



**Municipal Pensions  
Oversight Board**

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

GASB 68 Actuarial Information for the  
Measurement Period Ending  
June 30, 2020

**Bolton**

Submitted by:

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Employee Benefits, Actuarial & Investment Consulting

October 27, 2020

Ms. Connie Fulknier  
City Clerk  
City of Dunbar  
210 12th St. / P.O. Box 483  
Dunbar, WV 25064

Captain Josh Bowers  
Pension Board Secretary  
City of Dunbar  
Firemen's Pension and Relief Fund

Re: City of Dunbar Firemen's Pension and Relief Fund  
GASB 68 Actuarial Information for the Measurement Period Ending June 30, 2020

Dear Connie,

The following report contains the GASB 67 and GASB 68 actuarial information for the City of Dunbar Firemen's Pension and Relief Fund to be included in the City's financial statements for FY 2020. The GASB 67 information has been provided as of June 30, 2020 (the GASB 68 measurement date for FY 2020).

#### 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, 2020 (the City's fiscal year end date) as required by GASB 68. 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, 2019 actuarial valuation rolled forward to June 30, 2020. The methods, assumptions, and participant data used are detailed in the July 1, 2019 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 GASB 67. The calculation of the Actuarially Determined Contribution (ADC) for the fiscal year ending June 30, 2020 is contained in the July 1, 2018 valuation report. The discount rate assumption may have changed if a blended rate was used for GASB purposes. The ADC and blended rate determination are based on the Plan using the Conservation funding policy as described in WV Code §8-22-20. Under this funding policy, the City makes contributions to two separate accounts: the Benefit Payment Account and the Accumulation Account. The Benefit Payment Account is used to pay benefits on a pay-as-you-go basis while the Accumulation Account cannot be used to pay benefits and expenses until assets equal or exceed actuarial liabilities.

The included calculations are based on a blended discount rate of 3.24%. A long-term expected rate of investment return of 4.50% has been blended with the 2.45% 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, 2020. We assumed benefits are discounted at the municipal bond rate when paid from the Benefit Payment Account and at the long-term rate of return when paid from the Accumulation Account. The development of the blended discount rate is included within this report.

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

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.

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 the assumptions; the differences may be significant or material because the results are very sensitive to the assumptions made and, in some cases, to the interaction between the assumptions. We may consider that some factors are not material to the valuation of the plan and may not provide a specific assumption for those factors. 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 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. That 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.



Methodology, Reliance and Certification (cont.)

The valuation was completed using both proprietary and third-party models (including software and tools). We have tested these models to ensure they are used for their intended purposes, within their known limitations, and without any known material inconsistencies unless otherwise stated.

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 GASB 68. 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.

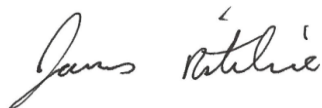
The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, 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 corresponding to 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, 2019 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, FCA, MAAA



City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
 for the June 30, 2020 Measurement Date



Net Pension Liability of the Employer

The components of the net pension liability of the Employer at June 30, 2020, were as follows:

Total pension liability	\$ 18,581,746
Plan fiduciary net position	(1,547,018)
Employer's net pension liability	<u>\$ 17,034,728</u>
Plan fiduciary net position as a percentage of the total pension liability	8.33%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of July 1, 2019 rolled forward to June 30, 2020 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)	3.65%
Single discount rate (EOY)	3.24%
Investment rate of return (BOY)	4.50%, net of pension plan investment expense, including inflation
Investment rate of return (EOY)	4.50%, net of pension plan investment expense, including inflation
Long-term municipal bond rate (BOY)	3.13%
Long-term municipal bond rate (EOY)	2.45%
Mortality	RP-2014 Blue Collar Mortality Table with generational projection using Scale MP-2014
Year Fund is projected to be fully funded	2054
Year assets are expected to be depleted for a closed plan	N/A

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are available in the July 1, 2019 actuarial valuation report.

