

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



Submitted by:

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December 3, 2019

Mr. Jeff Vallet City Treasurer City of Logan 219 Dingess Street Logan, WV 25601 Officer James Shepperd
Pension Board Secretary
City of Logan, West Virginia
Policemen's Pension and Relief Fund

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

Dear Jeff,

The following report contains the GASB 67 and GASB 68 actuarial information for the City of Logan 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 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, 2017 actuarial valuation 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.

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.

Mr. Jeff Vallet December 3, 2019 Page 2

Methodology, Reliance and Certification (cont.)

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 selections 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.

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.



Mr. Jeff Vallet December 3, 2019 Page 3

Methodology, Reliance and Certification (cont.)

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

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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	\$ 2,137,040
Plan fiduciary net position	 (939,476)
Employer's net pension liability	\$ 1,197,564
Plan fiduciary net position as a percentage of the total pension liability	43.96%

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) 5.5000% 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 2032 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

	1%	6 Decrease	Dis	Current scount Rate	1%	6 Increase
		5.00%		6.00%		7.00%
Employer's net pension liability	\$	1,575,019	\$	1,197,564	\$	898,995

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

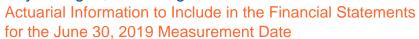




Changes in the Net Pension Liability

	To	l tal Pension	se (Decrease n Fiduciary		et Pension
	10	Liability (a)	t Position (b)	IN.	Liability (a) - (b)
Balances at 6/30/18	\$	2,296,277	\$ 834,749	\$	1,461,528
Changes for the year:					
Service cost		104,665			104,665
Interest		125,101			125,101
Changes of benefit terms		-			-
Differences between expected and actual experience		(170,901)			(170,901)
Changes of assumptions		(174,688)			(174,688)
Contributions - employer (including Premium Tax Allocation)			94,484		(94,484)
Contributions - member			21,324		(21,324)
Net investment income*			32,333		(32,333)
Benefit payments, including refunds of member contributions		(43,414)	(43,414)		-
Administrative expense			-		-
Other			 		-
Net Changes		(159,237)	 104,727		(263,964)
Balances at 6/30/19	\$	2,137,040	\$ 939,476	\$	1,197,564
Return on Investments			3.7%		

^{*} The Plan Fiduciary Net Position as of July 1, 2018 provided to Bolton by the City does not match the Plan Fiduciary Net Position as of June 30, 2018 as provided in the prior GASB report. The difference of \$2,125.81 has been included as investment income for the measurement period ending June 30, 2019.





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

Note	Description	1	Amount
Α	Service Cost	\$	104,665
В	Interest on the total pension liability		125,101
Α	Changes of benefit terms		-
С	Differences between expected and actual experience		(30,991)
С	Changes of assumptions		(12,439)
Α	Employee contributions		(21,324)
D	Projected earnings on pension plan investments		(52,258)
С	Differences between expected and actual earnings on		19,290
	plan investments		
Α	Pension plan administrative expense		-
Α	Other changes in fiduciary net position		-
_	Total Pension Expense	\$	132,044

Notes:

A Provided in the Changes in Net Pension Liability exhibit.

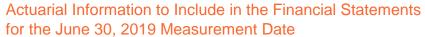
B Based on the following calculation:

	Α	mount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	E	rojected arnings x (b) x (c)
Beginning total pension liability	\$	2,296,277	100%	5.50%	\$	126,295
Service Cost (End of Year)		104,665	0%	5.50%		-
Benefit payments, including refunds of employee contributions		(43,414)	50%	5.50%		(1,194)
Total interest on the total pension liability					\$	125,101

C Provided in the Schedules of Deferrals.

D Based on the following calculation:

	A	mount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	E	ojected arnings x (b) x (c)
Beginning plan fiduciary net position	\$	834,749	100%	6.00%	\$	50,085
Employer contributions		94,484	50%	6.00%		2,835
Employee contributions		21,324	50%	6.00%		640
Benefit payments, including refunds of employee contributions		(43,414)	50%	6.00%		(1,302)
Administrative expense and other		-	50%	6.00%		-
Total Projected Earnings					\$	52,258





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	\$ 31,853	\$ 207,084
Changes of assumptions	125,805	199,308
Net difference between projected and actual earnings	18,827	
on pension plan investments		-
Total	\$ 176,485	\$ 406,392

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	\$ (34,048)
2021	(42,309)
2022	(36,056)
2023	(14,629)
2024	(19,293)
Thereafter	(83,572)

