



**Municipal Pensions
Oversight Board**

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

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

Bolton

Submitted by:

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October 21, 2019

Mr. James Goff
Finance Director
City of Morgantown
300 Spruce Street
Morgantown, WV 26505

Lieutenant Matthew Solomon
Pension Board Secretary
City of Morgantown, West Virginia
Policemen's Pension and Relief Fund

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

Dear James

The following report contains the GASB 67 and GASB 68 actuarial information for the City of Morgantown 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 3.78%. The plan's expected gross rate of investment return of 4.5% 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.

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 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.



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.

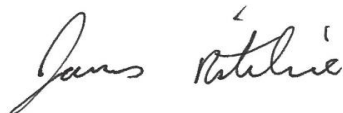
The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, 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



City of Morgantown, West Virginia Policemen's Pension and Relief Fund
 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	\$ 77,274,558
Plan fiduciary net position	(16,633,959)
Employer's net pension liability	<u>\$ 60,640,599</u>
Plan fiduciary net position as a percentage of the total pension liability	21.53%

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)	3.8023%
Single discount rate (EOY)	3.7800%
Investment rate of return	4.50 percent, net of pension plan investment expense, including inflation
Long-term municipal bond rate (BOY)	3.62%
Long-term municipal 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	2066
Year assets are expected to be depleted for a closed plan	2037

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% Decrease 2.78%	Current Discount Rate 3.78%	1% Increase 4.78%
Employer's net pension liability	\$ 75,061,892	\$ 60,640,599	\$ 49,416,976

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



Changes in the Net Pension Liability

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 6/30/18	\$ 73,190,607	\$ 15,731,259	\$ 57,459,348
Changes for the year:			
Service cost	2,680,359		2,680,359
Interest	2,736,305		2,736,305
Changes of benefit terms	-		-
Differences between expected and actual experience	838,051		838,051
Changes of assumptions	281,487		281,487
Contributions - employer (including Premium Tax Allocation)		2,000,979	(2,000,979)
Contributions - member		465,680	(465,680)
Net investment income		890,424	(890,424)
Benefit payments, including refunds of member contributions	(2,452,251)	(2,452,251)	-
Administrative expense		-	-
Other		(2,132)	2,132
Net Changes	<u>4,083,951</u>	<u>902,700</u>	<u>3,181,251</u>
Balances at 6/30/19	<u>\$ 77,274,558</u>	<u>\$ 16,633,959</u>	<u>\$ 60,640,599</u>
Return on Investments		5.7%	

City of Morgantown, West Virginia Policemen's Pension and Relief Fund
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Components of Employer's Pension Expense for the Fiscal Year Ended June 30, 2019

Note	Description	Amount
A	Service Cost	\$ 2,680,359
B	Interest on the total pension liability	2,736,305
A	Changes of benefit terms	-
C	Differences between expected and actual experience	248,494
C	Changes of assumptions	1,992,200
A	Employee contributions	(465,680)
D	Projected earnings on pension plan investments	(708,183)
C	Differences between expected and actual earnings on plan investments	113,309
A	Pension plan administrative expense	-
A	Other changes in fiduciary net position	2,132
Total Pension Expense		\$ 6,598,936

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)	Projected Earnings (a) x (b) x (c)
Beginning total pension liability	\$ 73,190,607	100%	3.80%	\$ 2,782,926
Service Cost (End of Year)	2,680,359	0%	3.80%	-
Benefit payments, including refunds of employee contributions	(2,452,251)	50%	3.80%	(46,621)
Total interest on the total pension liability				\$ 2,736,305

C Provided in the Schedules of Deferrals.

D Based on the following calculation:

	Amount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	Projected Earnings (a) x (b) x (c)
Beginning plan fiduciary net position	\$ 15,731,259	100%	4.50%	\$ 707,907
Employer contributions	2,000,979	50%	4.50%	45,022
Employee contributions	465,680	50%	4.50%	10,478
Benefit payments, including refunds of employee contributions	(2,452,251)	50%	4.50%	(55,176)
Administrative expense and other	(2,132)	50%	4.50%	(48)
Total Projected Earnings				\$ 708,183

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



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:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 1,685,704	\$ 80,413
Changes of assumptions	4,522,469	3,286,989
Net difference between projected and actual earnings on pension plan investments	-	167,240
Total	\$ 6,208,173	\$ 3,534,642

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	\$ 2,286,982
2021	344,329
2022	(421,023)
2023	276,655
2024	186,588
Thereafter	-