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

	1% Decrease 2.24%	Current Discount Rate 3.24%	1% Increase 4.24%
Employer's net pension liability	\$ 20,671,902	\$ 17,034,728	\$ 14,239,707

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
 for the June 30, 2020 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 6/30/19</b>	\$ 16,495,424	\$ 1,032,669	\$ 15,462,755
<b>Changes for the year:</b>			
Service cost	468,817		468,817
Interest	590,818		590,818
Changes of benefit terms	-		-
Differences between expected and actual experience	411,174		411,174
Changes of assumptions	1,232,754		1,232,754
Contributions - employer (including Premium Tax Allocation)		1,110,142	(1,110,142)
Contributions - member		60,863	(60,863)
Net investment income		55,740	(55,740)
Benefit payments, including refunds of member contributions	(617,241)	(617,241)	-
Administrative expense		(95,155)	95,155
Other		-	-
<b>Net Changes</b>	<u>2,086,322</u>	<u>514,349</u>	<u>1,571,973</u>
<b>Balances at 6/30/20</b>	<u>\$ 18,581,746</u>	<u>\$ 1,547,018</u>	<u>\$ 17,034,728</u>
Return on Investments		4.4%	

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
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Components of Employer's Pension Expense for the Fiscal Year Ended June 30, 2020

Note	Description	Amount
A	Service cost	\$ 468,817
B	Interest on the total pension liability	590,818
A	Changes of benefit terms	-
C	Differences between expected and actual experience	168,831
C	Changes of assumptions	867,889
A	Employee contributions	(60,863)
D	Projected earnings on pension plan investments	(56,788)
C	Differences between expected and actual earnings on plan investments	(2,518)
A	Pension plan administrative expense	95,155
A	Other changes in fiduciary net position	-
<b>Total Pension Expense</b>		<b>\$ 2,071,341</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)	Interest Rate (c)	Projected Earnings (a) x (b) x (c)
Beginning total pension liability	\$ 16,495,424	100%	3.65%	\$ 602,083
Service cost (End of Year)	468,817	0%	3.65%	-
Benefit payments, including refunds of employee contributions	(617,241)	50%	3.65%	(11,265)
<b>Total interest on the total pension liability</b>				<b>\$ 590,818</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	\$ 1,032,669	100%	4.50%	\$ 46,470
Employer contributions	1,110,142	50%	4.50%	24,978
Employee contributions	60,863	50%	4.50%	1,369
Benefit payments, including refunds of employee contributions	(617,241)	50%	4.50%	(13,888)
Administrative expense and other	(95,155)	50%	4.50%	(2,141)
<b>Total Projected Earnings</b>				<b>\$ 56,788</b>

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
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Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

At June 30, 2020, 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	\$ 631,520	\$ 6,374
Changes of assumptions	2,238,038	-
Net difference between projected and actual earnings on pension plan investments	-	17,750
<b>Total</b>	<b>\$ 2,869,558</b>	<b>\$ 24,124</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>		
2021	\$	832,289
2022		842,130
2023		842,023
2024		328,992
2025		-
Thereafter		-



