



**Municipal Pensions  
Oversight Board**

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

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

**Bolton**

Submitted by:

**James Ritchie, ASA, EA, FCA, MAA**

Senior Consulting Actuary

443.573.3924

[jritchie@boltonusa.com](mailto:jritchie@boltonusa.com)

**Jordan McClane, FSA, EA**

Actuary

667.218.6935

[jmcclane@boltonusa.com](mailto:jmcclane@boltonusa.com)

October 21, 2019

Mr. James Goff  
Finance Director  
City of Morgantown  
228 S. High Street  
Morgantown, WV 26505

Captain Gary Freshour  
Pension Board Secretary  
City of Morgantown, West Virginia  
Firemen's Pension and Relief Fund

Re: City of Morgantown, West Virginia Firemen'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 Firemen'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 3.76%. 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.

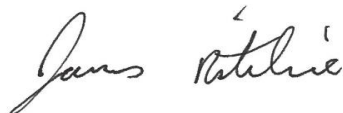
The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, 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 Firemen'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	\$ 57,832,399
Plan fiduciary net position	(13,539,956)
Employer's net pension liability	<u>\$ 44,292,443</u>
Plan fiduciary net position as a percentage of the total pension liability	23.41%

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)	3.9129%
Single discount rate (EOY)	3.7600%
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	2036

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 2.76%	Current Discount Rate 3.76%	1% Increase 4.76%
Employer's net pension liability	\$ 54,693,216	\$ 44,292,443	\$ 36,152,783

City of Morgantown, West Virginia Firemen'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)
<b>Balances at 6/30/18</b>	\$ 51,995,644	\$ 12,718,148	\$ 39,277,496
<b>Changes for the year:</b>			
Service cost	2,311,877		2,311,877
Interest	2,002,131		2,002,131
Changes of benefit terms	-		-
Differences between expected and actual experience	1,815,332		1,815,332
Changes of assumptions	1,363,844		1,363,844
Contributions - employer (including Premium Tax Allocation)		1,457,107	(1,457,107)
Contributions - member		307,067	(307,067)
Net investment income		716,195	(716,195)
Benefit payments, including refunds of member contributions	(1,656,429)	(1,656,429)	-
Administrative expense		-	-
Other		(2,132)	2,132
<b>Net Changes</b>	<u>5,836,755</u>	<u>821,808</u>	<u>5,014,947</u>
<b>Balances at 6/30/19</b>	<u>\$ 57,832,399</u>	<u>\$ 13,539,956</u>	<u>\$ 44,292,443</u>
Return on Investments		5.6%	

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



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

Note	Description	Amount
A	Service Cost	\$ 2,311,877
B	Interest on the total pension liability	2,002,131
A	Changes of benefit terms	-
C	Differences between expected and actual experience	32,901
C	Changes of assumptions	1,502,664
A	Employee contributions	(307,067)
D	Projected earnings on pension plan investments	(574,693)
C	Differences between expected and actual earnings on plan investments	103,049
A	Pension plan administrative expense	-
A	Other changes in fiduciary net position	2,132
<b>Total Pension Expense</b>		<b>\$ 5,072,994</b>

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	\$ 51,995,644	100%	3.91%	\$ 2,034,538
Service Cost (End of Year)	2,311,877	0%	3.91%	-
Benefit payments, including refunds of employee contributions	(1,656,429)	50%	3.91%	(32,407)
<b>Total interest on the total pension liability</b>				<b>\$ 2,002,131</b>

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	\$ 12,718,148	100%	4.50%	\$ 572,317
Employer contributions	1,457,107	50%	4.50%	32,785
Employee contributions	307,067	50%	4.50%	6,909
Benefit payments, including refunds of employee contributions	(1,656,429)	50%	4.50%	(37,270)
Administrative expense and other	(2,132)	50%	4.50%	(48)
<b>Total Projected Earnings</b>				<b>\$ 574,693</b>

City of Morgantown, West Virginia Firemen’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	\$ 1,452,266	\$ 273,270
Changes of assumptions	2,809,537	1,785,965
Net difference between projected and actual earnings on pension plan investments	-	98,450
<b>Total</b>	<b>\$ 4,261,803</b>	<b>\$ 2,157,685</b>

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

<b>Year ended June 30:</b>	
2020	\$ 990,990
2021	(62,747)
2022	568,341
2023	607,534
2024	-
Thereafter	-



