



**Municipal Pensions
Oversight Board**

Municipal Policemen's and Firemen's Pension and Relief Funds of West Virginia

Consolidated Actuarial Valuation Report
for the Year Beginning July 1, 2022

Bolton

Submitted by:

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October 31, 2023

Mr. Blair Taylor
Executive Director
West Virginia Municipal Pensions Oversight Board
301 Eagle Mountain Road, Suite 251
Charleston, WV 25311

Re: Consolidated Actuarial Valuation Report for the Year Beginning July 1, 2022

Dear Mr. Taylor:

The purpose of this report is to provide the West Virginia Legislature's Joint Committee on Pensions and Retirement a summary of the results of the actuarial valuations for the 53 municipal policemen's and firemen's pension and relief funds.

Section I provides an executive summary of the key results of the 53 actuarial valuations. Section II provides background on the discount rate used to value liabilities and the rate used by each plan. Section III provides details of the valuation results for each plan and for all plans by funding policy, the development of the total gains and losses on liabilities and plan assets, and a summary of the combined assets for all the plans. Section IV provides a description of the requirements to receive the premium tax and to pay COLAs as well as the plans impacted by the solvency tests. Section V provides a description of the analysis provided in the individual reports regarding changes in funding policies. Section VI provides information regarding plans that adopted a Deferred Retirement Option Plan (DROP). Section VII provides some conclusions and recommendations. Sections VIII through X provide a summary of the census data, plan provisions, actuarial methods, and assumptions. Section XI provides a glossary of many of the terms used in this report.

The purpose of an actuarial valuation for each municipal pension and relief fund is to provide information on:

- The municipality's funding requirements for the fiscal year ending June 30, 2024, based on the selected funding policy
- The plan's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2024
- The plan's requirement to provide supplemental benefits for the plan year beginning July 1, 2024
- For plans that can change their funding policy, current and projected contribution requirements and funded statuses under other available funding policies.

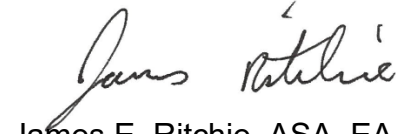
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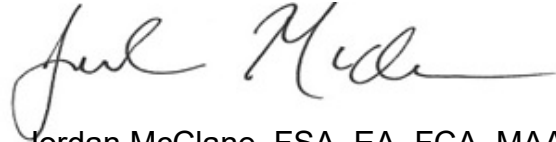
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We are available to answer any questions on the material in this report or to provide explanations or further details as appropriate.

Respectfully submitted,



James E. Ritchie, ASA, EA, FCA, MAAA



Jordan McClane, FSA, EA, FCA, MAAA



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Section I. Executive Summary

Background

Bolton has prepared a July 1, 2022 actuarial valuation for each of the 53 municipal policemen’s and firemen’s pension and relief funds (plans) that fall under the oversight of the Municipal Pensions Oversight Board (MPOB). The actuarial valuations were prepared in accordance with West Virginia Code §8-22-20 and §8-22-20a. This report summarizes the results of the 53 actuarial valuations and the requirements of those valuations are included by reference in this report.

The results for the valuations were generated 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.

Note that some columns and rows in the tables presented throughout this report may not add due to rounding.

Summary of Results

The following table presents a five-year summary of the total estimated pension contributions for all 53 pension plans.

(\$ in millions)	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Employee Contributions	\$ 6.3	\$ 6.3	\$ 5.9	\$ 6.1	\$ 6.3
Net City Contributions	\$ 52.5	\$ 52.7	\$ 47.1	\$ 47.7	\$ 43.5
Premium Tax Allocation	\$ 19.6	\$ 20.0	\$ 19.5	\$ 18.0	\$ 19.2
Total Contribution	\$ 78.4	\$ 79.0	\$ 72.6	\$ 71.8	\$ 68.9

The following table presents a five-year summary of the total liabilities, assets, and funded status for all 53 pension plans.

(\$ in millions)	July 1, 2018	July 1, 2019	July 1, 2020	July 1, 2021	July 1, 2022
Accrued Liability	\$ 1,572.8	\$ 1,605.6	\$ 1,550.9	\$ 1,545.6	\$ 1,511.7
Actuarial Asset Value	\$ 407.2	\$ 444.6	\$ 476.9	\$ 532.0	\$ 564.1
Unfunded Accrued Liability	\$ 1,165.5	\$ 1,161.0	\$ 1,074.1	\$ 1,013.7	\$ 947.6
Funding Percentage	26%	28%	31%	34%	37%



The following table presents a five-year summary of the aggregated estimated payments towards the total unfunded liability for all 53 pension plans.

(\$ in millions)	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
1. Normal Cost with Interest	\$ 36.7	\$ 35.3	\$ 30.1	\$ 29.0	\$ 27.9
2. Employee Contributions	\$ 6.3	\$ 6.3	\$ 5.9	\$ 6.1	\$ 6.3
3. Net Normal Cost with Interest (1. - 2.)	\$ 30.3	\$ 29.0	\$ 24.1	\$ 23.0	\$ 21.6
4. Net Normal Cost as a % of Payroll ¹	38%	37%	32%	30%	28%
5. Employer Contribution plus State Premium Tax	\$ 72.0	\$ 72.7	\$ 66.3	\$ 65.5	\$ 62.6
6. Unfunded Liability	\$ 1,165.5	\$ 1,161.0	\$ 1,074.1	\$ 1,013.7	\$ 947.6
7. Net Payment Toward Unfunded Liability (5. - 3.)	41.7	43.8	42.2	42.5	41.0
8. Percent of Unfunded Liability Expected to be Paid (7. / 6.)	3.6%	3.8%	3.9%	4.2%	4.3%

The following table presents the dollar-weighted average funded status since 2013 for the 53 plans by funding policy.

Funded Ratio	Standard Policy Plans		Optional Policy Plans from Standard		Optional Policy Plans from Alternative		Optional Policy Plans from Conservation		Alternative Policy Plans		Conservation Policy Plans		
	Year	No.	Average	No.	Average	No.	Average	No.	Average	No.	Average	No.	Average
	2022	3	64%	12	99%	17	50%	2	22%	16	29%	3	22%
	2021	4	77%	11	102%	15	47%	0	N/A	18	32%	5	17%
	2020	4	71%	11	94%	15	42%	0	N/A	18	29%	5	14%
	2019	4	68%	11	84%	15	37%	0	N/A	18	27%	5	12%
	2018	4	68%	11	80%	15	33%	0	N/A	18	26%	5	12%
	2017	5	65%	10	75%	14	32%	0	N/A	20	24%	4	11%
	2016	5	59%	10	69%	11	30%	0	N/A	25	21%	2	9%
	2015	5	62%	10	67%	10	28%	0	N/A	26	22%	2	9%
	2014	5	67%	10	71%	8	29%	0	N/A	28	26%	2	9%
	2013	8	55%	7	70%	5	23%	0	N/A	31	25%	2	8%

The table on the following page presents the dollar-weighted average net employer contribution (excluding the state premium tax allocation) as a percentage of payroll¹ since the fiscal year ending June 30, 2015 for the 53 plans by funding policy.

¹ The methodology for determining the dollar amount of the normal cost (NC) component of the contribution for municipalities using either the Standard, Optional, or Optional II funding policies is to multiply the NC rate developed in the actuarial valuation reports by the actual payroll for the fiscal year prior to the fiscal year in which the contribution is expected to be made. As such, the payroll used as the divisor for both the NC percentage and the employer contribution rate is the expected payroll for the fiscal year prior to the contribution year.

Employer Contribution Rate	Standard Policy Plans		Optional Policy Plans from Standard		Optional Policy Plans from Alternative		Optional Policy Plans from Conservation		Alternative Policy Plans		Conservation Policy Plans	
	Year	No.	Average	No.	Average	No.	Average	No.	Average	No.	Average	No.
2024	3	44%	12	22%	17	64%	2	112%	16	32%	3	81%
2023	4	35%	11	29%	15	76%	0	N/A	18	36%	5	114%
2022	4	39%	11	32%	15	79%	0	N/A	18	35%	5	105%
2021	4	45%	11	48%	15	100%	0	N/A	18	33%	5	99%
2020	4	41%	11	55%	15	102%	0	N/A	18	32%	5	87%
2019	4	41%	10	60%	14	106%	0	N/A	20	31%	4	85%
2018	4	47%	10	71%	14	111%	0	N/A	20	31%	4	87%
2017	4	37%	10	63%	11	106%	0	N/A	25	37%	2	85%
2016	4	28%	10	49%	10	86%	0	N/A	26	35%	2	73%
2015	4	36%	10	43%	8	88%	0	N/A	28	34%	2	67%

Experience Analysis

The plans collectively experienced a net actuarial loss of \$21.8 million, which comprises a loss on liabilities of \$19.6 million (1.3% of liabilities) and a loss on assets of \$2.2 million (0.4% of assets). The following were the primary causes of the gains and/or losses:

- In aggregate, salary for returning actives was approximately 4.4% larger than expected based on the assumptions, which contributed to the loss on liabilities.
- A COLA of 4.0% exceeded the 2.5% actuarial assumption, which also contributed to the loss on liabilities. The COLA is payable on the first \$15,000 of the original annual benefit and on prior COLAs.
- The weighted average returns on the market value of assets and actuarial value of assets were -10.9% and 5.2%, respectively, compared to the weighted average (by BOY asset value) discount rate of 5.6%. Returns less than anticipated by the discount rate assumption resulted in a loss on assets.

Offsetting the liability loss was a \$87.3 million (5.9% of liabilities) decrease in liabilities due to changes in the discount rate. Of the 13 plans that had a change in discount rate, 9 had increases in their discount rate.

Commentary on Actuarial Health of Plans

The total funded status, using the actuarial value of assets, of all plans combined is 37%. The funded status for each individual plan ranges from 10% (Martinsburg Fire) to 151% (Welch Police). Plans that use the Conservation funding policy and plans using the Optional from Conservation have the lowest funded ratio – a dollar-weighted average ratio of 22%. The dollar-weighted average funded ratio for plans that use the Alternative funding policy is 29%. Both of these funding policies result in contribution requirements that are expected to increase over time and are likely to increase at a higher rate than the municipalities’ revenues. The average annual expected increase in the employer contribution over the next 10 years for municipalities that use the Conservation funding policy is approximately 4% and the average annual increase for municipalities that use the Alternative funding policy is 7%. If a municipality’s revenues increase by a smaller percentage than these increases, the pension contributions will continue to become a larger percentage of the overall budget. Municipalities using either one of these methods run the risk of not being able to make the policy contributions in the future. If the municipality cannot sustain the future contribution amounts, the pension plans may eventually become insolvent, meaning that benefits may not get paid.

Plans that use either the Optional or Standard funding policy are better funded. The dollar-weighted average funded ratio, using the actuarial value of assets, for plans that use the Optional from Alternative funding policy is 50%. The dollar-weighted average funded ratio for plans that use the Optional from Standard funding policy or currently use the Standard policy is 99% and 64%, respectively. In addition, these plans are generally expected to experience a level or decreasing contribution as a percentage of payroll in the future.

Alternative Funding Policy

The Alternative funding policy does not adhere to actuarial principles generally considered necessary to be classified as a reasonable funding method. Alternative funding policy contributions will most likely increase at a much faster rate than payroll or municipality revenues, resulting in the pension plan encompassing a larger percentage of the city’s budget each year. That percentage could grow to an unsustainable level and, at some point in the future, the plan may be unable to pay the benefits promised to plan members.

The primary goal of a funding policy that adheres to actuarial principles is that member benefits are fully funded by the time the members retire. This results in matching the cost of the members’ benefits to the service they provide the municipality. To achieve a level cost allocation methodology, these benefits could be funded over the member’s career as either a level dollar amount or a level percentage of pay and the developed contribution could be composed of two components. The first component, the normal cost, represents the cost of the member earning an additional year of benefit accrual. The second component, the amortization of the unfunded liability, funds any shortfall in assets compared to plan liabilities over a specified number of years. If an employer is not funding at least the sum of the normal cost and the interest on the unfunded liability, then the unfunded liability will continue to grow and the plan could become insolvent in the future. Generally, the amortization of the unfunded liability should be over a period of no more than 20 to 25 years.

The following table shows a distribution of the 16 plans that use the Alternative policy segregated by whether their contributions cover the normal cost, the normal cost plus interest on the unfunded actuarial liability (UAL), and if the contributions cover the normal cost plus the interest on the unfunded actuarial liability, the table shows the number of years their current contribution level would take to pay off the unfunded actuarial liability, assuming all assumptions were met.

Amount Covered by Current Contribution	Number of Plans
Less than the Normal Cost	1
More than the Normal Cost but does not cover the interest on the UAL	13
Pays off UAL in more than 70 years	0
Pays off UAL in 60 to 69 years	1
Pays off UAL in 50 to 59 years	0
Pays off UAL in less than 50 years	1

Projected Funded Status

The following chart shows the percentage of plans by funding policy that are projected to be 100% funded by a certain year: 2031 for valuation dates prior to July 1, 2020 and the valuation year plus 16 years (15* year amortization policy plus 1 year to account for the difference between the contribution year and the valuation year) for valuation dates on or after July 1, 2020.

Percentage of Plans Projected to be 100% Funded by 16 th Anniversary of Valuation Date*						
Val Year	Standard	Optional from Standard	Optional from Alternative	Optional from Conservation	Alternative	Conservation
2022	100%	100%	18%	0%	6%	33%
2021	100%	100%	20%	N/A	6%	0%
2020	100%	100%	20%	N/A	11%	0%
2019	100%	100%	7%	N/A	0%	0%
2018	100%	100%	7%	N/A	0%	0%
2017	100%	100%	7%	N/A	0%	0%
2016	100%	100%	0%	N/A	4%	0%
2015	100%	100%	0%	N/A	4%	0%
2014	100%	100%	13%	N/A	18%	0%
2013	100%	100%	0%	N/A	19%	0%

* The amortization period for the unfunded liability as of July 1, 2019 for the Standard and Optional from Standard funding policies is linked to 2031, but any new (beginning with the July 1, 2020 valuation) annual gains and losses (due to investment return, demographics, assumption changes, or plan changes) create new amortization layers and are recognized over 15 years (5 years for plan changes) for all Standard and Optional funding policies. As such, for rows corresponding to years prior to 2020, the table shows the percentage of plans that were projected to be 100% funded by 2031, while for the 2020, 2021, and 2022 rows, the table shows the percentage of plans that are projected to be 100% funded by the valuation year plus 16 years.

