Municipal Pensions Oversight Board

City of Bluefield, West Virginia Firemen's Pension Plan

Actuarial Valuation as of July 1, 2018 to Determine the City's Contribution for the Fiscal Year Ending June 30, 2020

Bolton

Submitted by:

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October 4, 2019

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

Mr. Ricky Taylor
Pension Board Secretary
City of Bluefield
Firemen's Pension and Relief Fund

Re: City of Bluefield Firemen's Pension and Relief Fund Actuarial Valuation Report for the Year Beginning July 1, 2018

Dear Ms. Davis and Mr. Taylor:

The following sets forth the actuarial valuation of the City of Bluefield Firemen's Pension and Relief Fund as of July 1, 2018. Sections I and II of the report provide a summary of results and the actuarial certification, respectively. Sections III and IV contain the development of the City's contribution for the 2020 fiscal year. Sections V and VI provide projections and an analysis of changing funding policies. Sections VII through IX provide a summary of the census and asset data, plan provisions, assumptions and actuarial methods. Section X provides a glossary of many of the terms used in this report.

The purposes of this report are to provide information on:

- The sponsor's funding requirements for the fiscal year ending June 30, 2020, 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, 2020
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2020

This report may not be used for any other purpose; Bolton is not responsible for the consequences of any unauthorized use.

We are available to answer any questions on the material in this report or to provide explanations or further details as appropriate.

Respectfully submitted,

James E. Ritchie, ASA, EA, FCA, MAAA

Jordan McClane, FSA, EA, MAAA

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Section I. Executive Summary

Background

Bolton has prepared the following report that sets forth the actuarial valuation of the City of Bluefield Firemen's Pension and Relief Fund (the Plan) as of July 1, 2018. Please note that some columns may not add due to rounding.

Funding Policy

The Plan is valued using the Alternative funding policy as described in WV Code §8-22-20. The City of Bluefield (the City) switched from the Standard funding policy to the Alternative funding policy effective July 1, 1991.

Summary of Results

The following table presents a two-year summary of the Plan's estimated pension contributions.

Estimated Employer Contribution Requirements		FYE 2019		FYE 2020
1. Prior Year Alternative Contribution	$	416,087	$	445,213
2. 7% Increase in Alternative Contribution	$	29,126	$	31,165
3. Current Year Preliminary Alternative Contribution	$	445,213	$	476,378
4. Additional Contribution to Satisfy 15-Year Solvency Test on an Open Group Basis	$	0	$	0
5. Employer Contribution Requirement to Receive 100% of Premium Tax (3. + 4.)	$	445,213	$	476,378
6. Additional Contribution to Satisfy 15-Year Solvency Test on a Closed Group Basis	$	0	$	0
7. Employer Contribution Requirement to Receive 100% Premium Tax and Grant Supplemental Benefits (COLA) (5. + 6.)	$	445,213	$	476,378

Amortization Period to Eliminate Unfunded Liability		FYE 2019		FYE 2020
1. Net City Contribution	$	445,213	$	476,378
2. Estimated Premium Tax Allocation	$	222,060	$	240,729
3. Total City Contribution Plus Premium Tax (1. + 2.)	$	667,273	$	717,107
4. Net Employer Normal Cost with Interest	$	241,516	$	243,775
5. Payment Towards Unfunded Liability (3. – 4.)	$	425,757	$	473,332
6. Estimated Number of Years this 'Payment Towards Unfunded Liability' Would Take to Eliminate the Unfunded Liability		**Never**		**Never**

The following table presents a three-year historical summary of the assets and liabilities for the Plan.

	July 1, 2016	July 1, 2017	July 1, 2018
Accrued Liability	$ 18,905,134	$ 17,632,108	$ 18,241,162
Actuarial Asset Value (Market Value)	$ 3,980,319	$ 4,219,912	$ 4,404,012
Unfunded Accrued Liability	$ 14,924,815	$ 13,412,196	$ 13,837,150
Funding Percentage	21.1%	23.9%	24.1%

The contributions shown above are assumed to be paid in equal monthly installments throughout the fiscal year. Details of the determination of the City's contribution for FYE 2020 are shown in Section 3 of this report. The City's contributions for years prior to FYE 2020 and liabilities prior to July 1, 2018 were calculated by the plan's previous actuary, Gabriel, Roeder, Smith & Company (GRS). Please note, the Alternative and Conservation policies do not meet the requirements for a reasonable funding method under standard actuarial principles. **Current contributions developed under the Alternative and Conservation funding policies may be significantly smaller than contributions developed under a generally accepted actuarial funding policy and plans using either of these two funding policies may experience significant increases in the required contribution over time. We recommend that municipalities using the Alternative policy consider switching to a policy that is more in line with standard actuarial principles for funding**. **In order to understand the ineffectiveness of these funding policies, we have shown the number of years it would take to completely payoff the unfunded liability assuming the amount shown for the plan year is paid for all future years until the unfunded is eliminated.**[1] **If "Never" is shown, the year's payment toward the unfunded liability does not even cover the interest on the unfunded liability and the unfunded liability will be expected to increase in future years.**

Risk Measures

Generally, the primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions. For plans that develop contributions using a generally accepted actuarial funding policy, these increases occur most frequently due to variation in the investment returns. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee groups covered by the plan. More detail is provided later in this report.

Risk Measure	July 1, 2016	July 1, 2017	July 1, 2018	Conservative Measures
Inactive Liability as a Percent of Total Liability	82.0%	82.1%	84.3%	<50%
Assets to Payroll	5.8	6.4	6.4	<5
Liabilities to Payroll	27.6	26.8	26.5	<5
Benefit Payments to Contributions	1.3	1.2	1.2	<3

[1] This does not factor in any future increases in the Contributions since scheduled increases might require a growing burden to the City.

Experience Analysis

The following factors affected the City's funded status:

- The Plan uses the Alternative funding policy. City contributions between FY 2019 and FY 2020 are expected to increase by 7.0% from $445,213 to $476,378.
- No additional contributions are required to stay "solvent" for the next 15 years. Making the $476,378 contribution will allow the plan to pay COLAs and receive premium tax payments.
- This valuation uses the same 5.0% discount rate as the prior valuation.
- Contributions under this policy are not based on actuarial liabilities and plan assets. However, liabilities increased by 3.5% and assets increased by 4.4%.
- The Plan's funded ratio increased from 23.9% to 24.1% and is expected to be 100% funded in 2046.
- The return on assets for FY 2018 was 7.5%.

Changes in Methods, Assumptions, and Plan Amendments

This valuation reflects the following changes in assumptions and methods:

- The premium tax allocation projection methodology was changed to reallocate the premium tax allocation in future years for plans that are projected to be 100% funded in the projection period.

There were no changes in the Plan provisions reflected in this valuation.

Sources of Information

The July 1, 2018 participant data and market value of assets were provided by or at the direction of the City of Bluefield. While we have reviewed this data for consistency and completeness, we have not audited this data.

Supplemental Benefit Eligibility

West Virginia Code §8-22-26a requires that all retirees, surviving beneficiaries, disability pensioners or future retirees receive a Supplemental Pension Benefit (i.e. cost-of-living adjustments, or COLAs) payable on the first day of July, based on a percentage increase equal to any increase in the consumer price index as calculated by the United States Department of Labor, Bureau of Statistics for the preceding year. The COLA shall not exceed 4% per year and is not payable to a retiree until the first day of July after the second anniversary of the retiree's date of retirement. Additionally, the COLA shall only be calculated on the first $15,000 of the annual benefit paid and on the COLAs accumulated by the retiree since benefit commencement. If, at any time after the COLA becomes applicable, the total accumulated percentage increase in benefit on the allowable amount becomes less than 75% of the total accumulated percentage increase in the consumer price index over that same period of time, the 4% limitation shall be inapplicable until such time as the accumulated COLAs equal 75% of the accumulated increase in the consumer price index. The consumer price index used to determine the COLA is the CPI-U US City Average all items with a base of 1982-1984 equal to 100. The increase is measured as the increase in the annual average from the second prior calendar year to the annual average from the prior calendar year.

The COLA is only payable to the extent that the actuary certifies to the Board of Trustees of the fund the amount of increase in the COLA, if any, which may be paid, and which will preserve the minimum standards for actuarial soundness of the fund as set forth in West Virginia Code §8-22-20. The related solvency test is discussed below.

Premium Tax

West Virginia Code §33-3-14d established a 1% tax on premiums for fire insurance and casualty insurance policies. The proceeds from this tax are used to fund the West Virginia Teachers Retirement System, the Fire Protection Fund for volunteer and part-volunteer fire companies and the Municipal Pensions Security Fund, which is managed by the Municipal Pensions Oversight Board (MPOB). The MPOB allocates funds from the Municipal Pensions Security Fund to each eligible municipality's police and fire fund that is less than 100% funded on an actuarial basis. The funds from the Base Allocation are allocated proportionately to each fire and police fund based on the average monthly number of police officers and firefighters who worked at least 100 hours per month (regardless of whether the police and fire employees participate in the municipality's pension plan or the West Virginia state Municipal Police and Firefighters Retirement System (MPFRS)). The funds from the Excess Allocation are allocated proportionately to each fire and police fund based on the average monthly number of police officers and firefighters who worked at least 100 hours per month and the average monthly number of retired police officers and firefighters (regardless of whether the police and fire employees and retirees participate in the municipality's pension plan or the West Virginia state Municipal Police and Firefighters Retirement System (MPFRS)).

West Virginia Code §8-22-19 requires a plan sponsor to deposit into the pension fund the required contributions in accordance with Code §8-22-20 at least on a monthly basis at a rate of one-twelfth of the annual requirement in order to receive the premium tax allocation described above. A municipality may pre-pay this contribution. If the allocable portion of the Municipal Pensions Security Fund is not paid to the pension and relief fund within eighteen months, the portion is forfeited by the pension and relief fund and is allocable to other eligible municipal policemen's and firemen's pension and relief funds in accordance with West Virginia Code §33-3-14d.

Solvency Tests

There are two solvency tests. The first solvency test is used to determine whether the State premium tax may be allocated to the pension plan for the fiscal year. West Virginia Code §8-22-20 has been historically interpreted to require plans that use the **Alternative** funding policy to be projected to be solvent in the next 15 years in order to receive the State premium tax allocation. Plans that use the Standard, Optional, or Conservation policy, by definition of the funding policy, will always be projected to be solvent in future years. If a plan is not projected to be solvent in the next 15 years, the municipality or employees must make additional contributions in the current fiscal year in order to receive the State premium tax allocation.

The second test is used to determine whether the COLA is payable under West Virginia Code §8-22-26a, which requires the actuary to certify that the minimum funding for actuarial soundness will be preserved after the COLA is granted for the year. The test used to determine if the minimum funding for actuarial soundness will be preserved is a 15-year projection on a closed group basis. For the July 1, 2018 valuation, the 15-year period would end on June 30, 2033. If the assets are greater than $1 for the first 15 years of the projection, the COLA must be granted. **Please note that the Alternative policy is not consistent with generally accepted actuarial principles for funding and continued use of this policy may reduce future solvency levels, even if the current projections do not forecast insolvency.**

Actuarial Projections

Section V of this report provides long-range projections of assets, liabilities, funded status, and contributions for the pension fund assuming the plan continues to use the **Alternative** funding policy. Additionally, Section VI provides projections that are based on the municipality switching to the Optional or Conservation funding policies in the current fiscal year or in the year that the Optional or Conservation policy contributions are projected to be less than the contribution under the Alternative policy. The projections are shown to help the municipality make decisions regarding the election of future funding policies and to understand the future funded status and future contribution requirements based on an expected set of assumptions.

Plans that use the Alternative funding policy may switch to either the Optional or Conservation funding policy. For these plans, we show projections for the following scenarios:

- Plan continues to be funded under the Alternative policy on an open group basis (these projections are also used to determine if the plan is eligible for the premium tax allocation)
- Plan continues to be funded under the Alternative policy on a closed group basis (these projections are used to determine if the COLA is payable)
- Plan switches to the Optional funding policy in the current contribution year
- Plan switches to the Conservation funding policy in the current contribution year
- Plan switches to the Optional funding policy in the year that the Optional funding policy contribution is projected to be less than the Alternative funding policy contribution
- Plan switches to the Conservation funding policy in the year that the Conservation funding policy contribution is projected to be less than the Alternative funding policy contribution

Section II. Actuarial Certification

This actuarial valuation sets forth our calculation of an estimate of the liabilities of the City of Bluefield Firemen's Pension and Relief Fund, together with a comparison of these liabilities with the value of the Plan assets, as submitted by the City of Bluefield (the City). This calculation and comparison with assets is applicable for the valuation date only. The future is uncertain, and the Plan may become better funded or more poorly funded in the future. This valuation does not provide any guarantee that the Plan will be able to provide the promised benefits in the future.

This is a deterministic valuation in that it is based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. Other assumptions may be equally valid and would produce different results, so that no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. The Plan's actual experience will differ from the assumptions; the differences may be significant or material because the results are very sensitive to the assumptions made and, in some cases, to the interaction between the assumptions. We may consider that some factors are not material to the valuation of the Plan and may not provide a specific assumption for those factors. The Plan may have used other assumptions in the past. We will likely consider changes in assumptions at a future date in conjunction with the MPOB.

A "sensitivity analysis" shows the degree to which results would be different if alternative assumptions within the range of possibilities were substituted for those utilized in this report. We have not been engaged to perform such a sensitivity analysis, and thus, the results of such an analysis are not included in this report. At the City's request, Bolton is available to perform such a sensitivity analysis.

The City is responsible for selecting the Plan's funding policy. The MPOB selects the actuarial valuation methods, asset valuation methods, and assumptions based on the advice of the plan's actuary. The policies, methods and assumptions used in this valuation are those that have been so prescribed by the MPOB, in consultation with the prior actuarial firm GRS, and are described in this report. The MPOB is solely responsible for communicating to Bolton any changes required thereto.

In addition, decisions regarding benefit improvements, benefit changes, the Plan's investment policy, and similar issues should not be based on this valuation. These issues are complex and other factors should be considered when making such decisions. Other factors might include the anticipated vitality of the local economy and future growth expectations, as well as other economic and financial factors.

The cost of this Plan is determined by the benefits promised by the Plan, the Plan's participant population, the investment experience of the Plan and many other factors. An actuarial valuation is a budgeting tool for the City. It does not affect the cost of the Plan. Different funding methods provide for different timing of contributions to the Plan. As the experience of the Plan evolves, it is normal for the level of contributions to the Plan to change. The Plan sponsor is responsible for funding the cost of the Plan. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We will not be responsible for contributions that are made at a future time rather than an earlier time.

We make every effort to ensure that our calculations are accurately performed. These calculations are complex. Despite our best efforts, we may make a mistake. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report.

Because modeling all aspects of a situation is not possible or practical, we may use summary information, estimates, or simplifications of calculations to facilitate the modeling of future events in an efficient and cost-effective manner. We may also exclude factors or data that are immaterial in our judgment. Use of such simplifying techniques does not, in our judgment, affect the reasonableness of valuation results for the Plan.

This report is based on Plan provisions, census data, and asset data submitted by the City. We have relied on this information for purposes of preparing this report but have not performed an audit. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The Plan sponsor is solely responsible for the validity and completeness of this information.

The City of Bluefield Firemen's Pension Fund Board of Trustees is solely responsible for selecting the Plan's investment policies, asset allocations and individual investments. Bolton's actuaries have not provided any investment advice to the Board.

The information in this report was prepared for the internal use of the MPOB, the West Virginia Legislature's Joint Committee on Pensions and Retirement, the City and their auditors in connection with their review of the City's financial statements and our actuarial valuation of the Plan. It is neither intended nor necessarily suitable for other purposes. Bolton is not responsible for the consequences of any other use or the reliance upon this report by any other party.

The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, the lower the estimated liability will be. For purposes of estimating the liabilities (future and accrued) in this report, the MPOB selected an assumption based on the expected long-term rate of return on Plan investments, its funded status and liquidity needs. Using a lower discount rate assumption, such as a rate based on long-term bond yields, could substantially increase the estimated present value of future and accrued liabilities.

Because valuations are a snapshot in time and are based on estimates and assumptions that are not precise and will differ from actual experience, contribution calculations are inherently imprecise. There is no uniquely "correct" level of Actuarially Determined Contribution (ADC) for the coming Plan year. More importantly, the contribution required under the Alternative policy is not an ADC, because it not determined based on actuarially sound principles.

This report provides certain financial calculations for use by the City's auditor. These values have been computed in accordance with our understanding of generally accepted actuarial principles and practices and fairly reflect the actuarial position of the Plan. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

The report is conditioned on the assumption of an ongoing Plan (open or closed plans) and is not meant to present the actuarial position of the Plan in the case of Plan termination. 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.

The MPOB, Pension Board or the City should notify Bolton promptly after receipt of this report if they disagree with anything contained in the report or is aware of any information that would affect the results of the report that has not been communicated to Bolton or incorporated therein. The report will be deemed final and acceptable unless the MPOB, Pension Board or the City promptly provides such notice to Bolton.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services, which could create a conflict of interest that would impair the objectivity of our work.