City of Morgantown, West Virginia Firemen's Pension and Relief Fund  
 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	\$ 2,311,877	\$ 1,731,483	\$ 1,925,405	\$ 1,160,928	\$ 1,084,316	\$ 1,008,137	\$ -	\$ -	\$ -	\$ -
Interest	2,002,131	1,938,342	1,749,559	1,817,826	1,775,489	1,840,353	-	-	-	-
Changes of benefit terms	-	-	-	-	-	-	-	-	-	-
Differences between expected and actual experience	1,815,332	(218,647)	(454,836)	(113,977)	(1,590,303)	-	-	-	-	-
Changes of assumptions	1,363,844	(660,808)	(4,690,165)	11,346,226	662,125	1,349,132	-	-	-	-
Benefit payments, including refunds of member contributions	(1,656,429)	(1,617,352)	(1,533,401)	(1,509,425)	(1,496,332)	(1,456,136)	-	-	-	-
Net change in total pension liability	5,836,755	1,173,018	(3,003,438)	12,701,578	435,295	2,741,486	-	-	-	-
Total pension liability - beginning	51,995,644	50,822,626	53,826,064	41,124,486	40,689,191	37,947,705	-	-	-	-
<b>Total pension liability - ending (a)</b>	<b>\$ 57,832,399</b>	<b>\$ 51,995,644</b>	<b>\$ 50,822,626</b>	<b>\$ 53,826,064</b>	<b>\$ 41,124,486</b>	<b>\$ 40,689,191</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Plan fiduciary net position	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Contributions - employer (including Premium Tax Allocation)	\$ 1,457,107	\$ 1,494,676	\$ 1,356,285	\$ 1,188,366	\$ 1,070,305	\$ 1,013,374	\$ -	\$ -	\$ -	\$ -
Contributions - member	307,067	258,246	218,900	202,830	191,330	183,544	-	-	-	-
Net investment income	716,195	351,940	1,054,659	(250,341)	300,409	1,162,709	-	-	-	-
Benefit payments, including refunds of member contributions	(1,656,429)	(1,617,352)	(1,533,401)	(1,509,425)	(1,496,332)	(1,456,136)	-	-	-	-
Administrative expense	-	(2,469)	(2,158)	(3,042)	(1,943)	(1,725)	-	-	-	-
Other	(2,132)	-	170	-	-	-	-	-	-	-
Net change in plan fiduciary net position	\$ 821,808	\$ 485,041	\$ 1,094,455	\$ (371,612)	\$ 63,769	\$ 901,766	\$ -	\$ -	\$ -	\$ -
Plan fiduciary net position - beginning	12,718,148	12,233,107	11,138,652	11,510,264	11,482,554	10,580,788	-	-	-	-
<b>Plan fiduciary net position - ending (b)</b>	<b>\$ 13,539,956</b>	<b>\$ 12,718,148</b>	<b>\$ 12,233,107</b>	<b>\$ 11,138,652</b>	<b>\$ 11,546,323</b>	<b>\$ 11,482,554</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Employer's net pension liability - ending (a)-(b)	\$ 44,292,443	\$ 39,277,496	\$ 38,589,519	\$ 42,687,412	\$ 29,578,163	\$ 29,206,637	\$ -	\$ -	\$ -	\$ -
Plan fiduciary net position as a percentage of the total pension liability	23.41%	24.46%	24.07%	20.69%	28.08%	28.22%	0.00%	0.00%	0.00%	0.00%
Covered payroll	\$ 3,636,132	\$ 2,716,646	\$ 2,590,922	\$ 2,534,252	\$ 2,441,567	\$ 2,453,297	\$ -	\$ -	\$ -	\$ -
Employer's net pension liability as a percentage of covered payroll	1218.12%	1445.81%	1489.41%	1684.42%	1211.44%	1190.51%	0.00%	0.00%	0.00%	0.00%
Expected average remaining service years of all participants	5.00	4.31	4.32	4.71	4.42	-	-	-	-	-

**Notes to Schedule:**

Benefit changes: There were no changes for FY2019.

Changes of assumptions: The discount rate changed from 3.9129% to 3.7600%.

City of Morgantown, West Virginia Firemen'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	\$ 3,177,129	\$ 2,813,357	\$ 2,670,559	\$ 2,514,255	\$ 1,890,064	\$ 1,885,133	\$ 1,841,042	\$ -	\$ -	\$ -
Contributions in relation to the actuarially determined contribution										
Employer provided	909,000	986,830	870,926	728,343	618,813	578,330	540,495	-	-	-
State provided	548,107	507,846	485,359	460,023	451,492	435,044	464,202	-	-	-
Contribution deficiency (excess)	<u>\$ 1,720,022</u>	<u>\$ 1,318,681</u>	<u>\$ 1,314,274</u>	<u>\$ 1,325,889</u>	<u>\$ 819,759</u>	<u>\$ 871,759</u>	<u>\$ 836,345</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered payroll	\$ 3,636,132	\$ 2,716,646	\$ 2,590,922	\$ 2,534,252	\$ 2,441,567	\$ 2,453,297	\$ 2,447,766	\$ -	\$ -	\$ -
Contributions as a percentage of covered employee payroll	40.07%	55.00%	52.00%	47.00%	44.00%	41.00%	41.00%	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 Firemen's Pension and Relief Fund  
 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.

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	\$ 267,803	5	\$ 53,561	53,561	53,561	53,561	53,559				
2016	822,822	5		\$ 164,564	164,564	164,564	164,564	164,566			
2017	(552,524)	5			\$ (110,505)	(110,505)	(110,505)	(110,505)	(110,504)		
2018	118,657	5				\$ 23,731	23,731	23,731	23,731	23,733	
2019	(141,502)	5					\$ (28,300)	(28,300)	(28,300)	(28,300)	(28,302)
Net increase (decrease) in pension expense							\$ 103,049	\$ 49,492	\$ (115,073)	\$ (4,567)	\$ (28,302)

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	\$ 267,803	\$ -	\$ 267,803	\$ -	\$ -
2016	822,822	-	658,256	164,566	-
2017	-	552,524	331,515	-	221,009
2018	118,657	-	47,462	71,195	-
2019	-	141,502	28,300	-	113,202
				\$ 235,761	\$ 334,211

City of Morgantown, West Virginia Firemen's Pension and Relief Fund  
 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.

