

GASB68 Actuarial Information for the Measurement Period Ending 06/30/2019



Submitted by:

James Ritchie, ASA, EA, FCA, MAA Senior Consulting Actuary 443.573.3924 jritchie@boltonusa.com

Jordan McClane, FSA, EA
Actuary
667.218.6935
jmcclane@boltonusa.come



October 21, 2019

Ms. Kelly Davis
City Treasurer
City of Bluefield
2216 Dearborn Avenue
Bluefield, WV 24701

Chief Dennis Dillow, Jr.
Pension Board Secretary
City of Bluefield, West Virginia
Policemen's Pension and Relief Fund

Re: City of Bluefield, West Virginia Policemen's Pension and Relief Fund - GASB68 Actuarial Information for the Measurement Period Ending June 30, 2019

#### Dear Kelly

The following report contains the GASB 67 and GASB 68 actuarial information for the City of Bluefield Policemen's Pension and Relief Fund to be included in the City's financial statements for FY2019. The GASB67 information has been provided as of the June 30, 2019 (the GASB 68 measurement date for FY2019).

#### Methodology, Reliance and Certification

This report is prepared for the City. The report contains the actuarial information to be included with the City's financial statements for the year ending June 30, 2019 (the City's fiscal year end date) as required by GASB68. This information has been prepared for use in the financial statements of the City. This information is not intended for, nor should it be used for, any additional purposes.

The total pension liability is based on the July 1, 2018 actuarial valuation rolled forward to June 30, 2019. The methods, assumptions, and participant data used are detailed in the July 1, 2018 actuarial valuation report with the exception of the actuarial cost method. These calculations are based on the Entry Age Normal cost method as required by GASB67. The calculation of the Actuarially Determined Contribution for the fiscal year ended June 30, 2019 is contained in the July 1, 2018 actuarial valuation report.

The included calculations are based on a blended discount rate of 6.00%. The plan's expected gross rate of investment return of 6.0% has been blended with the 3.13% yield corresponding to the 20-year maturity on a municipal general obligation AA bond yield curve published on Fidelity's Fixed Income Market Data webpage as of June 30, 2019. The development of the blended discount rate is included within this report.

The included calculations assume that the members and the City will continue to make all required contributions in accordance with the City's funding policy.

The long-term nominal expected rate of return on pension plan investments was determined using a methodology approved by the Municipal Pensions Oversight Board (MPOB.) The long-term nominal expected rate of return is based on the fund's current funding ratio, liquidity ratio, equity exposure and expected funded status in 15 years.

Ms. Kelly Davis October 21, 2019 Page 2

#### Methodology, Reliance and Certification (cont.)

These calculations and comparisons with assets are 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. The future is uncertain and the plan's actual experience will differ from those assumptions; these differences may be significant or material because these 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. We may have used other assumptions in the past. We will likely consider changes in assumptions at a future date.

The City is responsible for selecting the plan's funding policy based on four methods allowed for under state law. The actuarial valuation methods are chosen by the actuary in accordance with actuarial standards of practice promulgated by the actuarial standards board of the American Academy of Actuaries and as required by GASB 67 & 68. The MPOB selects the asset valuation methods and assumptions; these slections are reviewed by a qualified actuary no less than every five years. The actuary shall provide a report to the oversight board with recommendations on any changes to the actuarial process. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in this report. The City and MPOB are solely responsible for communicating to Bolton Partners, Inc. any changes required thereto.

The City could reasonably ask how the valuation would change if we used a different assumption set or if plan experience exhibited variations from our assumptions. This report does not contain such an analysis. This type of analysis would be a separate assignment.

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 or in this case a measure of accounting expense. It does not affect the cost of the plan. As the experience of the plan evolves, it is normal for the level of contributions and expense of the plan to change.

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.



Ms. Kelly Davis October 21, 2019 Page 3

#### Methodology, Reliance and Certification (cont.)

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 is solely responsible for selecting the plan's investment policies, asset allocations and individual investments. Bolton Partners, Inc.'s actuaries have not provided any investment advice to the City.

The information in this report was prepared for the internal use of the City, the plan and their auditors in connection with our actuarial valuations of the pension plan as required by GASB68. This report may not be used for any other purpose; Bolton Partners, Inc. is not responsible for the consequences of any unauthorized use or the reliance on this information 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, an assumption based on the expected long-term rate of return on plan investments is used. If the plan is expected to become insolvent, the return assumption is blended with a long-term municipal bond rate. Using a lower discount rate assumption, such as a rate solely based on long-term bond yields, could substantially increase the estimated present value of future and accrued liabilities.

This report provides certain financial calculations for use by the 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 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 undersigned enrolled actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The July 1, 2018 actuarial valuation report contains information that is integral to the results contained herein and a copy may be provided upon request.

Sincerely,

James Ritchie, ASA, EA, FCA, MAAA

Jordan McClane, FSA, EA, MAAA



Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date



Net Pension Liability of the Employer

The components of the net pension liability of the Employer at June 30, 2019, were as follows:

Total pension liability	\$ 13,301,812
Plan fiduciary net position	(6,669,806)
Employer's net pension liability	\$ 6,632,006
Plan fiduciary net position as a percentage of the total pension liability	50.14%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of July 1, 2018 rolled forward to June 30, 2019 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation 2.75 percent

Salary increases Rates vary by years of service

Single discount rate (BOY) 6.0000% Single discount rate (EOY) 6.0000%

Investment rate of return 6.00 percent, net of pension plan investment expense, including inflation

Long-term municpal bond rate (BOY) 3.62% Long-term municpal bond rate (EOY) 3.13%

Mortality RP-2014 Blue Collar Mortality Table with generational projection using Scale MP-2014

Year Fund is projected to be fully funded 2040 Year assets are expected to be depleted #N/A

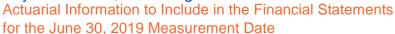
for a closed plan

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are available in the July 1, 2018 actuarial valuation report.