We are available to answer any questions on the material in this report and provide explanations or further details as appropriate.

Jim Ritchie, ASA, EA, FCA, MAAA

Jordan McClane, FSA, EA, MAAA

Section III. Determination of City Contributions

Net Employer Normal Cost

The breakdown of the Net Employer Normal Cost is illustrated below.

Net Employer Normal Cost (BOY)		7/1/2017[2]		7/1/2018
1. Normal Cost	$	292,178	$	290,866
2.a. Administrative Expenses FYE 2019/2020	$	3,757	$	3,966
2.b. Administrative Expenses (BOY)	$	3,757	$	3,870
3. Gross Normal Cost (1. + 2.b.)	$	295,935	$	294,736
4. Expected Employee Contributions for Next 12 Months (BOY)	$	54,419	$	56,836
5. Net Employer Normal Cost (3. – 4.)	$	241,516	$	237,900
(% of Compensation)		36.7%		35.4%

Development of Estimated Minimum Employer Contribution Under the Alternative Funding Policy

The development of the Estimated Minimum Employer Contribution is illustrated below.

Estimated Employer Contribution Requirements		FYE 2019		FYE 2020
1. Prior Year Alternative Contribution	$	416,087	$	445,213
2. 7% Increase in Alternative Contribution	$	29,126	$	31,165
3. Current Year Preliminary Alternative Contribution	$	445,213	$	476,378
4. Additional Contribution to Satisfy 15-Year Solvency Test on an Open Group Basis	$	0	$	0
5. Employer Contribution Requirement to Receive 100% of Premium Tax (3. + 4.)	$	445,213	$	476,378
6. Additional Contribution to Satisfy 15-Year Solvency Test on a Closed Group Basis	$	0	$	0
7. Employer Contribution Requirement to Receive 100% Premium Tax and Grant Supplemental Benefits (COLA) (5. + 6.)	$	445,213	$	476,378

[2] The prior actuary calculated Normal Cost as of the middle of the year, so numbers presented in this column are as of the middle of the year while those for the current year are determined as of the beginning of the year.

Development of GASB Contribution for Alternative Funding Policies

The breakdown of the Estimated Minimum Employer Contribution for GASB contribution reporting for the Alternative funding policy is illustrated below.

Estimated Minimum Employer Contribution		FYE 2019[3]		FYE 2020
1. Total Normal Cost, Including Administrative Expenses (BOY)	$	295,935	$	294,736
2. Expected Employee Contributions for Next 12 Months (BOY)	$	54,419	$	56,836
3. Net Employer Normal Cost (BOY) (1. – 2.)	$	241,516	$	237,900
4. Interest on Normal Cost	$	0	$	5,875
5. Total Employer Normal Cost with Interest (3. + 4.)	$	241,516	$	243,775
6. Amortization of Unfunded Liability	$	803,172	$	839,430
7. Interest on Unfunded Liability Payment	$	19,834	$	20,730
8. Unfunded Liability Payment with Interest (6. + 7.)	$	823,006	$	860,160
9. Estimated Premium Tax Allocation	$	222,060	$	240,729
10. Unfunded Liability Payment Net of Premium Tax Allocation (8. – 9., not less than 0)	$	600,946	$	619,431
11. Total Employer Contribution (5. + 10.)	$	842,462	$	863,206
12. Estimated Premium Tax Allocation (9.)	$	222,060	$	240,729
13. **Net City Contribution for GASB Purposes (11. + 12.)**	$	**1,064,522**	$	**1,103,935**
14. Amortization Period (Years)		32.5		31.5

[3] The prior actuary calculated Normal Cost as of the middle of the year so numbers presented in this column are as of the middle of the year.

Section IV. Determination of Liabilities and Assets

Unfunded Actuarial Accrued Liability

Below is a summary of the key valuation results.

Unfunded Actuarial Accrued Liability			7/1/2017			7/1/2018
1. Actuarial Accrued Liability	Count			Count		
a. Active	16	$	3,156,809	16	$	2,862,348
b. Retirees	24		9,849,089	24		10,656,096
c. Survivors	9		1,361,878	9		1,345,981
d. Disableds	7		2,735,396	7		2,797,665
e. Deferred Vesteds	1		528,936	1		568,573
f. Former Members Due Refunds	0		0	1		10,499
g. Total	**57**	**$**	**17,632,108**	**58**	**$**	**18,241,162**
2. Present Value of Future Normal Costs		$	3,717,212		$	4,054,107
3. Present Value of Benefits (1.g. + 2.)		$	21,349,320		$	22,295,269
4. Market Value of Assets		$	4,219,912		$	4,404,012
5. Unfunded Actuarial Accrued Liability (1.g. – 4.)		$	13,412,196		$	13,837,150
6. Funded Ratio (4. / 1.g.)			23.9%			24.1%

Experience (Gain)/Loss for Plan Year Ended June 30, 2018

Experience (Gain)/Loss for Plan Year Ended June 30, 2018			
1.	Liabilities		
	a. Actuarial Accrued Liability as of 7/1/2017	$	17,632,108
	b. Normal Cost as of 7/1/2017		292,178
	c. Interest on a. and b. to 6/30/2018		888,910
	d. Benefit Payments with Interest to 6/30/2018		837,770
	e. Effect of Assumption Changes		0
	f. Expected Liability at 7/1/2018 (a. + b. + c. – d. + e.)		17,975,426
	g. Actual Liability at 7/1/2018		18,241,162
	h. Liability (Gain)/Loss (g. - f.)		265,736
2.	Market Value of Assets		
	a. Market Value of Assets as of 7/1/2017	$	4,219,912
	b. Interest on a. to 6/30/2018		210,996
	c. Contributions with Interest to 6/30/2018		705,624
	d. Benefit Payments with Interest to 6/30/2018		837,770
	e. Administrative Expenses with Interest to 6/30/2018		88
	f. Expected Assets at 6/30/2018 (a. + b. + c. – d. – e.)		4,298,674
	g. Actual Assets at 6/30/2018		4,404,012
	h. Asset (Gain)/Loss (f. - g.)		(105,338)
3.	Total (Gain)/Loss (1h. + 2h.)	$	160,398

The gains and losses shown are only for liability and asset gains and losses. Any change in the Unfunded Actuarial Accrued Liability from funding more or less than needed to cover Normal Cost and interest on the Unfunded Actuarial Accrued Liability is a separate amount.

Reconciliation of Assets

Below is a reconciliation of assets (unaudited) from July 1, 2016 through June 30, 2018.

Plan Year Ending		June 30, 2017		June 30, 2018
1. Beginning of Year Market Value of Assets	$	3,980,319	$	4,219,912
Adjustments to Market Value of Assets at Beginning of Year		0		0
Beginning of Year Market Value of Assets	**$**	**3,980,319**	**$**	**4,219,912**
2. Additions				
a. Contributions				
(i) Local Government	$	419,150	$	416,086
(ii) State Government		203,346		214,635
(iii) Employee		54,175		57,693
(iv) Total		676,671		688,414
b. Receivable Contribution[4]				
(i) Local Government	$	0	$	0
(ii) State Government		0		0
(iii) Employee Contributions		0		0
(iv) Total		0		0
c. Earnings on Investments				
(i) Net Appreciation/(Depreciation)	$	203,519	$	152,821
(ii) Net Realized Gain (Loss) on Sale/Exchange		25,808		(31,209)
(iii) Interest and Dividends		103,553		106,768
(iv) Other Income		36,116		77,984
(v) Investment Expense		0		0
(vi) Receivable Investment Income		0		0
(vii) Payable Investment Expenses		0		0
(viii) Net Investment Income		368,996		306,364
d. Other Revenue		836		6,746
e. Total Additions	**$**	**1,046,503**	**$**	**1,001,524**
3. Disbursements				
a. Benefit Payments	$	806,910	$	817,337
b. Withdrawals		0		0
c. Administrative Expenses		0		86
d. Other		0		0
e. Payable Benefits and Withdrawals		0		0
f. Payable Administrative Expenses		0		0
g. Total Disbursements	**$**	806,910	**$**	817,423
4. Net Increase (2.e. – 3.g.)		239,593		184,101
5. Net Assets (1. + 4.)	**$**	4,219,912	**$**	4,404,012
6. Rate of Return Net of Investment Fees (2I / [A + B – I] Method[5])		9.6%		7.5%

[4] Receivable contributions for each respective plan year ending.

[5] A = beginning-of-year market value of assets
B = end-of-year market value of assets
I = investment return during the year

Asset Allocation

The table below shows the amount of funds invested in each account as of June 30, 2017 and June 30, 2018.

Assets Held by Category		June 30, 2017		June 30, 2018
Cash and Deposits	$	214,642	$	153,861
Receivables				
Contributions	$	0	$	0
Investment Income		0		0
Total Receivable Contributions	**$**	**0**	**$**	**0**
Investment				
Government Securities	$	599,684	$	544,644
Corporate Bonds		1,359,981		1,046,113
Corporate Stocks		2,045,605		2,659,394
Alternative Investments		0		0
Other		0		0
Total Investments	**$**	**4,005,270**	**$**	**4,250,151**
Total Assets	**$**	**4,219,912**	**$**	**4,404,012**
Liabilities				
Payables	$	0	$	0
Total Liabilities	**$**	**0**	**$**	**0**
Net Position	**$**	**4,219,912**	**$**	**4,404,012**

Risk Measures

Generally, the primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions. For plans that develop contributions using a generally accepted actuarial funding policy, these increases occur most frequently due to variation in the investment returns. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee groups covered by the plan.

Risk Measure	July 1, 2016	July 1, 2017	July 1, 2018	Conservative Measures
Inactive Liability as a Percent of Total Liability	82.0%	82.1%	84.3%	<50%
Assets to Payroll	5.8	6.4	6.4	<5
Liabilities to Payroll	27.6	26.8	26.5	<5
Benefit Payments to Contributions	1.3	1.2	1.2	<3

The use of payroll in these risk measures is an easily available substitute for the employer's revenue and often reflects the employer's ability to afford the plan.

The current *Assets to Payroll* of 6.4 indicates that a 1% asset gain/loss is about 6.4% of the annual payroll. Similarly, the current *Liabilities to Payroll* of 26.5 indicates that a 1% change in liability is about 26.5% of the annual payroll.

If the plan or employer were interested in doing more quantitative assessments of risks, the following are examples of analyses that could be performed:

- *Scenario Test:* A process for assessing the impact of one possible event, or several simultaneously or sequentially occurring possible events, on a plan's financial condition. For example, the effect of a layoff or reduction in workforce, or early retirement program.

- *Sensitivity Test:* A process for assessing the impact of a change in an actuarial assumption on an actuarial measurement. This could be a decrease in the valuation discount rate or a change in future life expectancies.

- *Stochastic Modeling:* A process for generating numerous potential outcomes by allowing for random variations in one or more inputs over time for the purpose of assessing the distribution of those outcomes. This analysis shows a range of potential future contribution levels and the likelihood of contributions increasing to a certain level.

- *Stress Test:* A process for assessing the impact of adverse changes in one or relatively few factors affecting a plan's financial condition. For example, a stress test could show the impact of a single year or period of several years with significant investment losses.

Section V. Projections for Premium Tax and COLA Eligibility

Table 1 – Open Group Projection (Determines Eligibility for Premium Tax Allocation)

	Number (BOY)			Assets										
Year End June 30	Active	Non-Active	Total Payroll	Assets (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	Assets (EOY)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2018	16	41	$673,787	$4,219,912	$817,337	$86	$416,086	$57,693	$214,635	$313,110	$4,404,012	$18,241,162	$13,837,150	24.14%
2019	16	42	$688,341	$4,404,012	$872,317	$3,757	$445,213	$58,240	$222,060	$216,482	$4,469,933	$18,564,263	$14,094,330	24.08%
2020	16	41	$732,420	$4,469,933	$883,167	$3,966	$476,378	$62,721	$240,729	$220,847	$4,583,475	$18,913,633	$14,330,158	24.23%
2021	16	41	$765,451	$4,583,475	$941,950	$4,075	$509,724	$66,381	$246,595	$226,128	$4,686,278	$19,235,985	$14,549,707	24.36%
2022	16	41	$812,540	$4,686,278	$970,907	$4,187	$545,405	$71,412	$254,592	$231,753	$4,814,346	$19,566,892	$14,752,546	24.60%
2023	16	41	$863,580	$4,814,346	$991,416	$4,302	$583,583	$76,511	$262,808	$238,919	$4,980,449	$19,917,055	$14,936,606	25.01%
2024	16	41	$917,040	$4,980,449	$1,008,305	$4,420	$624,434	$81,733	$271,251	$248,151	$5,193,293	$20,292,106	$15,098,813	25.59%
2025	16	40	$972,851	$5,193,293	$1,021,763	$4,462	$668,144	$87,091	$282,791	$259,956	$5,465,050	$20,697,725	$15,232,675	26.40%
2026	16	40	$1,031,080	$5,465,050	$1,033,594	$4,585	$714,914	$92,613	$291,788	$274,762	$5,800,948	$21,138,104	$15,337,156	27.44%
2027	16	39	$1,088,293	$5,800,948	$1,045,724	$4,627	$764,958	$98,075	$301,032	$292,856	$6,207,518	$21,614,208	$15,406,690	28.72%
2028	16	39	$1,153,287	$6,207,518	$1,052,046	$4,754	$818,505	$104,146	$310,531	$314,732	$6,698,632	$22,137,152	$15,438,520	30.26%
2029	16	38	$1,219,333	$6,698,632	$1,059,534	$4,796	$875,800	$110,300	$321,411	$340,937	$7,282,750	$22,708,550	$15,425,800	32.07%
2030	16	38	$1,288,127	$7,282,750	$1,063,990	$4,928	$937,106	$116,703	$331,473	$371,950	$7,971,064	$23,335,169	$15,364,105	34.16%
2031	16	37	$1,347,635	$7,971,064	$1,076,155	$4,970	$1,002,703	$122,534	$341,811	$408,084	$8,765,071	$24,007,028	$15,241,957	36.51%
2032	16	37	$1,427,030	$8,765,071	$1,088,436	$5,107	$1,072,892	$130,319	$352,434	$449,665	$9,676,838	$24,735,013	$15,058,175	39.12%
2033	16	37	$1,496,879	$9,676,838	$1,104,098	$5,247	$1,147,994	$137,009	$363,349	$497,153	$10,712,998	$25,513,935	$14,800,937	41.99%
2034	16	37	$1,570,777	$10,712,998	$1,128,996	$5,391	$1,228,354	$144,359	$386,157	$551,072	$11,888,553	$26,338,459	$14,449,906	45.14%
2035	16	36	$1,653,307	$11,888,553	$1,152,253	$5,435	$1,314,339	$152,645	$398,020	$611,895	$13,207,764	$27,216,513	$14,008,749	48.53%
2036	16	36	$1,727,001	$13,207,764	$1,194,272	$5,584	$1,406,343	$160,320	$410,208	$679,577	$14,664,356	$28,128,864	$13,464,508	52.13%
2037	16	36	$1,803,322	$14,664,356	$1,233,419	$5,738	$1,504,787	$168,383	$422,732	$754,375	$16,275,476	$29,081,860	$12,806,384	55.96%
2038	16	36	$1,845,990	$16,275,476	$1,303,984	$5,896	$1,610,122	$173,211	$435,600	$836,223	$18,020,752	$30,030,628	$12,009,876	60.01%
2039	16	36	$1,918,154	$18,020,752	$1,376,682	$6,058	$1,722,831	$180,786	$453,948	$925,111	$19,920,688	$30,986,714	$11,066,026	64.29%
2040	16	36	$1,987,453	$19,920,688	$1,446,691	$6,225	$1,843,429	$187,817	$467,684	$1,021,866	$21,988,568	$31,950,884	$9,962,316	68.82%
2041	16	36	$2,064,730	$21,988,568	$1,520,232	$6,396	$1,972,469	$195,491	$481,798	$1,127,164	$24,238,862	$32,923,981	$8,685,119	73.62%
2042	16	36	$2,156,105	$24,238,862	$1,577,455	$6,572	$2,110,542	$204,385	$496,300	$1,242,249	$26,708,311	$33,929,420	$7,221,109	78.72%
2043	16	36	$2,241,538	$26,708,311	$1,632,271	$6,753	$2,258,280	$212,673	$523,324	$1,368,884	$29,432,448	$34,967,922	$5,535,474	84.17%
2044	16	36	$2,325,451	$29,432,448	$1,690,259	$6,939	$2,416,360	$220,799	$538,991	$1,508,145	$32,419,545	$36,036,865	$3,617,320	89.96%
2045	16	35	$2,413,959	$32,419,545	$1,748,350	$6,993	$2,585,505	$229,284	$555,088	$1,660,848	$35,694,927	$37,139,567	$1,444,640	96.11%
2046	16	35	$2,512,406	$35,694,927	$1,801,956	$7,185	$2,358,291	$238,729	-	$1,804,203	$38,287,009	$38,287,009	-	100.00%
2047	16	35	$2,609,120	$38,287,009	$1,860,881	$7,383	$911,994	$247,946	-	$1,896,858	$39,475,543	$39,475,543	-	100.00%
2048	16	34	$2,714,607	$39,475,543	$1,918,986	$7,437	$949,266	$258,001	-	$1,956,018	$40,712,405	$40,712,405	-	100.00%
2049	16	34	$2,833,610	$40,712,405	$1,967,371	$7,642	$990,734	$269,305	-	$2,017,964	$42,015,395	$42,015,395	-	100.00%
2050	16	33	$2,955,189	$42,015,395	$2,014,376	$7,695	$1,032,899	$280,855	-	$2,083,278	$43,390,356	$43,390,356	-	100.00%
2051	16	33	$3,084,902	$43,390,356	$2,058,387	$7,907	$1,077,981	$293,179	-	$2,152,351	$44,847,573	$44,847,573	-	100.00%
2052	16	33	$3,221,059	$44,847,573	$2,099,635	$8,124	$1,125,195	$306,114	-	$2,225,674	$46,396,797	$46,396,797	-	100.00%
2053	16	32	$3,360,410	$46,396,797	$2,142,346	$8,177	$1,173,316	$319,356	-	$2,303,594	$48,042,540	$48,042,540	-	100.00%
2054	16	32	$3,503,165	$48,042,540	$2,187,250	$8,402	$1,222,765	$332,924	-	$2,386,323	$49,788,900	$49,788,900	-	100.00%
2055	16	31	$3,648,944	$49,788,900	$2,236,360	$8,453	$1,273,064	$346,780	-	$2,474,011	$51,637,942	$51,637,942	-	100.00%
2056	16	31	$3,798,599	$51,637,942	$2,290,377	$8,685	$1,324,854	$361,005	-	$2,566,754	$53,591,493	$53,591,493	-	100.00%
2057	16	31	$3,948,659	$53,591,493	$2,351,372	$8,924	$1,376,827	$375,272	-	$2,664,555	$55,647,851	$55,647,851	-	100.00%
2058	16	30	$4,103,065	$55,647,851	$2,419,139	$8,974	$1,430,042	$389,950	-	$2,767,375	$57,807,105	$57,807,105	-	100.00%
2059	16	30	$4,260,201	$57,807,105	$2,492,210	$9,221	$1,484,404	$404,888	-	$2,875,238	$60,070,204	$60,070,204	-	100.00%