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	(1,590,303)	4.416308			\$ (360,098)	(360,098)	(360,098)	(360,098)	(149,911)							
2016	(113,977)	4.713961				\$ (24,179)	(24,179)	(24,179)	(24,179)	(17,261)						
2017	(454,836)	4.318426					\$ (105,324)	(105,324)	(105,324)	(105,324)	(33,540)					
2018	(218,647)	4.308268						\$ (50,751)	(50,751)	(50,751)	(50,751)	(15,643)				
2019	1,815,332	5							\$ 363,066	363,066	363,066	363,066	363,068			
Net increase (decrease) in pension expense									\$ 32,901	\$ 189,730	\$ 278,775	\$ 347,423	\$ 363,068	\$ -	\$ -	

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	-	1,590,303	1,590,303	-	-
2016	-	113,977	96,716	-	17,261
2017	-	454,836	315,972	-	138,864
2018	-	218,647	101,502	-	117,145
2019	1,815,332	-	363,066	1,452,266	-
				\$ 1,452,266	\$ 273,270

City of Morgantown, West Virginia Firemen's Pension and Relief Fund  
 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	\$ -		\$ -												
2014	1,349,132	1		\$ 1,349,132											
2015	662,125	4.416308			\$ 149,927	149,927	149,927	149,927	62,417						
2016	11,346,226	4.713961				\$ 2,406,941	2,406,941	2,406,941	2,406,941	1,718,462					
2017	(4,690,165)	4.318426					\$ (1,086,082)	(1,086,082)	(1,086,082)	(1,086,082)	(345,837)				
2018	(660,808)	4.308268						\$ (153,381)	(153,381)	(153,381)	(153,381)	(47,284)			
2019	1,363,844	5							\$ 272,769	272,769	272,769	272,769	272,768		
Net increase (decrease) in pension expense									\$ 1,502,664	\$ 751,768	\$ (226,449)	\$ 225,485	\$ 272,768	\$ -	\$ -

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	1,349,132	-	1,349,132	-	-
2015	662,125	-	662,125	-	-
2016	11,346,226	-	9,627,764	1,718,462	-
2017	-	4,690,165	3,258,246	-	1,431,919
2018	-	660,808	306,762	-	354,046
2019	1,363,844	-	272,769	1,091,075	-
				\$ 2,809,537	\$ 1,785,965

