City Of Moundsville, West Virginia Policemen's Pension and Relief Fund

Actuarial Valuation Report for the Year Beginning July 1, 2017





September 21, 2018

Ms. Karen L. Ankrom City Treasurer 800 6th Street. P.O. Box E Moundsville, WV 26041 Lt. Steven P. Kosek
Pension Board Secretary
City of Moundsville Policemen's Pension and Relief Fund

Subject: City of Moundsville Policemen's Pension and Relief Fund
Actuarial Valuation Report for the Year Beginning July 1, 2017

Dear Ms. Ankrom and Lt. Kosek:

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2017, for the City of Moundsville, West Virginia Policemen's Pension and Relief Fund ("Fund" or "Plan"). This actuarial valuation has been performed in accordance with the West Virginia Code Chapter 8, Article 22, Sections 16 through 28, inclusive.

In accordance with West Virginia Code §8-22-20, this actuarial valuation report provides information on:

- The sponsor's funding requirements for the fiscal year ending June 30, 2019
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30,
 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

West Virginia Code §8-22-20(c)(4) requires a review of the actuarial assumptions and methods at least once every five years and that the Actuary shall provide a report to the oversight board with recommendations on any changes to the actuarial process. Consequently, an experience review was performed for the period July 1, 2009, through June 30, 2014. The actuarial assumptions and methods were recommended by the actuary, in the report 2016 Experience Review for the Years July 1, 2009, to July 1, 2014, approved by the Municipal Pensions Oversight Board, and became effective for the actuarial valuation as of July 1, 2015.

This report is based on the sponsor's election to finance benefit obligations using the Optional funding policy as defined in West Virginia Code §8-22-20 (e)(1).

This actuarial valuation is based upon:

Plan Member Data – Data for active members and persons receiving benefits from the Fund as of June 30, 2017, was provided by the Fund's staff. We have tested this data for reasonableness.

Asset Values – A reconciliation of market value of assets during the plan year ended June 30, 2017, and assets held as of June 30, 2017, by investment category, was provided by the Fund.

Plan Provisions – A summary of the key plan provisions valued are set forth in Section VI of the report: Summary of Principal Plan Provisions.

Actuarial Methods – Fund liabilities were measured using the Entry-Age Normal Actuarial Cost Method. The actuarial valuation was based on the market value of assets. The actuarial methods used in the actuarial valuation are set forth in Section V of the report: Actuarial Assumptions and Methods.

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 6.50%. The actuarial assumptions used in the actuarial valuation are set forth in Section V of the report: Actuarial Assumptions and Methods.

The actuarial valuation results disclosed in this report are based on the data and actuarial assumptions and methods described above, and upon the provisions of the Plan as of the actuarial valuation date. Based on these items, we certify these results to be true and correct.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practices.

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.

This report should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the plan sponsor.

Alex Rivera and Lance J. Weiss are members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Sincerely,

Alex Rivera, FSA, EA, MAAA, FCA

alex Rivera

Senior Consultant

Lance Weiss, EA, MAAA, FCA

Laney win

Senior Consultant



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SECTION I

ACTUARIAL VALUATION RESULTS AS OF JULY 1, 2017

Executive Summary of Valuation Results as of July 1, 2017

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2017, for the City of Moundsville, West Virginia Policemen's Pension and Relief Fund ("Fund" or "Plan").

In accordance with West Virginia Code §8-22-20, this actuarial valuation report provides information on:

- The sponsor's funding requirements for the fiscal year ending June 30, 2019
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

This report is based on the sponsor's election to finance benefit obligations using the Optional funding policy as defined in West Virginia Code §8-22-20 (e)(1). The sponsor changed the funding policy used to determine contributions from the Alternative funding policy to the Optional funding policy, effective March 16, 2010.

The key features of the Optional funding policy, effective for plan years beginning after January 1, 2010, are summarized below:

- The current local Plan is closed to new employees
- New employees are covered in the multiple employer statewide plan *Municipal Police Officers* and *Firefighters Retirement System*
- Benefits and expenses in the closed local Plan are financed by contributions made from the following sources:
 - Employee contributions of 7.0% of pay for members hired before January 1, 2010, increased by up to 2.5% of pay if elected by the Board of Trustees of the Plan. Employees hired on or after January 1, 2010, contribute 9.5% of pay;
 - o The premium tax allocation assigned to the Fund for the plan year; and
 - Employer contributions equal to the normal cost, net of employee contributions, plus a 40year closed period amortization from January 1, 2010, on a level dollar basis, of the unfunded actuarial accrued liability net of premium tax allocation applicable to the plan year.



The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2017
Assets	\$5,373,640
Actuarial Accrued Liability	\$7,441,305
Unfunded Actuarial Accrued Liability	\$2,067,665
Funded Ratio	72.21%

The following table provides the estimated employer contributions for the fiscal year ended June 30, 2018, under the Optional funding policy, based on the July 1, 2016 actuarial valuation produced by GRS:

Employer Contributions for FYE:	June 30, 2018
Estimated Payroll for PYE 06/30/2017	\$440,540
Employer Normal Cost for PYE 06/30/2017	\$121,925
Employer Normal Cost Rate for PYE 06/30/2017	27.7%
Amortization of Unfunded Actuarial Liability for PYE 06/30/2017	\$179,455
State Insurance Premium Tax Allocation for FYE 06/30/2018	\$144,576
Estimated Employer Contribution for FYE 06/30/2018	\$156,804

The following table provides the estimated employer contributions for the fiscal year ended June 30, 2019, under the Optional funding policy, based on the July 1, 2017 actuarial valuation produced by GRS:

Estimated Employer Contributions for FYE:	June 30, 2019
Estimated Payroll for PYE 06/30/2018	\$394,511
Employer Normal Cost for Active Members for PYE 06/30/2018	\$108,655
Employer Normal Cost Rate for PYE 06/30/2018	27.5%
Amortization of Unfunded Actuarial Liability for PYE 06/30/2018	\$149,548
State Insurance Premium Tax Allocation for FYE 06/30/2019	\$152,716
Estimated Employer Contribution for FYE 06/30/2019 °	\$108,655

^a The Employer Contribution cannot be less than the Employer Normal Cost.

The actual minimum employer contribution for fiscal year ending June 30, 2019, will be based on the actual payroll for the plan year ended June 30, 2018.