Table 2 – Closed Group Projection (Determines Whether COLA is Granted)

	Number (BOY)			Assets										
Year End June 30	Active	Non-Active	Total Payroll	Assets (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	Assets (EOY)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2018	16	41	$673,787	$4,219,912	$817,337	$86	$416,086	$57,693	$214,635	$313,110	$4,404,012	$18,241,162	$13,837,150	24.14%
2019	16	42	$688,341	$4,404,012	$872,317	$3,757	$445,213	$58,240	$222,060	$216,482	$4,469,933	$18,564,263	$14,094,330	24.08%
2020	15	41	$686,445	$4,469,933	$883,047	$3,966	$476,378	$58,351	$240,729	$220,742	$4,579,120	$18,892,606	$14,313,486	24.24%
2021	14	41	$671,522	$4,579,120	$941,513	$4,002	$509,724	$57,454	$246,595	$225,703	$4,673,081	$19,171,166	$14,498,085	24.38%
2022	13	41	$653,795	$4,673,081	$969,922	$4,037	$545,405	$56,325	$254,592	$230,749	$4,786,193	$19,426,903	$14,640,710	24.64%
2023	12	41	$649,507	$4,786,193	$989,635	$4,071	$583,583	$56,167	$262,808	$237,059	$4,932,104	$19,673,583	$14,741,479	25.07%
2024	11	41	$650,779	$4,932,104	$1,005,474	$4,104	$624,434	$56,429	$271,251	$245,186	$5,119,826	$19,917,148	$14,797,322	25.71%
2025	11	40	$657,506	$5,119,826	$1,017,661	$4,136	$668,144	$57,123	$282,791	$255,652	$5,361,739	$20,163,550	$14,801,811	26.59%
2026	10	40	$669,170	$5,361,739	$1,028,003	$4,166	$714,914	$58,219	$291,788	$268,896	$5,663,387	$20,416,986	$14,753,599	27.74%
2027	10	39	$680,710	$5,663,387	$1,038,564	$4,195	$764,958	$59,341	$301,032	$285,208	$6,031,167	$20,677,543	$14,646,376	29.17%
2028	10	39	$698,188	$6,031,167	$1,043,347	$4,310	$818,505	$60,899	$310,531	$305,072	$6,478,517	$20,954,048	$14,475,531	30.92%
2029	9	38	$716,726	$6,478,517	$1,049,356	$4,248	$875,800	$62,538	$321,411	$329,017	$7,013,679	$21,246,523	$14,232,844	33.01%
2030	9	38	$735,986	$7,013,679	$1,052,305	$4,365	$937,106	$64,234	$331,473	$357,503	$7,647,325	$21,559,224	$13,911,899	35.47%
2031	9	37	$743,469	$7,647,325	$1,062,752	$4,390	$1,002,703	$65,122	$341,811	$390,824	$8,380,643	$21,879,513	$13,498,870	38.30%
2032	8	37	$748,160	$8,380,643	$1,072,945	$4,413	$1,072,892	$65,809	$352,434	$429,250	$9,223,670	$22,206,473	$12,982,803	41.54%
2033	8	36	$749,813	$9,223,670	$1,086,160	$4,434	$1,147,994	$66,020	$363,349	$473,204	$10,183,643	$22,535,778	$12,352,135	45.19%
2034	7	36	$735,724	$10,183,643	$1,108,196	$4,452	$1,228,354	$65,010	$386,157	$523,181	$11,273,697	$22,851,116	$11,577,419	49.34%
2035	7	36	$719,038	$11,273,697	$1,128,084	$4,574	$1,314,339	$63,867	$398,020	$579,578	$12,496,843	$23,152,871	$10,656,028	53.98%
2036	6	36	$689,939	$12,496,843	$1,166,227	$4,590	$1,406,343	$61,774	$410,208	$642,314	$13,846,665	$23,417,368	$9,570,703	59.13%
2037	6	36	$647,744	$13,846,665	$1,200,895	$4,716	$1,504,787	$58,576	$422,732	$711,607	$15,338,756	$23,640,883	$8,302,127	64.88%
2038	5	35	$568,150	$15,338,756	$1,266,368	$4,615	$1,610,122	$51,786	$435,600	$787,349	$16,952,630	$23,773,404	$6,820,774	71.31%
2039	4	36	$467,352	$16,952,630	$1,333,314	$4,742	$1,722,831	$42,924	$453,948	$869,404	$18,703,681	$23,799,873	$5,096,192	78.59%
2040	3	35	$373,238	$18,703,681	$1,398,700	$4,629	$1,843,429	$34,428	$467,684	$958,452	$20,604,345	$23,718,567	$3,114,222	86.87%
2041	2	35	$272,935	$20,604,345	$1,463,882	$4,631	$1,972,469	$25,222	$481,798	$1,055,183	$22,670,504	$23,522,036	$851,532	96.38%
2042	1	35	$202,210	$22,670,504	$1,503,250	$4,630	$943,014	$18,702	-	$1,120,038	$23,244,378	$23,244,378	-	100.00%
2043	1	35	$155,201	$23,244,378	$1,524,705	$4,757	$54,652	$14,392	-	$1,126,154	$22,910,114	$22,910,114	-	100.00%
2044	1	34	$119,044	$22,910,114	$1,536,838	$4,752	$42,287	$11,099	-	$1,108,754	$22,530,664	$22,530,664	-	100.00%
2045	1	33	$91,988	$22,530,664	$1,540,863	$4,743	$33,024	$8,598	-	$1,089,392	$22,116,072	$22,116,072	-	100.00%
2046	0	32	$75,155	$22,116,072	$1,536,588	$4,587	$27,345	$7,090	-	$1,068,595	$21,677,927	$21,677,927	-	100.00%
2047	0	31	$56,141	$21,677,927	$1,536,247	$4,566	$21,441	$5,311	-	$1,046,507	$21,210,373	$21,210,373	-	100.00%
2048	0	31	$32,134	$21,210,373	$1,534,414	$4,692	$14,310	$3,060	-	$1,022,939	$20,711,576	$20,711,576	-	100.00%
2049	0	30	$21,453	$20,711,576	$1,522,392	$4,666	$10,980	$2,043	-	$998,190	$20,195,731	$20,195,731	-	100.00%
2050	0	29	$12,267	$20,195,731	$1,508,477	$4,635	$8,106	$1,168	-	$972,649	$19,664,542	$19,664,542	-	100.00%
2051	0	28	$7,465	$19,664,542	$1,490,738	$4,598	$6,669	$711	-	$946,482	$19,123,068	$19,123,068	-	100.00%
2052	0	27	$5,431	$19,123,068	$1,470,283	$4,556	$6,062	$517	-	$919,895	$18,574,703	$18,574,703	-	100.00%
2053	0	26	$3,860	$18,574,703	$1,448,832	$4,508	$5,578	$368	-	$892,992	$18,020,301	$18,020,301	-	100.00%
2054	0	25	$2,592	$18,020,301	$1,426,205	$4,454	$5,173	$247	-	$865,819	$17,460,881	$17,460,881	-	100.00%
2055	0	25	$1,740	$17,460,881	$1,402,398	$4,576	$5,058	$166	-	$838,428	$16,897,559	$16,897,559	-	100.00%
2056	0	24	$1,167	$16,897,559	$1,377,325	$4,514	$4,838	$111	-	$810,876	$16,331,545	$16,331,545	-	100.00%
2057	0	23	-	$16,331,545	$1,351,503	$4,445	$4,445	-	-	$783,202	$15,763,244	$15,763,244	-	100.00%
2058	0	22	-	$15,763,244	$1,323,683	$4,369	$4,369	-	-	$755,474	$15,195,035	$15,195,035	-	100.00%
2059	0	21	-	$15,195,035	$1,294,726	$4,285	$4,285	-	-	$727,778	$14,628,087	$14,628,087	-	100.00%

Section VI. Funding Policy Change Analysis

Funding Policy Options

For plans using the Alternative funding policy, West Virginia Code §8-22-20 requires the actuarial valuation report to provide an evaluation of the plan and to assess advantages of changing to other funding policies. The other funding policies available to this plan are the Optional and Conservation policies. 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 municipality were to choose to fund using the Optional funding policy in lieu of the Alternative policy, then the following conditions would apply to the plan:

- The required total contribution to the plan, including the premium tax allocation and employee contributions, would equal the normal cost plus a 40-year amortization of the unfunded accrued liability from January 1, 2010 (31.5 years from July 1, 2018).
- The pension and relief fund would close to newly-hired police officers or firemen after the date of the change and new hires would join the statewide plan - Municipal Police Officers and Firefighters Retirement System (MPFRS).
    - Employer contributions for MPFRS currently equal 8.5% of pay
    - Employee contributions for MPFRS currently equal 8.5% of pay
    - The West Virginia Consolidated Public Retirement Board can change the employer contribution and employee contribution rate to a percentage of pay between 8.5% and 10.5% as needed to maintain an actuarially sound pension plan.

If the municipality were to choose to fund using the Conservation funding policy in lieu of the Alternative policy, then the following conditions would apply to the plan:

- The plan assets would be segregated into two accounts, an accumulation account and a payment account; the accounts would be funded as follows:
    - Until the plan is 100% funded, 1.5% of employee contributions would be deposited into the accumulation account.
    - An actuarially determined portion of the state premium tax allocation would be deposited into the accumulation account equal to the amount needed to fully fund the pension plan liabilities from the accumulation account 35 years from the date the Conservation policy was effective for the fund.
    - The municipality would contribute to the payment account the current year benefit payments and expenses minus the remaining employee contributions and minus any state premium tax not allocated to the accumulation account.
- The pension and relief fund would close to newly-hired police officers or firemen after the date of the change and new hires would join the MPFRS
    - Employer contributions for MPFRS currently equal 8.5% of pay
    - Employee contributions for MPFRS currently equal 8.5% of pay

- o The West Virginia Consolidated Public Retirement Board can change the employer contribution and employee contribution rate to a percentage of pay between 8.5% and 10.5% as needed to maintain an actuarially sound pension plan.

As stated previously, the Alternative funding policy does not adhere to actuarial principles generally considered necessary to be classified as a reasonable funding method. One of the primary goals of a reasonable funding method is to contribute annually to the plan the cost of the additional benefits earned by the employees for that year (i.e. the normal cost) plus a level dollar or level percentage of pay amortization of the unfunded accrued liability. The Optional funding policy achieves this goal, but the Conservation funding policy does not. To help the municipality understand the impact of switching, we calculated the projected contributions, liabilities and assets over a 40-year period under two different scenarios. The first scenario assumes the municipality switches to either the Optional or Conservation funding policies in the next valuation year. The second scenario assumes the municipality switches to either the Optional or Conservation funding policy in the year that the contribution for that funding policy is projected to be the same or less than the contribution under the Alternative funding policy. The projections are provided on the following pages of this report.

Scenario 1 – Immediate Change

The following tables show the estimated contribution under the three funding policies in the next fiscal year and in 2059 assuming the municipality elects one of the new funding policies for the next fiscal year:

Contribution Comparison for FYE June 30, 2020							
		Local Plan		State Plan		Total	
Funding Policy	**Funded Status**	**Amount**	**% of Pay**	**Amount**	**% of Pay**	**Amount**	**% of Pay**
Alternative	24%	$ 476,378	69.2%	N/A	N/A	$ 476,378	69.2%
Optional	24%	$ 863,206	125.4%	$ 3,908	8.5%	$ 867,114	118.1%
Conservation	24%	$ 598,230	86.9%	$ 3,908	8.5%	$ 602,138	82.0%

Contribution Comparison for FYE June 30, 2059							
		Local Plan		State Plan		Total	
Funding Policy	**100% Funded Year**	**Amount**	**% of Pay**	**Amount**	**% of Pay**	**Amount**	**% of Pay**
Alternative	2046	$ 1,484,404	34.8%	N/A	N/A	$ 1,484,404	34.8%
Optional	2050	$ 4,284	N/A	$ 362,117	8.5%	$ 366,401	8.6%
Conservation	2050	$ 4,285	N/A	$ 362,117	8.5%	$ 366,402	8.6%

The projected year by year contribution requirements under the Optional and Conservation policies for the current plan are detailed in the projections in Tables 3 – 6 on the following pages. **Please note, as more new hires enter the state plan in the future, the cost for the state plan will increase significantly.**

Scenario 2 – Change When Fiscally Advantageous

The following tables show estimated contributions under the Optional and Conservation funding policies if the municipality switches to these funding policies in the year that the estimated contribution is smaller than the contribution under the Alternative funding policy. The first table shows the contribution in the year of the change in funding policy, while the second table shows the contribution at the end of the projection period (FYE 2059).

Contribution Comparison for Fiscal Year of Change				
		Current Policy	New Policy	Difference
Funding Policy	**Year of Change**	**Total (Local + State) Contribution in Year of Change**	**Total (Local + State) Contribution in Year of Change**	**New Policy Contribution Minus Alternative**
Optional	2038	$ 1,610,122	$ 1,554,251	$ (55,871)
Conservation	2026	$ 714,914	$ 681,618	$ (33,296)

Contribution Comparison for FYE June 30, 2059				
		Current Policy	New Policy	Difference
Funding Policy	**Funded Status**	**Total (Local + State) Contribution in FYE 2059**	**Total (Local + State) Contribution in FYE 2059**	**New Policy Contribution Minus Alternative**
Optional	100.0%	$ 1,484,404	$ 542,976	$ (941,428)
Conservation	95.5%	$ 1,484,404	$ 1,030,343	$ (454,061)

The projected year-by-year contribution requirements under the Optional and Conservation policies assume the municipality switches funding policies in the year that the new funding policy contribution is projected to be less than the Alternative policy contribution. If the "Year of Change" is "after 2059" then the new funding policy contribution is not projected to be less than the Alternative funding policy contribution in the 40-year projection period. In this case, the *Difference* column is the amount that the Optional or Conservation funding policy contribution exceeds the Alternative contribution in 2059.