Sensitivity of the net pension liability to changes in the discount rate

	19	6 Decrease 5.00%	Dis	Current scount Rate 6.00%	1	% Increase 7.00%
	•		•		•	
Employer's net pension liability	\$	8,618,751	\$	6,632,006	\$	5,042,777

## City of Bluefield, West Virginia Policemen's Pension and Relief Fund Actuarial Information to Include in the Financial Statements





#### Changes in the Net Pension Liability

			Increa	ase (Decrease	)	
	To	otal Pension Liability (a)		an Fiduciary et Position (b)	N	et Pension Liability (a) - (b)
Balances at 6/30/18	\$	12,604,898	\$	6,117,195	\$	6,487,703
Changes for the year:						
Service cost		390,251				390,251
Interest		735,057				735,057
Changes of benefit terms		-				-
Differences between expected and actual experience		279,504				279,504
Changes of assumptions		-				-
Contributions - employer (including Premium Tax Allocation)				633,528		(633,528)
Contributions - member				109,496		(109,496)
Net investment income				517,785		(517,785)
Benefit payments, including refunds of member contributions		(707,898)		(707,898)		-
Administrative expense				-		-
Other				(300)		300
Net Changes		696,914		552,611		144,303
Balances at 6/30/19	\$	13,301,812		6,669,806	\$	6,632,006
Return on Investments				8.4%		





Components of Employer's Pension Expense for the Fiscal Year Ended June 30, 2019

Note	Description	Amount
Α	Service Cost	\$ 390,251
В	Interest on the total pension liability	735,057
Α	Changes of benefit terms	-
С	Differences between expected and actual experience	(117,676)
С	Changes of assumptions	192,117
Α	Employee contributions	(109,496)
D	Projected earnings on pension plan investments	(368,077)
С	Differences between expected and actual earnings on	(33,351)
	plan investments	
Α	Pension plan administrative expense	-
Α	Other changes in fiduciary net position	300
	Total Pension Expense	\$ 689,125

#### Notes:

A Provided in the Changes in Net Pension Liability exhibit.

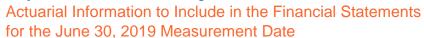
B Based on the following calculation:

	,	Amount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	E	rojected arnings x (b) x (c)
Beginning total pension liability	\$	12,604,898	100%	6.00%	\$	756,294
Service Cost (End of Year)		390,251	0%	6.00%		-
Benefit payments, including refunds of employee contributions		(707,898)	50%	6.00%		(21,237)
Total interest on the total pension liability					\$	735,057

C Provided in the Schedules of Deferrals.

D Based on the following calculation:

	F	Amount for	Portion of	Projected	rojected
		Period (a)	Period (b)	Rate of Return (c)	arnings x (b) x (c)
Beginning plan fiduciary net position	\$	6,117,195	100%	6.00%	\$ 367,032
Employer contributions		633,528	50%	6.00%	19,006
Employee contributions		109,496	50%	6.00%	3,285
Benefit payments, including refunds of employee contributions		(707,898)	50%	6.00%	(21,237)
Administrative expense and other		(300)	50%	6.00%	(9)
Total Projected Earnings					\$ 368,077





Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

At June 30, 2019, the Employer reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	ed Outflows Resources	erred Inflows Resources
Differences between expected and actual experience	\$ 289,473	\$ 462,029
Changes of assumptions	320,411	416,329
Net difference between projected and actual earnings	-	
on pension plan investments		210,196
Total	\$ 609,884	\$ 1,088,554

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year ended June 30:	
2020	\$ 33,661
2021	(312,660)
2022	(270, 156)
2023	23,901
2024	46,584
Thereafter	-

Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date

Changes in the Employer's Net Pension Liability and Related Ratios Last 10 Fiscal Years



Total pension liability		2019		2018		2017		2016		2015		2014		2013		2012		2011		2010
Service cost	\$	390,251	\$	319,814	\$	392,147	\$	220,182	\$	250,953	\$	258,950	\$	-	\$	-	\$	-	\$	
Interest		735,057		722,124		679,543		700,256		670,364		662,929		-		-		-		
Changes of benefit terms		-		-		-		-		-		-		-		-		-		-
Differences between expected and actual experience		279,504		89,417		(912,402)		(40,233)		(128,049)		-		-		-		-		-
Changes of assumptions		-		-		(833,335)		2,079,763		(696,283)		-		-		-		-		-
Benefit payments, including refunds of member contributions		(707,898)		(625,051)		(598,019)		(585,237)		(552,719)		(520,150)		-		-		-		
Net change in total pension liability		696,914		506,304		(1,272,066)		2,374,731		(455,734)		401,729		-		-		-		
Total pension liability - beginning		12,604,898		12,098,594		13,370,660		10,995,929		11,451,663		11,049,934		-		-		-		
Total pension liability - ending (a)	\$	13,301,812	\$	12,604,898	\$	12,098,594	\$	13,370,660	\$	10,995,929	\$	11,451,663	\$	-	\$		\$	-	\$	
Plan fiduciary net position		2019		2018		2017		2016		2015		2014		2013		2012		2011		2010
Contributions - employer (including Premium Tax Allocation)	\$	633,528	\$	600,582	\$	583,904	\$	520,935	\$	659,543	\$	543,351	\$	_	\$	-	\$	-	\$	
Contributions - member	•	109,496	•	100,599	•	97,183	•	88,383	•	71,722	•	67,170	•	-	•	-	·	-	•	
Net investment income		517.785		407,572		486,123		157,192		181,170		379,653		-		-		-		
Benefit payments, including refunds of member contributions		(707,898)		(625,051)		(598,019)		(585,237)		(552,719)		(520,150)		-		-		-		
Administrative expense		-		(300)		(300)		(300)		(300)		(4,643)		-		-		-		
Other		(300)		` -		6,214		2,566		` -				-		-		-		
Net change in plan fiduciary net position	\$	552,611	\$	483,402	\$	575,105	\$	183,539	\$	359,416	\$	465,381	\$		\$	-	\$	-	\$	-
Plan fiduciary net position - beginning		6,117,195		5,633,794		5,058,689		4,875,150		4,515,734		4,050,353				-		-		
Plan fiduciary net position - ending (b)	\$	6,669,806	\$	6,117,195	\$	5,633,794	\$	5,058,689	\$	4,875,150	\$	4,515,734	\$	-	\$	-	\$	-	\$	
Employer's net pension liability - ending (a)-(b)	\$	6,632,006	\$	6,487,703	\$	6,464,800	\$	8,311,971	\$	6,120,779	\$	6,935,929	\$		\$	-	\$	-	\$	-
Plan fiduciary net position as a percentage of the total pension liability		50.14%		48.53%		46.57%		37.83%		44.34%		39.43%		0.00%		0.00%		0.00%		0.00%
y																				
Covered payroll	\$	1,135,170	\$	955,341	\$	1,025,108	\$	841,730	\$	834,851	\$	837,491	\$	-	\$	-	\$	-	\$	
Employer's net pension liability as a percentage of covered payroll		584.23%		679.10%		630.65%		987.49%		733.16%		828.18%		0.00%		0.00%		0.00%		0.009
Expected average remaining service years of all participants		6.00		5.44		6.00		4.73		4.74						-				-