Commentary on Premium Tax Allocation

Under §8-22-19 of the West Virginia Code, the plan sponsor is required to deposit the statutory contribution on a monthly basis at a rate of one-twelfth of the annual requirement, in order to receive the premium tax allocation from the Municipal Pensions Security Fund. Revenues which are specifically collected for the Fund, including employee payroll contributions, must be deposited within five days of receipt.

Based upon discussions with the Municipal Pensions Oversight Board (MPOB), we understand the annual premium tax allocation is determined by September 1st each year. Municipalities can begin invoicing the MPOB for their share of the premium tax allocation after receiving their state provided actuarial study and after the municipality has made employer contributions to the local Plan. Each municipal treasurer shall use the invoice template provided by the MPOB to begin drawing down the state allocation for the municipal pension plan. This July 1, 2017, Actuarial Report from GRS is to be used by municipal pension plans to draw down the September 1, 2018, State Premium Tax Allocation which is allocated in Fiscal Year 2019. The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statutes, and will be eligible to receive the premium tax allocation.

Commentary on Solvency Projections and Supplemental Benefits

Under § 8-22-26a of the West Virginia Code, all retirees, surviving spouses and disabled pensioners are eligible for Supplemental Benefits that include automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefit equals the percentage increase in the Consumer Price Index, limited to 4.0 percent (2.0 percent for certain disabled pensioners), multiplied by the sum of the allowable amount (first \$15,000 of initial benefits paid) and the accumulated supplemental pensions paid in prior years.

The Court of Appeals decision requires that Supplemental Benefits be provided on "the allowable amount of the first \$15,000 of the total annual pension paid in addition to the accumulated supplemental pension from the previous years." The decision implies that compound cost-of-living increases should be applied to both the allowable amount of \$15,000 and the accumulated supplemental pension amounts for prior years. Additional Supplemental Benefits are payable only if the Plan satisfies the minimum standard for actuarial soundness as defined in West Virginia Code § 8-22-20. This minimum standard requires that the fund remain "solvent" over the next 15-year projection period. Based on discussions with the West Virginia Municipal Pensions Oversight Board, and our understanding of the administrative practices of other local police and fire pension funds in West Virginia, the "solvency" requirement generally means that the fund's market value of assets is projected to be greater than zero for all plan years prior to the end of the 15-year projection period. The projection is based on the most recent actuarial valuation and assumes the plan sponsor will make contributions according to the funding policy elected by the sponsor as defined by West Virginia Code, including any additional amounts needed to satisfy the 15-year solvency test on a closed group projection basis. Although the 15-year solvency test may satisfy the minimum standard for actuarial soundness under the statutes, it is not necessarily consistent with generally accepted actuarial principles.



The City of Moundsville has elected to fund benefits using the Optional funding policy as defined in West Virginia Code §8-22-20 (e)(1). Under this funding methodology, the fund's market value of assets is projected to be greater than zero for all plan years prior to the end of the 15-year projection period. Accordingly, this contribution methodology satisfies the minimum standard for actuarial soundness.

The Supplemental benefits for plan year beginning July 1, 2019, will be based on the Consumer Price Index for calendar year 2018, and the projected results of the July 1, 2017, actuarial valuation.

Additional Remarks on the Actuarial Valuation Results

Following are additional remarks on the actuarial valuation results as of July 1, 2017:

- The actuarial assumptions and methods were recommended by the actuary, in the report 2016 Experience Review for the Years July 1, 2009, to July 1, 2014, and approved by the Municipal Pensions Oversight Board and became effective beginning with the actuarial valuation as of July 1, 2015. The key assumptions are fully disclosed in Section V of the report.
- The interest rate used to discount liabilities remained the same for the July 1, 2016 and July 1, 2017 actuarial valuations.
 - o The interest rate assumption was developed by reviewing the Plan's current funded ratio, the 15-year projected funded ratio, the ratio of assets to benefits, the percentage of assets allocated to equities and the funding policy selected. The details of the methodology used to select the discount rate are presented in Section V of the report. As of July 1, 2017, the Plan's funded ratio of 68% (using a testing interest rate of 6.00% for all plans using the Optional funding policy), ratio of assets to benefits of 15.14, equity allocation of 61%, and 15-year projected funded ratio of 84%, resulted in a discount rate assumption of 6.50%.
- The Fund experienced an approximate annualized return of 11.29% on the market value of assets during the plan year ended June 30, 2017, which compares to the expected annualized return of 6.50%. The difference in actual versus expected return produced an asset (gain)/loss of (\$231,015).
- An actuarial valuation is based on the expectation of certain events such as salary increases, retirement, disability, mortality, termination and cost of living increases. Demographic or liability experience (gains)/losses are generated when the actual occurrence of such events differs from the expectation. During the plan year ended June 30, 2017, the fund experienced a net liability (gain)/loss of (\$209,738) due to these events.



Optional Funding

Following are additional remarks on the actuarial valuation projections under the current funding policy:

Based on the closed group projections shown in Table 1, page II-1 and assuming that the sponsor makes the statutory required contributions, if all actuarial assumptions are realized in the future, including an investment return of 6.50%:

- The funded ratio is projected to increase from 72% at June 30, 2017, to 85% at June 30, 2027, and 100% at June 30, 2036.
- Employer contributions are expected to decrease steadily from \$108,655 for the fiscal year end June 30, 2019, to \$18,624 for fiscal year end June 30, 2035.

This actuarial valuation assumes that the City will be able to make future contributions on a timely basis. The ability of the Plan to become fully funded is heavily dependent on the City contributing the minimum employer contribution calculated under the Optional funding policy for each and every future year. We did not perform an analysis of the ability of the City to make future contributions. Such an analysis is not within the scope of our assignment or within our analytical skill set. Failure to receive City contributions on a timely basis could jeopardize the sustainability of the Plan.

Please understand that the minimum employer contribution calculated under the Optional funding policy as defined in West Virginia Code §8-22-20 (e)(1) is just that – the minimum that needs to be contributed each and every year. Because this is an underfunded Plan, we recommend that the plan sponsor consider making additional contributions (in excess of the minimum requirement) to ensure that there are sufficient assets available in the fund in all years to pay the promised benefits.

If the minimum employer contributions (calculated under the Optional funding policy) are not made or the investment return is less than the assumption of 6.50%, the funded ratio will be lower and the cash flow strain will be higher. If another significant market downtown occurs while the plan's funded ratio is low, the plan may need to liquidate a large amount of assets in order to pay benefits which could have a further adverse effect on the funded status of the Plan.