City of Morgantown, West Virginia Policemen's Pension and Relief Fund
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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	\$ 2,680,359	\$ 2,644,826	\$ 2,861,572	\$ 1,530,284	\$ 1,410,460	\$ 1,376,895	\$ -	\$ -	\$ -	\$ -
Interest	2,736,305	2,664,956	2,354,181	2,409,970	2,333,177	2,364,924	-	-	-	-
Changes of benefit terms	-	-	-	-	-	-	-	-	-	-
Differences between expected and actual experience	838,051	1,320,613	(95,360)	440,163	(935,554)	-	-	-	-	-
Changes of assumptions	281,487	(474,554)	(6,346,566)	16,140,037	927,148	1,904,795	-	-	-	-
Benefit payments, including refunds of member contributions	(2,452,251)	(2,258,026)	(2,119,629)	(2,098,886)	(2,007,907)	(1,918,832)	-	-	-	-
Net change in total pension liability	4,083,951	3,897,815	(3,345,802)	18,421,568	1,727,324	3,727,782	-	-	-	-
Total pension liability - beginning	73,190,607	69,292,792	72,638,594	54,217,026	52,489,702	48,761,920	-	-	-	-
Total pension liability - ending (a)	\$ 77,274,558	\$ 73,190,607	\$ 69,292,792	\$ 72,638,594	\$ 54,217,026	\$ 52,489,702	\$ -	\$ -	\$ -	\$ -
Plan fiduciary net position	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Contributions - employer (including Premium Tax Allocation)	\$ 2,000,979	\$ 1,904,788	\$ 1,703,185	\$ 1,445,898	\$ 1,299,492	\$ 1,236,729	\$ -	\$ -	\$ -	\$ -
Contributions - member	465,680	437,588	423,661	360,533	343,444	260,782	-	-	-	-
Net investment income	890,424	466,764	1,349,142	(313,457)	372,888	1,430,259	-	-	-	-
Benefit payments, including refunds of member contributions	(2,452,251)	(2,258,026)	(2,119,629)	(2,098,886)	(2,007,907)	(1,918,832)	-	-	-	-
Administrative expense	-	(1,620)	(1,560)	(1,994)	(1,344)	(1,275)	-	-	-	-
Other	(2,132)	-	198	267	-	-	-	-	-	-
Net change in plan fiduciary net position	\$ 902,700	\$ 549,494	\$ 1,354,997	\$ (607,639)	\$ 6,573	\$ 1,007,663	\$ -	\$ -	\$ -	\$ -
Plan fiduciary net position - beginning	15,731,259	15,181,765	13,826,768	14,434,407	14,472,339	13,464,676	-	-	-	-
Plan fiduciary net position - ending (b)	\$ 16,633,959	\$ 15,731,259	\$ 15,181,765	\$ 13,826,768	\$ 14,478,912	\$ 14,472,339	\$ -	\$ -	\$ -	\$ -
Employer's net pension liability - ending (a)-(b)	\$ 60,640,599	\$ 57,459,348	\$ 54,111,027	\$ 58,811,826	\$ 39,738,114	\$ 38,017,363	\$ -	\$ -	\$ -	\$ -
Plan fiduciary net position as a percentage of the total pension liability	21.53%	21.49%	21.91%	19.04%	26.71%	27.57%	0.00%	0.00%	0.00%	0.00%
Covered payroll	\$ 4,424,855	\$ 4,424,620	\$ 4,054,650	\$ 3,527,889	\$ 3,381,767	\$ 3,514,416	\$ -	\$ -	\$ -	\$ -
Employer's net pension liability as a percentage of covered payroll	1370.45%	1298.63%	1334.54%	1667.05%	1175.07%	1081.75%	0.00%	0.00%	0.00%	0.00%
Expected average remaining service years of all participants	6.00	5.88	5.65	5.43	5.20	-	-	-	-	-

Notes to Schedule:

Benefit changes: There were no changes for FY2019.

Changes of assumptions: The discount rate changed from 3.8023% to 3.7800%.

City of Morgantown, West Virginia Policemen's Pension and Relief Fund
 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	\$ 4,499,599	\$ 3,983,176	\$ 3,675,688	\$ 3,285,978	\$ 2,478,419	\$ 2,480,580	\$ 2,339,128	\$ -	\$ -	\$ -
Contributions in relation to the actuarially determined contribution										
Employer provided	1,295,000	1,212,990	1,073,218	848,356	720,778	673,624	629,555	-	-	-
State provided	705,979	691,798	629,967	597,542	578,714	563,105	821,786	-	-	-
Contribution deficiency (excess)	<u>\$ 2,498,620</u>	<u>\$ 2,078,388</u>	<u>\$ 1,972,503</u>	<u>\$ 1,840,080</u>	<u>\$ 1,178,927</u>	<u>\$ 1,243,851</u>	<u>\$ 887,787</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered payroll	\$ 4,424,855	\$ 4,424,620	\$ 4,054,650	\$ 3,527,889	\$ 3,381,767	\$ 3,514,416	\$ 3,281,961	\$ -	\$ -	\$ -
Contributions as a percentage of covered employee payroll	45.22%	43.00%	42.00%	41.00%	38.00%	35.00%	44.00%	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	4.50 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

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

Increase (Decrease) in Pension Expense Arising from the Recognition of Differences between Projected and Actual Earnings on Plan Investments											
Year	Differences between Projected and Actual Earnings on Pension Plan Investments	Recognition Period (Years)	2015	2016	2017	2018	2019	2020	2021	2022	2023
2015	\$ 341,571	5	\$ 68,314	68,314	68,314	68,314	68,315				
2016	1,027,823	5		\$ 205,565	205,565	205,565	205,565	205,563			
2017	(726,806)	5			\$ (145,361)	(145,361)	(145,361)	(145,361)	(145,362)		
2018	106,189	5				\$ 21,238	21,238	21,238	21,238	21,237	
2019	(182,241)	5					\$ (36,448)	(36,448)	(36,448)	(36,448)	(36,449)
Net increase (decrease) in pension expense							\$ 113,309	\$ 44,992	\$ (160,572)	\$ (15,211)	\$ (36,449)

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

Year	Investment Earnings Less than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense Through June 30, 2019 (c)	Balances at June 30, 2019	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ 341,571	\$ -	\$ 341,571	\$ -	\$ -
2016	1,027,823	-	822,260	205,563	-
2017	-	726,806	436,083	-	290,723
2018	106,189	-	42,476	63,713	-
2019	-	182,241	36,448	-	145,793
				\$ 269,276	\$ 436,516