City of Dunbar, West Virginia Firemen'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	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Service cost	\$ 468,817	\$ 448,283	\$ 244,966	\$ 320,736	\$ 244,394	\$ 249,928	\$ 236,285	\$ -	\$ -	\$ -
Interest	590,818	592,735	588,292	576,067	547,277	536,856	547,237	-	-	-
Changes of benefit terms	-	-	-	-	-	-	-	-	-	-
Differences between expected and actual experience	411,174	504,301	(11,318)	(36,906)	(24,065)	(330,636)	-	-	-	-
Changes of assumptions	1,232,754	2,086,393	-	-	1,605,283	-	-	-	-	-
Benefit payments, including refunds of member contributions	(617,241)	(616,327)	(607,765)	(544,127)	(540,414)	(562,626)	(535,745)	-	-	-
Net change in total pension liability	2,086,322	3,015,385	214,175	315,770	1,832,475	(106,478)	247,777	-	-	-
Total pension liability - beginning	16,495,424	13,480,039	13,265,864	12,950,094	11,117,619	11,224,097	10,976,320	-	-	-
<b>Total pension liability - ending (a)</b>	<b>\$ 18,581,746</b>	<b>\$ 16,495,424</b>	<b>\$ 13,480,039</b>	<b>\$ 13,265,864</b>	<b>\$ 12,950,094</b>	<b>\$ 11,117,619</b>	<b>\$ 11,224,097</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Plan fiduciary net position</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>
Contributions - employer (including Premium Tax Allocation)	\$ 1,110,142	\$ 709,109	\$ 535,194	\$ 563,503	\$ 541,297	\$ 629,703	\$ 485,587	\$ -	\$ -	\$ -
Contributions - member	60,863	62,601	56,717	57,782	52,073	54,262	51,229	-	-	-
Net investment income	55,740	65,723	35,229	49,690	3,956	2,465	41,634	-	-	-
Benefit payments, including refunds of member contributions	(617,241)	(616,327)	(607,765)	(544,127)	(540,414)	(562,626)	(535,745)	-	-	-
Administrative expense	(95,155)	(6,154)	(6,216)	(6,357)	(4,324)	(4,538)	(3,267)	-	-	-
Other	-	(904)	-	2,926	-	-	-	-	-	-
Net change in plan fiduciary net position	\$ 514,349	\$ 214,048	\$ 13,159	\$ 123,417	\$ 52,588	\$ 119,266	\$ 39,438	\$ -	\$ -	\$ -
Plan fiduciary net position - beginning	1,032,669	818,621	805,463	682,046	629,458	510,192	470,754	-	-	-
<b>Plan fiduciary net position - ending (b)</b>	<b>\$ 1,547,018</b>	<b>\$ 1,032,669</b>	<b>\$ 818,621</b>	<b>\$ 805,463</b>	<b>\$ 682,046</b>	<b>\$ 629,458</b>	<b>\$ 510,192</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Employer's net pension liability - ending (a)-(b)	\$ 17,034,728	\$ 15,462,755	\$ 12,661,418	\$ 12,460,401	\$ 12,268,048	\$ 10,488,161	\$ 10,713,905	\$ -	\$ -	\$ -
Plan fiduciary net position as a percentage of the total pension liability	8.33%	6.26%	6.07%	6.07%	5.27%	5.66%	4.55%	0.00%	0.00%	0.00%
Covered payroll	\$ 749,877	\$ 725,037	\$ 470,997	\$ 619,269	\$ 623,201	\$ 627,860	\$ 592,912	\$ -	\$ -	\$ -
Employer's net pension liability as a percentage of covered payroll	2271.67%	2132.68%	2688.22%	2012.11%	1968.55%	1670.46%	1807.00%	0.00%	0.00%	0.00%
Expected average remaining service years of all participants	5.00	5.00	3.82	4.48	4.58	4.59	-	-	-	-

**Notes to Schedule:**

Benefit changes: There were no changes for FY2020.

Changes of assumptions: The discount rate changed from 3.65% to 3.24%.

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
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Schedule of Employer Contributions  
 Last 10 Fiscal Years

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined contribution	\$ 1,065,058	\$ 928,165	\$ 793,100	\$ 824,818	\$ 798,593	\$ 654,768	\$ 634,303	\$ 610,973	\$ -	\$ -
Contributions in relation to the actuarially determined contribution										
Employer provided	841,236	475,264	444,172	415,114	387,957	362,577	338,857	316,689	-	-
State provided	268,906	233,845	91,022	148,389	153,340	267,126	146,730	11,700	-	-
Contribution deficiency (excess)	<u>\$ (45,084)</u>	<u>\$ 219,056</u>	<u>\$ 257,906</u>	<u>\$ 261,315</u>	<u>\$ 257,296</u>	<u>\$ 25,065</u>	<u>\$ 148,716</u>	<u>\$ 282,584</u>	<u>\$ -</u>	<u>\$ -</u>
Covered payroll	\$ 749,877	\$ 725,037	\$ 470,997	\$ 619,269	\$ 623,201	\$ 627,860	\$ 592,912	\$ 596,503	\$ -	\$ -
Contributions as a percentage of covered employee payroll	148.04%	97.80%	113.63%	90.99%	86.86%	100.29%	81.90%	55.05%	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	31.5 years
Asset valuation method	Market Value
Inflation	2.75 percent
Salary increases	Rates vary by years of service
Investment rate of return	4.50%, 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 Dunbar, West Virginia Firemen's Pension and Relief Fund  
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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)	2016	2017	2018	2019	2020	2021	2022	2023	2024
2016	\$ 28,733	5	\$ 5,747	5,747	5,747	5,747	5,745				
2017	(17,339)	5		\$ (3,468)	(3,468)	(3,468)	(3,468)	(3,467)			
2018	520	5			\$ 104	104	104	104	104		
2019	(25,547)	5				\$ (5,109)	(5,109)	(5,109)	(5,109)	(5,111)	
2020	1,048	5					\$ 210	210	210	210	208
Net increase (decrease) in pension expense							\$ (2,518)	\$ (8,262)	\$ (4,795)	\$ (4,901)	\$ 208