Under the Optional funding policy, the following experience could cause City contributions to change during the year:

- If the actual return on assets is *less* than the assumed return of 6.50%, then contributions will generally *increase*. Conversely, if the actual return is *greater* than the assumed return, contributions will generally *decrease*.
- If salaries *increase* by more than assumed, contributions could *increase*. If salaries *decrease* by more than assumed, contributions could *decrease*.
- If active members retire *sooner* than expected, contributions will generally *increase*. If active members retire *later* than expected, contributions will generally *decrease*.
- If active members become disabled during the year, contributions could increase.



- If retired members die *later* than expected, contributions will *increase*. If retired members die *sooner* than expected, contributions will *decrease*.
- If the general inflation is *greater* than assumed, supplemental benefits will be greater than assumed and contributions will *increase*. Conversely, if general inflation is *lower* than assumed, contributions will *decrease*.

At least once every five years, GRS performs an experience review analysis and updates the actuarial valuation assumptions. For example, if salary increases were consistently lower than assumed during the experience period, then the salary increase rate would likely be lowered. Or if more members retired than assumed, then the retirement rates would likely be increased. Any change in actuarial assumption will also impact the City's funded ratio. The objective of a change in assumptions is to reduce the level of experience gains and losses in future actuarial valuations.



Schedule A: Summary of Key Valuation Results

Valuation Date		July 1, 2016		July 1, 2017
Valuation Date Valuation Interest Rate		6.50%		6.50%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		\$440,540		\$394,511
Average Pay		\$48,949		\$49,314
Expected Benefit Payments		\$305,968		\$354,949
Actuarial Accrued Liability	No	, ,	No	, , -
·	<u>No.</u>	4	No.	
(a) Actives	9	\$2,607,704	8	\$2,372,363
(b) Retirees	6	\$2,464,777	8	\$3,733,190
(c) Survivors	6	\$799,119	7	\$910,113
(d) Disabled Members	0	\$0	0	\$0
(e) Deferred Vested Members	3	\$1,455,820	1	\$425,639
(f) Total	24	\$7,327,420	24	\$7,441,305
2. Present Value of Future Normal Costs		\$1,066,439		\$970,578
3. Present Value of Benefits (1(f) + 2)		\$8,393,859		\$8,411,883
4. Market Value of Assets		\$4,823,799		\$5,373,640
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		\$2,503,621		\$2,067,665
6. Funded Ratio (4 / 1(f))		65.83%		72.21%
7. Net Employer Normal Cost				
(a) Normal Cost		\$152,307		\$135,571
(b) Administrative Expenses		\$456		\$700
(c) Gross Normal Cost (a + b)		\$152,763		\$136,271
(d) Employee Contribution Rate ^a		7.00%		7.00%
(e) Expected Employee Contributions		\$30,838		\$27,616
(f) Net Employer Normal Cost (c - e)		\$121,925		\$108,655
(% of Compensation)		27.68%		27.54%
8. Estimated Minimum Employer Contribution ^b		FYE 2018		FYE 2019
(a) Expected Payroll	_	\$440,540		\$394,511
(b) Estimated Employer Normal Cost		\$121,925		\$108,655
(c) Employer Normal Cost Rate		27.68%		27.54%
(d) Amortization of Unfunded Actuarial Liability		\$179,455		\$149,548
(e) State Insurance Premium Tax Allocation	_	\$144,576	_	\$152,716
(f) Estimated Employer Contribution ^c (b + d - e)		\$156,804		\$108,655

^a Blended rate reflecting 7.0% for members hired before January 1, 2010.



^b Estimated Minimum Employer Contribution is based on Optional funding policy and is assumed to be made in plan year ending June 30, 2019. The actual Minimum Employer Contribution will be based on actual payroll for plan year ended June 30, 2018.

^c The Employer Contribution cannot be less than the Employer Normal Cost.

Schedule B: (Gain)/Loss Analysis

Experience (Gain)/Loss for Plan Year Ended June 30, 2017	
1. (a) Actuarial Accrued Liability as of 7/1/2016	\$7,327,420
(b) Normal Cost due 7/1/2016	\$152,307
(c) Interest on (a) and (b) to 6/30/2017	\$481,232
(d) Benefit Payments with interest to 6/30/2017	\$309,916
(e) Effect of Assumption Changes	\$0
(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	\$7,651,043
(g) Actual Liability at 7/1/2017	\$7,441,305
(h) Liability (Gain)/Loss [(g) - (f)]	(\$209,738)
2. (a) Market Value of Assets as of 7/1/2016	\$4,823,799
(b) Interest on (a) to 6/30/2017	\$313,547
(c) Contributions with interest to 6/30/2017	\$315,195
(d) Benefit Payments with interest to 6/30/2017	\$309,916
(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	\$5,142,625
(f) Actual Assets at 7/1/2017	\$5,373,640
(g) Asset (Gain)/Loss [(e) - (f)]	(\$231,015)
3. Total (Gain)/Loss [1(h) + 2(g)]	(\$440,753)