Table 3 – Switch to Optional Funding Policy in 2020

	Number (BOY)		Assets										
Year End June 30	Active	Non-Active	Assets (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	Assets (EOY)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2018	16	41	$4,219,912	$817,337	$86	$416,086	$57,693	$214,635	$313,110	$4,404,012	$18,241,162	$13,837,150	24.14%
2019	16	42	$4,404,012	$872,317	$3,757	$445,213	$58,240	$222,060	$216,482	$4,469,933	$18,564,263	$14,094,330	24.08%
2020	15	41	$4,469,933	$883,047	$3,966	$863,206	$58,351	$240,729	$230,295	$4,975,501	$18,892,606	$13,917,105	26.34%
2021	14	41	$4,975,501	$941,513	$4,002	$885,005	$57,454	$246,595	$254,789	$5,473,829	$19,171,166	$13,697,337	28.55%
2022	13	41	$5,473,829	$969,922	$4,037	$873,612	$56,325	$254,592	$278,891	$5,963,290	$19,426,903	$13,463,613	30.70%
2023	12	41	$5,963,290	$989,635	$4,071	$858,874	$56,167	$262,808	$302,712	$6,450,145	$19,673,583	$13,223,438	32.79%
2024	11	41	$6,450,145	$1,005,474	$4,104	$848,576	$56,429	$271,251	$326,623	$6,943,446	$19,917,148	$12,973,702	34.86%
2025	11	40	$6,943,446	$1,017,661	$4,136	$837,438	$57,123	$282,791	$351,014	$7,450,015	$20,163,550	$12,713,535	36.95%
2026	10	40	$7,450,015	$1,028,003	$4,166	$830,872	$58,219	$291,788	$376,173	$7,974,898	$20,416,986	$12,442,088	39.06%
2027	10	39	$7,974,898	$1,038,564	$4,195	$825,917	$59,341	$301,032	$402,289	$8,520,718	$20,677,543	$12,156,825	41.21%
2028	10	39	$8,520,718	$1,043,347	$4,310	$820,867	$60,899	$310,531	$429,608	$9,094,966	$20,954,048	$11,859,082	43.40%
2029	9	38	$9,094,966	$1,049,356	$4,248	$816,326	$62,538	$321,411	$458,370	$9,700,007	$21,246,523	$11,546,516	45.65%
2030	9	38	$9,700,007	$1,052,305	$4,365	$813,336	$64,234	$331,473	$488,763	$10,341,143	$21,559,224	$11,218,081	47.97%
2031	9	37	$10,341,143	$1,062,752	$4,390	$810,293	$65,122	$341,811	$520,763	$11,011,990	$21,879,513	$10,867,523	50.33%
2032	8	37	$11,011,990	$1,072,945	$4,413	$801,990	$65,809	$352,434	$554,128	$11,708,993	$22,206,473	$10,497,480	52.73%
2033	8	36	$11,708,993	$1,086,160	$4,434	$791,678	$66,020	$363,349	$588,671	$12,428,117	$22,535,778	$10,107,661	55.15%
2034	7	36	$12,428,117	$1,108,196	$4,452	$768,276	$65,010	$386,157	$624,043	$13,158,955	$22,851,116	$9,692,161	57.59%
2035	7	36	$13,158,955	$1,128,084	$4,574	$749,829	$63,867	$398,020	$659,900	$13,897,913	$23,152,871	$9,254,958	60.03%
2036	6	36	$13,897,913	$1,166,227	$4,590	$729,414	$61,774	$410,208	$695,651	$14,624,143	$23,417,368	$8,793,225	62.45%
2037	6	36	$14,624,143	$1,200,895	$4,716	$705,353	$58,576	$422,732	$730,739	$15,335,932	$23,640,883	$8,304,951	64.87%
2038	5	35	$15,335,932	$1,266,368	$4,615	$676,142	$51,786	$435,600	$764,143	$15,992,620	$23,773,404	$7,780,784	67.27%
2039	4	36	$15,992,620	$1,333,314	$4,742	$628,697	$42,924	$453,948	$794,384	$16,574,517	$23,799,873	$7,225,356	69.64%
2040	3	35	$16,574,517	$1,398,700	$4,629	$577,290	$34,428	$467,684	$820,726	$17,071,316	$23,718,567	$6,647,251	71.97%
2041	2	35	$17,071,316	$1,463,882	$4,631	$525,908	$25,222	$481,798	$842,809	$17,478,540	$23,522,036	$6,043,496	74.31%
2042	1	35	$17,478,540	$1,503,250	$4,630	$472,288	$18,702	$496,300	$861,071	$17,819,021	$23,244,378	$5,425,357	76.66%
2043	1	35	$17,819,021	$1,524,705	$4,757	$415,935	$14,392	$523,324	$876,731	$18,119,941	$22,910,114	$4,790,173	79.09%
2044	1	34	$18,119,941	$1,536,838	$4,752	$379,528	$11,099	$538,991	$890,884	$18,398,853	$22,530,664	$4,131,811	81.66%
2045	1	33	$18,398,853	$1,540,863	$4,743	$347,248	$8,598	$555,088	$904,269	$18,668,450	$22,116,072	$3,447,622	84.41%
2046	0	32	$18,668,450	$1,536,588	$4,587	$317,863	$7,090	$571,627	$917,504	$18,941,359	$21,677,927	$2,736,568	87.38%
2047	0	31	$18,941,359	$1,536,247	$4,566	$251,600	$5,311	$629,127	$930,898	$19,217,482	$21,210,373	$1,992,891	90.60%
2048	0	31	$19,217,482	$1,534,414	$4,692	$224,408	$3,060	$647,779	$944,480	$19,498,103	$20,711,576	$1,213,473	94.14%
2049	0	30	$19,498,103	$1,522,392	$4,666	$194,184	$2,043	$666,945	$958,510	$19,792,727	$20,195,731	$403,004	98.00%
2050	0	29	$19,792,727	$1,508,477	$4,635	$10,949	$1,168	$410,113	$962,697	$19,664,542	$19,664,542	-	100.00%
2051	0	28	$19,664,542	$1,490,738	$4,598	$6,669	$711	-	$946,482	$19,123,068	$19,123,068	-	100.00%
2052	0	27	$19,123,068	$1,470,283	$4,556	$6,062	$517	-	$919,895	$18,574,703	$18,574,703	-	100.00%
2053	0	26	$18,574,703	$1,448,832	$4,508	$5,578	$368	-	$892,992	$18,020,301	$18,020,301	-	100.00%
2054	0	25	$18,020,301	$1,426,205	$4,454	$5,173	$247	-	$865,819	$17,460,881	$17,460,881	-	100.00%
2055	0	25	$17,460,881	$1,402,398	$4,576	$5,058	$166	-	$838,428	$16,897,559	$16,897,559	-	100.00%
2056	0	24	$16,897,559	$1,377,325	$4,514	$4,839	$111	-	$810,875	$16,331,545	$16,331,545	-	100.00%
2057	0	23	$16,331,545	$1,351,503	$4,445	$4,445	-	-	$783,202	$15,763,244	$15,763,244	-	100.00%
2058	0	22	$15,763,244	$1,323,683	$4,369	$4,369	-	-	$755,474	$15,195,035	$15,195,035	-	100.00%
2059	0	21	$15,195,035	$1,294,726	$4,285	$4,284	-	-	$727,779	$14,628,087	$14,628,087	-	100.00%

Table 3 – Switch to Optional Funding Policy in 2020 (Cont.)

				Employer Contributions											
Year End June 30	Closed Group Payroll	New Entrant Payroll	Total Payroll	Employee Contrib.	Gross Normal Cost	Interest on Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Mid-Year Interest on Amortization	Premium Tax Allocation	Net Employer Amortization	Expenses	Optional Employer Contrib.	Statewide Employer Contrib.	Total Employer Contrib.[6]
2018															
2019	$688,341	-	$688,341	$56,836	$290,866	$5,779	$239,809	$839,430	$20,730	$240,729	$619,431	$3,966	$863,206	-	$867,114
2020	$686,445	$45,975	$732,420	$56,945	$290,461	$5,767	$239,283	$866,907	$21,408	$246,595	$641,720	$4,002	$885,005	$3,908	$892,989
2021	$671,522	$93,929	$765,451	$56,069	$284,470	$5,640	$234,041	$868,674	$21,452	$254,592	$635,534	$4,037	$873,612	$7,984	$887,105
2022	$653,795	$158,745	$812,540	$54,968	$277,193	$5,488	$227,713	$868,452	$21,446	$262,808	$627,090	$4,071	$858,874	$13,493	$877,070
2023	$649,507	$214,073	$863,580	$54,813	$275,628	$5,453	$226,268	$868,019	$21,436	$271,251	$618,204	$4,104	$848,576	$18,196	$871,208
2024	$650,779	$266,261	$917,040	$55,069	$276,372	$5,465	$226,768	$867,892	$21,433	$282,791	$606,534	$4,136	$837,438	$22,632	$864,242
2025	$657,506	$315,345	$972,851	$55,746	$279,368	$5,522	$229,144	$867,917	$21,433	$291,788	$597,562	$4,166	$830,872	$26,804	$861,634
2026	$669,170	$361,910	$1,031,080	$56,816	$284,427	$5,621	$233,232	$868,085	$21,437	$301,032	$588,490	$4,195	$825,917	$30,762	$860,562
2027	$680,710	$407,583	$1,088,293	$57,911	$289,447	$5,718	$237,254	$868,389	$21,445	$310,531	$579,303	$4,310	$820,867	$34,645	$859,550
2028	$698,188	$455,099	$1,153,287	$59,431	$296,896	$5,864	$243,329	$868,707	$21,453	$321,411	$568,749	$4,248	$816,326	$38,683	$859,048
2029	$716,726	$502,607	$1,219,333	$61,031	$304,802	$6,020	$249,791	$869,188	$21,465	$331,473	$559,180	$4,365	$813,336	$42,722	$860,268
2030	$735,986	$552,141	$1,288,127	$62,686	$313,016	$6,182	$256,512	$869,724	$21,478	$341,811	$549,391	$4,390	$810,293	$46,932	$861,647
2031	$743,469	$604,166	$1,347,635	$63,553	$315,547	$6,223	$258,217	$870,302	$21,492	$352,434	$539,360	$4,413	$801,990	$51,354	$859,694
2032	$748,160	$678,870	$1,427,030	$64,223	$316,596	$6,232	$258,605	$870,491	$21,497	$363,349	$528,639	$4,434	$791,678	$57,704	$855,179
2033	$749,813	$747,066	$1,496,879	$64,429	$316,156	$6,216	$257,943	$870,540	$21,498	$386,157	$505,881	$4,452	$768,276	$63,501	$839,256
2034	$735,724	$835,053	$1,570,777	$63,443	$308,678	$6,056	$251,291	$870,487	$21,497	$398,020	$493,964	$4,574	$749,829	$70,980	$829,242
2035	$719,038	$934,269	$1,653,307	$62,328	$300,135	$5,873	$243,680	$869,870	$21,482	$410,208	$481,144	$4,590	$729,414	$79,413	$817,564
2036	$689,939	$1,037,062	$1,727,001	$60,285	$287,505	$5,611	$232,831	$869,076	$21,462	$422,732	$467,806	$4,716	$705,353	$88,150	$803,577
2037	$647,744	$1,155,578	$1,803,322	$57,164	$269,712	$5,249	$217,797	$867,897	$21,433	$435,600	$453,730	$4,615	$676,142	$98,224	$784,758
2038	$568,150	$1,277,840	$1,845,990	$50,538	$236,303	$4,587	$190,352	$866,161	$21,390	$453,948	$433,603	$4,742	$628,697	$108,616	$752,015
2039	$467,352	$1,450,802	$1,918,154	$41,890	$194,323	$3,764	$156,197	$862,840	$21,308	$467,684	$416,464	$4,629	$577,290	$123,318	$714,498
2040	$373,238	$1,614,215	$1,987,453	$33,598	$154,230	$2,979	$123,611	$858,269	$21,195	$481,798	$397,666	$4,631	$525,908	$137,208	$678,211
2041	$272,935	$1,791,795	$2,064,730	$24,614	$111,975	$2,157	$89,518	$853,366	$21,074	$496,300	$378,140	$4,630	$472,288	$152,303	$638,369
2042	$202,210	$1,953,895	$2,156,105	$18,251	$82,489	$1,586	$65,824	$847,743	$20,935	$523,324	$345,354	$4,757	$415,935	$166,081	$593,274
2043	$155,201	$2,086,337	$2,241,538	$14,045	$62,738	$1,202	$49,895	$843,053	$20,819	$538,991	$324,881	$4,752	$379,528	$177,339	$567,073
2044	$119,044	$2,206,407	$2,325,451	$10,832	$47,462	$905	$37,535	$839,331	$20,727	$555,088	$304,970	$4,743	$347,248	$187,545	$544,616
2045	$91,988	$2,321,971	$2,413,959	$8,391	$35,990	$682	$28,281	$835,977	$20,645	$571,627	$284,995	$4,587	$317,863	$197,368	$525,029
2046	$75,155	$2,437,251	$2,512,406	$6,919	$29,129	$548	$22,758	$832,836	$20,567	$629,127	$224,276	$4,566	$251,600	$207,166	$468,603
2047	$56,141	$2,552,979	$2,609,120	$5,183	$21,652	$407	$16,876	$830,119	$20,500	$647,779	$202,840	$4,692	$224,408	$217,003	$452,418
2048	$32,134	$2,682,473	$2,714,607	$2,986	$12,372	$232	$9,618	$826,436	$20,409	$666,945	$179,900	$4,666	$194,184	$228,010	$433,217
2049	$21,453	$2,812,157	$2,833,610	$1,994	$8,156	$152	$6,314	$818,808	$20,221	$410,113	$428,916	$4,635	$10,949	$239,033	$261,097
2050	$12,267	$2,942,922	$2,955,189	$1,140	$4,527	$84	$3,471	-	-	-	-	$4,598	$6,669	$250,148	$268,251
2051	$7,465	$3,077,437	$3,084,902	$694	$2,715	$50	$2,071	-	-	-	-	$4,556	$6,062	$261,582	$279,390
2052	$5,431	$3,215,628	$3,221,059	$505	$1,975	$36	$1,506	-	-	-	-	$4,508	$5,578	$273,328	$290,885
2053	$3,860	$3,356,550	$3,360,410	$359	$1,404	$26	$1,071	-	-	-	-	$4,454	$5,173	$285,307	$302,722
2054	$2,592	$3,500,573	$3,503,165	$241	$943	$17	$719	-	-	-	-	$4,576	$5,058	$297,549	$315,070
2055	$1,740	$3,647,204	$3,648,944	$162	$633	$12	$483	-	-	-	-	$4,514	$4,839	$310,012	$327,621
2056	$1,167	$3,797,432	$3,798,599	$108	$425	$8	$325	-	-	-	-	$4,445	$4,445	$322,782	$340,081
2057	-	$3,948,659	$3,948,659	-	-	-	-	-	-	-	-	$4,369	$4,369	$335,636	$353,130
2058	-	$4,103,065	$4,103,065	-	-	-	-	-	-	-	-	$4,285	$4,284	$348,761	$366,401
2059															

[6] The *Total Employer Contrib.* for each row is equal to the sum of the current row *Optional Employer Contrib.* and the *Statewide Employer Contrib.* corresponding to the following row (since contributions under the Optional policy are assumed to be contributed in the fiscal year following the plan year).

