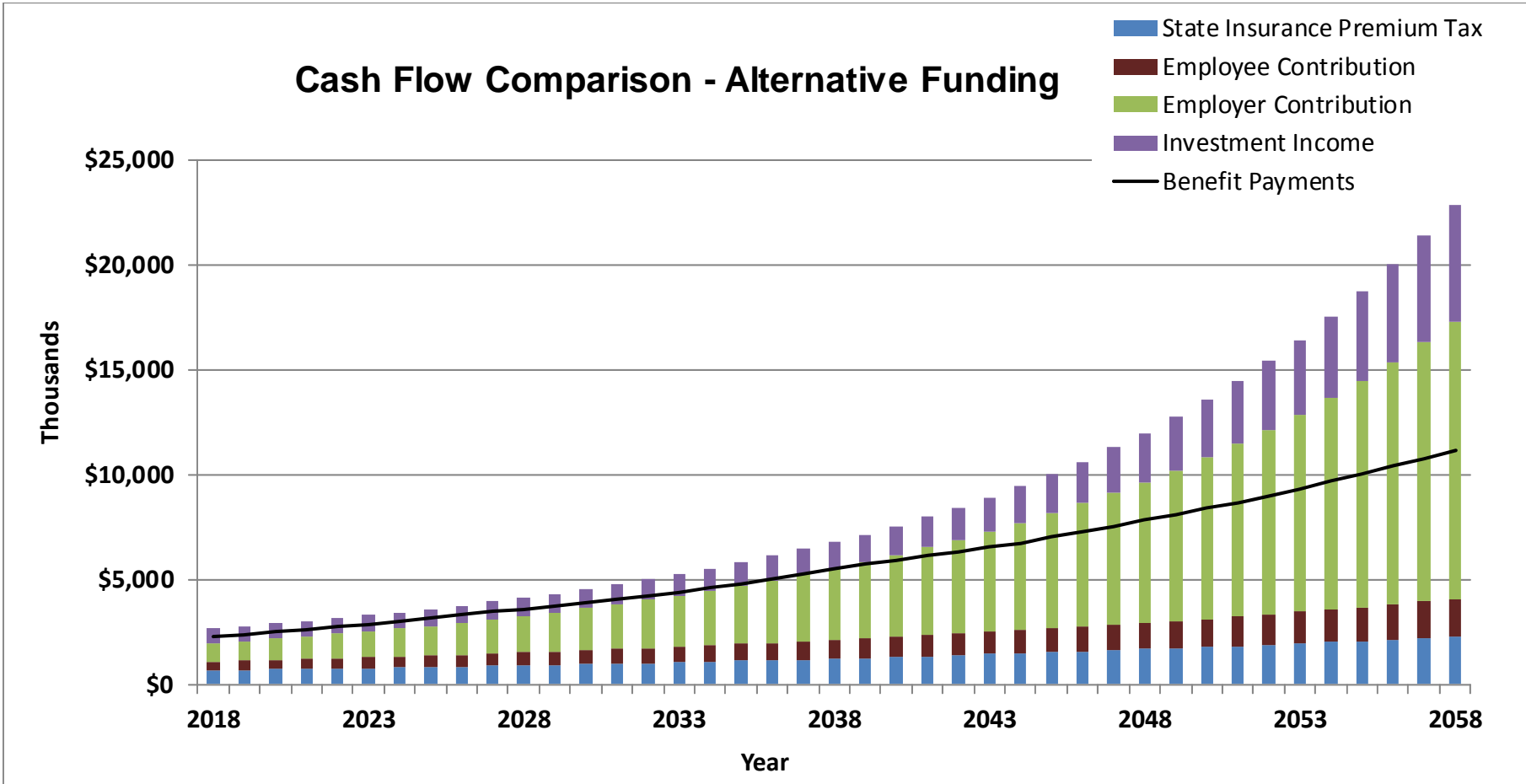
Open Group Actuarial Projections – Alternative Funding, Graph 2



Open Group Actuarial Projections – Alternative Funding, Graph 3



Open Group Actuarial Projections – Alternative Funding, Graph 4



SECTION III

FUNDING POLICY CHOICES

Actuarial Projections –Alternative/Optional/Conservation Funding

Funding Policy Choices

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

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

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

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

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

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

- The first asset account (Benefit Payment Account) is used to finance benefits and expenses for the fiscal year on a pay-as-you-go basis. Sources to pay current year benefits and expenses include active member employee contributions of 8.0% (which is the current contribution rate of 9.5% of pay, less 1.5% which by law goes into the accumulation account), a portion of the premium tax allocation not assigned to the accumulation account as defined below, and employer contributions.
- The second account (Accumulation Account) cannot be used to pay benefits and expenses until assets exceed actuarial accrued liabilities. Contributions to the accumulation account include employee contributions of 1.5% of pay and a percentage of the premium tax allocation. The percentage of premium tax allocation is based on the amounts needed to produce 100% funding of liabilities in 35 years, from adoption, considering assets from both the benefit payment account and the accumulation account. This account also includes the Fund's assets prior to the adoption of Conservation funding policy.

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

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

- Scenario I – The sponsor elects either the Optional funding policy or Conservation funding policy during fiscal year end June 30, 2019, and makes the newly elected contribution in fiscal year end June 30, 2019.
- Scenario II – The sponsor elects either the Optional funding policy or the Conservation funding policy at some future date when/if contributions are projected to be less than under the current Alternative funding policy.

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

Given that the current funded ratio as of June 30, 2017 is only 24% and that the ratio of assets to expected benefits for the year is only 6.71, we strongly recommend that the sponsor make additional contributions in excess of the statutory minimum under either the Alternative or Conservation funding policy.

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

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

Total Employer Contributions for FYE June 30, 2019				
	Local Plan		Statewide Plan	
Funding Method	Amount	Percent of Pay	Amount	Percent of Pay
Alternative	\$944,791	20.7%	NA	NA
Optional	\$3,793,620	87.0%	\$21,652	10.5%
Conservation	\$1,381,276	31.7%	\$21,652	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 \$882,982 in fiscal year end 2018 to \$12,357,163 in fiscal year end 2057. In fiscal year end 2057, the plan is projected to be 42% funded.

If the Optional funding policy is selected in fiscal year end 2019, employer contributions to the local plan for fiscal year end 2019 are projected to increase from \$944,791 to \$3,793,620. However, over the 40-

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

year projection period, total employer contributions to both the local plan and the statewide plan are projected to decrease from \$3,815,272 in fiscal year end 2019 to \$1,536,197 in fiscal year end 2050, and the Plan is projected to be fully funded in 2050.

If the Conservation funding policy is selected in fiscal year end 2019, employer contributions to the local plan for fiscal year end 2019 are projected to increase from \$944,791 to \$1,381,276. During the 35-year projection period, total employer contributions to both the local plan and the statewide plan are projected to increase from \$1,402,928 in fiscal year end 2019 to \$5,913,575 in fiscal year end 2051 and the Plan is projected to be fully funded in 2052.

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

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

The Alternative funding policy produces a lower funded ratio 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

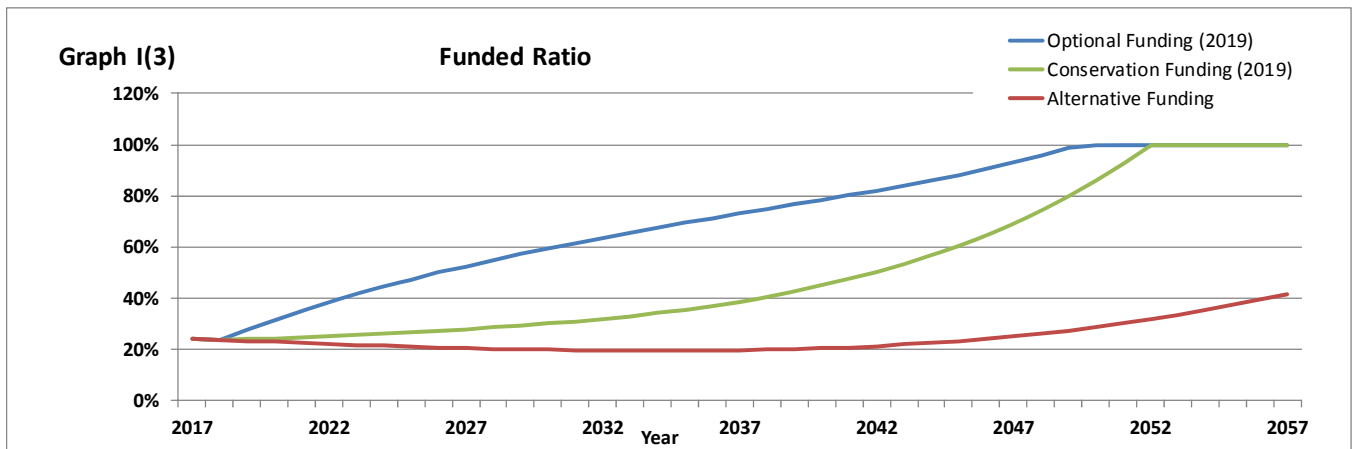
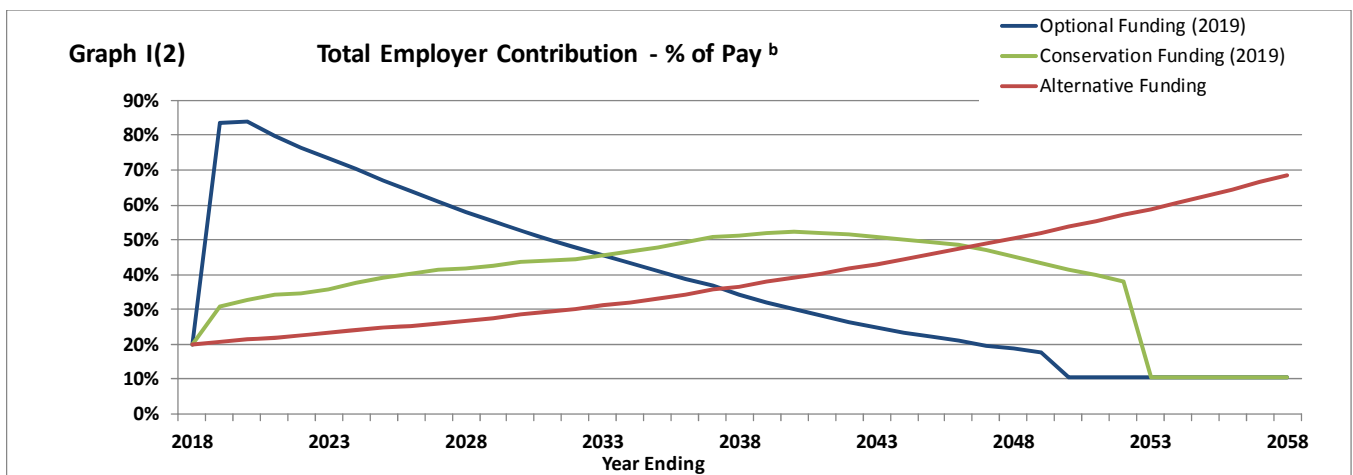
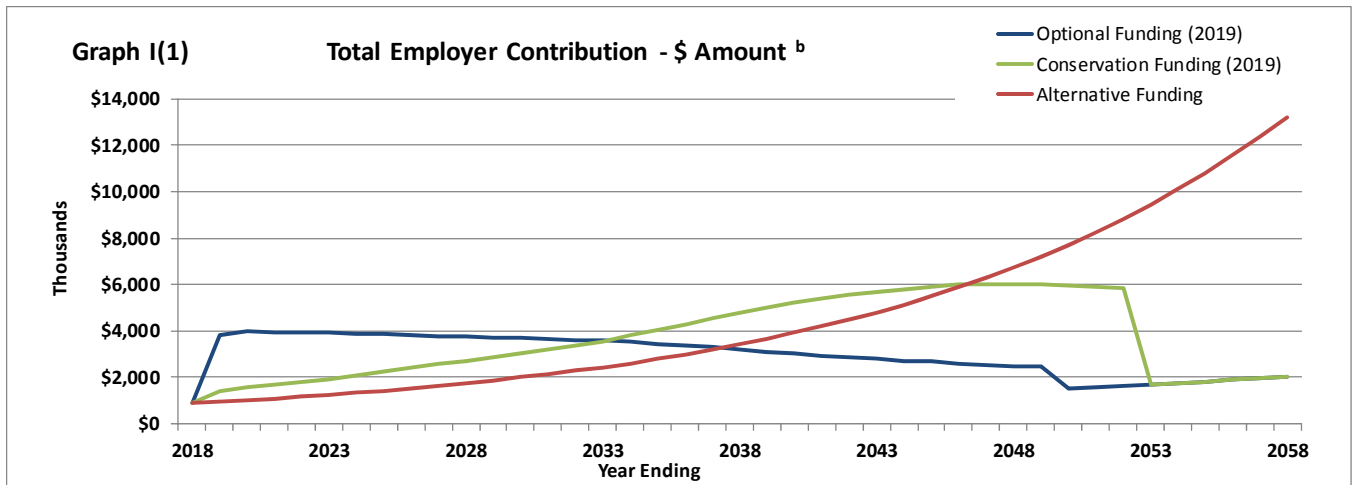
Under Scenario II, the plan sponsor is assumed to make contributions under the Alternative funding policy in future years, until the first year that either the Optional or Conservation policy produces a lower contribution. Under this assumption, the employer contributions under the Optional funding policy are not projected to be lower than contributions under the Alternative funding policy. In plan year end 2042, the employer contributions under the Conservation funding policy of \$4,315,868 are projected to be lower than contributions under the Alternative funding policy of \$4,478,805.