ACTUARIAL PROJECTIONS

Actuarial Projections, Table 1

Valuation			Total Assets										
Plan	Nu	mber						Premium Tax			Actuarial		
Year End		Pay	Assets	Benefit		Employer	Member	Allocation	Investment	Assets	Accrued	Unfunded	Funded
30-Jun	Active	Status	(boy)	Payments	Expenses	Contributions	Contributions	Contributions	Income	(eoy)	Liability	Liability	Ratio
2017	8	16	\$4,823,799	\$300,161	\$681	\$128,950	\$31,859	\$144,465	\$545,409	\$5,373,640	\$7,441,305	\$2,067,665	72%
2018	7	16	5,373,640	354,949	700	156,804	27,616	144,576	348,434	5,695,421	7,698,565	2,003,144	74%
2019	7	17	5,695,421	388,566	709	108,655	26,551	152,716	366,961	5,961,029	7,931,638	1,970,609	75%
2020	6	17	5,961,029	402,729	717	103,674	25,755	159,259	383,796	6,230,066	8,160,562	1,930,496	76%
2021	5	17	6,230,066	421,130	725	99,965	24,775	162,953	400,662	6,496,566	8,380,167	1,883,601	78%
2022	5	18	6,496,566	449,863	734	95,860	22,781	167,556	417,017	6,749,184	8,574,275	1,825,091	79%
2023	4	18	6,749,184	485,530	743	88,082	20,095	172,481	432,120	6,975,689	8,730,844	1,755,155	80%
2024	3	18	6,975,689	515,003	751	77,857	17,892	177,755	445,670	7,179,108	8,856,235	1,677,127	81%
2025	3	18	7,179,108	533,717	760	69,439	16,789	182,068	458,128	7,371,055	8,964,935	1,593,880	82%
2026	3	18	7,371,055	547,128	768	65,194	16,158	186,098	470,147	7,560,756	9,063,700	1,502,944	83%
2027	3	18	7,560,756	557,934	776	62,797	15,913	190,013	482,173	7,752,942	9,156,613	1,403,671	85%
2028	2	18	7,752,942	572,323	784	61,941	14,990	193,890	494,272	7,944,928	9,235,552	1,290,624	86%
2029	2	18	7,944,928	590,632	792	57,880	13,534	198,936	506,150	8,130,004	9,292,451	1,162,447	87%
2030	1	18	8,130,004	609,791	800	51,328	11,824	203,495	517,448	8,303,508	9,323,657	1,020,149	89%
2031	1	18	8,303,508	629,734	808	43,712	9,843	208,756	527,949	8,463,227	9,325,204	861,977	91%
2032	1	18	8,463,227	647,784	815	34,955	8,018	213,719	537,573	8,608,892	9,297,938	689,046	93%
2033	1	18	8,608,892	660,646	823	26,804	6,686	219,142	546,500	8,746,556	9,248,052	501,496	95%
2034	1	17	8,746,556	665,255	830	20,802	6,229	223,810	555,243	8,886,555	9,187,424	300,869	97%
2035	1	17	8,886,555	667,340	837	18,624	6,004	228,735	564,357	9,036,098	9,119,225	83,127	99%
2036	1	17	9,036,098	669,898	844	17,416	5,682	84,149	569,321	9,041,924	9,041,924	0	100%
2037	0	17	9,041,924	686,452	851	11,691	4,288	0	566,250	8,936,850	8,936,850	0	100%
2038	0	17	8,936,850	704,115	857	7,655	2,688	0	558,675	8,800,896	8,800,896	0	100%
2039	0	16	8,800,896	708,749	864	5,789	1,950	0	549,606	8,648,629	8,648,629	0	100%
2040	0	16	8,648,629	710,775	870	4,447	1,414	0	539,584	8,482,429	8,482,429	0	100%
2041	0	16	8,482,429	710,730	876	3,465	1,026	0	528,738	8,304,052	8,304,052	0	100%
2042	0	15	8,304,052	709,000	882	2,774	747	0	517,168	8,114,859	8,114,859	0	100%
2043	0	15	8,114,859	706,061	888	2,221	529	0	504,940	7,915,600	7,915,600	0	100%
2044	0	15	7,915,600	702,049	894	1,797	356	0	492,097	7,706,907	7,706,907	0	100%
2045	0	14	7,706,907	696,853	899	1,504	239	0	478,685	7,489,584	7,489,584	0	100%
2046	0	14	7,489,584	690,619	903	1,310	161	0	464,749	7,264,282	7,264,282	0	100%
2047	0	14	7,264,282	683,870	907	1,074	66	0	450,310	7,030,954	7,030,954	0	100%
2048	0	13	7,030,954	676,073	910	910	0	0	435,386	6,790,267	6,790,267	0	100%
2049	0	13	6,790,267	666,877	913	910	0	0	420,035	6,543,423	6,543,423	0	100%
2050	0	13	6,543,423	656,919	914	913	0	0	404,308	6,290,811	6,290,811	0	100%
2051	0	12	6,290,811	646,150	914	914	0	0	388,233	6,032,894	6,032,894	0	100%
2052	0	12	6,032,894	634,515	914	914	0	0	371,841	5,770,221	5,770,221	0	100%
2052	0	12	5,770,221	621,961	912	914	0	0	355,169	5,503,431	5,503,431	0	100%
2053	0	11	5,503,431	608,433	908	908	0	0	338,260	5,233,258	5,233,258	0	100%
2055	0	11	5,233,258	593,873	903	903	0	0	321,165	4,960,550	4,960,550	0	100%
2056	0	11	4,960,550	578,228	895	895	0	0	303,939	4,686,261	4,686,261	0	100%
2057	0	10	4,686,261	561,451	886	886	0	0	286,647	4,411,457	4,411,457	0	100%
	0			•		873	0	0				0	
2058	- 0	10	4,411,457	543,510	873	8/3	U	0	269,359	4,137,306	4,137,306	0	100%