Premium Tax and Supplemental Benefit (COLA) Eligibility

West Virginia Code §8-22-20 has been historically interpreted to require plans that use the Alternative funding policy to be projected to be solvent in the next 15 years in order to receive the State premium tax allocation. West Virginia Code §8-22-26a requires the actuary to certify that the minimum funding for actuarial soundness will be preserved if a COLA is granted for the year. The MPOB has interpreted this provision to mean that if a plan is projected to be solvent over the next 15 years, the COLA must be granted.

Plans that use the Standard, Optional, Optional II, and Conservation funding policies will always be projected to be solvent over the next 15 years so long as the municipalities make the required contribution under the respective funding policy. The solvency test applied to Alternative policy plans is that a plan's assets must be projected to be greater than \$0 for the next 15 years. This projection is performed on an open group basis for the premium tax allocation and closed group basis for granting the COLA. The rationale for using an open group basis for the premium tax and a closed group basis for the COLA is that the open group projection is generally an easier threshold for passing the solvency test compared to the closed group projection and receiving premium tax dollars generally has a positive impact on a plan's funded status, while granting COLAs lowers a plan's funded status.

No plans are required to make additional contributions for FYE 2024 to meet either one of the solvency tests.

Changes in Funding Policy

Plans that use the Alternative funding or the Conservation policy may change to the Optional or Optional II funding policies. Plans that use the Standard funding policy may change to the Optional funding policy. The individual actuarial valuations provide projections for plans that use the Alternative or Conservation funding policy that show the impact of switching to the Optional or Optional II funding policies in the next plan year or at a time in the future that may be fiscally advantageous for the plan to switch to either method.

The Alternative and Conservation funding policies do not follow actuarial principles for a reasonable funding policy. Under these funding policies, the contributions are generally expected to increase at a greater rate than payroll and municipality revenues, which will result in an increased burden to municipalities in the future. At some point, the municipalities may not be able to pay all of the benefits due from the plan. ***We recommend that municipalities consider switching to a more actuarially sound funding policy as soon as possible.***

Clarksburg Fire and Police switched from the Alternative funding policy to the Optional funding policy.

Charleston Fire and Police switched from the Conservation funding policy to the Optional funding policy.

Vienna Police switched from the Standard funding policy to the Optional funding policy.

Deferred Retirement Option Plan (DROPs)

West Virginia Code Section §8-22-25a(e) requires the MPOB to (1) annually report to the Legislature's Joint Committee on Pensions and Retirement the status of any Deferred Retirement Option Plans (DROPs) submitted to the MPOB for approval (i.e. prospective DROP analysis) and to (2) provide a report once every five years to the Legislature's Joint Committee on Pensions and Retirement on the status of each active Deferred Retirement Option Plan (i.e. retrospective DROP analysis).

No municipalities submitted a DROP proposal this past fiscal year, so no prospective studies were performed.

Additionally, this valuation cycle was not on the five-year interval for performing retrospective DROP studies and, as such, no retrospective studies were performed.

Changes in Methods, Assumptions, and Plan Amendments

There were 13 plans that had a change in the valuation discount rate.

Special Funding Situations

There are five funds for which the sponsoring cities approved the continued overpayment of miscalculated benefits. The five funds are Huntington Fire, Huntington Police, Morgantown Fire, Morgantown Police, and St. Albans Fire. For these five funds, we calculate the contribution under the relevant funding policy as if the payments were corrected and add to that contribution the expected overpayments for the contribution year on a pay-as-you-go basis pursuant to West Virginia Code 8-22-27a(d).



Summary of Plan Statistics

Plan	Active	Retired	Inactive	Total	Funding Policy	Open	Closed	Discount Rate	Return on Assets	AVA	UAAL	Funded Ratio
Beckley Fire	40	58	1	99	Alternative	O		4.75%	-8.01%	22,240,918	27,235,498	45%
Beckley Police	54	55	0	109	Alternative	O		5.50%	-7.89%	28,122,879	14,215,089	66%
Belle Police	0	5	0	5	Optional		C	7.00%	-5.20%	1,518,148	(165,873)	112%
Bluefield Fire	13	39	0	52	Alternative	O		5.00%	-14.71%	4,804,660	12,389,820	28%
Bluefield Police	26	31	1	58	Alternative	O		6.25%	-8.41%	8,503,671	5,246,405	62%
Charles Town Police	0	4	0	4	Standard		C	5.75%	-6.58%	566,830	482,829	54%
Charleston Fire	71	250	4	325	Optional		C	7.00%	-10.42%	29,813,137	117,007,582	20%
Charleston Police	77	224	3	304	Optional		C	7.00%	-4.95%	32,645,935	106,188,080	24%
Chester Police	2	5	0	7	Optional		C	7.00%	-4.69%	1,943,728	157,543	93%
Clarksburg Fire	45	55	2	102	Optional		C	6.25%	-11.51%	15,591,057	17,570,832	47%
Clarksburg Police	42	52	5	99	Optional		C	6.25%	-11.08%	15,542,687	11,502,259	57%
Dunbar Fire	9	24	1	34	Conservation		C	4.75%	-8.88%	2,429,950	12,618,765	16%
Dunbar Police	4	15	0	19	Optional		C	6.00%	-11.46%	6,845,451	1,480,517	82%
Elkins Fire	3	1	0	4	Optional		C	6.00%	-10.36%	2,386,213	(458,860)	124%
Elkins Police	3	11	0	14	Optional		C	6.25%	-11.36%	4,271,223	369,379	92%
Fairmont Fire	33	50	0	83	Conservation		C	4.25%	-7.41%	7,058,640	42,696,196	14%
Fairmont Police	16	48	5	69	Conservation		C	6.25%	-8.32%	10,159,259	14,628,773	41%
Grafton Fire	0	6	1	7	Optional		C	6.00%	-7.82%	1,985,850	237,727	89%
Grafton Police	1	6	0	7	Optional		C	6.00%	-5.83%	2,057,529	(377,891)	123%
Huntington Fire	48	160	6	214	Optional		C	5.50%	-9.60%	38,954,226	66,540,654	37%
Huntington Police	37	152	0	189	Optional		C	5.75%	-11.97%	48,536,566	58,689,007	45%
Logan Fire	7	0	1	8	Standard	O		6.50%	-18.63%	1,759,824	668,276	72%
Logan Police	7	4	1	12	Standard	O		6.50%	-19.61%	1,398,119	905,734	61%
Martinsburg Fire	35	36	10	81	Alternative	O		4.25%	-13.13%	3,922,072	35,399,020	10%
Martinsburg Police	45	39	10	94	Alternative	O		4.25%	-13.32%	10,590,226	36,166,677	23%
Morgantown Fire	55	62	0	117	Alternative	O		4.25%	-15.21%	15,023,516	41,233,274	27%
Morgantown Police	56	69	7	132	Alternative	O		4.25%	-15.24%	17,776,606	57,279,009	24%
Moundsville Fire	2	11	0	13	Optional		C	5.75%	-13.35%	1,708,477	1,159,923	60%
Moundsville Police	5	18	0	23	Optional		C	6.50%	-1.24%	5,985,987	2,628,886	69%
Nitro Fire	16	12	1	29	Alternative	O		4.25%	-9.20%	2,804,529	9,642,779	23%
Nitro Police	19	15	3	37	Alternative	O		4.75%	-11.25%	5,595,288	8,680,919	39%
Oak Hill Police	4	7	1	12	Optional		C	6.25%	-14.91%	5,267,830	(811,754)	118%
Parkersburg Fire	37	97	2	136	Optional		C	5.75%	-14.60%	26,104,441	33,420,257	44%
Parkersburg Police	40	86	8	134	Optional		C	5.75%	-15.38%	25,038,597	30,125,441	45%
Point Pleasant Police	2	8	0	10	Optional		C	7.00%	-13.37%	2,556,798	1,251,481	67%
Princeton Fire	12	18	4	34	Alternative	O		4.25%	-15.41%	3,141,425	9,230,730	25%
Princeton Police	18	20	2	40	Alternative	O		5.00%	-15.48%	5,254,827	8,511,355	38%
South Charleston Fire	51	47	7	105	Alternative	O		4.25%	-9.37%	4,780,457	38,478,291	11%
South Charleston Police	47	41	2	90	Alternative	O		4.25%	-10.57%	4,400,058	28,987,479	13%
St. Albans Fire	22	29	6	57	Alternative	O		4.25%	-14.72%	2,783,252	17,914,699	13%
St. Albans Police	24	24	10	58	Alternative	O		5.50%	-15.03%	8,446,223	8,721,261	49%
Star City Police	1	4	2	7	Optional		C	6.50%	-14.16%	2,310,172	(542,915)	131%
Vienna Police	19	18	4	41	Optional		C	6.50%	-12.61%	11,655,087	1,562,930	88%
Weirton Fire	18	20	0	38	Optional		C	6.50%	-12.65%	14,621,580	2,590,281	85%
Weirton Police	29	51	0	80	Optional		C	5.50%	-12.29%	11,720,985	22,847,786	34%
Welch Police	2	4	0	6	Optional		C	6.50%	-1.51%	3,418,115	(1,160,511)	151%
Weston Fire	3	4	0	7	Optional		C	6.25%	-11.97%	1,602,097	293,342	85%
Weston Police	3	3	0	6	Optional		C	6.25%	-9.14%	1,768,845	(194,546)	112%
Westover Police	1	6	0	7	Optional		C	6.25%	-15.07%	2,987,650	107,712	97%
Wheeling Fire	46	131	3	180	Optional		C	7.00%	-10.29%	39,768,976	25,880,236	61%
Wheeling Police	27	100	6	133	Optional		C	7.00%	-10.17%	30,231,545	15,981,474	65%
Williamson Fire	3	12	1	16	Optional		C	7.00%	-4.81%	2,103,675	1,497,169	58%
Williamson Police	3	8	0	11	Optional		C	7.00%	-4.75%	1,601,799	843,790	66%
Totals	1,183	2,255	120	3,558				5.67%	-10.92%	564,107,635	947,554,816	37%

Section II. Discount Rate

The discount rate is used to discount future benefit payments in order to determine the liability for a pension plan. The lower the discount rate used, the higher the liability will be. In general, a discount rate for a public pension plan is determined based on the weighted expected return of the various asset classes in the portfolio supporting the plan. Public pension plans that do not have assets or fund benefits from their general funds tend to use a discount rate that is similar to a municipal bond yield, which is usually much lower than the expected return on the asset portfolio. Because many of the pension plans under MPOB's oversight have funding percentages well below 50%, using the expected asset return to discount the liabilities may not be reasonable. Therefore, the MPOB has adopted a methodology for determining the discount rate that takes into consideration the funded status of the plans as well as the underlying asset allocation of the funds and the funding policy.

Discount Rate Distribution

The discount rate is determined based on a plan's funded status (current and projected), equity exposure, and funding policy. A more detailed description of the discount rate methodology can be found in *Section X. Actuarial Methods and Assumptions*. The following table provides the discount rate used for the July 1, 2022 valuation for each of the 53 pension plans.

Municipality	Plan	Discount Rate	Municipality	Plan	Discount Rate
Beckley	Fire	4.75%	Moundsville	Fire	5.75%
Beckley	Police	5.50%	Moundsville	Police	6.50%
Belle	Police	7.00%	Nitro	Fire	4.25%
Bluefield	Fire	5.00%	Nitro	Police	4.75%
Bluefield	Police	6.25%	Oak Hill	Police	6.25%
Charles Town	Police	5.75%	Parkersburg	Fire	5.75%
Charleston	Fire	7.00%	Parkersburg	Police	5.75%
Charleston	Police	7.00%	Point Pleasant	Police	7.00%
Chester	Police	7.00%	Princeton	Fire	4.25%
Clarksburg	Fire	6.25%	Princeton	Police	5.00%
Clarksburg	Police	6.25%	South Charleston	Fire	4.25%
Dunbar	Fire	4.75%	South Charleston	Police	4.25%
Dunbar	Police	6.00%	St. Albans	Fire	4.25%
Elkins	Fire	6.00%	St. Albans	Police	5.50%
Elkins	Police	6.25%	Star City	Police	6.50%
Fairmont	Fire	4.25%	Vienna	Police	6.50%
Fairmont	Police	6.25%	Weirton	Fire	6.50%
Grafton	Fire	6.00%	Weirton	Police	5.50%
Grafton	Police	6.00%	Welch	Police	6.50%
Huntington	Fire	5.50%	Weston	Fire	6.25%
Huntington	Police	5.75%	Weston	Police	6.25%
Logan	Fire	6.50%	Westover	Police	6.25%
Logan	Police	6.50%	Wheeling	Fire	7.00%
Martinsburg	Fire	4.25%	Wheeling	Police	7.00%
Martinsburg	Police	4.25%	Williamson	Fire	7.00%
Morgantown	Fire	4.25%	Williamson	Police	7.00%
Morgantown	Police	4.25%	Average ²		5.67%

² Weighted average by liabilities on valuation date.



Changes in Discount Rate

The following table lists the plans that had a change in their discount rate from the 2021 valuation to 2022 valuation.

Plan Name	2021 Discount Rate	2022 Discount Rate
Beckley Fire	5.50%	4.75%
Beckley Police	6.25%	5.50%
Charleston Fire	4.75%	7.00%
Charleston Police	5.25%	7.00%
Clarksburg Fire	6.00%	6.25%
Clarksburg Police	6.00%	6.25%
Dunbar Fire	4.25%	4.75%
Fairmont Police	5.50%	6.25%
Moundsville Fire	6.25%	5.75%
Nitro Police	5.00%	4.75%
Vienna Police	6.25%	6.50%
Wheeling Fire	6.00%	7.00%
Wheeling Police	6.00%	7.00%



Section III. Actuarial Valuation Results

Key Valuation Results by Funding Policy

Below is a summary of the key valuation results by funding policy as of July 1, 2022.