Table 4 – Switch to Conservation Funding Policy in 2020

	Number (BOY)			Assets										
Year End June 30	Active	Non-Active	Total Payroll	Assets (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	Assets (EOY)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2018	16	41	$673,787	$4,219,912	$817,337	$86	$416,086	$57,693	$214,635	$313,110	$4,404,012	$18,241,162	$13,837,150	24.14%
2019	16	42	$688,341	$4,404,012	$872,317	$3,757	$445,213	$58,240	$222,060	$216,482	$4,469,933	$18,564,263	$14,094,330	24.08%
2020	15	41	$686,445	$4,469,933	$883,047	$3,966	$598,230	$58,351	$240,729	$223,751	$4,703,981	$18,892,606	$14,188,625	24.90%
2021	14	41	$671,522	$4,703,981	$941,513	$4,002	$651,539	$57,454	$246,595	$235,448	$4,949,502	$19,171,166	$14,221,664	25.82%
2022	13	41	$653,795	$4,949,502	$969,922	$4,037	$672,849	$56,325	$254,592	$247,717	$5,207,026	$19,426,903	$14,219,877	26.80%
2023	12	41	$649,507	$5,207,026	$989,635	$4,071	$684,474	$56,167	$262,808	$260,592	$5,477,361	$19,673,583	$14,196,222	27.84%
2024	11	41	$650,779	$5,477,361	$1,005,474	$4,104	$691,660	$56,429	$271,251	$274,109	$5,761,232	$19,917,148	$14,155,916	28.93%
2025	11	40	$657,506	$5,761,232	$1,017,661	$4,136	$691,746	$57,123	$282,791	$288,305	$6,059,400	$20,163,550	$14,104,150	30.05%
2026	10	40	$669,170	$6,059,400	$1,028,003	$4,166	$692,200	$58,219	$291,788	$303,218	$6,372,656	$20,416,986	$14,044,330	31.21%
2027	10	39	$680,710	$6,372,656	$1,038,564	$4,195	$692,597	$59,341	$301,032	$318,885	$6,701,752	$20,677,543	$13,975,791	32.41%
2028	10	39	$698,188	$6,701,752	$1,043,347	$4,310	$686,700	$60,899	$310,531	$335,346	$7,047,571	$20,954,048	$13,906,477	33.63%
2029	9	38	$716,726	$7,047,571	$1,049,356	$4,248	$680,406	$62,538	$321,411	$352,644	$7,410,966	$21,246,523	$13,835,557	34.88%
2030	9	38	$735,986	$7,410,966	$1,052,305	$4,365	$672,003	$64,234	$331,473	$370,821	$7,792,827	$21,559,224	$13,766,397	36.15%
2031	9	37	$743,469	$7,792,827	$1,062,752	$4,390	$671,361	$65,122	$341,811	$389,917	$8,193,896	$21,879,513	$13,685,617	37.45%
2032	8	37	$748,160	$8,193,896	$1,072,945	$4,413	$670,337	$65,809	$352,434	$409,972	$8,615,090	$22,206,473	$13,591,383	38.80%
2033	8	36	$749,813	$8,615,090	$1,086,160	$4,434	$672,472	$66,020	$363,349	$431,032	$9,057,369	$22,535,778	$13,478,409	40.19%
2034	7	36	$735,724	$9,057,369	$1,108,196	$4,452	$672,517	$65,010	$386,157	$453,141	$9,521,546	$22,851,116	$13,329,570	41.67%
2035	7	36	$719,038	$9,521,546	$1,128,084	$4,574	$681,557	$63,867	$398,020	$476,344	$10,008,676	$23,152,871	$13,144,195	43.23%
2036	6	36	$689,939	$10,008,676	$1,166,227	$4,590	$709,184	$61,774	$410,208	$500,689	$10,519,714	$23,417,368	$12,897,654	44.92%
2037	6	36	$647,744	$10,519,714	$1,200,895	$4,716	$734,019	$58,576	$422,732	$526,226	$11,055,656	$23,640,883	$12,585,227	46.76%
2038	5	35	$568,150	$11,055,656	$1,266,368	$4,615	$792,119	$51,786	$435,600	$552,993	$11,617,171	$23,773,404	$12,156,233	48.87%
2039	4	36	$467,352	$11,617,171	$1,333,314	$4,742	$848,194	$42,924	$453,948	$581,032	$12,205,213	$23,799,873	$11,594,660	51.28%
2040	3	35	$373,238	$12,205,213	$1,398,700	$4,629	$906,816	$34,428	$467,684	$610,399	$12,821,211	$23,718,567	$10,897,356	54.06%
2041	2	35	$272,935	$12,821,211	$1,463,882	$4,631	$965,587	$25,222	$481,798	$641,162	$13,466,467	$23,522,036	$10,055,569	57.25%
2042	1	35	$202,210	$13,466,467	$1,503,250	$4,630	$995,911	$18,702	$496,300	$673,398	$14,142,898	$23,244,378	$9,101,480	60.84%
2043	1	35	$155,201	$14,142,898	$1,524,705	$4,757	$994,074	$14,392	$523,324	$707,202	$14,852,428	$22,910,114	$8,057,686	64.83%
2044	1	34	$119,044	$14,852,428	$1,536,838	$4,752	$993,286	$11,099	$538,991	$742,666	$15,596,880	$22,530,664	$6,933,784	69.23%
2045	1	33	$91,988	$15,596,880	$1,540,863	$4,743	$983,300	$8,598	$555,088	$779,878	$16,378,138	$22,116,072	$5,737,934	74.06%
2046	0	32	$75,155	$16,378,138	$1,536,588	$4,587	$963,585	$7,090	$571,627	$818,935	$17,198,200	$21,677,927	$4,479,727	79.34%
2047	0	31	$56,141	$17,198,200	$1,536,247	$4,566	$907,217	$5,311	$629,127	$859,931	$18,058,973	$21,210,373	$3,151,400	85.14%
2048	0	31	$32,134	$18,058,973	$1,534,414	$4,692	$888,749	$3,060	$647,779	$902,961	$18,962,416	$20,711,576	$1,749,160	91.55%
2049	0	30	$21,453	$18,962,416	$1,522,392	$4,666	$858,392	$2,043	$666,945	$948,129	$19,910,867	$20,195,731	$284,864	98.59%
2050	0	29	$12,267	$19,910,867	$1,508,477	$4,635	$4,635	$1,168	$295,370	$965,614	$19,664,542	$19,664,542	-	100.00%
2051	0	28	$7,465	$19,664,542	$1,490,738	$4,598	$6,669	$711	-	$946,482	$19,123,068	$19,123,068	-	100.00%
2052	0	27	$5,431	$19,123,068	$1,470,283	$4,556	$6,062	$517	-	$919,895	$18,574,703	$18,574,703	-	100.00%
2053	0	26	$3,860	$18,574,703	$1,448,832	$4,508	$5,578	$368	-	$892,992	$18,020,301	$18,020,301	-	100.00%
2054	0	25	$2,592	$18,020,301	$1,426,205	$4,454	$5,173	$247	-	$865,819	$17,460,881	$17,460,881	-	100.00%
2055	0	25	$1,740	$17,460,881	$1,402,398	$4,576	$5,058	$166	-	$838,428	$16,897,559	$16,897,559	-	100.00%
2056	0	24	$1,167	$16,897,559	$1,377,325	$4,514	$4,838	$111	-	$810,876	$16,331,545	$16,331,545	-	100.00%
2057	0	23	-	$16,331,545	$1,351,503	$4,445	$4,445	-	-	$783,202	$15,763,244	$15,763,244	-	100.00%
2058	0	22	-	$15,763,244	$1,323,683	$4,369	$4,369	-	-	$755,474	$15,195,035	$15,195,035	-	100.00%
2059	0	21	-	$15,195,035	$1,294,726	$4,285	$4,285	-	-	$727,778	$14,628,087	$14,628,087	-	100.00%

Year End June 30	Benefit Payment Account[7]							Accumulation Account							
	Assets (BOY)	Net Benefit Pmts and Expenses	Employer Contrib.	Employee Contrib.	100.00% of Premium Tax Allocation	Investment Income	Transfer (To)/From Accumulation Account	Assets (BOY)	Net Benefit Pmts and Expenses	Employer Contrib.	1.50% of Pay Employee Contrib.	0.00% of Premium Tax Allocation	Investment Income	Statewide Employer Contrib.	Total Employer Contrib.
2018															
2019															
2020	-	$887,013	$598,230	$48,054	$240,729	-	-	$4,469,933	-	-	$10,297	-	$223,751	$3,908	$602,138
2021	-	$945,515	$651,539	$47,381	$246,595	-	-	$4,703,981	-	-	$10,073	-	$235,448	$7,984	$659,523
2022	-	$973,959	$672,849	$46,518	$254,592	-	-	$4,949,502	-	-	$9,807	-	$247,717	$13,493	$686,342
2023	-	$993,706	$684,474	$46,424	$262,808	-	-	$5,207,026	-	-	$9,743	-	$260,592	$18,196	$702,670
2024	-	$1,009,578	$691,660	$46,667	$271,251	-	-	$5,477,361	-	-	$9,762	-	$274,109	$22,632	$714,292
2025	-	$1,021,797	$691,746	$47,260	$282,791	-	-	$5,761,232	-	-	$9,863	-	$288,305	$26,804	$718,550
2026	-	$1,032,169	$692,200	$48,181	$291,788	-	-	$6,059,400	-	-	$10,038	-	$303,218	$30,762	$722,962
2027	-	$1,042,759	$692,597	$49,130	$301,032	-	-	$6,372,656	-	-	$10,211	-	$318,885	$34,645	$727,242
2028	-	$1,047,657	$686,700	$50,426	$310,531	-	-	$6,701,752	-	-	$10,473	-	$335,346	$38,683	$725,383
2029	-	$1,053,604	$680,406	$51,787	$321,411	-	-	$7,047,571	-	-	$10,751	-	$352,644	$42,722	$723,128
2030	-	$1,056,670	$672,003	$53,194	$331,473	-	-	$7,410,966	-	-	$11,040	-	$370,821	$46,932	$718,935
2031	-	$1,067,142	$671,361	$53,970	$341,811	-	-	$7,792,827	-	-	$11,152	-	$389,917	$51,354	$722,715
2032	-	$1,077,358	$670,337	$54,587	$352,434	-	-	$8,193,896	-	-	$11,222	-	$409,972	$57,704	$728,041
2033	-	$1,090,594	$672,472	$54,773	$363,349	-	-	$8,615,090	-	-	$11,247	-	$431,032	$63,501	$735,973
2034	-	$1,112,648	$672,517	$53,974	$386,157	-	-	$9,057,369	-	-	$11,036	-	$453,141	$70,980	$743,497
2035	-	$1,132,658	$681,557	$53,081	$398,020	-	-	$9,521,546	-	-	$10,786	-	$476,344	$79,413	$760,970
2036	-	$1,170,817	$709,184	$51,425	$410,208	-	-	$10,008,676	-	-	$10,349	-	$500,689	$88,150	$797,334
2037	-	$1,205,611	$734,019	$48,860	$422,732	-	-	$10,519,714	-	-	$9,716	-	$526,226	$98,224	$832,243
2038	-	$1,270,983	$792,119	$43,264	$435,600	-	-	$11,055,656	-	-	$8,522	-	$552,993	$108,616	$900,735
2039	-	$1,338,056	$848,194	$35,914	$453,948	-	-	$11,617,171	-	-	$7,010	-	$581,032	$123,318	$971,512
2040	-	$1,403,329	$906,816	$28,829	$467,684	-	-	$12,205,213	-	-	$5,599	-	$610,399	$137,208	$1,044,024
2041	-	$1,468,513	$965,587	$21,128	$481,798	-	-	$12,821,211	-	-	$4,094	-	$641,162	$152,303	$1,117,890
2042	-	$1,507,880	$995,911	$15,669	$496,300	-	-	$13,466,467	-	-	$3,033	-	$673,398	$166,081	$1,161,992
2043	-	$1,529,462	$994,074	$12,064	$523,324	-	-	$14,142,898	-	-	$2,328	-	$707,202	$177,339	$1,171,413
2044	-	$1,541,590	$993,286	$9,313	$538,991	-	-	$14,852,428	-	-	$1,786	-	$742,666	$187,545	$1,180,831
2045	-	$1,545,606	$983,300	$7,218	$555,088	-	-	$15,596,880	-	-	$1,380	-	$779,878	$197,368	$1,180,668
2046	-	$1,541,175	$963,585	$5,963	$571,627	-	-	$16,378,138	-	-	$1,127	-	$818,935	$207,166	$1,170,751
2047	-	$1,540,813	$907,217	$4,469	$629,127	-	-	$17,198,200	-	-	$842	-	$859,931	$217,003	$1,124,220
2048	-	$1,539,106	$888,749	$2,578	$647,779	-	-	$18,058,973	-	-	$482	-	$902,961	$228,010	$1,116,759
2049	-	$1,527,058	$858,392	$1,721	$666,945	-	-	$18,962,416	-	-	$322	-	$948,129	$239,033	$1,097,425
2050	-	$1,513,112	$4,635	$984	$295,370	-	$1,212,123	$19,910,867	-	-	$184	-	$965,614	$250,148	$254,783
2051	-	-	-	-	-	-	-	$19,664,542	$1,495,336	$6,669	$711	-	$946,482	$261,582	$268,251
2052	-	-	-	-	-	-	-	$19,123,068	$1,474,839	$6,062	$517	-	$919,895	$273,328	$279,390
2053	-	-	-	-	-	-	-	$18,574,703	$1,453,340	$5,578	$368	-	$892,992	$285,307	$290,885
2054	-	-	-	-	-	-	-	$18,020,301	$1,430,659	$5,173	$247	-	$865,819	$297,549	$302,722
2055	-	-	-	-	-	-	-	$17,460,881	$1,406,974	$5,058	$166	-	$838,428	$310,012	$315,070
2056	-	-	-	-	-	-	-	$16,897,559	$1,381,839	$4,838	$111	-	$810,876	$322,782	$327,620
2057	-	-	-	-	-	-	-	$16,331,545	$1,355,948	$4,445	-	-	$783,202	$335,636	$340,081
2058	-	-	-	-	-	-	-	$15,763,244	$1,328,052	$4,369	-	-	$755,474	$348,761	$353,130
2059	-	-	-	-	-	-	-	$15,195,035	$1,299,011	$4,285	-	-	$727,778	$362,117	$366,402

[7] 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.

Table 5 – Switch to Optional Funding Policy in 2038

	Number (BOY)		Assets										
Year End June 30	Active	Non-Active	Assets (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	Assets (EOY)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2018	16	41	$4,219,912	$817,337	$86	$416,086	$57,693	$214,635	$313,110	$4,404,012	$18,241,162	$13,837,150	24.14%
2019	16	42	$4,404,012	$872,317	$3,757	$445,213	$58,240	$222,060	$216,482	$4,469,933	$18,564,263	$14,094,330	24.08%
2020	16	41	$4,469,933	$883,167	$3,966	$476,378	$62,721	$240,729	$220,847	$4,583,475	$18,913,633	$14,330,158	24.23%
2021	16	41	$4,583,475	$941,950	$4,075	$509,724	$66,381	$246,595	$226,128	$4,686,278	$19,235,985	$14,549,707	24.36%
2022	16	41	$4,686,278	$970,907	$4,187	$545,405	$71,412	$254,592	$231,753	$4,814,346	$19,566,892	$14,752,546	24.60%
2023	16	41	$4,814,346	$991,416	$4,302	$583,583	$76,511	$262,808	$238,919	$4,980,449	$19,917,055	$14,936,606	25.01%
2024	16	41	$4,980,449	$1,008,305	$4,420	$624,434	$81,733	$271,251	$248,151	$5,193,293	$20,292,106	$15,098,813	25.59%
2025	16	40	$5,193,293	$1,021,763	$4,462	$668,144	$87,091	$282,791	$259,956	$5,465,050	$20,697,725	$15,232,675	26.40%
2026	16	40	$5,465,050	$1,033,594	$4,585	$714,914	$92,613	$291,788	$274,762	$5,800,948	$21,138,104	$15,337,156	27.44%
2027	16	39	$5,800,948	$1,045,724	$4,627	$764,958	$98,075	$301,032	$292,856	$6,207,518	$21,614,208	$15,406,690	28.72%
2028	16	39	$6,207,518	$1,052,046	$4,754	$818,505	$104,146	$310,531	$314,732	$6,698,632	$22,137,152	$15,438,520	30.26%
2029	16	38	$6,698,632	$1,059,534	$4,796	$875,800	$110,300	$321,411	$340,937	$7,282,750	$22,708,550	$15,425,800	32.07%
2030	16	38	$7,282,750	$1,063,990	$4,928	$937,106	$116,703	$331,473	$371,950	$7,971,064	$23,335,169	$15,364,105	34.16%
2031	16	37	$7,971,064	$1,076,155	$4,970	$1,002,703	$122,534	$341,811	$408,084	$8,765,071	$24,007,028	$15,241,957	36.51%
2032	16	37	$8,765,071	$1,088,436	$5,107	$1,072,892	$130,319	$352,434	$449,665	$9,676,838	$24,735,013	$15,058,175	39.12%
2033	16	37	$9,676,838	$1,104,098	$5,247	$1,147,994	$137,009	$363,349	$497,153	$10,712,998	$25,513,935	$14,800,937	41.99%
2034	16	37	$10,712,998	$1,128,996	$5,391	$1,228,354	$144,359	$386,157	$551,072	$11,888,553	$26,338,459	$14,449,906	45.14%
2035	16	36	$11,888,553	$1,152,253	$5,435	$1,314,339	$152,645	$398,020	$611,895	$13,207,764	$27,216,513	$14,008,749	48.53%
2036	16	36	$13,207,764	$1,194,272	$5,584	$1,406,343	$160,320	$410,208	$679,577	$14,664,356	$28,128,864	$13,464,508	52.13%
2037	16	36	$14,664,356	$1,233,419	$5,738	$1,504,787	$168,383	$422,732	$754,375	$16,275,476	$29,081,860	$12,806,384	55.96%
2038	15	35	$16,275,476	$1,248,591	$5,669	$1,550,202	$172,870	$435,600	$836,108	$18,015,996	$30,081,442	$12,065,446	59.89%
2039	14	35	$18,015,996	$1,331,259	$5,708	$1,537,308	$170,213	$453,948	$921,161	$19,761,659	$31,029,255	$11,267,596	63.69%
2040	13	35	$19,761,659	$1,371,428	$5,745	$1,512,380	$166,869	$467,684	$1,007,092	$21,538,511	$31,962,606	$10,424,095	67.39%
2041	12	35	$21,538,511	$1,399,301	$5,780	$1,482,316	$166,400	$481,798	$1,094,840	$23,358,784	$32,909,607	$9,550,823	70.98%
2042	11	35	$23,358,784	$1,421,697	$5,813	$1,463,859	$167,176	$496,300	$1,185,221	$25,243,830	$33,883,113	$8,639,283	74.50%
2043	11	34	$25,243,830	$1,438,929	$5,843	$1,439,645	$169,231	$523,324	$1,279,168	$27,210,426	$34,896,139	$7,685,713	77.98%
2044	10	34	$27,210,426	$1,453,552	$5,870	$1,432,903	$172,479	$538,991	$1,377,436	$29,272,813	$35,959,193	$6,686,380	81.41%
2045	10	33	$29,272,813	$1,468,485	$5,894	$1,431,658	$175,803	$555,088	$1,480,635	$31,441,618	$37,074,346	$5,632,728	84.81%
2046	10	33	$31,441,618	$1,475,248	$6,056	$1,431,910	$180,418	$571,627	$1,589,433	$33,733,702	$38,259,478	$4,525,776	88.17%
2047	9	32	$33,733,702	$1,483,744	$5,933	$1,397,973	$185,274	$629,127	$1,704,532	$36,160,931	$39,517,610	$3,356,679	91.51%
2048	9	32	$36,160,931	$1,487,914	$6,096	$1,408,601	$190,298	$647,779	$1,826,634	$38,740,233	$40,857,700	$2,117,467	94.82%
2049	9	31	$38,740,233	$1,502,686	$6,111	$1,426,359	$192,929	$666,945	$1,956,210	$41,473,879	$42,256,817	$782,938	98.15%
2050	8	31	$41,473,879	$1,517,098	$6,122	$804,100	$194,964	$686,637	$2,077,706	$43,714,066	$43,714,066	-	100.00%
2051	8	30	$43,714,066	$1,535,783	$6,129	$686,604	$195,589	-	$2,169,412	$45,223,759	$45,223,759	-	100.00%
2052	7	30	$45,223,759	$1,566,941	$6,132	$668,837	$192,597	-	$2,243,614	$46,755,734	$46,755,734	-	100.00%
2053	7	30	$46,755,734	$1,595,062	$6,301	$648,674	$189,210	-	$2,318,932	$48,311,187	$48,311,187	-	100.00%
2054	6	30	$48,311,187	$1,648,995	$6,299	$619,834	$183,010	-	$2,394,508	$49,853,245	$49,853,245	-	100.00%
2055	6	30	$49,853,245	$1,698,014	$6,472	$580,139	$173,535	-	$2,469,182	$51,371,615	$51,371,615	-	100.00%
2056	5	29	$51,371,615	$1,790,590	$6,281	$507,475	$153,419	-	$2,540,528	$52,776,166	$52,776,166	-	100.00%
2057	4	30	$52,776,166	$1,885,249	$6,454	$417,583	$127,165	-	$2,605,545	$54,034,756	$54,034,756	-	100.00%
2058	3	29	$54,034,756	$1,977,702	$6,241	$331,453	$101,995	-	$2,663,448	$55,147,709	$55,147,709	-	100.00%
2059													

Table 5 – Switch to Optional Funding Policy in 2038 (Cont.)