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

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

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

Scenario I

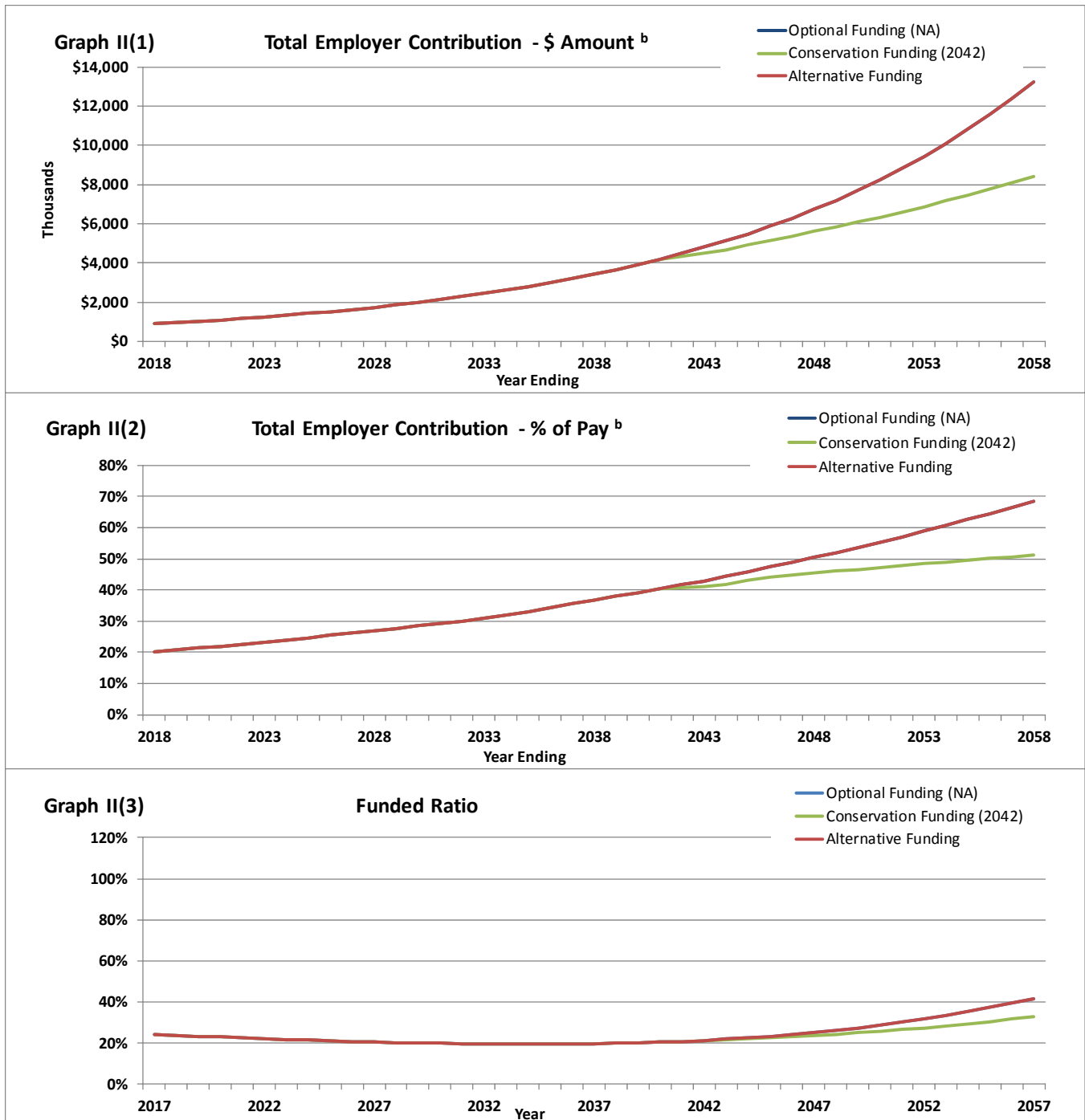


^a Assumes Sponsor elects either the Optional funding policy or Conservation funding policy in fiscal year end June 30, 2019, and makes the newly elected contribution in fiscal year end June 30, 2019.

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

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

Scenario II



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

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

SECTION IV

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

Actuarially Determined Contribution for GASB Statement Nos. 67 and 68 Reporting

Schedule C: Funding Progress and Employer Contributions

Valuation Date	July 1, 2016	July 1, 2017
Valuation Interest Rate	4.50%	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	24 Years, Level % of Pay	23 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	July 1, 2016	July 1, 2017
1. Market Value of Assets	\$13,826,768	\$15,181,765
2. Actuarial Accrued Liability	\$59,195,270	\$62,780,889
3. Unfunded Actuarial Accrued Liability (2 - 1)	\$45,368,502	\$47,599,124
4. Funded Ratio (1/2)	23%	24%
5. Expected Payroll	\$4,054,650	\$4,424,620
6. UAAL as Percentage of Covered Payroll (3/5)	1,119%	1,076%
Schedule of Employer Contributions ^c		
	FYE 2017	FYE 2018
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	\$1,624,631	\$1,745,560
(b) Amortization of Unfunded Actuarial Accrued Liability	\$2,051,057	\$2,237,616
(c) Actuarially Determined Contribution (ADC) (a + b)	\$3,675,688	\$3,983,176
2. Employer Contribution ^b	\$1,073,218	\$882,982
3. Premium Tax Allocation	\$629,967	\$691,798
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	46%	40%

^a Suggested amortization policy to comply with GASB Statement Nos. 67 and 68 Standards.

^b Estimated employer contribution for fiscal year end June 30, 2018.

^c The Alternative minimum contribution plus the premium tax allocation does not satisfy the Actuarially Determined Contribution as defined by GASB Statement Nos. 67 and 68.

SECTION V

ACTUARIAL VALUATION DATA AS OF JULY 1, 2017

Actuarial Valuation Data as of July 1, 2017

Schedule D: Reconciliation of Assets

Plan Year Ending	June 30, 2016	June 30, 2017
A. Market Value of Assets Beginning of Year	\$14,434,407	\$13,826,768
Adjustment to Market Value of Assets at Beginning of Year	\$0	\$0
Market Value of Assets Beginning of Year	\$14,434,407	\$13,826,768
1. Revenue During Fiscal Year		
(a) Employee Contribution	\$360,533	\$423,661
(b) Governmental Contribution		
(i) From Local Government	\$848,356	\$1,073,218
(ii) From State Government	\$597,542	\$629,967
(iii) Reallocation from State Government	\$0	\$0
(iv) Total	\$1,445,898	\$1,703,185
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	(\$648,291)	\$1,061,950
(ii) Bond Interest	\$106,965	\$90,501
(iii) Dividends	\$211,856	\$175,254
(iv) Net Realized Gain (Loss) on Sale/Exchange	\$125,473	\$123,813
(v) Other	\$0	\$0
(vi) Less Investment Expense	(\$109,460)	(\$102,178)
(vii) Total	(\$313,457)	\$1,349,340
(d) Other Revenue	\$267	\$0
(e) Net Receivable Investment Income	\$0	\$0
(f) Receivable Contribution ^a		
(i) From Employee Contributions	\$0	\$0
(ii) From Local Government	\$0	\$0
(iii) From State Government	\$0	\$0
(iv) Total	\$0	\$0
(g) Total Revenue (sum of (a) through (f))	\$1,493,241	\$3,476,186
2. Expenditures During Fiscal Year		
(a) Benefits Paid	\$2,084,457	\$2,117,547
(b) Withdrawals	\$14,429	\$2,082
(c) Administrative Expenses	\$1,994	\$1,560
(d) Payable Benefits and Withdrawals	\$0	\$0
(e) Payable Administrative Expenses	\$0	\$0
(f) Total Expenditures (sum of (a) through (e))	\$2,100,880	\$2,121,189
B. Market Value of Assets End of Year		
[A + 1(g) - 2(f)]	\$13,826,768	\$15,181,765
C. Approximate Return on Assets	(2.21)%	9.75%

^a Receivable contributions for each respective plan year ending.