City of Morgantown, West Virginia Firemen'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	\$ 1,826,737	\$ -	\$ 1,826,737	\$ 288,308	\$ -	\$ 288,308	\$ 1,538,429	\$ -	\$ 1,538,429	\$ 2,218	\$ -	\$ 2,218	\$ 766,998	\$ -	\$ 766,998	\$ 548,107	\$ -	\$ 548,107
2020	\$ 1,785,440	\$ 119,898	\$ 1,905,338	\$ 283,418	\$ 22,365	\$ 305,783	\$ 1,502,022	\$ 97,533	\$ 1,599,555	\$ 2,342	\$ -	\$ 2,342	\$ 844,523	\$ 99,703	\$ 944,226	\$ 631,772	\$ -	\$ 631,772
2021	\$ 1,732,750	\$ 232,439	\$ 1,965,189	\$ 277,137	\$ 43,378	\$ 320,515	\$ 1,435,563	\$ 189,061	\$ 1,644,674	\$ 2,343	\$ 84	\$ 2,427	\$ 727,059	\$ 193,352	\$ 920,411	\$ 646,678	\$ -	\$ 646,678
2022	\$ 1,677,821	\$ 360,994	\$ 2,038,815	\$ 270,634	\$ 67,411	\$ 338,045	\$ 1,407,187	\$ 293,583	\$ 1,700,770	\$ 2,364	\$ 171	\$ 2,535	\$ 681,560	\$ 300,287	\$ 981,847	\$ 663,233	\$ -	\$ 663,233
2023	\$ 1,614,367	\$ 481,501	\$ 2,095,868	\$ 262,814	\$ 89,965	\$ 352,779	\$ 1,351,553	\$ 391,536	\$ 1,743,089	\$ 2,362	\$ 264	\$ 2,626	\$ 646,992	\$ 400,513	\$ 1,047,505	\$ 680,244	\$ -	\$ 680,244
2024	\$ 1,585,624	\$ 612,147	\$ 2,197,771	\$ 259,628	\$ 114,445	\$ 374,073	\$ 1,325,996	\$ 497,702	\$ 1,823,698	\$ 2,381	\$ 339	\$ 2,720	\$ 608,495	\$ 509,116	\$ 1,117,611	\$ 697,722	\$ -	\$ 697,722
2025	\$ 1,577,228	\$ 722,607	\$ 2,299,835	\$ 259,392	\$ 135,161	\$ 394,553	\$ 1,317,836	\$ 587,446	\$ 1,905,282	\$ 2,375	\$ 420	\$ 2,795	\$ 591,457	\$ 600,938	\$ 1,192,395	\$ 723,278	\$ -	\$ 723,278
2026	\$ 1,558,547	\$ 828,043	\$ 2,386,590	\$ 257,932	\$ 154,953	\$ 412,885	\$ 1,300,615	\$ 673,090	\$ 1,973,705	\$ 2,416	\$ 479	\$ 2,895	\$ 583,537	\$ 688,547	\$ 1,272,084	\$ 741,905	\$ -	\$ 741,905
2027	\$ 1,495,922	\$ 955,298	\$ 2,451,220	\$ 250,806	\$ 178,866	\$ 429,672	\$ 1,245,116	\$ 776,432	\$ 2,021,548	\$ 2,432	\$ 566	\$ 2,998	\$ 562,660	\$ 794,275	\$ 1,356,935	\$ 761,043	\$ -	\$ 761,043
2028	\$ 1,366,277	\$ 1,106,628	\$ 2,472,905	\$ 232,702	\$ 207,324	\$ 440,026	\$ 1,133,575	\$ 899,304	\$ 2,032,879	\$ 2,473	\$ 656	\$ 3,129	\$ 527,261	\$ 919,972	\$ 1,447,233	\$ 780,708	\$ -	\$ 780,708
2029	\$ 1,302,357	\$ 1,295,929	\$ 2,598,286	\$ 225,049	\$ 242,952	\$ 468,001	\$ 1,077,308	\$ 1,052,977	\$ 2,130,285	\$ 2,515	\$ 750	\$ 3,265	\$ 466,171	\$ 1,077,158	\$ 1,543,329	\$ 803,782	\$ -	\$ 803,782
2030	\$ 1,255,441	\$ 1,450,981	\$ 2,706,422	\$ 219,901	\$ 272,140	\$ 492,041	\$ 1,035,540	\$ 1,178,841	\$ 2,214,381	\$ 2,530	\$ 851	\$ 3,381	\$ 439,734	\$ 1,205,924	\$ 1,645,658	\$ 824,613	\$ -	\$ 824,613
2031	\$ 1,194,381	\$ 1,613,302	\$ 2,807,683	\$ 212,330	\$ 302,714	\$ 515,044	\$ 982,051	\$ 1,310,588	\$ 2,292,639	\$ 2,572	\$ 928	\$ 3,500	\$ 414,094	\$ 1,340,680	\$ 1,754,774	\$ 846,016	\$ -	\$ 846,016
2032	\$ 1,126,080	\$ 1,786,662	\$ 2,912,742	\$ 203,253	\$ 335,388	\$ 538,641	\$ 922,827	\$ 1,451,274	\$ 2,374,101	\$ 2,614	\$ 1,009	\$ 3,623	\$ 386,777	\$ 1,484,577	\$ 1,871,354	\$ 868,008	\$ -	\$ 868,008