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



Fotal pension liability		2019		2018		2017		2016		2015		2014		2013		2012		2011	2010
Service cost	\$	104,665	\$	116,577	\$	107,821	\$	77,205	\$	80,984	\$	89,982	\$	-	\$	-	\$		\$
Interest		125,101		117,804		109,249		94,575		87,535		85,670		-		-		-	
Changes of benefit terms		-		-		-		-		-		-		-		-		-	
Differences between expected and actual experience		(170,901)		(18,503)		50,144		(37,017)		(69,300)		-		-		-		-	
Changes of assumptions		(174,688)		-		164,641		43,296		(127,161)		-		-		-		-	
Benefit payments, including refunds of member contributions		(43,414)		(43,414)		(49,600)		(22,329)		(13,181)		(32,696)		-		-		-	
Net change in total pension liability		(159,237)		172,464		382,255		155,730		(41,123)		142,956		-		-		-	
Total pension liability - beginning		2,296,277		2,123,813		1,741,558		1,585,828		1,626,951		1,483,995		-		-		-	
Total pension liability - ending (a)	\$	2,137,040	\$	2,296,277	\$	2,123,813	\$	1,741,558	\$	1,585,828	\$	1,626,951	\$	-	\$	-	\$	-	\$
Plan fiduciary net position		2019		2018		2017		2016		2015		2014		2013		2012		2011	2010
Contributions - employer (including Premium Tax Allocation)	\$	94,484	\$	77,722	\$	86,919	\$	63,957	\$	14,655	\$	41,723	\$	-	\$	-	\$	-	\$
Contributions - member	•	21,324	-	25,712	-	13,314	7	19,181	-	16,784	-	18,641	7	-	7	-	-	-	
Net investment income*		32,333		40,272		55.332		(3,308)		(14,333)		79,976		-		-		-	
Benefit payments, including refunds of member contributions		(43,414)		(43,414)		(49,600)		(22,329)		(13,181)		(32,696)		-		-		-	
Administrative expense		-		-		-		-		-		-		-		-		-	
Other		-		-		-		-		-		-		-		-		-	
Net change in plan fiduciary net position	\$	104,727	\$	100,292	\$	105,965	\$	57,501	\$	3,925	\$	107,644	\$		\$		\$	-	\$
Plan fiduciary net position - beginning		834,749		734,458		628,493		634,949		631,024		523,380		-		-		-	
Plan fiduciary net position - ending (b)	\$	939,476	\$	834,749	\$	734,458	\$	692,450	\$	634,949	\$	631,024	\$	-	\$	-	\$	-	\$
Employer's net pension liability - ending (a)-(b)	\$	1,197,564	\$	1,461,528	\$	1,389,355	\$	1,049,108	\$	950,879	\$	995,927	\$	-	\$	-	\$	-	\$
Plan fiduciary net position as a percentage of the otal pension liability		43.96%		36.35%		34.58%		39.76%		40.04%		38.79%		0.00%		0.00%		0.00%	0.00
, , , , , ,																			
Covered payroll	\$	277,925	\$	272,738	\$	279,330	\$	229,274	\$	217,343	\$	233,900	\$	-	\$	-	\$	-	\$
mployer's net pension liability as a percentage of overed payroll		430.89%		535.87%		497.39%		457.58%		437.50%		425.79%		0.00%		0.00%		0.00%	0.00
		0.00		0.07		0.00		7.05		7.00									
expected average remaining service years of all participants		8.00		8.37		8.22		7.85		7.88		-		-		-		-	-

Notes to Schedule:

Benefit changes: There were no changes for FY2019.

Changes of assumptions: The discount rate changed from 5.5000% to 6.0000%.

^{*} The Plan Fiduciary Net Position as of July 1, 2018 provided to Bolton by the City does not match the Plan Fiduciary Net Position as of June 30, 2018 as provided in the prior GASB report. The difference of \$2,125.81 has been included as investment income for the measurement period ending June 30, 2019.

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	\$ 234,454	\$ 222,506	\$ 161,653	\$ 132,554	\$ 157,534	\$ 156,942	\$ 117,022	\$	-	\$	-	\$	-
Contributions in relation to the actuarially determined contribution													
Employer provided	74,807	50,550	22,962	40,811	10,000	6,000	49,187		-		-		-
State provided	 19,677	27,172	-	23,146	4,655	35,723	47,592		-		-		-
Contribution deficiency (excess)	\$ 139,970	\$ 144,784	\$ 138,691	\$ 68,597	\$ 142,879	\$ 115,219	\$ 20,243	\$	<u> </u>	\$	-	\$	-
Covered payroll	\$ 277,925	\$ 272,738	\$ 279,330	\$ 229,274	\$ 217,343	\$ 233,900	\$ 223,255	\$	-	\$	-	\$	-
Contributions as a percentage of covered employee payroll	34.00%	28.50%	8.22%	27.90%	6.74%	17.84%	43.35%	N/A		N/A		N	/A