Actuarial Valuation Data as of July 1, 2017

Schedule E: Assets Held by Category

Plan Year Ending	June 30, 2016		June 30, 2017	
1. Cash and Short-term Investments	\$911,118	7%	\$1,853,253	12%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	\$0		\$979,299	
(b) US State and Local Governmental Debt Securities	\$1,240,191		\$0	
(c) Foreign Governmental Debt Securities	\$0		\$0	
(d) Other	\$0		\$0	
(e) Total Government Securities (sum of (a) through (d))	\$1,240,191	9%	\$979,299	7%
3. Corporate Fixed Income				
(a) US Bonds	\$1,459,580		\$1,135,545	
(b) US Mortgage or other Asset Backed Securities	\$0		\$0	
(c) US Mutual Fund Shares (Bonds)	\$0		\$1,020,905	
(d) US Exchange Traded Funds (Bonds)	\$0		\$0	
(e) International Bonds	\$0		\$0	
(f) International Mutual Fund Shares (Bonds)	\$0		\$0	
(g) International Exchange Traded Funds (Bonds)	\$0		\$0	
(h) Total Corporate Fixed Income (sum of (a) through (g))	\$1,459,580	10%	\$2,156,450	14%
4. Corporate Equity				
(a) US Equity	\$1,517,110		\$379,060	
(b) US Mutual Fund Shares (Equity)	\$0		\$0	
(c) US Exchange Traded Funds (Equity)	\$3,760,760		\$4,317,371	
(d) International Equity	\$2,841,302		\$3,188,900	
(e) International Mutual Fund Shares (Equity)	\$0		\$0	
(f) International Exchange Traded Funds (Equity)	\$0		\$45,161	
(g) Total Corporate Equity (sum of (a) through (f))	\$8,119,172	59%	\$7,930,492	52%
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	\$2,096,707		\$2,262,271	
(e) Total Alternative Investments (sum of (a) through (d))	\$2,096,707	15%	\$2,262,271	15%
6. Other	\$0	0%	\$0	0%
7. Receivable Contributions	\$0			
(a) From Employee Contributions	\$0		\$0	
(b) From Local Government	\$0		\$0	
(c) From State Government	\$0		\$0	
(d) Total Receivable Contributions (sum of (a) through (c))	\$0	0%	\$0	0%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	\$0		\$0	
(b) Less Payable	\$0		\$0	
(c) Total	\$0	0%	\$0	0%
Market Value of Assets End of Year	\$13,826,768		\$15,181,765	
[sum of (1) through (8)]				

Actuarial Valuation Data as of July 1, 2017

Schedule F: Summary of Participant Activity

	Actives	Retirees	Disabled	Deferred Vested	Spouses and Beneficiaries	Totals
Total Participants July 1, 2016:	69	45	8	0	11	133
New Actives:	5					5
Returned to Actives Status:						0
Data Corrections/Other Changes:						0
Vested Terminations:						0
Non-Vested Terminations:						0
Disabled:						0
Retirements:	(2)	2				0
Deaths with Beneficiary:		(1)			1	0
Deaths w/o Beneficiary:		(2)	(1)			(3)
Expired Annuity or Stop Payment:						0
Net Changes:	3	(1)	(1)	0	1	2
Total Participants June 30, 2017:	72	44	7	0	12	135

Actuarial Valuation Data as of July 1, 2017

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

Attained Age	Years of Service to Valuation Date									Totals	Valuation Payroll ^a
	Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35		
Under 20											\$ 0
20-24	2	4								6	\$ 329,515
25-29	2	6	3							11	\$ 551,394
30-34		6	8	5						19	\$ 1,138,377
35-39	1		4	2	3					10	\$ 614,747
40-44			1	2	6	2				11	\$ 722,560
45-49				3	4	5	2			14	\$ 989,125
50-54							1			1	\$ 83,053
55-59											\$ 0
60-64											\$ 0
65-69											\$ 0
Over 70											\$ 0
Totals	5	16	16	12	13	7	3	0	0	72	\$ 4,428,771
Averages _____											
Age: 36.4 years											
Service: 10.7 years											
Annual Pay: \$61,511 ^a											

^a Based on payroll at beginning of plan year.

Actuarial Valuation Data as of July 1, 2017

Schedule H: Participants Summary

Active Participants	July 1, 2016	July 1, 2017
Number of Actives	69	72
Total Annual Pay	\$4,052,129	\$4,428,771
Average Age	36.4	36.4
Average Service	10.8	10.7

Inactive Participants	July 1, 2016		July 1, 2017	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	45	\$1,710,599	44	\$1,799,757
Survivors	11	\$167,098	12	\$186,684
Disabled Members	8	\$200,228	7	\$177,484
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, 2017

Discount Rate

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

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

¹Funded 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).

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

³Based on investment policy.

As of June 30, 2017	
Assets	\$15,181,765
Liabilities using a 5.50% discount rate	\$54,145,189
Funded Ratio	28%
Expected Benefit Payments	\$2,261,662
Liquidity Ratio	6.71
Equity Exposure	52%
Projected Funded Ratio after 15 years	27%

Discount Rate

4.50%

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

The premium tax allocation is projected using the following methodology:

- (1) The Base Allocation for all Pension and Relief Funds is a fixed amount equal to \$8,709,689 in all future years. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible members, which includes active members covered in either the Pension and Relief Fund or the statewide plan, Municipal Police Officers and Firefighters Retirement System (“MPFRS”).
- (2) The Excess Allocation is equal to the excess of the current year premium tax assigned to all Pension and Relief Funds over the total Base Allocation. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible active and retired members covered in either the Pension and Relief Fund or the MPFRS.
- (3) We have assumed all Pension and Relief Funds will make the minimum statutory contribution requirement and will receive 100% of both the Base Allocation and the Excess Allocation assigned to the individual plan. Consequently, the projections do not include any reallocation of Expired Premium Tax Allocation for plan years beginning on and after July 1, 2019.
- (4) The total available premium tax allocation, net of expenses, as of September 1, 2018, includes a Base Allocation of \$8,709,689, an Excess Allocation of \$9,570,473, and an Expired Premium Tax Allocation of \$237,031.
- (5) For the plan year ending June 30, 2018, all Pension and Relief Funds reported a total of 1717 eligible active members and 2165 eligible retired members. The City of Morgantown Policemen’s Pension and Relief Fund reported 71 eligible active members and 65 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2018. The Fund is eligible to receive a premium tax allocation of \$705,979 for the fiscal year ending June 30, 2019.
- (6) The total premium tax allocation was assumed to increase by 2.75% in calendar years ending on and after 2019.

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

General Inflation	2.75%																		
Expected Salary Increase	General Inflation: 2.75% <i>plus</i>																		
Service-based Increase:	Wage Inflation Increment: 1.00% <i>plus</i>																		
	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Years of Service</u></th> <th style="text-align: center;"><u>Increase</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">20.00%</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">6.50%</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">3.50%</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">2.75%</td> </tr> <tr> <td style="text-align: center;">5-9</td> <td style="text-align: center;">2.50%</td> </tr> <tr> <td style="text-align: center;">10-29</td> <td style="text-align: center;">2.00%</td> </tr> <tr> <td style="text-align: center;">30-34</td> <td style="text-align: center;">1.25%</td> </tr> <tr> <td style="text-align: center;">after 34 years of service</td> <td style="text-align: center;">0.00%</td> </tr> </tbody> </table>	<u>Years of Service</u>	<u>Increase</u>	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%
<u>Years of Service</u>	<u>Increase</u>																		
1	20.00%																		
2	6.50%																		
3	3.50%																		
4	2.75%																		
5-9	2.50%																		
10-29	2.00%																		
30-34	1.25%																		
after 34 years of service	0.00%																		
Post-retirement COLA	2.75% on first \$15,000 of Annual Benefit and on the accumulated supplemental pension amounts for prior years. Assumed to be payable to all members receiving payments.																		
Increase in State Insurance Premium Tax Allocation	2.75% on and after year 1																		
Cost Method	Entry-Age-Normal, Level-Percentage-of-Pay																		
<i>Amortization Policies:</i>																			
Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 30 – Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017).																		
Standard Plans and former Standard Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from July 1, 1991 – 14 years remaining as of July 1, 2017)																		
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 32.5 years remaining as of July 1, 2017). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017)																		

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

Asset Method	Market Value										
Turnover	<p>Sample Rates –</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Age</u></th> <th style="text-align: center;"><u>Rates</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">9%</td> </tr> <tr> <td style="text-align: center;">35</td> <td style="text-align: center;">4%</td> </tr> <tr> <td style="text-align: center;">45</td> <td style="text-align: center;">2%</td> </tr> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">0%</td> </tr> </tbody> </table>	<u>Age</u>	<u>Rates</u>	25	9%	35	4%	45	2%	50	0%
<u>Age</u>	<u>Rates</u>										
25	9%										
35	4%										
45	2%										
50	0%										
Retirement	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Age</u></th> <th style="text-align: center;"><u>Rates^a</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">45%</td> </tr> <tr> <td style="text-align: center;">51-55</td> <td style="text-align: center;">30%</td> </tr> <tr> <td style="text-align: center;">56-59</td> <td style="text-align: center;">35%</td> </tr> <tr> <td style="text-align: center;">60</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table> <p>^aTerminated vested participants are assumed to retire at age 50.</p>	<u>Age</u>	<u>Rates^a</u>	50	45%	51-55	30%	56-59	35%	60	100%
<u>Age</u>	<u>Rates^a</u>										
50	45%										
51-55	30%										
56-59	35%										
60	100%										
Mortality	<p>Active: RP-2014 Blue Collar Healthy Employee^b</p> <p>Post-Retirement: RP-2014 Blue Collar Healthy Annuitant</p> <p>Disabled: RP-2014 Blue Collar Healthy Annuitant set forward four years</p> <p>Tables above incorporate generational mortality improvement using MP-2014 2-dimensional mortality improvement scales</p> <p>^bAssumes 10% of deaths are duty-related and 90% are non-duty related.</p>										
Disability	<p>Sample Rates –</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Age</u></th> <th style="text-align: center;"><u>Rates^c</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">30</td> <td style="text-align: center;">0.22%</td> </tr> <tr> <td style="text-align: center;">40</td> <td style="text-align: center;">0.50%</td> </tr> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">0.79%</td> </tr> </tbody> </table> <p>^cAssumes 60% duty related and 40% non-duty related. Also assumes 10% of non-duty disabled members receive a 20% reduction in benefits due to gainful employment.</p>	<u>Age</u>	<u>Rates^c</u>	30	0.22%	40	0.50%	50	0.79%		
<u>Age</u>	<u>Rates^c</u>										
30	0.22%										
40	0.50%										
50	0.79%										
Percent Married	90%										
Spouse Age	Females 3 years younger than males										

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

Administrative Expenses	Plan year end June 30, 2018, expense based on plan year end June 30, 2017 expense increased by general inflation assumption. Future expenses assumed to increase by the general inflation assumption.
Refunds Paid	Assumes non-vested inactive members as of July 1, 2017, with accumulated member contribution balances will receive a refund of their contributions during plan year end June 30, 2018.
Data Adjustments and Assumptions	None
Child Beneficiaries	Future survivor widow benefits are loaded by 12% to estimate impact of benefits provided to survivor children. The load assumes 90% of members are married with two children at time of death, and benefits for each child are paid for approximately 8 years.
General Projection Methodology	<p>Open group projections assume:</p> <ul style="list-style-type: none"> (i) Salaries will increase and members will decrement as specified in the actuarial assumption section. (ii) Active members who retire, become disabled, die or terminate during the year are replaced with new entrants such that the number of active members remains stable during the projection period. Pay for new entrants in future years is increased by the wage inflation assumption. The average age of a new entrant is based on observed experience over the last five years. (iii) Assets grow at the assumed rate of return. (iv) The sponsor makes the statutory required contribution on a monthly basis. (v) Non-vested members with accumulated plan balances as of July 1, 2017, will receive a refund during plan year end June 30, 2018. <p>Closed group projections are the same as the open group projections except active members who retire, become disabled, die, or terminate are <u>not</u> replaced with new entrants.</p>
Decrement Timing	Mid-Year

SECTION VII

SUMMARY OF PRINCIPAL PLAN PROVISIONS

Summary of Principal Plan Provisions

Actuarial Valuation as of July 1, 2017

Employee Eligibility — All compensated employees of the Police Department are eligible to participate in the Policemen's Pension and Relief Fund.