	Standard	Opt. from Stan.	Opt. from Alt.	Opt. From Con.	Alternative	Conservation	All Plans
Participating Plans	3	12	17	2	16	3	53
Plan Membership							
(a) Actives	14	40	390	148	533	58	1,183
(b) Retirees	5	54	648	312	375	89	1,483
(c) Survivors	3	17	239	89	141	24	513
(d) Disableds	0	9	89	73	79	9	259
(e) Deferred Vesteds	1	2	21	6	10	2	42
(f) Former Members Due Refunds	1	4	14	1	54	4	78
(g) Total	24	126	1,401	629	1,192	186	3,558
Payroll (Expected for FYE 2023)	643,868	2,419,480	25,070,594	11,322,191	34,276,930	3,733,700	77,466,763
Expected Benefit Payments	224,573	2,410,785	33,411,169	17,771,169	21,751,096	4,309,093	79,877,885
Actuarial Accrued Liabilities							
(a) Actives	2,860,652	12,292,874	161,783,549	73,029,465	187,381,840	33,369,978	470,718,358
(b) Retirees	1,987,078	23,777,442	335,692,176	162,341,040	249,767,784	48,053,869	821,619,389
(c) Survivors	703,077	2,664,200	41,231,315	17,042,430	28,779,998	3,818,809	94,239,829
(d) Disableds	0	2,636,246	31,375,393	29,717,356	32,542,496	3,601,678	99,873,169
(e) Deferred Vesteds	216,014	925,462	10,506,354	3,452,591	8,237,740	684,272	24,022,433
(f) Former Members Due Refunds	14,791	38,129	188,470	71,852	813,054	62,977	1,189,273
(g) Total Liabilities	5,781,612	42,334,353	580,777,257	285,654,734	507,522,912	89,591,583	1,511,662,451
Funded Levels							
Market Value of Assets	3,334,111	38,842,381	269,737,021	60,859,873	139,298,099	18,971,134	531,042,619
Actuarial Value of Assets	3,724,773	41,817,016	288,268,318	62,459,072	148,190,607	19,647,849	564,107,635
Unfunded Liability	2,056,839	517,337	292,508,939	223,195,662	359,332,305	69,943,734	947,554,816
Funded Ratio - MVA	58%	92%	46%	21%	27%	21%	35%
Funded Ratio - AVA	64%	99%	50%	22%	29%	22%	37%
Normal Cost							
Net Employer Normal Cost	121,548	413,514	5,746,111	1,937,616	11,616,769	1,314,143	21,149,701
(% of Payroll)	19%	18%	24%	18%	36%	36%	28%
FYE 2024 Contributions							
Total Employer Contributions	283,094	530,211	16,017,152	12,663,593	10,952,543	3,008,438	43,455,031
(% of Payroll)	44%	22%	64%	112%	32%	81%	56%
State Premium Tax Allocation	163,757	732,269	6,460,404	4,180,657	6,493,066	1,147,334	19,177,487
(% of Payroll)	25%	30%	26%	37%	19%	31%	25%
Employee Contributions	56,014	188,543	1,841,037	861,568	3,060,022	303,529	6,310,713
(% of Payroll)	9%	8%	7%	8%	9%	8%	8%
Total Contributions	502,865	1,451,023	24,318,593	17,705,818	20,505,631	4,459,301	68,943,231
Additional 2024 Solvency Contribution							
- To Receive State Allocation	-	-	-	-	-	-	-
- To provide COLA Benefits	-	-	-	-	-	-	-



Below is a summary of the key valuation results by funding policy as of July 1, 2021.

	Standard	Opt. from Stan.	Opt. from Alt.	Opt. From Con.	Alternative	Conservation	All Plans
Participating Plans	4	11	15	-	18	5	53
Plan Membership							
(a) Actives	32	22	337	-	622	223	1,236
(b) Retirees	14	44	571	-	430	398	1,457
(c) Survivors	5	14	220	-	173	121	533
(d) Disableds	5	4	77	-	97	85	268
(e) Deferred Vesteds	3	0	16	-	13	9	41
(f) Former Members Due Refunds	<u>3</u>	<u>3</u>	<u>10</u>	-	<u>49</u>	<u>6</u>	<u>71</u>
(g) Total	62	87	1,231	-	1,384	842	3,606
Payroll (Expected for FYE 2022)	1,691,668	1,233,126	20,743,775	-	36,063,677	15,733,824	75,466,070
Expected Benefit Payments	781,060	1,766,791	28,654,941	-	23,831,625	21,503,663	76,538,080
Actuarial Accrued Liabilities				-			
(a) Actives	7,966,266	6,822,337	146,760,506	-	191,170,020	134,260,188	486,979,317
(b) Retirees	6,571,928	18,168,308	293,817,195	-	266,254,585	242,417,561	827,229,577
(c) Survivors	1,199,248	2,108,131	36,837,049	-	31,068,095	24,044,649	95,257,172
(d) Disableds	1,641,836	1,208,744	28,847,722	-	36,433,662	41,716,227	109,848,191
(e) Deferred Vesteds	926,448	0	8,425,055	-	9,382,014	6,460,585	25,194,101
(f) Former Members Due Refunds	<u>7,746</u>	<u>84,210</u>	<u>279,038</u>	-	<u>574,966</u>	<u>155,471</u>	<u>1,101,432</u>
(g) Total Liabilities	18,313,472	28,391,730	514,966,565	-	534,883,342	449,054,681	1,545,609,790
Funded Levels							
Market Value of Assets	15,601,439	31,680,260	271,856,699	-	188,985,380	83,159,495	591,283,273
Actuarial Value of Assets	14,068,958	29,092,028	244,501,155	-	169,626,944	74,662,195	531,951,280
Unfunded Liability	4,244,514	(700,298)	270,465,410	-	365,256,398	374,392,486	1,013,658,510
Funded Ratio - MVA	85%	112%	53%	-	35%	19%	38%
Funded Ratio - AVA	77%	102%	47%	-	32%	17%	34%
Normal Cost							
Net Employer Normal Cost	313,673	250,922	5,227,288	-	11,612,615	5,266,052	22,670,550
(% of Payroll)	19%	21%	26%	-	34%	34%	31%
FYE 2023 Contributions							
Total Employer Contributions	598,936	353,174	15,785,206	-	13,080,819	17,928,417	47,746,552
(% of Payroll)	35%	29%	76%	-	36%	114%	63%
State Premium Tax Allocation	310,102	435,086	6,422,507	-	6,413,012	4,421,273	18,001,980
(% of Payroll)	18%	35%	31%	-	18%	28%	24%
Employee Contributions	141,261	91,113	1,423,302	-	3,211,213	1,196,147	6,063,036
(% of Payroll)	8%	7%	7%	-	9%	8%	8%
Total Contributions	1,050,299	879,373	23,631,015	-	22,705,044	23,545,837	71,811,568
Additional 2023 Solvency Contribution							
- To Receive State Allocation	-	-	-	-	-	-	-
- To provide COLA Benefits	-	-	-	-	-	-	-



Key Valuation Results by Municipality

Below is a summary of the key valuation results for each individual municipality as of July 1, 2022.

	Beckley Fire	Beckley Police	Belle Police	Bluefield Fire	Bluefield Police	Charles Town Police
Discount Rate	4.75%	5.50%	7.00%	5.00%	6.25%	5.75%
Plan Membership						
(a) Actives	40	54	0	13	26	0
(b) Retirees	40	32	3	23	17	1
(c) Survivors	13	13	2	9	11	3
(d) Disableds	5	10	0	7	3	0
(e) Deferred Vesteds	1	0	0	0	0	0
(f) Former Members Due Refunds	0	0	0	0	1	0
(g) Total	99	109	5	52	58	4
Payroll (Expected for FYE 2023)	3,249,430	3,448,087	0	674,406	1,208,136	0
Expected Benefit Payments	2,333,848	1,850,644	139,518	967,472	829,342	89,953
Actuarial Accrued Liabilities						
(a) Actives	17,250,037	15,947,066	0	2,094,433	3,386,587	0
(b) Retirees	27,109,573	20,060,974	1,044,663	11,059,886	8,017,323	346,582
(c) Survivors	2,447,773	2,781,734	307,612	1,451,799	1,546,910	703,077
(d) Disableds	1,934,754	3,548,194	0	2,588,362	795,749	0
(e) Deferred Vesteds	734,279	0	0	0	0	0
(f) Former Members Due Refunds	0	0	0	0	3,507	0
(g) Total Liabilities	49,476,416	42,337,968	1,352,275	17,194,480	13,750,076	1,049,659
Funded Levels						
Market Value of Assets	21,630,738	26,974,092	1,497,339	4,553,550	8,147,169	523,573
Actuarial Value of Assets	22,240,918	28,122,879	1,518,148	4,804,660	8,503,671	566,830
Unfunded Liability	27,235,498	14,215,089	-165,873	12,389,820	5,246,405	482,829
Funded Ratio - MVA	44%	64%	111%	26%	59%	50%
Funded Ratio - AVA	45%	66%	112%	28%	62%	54%
Normal Cost						
Net Employer Normal Cost	1,009,611	751,340	377	216,364	232,039	998
(% of Payroll)	39%	24%	N/A	33%	20%	N/A
FYE 2024 Contributions						
Total Employer Contributions	1,010,779	771,424	400	624,434	506,577	60,248
(% of Payroll)	31%	22%	N/A	93%	42%	N/A
State Premium Tax Allocation	569,374	641,200	0	250,409	327,272	13,168
(% of Payroll)	18%	19%	N/A	37%	27%	N/A
Employee Contributions	233,631	285,747	0	65,254	119,048	0
(% of Payroll)	7%	8%	N/A	10%	10%	N/A
Total Contributions	1,813,784	1,698,371	400	940,097	952,897	73,416
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-8.01%	-7.89%	-5.20%	-14.71%	-8.41%	-6.58%
Funding Policy	Alternative	Alternative	Optional	Alternative	Alternative	Standard



	Charleston Fire	Charleston Police	Chester Police	Clarksburg Fire	Clarksburg Police	Dunbar Fire
Discount Rate	7.00%	7.00%	7.00%	6.25%	6.25%	4.75%
Plan Membership						
(a) Actives	71	77	2	45	42	9
(b) Retirees	169	143	3	36	27	18
(c) Survivors	44	45	2	14	15	1
(d) Disableds	37	36	0	5	10	5
(e) Deferred Vesteds	3	3	0	1	0	0
(f) Former Members Due Refunds	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>5</u>	<u>1</u>
(g) Total	325	304	7	102	99	34
Payroll (Expected for FYE 2023)	5,503,556	5,818,635	113,898	2,345,856	2,536,133	547,206
Expected Benefit Payments	9,302,091	8,469,078	148,483	1,798,585	1,586,703	762,831
Actuarial Accrued Liabilities						
(a) Actives	34,976,572	38,052,893	179,883	13,670,094	7,835,414	3,176,417
(b) Retirees	86,931,618	75,409,422	1,520,745	15,570,099	14,418,335	8,955,630
(c) Survivors	8,084,522	8,957,908	400,643	1,916,187	2,571,650	145,658
(d) Disableds	14,997,874	14,719,482	0	1,423,217	2,215,278	2,758,632
(e) Deferred Vesteds	1,758,281	1,694,310	0	581,045	0	0
(f) Former Members Due Refunds	<u>71,852</u>	<u>0</u>	<u>0</u>	<u>1,247</u>	<u>4,269</u>	<u>12,378</u>
(g) Total Liabilities	146,820,719	138,834,015	2,101,271	33,161,889	27,044,946	15,048,715
Funded Levels						
Market Value of Assets	28,477,357	32,382,516	1,934,404	14,456,589	14,822,596	2,269,473
Actuarial Value of Assets	29,813,137	32,645,935	1,943,728	15,591,057	15,542,687	2,429,950
Unfunded Liability	117,007,582	106,188,080	157,543	17,570,832	11,502,259	12,618,765
Funded Ratio - MVA	19%	23%	92%	44%	55%	15%
Funded Ratio - AVA	20%	24%	93%	47%	57%	16%
Normal Cost						
Net Employer Normal Cost	1,042,701	894,915	16,556	554,023	451,060	203,564
(% of Payroll)	20%	16%	15%	24%	18%	38%
FYE 2024 Contributions						
Total Employer Contributions	6,793,547	5,870,046	16,909	1,270,262	789,935	538,241
(% of Payroll)	123%	101%	15%	54%	31%	98%
State Premium Tax Allocation	2,135,874	2,044,783	51,101	555,861	501,076	195,307
(% of Payroll)	39%	35%	45%	24%	20%	36%
Employee Contributions	425,842	435,726	10,473	187,737	217,642	47,948
(% of Payroll)	8%	7%	9%	8%	9%	9%
Total Contributions	9,355,263	8,350,555	78,483	2,013,860	1,508,653	781,496
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-10.42%	-4.95%	-4.69%	-11.51%	-11.08%	-8.88%
Funding Policy	Optional	Optional	Optional	Optional	Optional	Conservation