2033	\$ 1,052,246	\$ 1,967,645	\$ 3,019,891	\$ 192,680	\$ 369,514	\$ 562,194	\$ 859,566	\$ 1,598,131	\$ 2,457,697	\$ 2,656	\$ 1,095	\$ 3,751	\$ 361,413	\$ 1,634,788	\$ 1,996,201	\$ 890,604	\$ -	\$ 890,604
2034	\$ 998,363	\$ 2,158,761	\$ 3,157,124	\$ 184,749	\$ 405,567	\$ 590,316	\$ 813,614	\$ 1,753,194	\$ 2,566,808	\$ 2,699	\$ 1,184	\$ 3,883	\$ 336,818	\$ 1,793,391	\$ 2,130,209	\$ 942,843	\$ -	\$ 942,843
2035	\$ 953,802	\$ 2,336,725	\$ 3,290,527	\$ 178,303	\$ 439,143	\$ 617,446	\$ 775,499	\$ 1,897,582	\$ 2,673,081	\$ 2,742	\$ 1,277	\$ 4,019	\$ 333,234	\$ 1,941,085	\$ 2,274,319	\$ 967,401	\$ -	\$ 967,401
2036	\$ 875,999	\$ 2,528,073	\$ 3,404,072	\$ 165,484	\$ 475,259	\$ 640,743	\$ 710,515	\$ 2,052,814	\$ 2,763,329	\$ 2,753	\$ 1,377	\$ 4,130	\$ 329,583	\$ 2,099,871	\$ 2,429,454	\$ 992,635	\$ -	\$ 992,635
2037	\$ 804,583	\$ 2,743,690	\$ 3,548,273	\$ 153,384	\$ 515,977	\$ 669,361	\$ 651,199	\$ 2,227,713	\$ 2,878,912	\$ 2,796	\$ 1,479	\$ 4,275	\$ 317,704	\$ 2,278,764	\$ 2,596,468	\$ 1,018,563	\$ -	\$ 1,018,563
2038	\$ 731,366	\$ 2,952,791	\$ 3,684,157	\$ 141,215	\$ 555,468	\$ 696,683	\$ 590,151	\$ 2,397,323	\$ 2,987,474	\$ 2,839	\$ 1,554	\$ 4,393	\$ 323,915	\$ 2,452,223	\$ 2,776,138	\$ 1,045,204	\$ -	\$ 1,045,204
2039	\$ 660,913	\$ 3,181,740	\$ 3,842,653	\$ 129,202	\$ 598,727	\$ 727,929	\$ 531,711	\$ 2,583,013	\$ 3,114,724	\$ 2,848	\$ 1,699	\$ 4,547	\$ 326,992	\$ 2,642,190	\$ 2,969,182	\$ 1,085,090	\$ -	\$ 1,085,090
2040	\$ 589,364	\$ 3,404,225	\$ 3,993,589	\$ 116,899	\$ 640,766	\$ 757,665	\$ 472,465	\$ 2,763,459	\$ 3,235,924	\$ 2,891	\$ 1,781	\$ 4,672	\$ 349,582	\$ 2,826,734	\$ 3,176,316	\$ 1,113,468	\$ -	\$ 1,113,468
2041	\$ 528,185	\$ 3,633,763	\$ 4,161,948	\$ 106,119	\$ 684,235	\$ 790,354	\$ 422,066	\$ 2,949,528	\$ 3,371,594	\$ 2,934	\$ 1,866	\$ 4,800	\$ 381,284	\$ 3,017,028	\$ 3,398,312	\$ 1,142,688	\$ -	\$ 1,142,688
2042	\$ 438,657	\$ 3,835,557	\$ 4,274,214	\$ 89,319	\$ 722,611	\$ 811,930	\$ 349,338	\$ 3,112,946	\$ 3,462,284	\$ 2,939	\$ 1,993	\$ 4,932	\$ 451,836	\$ 3,184,210	\$ 3,636,046	\$ 1,172,711	\$ -	\$ 1,172,711
2043	\$ 344,523	\$ 4,050,675	\$ 4,395,198	\$ 70,885	\$ 763,672	\$ 834,557	\$ 273,638	\$ 3,287,003	\$ 3,560,641	\$ 2,981	\$ 2,123	\$ 5,104	\$ 528,245	\$ 3,362,270	\$ 3,890,515	\$ 1,232,454	\$ -	\$ 1,232,454
2044	\$ 280,804	\$ 4,249,807	\$ 4,530,611	\$ 58,543	\$ 801,774	\$ 860,317	\$ 222,261	\$ 3,448,033	\$ 3,670,294	\$ 2,983	\$ 2,299	\$ 5,282	\$ 635,775	\$ 3,527,059	\$ 4,162,834	\$ 1,264,888	\$ -	\$ 1,264,888
2045	\$ 213,905	\$ 4,444,767	\$ 4,658,672	\$ 45,317	\$ 839,133	\$ 884,450	\$ 168,588	\$ 3,605,634	\$ 3,774,222	\$ 2,983	\$ 2,483	\$ 5,466	\$ 765,877	\$ 3,688,351	\$ 4,454,228	\$ 1,298,213	\$ -	\$ 1,298,213