Notes to Schedule:

Benefit changes: There were no changes for FY2019.

Changes of assumptions: The discount rate changed from 6.0000% to 6.0000%.

Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date

Schedule of Employer Contributions

Last 10 Fiscal Years



	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution	\$ 691,752	\$ 599,307	\$ 612,202	\$ 656,589	\$ 475,033	\$ 524,627	\$ 567,272	\$ -	\$ -	\$ -
Contributions in relation to the actuarially determined contribution										
Employer provided	361,184	337,555	340,042	270,265	297,006	256,115	239,360	-	-	-
State provided	 272,344	263,027	243,862	250,670	362,537	287,236	199,023	-	 -	-
Contribution deficiency (excess)	\$ 58,224	\$ (1,275)	\$ 28,298	\$ 135,654	\$ (184,510)	\$ (18,724)	\$ 128,889	\$ -	\$ -	\$ -
Covered payroll	\$ 1,135,170	\$ 955,341	\$ 1,025,108	\$ 841,730	\$ 834,851	\$ 837,491	\$ 811,266	\$ -	\$ -	\$ -
Contributions as a percentage of covered employee payroll	55.81%	63.00%	57.00%	62.00%	79.00%	65.00%	54.00%	0.00%	0.00%	0.00%

#### Notes to Schedule

#### Valuation date:

Actuarially determined contribution amounts are calculated as of the beginning of the fiscal year (July 1) for the year immediately following the fiscal year. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method Entry Age Normal
Amortization method Level Dollar
Remaining amortization period 32.5 years
Asset valuation method Market Value
Inflation 2.75 percent

Salary increases Rates vary by years of service

Investment rate of return 6.00 percent, net of pension plan investment expense, including inflation

Retirement age Rates vary by age

Mortality RP-2014 Blue Collar Mortality Table with generational projection using Scale MP-2014

Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date



Schedule of Differences between Projected and Actual Earnings on Pension Plan Investments

In conformity with paragraph 33b of Statement 68, the effects of differences between projected and actual earnings on pension plan investments are recognized in pension expense using a systematic and rational method over a closed five-year period, beginning in the current reporting period. The following table illustrates the application of this requirement.

Year	Differences between Projected and Actual Earnings on Pension Plan Investments		between Projected and Actual Earning on Pension Plan		between Projected and Actual Earnings on Pension Plan Investments		between Projected and Actual Earnings on Pension Plan Investments		between Projected and Actual Earning on Pension Plan Investments		Recognition Period (Years)	2015	2016	2017	2018	2019	2020	2021	2022	2023
2015	\$	95,121	5	\$ 19,024	19,024	19,024	19,024	19,025												
2016		160,549	5		\$ 32,110	32,110	32,110	32,110	32,109											
2017		(205,448)	5			\$ (41,090)	(41,090)	(41,090)	(41,090)	(41,088)										
2018		(67,269)	5				\$ (13,454)	(13,454)	(13,454)	(13,454)	(13,453)									
2019		(149,708)	5					\$ (29,942)	(29,942)	(29,942)	(29,942)	(29,940								
et increa	se (dec	rease) in pension	expense					\$ (33,351)	\$ (52,377)	\$ (84,484)	\$ (43,395)	\$ (29,940								

Deferred Outflows of Resources and Deferred Inflows of Resources Arising from Differences between Projected and Actual Earnings on Pension Plan Investments

						Balan June 3	
Year	Investment Earnings Less than Projected ear (a)		Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense Through June 30, 2019 (c)	0	Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$	95,121	\$ -	\$ 95,121	\$	-	\$ -
2016		160,549	-	128,440		32,109	-
2017		-	205,448	123,270		-	82,178
2018		-	67,269	26,908		-	40,361
2019		-	149,708	29,942		-	119,766
					\$	32,109	\$ 242,305

Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date



Schedule of Differences between Expected and Actual Experience

In conformity with paragraph 33a of Statement 68, the effects of differences between expected and actual experience are recognized in pension expense, beginning in the current reporting period, using a systematic and rational method over a closed period equal to the average of the remaining service lives of all employees that are provided with pensions through the pension plan (active and inactive employees), determined as of the beginning of the measurement period. The following table illustrates the application of this requirement.