	Dunbar Police	Elkins Fire	Elkins Police	Fairmont Fire	Fairmont Police	Grafton Fire
Discount Rate	6.00%	6.00%	6.25%	4.25%	6.25%	6.00%
Plan Membership						
(a) Actives	4	3	3	33	16	0
(b) Retirees	10	0	9	40	31	5
(c) Survivors	1	1	2	9	14	0
(d) Disableds	4	0	0	1	3	1
(e) Deferred Vesteds	0	0	0	0	2	0
(f) Former Members Due Refunds	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>1</u>
(g) Total	19	4	14	83	69	7
Payroll (Expected for FYE 2023)	249,784	177,250	175,244	2,141,021	1,045,473	0
Expected Benefit Payments	472,696	42,832	372,340	1,977,532	1,568,730	189,189
Actuarial Accrued Liabilities						
(a) Actives	1,757,579	1,725,986	485,322	25,129,038	5,064,523	0
(b) Retirees	4,863,771	0	3,772,117	23,230,557	15,867,682	1,946,320
(c) Survivors	109,386	201,367	383,163	1,215,163	2,457,988	0
(d) Disableds	1,595,232	0	0	180,078	662,968	240,575
(e) Deferred Vesteds	0	0	0	0	684,271	0
(f) Former Members Due Refunds	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>50,600</u>	<u>36,682</u>
(g) Total Liabilities	8,325,968	1,927,353	4,640,602	49,754,836	24,788,032	2,223,577
Funded Levels						
Market Value of Assets	6,211,826	2,219,808	3,997,262	6,916,797	9,784,864	1,860,995
Actuarial Value of Assets	6,845,451	2,386,213	4,271,223	7,058,640	10,159,259	1,985,850
Unfunded Liability	1,480,517	-458,860	369,379	42,696,196	14,628,773	237,727
Funded Ratio - MVA	75%	115%	86%	14%	39%	84%
Funded Ratio - AVA	82%	124%	92%	14%	41%	89%
Normal Cost						
Net Employer Normal Cost	161,794	52,274	24,710	942,556	168,023	1,195
(% of Payroll)	67%	30%	15%	45%	17%	N/A
FYE 2024 Contributions						
Total Employer Contributions	169,698	42,207	24,686	1,452,514	1,017,683	1,261
(% of Payroll)	68%	24%	14%	68%	97%	N/A
State Premium Tax Allocation	159,449	0	143,540	505,536	446,491	61,288
(% of Payroll)	64%	0%	82%	24%	43%	N/A
Employee Contributions	18,971	9,832	14,572	172,883	82,698	0
(% of Payroll)	8%	6%	8%	8%	8%	N/A
Total Contributions	348,118	52,039	182,798	2,130,933	1,546,872	62,549
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-11.46%	-10.36%	-11.36%	-7.41%	-8.32%	-7.82%
Funding Policy	Optional	Optional	Optional	Conservation	Conservation	Optional



	Grafton Police	Huntington Fire	Huntington Police	Logan Fire	Logan Police	Martinsburg Fire
Discount Rate	6.00%	5.50%	5.75%	6.50%	6.50%	4.25%
Plan Membership						
(a) Actives	1	48	37	7	7	35
(b) Retirees	0	98	112	0	4	25
(c) Survivors	4	46	26	0	0	7
(d) Disableds	2	16	14	0	0	4
(e) Deferred Vesteds	0	6	0	1	0	0
(f) Former Members Due Refunds	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>10</u>
(g) Total	7	214	189	8	12	81
Payroll (Expected for FYE 2023)	60,571	3,314,860	2,965,981	370,628	273,240	2,495,685
Expected Benefit Payments	81,410	5,653,263	6,283,974	5,660	128,960	1,593,568
Actuarial Accrued Liabilities						
(a) Actives	649,508	28,203,907	26,579,340	2,212,086	648,566	15,869,613
(b) Retirees	0	57,223,471	70,088,987	0	1,640,496	20,428,673
(c) Survivors	480,383	9,697,183	5,323,788	0	0	1,634,393
(d) Disableds	549,747	6,980,572	5,233,458	0	0	1,342,872
(e) Deferred Vesteds	0	3,389,747	0	216,014	0	0
(f) Former Members Due Refunds	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>14,791</u>	<u>45,541</u>
(g) Total Liabilities	1,679,638	105,494,880	107,225,573	2,428,100	2,303,853	39,321,092
Funded Levels						
Market Value of Assets	1,938,308	36,954,415	45,327,731	1,576,137	1,234,401	3,771,199
Actuarial Value of Assets	2,057,529	38,954,226	48,536,566	1,759,824	1,398,119	3,922,072
Unfunded Liability	-377,891	66,540,654	58,689,007	668,276	905,734	35,399,020
Funded Ratio - MVA	115%	35%	42%	65%	54%	10%
Funded Ratio - AVA	123%	37%	45%	72%	61%	10%
Normal Cost						
Net Employer Normal Cost	14,396	1,002,193	635,409	83,231	37,319	1,013,221
(% of Payroll)	24%	31%	22%	23%	14%	41%
FYE 2024 Contributions						
Total Employer Contributions	11,731	3,895,687	3,458,783	119,777	103,069	1,066,193
(% of Payroll)	19%	118%	117%	32%	38%	43%
State Premium Tax Allocation	0	1,225,453	1,190,997	70,964	79,625	414,563
(% of Payroll)	0%	37%	40%	19%	29%	17%
Employee Contributions	3,055	220,258	193,376	30,029	25,985	221,181
(% of Payroll)	5%	7%	7%	8%	10%	9%
Total Contributions	14,786	5,341,398	4,843,156	220,770	208,679	1,701,937
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-5.83%	-9.60%	-11.97%	-18.63%	-19.61%	-13.13%
Funding Policy	Optional	Optional	Optional	Standard	Standard	Alternative



	Martinsburg Police	Morgantown Fire	Morgantown Police	Moundsville Fire	Moundsville Police	Nitro Fire
Discount Rate	4.25%	4.25%	4.25%	5.75%	6.50%	4.25%
Plan Membership						
(a) Actives	45	55	56	2	5	16
(b) Retirees	25	47	48	3	10	7
(c) Survivors	7	14	13	7	8	3
(d) Disableds	7	1	8	1	0	2
(e) Deferred Vesteds	2	0	2	0	0	0
(f) Former Members Due Refunds	<u>8</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>1</u>
(g) Total	94	117	132	13	23	29
Payroll (Expected for FYE 2023)	3,268,149	3,733,339	3,979,529	121,902	293,764	1,004,088
Expected Benefit Payments	1,857,677	2,295,319	3,141,861	220,470	484,188	401,748
Actuarial Accrued Liabilities						
(a) Actives	19,577,687	21,335,091	28,676,940	759,111	2,617,570	5,883,190
(b) Retirees	20,413,563	32,436,764	37,076,744	846,293	4,970,582	4,501,366
(c) Survivors	1,432,289	2,132,234	3,501,318	1,026,265	1,026,721	607,402
(d) Disableds	3,206,546	352,701	3,761,470	236,731	0	1,449,999
(e) Deferred Vesteds	1,913,887	0	1,818,866	0	0	0
(f) Former Members Due Refunds	<u>212,931</u>	<u>0</u>	<u>220,278</u>	<u>0</u>	<u>0</u>	<u>5,351</u>
(g) Total Liabilities	46,756,903	56,256,790	75,055,615	2,868,400	8,614,873	12,447,308
Funded Levels						
Market Value of Assets	9,756,455	13,709,149	16,258,285	1,630,073	5,912,541	2,626,265
Actuarial Value of Assets	10,590,226	15,023,516	17,776,606	1,708,477	5,985,987	2,804,529
Unfunded Liability	36,166,677	41,233,274	57,279,009	1,159,923	2,628,886	9,642,779
Funded Ratio - MVA	21%	24%	22%	57%	69%	21%
Funded Ratio - AVA	23%	27%	24%	60%	69%	23%
Normal Cost						
Net Employer Normal Cost	1,122,589	1,632,576	1,282,375	48,571	65,225	399,956
(% of Payroll)	35%	45%	33%	41%	23%	41%
FYE 2024 Contributions						
Total Employer Contributions	879,004	1,117,217	1,401,389	51,209	94,857	248,652
(% of Payroll)	27%	30%	35%	42%	32%	25%
State Premium Tax Allocation	475,330	690,530	737,407	67,794	161,018	162,034
(% of Payroll)	15%	18%	19%	56%	55%	16%
Employee Contributions	295,744	336,007	378,329	8,750	16,247	89,755
(% of Payroll)	9%	9%	10%	7%	6%	9%
Total Contributions	1,650,078	2,143,754	2,517,125	127,753	272,122	500,441
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-13.32%	-15.21%	-15.24%	-13.35%	-1.24%	-9.20%
Funding Policy	Alternative	Alternative	Alternative	Optional	Optional	Alternative



	Nitro Police	Oak Hill Police	Parkersburg Fire	Parkersburg Police	Point Pleasant Police	Princeton Fire
Discount Rate	4.75%	6.25%	5.75%	5.75%	7.00%	4.25%
Plan Membership						
(a) Actives	19	4	37	40	2	12
(b) Retirees	8	6	66	59	6	12
(c) Survivors	4	1	20	17	1	4
(d) Disableds	3	0	11	10	1	2
(e) Deferred Vesteds	1	0	2	4	0	3
(f) Former Members Due Refunds	<u>2</u>	<u>1</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>1</u>
(g) Total	37	12	136	134	10	34
Payroll (Expected for FYE 2023)	1,233,196	262,948	2,258,484	2,479,422	104,594	683,971
Expected Benefit Payments	533,326	219,379	3,236,388	3,090,978	217,933	466,275
Actuarial Accrued Liabilities						
(a) Actives	5,895,856	1,532,836	17,069,067	13,367,964	991,534	2,822,864
(b) Retirees	5,167,866	2,761,184	34,663,482	32,521,104	2,273,708	5,682,715
(c) Survivors	922,838	161,071	2,766,907	2,810,866	115,359	702,033
(d) Disableds	1,392,438	0	3,982,040	4,402,934	427,678	1,034,183
(e) Deferred Vesteds	831,709	0	1,043,202	1,995,547	0	2,129,260
(f) Former Members Due Refunds	<u>65,500</u>	<u>985</u>	<u>0</u>	<u>65,623</u>	<u>0</u>	<u>1,100</u>
(g) Total Liabilities	14,276,207	4,456,076	59,524,698	55,164,038	3,808,279	12,372,155
Funded Levels						
Market Value of Assets	5,235,052	4,673,412	23,519,939	22,525,201	2,286,931	2,881,189
Actuarial Value of Assets	5,595,288	5,267,830	26,104,441	25,038,597	2,556,798	3,141,425
Unfunded Liability	8,680,919	-811,754	33,420,257	30,125,441	1,251,481	9,230,730
Funded Ratio - MVA	37%	105%	40%	41%	60%	23%
Funded Ratio - AVA	39%	118%	44%	45%	67%	25%
Normal Cost						
Net Employer Normal Cost	354,228	42,348	643,933	507,438	20,719	297,088
(% of Payroll)	29%	17%	29%	21%	20%	44%
FYE 2024 Contributions						
Total Employer Contributions	266,871	43,486	2,030,793	1,616,568	141,706	161,609
(% of Payroll)	22%	17%	90%	65%	135%	24%
State Premium Tax Allocation	211,096	0	783,453	808,880	97,611	163,095
(% of Payroll)	17%	0%	35%	33%	93%	24%
Employee Contributions	115,723	21,306	163,977	192,629	4,647	62,832
(% of Payroll)	9%	8%	7%	8%	4%	9%
Total Contributions	593,690	64,792	2,978,223	2,618,077	243,964	387,536
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-11.25%	-14.91%	-14.60%	-15.38%	-13.37%	-15.41%
Funding Policy	Alternative	Optional	Optional	Optional	Optional	Alternative



	Princeton Police	South Charleston Fire	South Charleston Police	St. Albans Fire	St. Albans Police	Star City Police
Discount Rate	5.00%	4.25%	4.25%	4.25%	5.50%	6.50%
Plan Membership						
(a) Actives	18	51	47	22	24	1
(b) Retirees	15	27	14	15	20	1
(c) Survivors	2	13	15	10	3	3
(d) Disableds	3	7	12	4	1	0
(e) Deferred Vesteds	0	1	0	0	0	1
(f) Former Members Due Refunds	<u>2</u>	<u>6</u>	<u>2</u>	<u>6</u>	<u>10</u>	<u>1</u>
(g) Total	40	105	90	57	58	7
Payroll (Expected for FYE 2023)	1,147,507	3,110,724	2,658,342	1,116,208	1,266,133	47,434
Expected Benefit Payments	678,788	1,706,768	1,261,869	866,661	965,930	145,085
Actuarial Accrued Liabilities						
(a) Actives	4,909,052	18,107,885	14,443,265	7,375,494	3,806,780	47,692
(b) Retirees	7,134,285	18,420,234	10,548,851	9,754,270	11,954,697	363,152
(c) Survivors	553,421	2,948,741	3,372,121	1,956,545	788,447	623,514
(d) Disableds	1,124,401	2,869,336	5,006,301	1,584,745	550,445	0
(e) Deferred Vesteds	0	809,738	0	0	0	692,647
(f) Former Members Due Refunds	<u>45,023</u>	<u>102,814</u>	<u>16,999</u>	<u>26,897</u>	<u>67,115</u>	<u>40,252</u>
(g) Total Liabilities	13,766,182	43,258,748	33,387,537	20,697,951	17,167,484	1,767,257
Funded Levels						
Market Value of Assets	4,759,257	4,546,305	4,200,540	2,586,901	7,661,953	2,073,768
Actuarial Value of Assets	5,254,827	4,780,457	4,400,058	2,783,252	8,446,223	2,310,172
Unfunded Liability	8,511,355	38,478,291	28,987,479	17,914,699	8,721,261	-542,915
Funded Ratio - MVA	35%	11%	13%	13%	45%	117%
Funded Ratio - AVA	38%	11%	13%	13%	49%	131%
Normal Cost						
Net Employer Normal Cost	283,560	1,341,626	911,569	471,387	297,240	6,825
(% of Payroll)	25%	44%	35%	43%	24%	15%
FYE 2024 Contributions						
Total Employer Contributions	319,024	1,107,386	616,047	400,922	455,015	0
(% of Payroll)	28%	36%	23%	36%	36%	0%
State Premium Tax Allocation	225,034	580,215	488,913	282,378	274,216	0
(% of Payroll)	20%	19%	18%	25%	22%	0%
Employee Contributions	105,164	275,909	238,772	109,955	126,971	4,337
(% of Payroll)	9%	9%	9%	10%	10%	9%
Total Contributions	649,222	1,963,510	1,343,732	793,255	856,202	4,337
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-15.48%	-9.37%	-10.57%	-14.72%	-15.03%	-14.16%
Funding Policy	Alternative	Alternative	Alternative	Alternative	Alternative	Optional