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 14 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	bety and on	Differences veen Projected Actual Earnings Pension Plan nvestments	Recognition Period (Years)	2015	2016	2017	2018	2019	2020		2021		2022	2023
2015	\$	49,541	5	\$ 9,908	9,908	9,908	9,908	9,909						
2016		41,311	5		\$ 8,262	8,262	8,262	8,262	8,	,263				
2017		(16,103)	5			\$ (3,221)	(3,221)	(3,221)	(3,	,221)	(3,219)		
2018		1,774	5				\$ 355	355		355		355	354	
2019		19,925	5					\$ 3,985	3,	,985		3,985	3,985	3,985
let increa	se (de	crease) in pension	expense					\$ 19,290	\$ 9.	,382	\$	1,121	\$ 4,339	\$ 3,985

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

					Balan June 3	ces at 0, 2019	
Year	tment Earnings than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense Through June 30, 2019 (c)	Ou Re	eferred tflows of sources a) - (c)	Deferred Inflows of Resources (b) - (c)	
2015	\$ 49,541	\$ -	\$ 49,541	\$	-	\$	-
2016	41,311	-	33,048		8,263		-
2017	-	16,103	9,663		-		6,440
2018	1,774	-	710		1,064		-
2019	19,925	-	3,985		15,940		-
				\$	25,267	\$	6,440

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 l	Pension Expens	e Arising from t 2018	he Recognition 2019	of Differences b	etween Expected 2021	and Actual Expe	erience 2023	2024	Thereafter
Prior	\$ -		\$ -	-	-	-	-	-	-	-	-	-	-	-	-
2015	(69,300)	7.878212			\$ (8,796)	(8,796)	(8,796)	(8,796)	(8,796)	(8,796)	(8,796)	(7,728)			
2016	(37,017)	7.846481				\$ (4,718)	(4,718)	(4,718)	(4,718)	(4,718)	(4,718)	(4,718)	(3,991)		
2017	50,144	8.223742					\$ 6,097	6,097	6,097	6,097	6,097	6,097	6,097	6,097	1,368
2018	(18,503)	8.368152						\$ (2,211)	(2,211)	(2,211)	(2,211)	(2,211)	(2,211)	(2,211)	(3,026)
2019	(170,901)	8							\$ (21,363)	(21,363)	(21,363)	(21,363)	(21,363)	\$ (21,363)	(42,723)
Net increa	se (decrease) in p	ension expense							\$ (30,991)	\$ (30,991)	\$ (30,991)	\$ (29,923)	\$ (21,468)	\$ (17,477)	\$ (44,381)

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

								Balan June 3				
Year	Experience Losses (a)			Experience Gains (b)	Amounts Recognized in Pension Expense Through June 30, 2019 (c)			Deferred Outflows of Resources (a) - (c)		Deferred Inflows of Resources (b) - (c)		
Prior	\$		\$	-	\$	-	\$	-	\$	-		
2015		-		69,300		43,980		-		25,320		
2016		-		37,017		18,872		-		18,145		
2017		50,144		-		18,291		31,853		-		
2018		-		18,503		4,422		-		14,081		
2019		-		170,901		21,363		-		149,538		
							\$	31,853	\$	207,084		

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.

	Increase (Decrease) in Pension Expense Arising from the Effects of Changes of Assumptions														
Year	Changes of Assumptions	Recognition Period (Years)	Prior	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Thereafter
Prior	\$ -		\$ -	-	-	-	-	-	-	-	-	-	-	-	-
2015	(127,161)	7.878212			\$ (16,141)	(16,141)	(16,141)	(16,141)	(16,141)	(16,141)	(16,141)	(14,174)			
2016	43,296	7.846481				\$ 5,518	5,518	5,518	5,518	5,518	5,518	5,518	4,670		
2017	164,641	8.223742					\$ 20,020	20,020	20,020	20,020	20,020	20,020	20,020	20,020	4,481
2018	-	8.368152						\$ -	-	-	-	-	-	-	-
2019	(174,688)	8							\$ (21,836)	(21,836)	(21,836)	(21,836)	(21,836)	\$ (21,836)	(43,672)
Net increa	se (decrease) in pe	ension expense							\$ (12,439)	\$ (12,439)	\$ (12,439)	\$ (10,472)	\$ 2,854	\$ (1,816)	\$ (39,191)

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

Year	Increases in the Total Pension Liability (a)		Pension Decreases in the Total		Amounts Recognized in Pension Expense Throug June 30, 2019 (c)	h		30, 20 I Ii	ces at 0, 2019 Deferred Inflows of Resources (b) - (c)	
Prior	\$	-	\$	-	\$	- ;	5 -	\$	-	
2015		-		127,161	80,70)5	-		46,456	
2016		43,296		-	22,07	72	21,224		-	
2017		164,641		-	60,06	60	104,581		-	
2018		-		-		-	-		-	
2019		-		174,688	21,83	36	-		152,852	
						,	125,805	\$	199,308	