Year	Differences between Expected and Actual Experience	Recognition Period (Years)	Prior	2014	Increas	e (Decrease) in 2016	Pension Expens 2017	e Arising from t 2018	he Recognition	n of Differences b	etween Expected	d and Actual Exp 2022	perience 2023	2024	Thereafter
Prior	\$ -		\$ -	-	-	-	-	-		-	-	-	-	-	-
2014	-	1		\$ -											
2015	(128,049)	4.740139			\$ (27,014)	(27,014)	(27,014)	(27,014)	(19,993	5)					
2016	(40,233)	4.728475				\$ (8,509)	(8,509)	(8,509)	(8,509	(6,197)					
2017	(912,402)	5.995135					\$ (152,190)	(152,190)	(152,190	(152,190)	(152,190)	(151,452)			
2018	89,417	5.441766						\$ 16,432	16,432	16,432	16,432	16,432	7,257		
2019	279,504	6							\$ 46,584	46,584	46,584	46,584	46,584	\$ 46,584	-
Net increa	se (decrease) in p	ension expense							\$ (117,676	(95,371)	\$ (89,174)	\$ (88,436)	\$ 53,841	\$ 46,584	\$ -

Deferred Outflows of Resources and Deferred Inflows of Resources Arising from Differences between Expected and Actual Experience

Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense Through June 30, 2019 (c)	0	Balan June 3 Deferred utflows of esources (a) - (c)	0, 20 [ Ir R	
Prior	\$ -	\$ (D)	\$ -	\$	(u) (u) -	\$	(D) (O) -
2014		 -	-	Ť	-	Ť	-
2015	-	128,049	128,049				-
2016	-	40,233	34,036				6,197
2017	-	912,402	456,570		-		455,832
2018	89,417	-	32,864		56,553		-
2019	279,504	-	46,584		232,920		-
				\$	289,473	\$	462,029

Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date



#### Schedule of Changes of Assumptions

In conformity with paragraph 33a of Statement 68, the effects of changes of assumptions should be recognized in pension expense, beginning in the current reporting period, using a systematic and rational method over a closed period equal to the average of the remaining service lives of all employees that are provided with pensions through the pension plan (active and inactive employees), determined as of the beginning of the measurement period. The following table illustrates the application of this requirement.

		Recognition				Increa	se (Decrease) in	Pension Expens	se Arising from	he Effects of Ch	anges of Assum	ptions			
Year	Changes of Assumptions	Period (Years)	Prior	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Therea
Prior	\$ -		\$ -	-	-	_		-			-		-		-
2014	-	1		\$ -											
2015	(696,283)	4.740139			\$ (146,891)	(146,891)	(146,891)	(146,891)	(108,719)						
2016	2,079,763	4.728475				\$ 439,838	439,838	439,838	439,838	320,411					
2017	(833,335)	5.995135					\$ (139,002)	(139,002)	(139,002)	(139,002)	(139,002)	(138,325)			
2018	-	5.441766						\$ -	-	-	-	-	-		
2019	-	6							\$ -	-	-	-	-	\$	-
let increa	se (decrease) in pe	nsion expense							\$ 192,117	\$ 181,409	\$ (139,002)	\$ (138,325)	\$ -	\$	- \$

Deferred Outflows of Resources and Deferred Inflows of Resources Arising from Changes of Assumptions

Year	Increases Total Pen Liabili (a)	sion	Decreases in the Total Pension Liability (b)	Amounts Red Pension Exper June 30 (c)	nse Through , 2019	Ot Re	Balar June 3 Deferred utflows of esources (a) - (c)	30, 20 E In Re	
Prior	\$	-	\$ -	\$	-	\$	-	\$	-
2014		-	-		-				-
2015		-	696,283		696,283		-		-
2016	2,079,	763	-		1,759,352		320,411		-
2017		-	833,335		417,006		-		416,329
2018		-	-		-		-		-
2019		-	-		-		-		-
						\$	320,411	\$	416,329

### City of Bluefield, West Virginia Policemen's Pension and Relief Fund Actuarial Information to Include in the Financial Statements

for the June 30, 2019 Measurement Date

Projection of Pension Plan's Fiduciary Net Position (Dollar amounts in thousands)