	Vienna Police	Weirton Fire	Weirton Police	Welch Police	Weston Fire	Weston Police
Discount Rate	6.50%	6.50%	5.50%	6.50%	6.25%	6.25%
Plan Membership						
(a) Actives	19	18	29	2	3	3
(b) Retirees	10	16	36	4	3	2
(c) Survivors	3	4	12	0	1	1
(d) Disableds	5	0	3	0	0	0
(e) Deferred Vesteds	2	0	0	0	0	0
(f) Former Members Due Refunds	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
(g) Total	41	38	80	6	7	6
Payroll (Expected for FYE 2023)	1,178,130	1,333,198	1,953,672	116,947	123,751	167,809
Expected Benefit Payments	638,010	848,419	1,849,453	111,533	93,659	67,159
Actuarial Accrued Liabilities						
(a) Actives	4,806,546	8,255,858	12,528,838	705,840	527,484	802,770
(b) Retirees	5,508,034	8,333,205	18,688,588	1,551,764	1,138,430	716,194
(c) Survivors	559,267	622,798	2,415,950	0	229,525	55,335
(d) Disableds	1,418,246	0	935,395	0	0	0
(e) Deferred Vesteds	925,462	0	0	0	0	0
(f) Former Members Due Refunds	<u>462</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
(g) Total Liabilities	13,218,017	17,211,861	34,568,771	2,257,604	1,895,439	1,574,299
Funded Levels						
Market Value of Assets	10,725,425	13,498,080	10,828,491	3,418,889	1,441,233	1,634,629
Actuarial Value of Assets	11,655,087	14,621,580	11,720,985	3,418,115	1,602,097	1,768,845
Unfunded Liability	1,562,930	2,590,281	22,847,786	-1,160,511	293,342	-194,546
Funded Ratio - MVA	81%	78%	31%	151%	76%	104%
Funded Ratio - AVA	88%	85%	34%	151%	85%	112%
Normal Cost						
Net Employer Normal Cost	173,022	324,229	406,383	20,761	31,121	26,262
(% of Payroll)	15%	25%	21%	18%	26%	16%
FYE 2024 Contributions						
Total Employer Contributions	198,489	321,951	1,340,462	0	32,724	26,949
(% of Payroll)	17%	24%	69%	0%	26%	16%
State Premium Tax Allocation	217,756	300,244	480,934	0	54,704	0
(% of Payroll)	18%	23%	25%	0%	44%	0%
Employee Contributions	95,861	104,934	163,708	9,806	10,873	14,466
(% of Payroll)	8%	8%	8%	8%	9%	9%
Total Contributions	512,106	727,129	1,985,104	9,806	98,301	41,415
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-12.61%	-12.65%	-12.29%	-1.51%	-11.97%	-9.14%
Funding Policy	Optional	Optional	Optional	Optional	Optional	Optional



	Westover Police	Wheeling Fire	Wheeling Police	Williamson Fire	Williamson Police	Total
Discount Rate	6.25%	7.00%	7.00%	7.00%	7.00%	N/A
Plan Membership						
(a) Actives	1	46	27	3	3	1,183
(b) Retirees	6	92	70	6	3	1,483
(c) Survivors	0	34	22	4	5	513
(d) Disableds	0	5	8	2	0	259
(e) Deferred Vesteds	0	2	5	0	0	42
(f) Former Members Due Refunds	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>78</u>
(g) Total	7	180	133	16	11	3,558
Payroll (Expected for FYE 2023)	62,089	3,103,196	1,695,366	116,685	131,106	77,466,763
Expected Benefit Payments	182,999	4,103,605	3,154,354	256,943	132,406	79,877,885
Actuarial Accrued Liabilities						
(a) Actives	412,649	18,991,965	8,295,068	534,175	742,423	470,718,358
(b) Retirees	2,682,713	39,432,273	29,779,281	1,746,137	1,044,986	821,619,389
(c) Survivors	0	5,212,302	3,493,158	726,935	658,180	94,239,829
(d) Disableds	0	1,224,722	2,570,177	575,637	0	99,873,169
(e) Deferred Vesteds	0	766,833	2,037,333	0	0	24,022,433
(f) Former Members Due Refunds	<u>0</u>	<u>21,117</u>	<u>38,002</u>	<u>17,960</u>	<u>0</u>	<u>1,189,273</u>
(g) Total Liabilities	3,095,362	65,649,212	46,213,019	3,600,844	2,445,589	1,511,662,451
Funded Levels						
Market Value of Assets	2,654,979	37,976,270	28,870,716	2,100,338	1,587,214	531,042,619
Actuarial Value of Assets	2,987,650	39,768,976	30,231,545	2,103,675	1,601,799	564,107,635
Unfunded Liability	107,712	25,880,236	15,981,474	1,497,169	843,790	947,554,816
Funded Ratio - MVA	86%	58%	62%	58%	65%	35%
Funded Ratio - AVA	97%	61%	65%	58%	66%	37%
Normal Cost						
Net Employer Normal Cost	20,894	608,682	257,792	20,615	20,818	21,149,701
(% of Payroll)	35%	23%	16%	18%	16%	28%
FYE 2024 Contributions						
Total Employer Contributions	22,387	643,117	257,513	21,731	21,863	43,455,031
(% of Payroll)	36%	21%	15%	19%	17%	56%
State Premium Tax Allocation	160,973	0	0	94,362	76,179	19,177,487
(% of Payroll)	259%	0%	0%	81%	58%	25%
Employee Contributions	4,525	189,485	128,698	9,093	10,322	6,310,713
(% of Payroll)	7%	6%	8%	8%	8%	8%
Total Contributions	187,885	832,602	386,211	125,186	108,364	68,943,231
Additional 2024 Solvency Contribution						
To Receive State Allocation	-	-	-	-	-	-
To Provide COLA Benefits	-	-	-	-	-	-
MVA Return	-15.07%	-10.29%	-10.17%	-4.81%	-4.75%	-10.92%



Asset Allocation

The table below shows the amount of funds invested in each account as of June 30, 2021 and June 30, 2022.

Assets Held by Category	June 30, 2021		June 30, 2022	
Cash and Deposits	\$	40,002,631	\$	26,205,214
Receivables				
Contributions	\$	549,943	\$	546,316
Investment Income		586,671		531,854
Total Receivables	\$	1,136,614	\$	1,078,170
Investment				
Government Securities	\$	36,530,385	\$	40,757,977
Fixed Income		148,861,545		134,719,726
Equities		352,415,330		275,921,448
Alternative Investments		14,698,912		53,469,475
Other		0		0
Total Investments	\$	552,506,172	\$	504,868,626
Total Assets	\$	593,645,417	\$	532,152,010
Payables				
Investment Expense	\$	78,292	\$	53,126
Benefits and Withdrawals		2,234,683		914,279
Administrative Expense		49,169		141,986
Total Payables	\$	2,362,144	\$	1,109,391
Net Position	\$	591,283,273	\$	531,042,619

Reconciliation of Assets

Below is a reconciliation of assets (unaudited) from July 1, 2020 through June 30, 2022.

Plan Year Ending	June 30, 2021	June 30, 2022
1. Beginning of Year Market Value of Assets	\$ 469,366,493	\$ 591,283,273
Adjustments to Market Value of Assets	(95,293)	0
Beginning of Year Market Value of Assets	\$ 469,271,200	\$ 591,283,273
2. Additions		
a. Contributions		
(i) Local Government	\$ 58,482,246	\$ 53,284,166
(ii) State Government	19,670,605	19,196,751
(iii) Employee	6,490,096	6,783,360
(iv) Total	84,642,947	79,264,277
b. Receivable Contribution		
(i) Local Government	\$ 27,829	\$ 18,645
(ii) State Government	446,656	464,088
(iii) Employee Contributions	75,458	63,583
(iv) Total	549,943	546,316
c. Earnings on Investments		
(i) Net Appreciation/(Depreciation)	\$ 86,702,810	\$ (84,295,005)
(ii) Net Realized Gain (Loss) on Sale/Exchange	14,595,396	9,738,121
(iii) Interest and Dividends	11,280,220	11,474,099
(iv) Other Income	372,081	272,631
(v) Investment Expense	(2,194,786)	(2,500,628)
(vi) Receivable Investment Income	586,671	531,854
(vii) Payable Investment Expenses	(78,292)	(53,126)
(viii) Net Investment Income	111,264,100	(64,832,054)
d. Other Revenue	18,354	0
e. Total Additions	\$ 196,475,344	\$ 14,978,539
3. Disbursements		
a. Benefit Payments	\$ 70,089,140	\$ 73,008,073
b. Withdrawals	1,949,313	877,283
c. Administrative Expenses		
(i) Municipal Fees	65,701	188,486
(ii) Other Expenses	75,265	89,086
(iii) Total Administrative Expenses	140,966	277,572
d. Payable Benefits and Withdrawals	2,234,683	914,279
e. Payable Administrative Expenses	49,169	141,986
f. Total Disbursements	\$ 74,463,271	\$ 75,219,193
4. Net Increase (2.e. – 3.f.)	122,012,073	(60,240,654)
5. Net Assets (1. + 4.)	\$ 591,283,273	\$ 531,042,619
6. Rate of Return Net of Investment Fees (2I / [A + B – I] Method ³)	23.4%	-10.9%

³ A = beginning-of-year market value of assets, B = end-of-year market value of assets, I = investment return during the year

(Gain)/Loss on Market Value of Assets for Plan Year Ended June 30, 2022

MVA (Gain)/Loss for Plan Year Ended June 30, 2022		
Market Value of Assets (MVA)		
a. MVA as of 7/1/2021	\$	591,283,273
b. Interest on a. to 6/30/2022		32,974,090
c. Contributions with Interest to 6/30/2022		81,886,319
d. Benefit Payments with Interest to 6/30/2022		76,737,221
e. Administrative Expenses with Interest to 6/30/2022		427,625
f. Expected MVA at 6/30/2022 (a. + b. + c. – d. – e.)		628,978,836
g. Actual MVA at 6/30/2022		531,042,619
h. MVA (Gain)/Loss (f. - g.)		97,936,217

Development of Actuarial Value of Assets

The actuarial asset value as of July 1, 2022 is determined by spreading the asset gain or loss for each year over a four-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return on a market-value basis.

				July 1, 2022
1.	Market Value of Assets		\$	531,042,619
2.	Spreading of Investment (Gains)/Losses			
	Fiscal Year	(Gain)/Loss	% Deferred	Amount Deferred
	2022	\$ 97,936,217	75%	\$ 73,452,170
	2021	(85,769,222)	50%	(42,884,624)
	2020	9,989,846	25%	2,497,470
	a.	Total Deferred		33,065,016
3.	Actuarial Value of Assets (1. + 2.a.)		\$	564,107,635
4.	Rate of Return Net of Investment Fees (2I / [A + B – I] Method)			5.16%



Experience (Gain)/Loss for Plan Year Ended June 30, 2022

The following is a determination of the gains and losses on the collective liabilities and assets for all the plans.

Experience (Gain)/Loss for Plan Year Ended June 30, 2022	
1. Liabilities	
a. Actuarial Accrued Liability as of 7/1/2021	\$ 1,545,609,790
b. Normal Cost as of 7/1/2021	28,405,295
c. Interest on a. and b. to 6/30/2022	82,152,001
d. Benefit Payments with Interest to 6/30/2022	76,737,221
e. Effect of Plan Provision Changes	0
f. Effect of Assumption Changes	(87,330,758)
g. Expected Liability at 7/1/2022 (a. + b. + c. - d. + e. + f.)	1,492,099,107
h. Actual Liability at 7/1/2022	1,511,662,451
i. Liability (Gain)/Loss (h. - g.)	19,563,344
2. Actuarial Value of Assets (AVA)	
a. AVA as of 7/1/2021	\$ 531,951,280
b. Interest on a. to 6/30/2022	29,662,219
c. Contributions with Interest to 6/30/2022	81,886,319
d. Benefit Payments with Interest to 6/30/2022	76,737,221
e. Administrative Expenses with Interest to 6/30/2022	427,625
f. Expected AVA at 6/30/2022 (a. + b. + c. - d. - e.)	566,334,972
g. Actual AVA at 6/30/2022	564,107,635
h. AVA (Gain)/Loss (f. - g.)	2,227,337
3. Total (Gain)/Loss (1i. + 2h.)	\$ 21,790,681

The gains and losses shown are only for liability and asset gains and losses. Any change in the Unfunded Actuarial Accrued Liability from funding more or less than needed to cover Normal Cost and interest on the Unfunded Actuarial Accrued Liability is a separate amount.

Section IV. Solvency Tests for Premium Tax and COLA

Premium Tax Eligibility

West Virginia Code §33-3-14d established a 1% tax on premiums for fire insurance and casualty insurance policies. The proceeds from this tax are used to fund the West Virginia Teachers Retirement System, the Fire Protection Fund for volunteer and part-volunteer fire companies and the Municipal Pensions Security Fund, which is managed by the MPOB. The MPOB allocates funds from the Municipal Pensions Security Fund to each eligible municipality's police and fire fund that is less than 100% funded on an actuarial basis. The funds from the Base Allocation are allocated proportionately to each fire and police fund based on the average monthly number of police officers and firefighters who worked at least 100 hours per month (regardless of whether the police and fire employees participate in the municipality's pension fund or the West Virginia state Municipal Police and Firefighters Retirement System (MPFRS)). The funds from the Excess Allocation are allocated proportionately to each fire and police fund based on the average monthly number of police officers and firefighters who worked at least 100 hours per month and the average monthly number of retired police officers and firefighters (regardless of whether the police and fire employees and retirees participate in the municipality's pension fund or the West Virginia state MPFRS).