2046	\$ 156,313	\$ 4,649,675	\$ 4,805,988	\$ 33,708	\$ 878,398	\$ 912,106	\$ 122,605	\$ 3,771,277	\$ 3,893,882	\$ 3,023	\$ 2,673	\$ 5,696	\$ 908,153	\$ 3,857,870	\$ 4,766,023	\$ 1,332,455	\$ -	\$ 1,332,455
2047	\$ 117,795	\$ 4,851,641	\$ 4,969,436	\$ 25,840	\$ 917,094	\$ 942,934	\$ 91,955	\$ 3,934,547	\$ 4,026,502	\$ 3,020	\$ 2,874	\$ 5,894	\$ 1,074,671	\$ 4,024,974	\$ 5,099,645	\$ 1,462,268	\$ -	\$ 1,462,268
2048	\$ 85,861	\$ 5,061,961	\$ 5,147,822	\$ 19,152	\$ 957,370	\$ 976,522	\$ 66,709	\$ 4,104,591	\$ 4,171,300	\$ 3,059	\$ 3,039	\$ 6,098	\$ 1,257,653	\$ 4,198,967	\$ 5,456,620	\$ 1,500,884	\$ -	\$ 1,500,884
2049	\$ 65,611	\$ 5,268,632	\$ 5,334,243	\$ 14,937	\$ 996,973	\$ 1,011,910	\$ 50,674	\$ 4,271,659	\$ 4,322,333	\$ 3,052	\$ 3,214	\$ 6,266	\$ 1,468,655	\$ 4,369,928	\$ 5,838,583	\$ 1,540,562	\$ -	\$ 1,540,562
2050	\$ 45,800	\$ 5,468,200	\$ 5,514,000	\$ 10,605	\$ 1,035,267	\$ 1,045,872	\$ 35,195	\$ 4,432,933	\$ 4,468,128	\$ 3,042	\$ 3,441	\$ 6,483	\$ 1,712,267	\$ 4,535,017	\$ 6,247,284	\$ 1,581,331	\$ -	\$ 1,581,331
2051	\$ 30,023	\$ 5,669,446	\$ 5,699,469	\$ 6,952	\$ 1,073,890	\$ 1,080,842	\$ 23,071	\$ 4,595,556	\$ 4,618,627	\$ 3,029	\$ 3,678	\$ 6,707	\$ 1,983,098	\$ 4,701,496	\$ 6,684,594	\$ 2,342,552	\$ -	\$ 2,342,552
2052	\$ 16,995	\$ 5,876,397	\$ 5,893,392	\$ 4,060	\$ 1,113,563	\$ 1,117,623	\$ 12,935	\$ 4,762,834	\$ 4,775,769	\$ 3,063	\$ 3,875	\$ 6,938	\$ 2,279,822	\$ 4,872,694	\$ 7,152,516	\$ 2,405,134	\$ -	\$ 2,405,134
2053	\$ 10,970	\$ 6,098,616	\$ 6,109,586	\$ 2,667	\$ 1,156,103	\$ 1,158,770	\$ 8,303	\$ 4,942,513	\$ 4,950,816	\$ 3,046	\$ 4,131	\$ 7,177	\$ 2,596,565	\$ 5,056,627	\$ 7,653,192	\$ 2,469,437	\$ -	\$ 2,469,437
2054	\$ 6,822	\$ 6,329,183	\$ 6,336,005	\$ 1,696	\$ 1,200,211	\$ 1,201,907	\$ 5,126	\$ 5,128,972	\$ 5,134,098	\$ 3,025	\$ 4,349	\$ 7,374	\$ 2,941,462	\$ 5,247,453	\$ 8,188,915	\$ 2,535,508	\$ -	\$ 2,535,508
2055	\$ 3,293	\$ 6,567,651	\$ 6,570,944	\$ 870	\$ 1,245,798	\$ 1,246,668	\$ 2,423	\$ 5,321,853	\$ 5,324,276	\$ 3,055	\$ 4,573	\$ 7,628	\$ 3,317,289	\$ 5,444,850	\$ 8,762,139	\$ 2,603,397	\$ -	\$ 2,603,397
2056	\$ 2,277	\$ 6,817,804	\$ 6,820,081	\$ 603	\$ 1,293,567	\$ 1,294,170	\$ 1,674	\$ 5,524,237	\$ 5,525,911	\$ 3,029	\$ 4,861	\$ 7,890	\$ 3,723,463	\$ 5,652,026	\$ 9,375,489	\$ 6,326,248	\$ -	\$ 6,326,248
2057	\$ 1,012	\$ 7,081,975	\$ 7,082,987	\$ 285	\$ 1,343,959	\$ 1,344,244	\$ 727	\$ 5,738,016	\$ 5,738,743	\$ 2,999	\$ 5,108	\$ 8,107	\$ 4,160,964	\$ 5,870,809	\$ 10,031,773	\$ 6,499,664	\$ -	\$ 6,499,664
2058	\$ 679	\$ 7,359,725	\$ 7,360,404	\$ 192	\$ 1,396,907	\$ 1,397,099	\$ 487	\$ 5,962,818	\$ 5,963,305	\$ 3,023	\$ 5,362	\$ 8,385	\$ 4,633,130	\$ 6,100,867	\$ 10,733,997	\$ 6,677,848	\$ -	\$ 6,677,848
2059	\$ 456	\$ 7,646,684	\$ 7,647,140	\$ 129	\$ 1,451,585	\$ 1,451,714	\$ 327	\$ 6,195,099	\$ 6,195,426	\$ 2,987	\$ 5,629	\$ 8,616	\$ 5,146,793	\$ 6,338,584	\$ 11,485,377	\$ 6,860,933	\$ -	\$ 6,860,933