	Gross Normal Cost (BOY)						Employee Contributions (BOY)					Employer Normal Cost (BOY)			(M			(MOY)	MOY) Employer Contributions			ıtions	(MOY)			Premium Tax Allocation				(MOY)					
Fiscal Year	Currei Membe		Future Members		Total		Current lembers		Future lembers		Total		Current lembers	ı	Future Members		Total		irrent mbers		Future embers		Total		Current lembers		uture embers		Total		Current Members	Fut Mem	ure bers		Total
2019	\$ 368,	161 \$	-	\$	368,161	\$	95,651	\$	-	\$	95,651	\$	272,510	\$	-	\$	272,510	\$	3,949	\$	- :	\$	3,949	\$	361,182	\$	-	\$	361,182	\$	272,344	\$	-	\$	272,344
2020	\$ 369,	330 \$	28,903	\$	398,233	\$	95,787	\$	7,800	\$	103,587	\$	273,543	\$	21,103	\$	294,646	\$	4,169	\$	- :	\$	4,169	\$	364,738	\$	21,727	\$	386,465	\$	300,553	\$	-	\$	300,553
2021	\$ 362,	455 \$	67,143	\$	429,598	\$	94,095	\$	18,131	\$	112,226	\$	268,360	\$	49,012	\$	317,372	\$	4,204	\$	156	\$	4,360	\$	362,901	\$	50,617	\$	413,518	\$	307,661	\$	-	\$	307,661
2022	\$ 359,	571 \$	101,847	\$	461,418	\$	93,370	\$	27,514	\$	120,884	\$	266,201	\$	74,333	\$	340,534	\$	4,075	\$	326	\$	4,401	\$	365,607	\$	76,857	\$	442,464	\$	315,683	\$	-	\$	315,683
2023	\$ 355,	944 \$	134,145	\$	490,089	\$	92,635	\$	36,256	\$	128,891	\$	263,309	\$	97,889	\$	361,198	\$	4,187	\$	416	\$	4,603	\$	372,237	\$	101,199	\$	473,436	\$	323,926	\$	-	\$	323,926
2024	\$ 350,	321 \$	170,458	\$	520,779	\$	91,686	\$	46,095	\$	137,781	\$	258,635	\$	124,363	\$	382,998	\$	4,130	\$	600	\$	4,730	\$	377,937	\$	128,640	\$	506,577	\$	332,395	\$	-	\$	332,395
2025	\$ 347,	144 \$	206,997	\$	554,141	\$	91,402	\$	56,005	\$	147,407	\$	255,742	\$	150,992	\$	406,734	\$	4,244	\$	701	\$	4,945	\$	385,880	\$	156,157	\$	542,037	\$	344,710	\$	-	\$	344,710
2026	\$ 347,			\$	589,131	\$	91,797	\$	65,471	\$	157,268	\$	255,458	\$	176,405	\$	431,863	\$	4,088	\$	818	\$	4,906	\$	397,542	\$	182,438	\$	579,980	\$	353,736	\$	-	\$	353,736
2027	\$ 349,	575 \$	275,409	\$	624,984	\$	92,623	\$	74,578	\$	167,201	\$	256,952	\$	200,831	\$	457,783	\$	4,107	\$	1,024	\$	5,131	\$	412,787	\$	207,792	\$	620,579	\$	363,010	\$	-	\$	363,010
2028	\$ 354,	031 \$	308,434	\$	662,465	\$	93,900	\$	83,551	\$	177,451	\$	260,131	\$	224,883	\$	485,014	\$	4,316	\$	956	\$	5,272	\$	431,533	\$	232,487	\$	664,020	\$	372,539	\$	-	\$	372,539
2029	\$ 359,	011 \$	341,459	\$	700,470	\$	95,347	\$	92,528	\$	187,875	\$	263,664	\$	248,931	\$	512,595	\$	4,336	\$	1,081	\$	5,417	\$	453,130	\$	257,371	\$	710,501	\$	383,697	\$	-	\$	383,697
2030	\$ 367,	058 \$	374,982	\$	742,040	\$	97,418	\$	101,644	\$	199,062	\$	269,640	\$	273,338	\$	542,978	\$	4,354	\$	1,212	\$	5,566	\$	477,605	\$	282,631	\$	760,236	\$	393,791	\$	-	\$	393,791
2031	\$ 377,	405 \$	408,090	\$	785,495	\$	100,059	\$	110,649	\$	210,708	\$	277,346	\$	297,441	\$	574,787	\$	4,370	\$	1,349	\$	5,719	\$	505,870	\$	307,583	\$	813,453	\$	404,163	\$	-	\$	404,163
2032	\$ 389,	168 \$	,	\$	830,251	\$	103,076	\$	119,626	\$	222,702	\$	286,092	\$	321,457	\$	607,549	\$	4,490	\$	1,386	\$	5,876	\$	538,049	\$	332,346	\$	870,395	\$	414,820	\$	-	\$	414,820
2033	\$ 396,	667 \$	474,800	\$	871,467	\$	105,236	\$	128,803	\$	234,039	\$	291,431	\$	345,997	\$	637,428	\$	4,394	\$	1,538	\$	5,932	\$	573,559	\$	357,764	\$	931,323	\$	425,770	\$	-	\$	425,770
2034	\$ 401,		,		917,640	\$	106,560	\$	140,200		246,760	\$	294,445			\$	670,880	\$	4,515		1,580	•	6,095	\$			389,144	\$	996,516	\$	450,873	\$	-	\$	450,873
2035	\$ 406,	390 \$	560,927	\$	967,317	\$	108,078	\$	152,272	\$	260,350	\$	298,312	\$	408,655	\$	706,967	\$	4,407	\$	1,744	\$	6,151	\$	643,792	\$	422,480	\$	1,066,272	\$	462,773	\$	-	\$	462,773