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

Increase (Decrease) in Pension Expense Arising from the Recognition of Differences between Expected and Actual Experience																
Year	Differences between Expected and Actual Experience	Recognition Period (Years)	Prior	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Thereafter	
Prior	\$ -		\$ -													
2014	-	1		\$ -												
2015	(935,554)	5.198539			\$ (179,965)	(179,965)	(179,965)	(179,965)	(179,965)	(35,729)						
2016	440,163	5.430906				\$ 81,048	81,048	81,048	81,048	81,048	34,923					
2017	(95,360)	5.645252					\$ (16,892)	(16,892)	(16,892)	(16,892)	(16,892)	(10,900)				
2018	1,320,613	5.879103						\$ 224,628	224,628	224,628	224,628	224,628	197,473			
2019	838,051	6							\$ 139,675	139,675	139,675	139,675	139,675	139,675	\$ 139,676	
Net increase (decrease) in pension expense									\$ 248,494	\$ 392,730	\$ 382,334	\$ 353,403	\$ 337,148	\$ 139,676	\$ -	

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)	Balances at June 30, 2019	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
Prior	\$ -	\$ -	\$ -	\$ -	\$ -
2014	-	-	-	-	-
2015	-	935,554	899,825	-	35,729
2016	440,163	-	324,192	115,971	-
2017	-	95,360	50,676	-	44,684
2018	1,320,613	-	449,256	871,357	-
2019	838,051	-	139,675	698,376	-
				\$ 1,685,704	\$ 80,413

City of Morgantown, West Virginia Policemen's Pension and Relief Fund
 Actuarial Information to Include in the Financial Statements
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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	\$ -		\$ -												
2014	1,904,795	1		\$ 1,904,795											
2015	927,148	5.198539			\$ 178,348	178,348	178,348	178,348	178,348	35,408					
2016	16,140,037	5.430906				\$ 2,971,887	2,971,887	2,971,887	2,971,887	2,971,887	1,280,602				
2017	(6,346,566)	5.645252					\$ (1,124,231)	(1,124,231)	(1,124,231)	(1,124,231)	(1,124,231)	(725,411)			
2018	(474,554)	5.879103						\$ (80,719)	(80,719)	(80,719)	(80,719)	(80,719)	(70,959)		
2019	281,487	6							\$ 46,915	46,915	46,915	46,915	46,915	\$ 46,912	-
Net increase (decrease) in pension expense									\$ 1,992,200	\$ 1,849,260	\$ 122,567	\$ (759,215)	\$ (24,044)	\$ 46,912	\$ -

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

Year	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense Through June 30, 2019 (c)	Balances at June 30, 2019	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
Prior	\$ -	\$ -	\$ -	\$ -	\$ -
2014	1,904,795	-	1,904,795	-	-
2015	927,148	-	891,740	35,408	-
2016	16,140,037	-	11,887,548	4,252,489	-
2017	-	6,346,566	3,372,693	-	2,973,873
2018	-	474,554	161,438	-	313,116
2019	281,487	-	46,915	234,572	-
				\$ 4,522,469	\$ 3,286,989

City of Morgantown, 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)