				Employer Contributions									Contribution Comparison				
Year End June 30	Closed Group Payroll	New Entrant Payroll	Total Payroll	Employee Contrib.	Gross Normal Cost	Interest on Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Mid-Year Interest on Amortization	Premium Tax Allocation	Net Employer Amortization	Expenses	Opt. Employer Contrib.	Statewide Employer Contrib.	Total Contrib. if Switch	Alt. Employer Contrib.	Final Employer Contrib.[8]
2018																	
2019	$688,341	-	$688,341	$58,240	$290,866	$5,779	$239,809	$839,430	$20,730	$240,729	$619,431	$3,966	$863,206	-	$863,206	$445,213	$476,378
2020	$732,420	-	$732,420	$62,721	$310,604	$6,121	$254,004	$866,907	$21,408	$246,595	$641,720	$4,075	$899,799	-	$899,799	$476,378	$509,724
2021	$765,451	-	$765,451	$66,381	$325,602	$6,401	$265,622	$894,456	$22,089	$254,592	$661,953	$4,187	$931,762	-	$931,762	$509,724	$545,405
2022	$812,540	-	$812,540	$71,412	$346,658	$6,797	$282,043	$922,494	$22,781	$262,808	$682,467	$4,302	$968,812	-	$968,812	$545,405	$583,583
2023	$863,580	-	$863,580	$76,511	$369,255	$7,229	$299,973	$951,118	$23,488	$271,251	$703,355	$4,420	$1,007,748	-	$1,007,748	$583,583	$624,434
2024	$917,040	-	$917,040	$81,733	$392,765	$7,681	$318,713	$980,332	$24,209	$282,791	$721,750	$4,462	$1,044,925	-	$1,044,925	$624,434	$668,144
2025	$972,851	-	$972,851	$87,091	$417,152	$8,151	$338,212	$1,010,083	$24,944	$291,788	$743,239	$4,585	$1,086,036	-	$1,086,036	$668,144	$714,914
2026	$1,031,080	-	$1,031,080	$92,613	$442,487	$8,640	$358,514	$1,040,093	$25,685	$301,032	$764,746	$4,627	$1,127,887	-	$1,127,887	$714,914	$764,958
2027	$1,088,293	-	$1,088,293	$98,075	$467,378	$9,120	$378,423	$1,070,449	$26,435	$310,531	$786,353	$4,754	$1,169,530	-	$1,169,530	$764,958	$818,505
2028	$1,153,287	-	$1,153,287	$104,146	$495,486	$9,664	$401,004	$1,100,937	$27,188	$321,411	$806,714	$4,796	$1,212,514	-	$1,212,514	$818,505	$875,800
2029	$1,219,333	-	$1,219,333	$110,300	$524,038	$10,217	$423,955	$1,131,535	$27,943	$331,473	$828,005	$4,928	$1,256,888	-	$1,256,888	$875,800	$937,106
2030	$1,288,127	-	$1,288,127	$116,703	$553,768	$10,793	$447,858	$1,161,926	$28,694	$341,811	$848,809	$4,970	$1,301,637	-	$1,301,637	$937,106	$1,002,703
2031	$1,347,635	-	$1,347,635	$122,534	$578,887	$11,270	$467,623	$1,191,952	$29,435	$352,434	$868,953	$5,107	$1,341,683	-	$1,341,683	$1,002,703	$1,072,892
2032	$1,427,030	-	$1,427,030	$130,319	$612,332	$11,903	$493,916	$1,220,884	$30,150	$363,349	$887,685	$5,247	$1,386,848	-	$1,386,848	$1,072,892	$1,147,994
2033	$1,496,879	-	$1,496,879	$137,009	$641,462	$12,458	$516,911	$1,248,752	$30,838	$386,157	$893,433	$5,391	$1,415,735	-	$1,415,735	$1,147,994	$1,228,354
2034	$1,570,777	-	$1,570,777	$144,359	$672,099	$13,033	$540,773	$1,274,678	$31,478	$398,020	$908,136	$5,435	$1,454,344	-	$1,454,344	$1,228,354	$1,314,339
2035	$1,653,307	-	$1,653,307	$152,645	$706,513	$13,678	$567,546	$1,296,877	$32,026	$410,208	$918,695	$5,584	$1,491,825	-	$1,491,825	$1,314,339	$1,406,343
2036	$1,727,001	-	$1,727,001	$160,320	$738,371	$14,275	$592,326	$1,315,476	$32,486	$422,732	$925,230	$5,738	$1,523,294	-	$1,523,294	$1,406,343	$1,504,787
2037	$1,803,322	-	$1,803,322	$168,383	$771,839	$14,902	$618,358	$1,328,956	$32,819	$435,600	$926,175	$5,669	$1,550,202	-	$1,554,251	$1,504,787	$1,554,251
2038	$1,798,355	$47,635	$1,845,990	$172,870	$770,764	$14,868	$616,928	$1,335,636	$32,984	$453,948	$914,672	$5,708	$1,537,308	$4,049	$1,550,814	$1,610,122	$1,550,814
2039	$1,759,260	$158,894	$1,918,154	$170,213	$754,866	$14,539	$603,294	$1,337,983	$33,042	$467,684	$903,341	$5,745	$1,512,380	$13,506	$1,535,724	$1,722,831	$1,535,724
2040	$1,712,819	$274,634	$1,987,453	$166,869	$735,556	$14,143	$586,852	$1,338,429	$33,053	$481,798	$889,684	$5,780	$1,482,316	$23,344	$1,513,183	$1,843,429	$1,513,183
2041	$1,701,585	$363,145	$2,064,730	$166,400	$731,403	$14,052	$583,065	$1,338,233	$33,048	$496,300	$874,981	$5,813	$1,463,859	$30,867	$1,502,210	$1,972,469	$1,502,210
2042	$1,704,917	$451,188	$2,156,105	$167,176	$733,377	$14,082	$584,312	$1,339,729	$33,085	$523,324	$849,490	$5,843	$1,439,645	$38,351	$1,483,760	$2,110,542	$1,483,760
2043	$1,722,540	$518,998	$2,241,538	$169,231	$741,327	$14,229	$590,403	$1,342,469	$33,152	$538,991	$836,630	$5,870	$1,432,903	$44,115	$1,481,553	$2,258,280	$1,481,553
2044	$1,753,097	$572,354	$2,325,451	$172,479	$754,751	$14,482	$600,911	$1,346,685	$33,256	$555,088	$824,853	$5,894	$1,431,658	$48,650	$1,485,261	$2,416,360	$1,485,261
2045	$1,783,330	$630,629	$2,413,959	$175,803	$768,072	$14,731	$611,237	$1,352,836	$33,408	$571,627	$814,617	$6,056	$1,431,910	$53,603	$1,489,989	$2,585,505	$1,489,989
2046	$1,829,119	$683,287	$2,512,406	$180,418	$787,839	$15,108	$626,877	$1,360,688	$33,602	$629,127	$765,163	$5,933	$1,397,973	$58,079	$1,460,145	$2,358,291	$1,460,145
2047	$1,877,685	$731,435	$2,609,120	$185,274	$808,818	$15,509	$643,518	$1,372,863	$33,903	$647,779	$758,987	$6,096	$1,408,601	$62,172	$1,475,450	$911,994	$1,475,450
2048	$1,928,143	$786,464	$2,714,607	$190,298	$830,615	$15,926	$660,829	$1,391,989	$34,375	$666,945	$759,419	$6,111	$1,426,359	$66,849	$1,501,657	$949,266	$1,501,657
2049	$1,947,747	$885,863	$2,833,610	$192,929	$837,331	$16,028	$665,080	$1,428,792	$35,284	$686,637	$777,439	$6,122	$804,100	$75,298	$888,688	$990,734	$888,688
2050	$1,960,037	$995,152	$2,955,189	$194,964	$840,115	$16,048	$665,898	$782,938	$19,335	-	$802,273	$6,129	$686,604	$84,588	$781,849	$1,032,899	$781,849
2051	$1,964,368	$1,120,534	$3,084,902	$195,589	$838,947	$16,004	$664,076	-	-	-	-	$6,132	$668,837	$95,245	$778,793	$1,077,981	$778,793
2052	$1,927,457	$1,293,602	$3,221,059	$192,597	$819,103	$15,586	$646,734	-	-	-	-	$6,301	$648,674	$109,956	$774,191	$1,125,195	$774,191
2053	$1,883,743	$1,476,667	$3,360,410	$189,210	$796,433	$15,108	$626,891	-	-	-	-	$6,299	$619,834	$125,517	$763,965	$1,173,316	$763,965
2054	$1,807,509	$1,695,656	$3,503,165	$183,010	$762,918	$14,430	$598,749	-	-	-	-	$6,472	$580,139	$144,131	$746,057	$1,222,765	$746,057
2055	$1,696,966	$1,951,978	$3,648,944	$173,535	$715,703	$13,492	$559,842	-	-	-	-	$6,281	$507,475	$165,918	$703,838	$1,273,064	$703,838
2056	$1,488,445	$2,310,154	$3,798,599	$153,419	$627,049	$11,788	$489,115	-	-	-	-	$6,454	$417,583	$196,363	$649,147	$1,324,854	$649,147
2057	$1,224,373	$2,724,286	$3,948,659	$127,165	$515,652	$9,669	$401,221	-	-	-	-	$6,241	$331,453	$231,564	$597,100	$1,376,827	$597,100
2058	$977,812	$3,125,253	$4,103,065	$101,995	$409,262	$7,649	$317,374	-	-	-	-	$6,212	$241,637	$265,647	$542,976	$1,430,042	$542,976
2059																	

[8] The *Final Employer Contrib.* compares the *Alt. Employer Contrib.* corresponding to the following row to the current row's *Total Contrib. if Switch*, which is the sum of the current row *Opt. Employer Contrib.* and the *Statewide Employer Contrib.* corresponding to the following row (since contributions under the Optional policy are assumed to be contributed in the fiscal year following the plan year). After the first occurrence of the *Total Contrib. if Switch* being smaller than the *Alt. Employer Contrib.*, this column shows the *Total Contrib. if Switch* in all subsequent years.

Table 6 – Switch to Conservation Funding Policy in 2026

	Number (BOY)			Assets										
Year End June 30	Active	Non-Active	Total Payroll	Assets (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	Assets (EOY)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2018	16	41	$673,787	$4,219,912	$817,337	$86	$416,086	$57,693	$214,635	$313,110	$4,404,012	$18,241,162	$13,837,150	24.1%
2019	16	42	$688,341	$4,404,012	$872,317	$3,757	$445,213	$58,240	$222,060	$216,482	$4,469,933	$18,564,263	$14,094,330	24.1%
2020	16	41	$732,420	$4,469,933	$883,167	$3,966	$476,378	$62,721	$240,729	$220,847	$4,583,475	$18,913,633	$14,330,158	24.2%
2021	16	41	$765,451	$4,583,475	$941,950	$4,075	$509,724	$66,381	$246,595	$226,128	$4,686,278	$19,235,985	$14,549,707	24.4%
2022	16	41	$812,540	$4,686,278	$970,907	$4,187	$545,405	$71,412	$254,592	$231,753	$4,814,346	$19,566,892	$14,752,546	24.6%
2023	16	41	$863,580	$4,814,346	$991,416	$4,302	$583,583	$76,511	$262,808	$238,919	$4,980,449	$19,917,055	$14,936,606	25.0%
2024	16	41	$917,040	$4,980,449	$1,008,305	$4,420	$624,434	$81,733	$271,251	$248,151	$5,193,293	$20,292,106	$15,098,813	25.6%
2025	16	40	$972,851	$5,193,293	$1,021,763	$4,462	$668,144	$87,091	$282,791	$259,956	$5,465,050	$20,697,725	$15,232,675	26.4%
2026	15	39	$970,171	$5,465,050	$1,033,594	$4,421	$676,441	$87,257	$291,788	$273,684	$5,756,205	$21,110,892	$15,354,687	27.3%
2027	14	39	$949,080	$5,756,205	$1,045,724	$4,458	$680,480	$85,916	$301,032	$288,236	$6,061,687	$21,523,266	$15,461,579	28.2%
2028	13	39	$924,026	$6,061,687	$1,052,046	$4,494	$678,746	$84,228	$310,531	$303,503	$6,382,155	$21,938,823	$15,556,668	29.1%
2029	12	39	$917,966	$6,382,155	$1,059,534	$4,529	$675,643	$83,992	$321,411	$319,527	$6,718,665	$22,365,129	$15,646,464	30.0%
2030	11	39	$919,764	$6,718,665	$1,063,990	$4,562	$669,806	$84,384	$331,473	$336,356	$7,072,132	$22,809,304	$15,737,172	31.0%
2031	11	38	$929,271	$7,072,132	$1,076,155	$4,594	$670,873	$85,422	$341,811	$354,035	$7,443,524	$23,267,735	$15,824,211	32.0%
2032	10	38	$945,756	$7,443,524	$1,087,091	$4,624	$669,930	$87,061	$352,434	$372,614	$7,833,848	$23,745,499	$15,911,651	33.0%
2033	10	37	$962,066	$7,833,848	$1,098,259	$4,652	$668,887	$88,739	$363,349	$392,138	$8,244,050	$24,243,267	$15,999,217	34.0%
2034	10	37	$986,768	$8,244,050	$1,103,317	$4,780	$649,535	$91,069	$386,157	$412,663	$8,675,377	$24,771,958	$16,096,581	35.0%
2035	9	36	$1,012,968	$8,675,377	$1,109,671	$4,702	$642,008	$93,520	$398,020	$434,242	$9,128,794	$25,332,478	$16,203,684	36.0%
2036	9	36	$1,040,189	$9,128,794	$1,112,790	$4,831	$631,062	$96,056	$410,208	$456,926	$9,605,425	$25,930,197	$16,324,772	37.0%
2037	9	35	$1,050,765	$9,605,425	$1,123,837	$4,854	$628,563	$97,384	$422,732	$480,765	$10,106,178	$26,550,294	$16,444,116	38.1%
2038	8	35	$1,057,395	$10,106,178	$1,134,616	$4,874	$625,696	$98,411	$435,600	$505,808	$10,632,203	$27,191,930	$16,559,727	39.1%
2039	8	34	$1,059,731	$10,632,203	$1,148,591	$4,892	$621,243	$98,727	$453,948	$532,115	$11,184,753	$27,850,665	$16,665,912	40.2%
2040	7	34	$1,039,819	$11,184,753	$1,171,894	$4,907	$632,174	$97,217	$467,684	$559,738	$11,764,765	$28,507,197	$16,742,432	41.3%
2041	7	34	$1,016,236	$11,764,765	$1,192,925	$5,042	$640,723	$95,508	$481,798	$588,734	$12,373,561	$29,162,141	$16,788,580	42.4%
2042	6	34	$975,110	$12,373,561	$1,233,260	$5,054	$669,226	$92,378	$496,300	$619,162	$13,012,313	$29,789,481	$16,777,168	43.7%
2043	6	34	$915,475	$13,012,313	$1,269,921	$5,193	$683,159	$87,596	$523,324	$651,084	$13,682,362	$30,383,828	$16,701,466	45.0%
2044	5	33	$802,983	$13,682,362	$1,339,157	$5,069	$745,228	$77,442	$538,991	$684,549	$14,384,346	$30,886,637	$16,502,291	46.6%
2045	4	34	$660,522	$14,384,346	$1,409,951	$5,208	$811,340	$64,190	$555,088	$719,599	$15,119,404	$31,278,827	$16,159,423	48.3%
2046	3	33	$527,508	$15,119,404	$1,479,095	$5,070	$874,682	$51,485	$571,627	$756,307	$15,889,340	$31,559,400	$15,670,060	50.3%
2047	2	33	$385,747	$15,889,340	$1,548,024	$5,065	$898,321	$37,718	$629,127	$794,765	$16,696,182	$31,719,739	$15,023,557	52.6%
2048	1	33	$285,789	$16,696,182	$1,589,655	$5,056	$929,729	$27,968	$647,779	$835,075	$17,542,022	$31,801,033	$14,259,011	55.2%
2049	1	33	$219,350	$17,542,022	$1,612,343	$5,195	$939,029	$21,523	$666,945	$877,347	$18,429,328	$31,833,402	$13,404,074	57.9%
2050	1	32	$168,248	$18,429,328	$1,625,173	$5,181	$936,509	$16,598	$686,637	$921,698	$19,360,416	$31,831,238	$12,470,822	60.8%
2051	1	31	$130,009	$19,360,416	$1,629,429	$5,162	$925,218	$12,858	$705,520	$968,243	$20,337,664	$31,807,329	$11,469,665	63.9%
2052	-	30	$106,218	$20,337,664	$1,624,908	$4,972	$903,197	$10,603	$724,922	$1,017,102	$21,363,608	$31,776,525	$10,412,917	67.2%
2053	-	29	$79,345	$21,363,608	$1,624,547	$4,938	$885,324	$7,943	$744,857	$1,068,394	$22,440,641	$31,733,292	$9,292,651	70.7%
2054	-	29	$45,416	$22,440,641	$1,622,609	$5,074	$866,100	$4,576	$765,341	$1,122,238	$23,571,213	$31,675,908	$8,104,695	74.4%
2055	-	28	$30,320	$23,571,213	$1,609,896	$5,034	$833,806	$3,055	$786,388	$1,178,766	$24,758,298	$31,622,333	$6,864,035	78.3%
2056	-	27	$17,337	$24,758,298	$1,595,181	$4,988	$798,748	$1,747	$808,014	$1,238,121	$26,004,759	$31,575,692	$5,570,933	82.4%
2057	-	26	$10,550	$26,004,759	$1,576,422	$4,935	$758,520	$1,063	$830,234	$1,300,447	$27,313,666	$31,543,212	$4,229,546	86.6%
2058	-	25	$7,675	$27,313,666	$1,554,791	$4,876	$714,475	$773	$853,065	$1,365,897	$28,688,209	$31,530,160	$2,841,951	91.0%
2059	-	24	$5,455	$28,688,209	$1,532,107	$4,810	$668,690	$550	$876,524	$1,434,629	$30,131,685	$31,538,839	$1,407,154	95.5%