Actuarial Projections, Table 2

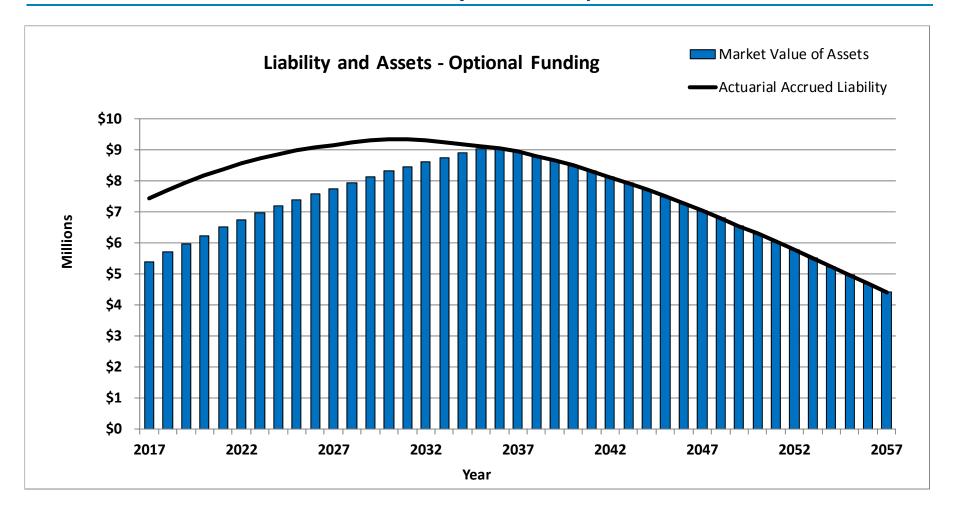
Employer Contributions

Valuation Plan	Closed	Active				Premium Tax			Employer
Year End	Group	Employee	Gross	Net Employer	Amortization	Allocation	Net Employer		Contribution
30-Jun ^a	Payroll	Contributions	Normal Cost	Normal Cost	of UAAL	Contributions	Amortization	Expenses	Closed Plan
2018	\$394,511	\$27,616	135,571	107,955	\$149,548	\$152,716	\$0	\$700	108,655
2019	379,298	26,551	129,516	102,965	146,291	159,259	0	709	103,674
2020	367,925	25,755	125,003	99,248	145,423	162,953	0	717	99,965
2021	353,930	24,775	119,910	95,135	144,070	167,556	0	725	95,860
2022	325,442	22,781	110,129	87,348	142,280	172,481	0	734	88,082
2023	287,070	20,095	97,209	77,114	139,669	177,755	0	743	77,857
2024	255,593	17,892	86,580	68,688	136,221	182,068	0	751	69,439
2025	239,846	16,789	81,223	64,434	132,160	186,098	0	760	65,194
2026	230,831	16,158	78,187	62,029	127,684	190,013	0	768	62,797
2027	227,335	15,913	77,078	61,165	122,565	193,890	0	776	61,941
2028	214,144	14,990	72,086	57,096	116,705	198,936	0	784	57,880
2029	193,348	13,534	64,070	50,536	109,586	203,495	0	792	51,328
2030	168,910	11,824	54,736	42,912	100,987	208,756	0	800	43,712
2031	140,621	9,843	43,990	34,147	90,865	213,719	0	808	34,955
2032	114,539	8,018	34,007	25,989	78,900	219,142	0	815	26,804
2033	95,513	6,686	26,665	19,979	64,985	223,810	0	823	20,802
2034	88,982	6,229	24,023	17,794	48,876	228,735	0	830	18,624
2035	85,772	6,004	22,583	16,579	30,404	84,114	0	837	17,416
2036	81,173	5,682	20,620	14,938	0	0	0	844	11,691
2037	61,250	4,288	15,126	10,838	0	0	0	851	7,655
2038	38,402	2,688	9,483	6,795	0	0	0	857	5,789
2039	27,860	1,950	6,879	4,929	0	0	0	864	4,447
2040	20,206	1,414	4,990	3,576	0	0	0	870	3,465
2041	14,651	1,026	3,618	2,592	0	0	0	876	2,774
2042	10,673	747	2,636	1,889	0	0	0	882	2,221
2043	7,559	529	1,867	1,338	0	0	0	888	1,797
2044	5,085	356	1,257	901	0	0	0	894	1,504
2045	3,421	239	845	606	0	0	0	899	1,310
2046	2,301	161	568	407	0	0	0	903	1,074
2047	937	66	231	165	0	0	0	907	910
2048	0	0	0	0	0	0	0	910	910
2049	0	0	0	0	0	0	0	913	913
2050	0	0	0	0	0	0	0	914	914
2051	0	0	0	0	0	0	0	914	914
2052	0	0	0	0	0	0	0	914	914
2053	0	0	0	0	0	0	0	912	908
2054	0	0	0	0	0	0	0	908	903
2055	0	0	0	0	0	0	0	903	895
2056	0	0	0	0	0	0	0	895	886
2057	0	0	0	0	0	0	0	886	873

^a Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year.
^b Amount required to remain at 100% funded.

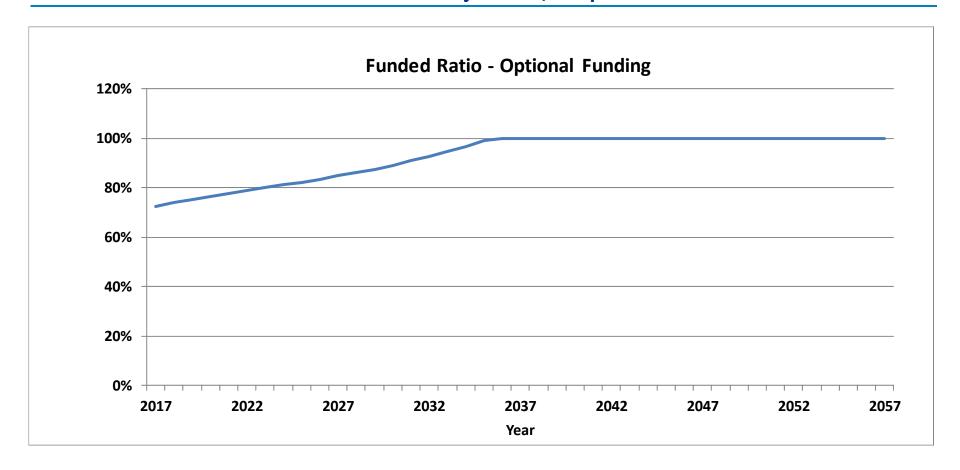


Actuarial Projections, Graph 1



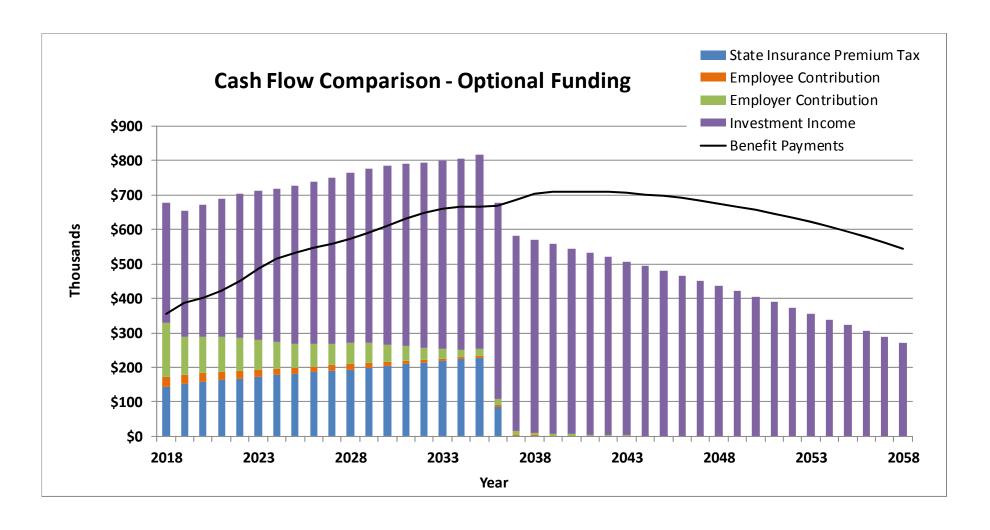


Actuarial Projections, Graph 2





Actuarial Projections, Graph 3





SECTION III

ACTUARIALLY DETERMINED CONTRIBUTION FOR GASB STATEMENT Nos. 67 and 68 Reporting

Actuarially Determined Contribution for GASB Statement Nos. 67 and 68 Reporting Schedule C: Funding Progress and Employer Contributions