Fiscal Year	Gross Normal Cost (BOY)			Employee Contributions (BOY)			Employer Normal Cost (BOY)			Expenses (MOY)			Employer Contributions (MOY)			Premium Tax Allocation (MOY)		
	Current Members	Future Members	Total	Current Members	Future Members	Total	Current Members	Future Members	Total	Current Members	Future Members	Total	Current Members	Future Members	Total	Current Members	Future Members	Total
2019	\$ 2,116,815	\$ -	\$ 2,116,815	\$ 411,352	\$ -	\$ 411,352	\$ 1,705,463	\$ -	\$ 1,705,463	\$ 1,603	\$ -	\$ 1,603	\$ 944,791	\$ -	\$ 944,791	\$ 705,979	\$ -	\$ 705,979
2020	\$ 2,086,021	\$ 80,164	\$ 2,166,185	\$ 405,340	\$ 14,953	\$ 420,293	\$ 1,680,681	\$ 65,211	\$ 1,745,892	\$ 1,692	\$ -	\$ 1,692	\$ 1,168,672	\$ 66,662	\$ 1,235,334	\$ 738,271	\$ -	\$ 738,271
2021	\$ 2,050,917	\$ 196,521	\$ 2,247,438	\$ 398,288	\$ 36,682	\$ 434,970	\$ 1,652,629	\$ 159,839	\$ 1,812,468	\$ 1,699	\$ 65	\$ 1,764	\$ 995,067	\$ 163,461	\$ 1,158,528	\$ 755,714	\$ -	\$ 755,714
2022	\$ 2,039,328	\$ 302,739	\$ 2,342,067	\$ 396,266	\$ 56,539	\$ 452,805	\$ 1,643,062	\$ 246,200	\$ 1,889,262	\$ 1,732	\$ 107	\$ 1,839	\$ 982,399	\$ 251,786	\$ 1,234,185	\$ 775,273	\$ -	\$ 775,273
2023	\$ 2,012,107	\$ 409,635	\$ 2,421,742	\$ 391,909	\$ 76,545	\$ 468,454	\$ 1,620,198	\$ 333,090	\$ 1,953,288	\$ 1,738	\$ 152	\$ 1,890	\$ 974,343	\$ 340,654	\$ 1,314,997	\$ 795,369	\$ -	\$ 795,369
2024	\$ 1,957,168	\$ 534,105	\$ 2,491,273	\$ 382,491	\$ 99,869	\$ 482,360	\$ 1,574,677	\$ 434,236	\$ 2,008,913	\$ 1,757	\$ 213	\$ 1,970	\$ 957,085	\$ 444,112	\$ 1,401,197	\$ 816,018	\$ -	\$ 816,018
2025	\$ 1,902,137	\$ 679,091	\$ 2,581,228	\$ 372,914	\$ 127,068	\$ 499,982	\$ 1,529,223	\$ 552,023	\$ 2,081,246	\$ 1,791	\$ 276	\$ 2,067	\$ 928,429	\$ 564,583	\$ 1,493,012	\$ 846,110	\$ -	\$ 846,110
2026	\$ 1,849,838	\$ 819,371	\$ 2,669,209	\$ 364,314	\$ 153,406	\$ 517,720	\$ 1,485,524	\$ 665,965	\$ 2,151,489	\$ 1,810	\$ 329	\$ 2,139	\$ 909,542	\$ 681,113	\$ 1,590,655	\$ 868,116	\$ -	\$ 868,116
2027	\$ 1,798,148	\$ 971,878	\$ 2,770,026	\$ 356,020	\$ 182,066	\$ 538,086	\$ 1,442,128	\$ 789,812	\$ 2,231,940	\$ 1,844	\$ 384	\$ 2,228	\$ 886,605	\$ 807,771	\$ 1,694,376	\$ 890,726	\$ -	\$ 890,726
2028	\$ 1,762,805	\$ 1,122,309	\$ 2,885,114	\$ 350,675	\$ 210,356	\$ 561,031	\$ 1,412,130	\$ 911,953	\$ 2,324,083	\$ 1,879	\$ 441	\$ 2,320	\$ 871,777	\$ 932,687	\$ 1,804,464	\$ 913,959	\$ -	\$ 913,959
2029	\$ 1,726,232	\$ 1,273,456	\$ 2,999,688	\$ 345,065	\$ 238,798	\$ 583,863	\$ 1,381,167	\$ 1,034,658	\$ 2,415,825	\$ 1,914	\$ 486	\$ 2,400	\$ 863,137	\$ 1,058,168	\$ 1,921,305	\$ 941,186	\$ -	\$ 941,186
2030	\$ 1,661,508	\$ 1,433,590	\$ 3,095,098	\$ 333,308	\$ 268,950	\$ 602,258	\$ 1,328,200	\$ 1,164,640	\$ 2,492,840	\$ 1,933	\$ 549	\$ 2,482	\$ 854,323	\$ 1,191,105	\$ 2,045,428	\$ 965,796	\$ -	\$ 965,796
2031	\$ 1,601,047	\$ 1,624,467	\$ 3,225,514	\$ 321,914	\$ 304,919	\$ 626,833	\$ 1,279,133	\$ 1,319,548	\$ 2,598,681	\$ 1,951	\$ 633	\$ 2,584	\$ 828,014	\$ 1,349,544	\$ 2,177,558	\$ 991,082	\$ -	\$ 991,082