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

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

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

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

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

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

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

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

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

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

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

Summary of Principal Plan Provisions

Actuarial Valuation as of July 1, 2017 (Continued)

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

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

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

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

The benefit is equal to 60% of the participant's benefit, but not less than \$300 per month, payable to the spouse until death or remarriage. Other dependents (children, parents, brothers and sisters) are also eligible for death benefits. To each dependent child, 20 percent of the participant's benefit until the child attains eighteen or marries; to each dependent orphaned child, 25 percent of the participant's benefit until the child attains 18 or marries; to each dependent parent, 10 percent of the participant's benefit for life, and to each dependent brother or sister, the sum of fifty dollars per month (but a total not to exceed \$100 per month) until such individual attains the age of eighteen years or marries.

In no case shall the payments to the surviving spouse and children be reduced below 65 percent of the total amount paid to all dependents.

Supplemental Pension Benefits — All retirees, surviving beneficiaries and disability pensioners are eligible for automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefits equal the percentage increase in the Consumer Price Index, limited to 4% (2% for some disability retirees), multiplied by the sum of the allowable amount which is the first \$15,000 of the total annual benefits paid and the accumulated supplemental pension amounts for prior years.

Termination Benefits — Any member who terminates employment prior to retirement will be entitled to a refund of contributions without interest.

Refunds — Any member who terminates from their department without receiving a retirement pension shall be refunded all deductions made from his salary, without interest. Any member who receives such a refund and subsequently wishes to reenter the department must repay to the pension fund all sums refunded with interest at the rate of eight percent annual.

SECTION VIII

APPENDIX – PROJECTION DATA

Actuarial Projections – Optional Funding in 2019

Table A-1

Valuation Plan	Total Assets														
	Number		Assets							Premium Tax			Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
	Year End 30-Jun	Active	Pay Status	(boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Allocation Contribs.	Investment Income	Assets (eoy)				
2017	72	63	\$13,826,768	\$2,119,629	\$1,560	\$1,073,218	\$423,661	\$629,967	\$1,349,340	\$15,181,765	\$62,780,889	\$47,599,124	24%		
2018	68	64	15,181,765	2,261,662	1,603	882,982	420,339	691,798	677,212	15,590,831	65,506,453	49,915,622	24%		
2019	63	67	15,590,831	2,383,676	1,610	3,793,620	414,449	705,979	757,858	18,877,451	68,200,870	49,323,419	28%		
2020	58	68	18,877,451	2,528,884	1,620	3,916,004	404,237	736,476	905,700	22,309,364	70,815,263	48,505,899	32%		
2021	55	69	22,309,364	2,646,349	1,621	3,865,189	398,412	754,916	1,056,671	25,736,582	73,396,609	47,660,027	35%		
2022	51	71	25,736,582	2,730,056	1,638	3,820,476	395,256	773,850	1,208,389	29,202,859	75,990,119	46,787,260	38%		
2023	48	72	29,202,859	2,848,110	1,659	3,782,776	388,985	794,991	1,361,237	32,681,079	78,542,490	45,861,411	42%		
2024	44	74	32,681,079	2,997,585	1,667	3,731,398	380,108	815,247	1,513,540	36,122,119	81,006,144	44,884,025	45%		
2025	41	75	36,122,119	3,147,781	1,691	3,664,138	370,809	839,618	1,663,882	39,511,095	83,373,021	43,861,926	47%		
2026	38	77	39,511,095	3,284,925	1,715	3,593,189	362,120	864,221	1,812,110	42,856,095	85,654,167	42,798,072	50%		
2027	35	78	42,856,095	3,425,597	1,740	3,522,470	352,917	889,535	1,958,289	46,151,969	87,839,350	41,687,381	53%		
2028	33	79	46,151,969	3,545,933	1,765	3,448,373	345,307	916,016	2,102,696	49,416,663	89,953,159	40,536,496	55%		
2029	30	81	49,416,663	3,679,462	1,791	3,381,287	336,545	941,730	2,245,519	52,640,491	91,973,769	39,333,278	57%		
2030	27	82	52,640,491	3,838,426	1,818	3,307,928	324,836	969,994	2,385,790	55,788,796	93,859,171	38,070,375	59%		
2031	25	83	55,788,796	3,978,371	1,845	3,226,095	314,579	998,013	2,522,923	58,870,191	95,630,734	36,760,543	62%		
2032	23	83	58,870,191	4,110,132	1,872	3,149,254	304,181	1,026,434	2,657,344	61,895,400	97,287,634	35,392,234	64%		
2033	21	84	61,895,400	4,276,568	1,898	3,067,241	289,307	1,056,681	2,788,292	64,818,455	98,767,030	33,948,575	66%		
2034	18	85	64,818,455	4,477,274	1,924	2,964,885	269,763	1,089,515	2,913,381	67,576,801	100,003,411	32,426,610	68%		
2035	16	86	67,576,801	4,666,832	1,950	2,840,700	249,955	1,124,872	3,030,870	70,154,417	100,996,668	30,842,251	69%		
2036	13	87	70,154,417	4,875,003	1,975	2,715,005	226,367	1,159,779	3,139,685	72,518,275	101,697,724	29,179,449	71%		
2037	11	88	72,518,275	5,111,772	1,999	2,569,946	197,465	1,198,357	3,237,776	74,608,048	102,035,843	27,427,795	73%		
2038	10	88	74,608,048	5,290,465	2,024	2,398,901	174,527	1,238,476	3,324,416	76,451,879	102,084,929	25,633,050	75%		
2039	7	88	76,451,879	5,464,337	2,047	2,252,192	151,805	1,275,295	3,400,567	78,065,354	101,838,761	23,773,407	77%		
2040	6	88	78,065,354	5,650,325	2,068	2,102,274	127,235	1,318,382	3,466,111	79,426,963	101,264,821	21,837,858	78%		
2041	5	88	79,426,963	5,782,928	2,089	1,948,983	108,289	1,359,483	3,521,514	80,580,216	100,433,636	19,853,420	80%		
2042	4	87	80,580,216	5,901,353	2,108	1,816,977	89,977	1,401,871	3,568,372	81,553,953	99,350,407	17,796,454	82%		
2043	3	86	81,553,953	5,980,351	2,125	1,686,601	75,495	1,446,173	3,608,195	82,387,940	98,063,381	15,675,441	84%		
2044	2	85	82,387,940	6,055,581	2,141	1,571,053	61,312	1,489,722	3,642,132	83,094,438	96,571,074	13,476,636	86%		
2045	1	84	83,094,438	6,163,729	2,156	1,456,579	43,304	1,536,480	3,669,610	83,634,526	94,816,272	11,181,746	88%		
2046	1	83	83,634,526	6,227,896	2,169	1,328,555	29,001	1,585,404	3,690,408	84,037,830	92,851,064	8,813,234	91%		
2047	1	81	84,037,830	6,233,641	2,180	1,209,971	20,191	1,634,080	3,706,677	84,372,928	90,750,350	6,377,422	93%		
2048	0	79	84,372,928	6,213,608	2,190	1,106,411	14,150	1,684,097	3,720,876	84,682,664	88,547,453	3,864,789	96%		
2049	0	78	84,682,664	6,176,397	2,198	1,010,740	9,774	1,735,213	3,734,553	84,994,349	86,263,124	1,268,775	99%		
2050	0	76	84,994,349	6,126,604	2,205	36,321	6,488	1,285,364	3,717,920	83,911,633	83,911,633	0	100%		
2051	0	74	83,911,633	6,065,436	2,210	16,600	4,192	0	3,641,466	81,506,245	81,506,245	0	100%		
2052	0	72	81,506,245	5,995,743	2,213	10,779	2,537	0	3,534,608	79,056,214	79,056,213	0	100%		
2053	0	70	79,056,214	5,917,496	2,215	7,366	1,557	0	3,426,000	76,571,426	76,571,425	0	100%		
2054	0	68	76,571,426	5,833,664	2,216	5,053	869	0	3,315,983	74,057,451	74,057,451	0	100%		
2055	0	66	74,057,451	5,745,878	2,215	2,984	244	0	3,204,748	71,517,334	71,517,334	0	100%		
2056	0	65	71,517,334	5,651,723	2,212	2,214	0	0	3,092,516	68,958,129	68,958,128	0	100%		
2057	0	63	68,958,129	5,552,214	2,208	2,208	0	0	2,979,566	66,385,481	66,385,480	0	100%		