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, 2020 (c)	Balances at June 30, 2020	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2016	\$ 28,733	\$ -	\$ 28,733	\$ -	\$ -
2017	-	17,339	13,872	-	3,467
2018	520	-	312	208	-
2019	-	25,547	10,218	-	15,329
2020	1,048	-	210	838	-
				\$ 1,046	\$ 18,796

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
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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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Thereafter
Prior	-	-																	
2011	-	-																	
2012	-	-																	
2013	-	-																	
2014	-	-																	
2015	(330,636)	4.594798						\$ (71,959)	(71,959)	(71,959)	(71,959)	(42,800)							
2016	(24,065)	4.582518						\$ (5,251)	(5,251)	(5,251)	(5,251)	(5,251)	(3,061)						
2017	(36,906)	4.478126							\$ (8,241)	(8,241)	(8,241)	(8,241)	(3,942)						
2018	(11,318)	3.821274								\$ (2,962)	(2,962)	(2,962)	(2,432)						
2019	504,301	5.000000									\$ 100,860	100,860	100,860	100,860	100,861				
2020	411,174	5.000000										\$ 82,235	82,235	82,235	82,235	82,235	82,234		
Net increase (decrease) in pension expense													\$ 168,831	\$ 176,721	\$ 183,095	\$ 183,096	\$ 82,234	\$ -	\$ -

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, 2020 (c)	Balances at June 30, 2020	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
Prior	\$ -	\$ -	\$ -	\$ -	\$ -
2011	-	-	-	-	-
2012	-	-	-	-	-
2013	-	-	-	-	-
2014	-	-	-	-	-
2015	-	330,636	330,636	-	-
2016	-	24,065	24,065	-	-
2017	-	36,906	32,964	-	3,942
2018	-	11,318	8,886	-	2,432
2019	504,301	-	201,720	302,581	-
2020	411,174	-	82,235	328,939	-
				\$ 631,520	\$ 6,374



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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Thereafter
Prior	\$ -	-																	-
2011	-	-																	-
2012	-	-																	-
2013	-	-																	-
2014	-	-																	-
2015	-	4,594,798																	-
2016	1,605,283	4,582,518							\$ 350,306	350,306	350,306	350,306	204,059						-
2017	-	4,478,126																	-
2018	-	3,821,274																	-
2019	2,086,393	5,000,000										\$ 417,279	417,279	417,279	417,279	417,277			-
2020	1,232,754	5,000,000											\$ 246,551	246,551	246,551	246,551	246,550		-
Net increase (decrease) in pension expense													\$ 867,889	\$ 663,830	\$ 663,830	\$ 663,828	\$ 246,550	\$ -	\$ -

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, 2020 (c)	Balances at June 30, 2020	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
Prior	\$ -	\$ -	\$ -	\$ -	\$ -
2011	-	-	-	-	-
2012	-	-	-	-	-
2013	-	-	-	-	-
2014	-	-	-	-	-
2015	-	-	-	-	-
2016	1,605,283	-	1,605,283	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	2,086,393	-	834,558	1,251,835	-
2020	1,232,754	-	246,551	986,203	-
				\$ 2,238,038	\$ -

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
 for the June 30, 2020 Measurement Date