Valuation Date	July 1, 2016	July 1, 2017
Valuation Interest Rate	6.50%	6.50%
Cost-of-Living Adjustment	2.75%	2.75%
Wage Inflation	3.75%	3.75%
Actuarial Value of Assets	Market	Market
Actuarial Cost Method	Entry Age Normal	Entry Age Normal
Remaining Amortization Period ^a	24 Years, Level % of Pay	23 Years, Level % of Pay
Schedule of Funding Progress		
Actuarial Valuation Date	July 1, 2016	July 1, 2017
1. Market Value of Assets	\$4,823,799	\$5,373,640
2. Actuarial Accrued Liability	\$7,327,420	\$7,441,305
3. Unfunded Actuarial Accrued Liability (2 - 1)	\$2,503,621	\$2,067,665
4. Funded Ratio (1/2)	66%	72%
5. Expected Payroll	\$440,540	\$394,511
6. UAAL as Percentage of Covered Payroll (3/5)	568%	524%
Schedule of Employer Contributions ^c	FYE 2017	FYE 2018
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	\$121,925	\$108,655
(b) Amortization of Unfunded Actuarial Accrued Liability	\$138,649	\$118,089
(c) Actuarially Determined Contribution (ADC) (a + b)	\$260,574	\$226,744
2. Employer Contribution ^b	\$128,950	\$156,804
3. Premium Tax Allocation	\$144,465	\$144,576
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	105%	133%

Suggested amortization policy to comply with GASB Statement Nos. 67 and 68 Standards. Estimated employer contribution for fiscal year ended June 30, 2018.



^c Satisfies the Actuarially Determined Contribution as defined by GASB Statement Nos. 67 and 68.

SECTION IV

ACTUARIAL VALUATION DATA AS OF JULY 1, 2017

Actuarial Valuation Data as of July 1, 2017 Schedule D: Reconciliation of Assets

Plan Year Ending	June 30, 2016	June 30, 2017
A. Market Value of Assets Beginning of Year Adjustment to Market Value of Assets at Beginning of Year Market Value of Assets Beginning of Year	\$4,844,225 \$0 \$4,844,225	\$4,823,799 \$0 \$4,823,799
1. Revenue During Fiscal Year		
(a) Employee Contribution (b) Governmental Contribution	\$30,457	\$31,859
(i) From Local Government (ii) From State Government (iii) Reallocation from State Government (iv) Total (c) Earnings on Investments (i) Net Appreciation/(Depreciation) (ii) Bond Interest (iii) Dividends (iv) Net Realized Gain (Loss) on Sale/Exchange (v) Other (vi) Less Investment Expense (vii) Total (d) Other Revenue (e) Receivable Investment Income/(Expense)	\$101,449 \$120,275 \$0 \$221,724 (\$159,342) \$0 \$161,864 \$0 \$0 (\$13,673) (\$11,151) \$0 \$0	\$128,950 \$144,465 \$0 \$273,415 \$432,238 \$0 \$140,278 \$0 \$0 (\$27,107) \$545,409 \$0 \$0
(f) Receivable Contribution ^a (i) From Employee Contributions (ii) From Local Government (iii) From State Government (iv) Total (g) Total Revenue (sum of (a) through (f))	\$0 \$0 \$0 \$0 \$0 \$241,030	\$0 \$0 \$0 \$0 \$0 \$850,683
2. Expenditures During Fiscal Year		
 (a) Benefits Paid (b) Withdrawals (c) Administrative Expenses (d) Payable Benefits and Withdrawals (e) Payable Administrative Expenses (f) Total Expenditures (sum of (a) through (e)) 	\$261,000 \$0 \$456 \$0 \$0 \$261,456	\$300,161 \$0 \$681 \$0 \$0 \$300,842
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	\$4,823,799	\$5,373,640
C. Approximate Return on Assets	(0.24)%	11.29%

^a Receivable contributions for each respective plan year ending.



Actuarial Valuation Data as of July 1, 2017 Schedule E: Assets Held by Category

Plan Year Ending	June 30, 2016		June 30, 2017	
1. Cash and Short-term Investments	\$84,492	2%	\$61,533	1%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	\$2,058,479		\$0	
(b) US State and Local Governmental Debt Securities	\$0		\$0	
(c) Foreign Governmental Debt Securities	\$0		\$0	
(d) Other	\$0		\$0	
(e) Total Government Securities (sum of (a) through (d))	\$2,058,479	42%	\$0	0%
3. Corporate Fixed Income				
(a) US Bonds	\$0		\$0	
(b) US Mortgage or other Asset Backed Securities	\$0		\$0	
(c) US Mutual Fund Shares (Bonds)	\$0		\$2,048,365	
(d) US Exchange Traded Funds (Bonds)	\$0		\$0	
(e) International Bonds	\$0		\$0	
(f) International Mutual Fund Shares (Bonds)	\$0		\$0	
(g) International Exchange Traded Funds (Bonds)	\$0		\$0	
(h) Total Corporate Fixed Income (sum of (a) through (g))	\$0	0%	\$2,048,365	38%
4. Corporate Equity				
(a) US Equity	\$0		\$0	
(b) US Mutual Fund Shares (Equity)	\$1,263,062		\$1,695,666	
(c) US Exchange Traded Funds (Equity)	\$0		\$0	
(d) International Equity	\$0		\$0	
(e) International Mutual Fund Shares (Equity)	\$0		\$1,568,076	
(f) International Exchange Traded Funds (Equity)	\$1,417,766		\$0	
(g) Total Corporate Equity (sum of (a) through (f))	\$2,680,828	56%	\$3,263,742	61%
5. Alternative Investments				
(a) Real Estate Investment Trust	\$0		\$0	
(b) Private Equity Fund	\$0		\$0	
(c) Hedge Funds	\$0		\$0	
(d) Other Alternative Investments	\$0		\$0	
(e) Total Alternative Investments (sum of (a) through (d))	\$0	0%	\$0	0%
6. Other	\$0	0%	\$0	0%
7. Receivable Contributions				
(a) From Employee Contributions	\$0		\$0	
(b) From Local Government	\$0		\$0	
(c) From State Government	\$0		\$0	
(d) Total Receivable Contributions (sum of (a) through (c)) 8. Accruals	\$0	0%	\$0	0%
(a) Receivable (other than State and Local Contributions)	\$0		\$0	
(b) Less Payable	\$0		\$0	
(c) Total	\$0	0%	\$0	0%
Market Value of Assets End of Year [sum of (1) through (8)]	\$4,823,799		\$5,373,640	