2032	\$ 1,542,898	\$ 1,802,420	\$ 3,345,318	\$ 312,097	\$ 338,462	\$ 650,559	\$ 1,230,801	\$ 1,463,958	\$ 2,694,759	\$ 1,987	\$ 685	\$ 2,672	\$ 821,398	\$ 1,497,220	\$ 2,318,618	\$ 1,017,064	\$ -	\$ 1,017,064
2033	\$ 1,485,852	\$ 1,993,697	\$ 3,479,549	\$ 302,379	\$ 374,536	\$ 676,915	\$ 1,183,473	\$ 1,619,161	\$ 2,802,634	\$ 2,023	\$ 740	\$ 2,763	\$ 813,816	\$ 1,655,931	\$ 2,469,747	\$ 1,043,760	\$ -	\$ 1,043,760
2034	\$ 1,429,452	\$ 2,192,060	\$ 3,621,512	\$ 291,785	\$ 411,962	\$ 703,747	\$ 1,137,667	\$ 1,780,098	\$ 2,917,765	\$ 2,060	\$ 797	\$ 2,857	\$ 811,715	\$ 1,820,506	\$ 2,632,221	\$ 1,105,170	\$ -	\$ 1,105,170
2035	\$ 1,333,560	\$ 2,404,485	\$ 3,738,045	\$ 273,229	\$ 452,060	\$ 725,289	\$ 1,060,331	\$ 1,952,425	\$ 3,012,756	\$ 2,078	\$ 876	\$ 2,954	\$ 810,633	\$ 1,996,747	\$ 2,807,380	\$ 1,134,184	\$ -	\$ 1,134,184
2036	\$ 1,216,811	\$ 2,648,748	\$ 3,865,559	\$ 250,460	\$ 498,195	\$ 748,655	\$ 966,351	\$ 2,150,553	\$ 3,116,904	\$ 2,095	\$ 979	\$ 3,074	\$ 797,116	\$ 2,199,387	\$ 2,996,503	\$ 1,163,996	\$ -	\$ 1,163,996
2037	\$ 1,076,322	\$ 2,897,456	\$ 3,973,778	\$ 222,625	\$ 545,182	\$ 767,807	\$ 853,697	\$ 2,352,274	\$ 3,205,971	\$ 2,132	\$ 1,046	\$ 3,178	\$ 795,056	\$ 2,405,664	\$ 3,200,720	\$ 1,194,628	\$ -	\$ 1,194,628
2038	\$ 928,303	\$ 3,190,179	\$ 4,118,482	\$ 193,550	\$ 600,520	\$ 794,070	\$ 734,753	\$ 2,589,659	\$ 3,324,412	\$ 2,170	\$ 1,116	\$ 3,286	\$ 772,585	\$ 2,648,401	\$ 3,420,986	\$ 1,226,103	\$ -	\$ 1,226,103
2039	\$ 808,432	\$ 3,465,105	\$ 4,273,537	\$ 171,086	\$ 652,494	\$ 823,580	\$ 637,346	\$ 2,812,611	\$ 3,449,957	\$ 2,186	\$ 1,211	\$ 3,397	\$ 781,708	\$ 2,876,409	\$ 3,658,117	\$ 1,273,041	\$ -	\$ 1,273,041
2040	\$ 726,110	\$ 3,733,839	\$ 4,459,949	\$ 154,460	\$ 703,301	\$ 857,761	\$ 571,650	\$ 3,030,538	\$ 3,602,188	\$ 2,224	\$ 1,266	\$ 3,490	\$ 813,655	\$ 3,099,241	\$ 3,912,896	\$ 1,306,639	\$ -	\$ 1,306,639
2041	\$ 616,032	\$ 4,007,142	\$ 4,623,174	\$ 131,825	\$ 755,041	\$ 886,866	\$ 484,207	\$ 3,252,101	\$ 3,736,308	\$ 2,217	\$ 1,391	\$ 3,608	\$ 860,310	\$ 3,325,859	\$ 4,186,169	\$ 1,341,160	\$ -	\$ 1,341,160
2042	\$ 501,916	\$ 4,279,376	\$ 4,781,292	\$ 108,410	\$ 806,727	\$ 915,137	\$ 393,506	\$ 3,472,649	\$ 3,866,155	\$ 2,254	\$ 1,453	\$ 3,707	\$ 927,556	\$ 3,551,377	\$ 4,478,933	\$ 1,376,631	\$ -	\$ 1,376,631
2043	\$ 415,237	\$ 4,527,657	\$ 4,942,894	\$ 90,725	\$ 854,013	\$ 944,738	\$ 324,512	\$ 3,673,644	\$ 3,998,156	\$ 2,268	\$ 1,564	\$ 3,832	\$ 1,035,404	\$ 3,756,955	\$ 4,792,359	\$ 1,446,982	\$ -	\$ 1,446,982
2044	\$ 340,172	\$ 4,765,306	\$ 5,105,478	\$ 75,211	\$ 899,355	\$ 974,566	\$ 264,961	\$ 3,865,951	\$ 4,130,912	\$ 2,306	\$ 1,655	\$ 3,961	\$ 1,174,160	\$ 3,953,633	\$ 5,127,793	\$ 1,485,299	\$ -	\$ 1,485,299
2045	\$ 244,416	\$ 5,010,457	\$ 5,254,873	\$ 54,439	\$ 946,169	\$ 1,000,608	\$ 189,977	\$ 4,064,288	\$ 4,254,265	\$ 2,318	\$ 1,777	\$ 4,095	\$ 1,330,225	\$ 4,156,505	\$ 5,486,730	\$ 1,524,671	\$ -	\$ 1,524,671