Projection of Pension Plan's Fiduciary Net Position

Fiscal Year	Number (BOY)		Benefit Payment Account							Accumulation Account								
	Active	Non-Active	Assets (BOY)	Net Benefit Pmts and Expenses	Employer Contributions	Employee Contributions	57.28% of Premium Tax Allocation	Investment Income	Transfer (To)/From Accumulation Account	Assets (BOY)	Net Benefit Pmts and Expenses	Employer Contributions	1.50% of Pay Employee Contributions	42.72% of Premium Tax Allocation	Investment Income	Accrued Liability	Unfunded Liability	Funded Ratio
2021	14	23	\$ 376,802	\$ 647,631	\$ 493,385	\$ 54,798	\$ 99,448	\$ 16,956	\$ (393,758)	\$ 1,170,216	\$ -	\$ -	\$ 11,390	\$ 74,184	\$ 54,564	\$ 15,543,369	\$ 13,839,257	11%
2022	14	23	\$ -	\$ 652,415	\$ 495,000	\$ 55,490	\$ 101,925	\$ -	\$ -	\$ 1,704,112	\$ -	\$ -	\$ 11,553	\$ 76,031	\$ 78,634	\$ 15,962,171	\$ 14,091,841	12%
2023	13	22	\$ -	\$ 670,361	\$ 510,070	\$ 55,389	\$ 104,902	\$ -	\$ -	\$ 1,870,330	\$ -	\$ -	\$ 11,522	\$ 78,252	\$ 86,163	\$ 16,380,585	\$ 14,334,318	12%
2024	12	23	\$ -	\$ 688,057	\$ 525,148	\$ 54,948	\$ 107,961	\$ -	\$ -	\$ 2,046,267	\$ -	\$ -	\$ 11,413	\$ 80,535	\$ 94,128	\$ 16,796,123	\$ 14,563,780	13%
2025	11	22	\$ -	\$ 699,280	\$ 532,775	\$ 55,400	\$ 111,105	\$ -	\$ -	\$ 2,232,343	\$ -	\$ -	\$ 11,502	\$ 82,879	\$ 102,556	\$ 17,221,870	\$ 14,792,590	14%
2026	11	22	\$ -	\$ 707,934	\$ 537,484	\$ 56,115	\$ 114,335	\$ -	\$ -	\$ 2,429,280	\$ -	\$ -	\$ 11,647	\$ 85,289	\$ 111,475	\$ 17,662,935	\$ 15,025,244	15%
2027	11	22	\$ -	\$ 714,513	\$ 538,261	\$ 57,001	\$ 119,251	\$ -	\$ -	\$ 2,637,691	\$ -	\$ -	\$ 11,830	\$ 88,956	\$ 120,939	\$ 18,123,417	\$ 15,264,001	16%
2028	10	22	\$ -	\$ 719,761	\$ 539,030	\$ 58,029	\$ 122,702	\$ -	\$ -	\$ 2,859,416	\$ -	\$ -	\$ 12,044	\$ 91,531	\$ 130,979	\$ 18,606,517	\$ 15,512,547	17%
2029	10	22	\$ -	\$ 723,771	\$ 538,349	\$ 59,174	\$ 126,248	\$ -	\$ -	\$ 3,093,970	\$ -	\$ -	\$ 12,283	\$ 94,176	\$ 141,598	\$ 19,115,447	\$ 15,773,420	17%
2030	9	22	\$ -	\$ 748,542	\$ 560,225	\$ 58,424	\$ 129,893	\$ -	\$ -	\$ 3,342,027	\$ -	\$ -	\$ 12,074	\$ 96,894	\$ 152,816	\$ 19,613,459	\$ 16,009,648	18%
2031	8	22	\$ -	\$ 789,394	\$ 599,988	\$ 55,769	\$ 133,637	\$ -	\$ -	\$ 3,603,811	\$ -	\$ -	\$ 11,431	\$ 99,687	\$ 164,644	\$ 20,067,741	\$ 16,188,168	19%