Actuarial Valuation Data as of July 1, 2017 Schedule F: Summary of Participant Activity

	Actives	Retirees	Disabled	Deferred Vested	Spouses and Beneficiaries	Totals
Total Participants July 1, 2016:	9	6	0	3	6	24
New Actives:						0
Returned to Actives Status:						0
Data Corrections/Other Changes:		1		(1)		0
Vested Terminations:						0
Non-Vested Terminations:						0
Disabled:						0
Retirements:	(1)	2		(1)		0
Deaths with Beneficiary:		(1)			1	0
Deaths w/o Beneficiary:						0
Expired Annuity or Stop Payment:						0
Net Changes:	(1)	2	0	(2)	1	0
Total Participants June 30, 2017:	8	8	0	1	7	24



Actuarial Valuation Data as of July 1, 2017 Schedule G: Distribution of Active Employees by Age and Length of Service

Attained			Yea	ars of Servic	e to Valua	tion Date					٧	aluation
Age	Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals		Payroll ^a
Under 20)										\$	0
20-24											\$	0
25-29											\$	0
30-34			1							1	\$	50,753
35-39											\$	0
40-44			1		1					2	\$	111,225
45-49			1		2	2				5	\$	238,520
50-54											\$	0
55-59											\$	0
60-64											\$	0
65-69											\$	0
Over 70											\$	0
Totals	0	0	3	0	3	2	0	0	0	8	\$	400,497
		Averages										
		Age:		43.8	years							
		Service:			years							
		Annual Pa	ıy:	\$50,062								
			-	+50,5 0								

^a Based on payroll at beginning of plan year.



Actuarial Valuation Data as of July 1, 2017 Schedule H: Participants Summary

Active Participants	July 1, 2016	July 1, 2017	
Number of Actives	9	8	
Total Annual Pay	\$442,760	\$400,497	
Average Age	43.8	43.8	
Average Service	14.6	15.0	

Inactive Participants	J	uly 1, 2016	July 1, 2017		
Туре	No.	Annual Benefit	No.	Annual Benefit	
Retirees	6	\$180,500	8	\$249,231	
Survivors	6	\$72,862	7	\$87,340	
Disabled Members	0	\$0	0	\$0	
Deferred Vested Members	3	\$88,525	1	\$26,005	





ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions and Methods Used in the Valuation as of July 1, 2017

Discount Rate

The following table outlines the factors used to determine the discount rate:

Funded Ratio as of Valuation Date ¹	Liquidity Ratio ²	Equity Exposure ³	Projected Funded Ratio after 15 Years ¹	Discount Rate
60% or more	10	50% or more	70% or more	6.5%
40% or more	8	40% or more	60% or more	6.0%
30% or more	6	30% or more	50% or more	5.5%
15% or more	4	n/a	40% or more	5.0%
Less than 15%	n/a	n/a	15% or more	4.5%
Less than 15%	n/a	n/a	Less than 15%	4.0%

¹Funded ratios based on a 6.0% investment return assumption for plans using an actuarially sound policy (standard or optional) and a 5.5% investment return assumption for other plans (alternative or conservation).

³Based on investment policy.

As of June 30, 2017				
Assets	\$5,373,640			
Liabilities using a 6.00% Discount Rate	\$7,939,321			
Funded Ratio	68%			
Expected Benefit Payments	\$354,949			
Liquidity Ratio	15.14			
Equity Exposure	61%			
Projected Funded Ratio after 15 years	84%			

Discount Rate



²Liquidity ratio equals assets as of the actuarial valuation date divided by expected benefit payments for the year.

The premium tax allocation is projected using the following methodology:

- (1) The Base Allocation for all Pension and Relief Funds is a fixed amount equal to \$8,709,689 in all future years. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible members, which includes active members covered in either the Pension and Relief Fund or the statewide plan, Municipal Police Officers and Firefighters Retirement System ("MPFRS").
- (2) The Excess Allocation is equal to the excess of the current year premium tax assigned to all Pension and Relief Funds over the total Base Allocation. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible active and retired members covered in either the Pension and Relief Fund or the MPFRS.
- (3) We have assumed all Pension and Relief Funds will make the minimum statutory contribution requirement and will receive 100% of both the Base Allocation and the Excess Allocation assigned to the individual plan. Consequently, the projections do not include any reallocation of Expired Premium Tax Allocation for plan years beginning on and after July 1, 2019.
- (4) The total available premium tax allocation, net of expenses, as of September 1, 2018, includes a Base Allocation of \$8,709,689, an Excess Allocation of \$9,570,473, and an Expired Premium Tax Allocation of \$237,031.
- (5) For the plan year ending June 30, 2018, all Pension and Relief Funds reported a total of 1,717 eligible active members and 2,165 eligible retired members. The City of Moundsville Policemen's Pension and Relief Fund reported 15 eligible active members and 16 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2018. The Fund is eligible to receive a premium tax allocation of \$152,716 for the fiscal year ending June 30, 2019.
- (6) The total premium tax allocation was assumed to increase by 2.75% in calendar years ending on and after 2019.



General Inflation	2.75%		
Expected Salary Increase	General Inflation: 2.75% plus		
	Wage Inflation Increment: 1.00% plus		
Service-based Increase:	Years of Service Increase 1 20.00% 2 6.50% 3 3.50% 4 2.75% 5-9 2.50% 10-29 2.00% 30-34 1.25% after 34 years of service 0.00%		
Post-retirement COLA	2.75% on first \$15,000 of Annual Benefit and on the accumulated supplemental pension amounts for prior years. Assumed to be payable to all members receiving payments.		
Increase in State Insurance Premium Tax Allocation	2.75% on and after year 1		
Cost Method	Entry-Age-Normal, Level-Percentage-of-Pay		
Amortization Policies: Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 30 – Year Closed Level- Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017).		
Standard Plans and former Standard Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from July 1, 1991 – 14 years remaining as of July 1, 2017)		
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 32.5 years remaining as of July 1, 2017). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017)		