2046	\$ 161,130	\$ 5,269,780	\$ 5,430,910	\$ 35,820	\$ 995,731	\$ 1,031,551	\$ 125,310	\$ 4,274,049	\$ 4,399,359	\$ 2,329	\$ 1,904	\$ 4,233	\$ 1,499,738	\$ 4,371,061	\$ 5,870,799	\$ 1,565,125	\$ -	\$ 1,565,125
2047	\$ 111,344	\$ 5,509,114	\$ 5,620,458	\$ 24,813	\$ 1,041,542	\$ 1,066,355	\$ 86,531	\$ 4,467,572	\$ 4,554,103	\$ 2,339	\$ 2,036	\$ 4,375	\$ 1,712,733	\$ 4,569,022	\$ 6,281,755	\$ 1,717,834	\$ -	\$ 1,717,834
2048	\$ 78,275	\$ 5,742,344	\$ 5,820,619	\$ 17,495	\$ 1,086,216	\$ 1,103,711	\$ 60,780	\$ 4,656,128	\$ 4,716,908	\$ 2,348	\$ 2,174	\$ 4,522	\$ 1,959,566	\$ 4,761,912	\$ 6,721,478	\$ 1,763,456	\$ -	\$ 1,763,456
2049	\$ 55,520	\$ 5,974,791	\$ 6,030,311	\$ 12,425	\$ 1,130,751	\$ 1,143,176	\$ 43,095	\$ 4,844,040	\$ 4,887,135	\$ 2,327	\$ 2,319	\$ 4,646	\$ 2,237,830	\$ 4,954,151	\$ 7,191,981	\$ 1,810,332	\$ -	\$ 1,810,332
2050	\$ 36,497	\$ 6,210,718	\$ 6,247,215	\$ 8,208	\$ 1,175,939	\$ 1,184,147	\$ 28,289	\$ 5,034,779	\$ 5,063,068	\$ 2,333	\$ 2,469	\$ 4,802	\$ 2,546,136	\$ 5,149,284	\$ 7,695,420	\$ 1,858,498	\$ -	\$ 1,858,498
2051	\$ 21,866	\$ 6,455,010	\$ 6,476,876	\$ 4,981	\$ 1,222,704	\$ 1,227,685	\$ 16,885	\$ 5,232,306	\$ 5,249,191	\$ 2,367	\$ 2,596	\$ 4,963	\$ 2,882,766	\$ 5,351,333	\$ 8,234,099	\$ 2,753,883	\$ -	\$ 2,753,883
2052	\$ 12,799	\$ 6,704,860	\$ 6,717,659	\$ 2,956	\$ 1,270,527	\$ 1,273,483	\$ 9,843	\$ 5,434,333	\$ 5,444,176	\$ 2,371	\$ 2,728	\$ 5,099	\$ 3,252,498	\$ 5,557,988	\$ 8,810,486	\$ 2,827,819	\$ -	\$ 2,827,819
2053	\$ 8,147	\$ 6,959,046	\$ 6,967,193	\$ 1,899	\$ 1,319,166	\$ 1,321,065	\$ 6,248	\$ 5,639,880	\$ 5,646,128	\$ 2,373	\$ 2,897	\$ 5,270	\$ 3,658,942	\$ 5,768,278	\$ 9,427,220	\$ 2,903,788	\$ -	\$ 2,903,788
2054	\$ 3,982	\$ 7,223,127	\$ 7,227,109	\$ 946	\$ 1,369,653	\$ 1,370,599	\$ 3,036	\$ 5,853,474	\$ 5,856,510	\$ 2,373	\$ 3,042	\$ 5,415	\$ 4,100,355	\$ 5,986,770	\$ 10,087,125	\$ 2,981,846	\$ -	\$ 2,981,846
2055	\$ -	\$ 7,501,521	\$ 7,501,521	\$ -	\$ 1,422,827	\$ 1,422,827	\$ -	\$ 6,078,694	\$ 6,078,694	\$ 2,371	\$ 3,225	\$ 5,596	\$ 4,576,039	\$ 6,217,185	\$ 10,793,224	\$ 3,062,051	\$ -	\$ 3,062,051
2056	\$ -	\$ 7,790,542	\$ 7,790,542	\$ -	\$ 1,478,001	\$ 1,478,001	\$ -	\$ 6,312,541	\$ 6,312,541	\$ 2,368	\$ 3,415	\$ 5,783	\$ 5,092,325	\$ 6,456,425	\$ 11,548,750	\$ 7,444,750	\$ -	\$ 7,444,750
2057	\$ -	\$ 8,087,719	\$ 8,087,719	\$ -	\$ 1,534,709	\$ 1,534,709	\$ -	\$ 6,553,010	\$ 6,553,010	\$ 2,363	\$ 3,579	\$ 5,942	\$ 5,654,754	\$ 6,702,409	\$ 12,357,163	\$ 7,649,628	\$ -	\$ 7,649,628
2058	\$ -	\$ 8,392,601	\$ 8,392,601	\$ -	\$ 1,592,867	\$ 1,592,867	\$ -	\$ 6,799,734	\$ 6,799,734	\$ 2,356	\$ 3,784	\$ 6,140	\$ 6,267,335	\$ 6,954,829	\$ 13,222,164	\$ 7,860,139	\$ -	\$ 7,860,139
2059	\$ -	\$ 8,704,227	\$ 8,704,227	\$ -	\$ 1,652,290	\$ 1,652,290	\$ -	\$ 7,051,937	\$ 7,051,937	\$ 2,346	\$ 3,963	\$ 6,309	\$ 6,934,892	\$ 7,212,823	\$ 14,147,715	\$ 8,076,440	\$ -	\$ 8,076,440