2036	\$ 414,				,020,009	\$	110,347	\$	164,310		274,657	\$	304,578			\$	745,352	\$	4,528	\$	1,792	_	6,320	\$			455,597	\$	1,140,911	\$	.,	\$	-	\$	475,001
2037	\$ 369,				,019,231	\$	102,585	\$	176,402		278,987	\$	267,212			\$	740,244	\$	4,530	\$	1,964	•	6,494	\$			488,980	\$	1,220,775	\$	487,565		-	\$	487,565
2038	\$ 360,				,088,915	\$	100,696	\$	198,011	- 7	298,707	\$	259,692			\$	790,208	\$	4,655		,	\$	6,794	\$	. ,		548,339	\$	1,306,229	\$	500,475	7	-	\$	500,475
2039	\$ 313,				,102,174	\$	89,844	\$	214,501		304,345	\$	223,410		574,419	\$	797,829	\$	4,654	\$	,-	\$	6,981	\$			593,728	\$	1,397,665	\$	519,696	\$	-	\$	519,696
2040	\$ 245,				,135,112	\$	74,041		241,972		316,013	\$	171,707	\$	. ,	\$	819,099	\$	4,649	\$	2,780	•	7,429	\$	. , .		669,311		1,311,445	\$	-	\$	-	\$	-
2041	\$ 208,					\$	65,090	\$	266,515		331,605	\$	143,212			\$	855,671	\$	4,777	\$	,	\$	7,765	\$			736,509	\$	888,732	\$	-	\$	-	\$	-
2042	\$ 183,				,241,627	\$	58,717	\$	288,164		346,881	\$	125,205			\$	894,746	\$	4,768	\$	3,211	•	7,979	\$		•	795,502	\$	929,177	\$	-	\$	-	\$	-
2043	\$ 158,				,284,846	\$	51,717	\$	307,239		358,956	\$	106,321	\$	,	\$	925,890	\$	4,899	\$	3,438	•	8,337	\$	,		847,236	\$	961,599	\$	-	\$	-	\$	-
2044	\$ 138,				,330,544	\$	46,059	\$	325,398		371,457	\$	91,976			\$	959,087	\$	4,886	\$	3,823	•	8,709	\$	/	•	896,568	\$	996,150	\$	-	\$	-	\$	-
2045	\$ 109,		1,258,271			\$	37,511	\$	343,585		381,096	\$	72,197	\$		\$	986,883	\$	5,020	\$	3,928	•	8,948	\$			945,655	\$	1,025,007	\$	-	\$	-	\$	-
2046					,418,853	\$	28,831	\$	364,889		393,720	\$	54,689	\$	970,444			\$	5,002		4,343		9,345	\$			,003,476	\$	1,064,784	\$	-	\$	-	\$	-
2047					,468,359	\$	21,033	\$	384,929		405,962	\$	39,551				1,062,397	\$	4,979	\$	4,778	Τ.	9,757	\$			,057,862	\$	1,103,562	\$	-	\$	-	\$	-
2048			1,484,706			\$	14,397	\$	406,197		420,594	\$	27,218		1,078,509			\$	5,116		.,	\$	10,184	\$			,115,461		1,148,599	\$	-	\$	-	\$	-
2049					,586,609	\$	9,947 7,133	\$	426,519		436,466	\$	18,433				1,150,143	\$ \$	5,257	\$	5,207		10,464 10.920	\$ \$			,170,374	\$	1,194,609 1,244,846	\$ \$	-	\$	-	\$	-
2050 2051			1,632,297		,652,610	\$ \$	4.899	\$ \$	446,982		454,115 472.417	\$	13,180 8,926		1,185,315 1,239,141			s s	5,053 5,013	\$		\$ \$	11,220	\$			,226,223	\$	1,244,846	S	-	\$ \$	-	\$ \$	-
2052						\$	,	\$	467,518 488.641		491.823	\$	5.647					s S	5,013	\$		Ф \$	11,529	ş S					1,290,163	ş S	-	s s	-	ş S	-
2052			1,783,192			\$	3,182 2.051	\$	510.641	- 7	512.692	\$	3,578		1,352,333		1,300,198	s s	5,104		6,742	•	11,529	s s	- /		,339,200	\$ \$	1,350,164	S	-	\$ \$	-	\$	-
					,,		,		,-		. ,		- ,						-, -		- /	•	,	-	-, -	•	, ,		, - ,-		-	Φ	-	Ť	-
2054 2055	,		1,946,853		2,035,545	\$ \$	1,279 528	\$ \$	533,751 557,797		535,030 558.325	\$	2,207 867		1,413,102 1,476,353		1,415,309	\$ \$	5,244 5,189	\$		\$ \$	12,172 12.699	\$ \$			,461,806 ,527,508	\$ \$	1,469,322 1,533,590	\$ \$	-	\$ \$	-	\$ \$	-
2056	Ŧ .,		2,034,150			\$	269	\$	582.538		582.807	\$	442		1,541,428			\$ \$	5,189		,	ъ \$	13,048	\$	-,		.594.918	\$	1,533,590	\$	-	\$ \$	-	\$	
2056	\$ \$		, .,		2,124,677	\$	209	Φ	607.858		607.858	\$	442		1,608,045			s s	5,127	\$		ъ \$	13,407	s s	- /		,663,723	\$	1,668,991	S	-	\$	-	\$	
2057	\$ \$				2,215,903	\$	-	\$	634.361		634.361	\$	-				1,677,846	s s	5,268	\$		ъ \$	13,407	s s			,736,028	\$	1,741,224	\$	-	\$ \$	-	\$	-
2058	\$ \$		2,409,952				-	-	661,286		,							*	-,		.,	•	14,155	\$						\$	-	\$ \$	-	\$	-
2059	Ф	- \$	2,409,952	\$ 2	.,409,952	\$	-	\$	001,∠86	э	661,286	\$	-	ф	1,748,666	Ф	1,148,000	\$	5,116	Ф	9,039	Φ	14,100	Ф	5,115	ŢΊ	,009,401	ф	1,814,516	ф	-	Φ	-	Ф	-