City of Morgantown, West Virginia Firemen'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	\$ 49,198,599	\$ -	\$ 49,198,599	\$ 13,539,956	27.52%	\$ 294,724	\$ 1,315,105	\$ 1,738,887	\$ 2,218	\$ 606,377
2020	\$ 51,556,353	\$ -	\$ 51,556,353	\$ 14,015,057	27.18%	\$ 289,725	\$ 1,476,295	\$ 1,858,858	\$ 2,342	\$ 628,560
2021	\$ 53,841,952	\$ 124,648	\$ 53,966,600	\$ 14,548,437	27.02%	\$ 283,304	\$ 1,373,737	\$ 1,986,173	\$ 2,343	\$ 647,304
2022	\$ 56,045,193	\$ 370,884	\$ 56,416,077	\$ 14,864,266	26.52%	\$ 276,656	\$ 1,344,793	\$ 2,107,314	\$ 2,364	\$ 658,028
2023	\$ 58,166,343	\$ 759,936	\$ 58,926,279	\$ 15,034,065	25.85%	\$ 268,662	\$ 1,327,236	\$ 2,259,524	\$ 2,362	\$ 661,713
2024	\$ 60,161,038	\$ 1,288,735	\$ 61,449,773	\$ 15,029,790	24.98%	\$ 265,405	\$ 1,306,217	\$ 2,356,763	\$ 2,381	\$ 658,816
2025	\$ 62,116,055	\$ 1,972,885	\$ 64,088,940	\$ 14,901,084	23.99%	\$ 265,164	\$ 1,314,735	\$ 2,426,228	\$ 2,375	\$ 651,663
2026	\$ 64,079,263	\$ 2,797,247	\$ 66,876,510	\$ 14,704,043	22.95%	\$ 263,672	\$ 1,325,442	\$ 2,515,815	\$ 2,416	\$ 641,007
2027	\$ 66,019,713	\$ 3,761,913	\$ 69,781,626	\$ 14,415,933	21.84%	\$ 256,387	\$ 1,323,703	\$ 2,668,167	\$ 2,432	\$ 624,451
2028	\$ 67,826,298	\$ 4,895,530	\$ 72,721,828	\$ 13,949,875	20.57%	\$ 237,880	\$ 1,307,969	\$ 2,866,264	\$ 2,473	\$ 598,307
2029	\$ 69,376,196	\$ 6,230,752	\$ 75,606,948	\$ 13,225,294	19.06%	\$ 230,057	\$ 1,269,953	\$ 3,001,261	\$ 2,515	\$ 561,676
2030	\$ 70,791,042	\$ 7,816,003	\$ 78,607,045	\$ 12,283,204	17.35%	\$ 224,794	\$ 1,264,347	\$ 3,130,143	\$ 2,530	\$ 516,172
2031	\$ 72,088,778	\$ 9,625,914	\$ 81,714,692	\$ 11,155,843	15.48%	\$ 217,055	\$ 1,260,110	\$ 3,264,962	\$ 2,572	\$ 462,173
2032	\$ 73,243,286	\$ 11,676,695	\$ 84,919,981	\$ 9,827,648	13.42%	\$ 207,776	\$ 1,254,785	\$ 3,400,989	\$ 2,614	\$ 399,051
2033	\$ 74,239,318	\$ 13,988,902	\$ 88,228,220	\$ 8,285,656	11.16%	\$ 196,968	\$ 1,252,017	\$ 3,532,113	\$ 2,656	\$ 326,441
2034	\$ 75,068,973	\$ 16,580,548	\$ 91,649,521	\$ 6,526,313	8.69%	\$ 188,860	\$ 1,279,661	\$ 3,633,610	\$ 2,699	\$ 245,446
2035	\$ 75,775,900	\$ 19,472,866	\$ 95,248,766	\$ 4,603,971	6.08%	\$ 182,271	\$ 1,300,635	\$ 3,720,466	\$ 2,742	\$ 157,327
2036	\$ 76,379,283	\$ 22,663,788	\$ 99,043,071	\$ 2,520,997	3.30%	\$ 169,166	\$ 1,322,218	\$ 3,848,867	\$ 2,753	\$ 60,924
2037	\$ 76,797,256	\$ 26,179,437	\$ 102,976,693	\$ 221,684	0.29%	\$ 156,797	\$ 1,336,267	\$ 3,954,885	\$ 2,796	\$ -
2038	\$ 77,051,031	\$ 30,057,850	\$ 107,108,881	\$ -	0.00%	\$ 144,357	\$ 1,369,119	\$ 4,041,240	\$ 2,839	\$ -
2039	\$ 77,151,438	\$ 34,306,353	\$ 111,457,791	\$ -	0.00%	\$ 132,077	\$ 1,412,022	\$ 4,127,804	\$ 2,848	\$ -
2040	\$ 77,094,249	\$ 38,959,901	\$ 116,054,150	\$ -	0.00%	\$ 119,500	\$ 1,463,050	\$ 4,221,184	\$ 2,891	\$ -
2041	\$ 76,864,260	\$ 44,037,302	\$ 120,901,562	\$ -	0.00%	\$ 108,480	\$ 1,523,972	\$ 4,292,305	\$ 2,934	\$ -
2042	\$ 76,487,286	\$ 49,545,433	\$ 126,032,719	\$ -	0.00%	\$ 91,307	\$ 1,624,547	\$ 4,429,294	\$ 2,939	\$ -
2043	\$ 75,859,754	\$ 55,424,598	\$ 131,284,352	\$ -	0.00%	\$ 72,462	\$ 1,760,699	\$ 4,545,207	\$ 2,981	\$ -
2044	\$ 74,987,121	\$ 61,633,644	\$ 136,620,765	\$ -	0.00%	\$ 59,846	\$ 1,900,663	\$ 4,613,327	\$ 2,983	\$ -
2045	\$ 73,938,997	\$ 68,122,163	\$ 142,061,160	\$ -	0.00%	\$ 46,325	\$ 2,064,090	\$ 4,692,004	\$ 2,983	\$ -
2046	\$ 72,693,370	\$ 74,865,239	\$ 147,558,609	\$ -	0.00%	\$ 34,458	\$ 2,240,608	\$ 4,738,061	\$ 3,023	\$ -
2047	\$ 71,284,424	\$ 81,861,590	\$ 153,146,014	\$ -	0.00%	\$ 26,415	\$ 2,536,939	\$ 4,759,321	\$ 3,020	\$ -
2048	\$ 69,750,091	\$ 89,108,969	\$ 158,859,060	\$ -	0.00%	\$ 19,578	\$ 2,758,537	\$ 4,759,486	\$ 3,059	\$ -
2049	\$ 68,113,174	\$ 96,623,540	\$ 164,736,714	\$ -	0.00%	\$ 15,269	\$ 3,009,217	\$ 4,737,400	\$ 3,052	\$ -
2050	\$ 66,404,012	\$ 104,403,509	\$ 170,807,521	\$ -	0.00%	\$ 10,841	\$ 3,293,598	\$ 4,719,700	\$ 3,042	\$ -
2051	\$ 64,615,329	\$ 112,421,463	\$ 177,036,792	\$ -	0.00%	\$ 7,107	\$ 4,325,650	\$ 4,686,443	\$ 3,029	\$ -
2052	\$ 62,763,665	\$ 120,656,764	\$ 183,420,429	\$ -	0.00%	\$ 4,150	\$ 4,684,956	\$ 4,643,844	\$ 3,063	\$ 939
2053	\$ 60,858,609	\$ 129,105,449	\$ 189,964,058	\$ 43,138	0.07%	\$ 2,726	\$ 5,066,002	\$ 4,586,505	\$ 3,046	\$ 12,604
2054	\$ 58,920,144	\$ 137,790,631	\$ 196,710,775	\$ 534,920	0.91%	\$ 1,734	\$ 5,476,970	\$ 4,522,959	\$ 3,025	\$ 45,272
2055	\$ 56,955,074	\$ 146,728,872	\$ 203,683,946	\$ 1,532,912	2.69%	\$ 889	\$ 5,920,686	\$ 4,455,282	\$ 3,055	\$ 101,542
2056	\$ 54,967,071	\$ 155,927,985	\$ 210,895,056	\$ 3,097,691	5.64%	\$ 616	\$ 10,049,711	\$ 4,380,091	\$ 3,029	\$ 265,505
2057	\$ 52,965,410	\$ 165,404,777	\$ 218,370,187	\$ 9,030,404	17.05%	\$ 291	\$ 10,660,628	\$ 4,302,118	\$ 2,999	\$ 547,800
2058	\$ 50,952,060	\$ 175,185,335	\$ 226,137,395	\$ 15,934,006	31.27%	\$ 196	\$ 11,310,978	\$ 4,218,799	\$ 3,023	\$ 874,785
2059	\$ 48,932,935	\$ 185,293,992	\$ 234,226,927	\$ 23,898,143	48.84%	\$ 132	\$ 12,007,726	\$ 4,131,680	\$ 2,987	\$ 1,250,614