2032	8	23	\$ -	\$ 832,064	\$ 641,420	\$ 53,161	\$ 137,483	\$ -	\$ -	\$ 3,879,573	\$ -	\$ -	\$ 10,796	\$ 102,557	\$ 177,103	\$ 20,475,233	\$ 16,305,204	20%
2033	7	23	\$ -	\$ 876,976	\$ 683,833	\$ 49,853	\$ 143,290	\$ -	\$ -	\$ 4,170,029	\$ -	\$ -	\$ 10,052	\$ 106,889	\$ 190,254	\$ 20,827,310	\$ 16,350,086	21%
2034	6	23	\$ -	\$ 925,504	\$ 731,764	\$ 46,335	\$ 147,405	\$ -	\$ -	\$ 4,477,224	\$ -	\$ -	\$ 9,284	\$ 109,958	\$ 204,129	\$ 21,117,941	\$ 16,317,346	23%
2035	5	24	\$ -	\$ 984,837	\$ 790,508	\$ 42,696	\$ 151,633	\$ -	\$ -	\$ 4,800,595	\$ -	\$ -	\$ 8,439	\$ 113,111	\$ 218,732	\$ 21,334,342	\$ 16,193,465	24%
2036	4	24	\$ -	\$ 1,033,056	\$ 838,206	\$ 38,874	\$ 155,976	\$ -	\$ -	\$ 5,140,877	\$ -	\$ -	\$ 7,581	\$ 116,352	\$ 234,097	\$ 21,484,296	\$ 15,985,389	26%
2037	4	24	\$ -	\$ 1,066,975	\$ 870,799	\$ 35,736	\$ 160,440	\$ -	\$ -	\$ 5,498,907	\$ -	\$ -	\$ 6,910	\$ 119,681	\$ 250,268	\$ 21,583,609	\$ 15,707,843	27%
2038	3	24	\$ -	\$ 1,105,061	\$ 907,733	\$ 32,302	\$ 165,026	\$ -	\$ -	\$ 5,875,766	\$ -	\$ -	\$ 6,203	\$ 123,102	\$ 267,287	\$ 21,624,165	\$ 15,351,807	29%
2039	3	24	\$ -	\$ 1,136,314	\$ 937,604	\$ 28,972	\$ 169,738	\$ -	\$ -	\$ 6,272,358	\$ -	\$ -	\$ 5,536	\$ 126,617	\$ 285,197	\$ 21,611,729	\$ 14,922,021	31%
2040	3	24	\$ -	\$ 1,156,287	\$ 946,635	\$ 27,028	\$ 182,624	\$ -	\$ -	\$ 6,689,708	\$ -	\$ -	\$ 5,132	\$ 136,229	\$ 304,182	\$ 21,564,208	\$ 14,428,957	33%
2041	2	24	\$ -	\$ 1,167,631	\$ 953,954	\$ 25,857	\$ 187,820	\$ -	\$ -	\$ 7,135,251	\$ -	\$ -	\$ 4,887	\$ 140,105	\$ 324,313	\$ 21,494,252	\$ 13,889,696	35%
2042	2	24	\$ -	\$ 1,183,180	\$ 965,827	\$ 24,194	\$ 193,159	\$ -	\$ -	\$ 7,604,556	\$ -	\$ -	\$ 4,556	\$ 144,088	\$ 345,513	\$ 21,393,429	\$ 13,294,716	38%
2043	2	24	\$ -	\$ 1,211,537	\$ 984,190	\$ 21,124	\$ 206,223	\$ -	\$ -	\$ 8,098,713	\$ -	\$ -	\$ 3,971	\$ 153,833	\$ 367,954	\$ 21,239,098	\$ 12,614,627	41%
2044	1	23	\$ -	\$ 1,229,544	\$ 999,033	\$ 18,445	\$ 212,066	\$ -	\$ -	\$ 8,624,471	\$ -	\$ -	\$ 3,462	\$ 158,192	\$ 391,698	\$ 21,042,298	\$ 11,864,475	44%
2045	1	23	\$ -	\$ 1,237,617	\$ 1,002,718	\$ 16,829	\$ 218,070	\$ -	\$ -	\$ 9,177,823	\$ -	\$ -	\$ 3,153	\$ 162,671	\$ 416,692	\$ 20,817,899	\$ 11,057,560	47%