Actuarial Projections – Optional Funding in 2019

Table A-2

Employer Contributions

Valuation Plan Year End 30-Jun ^a	Closed Group Payroll	New Entrant Payroll	Total Payroll	Employee Contributions	Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Premium Tax Allocation Contributions	Net Employer Amortization	Expenses	Optional Employer Contribution	Statewide Employer Contribution
2018	\$4,424,620	\$0	\$4,424,620	\$420,339	\$2,164,296	\$1,743,957	\$2,754,039	\$705,979	\$2,048,060	\$1,603	\$3,793,620	\$0
2019	4,362,620	206,206	4,568,826	414,449	2,135,807	1,721,358	2,929,512	736,476	2,193,036	1,610	3,916,004	21,652
2020	4,255,129	475,111	4,730,240	404,237	2,083,898	1,679,661	2,938,824	754,916	2,183,908	1,620	3,865,189	49,887
2021	4,193,808	748,447	4,942,255	398,412	2,054,281	1,655,869	2,936,835	773,850	2,162,985	1,621	3,820,476	78,587
2022	4,160,588	984,113	5,144,701	395,256	2,036,179	1,640,923	2,935,206	794,991	2,140,215	1,638	3,782,776	103,332
2023	4,094,577	1,243,860	5,338,438	388,985	1,999,828	1,610,843	2,934,143	815,247	2,118,896	1,659	3,731,398	130,605
2024	4,001,132	1,534,409	5,535,541	380,108	1,950,089	1,569,981	2,932,107	839,618	2,092,489	1,667	3,664,138	161,113
2025	3,903,255	1,847,192	5,750,447	370,809	1,897,279	1,526,470	2,929,249	864,221	2,065,028	1,691	3,593,189	193,955
2026	3,811,788	2,170,676	5,982,464	362,120	1,846,326	1,484,206	2,926,084	889,535	2,036,549	1,715	3,522,470	227,921
2027	3,714,917	2,503,471	6,218,387	352,917	1,792,654	1,439,737	2,922,912	916,016	2,006,896	1,740	3,448,373	262,864
2028	3,634,815	2,853,087	6,487,902	345,307	1,747,054	1,401,747	2,919,505	941,730	1,977,775	1,765	3,381,287	299,574
2029	3,542,578	3,187,929	6,730,507	336,545	1,696,218	1,359,673	2,916,458	969,994	1,946,464	1,791	3,307,928	334,733
2030	3,419,329	3,579,272	6,998,602	324,836	1,634,076	1,309,240	2,913,051	998,013	1,915,038	1,818	3,226,095	375,824
2031	3,311,360	3,969,421	7,280,781	314,579	1,579,576	1,264,997	2,908,846	1,026,434	1,882,412	1,845	3,149,254	416,789
2032	3,201,906	4,370,119	7,572,025	304,181	1,521,290	1,217,109	2,904,941	1,056,681	1,848,260	1,872	3,067,241	458,863
2033	3,045,342	4,795,737	7,841,079	289,307	1,441,208	1,151,901	2,900,601	1,089,515	1,811,086	1,898	2,964,885	503,552
2034	2,839,612	5,278,753	8,118,365	269,763	1,338,877	1,069,114	2,894,534	1,124,872	1,769,662	1,924	2,840,700	554,269
2035	2,631,110	5,791,341	8,422,451	249,955	1,236,331	986,376	2,886,459	1,159,779	1,726,680	1,950	2,715,005	608,091
2036	2,382,809	6,309,032	8,691,841	226,367	1,114,901	888,534	2,877,794	1,198,357	1,679,437	1,975	2,569,946	662,448
2037	2,078,582	6,900,139	8,978,721	197,465	965,746	768,281	2,867,097	1,238,476	1,628,621	1,999	2,398,901	724,515
2038	1,837,128	7,502,666	9,339,794	174,527	846,815	672,288	2,853,175	1,275,295	1,577,880	2,024	2,252,192	787,780
2039	1,597,946	8,039,307	9,637,252	151,805	729,688	577,883	2,840,726	1,318,382	1,522,344	2,047	2,102,274	844,127
2040	1,339,319	8,656,307	9,995,626	127,235	605,895	478,660	2,827,738	1,359,483	1,468,255	2,068	1,948,983	908,912
2041	1,139,887	9,229,607	10,369,494	108,289	512,084	403,795	2,812,965	1,401,871	1,411,094	2,089	1,816,977	969,109
2042	947,125	9,800,875	10,748,000	89,977	420,594	330,617	2,800,049	1,446,173	1,353,876	2,108	1,686,601	1,029,092
2043	794,680	10,389,576	11,184,256	75,495	347,876	272,381	2,786,269	1,489,722	1,296,547	2,125	1,571,053	1,090,905
2044	645,393	10,934,711	11,580,104	61,312	278,979	217,667	2,773,251	1,536,480	1,236,771	2,141	1,456,579	1,148,145
2045	455,834	11,512,177	11,968,011	43,304	196,032	152,728	2,759,076	1,585,404	1,173,672	2,156	1,328,555	1,208,779
2046	305,278	12,096,066	12,401,343	29,001	131,619	102,618	2,739,265	1,634,080	1,105,185	2,169	1,209,971	1,270,087
2047	212,541	12,648,212	12,860,753	20,191	91,288	71,097	2,717,231	1,684,097	1,033,134	2,180	1,106,411	1,328,062
2048	148,951	13,192,050	13,341,001	14,150	63,797	49,647	2,694,117	1,735,213	958,904	2,190	1,010,740	1,385,165
2049	102,882	13,733,927	13,836,809	9,774	43,897	34,123	2,662,735	1,285,364	874,605	2,198	36,321	^b 1,442,062
2050	68,291	14,284,535	14,352,826	6,488	28,953	22,465	0	0	0	2,205	16,600	^b 1,499,876
2051	44,124	14,846,812	14,890,936	4,192	18,582	14,390	0	0	0	2,210	10,779	^b 1,558,915
2052	26,709	15,423,293	15,450,003	2,537	11,095	8,558	0	0	0	2,213	7,366	^b 1,619,446
2053	16,389	16,015,717	16,032,106	1,557	6,707	5,150	0	0	0	2,215	5,053	^b 1,681,650
2054	9,148	16,624,157	16,633,305	869	3,705	2,836	0	0	0	2,216	2,984	^b 1,745,536
2055	2,566	17,255,870	17,258,436	244	1,011	767	0	0	0	2,215	2,214	^b 1,811,866
2056	0	17,907,969	17,907,969	0	0	0	0	0	0	2,212	2,208	^b 1,880,337
2057	0	18,580,126	18,580,126	0	0	0	0	0	0	2,208	2,202	^b 1,950,913

^a Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year.

^b Amount required to remain at 100% funded.

Actuarial Projections – Conservation Funding in 2019

Table A-3

Valuation			Total Assets										Actuarial		
Plan	Number		Assets			Employer		Employee		Premium Tax		Assets	Accrued	Unfunded	Funded
Year End	Active	Pay Status	(boy)	Benefit Payments	Expenses	Contribs.	Contribs.	Allocation	Investment	Income	(eoy)	Liability	Liability	Ratio	
30-Jun															
2017	72	63	\$13,826,768	\$2,119,629	\$1,560	\$1,073,218	\$423,661	\$629,967	\$1,349,340	\$15,181,765	\$62,780,889	\$47,599,124	24%		
2018	68	64	15,181,765	2,261,662	1,603	882,982	420,339	691,798	677,213	15,590,832	65,506,453	49,915,621	24%		
2019	63	67	15,590,832	2,383,676	1,610	1,381,276	414,449	705,979	704,178	16,411,428	68,200,870	51,789,441	24%		
2020	58	68	16,411,428	2,528,884	1,620	1,506,800	404,237	736,476	741,118	17,269,555	70,815,263	53,545,708	24%		
2021	55	69	17,269,555	2,646,349	1,621	1,612,062	398,412	754,916	779,743	18,166,718	73,396,609	55,229,891	25%		
2022	51	71	18,166,718	2,730,056	1,638	1,680,878	395,256	773,850	820,135	19,105,143	75,990,119	56,884,976	25%		
2023	48	72	19,105,143	2,848,110	1,659	1,784,619	388,985	794,991	862,376	20,086,345	78,542,490	58,456,145	26%		
2024	44	74	20,086,345	2,997,585	1,667	1,922,784	380,108	815,247	906,531	21,111,763	81,006,144	59,894,381	26%		
2025	41	75	21,111,763	3,147,781	1,691	2,058,223	370,809	839,618	952,681	22,183,622	83,373,021	61,189,399	27%		
2026	38	77	22,183,622	3,284,925	1,715	2,179,882	362,120	864,221	1,000,924	23,304,130	85,654,167	62,350,037	27%		
2027	35	78	23,304,130	3,425,597	1,740	2,304,843	352,917	889,535	1,051,355	24,475,443	87,839,350	63,363,908	28%		
2028	33	79	24,475,443	3,545,933	1,765	2,407,044	345,307	916,016	1,104,080	25,700,191	89,953,159	64,252,967	29%		
2029	30	81	25,700,191	3,679,462	1,791	2,524,120	336,545	941,730	1,159,204	26,980,538	91,973,769	64,993,232	29%		
2030	27	82	26,980,538	3,838,426	1,818	2,666,748	324,836	969,994	1,216,824	28,318,696	93,859,171	65,540,475	30%		
2031	25	83	28,318,696	3,978,371	1,845	2,789,361	314,579	998,013	1,277,050	29,717,483	95,630,734	65,913,251	31%		
2032	23	83	29,717,483	4,110,132	1,872	2,903,538	304,181	1,026,434	1,340,005	31,179,637	97,287,634	66,107,997	32%		
2033	21	84	31,179,637	4,276,568	1,898	3,054,462	289,307	1,056,681	1,405,798	32,707,419	98,767,030	66,059,611	33%		
2034	18	85	32,707,419	4,477,274	1,924	3,241,189	269,763	1,089,515	1,474,532	34,303,220	100,003,411	65,700,191	34%		
2035	16	86	34,303,220	4,666,832	1,950	3,414,650	249,955	1,124,872	1,546,331	35,970,246	100,996,668	65,026,422	36%		
2036	13	87	35,970,246	4,875,003	1,975	3,610,323	226,367	1,159,779	1,621,320	37,711,057	101,697,724	63,986,666	37%		
2037	11	88	37,711,057	5,111,772	1,999	3,835,663	197,465	1,198,357	1,699,617	39,528,388	102,035,843	62,507,455	39%		
2038	10	88	39,528,388	5,290,465	2,024	3,996,475	174,527	1,238,476	1,781,381	41,426,757	102,084,929	60,658,172	41%		
2039	7	88	41,426,757	5,464,337	2,047	4,155,343	151,805	1,275,295	1,866,787	43,409,604	101,838,761	58,429,157	43%		
2040	6	88	43,409,604	5,650,325	2,068	4,322,068	127,235	1,318,382	1,955,998	45,480,893	101,264,821	55,783,927	45%		
2041	5	88	45,480,893	5,782,928	2,089	4,432,512	108,289	1,359,483	2,049,205	47,645,366	100,433,636	52,788,270	47%		
2042	4	87	47,645,366	5,901,353	2,108	4,527,050	89,977	1,401,871	2,146,610	49,907,413	99,350,407	49,442,993	50%		
2043	3	86	49,907,413	5,980,351	2,125	4,577,158	75,495	1,446,173	2,248,423	52,272,186	98,063,381	45,791,195	53%		
2044	2	85	52,272,186	6,055,581	2,141	4,623,943	61,312	1,489,722	2,354,858	54,744,299	96,571,074	41,826,774	57%		
2045	1	84	54,744,299	6,163,729	2,156	4,703,890	43,304	1,536,480	2,466,115	57,328,203	94,816,272	37,488,069	60%		
2046	1	83	57,328,203	6,227,896	2,169	4,734,722	29,001	1,585,404	2,582,419	60,029,685	92,851,064	32,821,379	65%		
2047	1	81	60,029,685	6,233,641	2,180	4,702,737	20,191	1,634,080	2,704,033	62,854,904	90,750,350	27,895,446	69%		
2048	0	79	62,854,904	6,213,608	2,190	4,641,395	14,150	1,684,097	2,831,227	65,809,976	88,547,453	22,737,478	74%		
2049	0	78	65,809,976	6,176,397	2,198	4,560,452	9,774	1,735,213	2,964,272	68,901,092	86,263,124	17,362,031	80%		
2050	0	76	68,901,092	6,126,604	2,205	4,464,337	6,488	1,788,130	3,103,445	72,134,684	83,911,633	11,776,949	86%		
2051	0	74	72,134,684	6,065,436	2,210	4,354,660	4,192	1,842,506	3,249,036	75,517,431	81,506,245	5,988,814	93%		
2052	0	72	75,517,431	5,995,743	2,213	4,234,395	2,537	1,898,462	3,401,343	79,056,212	79,056,213	0	100%		
2053	0	70	79,056,212	5,917,496	2,215	7,365	1,557	0	3,426,000	76,571,424	76,571,425	0	100%		
2054	0	68	76,571,424	5,833,664	2,216	5,055	869	0	3,315,983	74,057,451	74,057,451	0	100%		
2055	0	66	74,057,451	5,745,878	2,215	2,984	244	0	3,204,748	71,517,334	71,517,334	0	100%		
2056	0	65	71,517,334	5,651,723	2,212	2,213	0	0	3,092,516	68,958,128	68,958,128	0	100%		
2057	0	63	68,958,128	5,552,214	2,208	2,208	0	0	2,979,566	66,385,480	66,385,480	0	100%		