Table 6 – Switch to Conservation Funding Policy in 2026 (Cont.)

	Benefit Payment Account[9]							Accumulation Account						Contribution Comparison				
Year End June 30	Assets (BOY)	Net Benefit Pmts and Expenses	Employer Contrib.	Employee Contrib.	100.00% of Premium Tax Allocation	Investment Income	Transfer (To)/From Acc. Account	Assets (BOY)	Net Benefit Pmts and Expenses	Employer Contrib.	1.50% of Pay Employee Contrib.	1.00% of Premium Tax Allocation	Investment Income	Cons. Employer Contrib.	Statewide Employer Contrib.	Total Contrib. if Switch	Alt. Employer Contrib.	Final Employer Contrib.[10]
2018																		
2019																		
2020	$4,469,933	$887,133	$476,378	$62,721	$240,729	$220,847	-	-	-	-	-	-	-	$594,669	-	$594,669	$476,378	$476,378
2021	$4,583,475	$946,025	$509,724	$66,381	$246,595	$226,128	-	-	-	-	-	-	-	$644,531	-	$644,531	$509,724	$509,724
2022	$4,686,278	$975,094	$545,405	$71,412	$254,592	$231,753	-	-	-	-	-	-	-	$661,278	-	$661,278	$545,405	$545,405
2023	$4,814,346	$995,718	$583,583	$76,511	$262,808	$238,919	-	-	-	-	-	-	-	$669,353	-	$669,353	$583,583	$583,583
2024	$4,980,449	$1,012,725	$624,434	$81,733	$271,251	$248,151	-	-	-	-	-	-	-	$673,497	-	$673,497	$624,434	$624,434
2025	$5,193,293	$1,026,225	$668,144	$87,091	$282,791	$259,956	(5,465,050)	-	-	-	-	-	-	$670,936	-	$670,936	$668,144	$668,144
2026	-	$1,038,015	$676,441	$72,704	$288,870	-	-	$5,465,050	-	-	$14,553	$2,918	$273,684	$676,441	$5,177	$681,618	$714,914	$681,618
2027	-	$1,050,182	$680,480	$71,680	$298,022	-	-	$5,756,205	-	-	$14,236	$3,010	$288,236	$680,480	$11,833	$692,313	$764,958	$692,313
2028	-	$1,056,540	$678,746	$70,368	$307,426	-	-	$6,061,687	-	-	$13,860	$3,105	$303,503	$678,746	$19,487	$698,233	$818,505	$698,233
2029	-	$1,064,063	$675,643	$70,223	$318,197	-	-	$6,382,155	-	-	$13,769	$3,214	$319,527	$675,643	$25,616	$701,259	$875,800	$701,259
2030	-	$1,068,552	$669,806	$70,588	$328,158	-	-	$6,718,665	-	-	$13,796	$3,315	$336,356	$669,806	$31,311	$701,117	$937,106	$701,117
2031	-	$1,080,749	$670,873	$71,483	$338,393	-	-	$7,072,132	-	-	$13,939	$3,418	$354,035	$670,873	$35,561	$706,434	$1,002,703	$706,434
2032	-	$1,091,715	$669,930	$72,875	$348,910	-	-	$7,443,524	-	-	$14,186	$3,524	$372,614	$669,930	$40,908	$710,838	$1,072,892	$710,838
2033	-	$1,102,911	$668,887	$74,308	$359,716	-	-	$7,833,848	-	-	$14,431	$3,633	$392,138	$668,887	$45,459	$714,346	$1,147,994	$714,346
2034	-	$1,108,097	$649,535	$76,267	$382,295	-	-	$8,244,050	-	-	$14,802	$3,862	$412,663	$649,535	$49,641	$699,176	$1,228,354	$699,176
2035	-	$1,114,373	$642,008	$78,325	$394,040	-	-	$8,675,377	-	-	$15,195	$3,980	$434,242	$642,008	$54,429	$696,437	$1,314,339	$696,437
2036	-	$1,117,621	$631,062	$80,453	$406,106	-	-	$9,128,794	-	-	$15,603	$4,102	$456,926	$631,062	$58,379	$689,441	$1,406,343	$689,441
2037	-	$1,128,691	$628,563	$81,623	$418,505	-	-	$9,605,425	-	-	$15,761	$4,227	$480,765	$628,563	$63,967	$692,530	$1,504,787	$692,530
2038	-	$1,139,490	$625,696	$82,550	$431,244	-	-	$10,106,178	-	-	$15,861	$4,356	$505,808	$625,696	$67,031	$692,727	$1,610,122	$692,727
2039	-	$1,153,483	$621,243	$82,831	$449,409	-	-	$10,632,203	-	-	$15,896	$4,539	$532,115	$621,243	$72,966	$694,209	$1,722,831	$694,209
2040	-	$1,176,801	$632,174	$81,620	$463,007	-	-	$11,184,753	-	-	$15,597	$4,677	$559,738	$632,174	$80,549	$712,723	$1,843,429	$712,723
2041	-	$1,197,967	$640,723	$80,264	$476,980	-	-	$11,764,765	-	-	$15,244	$4,818	$588,734	$640,723	$89,122	$729,845	$1,972,469	$729,845
2042	-	$1,238,314	$669,226	$77,751	$491,337	-	-	$12,373,561	-	-	$14,627	$4,963	$619,162	$669,226	$100,385	$769,611	$2,110,542	$769,611
2043	-	$1,275,114	$683,159	$73,864	$518,091	-	-	$13,012,313	-	-	$13,732	$5,233	$651,084	$683,159	$112,715	$795,874	$2,258,280	$795,874
2044	-	$1,344,226	$745,228	$65,397	$533,601	-	-	$13,682,362	-	-	$12,045	$5,390	$684,549	$745,228	$129,410	$874,638	$2,416,360	$874,638
2045	-	$1,415,159	$811,340	$54,282	$549,537	-	-	$14,384,346	-	-	$9,908	$5,551	$719,599	$811,340	$149,042	$960,382	$2,585,505	$960,382
2046	-	$1,484,165	$874,682	$43,572	$565,911	-	-	$15,119,404	-	-	$7,913	$5,716	$756,307	$874,682	$168,716	$1,043,398	$2,358,291	$1,043,398
2047	-	$1,553,089	$898,321	$31,932	$622,836	-	-	$15,889,340	-	-	$5,786	$6,291	$794,765	$898,321	$188,987	$1,087,308	$911,994	$1,087,308
2048	-	$1,594,711	$929,729	$23,681	$641,301	-	-	$16,696,182	-	-	$4,287	$6,478	$835,075	$929,729	$206,450	$1,136,179	$949,266	$1,136,179
2049	-	$1,617,538	$939,029	$18,233	$660,276	-	-	$17,542,022	-	-	$3,290	$6,669	$877,347	$939,029	$222,212	$1,161,241	$990,734	$1,161,241
2050	-	$1,630,354	$936,509	$14,074	$679,771	-	-	$18,429,328	-	-	$2,524	$6,866	$921,698	$936,509	$236,890	$1,173,399	$1,032,899	$1,173,399
2051	-	$1,634,591	$925,218	$10,908	$698,465	-	-	$19,360,416	-	-	$1,950	$7,055	$968,243	$925,218	$251,166	$1,176,384	$1,077,981	$1,176,384
2052	-	$1,629,880	$903,197	$9,010	$717,673	-	-	$20,337,664	-	-	$1,593	$7,249	$1,017,102	$903,197	$264,761	$1,167,958	$1,125,195	$1,167,958
2053	-	$1,629,485	$885,324	$6,753	$737,408	-	-	$21,363,608	-	-	$1,190	$7,449	$1,068,394	$885,324	$278,891	$1,164,215	$1,173,316	$1,164,215
2054	-	$1,627,683	$866,100	$3,895	$757,688	-	-	$22,440,641	-	-	$681	$7,653	$1,122,238	$866,100	$293,909	$1,160,009	$1,222,765	$1,160,009
2055	-	$1,614,930	$833,806	$2,600	$778,524	-	-	$23,571,213	-	-	$455	$7,864	$1,178,766	$833,806	$307,583	$1,141,389	$1,273,064	$1,141,389
2056	-	$1,600,169	$798,748	$1,487	$799,934	-	-	$24,758,298	-	-	$260	$8,080	$1,238,121	$798,748	$321,407	$1,120,155	$1,324,854	$1,120,155
2057	-	$1,581,357	$758,520	$905	$821,932	-	-	$26,004,759	-	-	$158	$8,302	$1,300,447	$758,520	$334,739	$1,093,259	$1,376,827	$1,093,259
2058	-	$1,559,667	$714,475	$658	$844,534	-	-	$27,313,666	-	-	$115	$8,531	$1,365,897	$714,475	$348,108	$1,062,583	$1,430,042	$1,062,583
2059	-	$1,536,917	$668,690	$468	$867,759	-	-	$28,688,209	-	-	$82	$8,765	$1,434,629	$668,690	$361,653	$1,030,343	$1,484,404	$1,030,343

[9] 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.
[10] After the first occurrence of the *Total Contrib. if Switch*, which is the sum of the *Cons. Employer Contrib.* and the *Statewide Employer Contrib.*, being smaller than the *Alt. Employer Contrib.*, this column shows the *Total Contrib. if Switch* in all subsequent years.

Section VII. Participant Information

Participant Summary

The following table summarizes the counts, ages and benefit information for plan participants used in the prior and current valuations.

		July 1, 2017[11]		July 1, 2018
1. Actives				
a. Number		16		16
b. Average Age		34.7		33.8
c. Average Service		8.9		7.9
d. Average Salary	$	41,713	$	44,725
2. Retirees				
a. Number		24		24
b. Average Age		N/A		66.
c. Total Annual Benefits	$	592,609	$	622,330
3. Survivors				
a. Number		9		9
b. Average Age		N/A		77.0
c. Total Annual Benefits	$	104,804	$	106,994
4. Disableds				
a. Number		7		7
b. Average Age		N/A		52.3
c. Total Annual Benefits	$	118,898	$	121,156
5. Deferred Vesteds				
a. Number		1		1
b. Average Age		N/A		48.5
c. Total Annual Benefits	$	28,815	$	28,815
6. Members Owed Refunds				
a. Number		N/A		1
b. Average Age		N/A		32.5
c. Total Refunds Owed	$	N/A	$	10,499

[11] Average ages for Retirees, Survivors, Disables, and Deferred Vesteds were not provided in the July 1, 2017 valuation report prepared by the prior actuary.

Active Age/Service Distribution Including Compensation

Shown below is the age and service distribution of active participants in the City of Bluefield Firemen's Pension and Relief Fund. The compensation shown is the average projected pay for the plan year beginning July 1, 2018.

Credited Service as of July 1, 2018

Participant Age	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	Total
Under 25	1	-	-	-	-	-	-	**1**
	28,470	-	-	-	-	-	-	**28,470**
25 - 29	2	1	-	-	-	-	-	**3**
	45,752	39,287	-	-	-	-	-	**43,597**
30 - 34	3	1	2	-	-	-	-	**6**
	43,905	52,486	48,854	-	-	-	-	**46,985**
35 - 39	1	3	-	-	-	-	-	**4**
	33,531	38,191	-	-	-	-	-	**37,026**
40 - 44	-	-	-	-	-	-	-	**-**
	-	-	-	-	-	-	-	**-**
45 - 49	-	-	-	-	1	-	-	**1**
	-	-	-	-	60,074	-	-	**60,074**
50 - 54	-	-	-	-	-	1	-	**1**
	-	-	-	-	-	66,250	-	**66,250**
55 - 59	-	-	-	-	-	-	-	**-**
	-	-	-	-	-	-	-	**-**
60 - 64	-	-	-	-	-	-	-	**-**
	-	-	-	-	-	-	-	**-**
65 & Up	-	-	-	-	-	-	-	**-**
	-	-	-	-	-	-	-	**-**
Totals	**7**	**5**	**2**	**0**	**1**	**1**	**-**	**16**
	40,746	**41,269**	**48,854**	**-**	**60,074**	**66,250**	**-**	**44,725**

Averages

Age	33.8
Service	7.9

Participant Reconciliation

Shown below is the reconciliation of participants between the prior and current valuation date.

	Actives	Retirees	Survivors	Disableds	Deferred Vesteds	Due Refund	Total
Participants as of 7/1/2017	16	24	9	7	1	0	57
New	1						1
Rehired	1						1
Terminated - Vested							0
Terminated - Nonvested							0
Disabled							0
Retired	(1)	1					0
Paid Refund							0
Payments Expired							0
Deceased - No Survivor		(1)					(1)
Deceased - With Survivor							0
New Beneficiary							0
New QDRO							0
Corrections	(1)					1	0
Participants as of 7/1/2018	**16**	**24**	**9**	**7**	**1**	**1**	**58**

Section VIII. Summary of Plan Provisions

Plan Year

July 1 – June 30.

Eligibility to Participate

All compensated employees of the relevant Fire or Police Department are eligible to participate in the Firemen's or Policemen's Pension and Relief Fund (Plan). If the fund uses the Optional or Conservation funding policies, only members hired prior to the date of the change to either one of these policies are eligible to participate in the Plan.

Credited Service

The number of years that the member has contributed to the employees' retirement and benefit fund.

> Absence from service because of sickness or injury for a period of two years or less shall not be construed as time out of service.
>
> *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.
>
> A member may receive retirement eligibility service (i.e. eligibility towards the 20 years of service for normal retirement) for qualified military service only if the military service was prior to November 18, 2009 or the member repays, without interest, member assessments that were missed during the period of military service.
>
> 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 an additional 1% of Average Annual Compensation for each full continuous year so served in active military duty, up to a maximum of an additional 4%.