2046	1	23	\$ -	\$ 1,236,095	\$ 995,724	\$ 16,132	\$ 224,239	\$ -	\$ -	\$ 9,760,339	\$ -	\$ -	\$ 3,023	\$ 167,273	\$ 443,005	\$ 20,580,370	\$ 10,206,730	50%
2047	1	22	\$ -	\$ 1,275,084	\$ 1,021,991	\$ 12,737	\$ 240,356	\$ -	\$ -	\$ 10,373,640	\$ -	\$ -	\$ 2,379	\$ 179,295	\$ 470,856	\$ 20,273,840	\$ 9,247,670	54%
2048	1	22	\$ -	\$ 1,304,545	\$ 1,049,419	\$ 7,982	\$ 247,144	\$ -	\$ -	\$ 11,026,170	\$ -	\$ -	\$ 1,493	\$ 184,359	\$ 500,313	\$ 19,898,504	\$ 8,186,169	59%
2049	0	21	\$ -	\$ 1,310,291	\$ 1,050,418	\$ 5,754	\$ 254,119	\$ -	\$ -	\$ 11,712,335	\$ -	\$ -	\$ 1,076	\$ 189,562	\$ 531,297	\$ 19,488,365	\$ 7,054,095	64%
2050	0	21	\$ -	\$ 1,309,368	\$ 1,043,955	\$ 4,128	\$ 261,285	\$ -	\$ -	\$ 12,434,270	\$ -	\$ -	\$ 772	\$ 194,908	\$ 563,897	\$ 19,052,200	\$ 5,858,353	69%
2051	0	20	\$ -	\$ 1,302,630	\$ 881,849	\$ 2,962	\$ 417,819	\$ -	\$ -	\$ 13,193,847	\$ -	\$ -	\$ 554	\$ 311,675	\$ 600,671	\$ 18,597,052	\$ 4,490,305	76%
2052	0	20	\$ -	\$ 1,292,617	\$ 860,933	\$ 2,028	\$ 429,856	\$ -	\$ -	\$ 14,106,747	\$ -	\$ -	\$ 379	\$ 320,506	\$ 641,944	\$ 18,126,701	\$ 3,057,125	83%
2053	0	19	\$ -	\$ 1,279,611	\$ 836,497	\$ 1,294	\$ 441,820	\$ -	\$ -	\$ 15,069,576	\$ -	\$ -	\$ 242	\$ 329,579	\$ 685,470	\$ 17,644,489	\$ 1,559,622	91%
2054	0	19	\$ -	\$ 1,263,195	\$ 807,999	\$ 868	\$ 454,317	\$ -	\$ 11	\$ 16,084,867	\$ -	\$ -	\$ 163	\$ 338,902	\$ 731,364	\$ 17,155,285	\$ -	100%
2055	0	18	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,155,285	\$ 1,244,737	\$ 5,705	\$ 692	\$ -	\$ 744,432	\$ 16,661,377	\$ -	100%
2056	0	17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,661,377	\$ 1,225,016	\$ 4,871	\$ 464	\$ -	\$ 722,621	\$ 16,164,317	\$ -	100%
2057	0	17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,164,317	\$ 1,206,966	\$ 3,471	\$ -	\$ -	\$ 700,614	\$ 15,661,436	\$ -	100%
2058	0	16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15,661,436	\$ 1,185,103	\$ 3,357	\$ -	\$ -	\$ 678,468	\$ 15,158,158	\$ -	100%
2059	0	16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15,158,158	\$ 1,163,397	\$ 3,449	\$ -	\$ -	\$ 656,305	\$ 14,654,515	\$ -	100%
2060	0	15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,654,515	\$ 1,141,535	\$ 3,322	\$ -	\$ -	\$ 634,125	\$ 14,150,427	\$ -	100%