### City of Bluefield, West Virginia Policemen's Pension and Relief Fund Actuarial Information to Include in the Financial Statements

for the June 30, 2019 Measurement Date

Projection of Pension Plan's Fiduciary Net Position (Dollar amounts in thousands)



		Actu	uarial .	Accrued Liability (BC	OY)		Closed Group Asset Projection											
Fiscal Year	Cur	rent Members	F	uture Members	Total		Fidu	ciary Net Position (boy)	Funded Ratio (boy)		Projected EEC Contributions (moy)	Pr	rojected ER Contrib + Premium Tax (moy)	Projected BP (moy)	Projected Admin Expenses (moy)	Projected Investment Earnings		
2019	\$	12,868,581	\$	- ;	\$ 12,868	,581	\$	6,669,806	51.83%	\$	98,479	\$	633,526 \$	635,661	\$ 3,949	\$ 402,920		
2020	\$	13,376,833	\$	- :	\$ 13,376	,833	\$	7,165,121	53.56%	\$	98,619	\$	665,291 \$	690,150	\$ 4,169	\$ 431,965		
2021	\$	13,860,380	\$	30,408	\$ 13,890	788	\$	7,666,677	55.31%	\$	96,877	\$	670,562 \$	729,022	\$ 4,204	\$ 461,012		
2022	\$	14,325,631	\$	102,512	\$ 14,428	143	\$	8,161,902	56.97%	\$	96,130	\$	681,290 \$	751,004	\$ 4,075	\$ 490,375		
2023	\$	14,793,108	\$	214,639	\$ 15,007	747	\$	8,674,619	58.64%	\$	95,374	\$	696,163 \$	782,698	\$ 4,187	\$ 520,615		
2024	\$	15,252,158	\$	366,223	\$ 15,618	,381	\$	9,199,886	60.32%	\$	94,397	\$	710,332 \$	815,693	\$ 4,130	\$ 551,547		
2025	\$	15,698,820	\$	563,371	\$ 16,262	191	\$	9,736,339	62.02%	\$	94,104	\$	730,590 \$	844,747	\$ 4,244	\$ 583,462		
2026	\$	16,139,002	\$	808,563	\$ 16,947	565	\$	10,295,504	63.79%	\$	94,511	\$	751,278 \$	855,039	\$ 4,088	\$ 617,336		
2027	\$	16,595,116	\$	1,102,477	\$ 17,697	,593	\$	10,899,502	65.68%	\$	95,361	\$	775,797 \$	874,637	\$ 4,107	\$ 653,746		
2028	\$	17,060,879	\$	1,446,380	\$ 18,507	,259	\$	11,545,662	67.67%	\$	96,676	\$	804,072 \$	890,060	\$ 4,316	\$ 692,928		
2029	\$	17,543,432	\$	1,842,787	\$ 19,386	,219	\$	12,244,962	69.80%	\$	98,166	\$	836,827 \$	903,337	\$ 4,336	\$ 735,505		
2030	\$	18,046,547	\$	2,294,929	\$ 20,341	476	\$	13,007,787	72.08%	\$	100,298	\$	871,396 \$	912,987	\$ 4,354	\$ 782,074		
2031	\$	18,578,444	\$	2,806,537	\$ 21,384	,981	\$	13,844,214	74.52%	\$	103,017	\$	910,033 \$	918,019	\$ 4,370	\$ 833,333		
2032	\$	19,148,042	\$	3,380,235	\$ 22,528	,277	\$	14,768,208	77.13%	\$	106,123	\$	952,869 \$	923,615	\$ 4,490	\$ 889,962		
2033	\$	19,758,523	\$	4,019,082	\$ 23,777	605	\$	15,789,057	79.91%	\$	108,347	\$	999,329 \$	936,944	\$ 4,394	\$ 952,261		
2034	\$	20,399,859	\$	4,727,392	\$ 25,127	251	\$	16,907,656	82.88%	\$	109,710	\$	1,058,245 \$	957,812	\$ 4,515	\$ 1,020,538		
2035	\$	21,062,788	\$	5,517,351	\$ 26,580	139	\$	18,133,822	86.09%	\$	111,273	\$	1,106,565 \$	967,277	\$ 4,407	\$ 1,095,306		
2036	\$	21,761,456	\$	6,395,687	\$ 28,157.	143	\$	19,475,282	89.49%	\$	113,609	\$	1,160,315 \$	976,204	\$ 4,528	\$ 1,177,185		
2037	\$	22,501,900	\$	7,366,818	\$ 29,868	718	\$	20,945,660	93.08%	\$	105,618	\$	1,219,360 \$	1,054,970	\$ 4,530	\$ 1,264,588		
2038	\$	23,157,841		8,435,661			\$	22,475,725	97.05%	\$	103,673		1,258,365 \$	1,086,529				
2039	\$	23,810,673		9,643,811			\$	24,103,131	101.23%	\$	92,500		1,323,633 \$	1,189,320				
2040	\$	24.346.883		10,978,757			\$	25,778,046	105.88%	\$	76,230		642.134 \$	1,308,472				
2041	\$	24,721,034		12,492,748			\$	26,712,389	108.06%	\$	67,014		152,223 \$	1,382,546				
2042	\$	25,001,678		14,178,924			\$	27,112,514	108.44%	\$	60,453		133,675 \$	1,442,222				
2043	\$	25.211.878		16,014,843			\$	27,449,364	108.87%	\$	53.246		114,363 \$	1,502,815				
2044	\$	25,344,868		17,968,393			\$	27,716,603	109.36%	\$	47,421		99,582 \$	1,552,200				
2045	\$	25,413,789		20,020,968			\$	27,927,830	109.89%	\$	38,620		79,352 \$	1,634,128				
2046	\$	25,372,469		22,167,516			\$	28,037,353	110.50%	\$	29,683		61,308 \$	1,701,591				
2047	\$	25,231,453		24,416,604			\$	28,056,230	111.20%	\$	21,655		45,700 \$	1,765,877				
2047	\$ \$	24,991,478		26,760,697			\$	27,985,741	111.98%	\$	14,823		33,138 \$	1,807,353				
2048	\$ \$	24,991,478		29,204,575			\$	27,848,213	112.86%	\$	10.241		24,235 \$	1,830,295				
2050	\$ \$	24,300,431		31,748,299			\$	27,664,785	113.84%	\$	7,344		18,623 \$	1,838,422				
2050	\$ \$	23,887,217		34,397,748			\$	27,453,433	114.93%	\$	5,044		14,202 \$	1,840,137				
2052	\$ \$	23,440,568		37,158,859			\$	27,433,433	116.13%	\$	3,276		10,964 \$	1,836,224				
2052	э \$	23,440,566		40,040,464			э \$	26,972,851		\$ \$	2,112		8.787 \$					
	\$						\$		117.45% 118.90%	\$ \$			-, - ,	1,826,426				
2054	\$	22,469,350		43,054,480				26,716,768		\$ \$	1,317 544		7,516 \$	1,812,711				
2055 2056	\$	21,954,906 21,423,115		46,217,021 49,541,944			\$ \$	26,457,170 26,195,514	120.51% 122.28%	\$ \$	544 277	\$ \$	6,082 \$ 5,582 \$	1,797,427 1,777,172				
											2//							
2057	\$	20,879,545		53,037,903			\$	25,938,288	124.23%	\$	-	\$	5,268 \$	1,755,793				
2058	\$	20,324,618		56,710,942			\$	25,686,886	126.38%	\$	-	\$	5,196 \$	1,731,132				
2059	\$	19,761,786	\$	60,576,403	\$ 80,338	189	\$	25,445,790	128.76%	\$	-	\$	5,115 \$	1,705,254	\$ 5,116	\$ 1,476,335		