City of Morgantown, 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)

Fiscal Year	Actuarial Accrued Liability (BOY)			Closed Group Asset Projection						
	Current Members	Future Members	Total	Fiduciary Net Position (boy)	Funded Ratio (boy)	Projected EEC Contributions (moy)	Projected ER Contrib + Premium Tax (moy)	Projected BP (moy)	Projected Admin Expenses (moy)	Projected Investment Earnings
2019	\$ 66,239,785	\$ -	\$ 66,239,785	\$ 16,633,959	25.11%	\$ 420,506	\$ 1,650,770	\$ 2,424,655	\$ 1,603	\$ 740,629
2020	\$ 68,956,631	\$ -	\$ 68,956,631	\$ 17,019,606	24.68%	\$ 414,360	\$ 1,906,943	\$ 2,535,966	\$ 1,692	\$ 761,068
2021	\$ 71,647,174	\$ 83,340	\$ 71,730,514	\$ 17,564,319	24.52%	\$ 407,151	\$ 1,750,781	\$ 2,658,291	\$ 1,699	\$ 779,222
2022	\$ 74,297,061	\$ 290,713	\$ 74,587,774	\$ 17,841,483	24.01%	\$ 405,084	\$ 1,757,672	\$ 2,738,227	\$ 1,732	\$ 790,023
2023	\$ 76,972,367	\$ 616,214	\$ 77,588,581	\$ 18,054,304	23.46%	\$ 400,630	\$ 1,769,712	\$ 2,840,361	\$ 1,738	\$ 797,495
2024	\$ 79,635,209	\$ 1,064,960	\$ 80,700,169	\$ 18,180,041	22.83%	\$ 391,002	\$ 1,773,103	\$ 3,003,404	\$ 1,757	\$ 799,386
2025	\$ 82,193,797	\$ 1,659,699	\$ 83,853,496	\$ 18,138,372	22.07%	\$ 381,212	\$ 1,774,539	\$ 3,158,999	\$ 1,791	\$ 793,862
2026	\$ 84,650,957	\$ 2,427,183	\$ 87,078,140	\$ 17,927,195	21.18%	\$ 372,421	\$ 1,777,658	\$ 3,303,737	\$ 1,810	\$ 781,012
2027	\$ 87,016,078	\$ 3,369,050	\$ 90,385,128	\$ 17,552,739	20.17%	\$ 363,942	\$ 1,777,331	\$ 3,437,116	\$ 1,844	\$ 760,997
2028	\$ 89,297,266	\$ 4,505,036	\$ 93,802,302	\$ 17,016,048	19.06%	\$ 358,478	\$ 1,785,736	\$ 3,554,517	\$ 1,879	\$ 734,298
2029	\$ 91,524,161	\$ 5,841,337	\$ 97,365,498	\$ 16,338,164	17.85%	\$ 352,744	\$ 1,804,323	\$ 3,667,622	\$ 1,914	\$ 701,561
2030	\$ 93,697,425	\$ 7,387,390	\$ 101,084,815	\$ 15,527,256	16.57%	\$ 340,725	\$ 1,820,119	\$ 3,850,434	\$ 1,933	\$ 661,086
2031	\$ 95,713,970	\$ 9,161,352	\$ 104,875,322	\$ 14,496,819	15.15%	\$ 329,077	\$ 1,819,096	\$ 3,998,425	\$ 1,951	\$ 611,141
2032	\$ 97,606,793	\$ 11,203,992	\$ 108,810,785	\$ 13,255,757	13.58%	\$ 319,042	\$ 1,838,462	\$ 4,134,998	\$ 1,987	\$ 552,461
2033	\$ 99,384,415	\$ 13,512,241	\$ 112,896,656	\$ 11,828,738	11.90%	\$ 309,108	\$ 1,857,576	\$ 4,265,483	\$ 2,023	\$ 485,545
2034	\$ 101,049,029	\$ 16,110,866	\$ 117,159,895	\$ 10,213,460	10.11%	\$ 298,278	\$ 1,916,885	\$ 4,418,994	\$ 2,060	\$ 410,519
2035	\$ 102,572,685	\$ 19,018,740	\$ 121,591,425	\$ 8,418,088	8.21%	\$ 279,309	\$ 1,944,817	\$ 4,619,659	\$ 2,078	\$ 325,461
2036	\$ 103,859,568	\$ 22,262,348	\$ 126,121,916	\$ 6,345,938	6.11%	\$ 256,033	\$ 1,961,112	\$ 4,841,571	\$ 2,095	\$ 227,121
2037	\$ 104,855,508	\$ 25,887,812	\$ 130,743,320	\$ 3,946,538	3.76%	\$ 227,579	\$ 1,989,684	\$ 5,099,177	\$ 2,132	\$ 113,417
2038	\$ 105,486,116	\$ 29,914,181	\$ 135,400,297	\$ 1,175,909	1.11%	\$ 197,857	\$ 1,998,688	\$ 5,330,332	\$ 2,170	\$ -
2039	\$ 105,754,123	\$ 34,402,803	\$ 140,156,926	\$ -	0.00%	\$ 174,893	\$ 2,054,749	\$ 5,496,935	\$ 2,186	\$ -
2040	\$ 105,738,615	\$ 39,353,388	\$ 145,092,003	\$ -	0.00%	\$ 157,897	\$ 2,120,294	\$ 5,639,596	\$ 2,224	\$ -
2041	\$ 105,490,547	\$ 44,784,075	\$ 150,274,622	\$ -	0.00%	\$ 134,758	\$ 2,201,470	\$ 5,824,289	\$ 2,217	\$ -
2042	\$ 104,927,482	\$ 50,710,205	\$ 155,637,687	\$ -	0.00%	\$ 110,822	\$ 2,304,187	\$ 5,990,111	\$ 2,254	\$ -
2043	\$ 104,050,315	\$ 57,110,639	\$ 161,160,954	\$ -	0.00%	\$ 92,744	\$ 2,482,386	\$ 6,097,805	\$ 2,268	\$ -
2044	\$ 102,933,006	\$ 63,918,996	\$ 166,852,002	\$ -	0.00%	\$ 76,885	\$ 2,659,459	\$ 6,197,269	\$ 2,306	\$ -
2045	\$ 101,585,298	\$ 71,094,283	\$ 172,679,581	\$ -	0.00%	\$ 55,650	\$ 2,854,896	\$ 6,347,601	\$ 2,318	\$ -
2046	\$ 99,923,201	\$ 78,633,224	\$ 178,556,425	\$ -	0.00%	\$ 36,617	\$ 3,064,863	\$ 6,437,272	\$ 2,329	\$ -
2047	\$ 98,007,609	\$ 86,537,061	\$ 184,544,670	\$ -	0.00%	\$ 25,365	\$ 3,430,567	\$ 6,463,832	\$ 2,339	\$ -
2048	\$ 95,926,638	\$ 94,767,850	\$ 190,694,488	\$ -	0.00%	\$ 17,884	\$ 3,723,022	\$ 6,456,793	\$ 2,348	\$ -
2049	\$ 93,724,662	\$ 103,302,562	\$ 197,027,224	\$ -	0.00%	\$ 12,701	\$ 4,048,162	\$ 6,427,660	\$ 2,327	\$ -
2050	\$ 91,429,599	\$ 112,130,864	\$ 203,560,463	\$ -	0.00%	\$ 8,391	\$ 4,404,634	\$ 6,387,181	\$ 2,333	\$ -
2051	\$ 89,052,759	\$ 121,252,738	\$ 210,305,497	\$ -	0.00%	\$ 5,092	\$ 5,636,649	\$ 6,334,806	\$ 2,367	\$ -
2052	\$ 86,607,212	\$ 130,679,612	\$ 217,286,824	\$ -	0.00%	\$ 3,022	\$ 6,080,317	\$ 6,269,165	\$ 2,371	\$ -
2053	\$ 84,109,242	\$ 140,414,746	\$ 224,523,988	\$ -	0.00%	\$ 1,941	\$ 6,562,730	\$ 6,192,398	\$ 2,373	\$ 8,231
2054	\$ 81,572,478	\$ 150,458,241	\$ 232,030,719	\$ 378,131	0.46%	\$ 967	\$ 7,082,201	\$ 6,111,194	\$ 2,373	\$ 38,592
2055	\$ 79,000,218	\$ 160,818,878	\$ 239,819,096	\$ 1,386,324	1.75%	\$ -	\$ 7,638,090	\$ 6,026,390	\$ 2,371	\$ 98,196
2056	\$ 76,394,736	\$ 171,518,096	\$ 247,912,832	\$ 3,093,849	4.05%	\$ -	\$ 12,537,075	\$ 5,930,783	\$ 2,368	\$ 286,176
2057	\$ 73,769,742	\$ 182,573,286	\$ 256,343,028	\$ 9,983,949	13.53%	\$ -	\$ 13,304,382	\$ 5,831,452	\$ 2,363	\$ 615,516
2058	\$ 71,128,164	\$ 193,991,988	\$ 265,120,152	\$ 18,070,032	25.40%	\$ -	\$ 14,127,474	\$ 5,728,299	\$ 2,356	\$ 1,000,001
2059	\$ 68,473,164	\$ 205,779,423	\$ 274,252,587	\$ 27,466,852	40.11%	\$ -	\$ 15,011,332	\$ 5,621,239	\$ 2,346	\$ 1,444,908