West Virginia Code §8-22-19 requires a municipality to deposit into the pension plan the required contributions in accordance with Code §8-22-20 at least on a monthly basis at a rate of one-twelfth of the annual requirement in order to receive the premium tax allocation described above. A municipality may pre-pay this contribution. If the allocable portion of the Municipal Pensions Security Fund is not paid to the pension and relief fund within eighteen months, the portion is forfeited by the pension and relief fund and is allocable to other eligible municipal policemen's and firemen's pension and relief funds in accordance with West Virginia Code §33-3-14d.

Supplemental Benefit (COLA) Eligibility

West Virginia Code §8-22-26a requires that all retirees, surviving beneficiaries, disability pensioners or future retirees receive a Supplemental Pension Benefit (i.e. cost-of-living adjustments, or COLAs) payable on the first day of July, based on a percentage increase equal to any increase in the consumer price index as calculated by the United States Department of Labor, Bureau of Statistics for the preceding year. The COLA shall not exceed 4% per year and is not payable to a retiree until the first day of July after the second anniversary of the retiree's date of retirement. Additionally, the COLA shall be calculated on only the first \$15,000 of the annual benefit paid and, on the COLAs accumulated by the retiree since benefit commencement. If, at any time after the COLA becomes applicable, the total accumulated percentage increase in benefit on the allowable amount becomes less than 75% of the total accumulated percentage increase in the consumer price index over that same period of time, the 4% limitation shall be inapplicable until such time as the accumulated COLAs equal 75% of the accumulated increase in the consumer price index. The consumer price index used to determine the COLA is the CPI-U US City Average all items with a base of 1982-1984 equal to 100. The increase is measured as the increase in the annual average from the second prior calendar year to the annual average from the prior calendar year.

The COLA is only payable to the extent that the actuary certifies to the Board of Trustees of the fund the amount of increase in the COLA, if any, which may be paid, and which will preserve the minimum standards for actuarial soundness of the fund as set forth in West Virginia Code §8-22-20. The related solvency test is discussed below.

Solvency Tests

There are two solvency tests. The first solvency test is used to determine whether the State premium tax may be allocated to the pension plan for the fiscal year. West Virginia Code §8-22-20 has been historically interpreted to require plans that use the Alternative funding policy to be projected to be solvent in the next 15 years in order to receive the State premium tax allocation. Plans that use the Standard, Optional, Optional II, or Conservation funding policies are expected to be solvent after 15 years as long as the municipality is contributing the entire contribution calculated under the funding policy each year. If a plan is not projected to be solvent in the next 15 years, the municipality or employees must make additional contributions in the current fiscal year in order to receive the State premium tax allocation.

The second test is used to determine whether the COLA is payable under West Virginia Code §8-22-26a, which requires the actuary to certify that the minimum funding for actuarial soundness will be preserved after the COLA is granted for the year. The test used to determine if the minimum funding for actuarial soundness will be preserved is a 15-year projection on a closed group basis. For the July 1, 2022 valuation, the 15-year period would end on June 30, 2037. If the assets are greater than \$0 for the first 15 years of the projection, the COLA must be granted. **Please note that the Alternative funding policy is not consistent with generally accepted actuarial principles for funding and continued use of this policy may reduce future solvency levels, even if the current projections do not forecast insolvency.**

Plans Impacted by Solvency Tests

No plans are required to make an additional contribution to meet the solvency test for receiving the State premium tax or for providing a COLA.

Section V. Funding Policy Choices

Background

For plans using the Alternative funding policy, West Virginia Code §8-22-20 requires the actuarial valuation report to provide an evaluation of the plan and to assess advantages of switching to other funding policies. Plans using the Conservation funding policy also have the ability to switch to other funding policies. The other funding policies available to plans using the Alternative or Conservation funding policies are the Optional and Optional II funding policies. The Optional funding policy is defined in West Virginia Code §8-22-20(e)(1) and is available for plan years beginning after January 1, 2010. The Optional II funding policy is defined in West Virginia Code §8-22-20(g)(2) and is effective for plan years beginning on or after July 1, 2023.

The Alternative or Conservation funding policies do not adhere to actuarial principles generally considered necessary to be classified as a reasonable funding method. One of the primary goals of a reasonable funding method is to contribute annually to the plan the cost of the additional benefits earned by the employees for that year (i.e. the normal cost) plus a level dollar or level percentage of pay amortization of the unfunded accrued liability. The Optional and Optional II funding policies achieve this goal. To help each municipality understand the impact of switching, we calculated the projected contributions, liabilities, and assets over a 40-year period under two different scenarios in the individual actuarial valuation reports. The first scenario assumes the municipality switches to either the Optional or Optional II funding policies in the next valuation year. The second scenario assumes the municipality switches to either the Optional or Optional II funding policy in the year that the contribution for that funding policy is projected to be the same or less than the contribution under the Alternative or Conservation funding policy.

Plans using the Standard funding policy are allowed under West Virginia Code §8-22-20 to switch to the Optional funding policy. Plans that switch from the Standard funding policy to the Optional funding policy continue to amortize the unfunded liability over the same timeframe. However, upon switching, the municipality must close their plan to new hires. The only difference between the Standard funding policy and the Optional from Standard funding policy is that the Optional from Standard funding policy does not allow members hired after the switch to enter the plan.

Optional and Optional II Funding Policy

If the municipality were to choose to switch to the Optional or Optional II funding policy in lieu of the Alternative or Conservation funding policy, then the following conditions would apply to the plan:

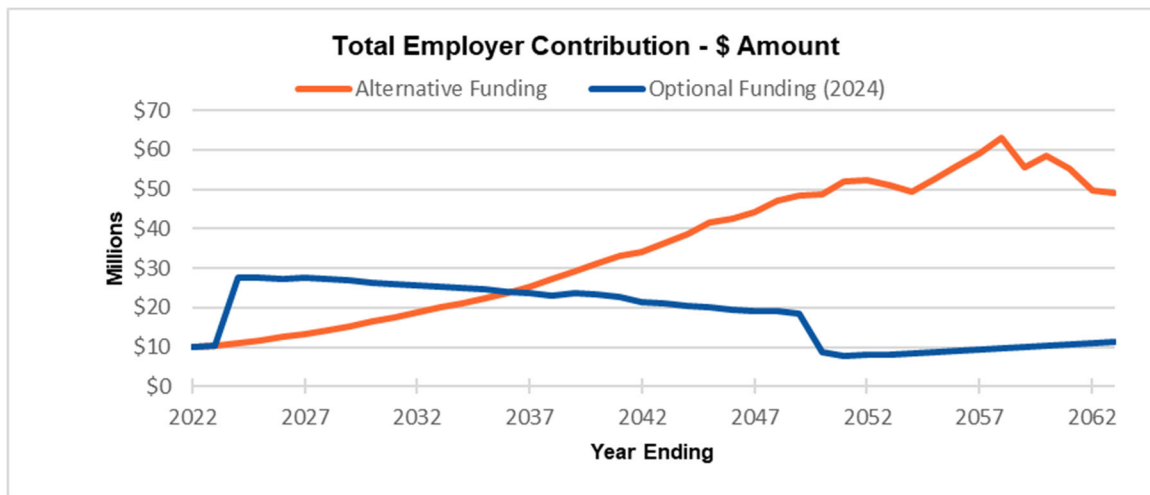
- The required total contribution to the plan, including the premium tax allocation and employee contributions, would equal the normal cost plus a layered amortization of the unfunded accrued liability.
- The initial unfunded liability upon switching to the policy must be amortized over a period of no more than:
 - **Optional:** 40 years beginning January 1, 2010 (26.5 years remaining for contributions developed for the fiscal year ending June 30, 2024).
 - **Optional II:** 40 years beginning July 1, 2023 (40.0 years remaining for contributions developed for the fiscal year ending June 30, 2024).
 - For more information about these funding policies please see *West Virginia Funding Policies* within *Section XII. Actuarial Methods and Assumptions*.
- For plans currently using the Alternative funding policy, the pension and relief fund would close to newly-hired police officers or firefighters after the date of the change and new hires would join the statewide plan - Municipal Police Officers and Firefighters Retirement System (MPFRS).
 - Employer contributions for MPFRS currently equal 8.5% of pay
 - Employee contributions for MPFRS currently equal 8.5% of pay
 - The West Virginia Consolidated Public Retirement Board can change the employer contribution and employee contribution rates to a percentage of pay between 8.5% and 10.5% as needed to maintain an actuarially sound pension plan.

Plans that switch to the Optional or Optional II funding policies from the Alternative or Conservation funding policies will likely experience a significant increase in their pension contributions immediately.

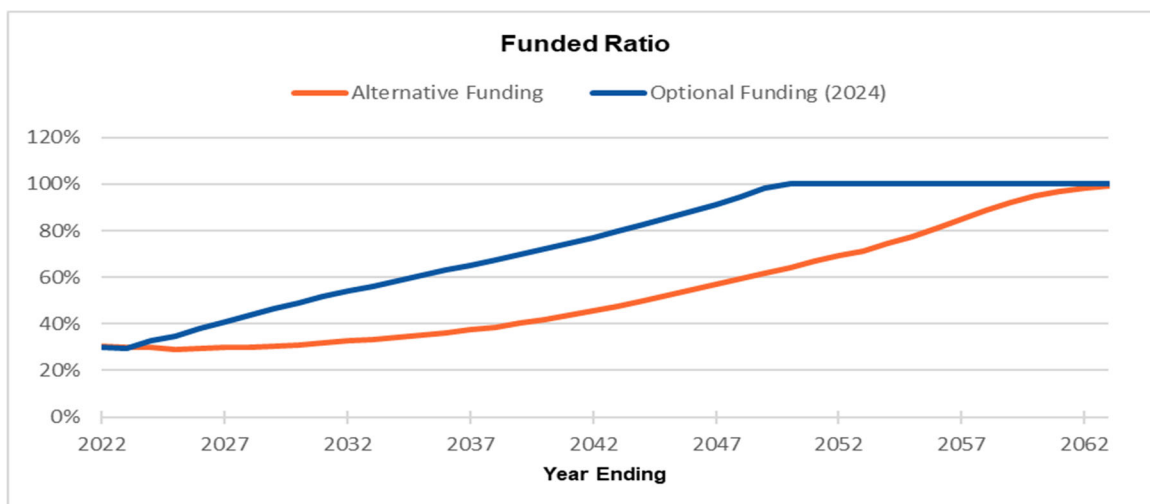
Switch to Optional

Alternative Plans Switch to Optional

The following graph shows the projected contributions for the next 40 years under the Alternative funding policy and under the Optional funding policy if every municipality using the Alternative funding policy switched to the Optional funding policy for the FY 2024 contribution. These projections were performed on an open-group basis since plans using the Alternative funding policy are open to new entrants. Thus, the Optional Funding line below also includes the 8.5% of pay for new hires that enter MPFRS.



The following graph shows the projected funded status for the next 40 years under the Alternative funding policy and under the Optional funding policy if every municipality using the Alternative funding policy switched to the Optional funding policy for the FY 2024 contribution.

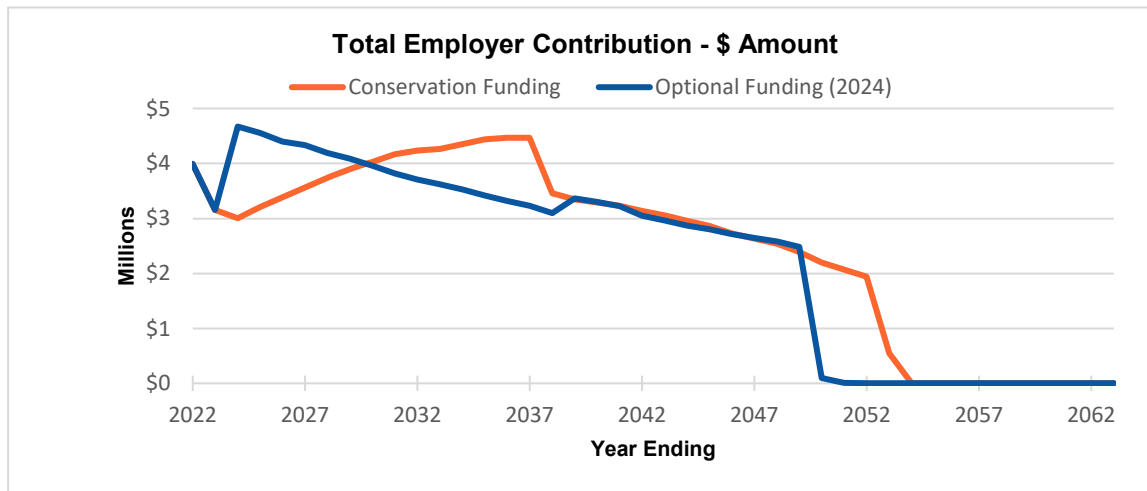


The first graph shows a significant increase in the contributions initially under the Optional funding policy, but a gradually decreasing contribution pattern over the 40 years. The second graph shows an immediate increase in the funded status of the plans as a result of the increased contributions, with a quicker attainment of 100% funded. Making larger contributions

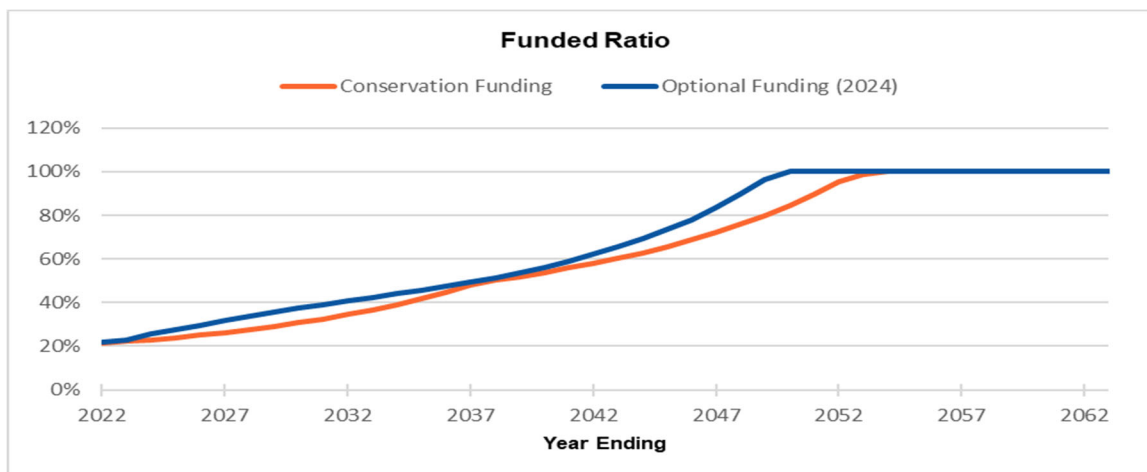
to the plans in the near term (such as under the Optional funding policy in comparison to the Alternative funding policy) will likely reduce total contributions over time as the plans could earn more investment income which would reduce future contribution requirements.