# City of Bluefield, West Virginia Policemen's Pension and Relief Fund Actuarial Information to Include in the Financial Statements for the June 30, 2019 Measurement Date



Projection of Pension Plan's Fiduciary Net Position (Dollar amounts in thousands)

				Calcula	tion of	Single Equival	ent Ra	te		Calculation of Single Equivalent Rate													
scal Year	"Func	led" Portion of BP		ed" Portion	PV of	"Funded" BP	PV o	f "Unfunded" BP	PV of BP Using a Single DR														
2019	¢	635,661	\$	-	\$	617,409	\$	<u> </u>	\$	617,40													
2019	\$		\$ \$	-				-	э \$														
	\$	690,150		-	\$	632,390	\$	-		632,39													
2021	\$	729,022	\$	-	\$	630,196	\$	-	\$	630,19													
2022 2023	\$ \$	751,004	\$	-	\$ \$	612,452	\$	-	\$ \$	612,45													
2023	\$ \$	782,698	\$ \$	-	э \$	602,168	\$ \$	-	Ф \$	602,16 592,03													
2024	э \$	815,693	\$ \$	-	э \$	592,031 578,414	э \$	-	э \$	,													
2025	\$ \$	844,747	\$ \$	-	э \$	578,414	э \$	-	э \$	578,41													
2026	э \$	855,039	\$ \$	-	э \$	552,321	э \$	-	э \$	552,32													
		874,637		-		533,001		-		533,00													
2028 2029	\$	890,060	\$ •	-	\$ \$	511,698	\$	-	\$ \$	511,69													
	\$	903,337 912,987	\$ \$	-	\$ \$	489,935	\$ \$	-		489,93 467.14													
2030	\$	,		-		467,140		-	\$	467,14													
2031 2032	\$	918,019	\$ \$	-	\$	443,127	\$	-	\$ \$	443,12 420,59													
	\$	923,615		-	\$	420,593	\$	-															
2033	\$	936,944	\$	-	\$	402,512	\$	-	\$	402,51													
2034	\$	957,812	\$	-	\$	388,186	\$	-	\$	388,18													
2035	\$	967,277	\$	-	\$	369,832	\$	-	\$	369,83													
2036	\$	976,204	\$	-	\$	352,118	\$	-	\$	352,11													
2037	\$	1,054,970	\$	-	\$	358,989	\$	-	\$	358,98													
2038	\$	1,086,529	\$	-	\$	348,800	\$	-	\$	348,80													
2039	\$	1,189,320	\$	-	\$	360,187	\$	-	\$	360,18													
2040	\$	1,308,472	\$	-	\$	373,842	\$	-	\$	373,84													
2041	\$	1,382,546	\$	-	\$	372,647	\$	-	\$	372,64													
2042	\$	1,442,222	\$	-	\$	366,728	\$	-	\$	366,72													
2043	\$	1,502,815	\$	-	\$	360,505	\$	-	\$	360,50													
2044	\$	1,552,200	\$	-	\$	351,276	\$	-	\$	351,27													
2045	\$	1,634,128	\$	-	\$	348,884	\$	-	\$	348,88													
2046	\$	1,701,591	\$	-	\$	342,724	\$	-	\$	342,72													
2047	\$	1,765,877	\$	-	\$	335,539	\$	-	\$	335,53													
2048	\$	1,807,353	\$	-	\$	323,981	\$	-	\$	323,98													
2049	\$	1,830,295	\$	-	\$	309,522	\$	-	\$	309,52													
2050	\$	1,838,422	\$	-	\$	293,299	\$	-	\$	293,29													
2051	\$	1,840,137	\$	-	\$	276,955	\$	-	\$	276,95													
2052	\$	1,836,224	\$	-	\$	260,723	\$	-	\$	260,72													
2053	\$	1,826,426	\$	-	\$	244,653	\$	-	\$	244,65													
2054	\$	1,812,711	\$	-	\$	229,071	\$	-	\$	229,07													
2055	\$	1,797,427	\$	-	\$	214,283	\$	-	\$	214,28													
2056	\$	1,777,172	\$	-	\$	199,875	\$	-	\$	199,87													
2057	\$	1,755,793	\$	-	\$	186,293	\$	-	\$	186,29													
2058	\$	1,731,132	\$	-	\$	173,280	\$	-	\$	173,28													
2059	\$	1,705,254	\$	-	\$	161,028	\$	-	\$	161,02													
#N/A		#N/A		N/A		#N/A		#N/A		#N/A													
#N/A		#N/A		N/A		#N/A		#N/A		#N/A													
#N/A		#N/A		N/A		#N/A		#N/A		#N/A													