City of Morgantown, West Virginia Firemen'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	\$ 1,738,887	\$ -	\$ 1,701,035	\$ -	\$ 1,707,104
2020	\$ 1,858,858	\$ -	\$ 1,740,090	\$ -	\$ 1,758,782
2021	\$ 1,986,173	\$ -	\$ 1,779,206	\$ -	\$ 1,811,173
2022	\$ 2,107,314	\$ -	\$ 1,806,435	\$ -	\$ 1,852,036
2023	\$ 2,259,524	\$ -	\$ 1,853,505	\$ -	\$ 1,913,878
2024	\$ 2,356,763	\$ -	\$ 1,850,020	\$ -	\$ 1,923,935
2025	\$ 2,426,228	\$ -	\$ 1,822,534	\$ -	\$ 1,908,901
2026	\$ 2,515,815	\$ -	\$ 1,808,450	\$ -	\$ 1,907,689
2027	\$ 2,668,167	\$ -	\$ 1,835,374	\$ -	\$ 1,949,930
2028	\$ 2,866,264	\$ -	\$ 1,886,737	\$ -	\$ 2,018,829
2029	\$ 3,001,261	\$ -	\$ 1,890,526	\$ -	\$ 2,037,343
2030	\$ 3,130,143	\$ -	\$ 1,886,804	\$ -	\$ 2,047,867
2031	\$ 3,264,962	\$ -	\$ 1,883,322	\$ -	\$ 2,058,700
2032	\$ 3,400,989	\$ -	\$ 1,877,307	\$ -	\$ 2,066,794
2033	\$ 3,532,113	\$ -	\$ 1,865,728	\$ -	\$ 2,068,730
2034	\$ 3,633,610	\$ -	\$ 1,836,690	\$ -	\$ 2,051,090
2035	\$ 3,720,466	\$ -	\$ 1,799,611	\$ -	\$ 2,024,049
2036	\$ -	\$ 3,848,867	\$ -	\$ 2,244,373	\$ 2,018,058
2037	\$ -	\$ 3,954,885	\$ -	\$ 2,236,202	\$ 1,998,535
2038	\$ -	\$ 4,041,240	\$ -	\$ 2,215,679	\$ 1,968,203
2039	\$ -	\$ 4,127,804	\$ -	\$ 2,194,453	\$ 1,937,543
2040	\$ -	\$ 4,221,184	\$ -	\$ 2,175,988	\$ 1,909,606
2041	\$ -	\$ 4,292,305	\$ -	\$ 2,145,496	\$ 1,871,446
2042	\$ -	\$ 4,429,294	\$ -	\$ 2,146,775	\$ 1,861,223
2043	\$ -	\$ 4,545,207	\$ -	\$ 2,136,096	\$ 1,840,750
2044	\$ -	\$ 4,613,327	\$ -	\$ 2,102,308	\$ 1,800,663
2045	\$ -	\$ 4,692,004	\$ -	\$ 2,073,268	\$ 1,765,037
2046	\$ -	\$ 4,738,061	\$ -	\$ 2,030,078	\$ 1,717,803
2047	\$ -	\$ 4,759,321	\$ -	\$ 1,977,297	\$ 1,663,010
2048	\$ -	\$ 4,759,486	\$ -	\$ 1,917,353	\$ 1,602,829
2049	\$ -	\$ 4,737,400	\$ -	\$ 1,850,534	\$ 1,537,603
2050	\$ -	\$ 4,719,700	\$ -	\$ 1,787,666	\$ 1,476,372
2051	\$ -	\$ 4,686,443	\$ -	\$ 1,721,196	\$ 1,412,869
2052	\$ -	\$ 4,643,844	\$ -	\$ 1,653,787	\$ 1,349,315
2053	\$ -	\$ 4,586,505	\$ -	\$ 1,583,794	\$ 1,284,384
2054	\$ -	\$ 4,522,959	\$ -	\$ 1,514,449	\$ 1,220,711
2055	\$ -	\$ 4,455,282	\$ -	\$ 1,446,512	\$ 1,158,891
2056	\$ -	\$ 4,380,091	\$ -	\$ 1,378,939	\$ 1,098,064
2057	\$ 4,302,118	\$ -	\$ 790,142	\$ -	\$ 1,039,451
2058	\$ 4,218,799	\$ -	\$ 741,473	\$ -	\$ 982,399
2059	\$ 4,131,680	\$ -	\$ 694,891	\$ -	\$ 927,263