Actuarial Projections – Conservation Funding in 2019

Table A-4

Plan Year End	Benefit Payment Account ^a							Accumulation Account ^b						Statewide Employer Contribution
	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	8.00% of Pay Employee Contribs.	92.78% 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.	7.22% of Premium Tax Allocation	Investment Income	
2018	\$15,181,765	\$2,263,265	\$882,982	\$420,339	\$691,798	\$677,213	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2019	15,590,832	2,385,286	1,381,276	349,010	655,000	701,587	(16,292,419)	16,292,419	0	0	65,439	50,979	2,591	21,652
2020	0	2,530,504	1,506,800	340,410	683,294	0	0	16,411,429	0	0	63,827	53,182	741,118	49,887
2021	0	2,647,970	1,612,062	335,505	700,403	0	0	17,269,556	0	0	62,907	54,513	779,743	78,587
2022	0	2,731,694	1,680,878	332,847	717,969	0	0	18,166,719	0	0	62,409	55,880	820,135	103,332
2023	0	2,849,769	1,784,619	327,566	737,584	0	0	19,105,143	0	0	61,419	57,407	862,376	130,605
2024	0	2,999,252	1,922,784	320,091	756,377	0	0	20,086,345	0	0	60,017	58,870	906,531	161,113
2025	0	3,149,472	2,058,223	312,260	778,989	0	0	21,111,763	0	0	58,549	60,630	952,681	193,955
2026	0	3,286,640	2,179,882	304,943	801,815	0	0	22,183,623	0	0	57,177	62,406	1,000,924	227,921
2027	0	3,427,337	2,304,843	297,193	825,301	0	0	23,304,130	0	0	55,724	64,234	1,051,355	262,864
2028	0	3,547,698	2,407,044	290,785	849,869	0	0	24,475,443	0	0	54,522	66,146	1,104,080	299,574
2029	0	3,681,253	2,524,120	283,406	873,727	0	0	25,700,192	0	0	53,139	68,003	1,159,204	334,733
2030	0	3,840,244	2,666,748	273,546	899,950	0	0	26,980,538	0	0	51,290	70,044	1,216,824	375,824
2031	0	3,980,216	2,789,361	264,909	925,946	0	0	28,318,696	0	0	49,670	72,068	1,277,050	416,789
2032	0	4,112,004	2,903,538	256,152	952,314	0	0	29,717,484	0	0	48,029	74,120	1,340,005	458,863
2033	0	4,278,466	3,054,462	243,627	980,377	0	0	31,179,638	0	0	45,680	76,304	1,405,798	503,552
2034	0	4,479,198	3,241,189	227,169	1,010,840	0	0	32,707,420	0	0	42,594	78,675	1,474,532	554,269
2035	0	4,668,782	3,414,650	210,488	1,043,644	0	0	34,303,221	0	0	39,467	81,228	1,546,331	608,091
2036	0	4,876,978	3,610,323	190,625	1,076,030	0	0	35,970,247	0	0	35,742	83,749	1,621,320	662,448
2037	0	5,113,771	3,835,663	166,286	1,111,822	0	0	37,711,058	0	0	31,179	86,535	1,699,617	724,515
2038	0	5,292,489	3,996,475	146,970	1,149,044	0	0	39,528,388	0	0	27,557	89,432	1,781,381	787,780
2039	0	5,466,384	4,155,343	127,836	1,183,205	0	0	41,426,758	0	0	23,969	92,090	1,866,787	844,127
2040	0	5,652,393	4,322,068	107,145	1,223,180	0	0	43,409,604	0	0	20,090	95,202	1,955,998	908,912
2041	0	5,785,017	4,432,512	91,191	1,261,314	0	0	45,480,894	0	0	17,098	98,170	2,049,205	969,109
2042	0	5,903,461	4,527,050	75,770	1,300,641	0	0	47,645,366	0	0	14,207	101,231	2,146,610	1,029,092
2043	0	5,982,476	4,577,158	63,575	1,341,743	0	0	49,907,414	0	0	11,920	104,430	2,248,423	1,090,905
2044	0	6,057,722	4,623,943	51,631	1,382,148	0	0	52,272,186	0	0	9,681	107,574	2,354,858	1,148,145
2045	0	6,165,885	4,703,890	36,466	1,425,529	0	0	54,744,300	0	0	6,838	110,951	2,466,115	1,208,779
2046	0	6,230,065	4,734,722	24,422	1,470,921	0	0	57,328,204	0	0	4,579	114,484	2,582,419	1,270,087
2047	0	6,235,821	4,702,737	17,003	1,516,081	0	0	60,029,685	0	0	3,188	117,999	2,704,033	1,328,062
2048	0	6,215,798	4,641,395	11,916	1,562,487	0	0	62,854,905	0	0	2,234	121,610	2,831,227	1,385,165
2049	0	6,178,595	4,560,452	8,231	1,609,912	0	0	65,809,976	0	0	1,543	125,301	2,964,272	1,442,062
2050	0	6,128,809	4,464,337	5,464	1,659,008	0	0	68,901,093	0	0	1,024	129,123	3,103,445	1,499,876
2051	0	6,067,646	4,354,660	3,530	1,709,456	0	0	72,134,684	0	0	662	133,049	3,249,036	1,558,915
2052	0	5,997,903	4,234,395	2,136	1,761,373	0	0	75,517,431	53	0	401	137,090	3,401,343	1,619,446
2053	0	0	0	0	0	0	0	79,056,212	5,919,711	7,365	1,557	0	3,426,000	1,681,650
2054	0	0	0	0	0	0	0	76,571,423	5,835,880	5,055	869	0	3,315,984	1,745,536
2055	0	0	0	0	0	0	0	74,057,451	5,748,093	2,984	244	0	3,204,748	1,811,866
2056	0	0	0	0	0	0	0	71,517,334	5,653,935	2,213	0	0	3,092,516	1,880,337
2057	0	0	0	0	0	0	0	68,958,128	5,554,422	2,208	0	0	2,979,566	1,950,913

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

^b Assets accumulate in the Pension and Relief Fund.

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

Actuarial Projections – Optional Funding in (N/A)

Table A-5

Valuation Plan	Total Assets													
	Number		Assets							Premium Tax		Actuarial Liability	Unfunded Liability	Funded Ratio
	Year End	30-Jun	Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Allocation Contribs.	Investment Income	Assets (eoy)				
2017	72	63	\$13,826,768	\$2,119,629	\$1,560	\$1,073,218	\$423,661	\$629,967	\$1,349,340	\$15,181,765	\$62,780,889	\$47,599,124	24%	
2018	72	64	15,181,765	2,261,662	1,603	882,982	420,339	691,798	677,212	15,590,831	65,548,569	49,957,738	24%	
2019	72	67	15,590,831	2,383,676	1,664	944,791	434,736	705,979	694,915	15,985,912	68,398,551	52,412,639	23%	
2020	72	68	15,985,912	2,529,729	1,739	1,010,926	450,274	736,476	711,938	16,364,058	71,305,617	54,941,559	23%	
2021	72	69	16,364,058	2,649,745	1,802	1,081,691	470,375	754,916	728,715	16,748,208	74,315,811	57,567,603	23%	
2022	72	71	16,748,208	2,737,509	1,867	1,157,409	489,476	773,850	746,579	17,176,145	77,474,012	60,297,867	22%	
2023	72	72	17,176,145	2,860,670	1,941	1,238,428	508,069	794,991	765,780	17,620,803	80,744,868	63,124,065	22%	
2024	72	74	17,620,803	3,016,031	2,008	1,325,118	527,134	815,247	785,135	18,055,398	84,099,969	66,044,571	21%	
2025	72	76	18,055,398	3,173,113	2,092	1,417,876	547,953	839,618	804,265	18,489,905	87,546,584	69,056,679	21%	
2026	72	77	18,489,905	3,318,212	2,177	1,517,127	570,413	864,221	823,843	18,945,120	91,108,278	72,163,158	21%	
2027	72	79	18,945,120	3,467,939	2,261	1,623,326	593,272	889,535	844,429	19,425,483	94,789,068	75,363,585	20%	
2028	72	80	19,425,483	3,598,393	2,347	1,736,959	619,412	916,016	866,840	19,963,970	98,624,037	78,660,067	20%	
2029	72	81	19,963,970	3,743,043	2,427	1,858,546	642,988	941,730	891,653	20,553,417	102,608,108	82,054,691	20%	
2030	72	82	20,553,417	3,914,095	2,519	1,988,644	669,335	969,994	918,480	21,183,256	106,724,482	85,541,226	20%	
2031	72	83	21,183,256	4,067,175	2,608	2,127,849	696,922	998,013	947,750	21,884,008	111,007,643	89,123,635	20%	
2032	72	84	21,884,008	4,213,291	2,696	2,276,798	725,478	1,026,434	980,613	22,677,344	115,476,239	92,798,895	20%	
2033	72	85	22,677,344	4,395,296	2,786	2,436,174	752,061	1,056,681	1,017,072	23,541,250	120,098,337	96,557,087	20%	
2034	72	87	23,541,250	4,612,923	2,886	2,606,706	779,618	1,089,515	1,056,241	24,457,522	124,843,770	100,386,248	20%	
2035	72	87	24,457,522	4,821,159	2,987	2,789,175	809,690	1,124,872	1,098,355	25,455,468	129,736,653	104,281,185	20%	
2036	72	89	25,455,468	5,050,098	3,085	2,984,417	836,443	1,159,779	1,143,882	26,526,805	134,759,815	108,233,010	20%	
2037	72	90	26,526,805	5,310,027	3,196	3,193,326	864,157	1,198,357	1,192,430	27,661,851	139,884,133	112,222,282	20%	
2038	72	90	27,661,851	5,514,313	3,306	3,416,859	897,233	1,238,476	1,245,561	28,942,361	145,194,342	116,251,981	20%	
2039	72	91	28,942,361	5,716,854	3,403	3,656,039	923,804	1,275,295	1,305,408	30,382,650	150,686,176	120,303,526	20%	
2040	72	92	30,382,650	5,947,743	3,520	3,911,962	956,618	1,318,382	1,372,464	31,990,813	156,339,812	124,348,999	20%	
2041	72	92	31,990,813	6,145,096	3,628	4,185,799	990,083	1,359,483	1,448,190	33,825,644	162,212,240	128,386,596	21%	
2042	72	93	33,825,644	6,351,092	3,740	4,478,805	1,023,744	1,401,871	1,534,384	35,909,617	168,307,093	132,397,476	21%	
2043	72	93	35,909,617	6,542,546	3,858	4,792,321	1,062,486	1,446,173	1,632,724	38,296,917	174,661,339	136,364,422	22%	
2044	72	94	38,296,917	6,758,196	3,972	5,127,728	1,096,948	1,489,722	1,744,552	40,993,755	181,255,654	140,261,899	23%	
2045	72	95	40,993,755	7,039,093	4,098	5,486,782	1,130,788	1,536,480	1,869,437	43,973,996	188,026,963	144,052,967	23%	
2046	72	95	43,973,996	7,311,059	4,230	5,870,799	1,168,902	1,585,404	2,007,976	47,291,788	195,005,495	147,713,707	24%	
2047	72	96	47,291,788	7,561,046	4,361	6,281,755	1,209,755	1,634,080	2,162,848	51,014,819	202,237,390	151,222,571	25%	
2048	72	96	51,014,819	7,821,259	4,493	6,721,478	1,253,110	1,684,097	2,336,454	55,184,206	209,736,528	154,552,322	26%	
2049	72	97	55,184,206	8,097,511	4,629	7,191,981	1,298,329	1,735,213	2,530,540	59,838,129	217,513,986	157,675,857	28%	
2050	72	97	59,838,129	8,388,081	4,769	7,695,420	1,346,056	1,788,130	2,746,940	65,021,825	225,578,696	160,556,871	29%	
2051	72	97	65,021,825	8,692,367	4,913	8,234,099	1,396,109	1,842,506	2,987,743	70,785,002	233,944,928	163,159,926	30%	
2052	72	98	70,785,002	9,008,880	5,060	8,810,486	1,448,043	1,898,462	3,255,265	77,183,319	242,626,566	165,443,247	32%	
2053	72	98	77,183,319	9,335,800	5,211	9,427,220	1,502,211	1,956,209	3,552,126	84,280,074	251,638,581	167,358,507	33%	
2054	72	99	84,280,074	9,675,900	5,367	10,087,125	1,558,383	2,015,692	3,881,166	92,141,174	260,992,672	168,851,498	35%	
2055	72	99	92,141,174	10,030,996	5,527	10,793,224	1,616,795	2,077,526	4,245,399	100,837,595	270,700,625	169,863,030	37%	
2056	72	99	100,837,595	10,398,286	5,692	11,548,750	1,677,238	2,141,416	4,648,140	110,449,161	280,779,525	170,330,364	39%	
2057	72	100	110,449,161	10,777,464	5,862	12,357,163	1,740,254	2,207,560	5,093,083	121,063,895	291,241,534	170,177,639	42%	