Average Annual Compensation

The average of the three twelve-consecutive-month periods of employment in which the member received the highest salary or compensation. While the months in each twelve-month period need to be consecutive, the three "twelve-consecutive-month periods" do not need to be consecutive.

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

The *Adjusted Salary* for any preceding year is the respective preceding year total salary multiplied by the ratio of base salary of the year used in determining benefits to the base salary from the respective preceding year. A preceding year is either the "year one" which is the second twelve consecutive month period preceding the twelve-consecutive-month period used to determine benefits or "year two" which is the twelve-consecutive-month period immediate preceding the twelve-consecutive-month period used to determine benefits.

Employee Contributions

Participating employees hired before January 1, 2010: 7.0% of compensation.
Participating employees hired on or after January 1, 2010: 9.5% of compensation.

Employer Contributions

The municipality has elected to contribute the minimum employer contribution under the Alternative funding policy.

Normal Retirement Eligibility

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

Normal Retirement Benefit

The annual retirement benefit equals the sum of:

- 60% of average annual compensation, for service up to 20 years; not less than $6,000
- 2% for each year of service between 20 and 25 years
- 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.

Normal Form

Life annuity with a 60% spouse's survivor benefit. The benefit payable to the spouse as of the member's date of death is determined by taking 60% of the member's benefit at the member's retirement date and indexing that amount to the date of death using the COLA methodology described in the Cost of Living Adjustment section below. No other optional forms are allowed under the Plan.

Disability Retirement Eligibility

Members are eligible after earning five years of service. There is no years of service requirement if disability is service related. Disability is defined in WV Code §8-22-23a as the inability to perform adequately the job duties required of the member.

Disability Retirement Benefit

The monthly disability benefit equals the sum of:

- 60% of monthly salary at disability, but not less than $500, plus
- 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.

Disability pensions are offset by $1 per every $3 of other income. There is no offset if total other income is $18,200 (as of 2018, indexed by state minimum wage for years after 2018) or less.

Termination Benefits

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

Any member who terminates employment prior to retirement with fewer than 20 years of credited service will be entitled to a refund of employee 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 (available only if the municipal plan is still open as of such date) the department must repay to the pension fund all sums refunded with interest at the rate of 8% per annum.

Death Benefit Eligibilty

Members are eligible after earning five years of service. There is no years of service requirement if death is service related. Retirees and terminated vested participants are also eligible.

Death Benefit

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% of the participant's benefit until the child attains 18 or marries;
- orphaned child: 25% of the participant's benefit until the child attains 18 or marries;
- parent: 10% of the participant's benefit for life,
- 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 18 or marries.

The total of all benefits cannot be more than 100% of the participant's salary. 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 Benefit (Cost of Living Adjustment – COLA)

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.

Changes in Plan Provisions Since Prior Valuation

None.

Section IX. Actuarial Methods and Assumptions

Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal cost method calculated on an individual basis with level percentage of pay normal cost. Past service liability is allocated from the imputed date of hire, taking into account transferred and purchased service.

West Virginia Funding Policies

Under West Virginia Code §8-22-20(c)(1), there are four funding policies available for plan sponsors. Those funding policies are summarized below:

- **Standard Funding Policy:** Employer contributions equal the net employer normal cost, plus an amortization of the unfunded actuarial liability, less the State premium tax allocation applicable to the plan year. The amortization is based on a 40-year closed period from July 1, 1991, using a level dollar amortization (13 years remaining as of July 1, 2018). The Standard funding policy is consistent with generally accepted actuarial standards of practice.

- **Alternative Funding Policy:** Employer contributions equal 107% of the prior year's employer contribution. The Alternative funding policy is not consistent with generally accepted actuarial standards of practice because the policy does not reflect emerging experience gains and losses and may not produce an actuarially sound pattern of contributions or funded ratio. The State premium tax allocation is contributed in addition to the employer contributions.

- **Optional Funding Policy**: Allows plan sponsors using either the Standard funding policy or Alternative funding policy to close the current local Plan to new hires and contribute to the Plan on an actuarially determined basis. The actuarially determined employer contribution is equal to the net employer normal cost, plus a level dollar amortization of the unfunded actuarial liability, less the State premium tax allocation applicable to the plan year. The closed amortization period as of July 1, 2018, is 13 years for sponsors who previously used the Standard funding policy and 31.5 years for sponsors who previously used the Alternative funding policy. Members hired after the adoption date of the Optional funding policy are covered in the statewide pension plan – The Municipal Police Officers and Firefighters Retirement System (MPFRS).

- **Conservation Funding Policy:** Allows plan sponsors using the Alternative funding policy to close the current local Plan to new hires and contribute to the plan on a pay-as-you-go basis. Sponsors using the Conservation funding policy are required to assign a portion of the State premium tax allocation and member contributions to an accumulation account that is projected to grow to 100% of the remaining actuarial liabilities at the end of a 35-year projection period. Members hired after the adoption date of the Conservation funding policy are covered in the statewide pension plan – MPFRS. This policy is not consistent with generally accepted actuarial principles.

This Plan is valued using the Alternative funding policy.

Amortization Method

Amortization Policies	
Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 31.5 years remaining as of July 1, 2018).
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 – 13 years remaining as of July 1, 2018).
Former Alternative Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 31.5 years remaining as of July 1, 2018).

Asset Method

Market value.

Projection Methods

The projections of future assets, liabilities, funded status and contributions are based on the following assumptions:

- Compensation will increase and members will leave the active workforce according to the actuarial valuation assumptions.
- For the open group projections, each active member leaving the workforce will be replaced with a new entrant so that the total number of active members remains the same through the projection period. The assumption made regarding the demographic makeup of new entrants is described below.
- For closed group projections, new hires that replace active members who retire, terminate, die or become disabled are not assumed to enter the Plan.
- The sponsor contributes the amount determined by the applicable funding policy each year.
- For plans that are less than 100% funded as of the valuation date, the contribution during the projection period is capped at the amount needed to achieve and maintain a funded status of 100%.
- Assets grow at the assumed rate of return (Discount Rate).
- Non-vested members receive a refund of their accumulated employee contribution account balance during the year in which they terminate.
- For projections that illustrate a change from the Alternative funding policy to either the Optional funding policy or Conservation funding policy, new hires that replace active members who, after the change in funding policy, retire, terminate, die or become disabled are assumed to enter the statewide pension plan – The Municipal Police Officers and Firefighters Retirement System (MPFRS). For the MPFRS, employer contributions are currently equal to 8.5% of pay but can range from 8.5% - 10.5% of pay. For these projections, MPFRS employer contributions are assumed to be 8.5% of pay throughout the projection period.

Basis for Selection of Actuarial Assumptions

Unless otherwise noted the actuarial assumptions used in the valuation were set by the MPOB on the basis of an actuarial experience study prepared in 2016 covering the period July 1, 2009 through July 1, 2014. Bolton is not responsible for the selection of these assumptions, nor did we advise on the selection of these assumptions. These assumptions are, in the opinion of the actuaries signing this report, reasonable for the intended purpose.

Discount Rate

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

Funded Ratio as of Valuation Date[12]	Liquidity Ratio[13]	Equity Exposure[14]	Projected Funded Ratio after 15 Years[6]	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%

As of June 30, 2018	
Assets	$ 4,404,012
Liabilities using a 5.5% discount rate	$ 17,019,460
Funded Ratio	25.88%
Expected Benefit Payments	$ 872,317
Liquidity Ratio	5.
Equity Exposure	65%
Projected Funded Ratio after 15 years	47%
Discount Rate	5.0%

[12] Funded ratios based on a 6.0% investment return assumption for plans using an actuarially sound policy (Standard or Optional) and a 5.5% investment return assumption for other plans (Alternative or Conservation).
[13] Liquidity ratio equals assets as of the actuarial valuation date divided by expected benefit payments for the year.
[14] Based on target allocation percentage outlined in the investment policy.

Premium Tax Allocation

The premium tax allocation is projected using the following methodology:

(1) The Base Allocation 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"). We assume that the percentage of eligible members of the Pension and Relief Fund and MPFRS for a single municipal plan (e.g. Bluefield Fire) to the total eligible members for all municipalities remains constant throughout the projection period.

(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 the total allocation assigned to the individual plan until they are 100% funded. Once a plan attains a funded ratio of at least 100%, the premium tax that would have been allocated to the plan had the funded ratio been lower than 100% is reallocated in subsequent years to all remaining plans that are less than 100% funded.

(4) The total available premium tax allocation, net of expenses, as of September 1, 2019, includes a Base Allocation of $8,709,689, an Excess Allocation of $10,790,377, and an Expired Premium Tax Allocation of $387,136.

(5) For the plan year ending June 30, 2019, all Pension and Relief Funds reported a total of 1,739 eligible active members and 2,165 eligible retired members. The City of Bluefield Firemen's Pension and Relief Fund reported 16 eligible active members and 40 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2019. The Fund is eligible to receive a premium tax allocation of $ 240,729 for the fiscal year ending June 30, 2020.

(6) The total premium tax allocation is assumed to increase by 2.75% in calendar years ending on and after 2020.

Administrative Expenses

Total administrative expenses for the fiscal year are equal to the expense assumption used for the prior valuation, increased by 2.75% for inflation. We defined our expense assumption based on discussions with MPOB and currently available information, recognizing this assumption will be evaluated in the next experience study. Future expenses are assumed to increase by the general inflation assumption and are adjusted for headcount.

Salary Increases

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

Years of Service	Increase
1	20.00%
2	6.50%
3	3.50%
4	2.75%
5-9	2.50%
10-29	2.00%
30-34	1.25%
>34	0.00%

Cost of Living Increase in Benefits

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.

Inflation

2.75%, compounded annually.

Mortality

Pre-Retirement

RP-2014 Blue Collar Healthy Employee[15] projected generationally using scale MP-2014 two-dimensional mortality improvement scales.

Post Retirement

RP-2014 Blue Collar Healthy Annuitant projected generationally using scale MP-2014 two-dimensional mortality improvement scales.

For Disabled Participants: RP-2014 Blue Collar Healthy Annuitant set forward four years, projected generationally using scale MP-2014 two-dimensional mortality improvement scales.

Projections with MP-2014 to the valuation date represent current mortality and projections using scale MP-2014 beyond the valuation date represent future mortality improvement.

Termination of Employment

Sample termination rates are as follows:

Age	Rates
25	9%
35	4%
45	2%
50	0%

This assumption is based on an experience study conducted by GRS in 2015.

Retirement Rates

Members need a minimum of 20 years of service in order to be eligible for normal retirement. The sample retirement rates below are for years of service greater than or equal to 20 years of service:

Age	Rates
50	45%
51-55	30%
56-59	35%
60	100.0%

Terminated-vested members (members who terminate employment after attaining 20 years of service but prior to commencing pension benefits) are assumed to retire at age 50.

[15] *Assumes 10% of deaths are duty-related and 90% are non-duty related.*

Disability Rates

Sample disability rates are as follows:

Age	Rates[16]
30	0.22%
40	0.50%
50	0.79%

Marital Status

90% assumed to be married with wives 3 years younger than husbands. Widows are not expected to re-marry in the future.

Non-Vested Terminations

We value non-vested terminations based on the amount of their employee contribution account balance, which is assumed to be paid on the valuation date for current non-vested terminated members and on the termination date for future non-vested terminations.

Form of Payment

Benefits are assumed to be paid as a life annuity with a 60% spousal death benefit taking into account the re-indexing of the spouse's supplemental benefit as provided in WV Code §8-22-26a.

Child Beneficiaries

Future survivor widow benefits are loaded by 12% to estimate the 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.

Open Group Projection New Hire Profile

The active population is projected to be stable under the open group projections meaning that the active population remains constant over the projection period resulting in any terminations being replaced by a new hire. The profile for new hires contains five separate records, with each record containing the average date of birth, compensation, and percentage male of all actives who have two years of service or less within the 53 plans covered by the MPOB. The five records were created using compensation for the fiscal year ending on the valuation date. Each of the five records corresponds to a different compensation band. The lowest band represents salaries under $35,000, the highest band represents salaries above $50,000, and the middle bands represent the $5,000 increments between $35,000 and $50,000. The beginning salary for new entrants hired after the current plan year is equal to the new entrant profile salary increased by the general wage inflation assumption of 3.75% for each year between the new entrant's assumed date of hire and the valuation date.

Changes in Methods/Assumptions Since Prior Valuation

The premium tax allocation was changed to re-allocate the premium for plans that are projected to be 100% funded in the projection period to other plans. The previous valuation did not reallocate these contributions.

[16] Assumes that 60% of disabilities are duty related and 40% are non-duty related. Also assumes that 10% of non-duty disabled members receive a 20% reduction in benefits due to gainful employment.

Section X. Glossary

Actuarial Accrued Liability (AAL)

The difference between the Actuarial Present Value of Future Benefits and the Actuarial Present Value of Future Normal Costs or the portion of the present value of future benefits allocated to service before the valuation date in accordance with the actuarial cost method. Represents the present value of benefits expected to be paid from the plan in the future allocated to service prior to the date of the measurement.

Actuarial Asset Valuation Method

The method of determining the value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value that recognizes investment gains and losses over a given period of time (rather than immediately) in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution (ADC).

Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of Future Benefits and the Actuarial Present Value of Future Normal costs and the Actuarial Accrued Liability. Also known as the "funding method". Examples of actuarial cost methods include Aggregate, Entry Age Normal, Projected Unit Credit, and Pay-As-You-Go.

Actuarial Present Value of Future Benefits

The actuarial present value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members entitled to either a refund of member contributions or a future retirement benefit. It is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Aggregate Cost Method

An actuarial cost method that spreads the cost of all future benefits in excess of plan assets as a level percentage of future salary or service. The Actuarial Accrued Liability is set to the value of assets in this method.

Annual Determined Contributions of the Employer(s) (ADC)

The employer's target or recommended periodic contribution to a pension plan, calculated in accordance with assumptions and methods that conform with the Actuarial Standards of Practice. The ADC replaced the annual required contribution (ARC)when GASB 27 was replaced by GASB 68.

Cost-of-Living-Adjustment (COLA)

A periodic increase in the amounts calculated using the plan's basic benefit formula to account for the future effects of inflation which reduce the purchasing power of the calculated benefits.

Covered Group

Plan members included in actuarial valuation.

Demographic Assumptions
Assumptions regarding the future population of pension participants, including retirement, termination, disability and mortality assumptions. Demographic assumptions also include those relating to merit pay increases, marital status, and new hires.

Economic Assumptions
Assumptions regarding future economic factors, including inflation, investment returns, COLA, salary improvement, change in average wages, and changes in Social Security benefits.

Employer's Contributions
Contributions made in relation to the ADC. An employer has made a contribution in relation to the ADC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a trust, or an equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator.

Entry Age Normal (EAN) Cost Method
An actuarial cost method that spreads the cost for each individual's expected benefits over their career, either as a level percentage of pay or service. The Actuarial Accrued Liability is the accumulated value of all past normal costs, and the unfunded accrued liability (surplus) is the excess of the Actuarial Accrued Liability over the value of assets.

Expenses
Plan expenses paid from the plan's assets (rather than directly by the employer) are divided into administrative and investment-related expenses.

Funded Ratio
The actuarial value of assets expressed as a percentage of the plan's Actuarial Accrued Liability.

GASB
Government Accounting Standards Board.

GASB No. 67 and GASB No. 68
These are the government accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems while Statement No. 67 sets the rules for the systems themselves.

Investment Return Assumption or Investment Rate of Return (Discount Rate)
The assumed rate of future investment earnings on the plan's assets, reflecting the current investment policy and expected future economic conditions. This rate is used to adjust, or discount, a series of future payments to reflect the time value of money and show future amounts in today's dollars.

Level Dollar Amortization Method
Amortization payments are calculated so that they are a level dollar amount over a given number of years.

Level Percentage of Projected Payroll Amortization Method

Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation. In dollars adjusted for inflation, the payments can be expected to remain level (disregarding changes due to future actuarial experience differing from expectations).

Normal Cost

That portion of the Actuarial Present Value Future Benefits and expenses which is allocated to a valuation year by the actuarial cost method.

Payroll Growth Rate

An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.

Plan Members

The individuals covered by the terms of a pension plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

Post-Employment

The period between termination of employment and retirement as well as the period after retirement.

Salary Improvement

An actuarial assumption regarding the increase in employees' salaries, reflecting cost-of-living, merit and longevity increases.

Supplemental Benefits

Benefits that accumulate after a member's retirement based on an annual COLA increase in the amount of a retired participant's benefit intended to adjust the benefit for inflation.

Unfunded Actuarial Accrued Liabilities

The excess of the Actuarial Present Value of Future Benefits as of the date of a pension plan valuation, over the sum of (1) the actuarial value of the assets of the plan and (2) the Actuarial Present Value of Future Normal Costs determined by any of several actuarial cost methods. For plans that explicitly define an Actuarial Accrued Liability, this amount equals the excess of the Actuarial Accrued Liability over the actuarial value of assets.

Vested Plan Benefits

All benefits to which current participants have a vested right based on pay and service through the valuation date. A participant has a vested right to a benefit if he/she would still be eligible to receive that benefit if employment terminated on the valuation date.