Conservation Plans Switch to Optional

The following graph shows the projected contributions for the next 40 years under the Conservation funding policy and under the Optional funding policy if every municipality using the Conservation funding policy switched to the Optional funding policy for the FY 2024 contribution. These projections were performed on a closed-group basis since plans using the Conservation funding policy are closed to new entrants. Thus, the lines below do not include any contributions to MPFRS.



The following graph shows the projected funded status for the next 40 years under the Conservation funding policy and under the Optional funding policy if every municipality using the Conservation funding policy switched to the Optional funding policy for the FY 2024 contribution.



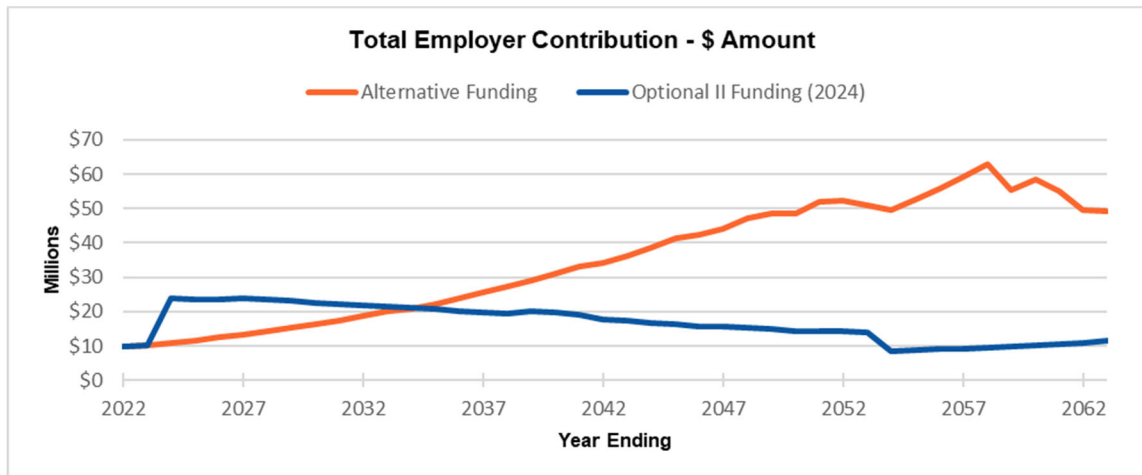
The first graph shows a significant increase in the contributions initially under the Optional funding policy, but a gradually decreasing contribution pattern for several years. The second graph shows a slight increase in the funded status of the plans as a result of the increased

contributions, with a quicker attainment of 100% funded. Making larger contributions to the plans in the near term (such as under the Optional funding policy in comparison to the Conservation funding policy) will likely reduce total contributions over time as the plans could earn more investment income which would reduce future contribution requirements.

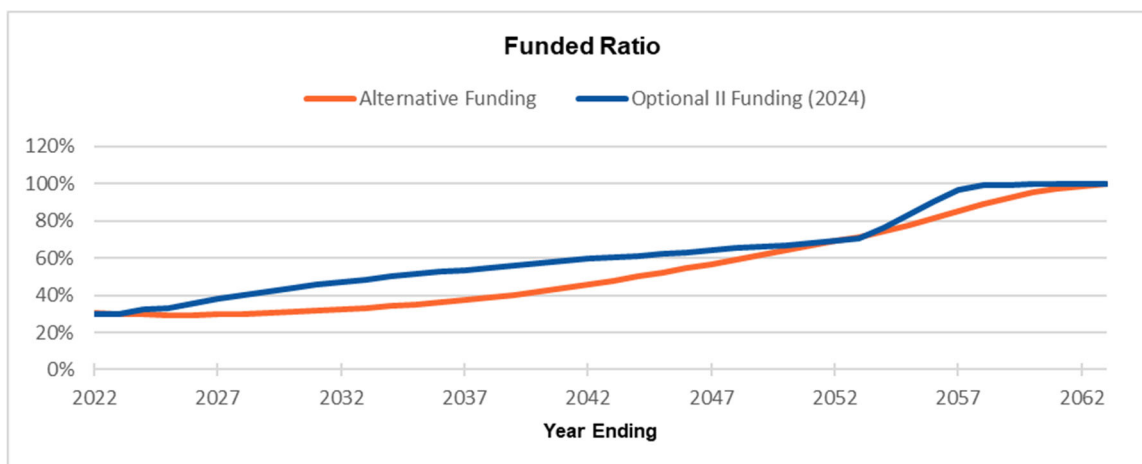
Switch to Optional II

Alternative Plans Switch to Optional II

The following graph shows the projected contributions for the next 40 years under the Alternative funding policy and under the Optional II funding policy if every municipality using the Alternative funding policy switched to the Optional II funding policy for the FY 2024 contribution. These projections were performed on an open-group basis since plans using the Alternative funding policy are open to new entrants. Thus, the Optional Funding line below also includes the 8.5% of pay for new hires that enter MPFRS.



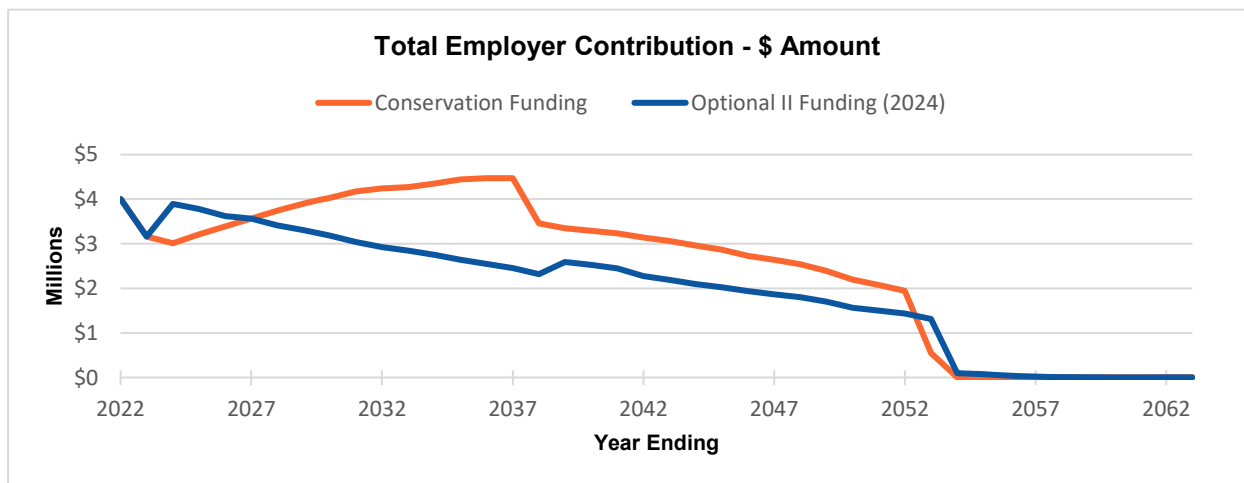
The following graph shows the projected funded status for the next 40 years under the Alternative funding policy and under the Optional II funding policy if every municipality using the Alternative funding policy switched to the Optional II funding policy for the FY 2024 contribution.



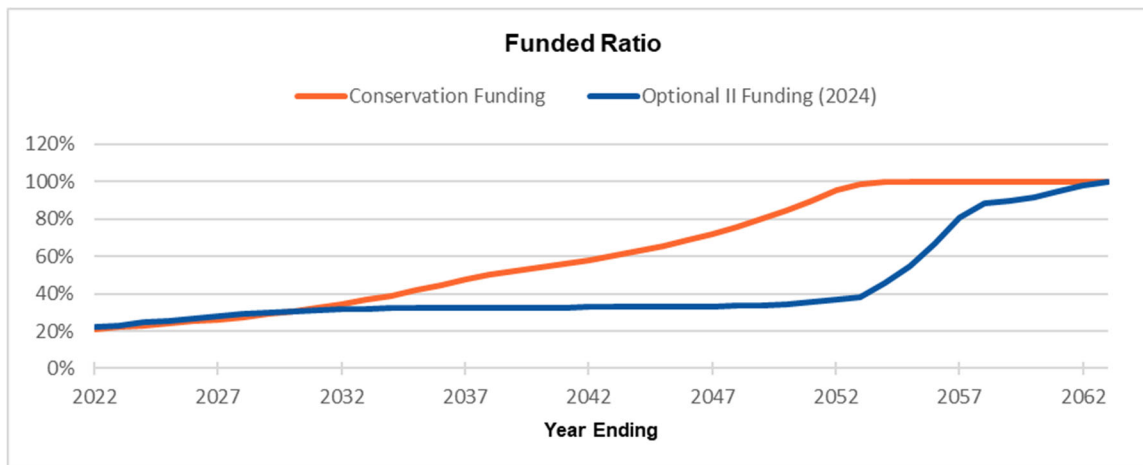
Similar to the switch to the Optional funding policy, the first graph shows a significant (but not as significant as the switch to Optional) increase in the contributions initially under the Optional II funding policy, but a gradually decreasing contribution pattern over the 40 years. The initial contributions are lower in comparison to the Optional funding policy contributions since the initial unfunded liabilities are amortized over a longer period. The second graph shows a slight increase in the funded status of the plans as a result of the increased contributions, with a quicker attainment of 100% funded. Making larger contributions to the plans in the near term (such as under the Optional II funding policy in comparison to the Alternative funding policy) will likely reduce total contributions over time as the plans could earn more investment income which would reduce future contribution requirements.

Conservation Plans Switch to Optional II

The following graph shows the projected contributions for the next 40 years under the Conservation funding policy and under the Optional II funding policy if every municipality using the Conservation funding policy switched to the Optional II funding policy for the FY 2024 contribution. These projections were performed on a closed-group basis since plans using the Conservation funding policy are closed to new entrants. Thus, the lines below do not include any contributions to MPFRS.



The following graph shows the projected funded status for the next 40 years under the Conservation funding policy and under the Optional II funding policy if every municipality using the Conservation funding policy switched to the Optional II funding policy for the FY 2024 contribution.



Similar to the switch to the Optional funding policy, the first graph shows a significant (but not as significant as the switch to Optional) increase in the contributions initially under the Optional II funding policy, but a gradually decreasing contribution pattern over 30 years. The initial contributions are lower in comparison to the Optional funding policy contributions since the initial unfunded liabilities are amortized over a longer period. The second graph shows that smaller contributions under Optional II in comparison to Conservation result in slower attainment of 100% funded.

Section VI. Deferred Retirement Option Plans (DROPs)

Background

West Virginia Code Section §8-22-25a(e) requires the MPOB to (1) annually report to the Legislature's Joint Committee on Pensions and Retirement the status of any Deferred Retirement Option Plans (DROPs) submitted to the MPOB for approval (i.e. prospective DROP analysis) and to (2) provide a report once every five years to the Legislature's Joint Committee on Pensions and Retirement on the status of each active Deferred Retirement Option Plan (i.e. retrospective DROP analysis).

Prospective DROP Analysis

No municipalities submitted a DROP proposal this past fiscal year, so no prospective studies were performed.

Retrospective DROP Analysis

This valuation cycle was not on the five-year interval for performing retrospective DROP studies and, as such, no retrospective studies were performed.

Section VII. Conclusions and Recommendations

Conclusions

The following are some key highlights of the results of the July 1, 2022 valuations:

- The AVA funded ratio improved from 34% as of July 1, 2021 to 37% as of July 1, 2022. The funded ratios for plans using the Optional from Standard policy are generally the highest, followed by the Standard policy, Optional from Alternative policy, and Alternative policy. Generally, plans using the Conservation or the Optional from Conservation (only two plans fall into this category, Charleston Fire and Charleston Police, and they just switched for this valuation year) policies have the lowest funded ratios.
- The unfunded liability decreased by approximately \$66 million from \$1.014 billion to \$948 million, a decrease of 6.5%. The decrease in unfunded liability was largely attributable to the reduction in liabilities for the nine plans that experienced an increase in their discount rate.
- Total recommended contributions including estimated employee contributions decreased approximately \$2.9 million from \$71.8 million to \$68.9 million, a decrease of 4.0%.
- Net municipality recommended contributions decreased \$4.3 million from \$47.7 million to \$43.5 million, a decrease of 9.0%.
- The State premium tax allocation increased by approximately \$1.2 million from \$18.0 million to \$19.2 million, an increase of 6.5%.
- Liabilities decreased 2.1%. The 5.9% decrease in liability due to the changes in discount rates were partially offset by the increases in liability attributable to a year of benefit accruals and the liability experience loss of approximately 1.3%. The liability experience loss was largely attributable to salary increases that were greater than anticipated by the actuarial assumptions.
- The market value of assets (MVA) *decreased* by 10.2%, while the actuarial value of assets (AVA) *increased* 6.0%. The returns on MVA and AVA were -10.9% and 5.2%, respectively. These returns fell short or were approximately the same as the beginning of year liability-weighted average discount rate of 5.2%.
- The MVA return for the fiscal year ending June 30, 2022 for each plan ranged from -19.6% to -1.2%.
- The gross normal cost decreased 4.7% which is a result of (1) discount rate increases for 9 of the 13 plans that had discount rate changes and (2) the declining normal cost (in dollars) for some of the plans closed to new entrants.
- The number of active employees covered by all the plans decreased 4.3% from 1,236 to 1,183.
- The plans using the Standard, Optional, and Optional II funding policies are expected to have a more level contribution pattern in the future than plans using the Alternative and Conservation funding policies, resulting in a more sustainable plan. Municipalities funding under the Alternative and Conservation funding policies will most likely experience contribution requirements that are a larger percentage of their annual revenues each year, which could result in an unsustainable funding requirement in the future for some municipalities.