Actuarial Projections – Optional Funding in (N/A)

Table A-6

Valuation Plan Year End 30-Jun ^{ab}	Employer Contributions								Minimum Payment			Statewide Employer Contribution
	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	
2018	\$4,424,620	\$420,339	\$2,164,296	\$1,743,957	\$2,754,039	\$705,979	\$2,048,060	\$1,603	\$3,793,620	\$944,791	\$944,791	\$0
2019	4,568,826	434,736	2,234,747	1,800,010	2,931,983	736,476	2,195,507	1,664	3,997,181	1,010,926	1,010,926	0
2020	4,730,240	450,274	2,312,189	1,861,915	3,122,888	754,916	2,367,972	1,739	4,231,627	1,081,691	1,081,691	0
2021	4,942,255	470,375	2,414,393	1,944,019	3,326,488	773,850	2,552,638	1,802	4,498,459	1,157,409	1,157,409	0
2022	5,144,701	489,476	2,510,311	2,020,835	3,545,377	794,991	2,750,386	1,867	4,773,088	1,238,428	1,238,428	0
2023	5,338,438	508,069	2,599,703	2,091,633	3,781,426	815,247	2,966,179	1,941	5,059,753	1,325,118	1,325,118	0
2024	5,535,541	527,134	2,690,680	2,163,546	4,035,779	839,618	3,196,161	2,008	5,361,715	1,417,876	1,417,876	0
2025	5,750,447	547,953	2,789,482	2,241,529	4,310,242	864,221	3,446,021	2,092	5,689,642	1,517,127	1,517,127	0
2026	5,982,464	570,413	2,895,520	2,325,107	4,606,857	889,535	3,717,322	2,177	6,044,605	1,623,326	1,623,326	0
2027	6,218,387	593,272	3,003,547	2,410,275	4,928,412	916,016	4,012,396	2,261	6,424,932	1,736,959	1,736,959	0
2028	6,487,902	619,412	3,127,956	2,508,544	5,277,960	941,730	4,336,230	2,347	6,847,121	1,858,546	1,858,546	0
2029	6,730,507	642,988	3,240,290	2,597,302	5,659,314	969,994	4,689,320	2,427	7,289,049	1,988,644	1,988,644	0
2030	6,998,602	669,335	3,368,632	2,699,298	6,077,029	998,013	5,079,016	2,519	7,780,832	2,127,849	2,127,849	0
2031	7,280,781	696,922	3,504,318	2,807,396	6,535,956	1,026,434	5,509,522	2,608	8,319,526	2,276,798	2,276,798	0
2032	7,572,025	725,478	3,641,502	2,916,024	7,042,847	1,056,681	5,986,166	2,696	8,904,886	2,436,174	2,436,174	0
2033	7,841,079	752,061	3,769,045	3,016,984	7,605,413	1,089,515	6,515,898	2,786	9,535,668	2,606,706	2,606,706	0
2034	8,118,365	779,618	3,902,084	3,122,465	8,232,679	1,124,872	7,107,807	2,886	10,233,158	2,789,175	2,789,175	0
2035	8,422,451	809,690	4,049,365	3,239,674	8,935,896	1,159,779	7,776,117	2,987	11,018,779	2,984,417	2,984,417	0
2036	8,691,841	836,443	4,180,484	3,344,042	9,730,152	1,198,357	8,531,795	3,085	11,878,923	3,193,326	3,193,326	0
2037	8,978,721	864,157	4,319,355	3,455,198	10,634,694	1,238,476	9,396,218	3,196	12,854,612	3,416,859	3,416,859	0
2038	9,339,794	897,233	4,493,566	3,596,333	11,673,917	1,275,295	10,398,622	3,306	13,998,261	3,656,039	3,656,039	0
2039	9,637,252	923,804	4,636,630	3,712,827	12,883,369	1,318,382	11,564,987	3,403	15,281,216	3,911,962	3,911,962	0
2040	9,995,626	956,618	4,810,074	3,853,456	14,309,556	1,359,483	12,950,073	3,520	16,807,048	4,185,799	4,185,799	0
2041	10,369,494	990,083	4,991,452	4,001,369	16,017,567	1,401,871	14,615,696	3,628	18,620,693	4,478,805	4,478,805	0
2042	10,748,000	1,023,744	5,173,150	4,149,405	18,107,143	1,446,173	16,660,970	3,740	20,814,115	4,792,321	4,792,321	0
2043	11,184,256	1,062,486	5,380,999	4,318,512	20,728,566	1,489,722	19,238,844	3,858	23,561,214	5,127,783	5,127,783	0
2044	11,580,104	1,096,948	5,571,070	4,474,122	24,125,172	1,536,480	22,588,692	3,972	27,066,786	5,486,728	5,486,728	0
2045	11,968,011	1,130,788	5,762,250	4,631,462	28,715,860	1,585,404	27,130,456	4,098	31,766,016	5,870,799	5,870,799	0
2046	12,401,343	1,168,902	5,975,214	4,806,312	35,289,593	1,634,080	33,655,513	4,230	38,466,055	6,281,755	6,281,755	0
2047	12,860,753	1,209,755	6,197,629	4,987,874	45,541,988	1,684,097	43,857,891	4,361	48,850,126	6,721,478	6,721,478	0
2048	13,341,001	1,253,110	6,429,768	5,176,658	63,883,382	1,735,213	62,148,169	4,493	67,329,320	7,191,981	7,191,981	0
2049	13,836,809	1,298,329	6,669,367	5,371,038	106,482,354	1,788,130	104,694,224	4,629	110,069,891	7,695,420	7,695,420	0
2050	14,352,826	1,346,056	6,918,604	5,572,548	161,184,522	1,842,506	159,342,016	4,769	164,919,333	8,234,099	8,234,099	0
2051	14,890,936	1,396,109	7,178,497	5,782,388	164,129,645	1,898,462	162,231,183	4,913	168,018,483	8,810,486	8,810,486	0
2052	15,450,003	1,448,043	7,448,567	6,000,524	166,790,624	1,956,209	164,834,415	5,060	170,839,998	9,427,220	9,427,220	0
2053	16,032,106	1,502,211	7,729,699	6,227,488	169,124,755	2,015,692	167,109,063	5,211	173,341,762	10,087,125	10,087,125	0
2054	16,633,305	1,558,383	8,020,026	6,461,643	171,082,634	2,077,526	169,005,108	5,367	175,472,118	10,793,224	10,793,224	0
2055	17,258,436	1,616,795	8,321,960	6,705,165	172,608,848	2,141,416	170,467,432	5,527	177,178,124	11,548,750	11,548,750	0
2056	17,907,969	1,677,238	8,635,350	6,958,112	173,642,888	2,207,560	171,435,328	5,692	178,399,132	12,357,163	12,357,163	0
2057	18,580,126	1,740,254	8,959,149	7,218,894	174,120,621	2,276,324	171,844,297	5,862	178,863,568	13,222,164	13,222,164	0

^a Assumes sponsor selects Optional funding policy if contributions are lower.

^b Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year.

^c Amount required to remain at 100% funded.