City of Morgantown, 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)

Calculation of Single Equivalent Rate					
Fiscal Year	"Funded" Portion of BP	"Unfunded" Portion of BP	PV of "Funded" BP	PV of "Unfunded" BP	PV of BP Using a Single DR
2019	\$ 2,424,655	\$ -	\$ 2,371,875	\$ -	\$ 2,380,055
2020	\$ 2,535,966	\$ -	\$ 2,373,936	\$ -	\$ 2,398,582
2021	\$ 2,658,291	\$ -	\$ 2,381,287	\$ -	\$ 2,422,634
2022	\$ 2,738,227	\$ -	\$ 2,347,267	\$ -	\$ 2,404,522
2023	\$ 2,840,361	\$ -	\$ 2,329,969	\$ -	\$ 2,403,295
2024	\$ 3,003,404	\$ -	\$ 2,357,622	\$ -	\$ 2,448,620
2025	\$ 3,158,999	\$ -	\$ 2,372,977	\$ -	\$ 2,481,597
2026	\$ 3,303,737	\$ -	\$ 2,374,834	\$ -	\$ 2,500,698
2027	\$ 3,437,116	\$ -	\$ 2,364,317	\$ -	\$ 2,506,825
2028	\$ 3,554,517	\$ -	\$ 2,339,784	\$ -	\$ 2,497,955
2029	\$ 3,667,622	\$ -	\$ 2,310,274	\$ -	\$ 2,483,492
2030	\$ 3,850,434	\$ -	\$ 2,320,985	\$ -	\$ 2,512,244
2031	\$ 3,998,425	\$ -	\$ 2,306,404	\$ -	\$ 2,513,711
2032	\$ 4,134,998	\$ -	\$ 2,282,472	\$ -	\$ 2,504,815
2033	\$ 4,265,483	\$ -	\$ 2,253,108	\$ -	\$ 2,489,676
2034	\$ 4,418,994	\$ -	\$ 2,233,680	\$ -	\$ 2,485,261
2035	\$ 4,619,659	\$ -	\$ 2,234,555	\$ -	\$ 2,503,414
2036	\$ 4,841,571	\$ -	\$ 2,241,048	\$ -	\$ 2,528,035
2037	\$ -	\$ 5,099,177	\$ -	\$ 2,883,217	\$ 2,565,494
2038	\$ -	\$ 5,330,332	\$ -	\$ 2,922,445	\$ 2,584,041
2039	\$ -	\$ 5,496,935	\$ -	\$ 2,922,320	\$ 2,567,673
2040	\$ -	\$ 5,639,596	\$ -	\$ 2,907,168	\$ 2,538,290
2041	\$ -	\$ 5,824,289	\$ -	\$ 2,911,253	\$ 2,525,866
2042	\$ -	\$ 5,990,111	\$ -	\$ 2,903,267	\$ 2,503,089
2043	\$ -	\$ 6,097,805	\$ -	\$ 2,865,765	\$ 2,455,213
2044	\$ -	\$ 6,197,269	\$ -	\$ 2,824,115	\$ 2,404,308
2045	\$ -	\$ 6,347,601	\$ -	\$ 2,804,831	\$ 2,372,867
2046	\$ -	\$ 6,437,272	\$ -	\$ 2,758,125	\$ 2,318,674
2047	\$ -	\$ 6,463,832	\$ -	\$ 2,685,450	\$ 2,243,376
2048	\$ -	\$ 6,456,793	\$ -	\$ 2,601,111	\$ 2,159,250
2049	\$ -	\$ 6,427,660	\$ -	\$ 2,510,787	\$ 2,071,158
2050	\$ -	\$ 6,387,181	\$ -	\$ 2,419,252	\$ 1,983,095
2051	\$ -	\$ 6,334,806	\$ -	\$ 2,326,592	\$ 1,895,142
2052	\$ -	\$ 6,269,165	\$ -	\$ 2,232,604	\$ 1,807,142
2053	\$ -	\$ 6,192,398	\$ -	\$ 2,138,335	\$ 1,719,949
2054	\$ -	\$ 6,111,194	\$ -	\$ 2,046,246	\$ 1,635,524
2055	\$ -	\$ 6,026,390	\$ -	\$ 1,956,609	\$ 1,554,040
2056	\$ -	\$ 5,930,783	\$ -	\$ 1,867,127	\$ 1,473,639
2057	\$ 5,831,452	\$ -	\$ 1,071,025	\$ -	\$ 1,396,143
2058	\$ 5,728,299	\$ -	\$ 1,006,774	\$ -	\$ 1,321,456
2059	\$ 5,621,239	\$ -	\$ 945,415	\$ -	\$ 1,249,492