City of Dunbar, West Virginia Firemen's Pension and Relief Fund  
 Actuarial Information to Include in the Financial Statements  
 for the June 30, 2020 Measurement Date



Projection of Pension Plan's Fiduciary Net Position

Fiscal Year	Projected BP	"Funded" Portion of BP	"Unfunded" Portion of BP	PV of "Funded" Portion of BP	PV of "Unfunded" Portion of BP	PV of BP Using a Single DR
2020	\$ 617,241	\$ -	\$ 617,241	\$ -	\$ 609,816	\$ 607,464
2021	\$ 644,785	\$ -	\$ 644,785	\$ -	\$ 621,795	\$ 614,627
2022	\$ 649,491	\$ -	\$ 649,491	\$ -	\$ 611,355	\$ 599,655
2023	\$ 667,519	\$ -	\$ 667,519	\$ -	\$ 613,298	\$ 596,929
2024	\$ 685,137	\$ -	\$ 685,137	\$ -	\$ 614,432	\$ 593,428
2025	\$ 696,451	\$ -	\$ 696,451	\$ -	\$ 609,642	\$ 584,268
2026	\$ 705,027	\$ -	\$ 705,027	\$ -	\$ 602,390	\$ 572,873
2027	\$ 711,526	\$ -	\$ 711,526	\$ -	\$ 593,405	\$ 559,983
2028	\$ 716,785	\$ -	\$ 716,785	\$ -	\$ 583,495	\$ 546,392
2029	\$ 720,713	\$ -	\$ 720,713	\$ -	\$ 572,662	\$ 532,119
2030	\$ 745,498	\$ -	\$ 745,498	\$ -	\$ 578,190	\$ 533,119
2031	\$ 786,367	\$ -	\$ 786,367	\$ -	\$ 595,303	\$ 544,671
2032	\$ 828,850	\$ -	\$ 828,850	\$ -	\$ 612,458	\$ 556,053
2033	\$ 873,780	\$ -	\$ 873,780	\$ -	\$ 630,218	\$ 567,771
2034	\$ 922,330	\$ -	\$ 922,330	\$ -	\$ 649,326	\$ 580,482
2035	\$ 981,576	\$ -	\$ 981,576	\$ -	\$ 674,510	\$ 598,353
2036	\$ 1,029,821	\$ -	\$ 1,029,821	\$ -	\$ 690,740	\$ 608,033
2037	\$ 1,063,651	\$ -	\$ 1,063,651	\$ -	\$ 696,370	\$ 608,269
2038	\$ 1,101,768	\$ -	\$ 1,101,768	\$ -	\$ 704,075	\$ 610,264
2039	\$ 1,132,930	\$ -	\$ 1,132,930	\$ -	\$ 706,675	\$ 607,802
2040	\$ 1,152,810	\$ -	\$ 1,152,810	\$ -	\$ 701,879	\$ 599,029
2041	\$ 1,164,191	\$ -	\$ 1,164,191	\$ -	\$ 691,858	\$ 585,930
2042	\$ 1,179,645	\$ -	\$ 1,179,645	\$ -	\$ 684,277	\$ 575,047
2043	\$ 1,207,905	\$ -	\$ 1,207,905	\$ -	\$ 683,914	\$ 570,317
2044	\$ 1,226,099	\$ -	\$ 1,226,099	\$ -	\$ 677,614	\$ 560,713
2045	\$ 1,234,077	\$ -	\$ 1,234,077	\$ -	\$ 665,713	\$ 546,623
2046	\$ 1,232,458	\$ -	\$ 1,232,458	\$ -	\$ 648,941	\$ 528,749
2047	\$ 1,271,503	\$ -	\$ 1,271,503	\$ -	\$ 653,489	\$ 528,355
2048	\$ 1,300,866	\$ -	\$ 1,300,866	\$ -	\$ 652,592	\$ 523,567
2049	\$ 1,306,840	\$ -	\$ 1,306,840	\$ -	\$ 639,911	\$ 509,440
2050	\$ 1,305,822	\$ -	\$ 1,305,822	\$ -	\$ 624,121	\$ 493,044
2051	\$ 1,299,160	\$ -	\$ 1,299,160	\$ -	\$ 606,088	\$ 475,112
2052	\$ 1,289,052	\$ -	\$ 1,289,052	\$ -	\$ 586,991	\$ 456,599
2053	\$ 1,276,131	\$ -	\$ 1,276,131	\$ -	\$ 567,211	\$ 437,815
2054	\$ 1,259,619	\$ -	\$ 1,259,619	\$ -	\$ 546,483	\$ 418,568
2055	\$ 1,241,256	\$ 1,241,256	\$ -	\$ 260,156	\$ -	\$ 399,503
2056	\$ 1,221,638	\$ 1,221,638	\$ -	\$ 245,018	\$ -	\$ 380,831
2057	\$ 1,203,495	\$ 1,203,495	\$ -	\$ 230,985	\$ -	\$ 363,383
2058	\$ 1,181,746	\$ 1,181,746	\$ -	\$ 217,044	\$ -	\$ 345,602
2059	\$ 1,159,948	\$ 1,159,948	\$ -	\$ 203,866	\$ -	\$ 328,565
2060	\$ 1,138,213	\$ 1,138,213	\$ -	\$ 191,432	\$ -	\$ 312,275