Asset Method	Market Value		
Turnover	Sample Rates – Age Rates 25 9% 35 4% 45 2% 50 0%		
Retirement	Age Rates ^a 50 45% 51-55 30% 56-59 35% 60 100% a Terminated vested participants are assumed to retire at age 50.		
Mortality	Active: RP-2014 Blue Collar Healthy Employee ^b Post-Retirement: RP-2014 Blue Collar Healthy Annuitant Disabled: RP-2014 Blue Collar Healthy Annuitant set forward four years Tables above incorporate generational mortality improvement using MP-2014 2-dimensional mortality improvement scales b Assumes 10% of deaths are duty-related and 90% are non-duty related.		
Disability	Sample Rates – Age Rates ^c 30 0.22% 40 0.50% 50 0.79% ^c Assumes 60% duty related and 40% non-duty related. Also assumes 10% of non-duty disabled members receive a 20% reduction in benefits due to gainful employment.		
Percent Married	90%		
Spouse Age	Females 3 years younger than males		



Administrative Expenses	Plan year end June 30, 2018, expense based on
	plan year end June 30, 2017 expense increased
	by general inflation assumption. Future
	expenses assumed to increase by the general
Refunds Paid	inflation assumption. Assumes non-vested inactive members as of
Retunds Paid	
	July 1, 2017, with accumulated member
	contribution balances will receive a refund of
	their contributions during plan year end June
Data Adjustments and Assumptions	30, 2018. One member marked deferred vested as of
Data Adjustments and Assumptions	
	July 1, 2016 was corrected to be retired as of
Child Beneficiaries	July 1, 2016.
Ciliu Belieficiaries	Future survivor widow benefits are loaded by 12% to estimate impact of benefits provided to
	survivor children.
	The load assumes 90% of members are
	married with two children at time of death,
	and benefits for each child are paid for
	approximately 8 years.
General Projection Methodology	Closed group projections assume:
deneral Projection Methodology	(i) Salaries will increase and members will
	decrement as specified in the actuarial
	assumption section.
	(ii) Assets grow at the assumed rate of
	return.
	(iii) The sponsor makes the statutory
	required contribution on a timely
	bases.
	(iv) Non-vested members with
	accumulated plan balances as of July 1,
	2017, will receive a refund during plan
	year end June 30, 2018.
Decrement Timing	Mid-Year





SUMMARY OF PRINCIPAL PLAN PROVISIONS

Summary of Principal Plan Provisions Actuarial Valuation as of July 1, 2017

Employee Eligibility — All compensated employees of the Police Department hired before March 16, 2010 are eligible to participate in the City of Moundsville Policemen's Pension and Relief Fund.

Average Annual Compensation — The average of any three twelve-consecutive-month periods of employment which produces the highest average annual compensation.

Each twelve-consecutive-month annual compensation is limited to 120% of the *Average Adjusted Salary* received by the member in the two consecutive twelve-consecutive-month periods immediately preceding the twelve-consecutive-month period used in determining benefits.

The Average Adjusted Salary is base salary (exclusive of all overtime and other pay) of the year used in determining benefits multiplied by the ratio of total salary (includes all overtime and other pay) to base salary from the respective preceding twelve-consecutive-month period.

Determining Years of Service Credit (Credited Service**)** — The number of years that the member has contributed to the employees retirement and benefit fund.

Prior Military Service — A city may provide that members who have been honorably discharged from the military shall receive up to two years prior service credit for military service prior to their employment with the city.

Current Military Service — Any current member who has been on qualified military service in the armed forces of the United States with an honorable discharge may, within six months from his or her date of discharge, be given credit for continuous service in the paid police or fire department.

Any member who has served in active duty with the armed forces of the United States, whether prior to or subsequent to becoming a member of a paid police or fire department, shall receive one additional percent for each year so served in active military duty, up to a maximum of four additional percent.

Absence from the service because of sickness or injury for a period of two years or less shall not be construed as time out of service.

Contributions — Participating employees contribute 7.0% of compensation. Participating employees hired on or after January 1, 2010 contribute 9.5% of pay. The municipality has elected to contribute the minimum employer contribution under the Optional funding policy.

Normal Retirement — Members are eligible at the earlier of age 50 with 20 years of credited service or age 65.

Benefit Commencement — Annual retirement pension benefits commence upon retirement or upon the member attaining age fifty, whichever is later, payable in twelve monthly installments.



Summary of Principal Plan Provisions Actuarial Valuation as of July 1, 2017 (Continued)

Accrued Benefit — The annual retirement benefit equals 60% of average annual compensation, not less than \$6,000, plus an additional percentage of average annual compensation for service over 20 years equal to 2% for each year of service between 20 and 25 and 1% for each year of service between 25 and 30 years. Employees serving in the military are eligible for an additional 1% of average annual compensation for each year of military service up to four years. The maximum benefit is limited to 75% of average annual compensation. Benefits continue for life.

Disability Retirement — Members are eligible after earning five years of service. No service requirement if disability is service related.

The monthly disability benefit equals the greater of 60% of monthly salary at disability or \$500. Employees serving in the military are eligible for an additional benefit of 1% of monthly salary at disability for each year of military service up to four years. Disability benefits, when aggregated with monthly state workers compensation benefits, shall not exceed 100% of the member's monthly compensation at the time of disability. Benefits continue for life or until recovery.

Death Benefits — Members are eligible after earning five years of service. No service requirement if death is service related. Retirees and terminated vested participants are also eligible.

The benefit is equal to 60% of the participant's benefit, but not less than \$300 per month, payable to the spouse until death or remarriage. Other dependents (children, parents, brothers and sisters) are also eligible for death benefits. To each dependent child, twenty percent of the participant's benefit until the child attains 18 or marries; to each dependent orphaned child, 25 percent of the participant's benefit until the child attains 18 or marries; to each dependent parent, 10 percent of the participant's benefit for life, and to each dependent brother or sister, the sum of 50 dollars per month (but a total not to exceed \$100 per month) until such individual attains the age of 18 years or marries.

In no case shall the payments to the surviving spouse and children be reduced below 65 percent of the total amount paid to all dependents.

Supplemental Pension Benefits — All retirees, surviving beneficiaries and disability pensioners are eligible for automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefits equal the percentage increase in the Consumer Price Index, limited to 4% (2% for some disability retirees), multiplied by the sum of the allowable amount which is the first \$15,000 of the total annual benefits paid and the accumulated supplemental pension amounts for prior years.

Termination Benefits — Any member who terminates employment prior to retirement will be entitled to a refund of contributions without interest.

Refunds — Any member who terminates from their department without receiving a retirement pension shall be refunded all deductions made from his salary, without interest.