Actuarial Projections – Conservation Funding in 2042

Table A-7

Valuation Plan Year End 30-Jun	Number Pay Status		Total Assets								Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
			Assets (boy)	Benefit Payments	Expenses	Employer Contribs.	Employee Contribs.	Premium Tax		Assets (eoy)			
	Allocation Contribs.	Investment Income											
2017	72	63	\$13,826,768	\$2,119,629	\$1,560	\$1,073,218	\$423,661	\$629,967	\$1,349,340	\$15,181,765	\$62,780,889	\$47,599,124	24%
2018	72	64	15,181,765	2,261,662	1,603	882,982	420,339	691,798	677,213	15,590,832	65,548,569	49,957,737	24%
2019	72	67	15,590,832	2,383,676	1,664	944,791	434,736	705,979	694,915	15,985,913	68,398,551	52,412,638	23%
2020	72	68	15,985,913	2,529,729	1,739	1,010,926	450,274	736,476	711,938	16,364,059	71,305,617	54,941,558	23%
2021	72	69	16,364,059	2,649,745	1,802	1,081,691	470,375	754,916	728,715	16,748,209	74,315,811	57,567,602	23%
2022	72	71	16,748,209	2,737,509	1,867	1,157,409	489,476	773,850	746,579	17,176,147	77,474,012	60,297,865	22%
2023	72	72	17,176,147	2,860,670	1,941	1,238,428	508,069	794,991	765,781	17,620,805	80,744,868	63,124,063	22%
2024	72	74	17,620,805	3,016,031	2,008	1,325,118	527,134	815,247	785,136	18,055,401	84,099,969	66,044,568	21%
2025	72	76	18,055,401	3,173,113	2,092	1,417,876	547,953	839,618	804,265	18,489,908	87,546,584	69,056,676	21%
2026	72	77	18,489,908	3,318,212	2,177	1,517,127	570,413	864,221	823,843	18,945,123	91,108,278	72,163,155	21%
2027	72	79	18,945,123	3,467,939	2,261	1,623,326	593,272	889,535	844,429	19,425,485	94,789,068	75,363,583	20%
2028	72	80	19,425,485	3,598,393	2,347	1,736,959	619,412	916,016	866,840	19,963,972	98,624,037	78,660,065	20%
2029	72	81	19,963,972	3,743,043	2,427	1,858,546	642,988	941,730	891,654	20,553,420	102,608,108	82,054,688	20%
2030	72	82	20,553,420	3,914,095	2,519	1,988,644	669,335	969,994	918,481	21,183,260	106,724,482	85,541,222	20%
2031	72	83	21,183,260	4,067,175	2,608	2,127,849	696,922	998,013	947,750	21,884,011	111,007,643	89,123,632	20%
2032	72	84	21,884,011	4,213,291	2,696	2,276,798	725,478	1,026,434	980,613	22,677,347	115,476,239	92,798,892	20%
2033	72	85	22,677,347	4,395,296	2,786	2,436,174	752,061	1,056,681	1,017,072	23,541,253	120,098,337	96,557,084	20%
2034	72	87	23,541,253	4,612,923	2,886	2,606,706	779,618	1,089,515	1,056,242	24,457,525	124,843,770	100,386,245	20%
2035	72	87	24,457,525	4,821,159	2,987	2,789,175	809,690	1,124,872	1,098,354	25,455,470	129,736,653	104,281,183	20%
2036	72	89	25,455,470	5,050,098	3,085	2,984,417	836,443	1,159,779	1,143,882	26,526,808	134,759,815	108,233,007	20%
2037	72	90	26,526,808	5,310,027	3,196	3,193,326	864,157	1,198,357	1,192,429	27,661,854	139,884,133	112,222,279	20%
2038	72	90	27,661,854	5,514,313	3,306	3,416,859	897,233	1,238,476	1,245,561	28,942,364	145,194,342	116,251,978	20%
2039	72	91	28,942,364	5,716,854	3,403	3,656,039	923,804	1,275,295	1,305,408	30,382,653	150,686,176	120,303,523	20%
2040	72	92	30,382,653	5,947,743	3,520	3,911,962	956,618	1,318,382	1,372,464	31,990,816	156,339,812	124,348,996	20%
2041	67	92	31,990,816	6,145,096	3,628	4,185,799	990,083	1,359,483	1,448,190	33,825,647	162,106,271	128,280,624	21%
2042	63	93	33,825,647	6,351,092	3,631	4,315,868	972,699	1,401,871	1,529,625	35,690,987	167,829,656	132,138,669	21%
2043	59	93	35,690,987	6,540,420	3,639	4,480,957	956,263	1,446,173	1,613,645	37,643,966	173,520,101	135,876,135	22%
2044	55	94	37,643,966	6,750,052	3,652	4,669,268	937,163	1,489,722	1,701,599	39,688,015	179,137,559	139,449,544	22%
2045	51	95	39,688,015	7,021,929	3,670	4,923,035	910,994	1,536,480	1,793,636	41,826,560	184,581,435	142,754,875	23%
2046	47	95	41,826,560	7,282,247	3,690	5,163,179	885,077	1,585,404	1,889,933	44,064,217	189,855,971	145,791,754	23%
2047	44	96	44,064,217	7,518,129	3,714	5,377,247	861,344	1,634,080	1,990,697	46,405,742	194,985,768	148,580,026	24%
2048	41	96	46,405,742	7,761,771	3,740	5,598,151	837,284	1,684,097	2,096,136	48,855,899	199,955,410	151,099,511	24%
2049	38	96	48,855,899	8,019,235	3,767	5,832,923	811,997	1,735,213	2,206,462	51,419,493	204,742,209	153,322,716	25%
2050	35	97	51,419,493	8,288,743	3,797	6,079,231	785,370	1,788,130	2,321,892	54,101,576	209,317,676	155,216,100	26%
2051	32	97	54,101,576	8,569,535	3,829	6,336,690	757,382	1,842,506	2,442,653	56,907,442	213,657,175	156,749,733	27%
2052	30	97	56,907,442	8,860,240	3,862	6,604,451	727,359	1,898,462	2,568,983	59,842,596	217,732,756	157,890,160	27%
2053	27	98	59,842,596	9,158,785	3,896	6,880,366	695,151	1,956,209	2,701,129	62,912,770	221,513,771	158,601,001	28%
2054	25	98	62,912,770	9,467,915	3,932	7,167,544	660,351	2,015,692	2,839,347	66,123,858	224,962,333	158,838,475	29%
2055	22	98	66,123,858	9,789,296	3,968	7,467,578	622,455	2,077,526	2,983,903	69,482,056	228,036,777	158,554,721	30%
2056	20	98	69,482,056	10,119,707	4,006	7,777,690	581,286	2,141,416	3,135,075	72,993,811	230,697,449	157,703,638	32%
2057	18	99	72,993,811	10,458,592	4,045	8,096,970	536,925	2,207,560	3,293,151	76,665,780	232,895,328	156,229,548	33%

Actuarial Projections – Conservation Funding in 2042

Table A-8

Plan Year End	Benefit Payment Account ^a						Accumulation Account ^b					Minimum Payment			Statewide Employer Contribution	
	Assets (boy)	Net Benefit Pmts and Expenses	Employer Contribs.	8.00% of Pay Employee Contribs.	87.00% of Premium Tax Allocation	Investment Income	Assets (boy) ^c	Net Benefit Pmts and Expenses	Employer Contribs.	1.50% of Pay Employee Contribs.	13.00% of Premium Tax Allocation	Investment Income	Conservation Employer Cont.	Alternative Employer Cont.		Minimum Alt /Cons Cont.
2018	\$15,181,765	\$2,263,265	\$882,982	\$420,339	\$691,798	\$677,213	\$0	\$0	\$0	\$0	\$0	\$0	NA	\$882,982	\$882,982	\$0
2019	15,590,832	2,385,340	944,791	434,736	705,979	694,915	0	0	0	0	0	0	NA	944,791	944,791	0
2020	15,985,913	2,531,468	1,010,926	450,274	736,476	711,938	0	0	0	0	0	0	NA	1,010,926	1,010,926	0
2021	16,364,059	2,651,547	1,081,691	470,375	754,916	728,715	0	0	0	0	0	0	NA	1,081,691	1,081,691	0
2022	16,748,209	2,739,376	1,157,409	489,476	773,850	746,579	0	0	0	0	0	0	NA	1,157,409	1,157,409	0
2023	17,176,147	2,862,611	1,238,428	508,069	794,991	765,781	0	0	0	0	0	0	NA	1,238,428	1,238,428	0
2024	17,620,805	3,018,039	1,325,118	527,134	815,247	785,136	0	0	0	0	0	0	NA	1,325,118	1,325,118	0
2025	18,055,401	3,175,205	1,417,876	547,953	839,618	804,265	0	0	0	0	0	0	NA	1,417,876	1,417,876	0
2026	18,489,908	3,320,389	1,517,127	570,413	864,221	823,843	0	0	0	0	0	0	NA	1,517,127	1,517,127	0
2027	18,945,124	3,470,200	1,623,326	593,272	889,535	844,429	0	0	0	0	0	0	NA	1,623,326	1,623,326	0
2028	19,425,486	3,600,740	1,736,959	619,412	916,016	866,840	0	0	0	0	0	0	NA	1,736,959	1,736,959	0
2029	19,963,972	3,745,470	1,858,546	642,988	941,730	891,654	0	0	0	0	0	0	NA	1,858,546	1,858,546	0
2030	20,553,420	3,916,614	1,988,644	669,335	969,994	918,481	0	0	0	0	0	0	NA	1,988,644	1,988,644	0
2031	21,183,261	4,069,783	2,127,849	696,922	998,013	947,750	0	0	0	0	0	0	NA	2,127,849	2,127,849	0
2032	21,884,012	4,215,987	2,276,798	725,478	1,026,434	980,613	0	0	0	0	0	0	NA	2,276,798	2,276,798	0
2033	22,677,348	4,398,082	2,436,174	752,061	1,056,681	1,017,072	0	0	0	0	0	0	NA	2,436,174	2,436,174	0
2034	23,541,254	4,615,809	2,606,706	779,618	1,089,515	1,056,242	0	0	0	0	0	0	NA	2,606,706	2,606,706	0
2035	24,457,526	4,824,146	2,789,175	809,690	1,124,872	1,098,354	0	0	0	0	0	0	NA	2,789,175	2,789,175	0
2036	25,455,472	5,053,183	2,984,417	836,443	1,159,779	1,143,882	0	0	0	0	0	0	NA	2,984,417	2,984,417	0
2037	26,526,810	5,313,223	3,193,326	864,157	1,198,357	1,192,429	0	0	0	0	0	0	NA	3,193,326	3,193,326	0
2038	27,661,855	5,517,619	3,416,859	897,233	1,238,476	1,245,561	0	0	0	0	0	0	NA	3,416,859	3,416,859	0
2039	28,942,365	5,720,257	3,656,039	923,804	1,275,295	1,305,408	0	0	0	0	0	0	NA	3,656,039	3,656,039	0
2040	30,382,654	5,951,263	3,911,962	956,618	1,318,382	1,372,464	0	0	0	0	0	0	NA	3,911,962	3,911,962	0
2041	31,990,817	6,148,724	4,185,799	990,083	1,359,483	1,448,190	0	0	0	0	0	0	NA	4,185,799	4,185,799	0
2042	33,825,649	6,354,723	4,315,868	819,261	1,219,594	1,522,154	35,347,801	0	153,438	182,277	7,470	4,315,868	4,478,805	4,315,868	54,478	
2043	0	6,544,059	4,480,957	804,966	1,258,136	0	35,690,986	0	151,297	188,037	1,613,645	4,480,957	4,792,321	4,480,957	115,265	
2044	0	6,753,704	4,669,268	788,413	1,296,023	0	37,643,966	0	148,750	193,700	1,701,599	4,669,268	5,127,783	4,669,268	174,664	
2045	0	7,025,599	4,923,035	765,864	1,336,700	0	39,688,014	0	145,130	199,779	1,793,636	4,923,035	5,486,728	4,923,035	240,733	
2046	0	7,285,937	5,163,179	743,494	1,379,264	0	41,826,560	0	141,583	206,141	1,889,933	5,163,179	5,870,799	5,163,179	311,062	
2047	0	7,521,843	5,377,247	722,986	1,421,610	0	44,064,216	0	138,358	212,470	1,990,696	5,377,247	6,281,755	5,377,247	381,874	
2048	0	7,765,511	5,598,151	702,236	1,465,124	0	46,405,740	0	135,048	218,973	2,096,136	5,598,151	6,721,478	5,598,151	455,470	
2049	0	8,023,002	5,832,923	680,485	1,509,594	0	48,855,897	0	131,512	225,620	2,206,462	5,832,923	7,191,981	5,832,923	532,283	
2050	0	8,292,540	6,079,231	657,679	1,555,630	0	51,419,491	0	127,691	232,500	2,321,892	6,079,231	7,695,420	6,079,231	613,208	
2051	0	8,573,364	6,336,690	633,739	1,602,935	0	54,101,574	0	123,643	239,570	2,442,653	6,336,690	8,234,099	6,336,690	698,045	
2052	0	8,864,102	6,604,451	608,034	1,651,617	0	56,907,440	0	119,325	246,846	2,568,983	6,604,451	8,810,486	6,604,451	786,973	
2053	0	9,162,681	6,880,366	580,460	1,701,855	0	59,842,594	0	114,691	254,354	2,701,129	6,880,366	9,427,220	6,880,366	880,532	
2054	0	9,471,847	7,167,544	550,699	1,753,604	0	62,912,768	0	109,652	262,089	2,839,347	7,167,544	10,087,125	7,167,544	978,933	
2055	0	9,793,264	7,467,578	518,288	1,807,398	0	66,123,856	0	104,167	270,128	2,983,902	7,467,578	10,793,224	7,467,578	1,082,965	
2056	0	10,123,713	7,777,690	483,042	1,862,981	0	69,482,053	0	98,244	278,436	3,135,074	7,777,690	11,548,750	7,777,690	1,192,630	
2057	0	10,462,637	8,096,970	445,143	1,920,524	0	72,993,807	0	91,782	287,036	3,293,151	8,096,970	12,357,163	8,096,970	1,308,439	

^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, 2042.