Recommendations

The following are the actuaries' recommendations to the MPOB for changes to the pension plans.

1. Review the feasibility of pooling investments for these plans to reduce investment expenses and increase investment returns.
2. Review the solvency determination methods for purposes of (i) receiving a premium tax allocation and (ii) granting COLAs.



Section VIII. Participant Information

Participant Summary

The following table summarizes the counts, ages and benefit information for plan participants used in the prior and current valuations.

	July 1, 2021	July 1, 2022
1. Actives		
a. Number	1,236	1,183
b. Average Age	39.8	39.8
c. Average Service	13.0	13.0
d. Average Salary	\$ 63,558	\$ 68,239
2. Retirees		
a. Number	1,457	1,483
b. Average Age	66.5	66.6
c. Total Annual Benefits	\$ 56,843,255	\$ 59,677,133
3. Survivors		
a. Number	533	513
b. Average Age	74.1	74.2
c. Total Annual Benefits	\$ 8,862,134	\$ 9,016,939
4. Disableds		
a. Number	268	259
b. Average Age	62.5	63.1
c. Total Annual Benefits	\$ 6,971,490	\$ 6,933,658
5. Deferred Vesteds		
a. Number	40	42
b. Average Age	47.3	47.5
c. Total Annual Benefits	\$ 1,497,669	\$ 1,546,714
6. Members Owed Refunds		
a. Number	72	78
b. Average Age	34.4	34.7
c. Total Refunds Owed	\$ 1,112,562	\$ 1,189,273



Active Age/Service Distribution Including Compensation

Shown below is the age and service distribution for all active members who currently participate in a local pension plan. The compensation shown is the average projected pay for the plan year beginning July 1, 2022.

	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	Total
Under 25	71	1	-	-	-	-	-	72
	54,507	62,906	-	-	-	-	-	54,624
25 - 29	81	40	2	-	-	-	-	123
	56,589	58,063	59,315	-	-	-	-	57,113
30 - 34	56	71	32	1	-	-	-	160
	55,253	64,544	67,573	57,211	-	-	-	61,852
35 - 39	28	42	96	47	-	-	-	213
	59,100	62,009	65,096	69,783	-	-	-	64,734
40 - 44	5	21	70	111	34	-	-	241
	50,604	60,645	68,198	73,465	74,158	-	-	70,442
45 - 49	-	5	37	65	98	27	-	232
	-	63,026	70,142	76,949	80,285	84,685	-	77,873
50 - 54	-	1	6	46	46	20	1	120
	-	56,060	61,346	71,082	78,881	91,376	77,983	76,899
55 - 59	3	-	-	1	9	-	3	16
	80,650	-	-	98,278	76,246	-	83,241	79,760
60 - 64	-	-	-	1	1	2	2	6
	-	-	-	57,121	67,250	95,994	110,325	89,502
65 & Up	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Totals	244	181	243	272	188	49	6	1,183
	56,138	61,973	66,944	73,230	78,571	87,878	91,393	68,239

Averages

Age	39.8
Service	13.0

Section IX. Summary of Plan Provisions

Plan Year

July 1 – June 30.

Eligibility to Participate

All compensated employees of the relevant Fire or Police Department are eligible to participate in the Firemen's or Policemen's Pension and Relief Fund (Plan). If the fund uses the Optional, Optional II, or Conservation funding policies, only members hired prior to the date of the change to one of these policies are eligible to participate in the Plan.

Average Annual Compensation

The average of the three twelve-consecutive-month periods of employment in which the member received the highest salary or compensation. While the months in each twelve-month period need to be consecutive, the three "twelve-consecutive-month periods" do not need to be consecutive.

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

The *Adjusted Salary* for any preceding year is the respective preceding year total salary multiplied by the ratio of base salary of the year used in determining benefits to the base salary from the respective preceding year. A preceding year is either the "year one" which is the second twelve consecutive month period preceding the twelve-consecutive-month period used to determine benefits or "year two" which is the twelve-consecutive-month period immediately preceding the twelve-consecutive-month period used to determine benefits.

Employee Contributions

Participating employees hired before January 1, 2010: between 7.00% and 9.50% of compensation, depending on the plan.

Participating employees hired on or after January 1, 2010: 9.50% of compensation.

Employer Contributions

The municipalities contribute at least the minimum employer contribution under their respective funding policies.

Credited Service

The number of years that the member has contributed to the employees' retirement and benefit fund.

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

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.

A member may receive retirement eligibility service (i.e. eligibility towards the 20 years of service for normal retirement) for qualified military service only if the military service was prior to November 18, 2009 or the member repays, without interest, member assessments that were missed during the period of military service.

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 an additional 1% of Average Annual Compensation for each full continuous year so served in active military duty, up to a maximum of an additional 4%.

Normal Retirement Eligibility

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

Normal Retirement Benefit

The annual retirement benefit equals the sum of:

- 60% of average annual compensation, for service up to 20 years; not less than \$6,000
- 2% of average annual compensation for each year of service between 20 and 25 years
- 1% of average annual compensation 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.

Termination Benefits

Any member who terminates employment prior to retirement and has at least 20 years of credited service will be entitled to a pension benefit equal to the normal retirement benefit commencing at age 50.

Refunds: Any member who terminates from their department with fewer than 20 years of credited service and prior to age 65 shall be refunded all deductions made from his salary, without interest. Any member who receives such a refund and subsequently wishes to reenter (available only if the municipal plan is still open as of such date) the department must repay to the pension fund all sums refunded with interest at the rate of 8% per annum.

Disability Retirement Eligibility

Members are eligible after earning five years of service. There is no years of service requirement if disability is service related. Disability is defined in WV Code §8-22-23a as the inability to perform adequately the job duties required of the member, as described in the National Fire Protection Association (NFPA) Standard 1582's Chapter 9 Essential Job Tasks - Specific Evaluations of Medical Conditions in Members.

Disability Retirement Benefit

The monthly disability benefit equals the sum of:

- 60% of monthly salary at disability, but not less than \$500, plus

- 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. For permanent disabilities, the benefit is paid for life, while for temporary disabilities, the benefit is paid during the disability period not to exceed four 26-week periods.

Ordinary (non line-of-duty) disability pensions are offset by \$1 per every \$3 of other income. There is no offset if total other income is \$18,200 (as of 2022, indexed by state minimum wage for years after 2022) or less.

Death Benefit Eligibility

Members are eligible after earning five years of service. There is no years of service requirement if death is service related. Retirees and terminated vested participants are also eligible.

Death Benefit

For surviving spouses, this benefit is equal to 60% of the participant's benefit at the participant's date of retirement and is indexed for cost-of-living adjustments through the commencement date of this death benefit (and annually each July thereafter) using the methodology outlined in the *Supplemental Benefit (Cost of Living Adjustment – COLA)* subsection below. This benefit may not be less than \$300 per month and is payable to the spouse until death or remarriage.

Other dependents (children, parents, brothers and sisters) are also eligible for death benefits. Similar to the death benefit payable to a surviving spouse, these death benefits are derived at the participant's date of retirement and indexed for COLAs. To each dependent:

- Child: 20% of the participant's benefit until the child attains age 18 or marries; for a disabled child, payments continue beyond age 18 if the child remains disabled.
- Orphaned child: 25% of the participant's benefit until the child attains age 18 or marries; for a disabled orphaned child, payments continue beyond age 18 if the child remains disabled.
- Parent: 10% of the participant's benefit for life.
- Sibling: the sum of fifty dollars per month (but a total not to exceed \$100 per month) until such individual attains the age of age 18 or marries.

The total amount, derived as the participant's date of retirement, of all benefits payable to survivors cannot exceed the amount of the participant's benefit at the participant's date of retirement. Due to the COLA methodology, the sum of the benefits payable to survivors as of any time after the participant's date of retirement *may*, in some circumstances, exceed the participant's benefit amount. 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.

If the member is not yet in receipt of pension benefits at the date of death, then the member's benefit for purposes of deriving the death benefit to the surviving spouse and dependents is calculated using the maximum of the member's actual service at the date of death and 20 years.

Normal Form

Life annuity with a 60% spouse's survivor benefit. The benefit payable to the spouse as of the member's date of death is determined by taking 60% of the member's benefit at the member's retirement date and indexing that amount to the date of death using the COLA methodology described in the *supplemental Benefit (Cost of Living Adjustment – COLA)* section below. No other optional forms are allowed under the Plan.

Supplemental Benefit (Cost of Living Adjustment – COLA)

If a plan meets the criteria outlined in the *Supplemental Benefit Eligibility* subsection within *Section I. Executive Summary*, then all retirees, surviving beneficiaries, and disability pensioners shall be granted 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. The consumer price index currently used to determine the supplemental benefit is the CPI-U US City Average all items with a base of 1982-1984 equal to 100. The increase is measured as the increase in the annual average from the second prior calendar year to the annual average from the prior calendar year.

Deferred Retirement Option Plan (DROP)

For municipalities with a DROP, generally members who are at least age 50 and with at least 20 years of completed service may enter DROP six months after becoming eligible for regular retirement.

An eligible member who makes the election to participate in the DROP will:

- Receive a retirement benefit based on service and average annual compensation as of the DROP participation (entry) date.
- Accumulate benefits during the DROP period in the member's DROP account equal to the monthly benefits as of the DROP entry date.
- Participate in the DROP for a period that may span from one year to five years provided that the member completes DROP by the age of 65. Members can leave before one year if they provide sixty days advance notice.
- Be required to continue making employee contributions during the DROP period. The employee contributions are not added to the DROP account.

The WV code allows for interest to be credited to the DROP account if the DROP is designed as such. Of the DROPs currently in place as of the July 1, 2022 valuation date, only Clarksburg Fire credits interest on the benefits in the DROP account. For Clarksburg Fire, benefits in the DROP account accumulate with interest up to 3.5%, with interest in excess of 3.5% reverting back to the general pension fund.

Special Funding Situations

There are five funds for which the sponsoring cities approved the continued overpayment of miscalculated benefits. The five funds are Huntington Fire, Huntington Police, Morgantown Fire, Morgantown Police, and St. Albans Fire. For these five funds, we calculate the contribution under the relevant funding policy as if the payments were corrected and add to that contribution the expected overpayments for the contribution year on a pay-as-you-go basis pursuant to West Virginia Code 8-22-27a(d).



Changes in Plan Provisions Since Prior Valuation
None.

Section X. Actuarial Methods and Assumptions

Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal cost method calculated on an individual basis with level percentage of pay normal cost.

West Virginia Funding Policies

Under West Virginia Code §8-22-20(c)(1), there are five funding policies available for plan sponsors. Those funding policies are summarized below:

- **Standard Funding Policy:** Employer contributions are equal to the sum of (1) the net employer normal cost and (2) an amortization of the unfunded actuarial liability, less the State premium tax allocation applicable to the plan year, not less than \$0. Prior to the July 1, 2020 actuarial valuation, the unfunded actuarial accrued liability was amortized over a single, closed period of 40-years from July 1, 1991, using level dollar amortization (8.0 years remaining for contributions developed for the fiscal year ending June 30, 2024). Beginning with the July 1, 2020 valuation, the unfunded actuarial accrued liability as of July 1, 2019 continues to be amortized over that same closed, decreasing period but new bases will be amortized using a layered approach with the following initial amortization periods when each base is created:
 - Experience gains and losses: 15 years
 - Assumption changes: 15 years
 - Plan changes: 5 years

West Virginia Code §8-22-20(c)(3) requires that plans contribute at least the normal cost until the plan is at least 125% funded. Upon reaching 125% funded, the actuary may provide an actuarial recommendation that the normal cost does not need to be paid by the employer for that fiscal year and the municipality may then elect to not make a contribution for that fiscal year. Other than this requirement, the Code does not detail any other policies or methodologies for a plan in a surplus position.

To orderly track the surplus position, which will become particularly relevant once a plan breaches 125% funded for the first time, and to develop an actuarially determined contribution (ADC) for GASB purposes, actuarial surpluses (the amount by which assets exceed actuarial accrued liabilities) will be amortized over 30 years using a single open amortization base and all existing prior bases will be eliminated. Provided, however, for funding purposes the credit installments from the surplus base will be inapplicable at least until the plan reaches 125% funded. Finally, if an overfunded plan subsequently becomes less than 100% funded, the surplus base will be eliminated, the unfunded actuarial accrued liability will be amortized over 15 years, and any subsequent gains and losses, assumption changes, or plan changes will be amortized according to the schedule outlined above for plans with an actuarial deficiency.

The Standard funding policy is consistent with generally accepted actuarial standards of practice.

- **Alternative Funding Policy:** Employer contributions equal 107% of the prior year's employer contribution. The State premium tax allocation is contributed in addition to the employer contributions.

The Alternative funding policy is not consistent with generally accepted actuarial standards of practice because the policy does not reflect emerging experience gains and losses and may not produce an actuarially sound pattern of contributions or funded ratio.

- **Optional Funding Policy:** Allows plan sponsors using either the Standard funding policy or Alternative funding policy to close the current local Plan to new hires and switch to this funding policy, under which they would contribute to the Plan on an actuarially determined basis. Effective July 1, 2023, plan sponsors using the Conservation funding policy may switch to the Optional funding policy and the plan would remain closed to new hires. The actuarially determined employer contribution is equal to the net employer normal cost, plus a level dollar amortization of the unfunded actuarial liability, less the state premium tax allocation applicable to the plan year, not less than \$0. The closed amortization period for contributions developed for the fiscal year ending June 30, 2024 is 8.0 years for sponsors who previously used the Standard funding policy and 26.5 years for sponsors who previously used the Alternative or Conservation funding policies. Beginning with the July 1, 2020 valuation, the unfunded actuarial accrued liability as of July 1, 2019 continues to be amortized over those same closed, decreasing periods but new bases will be amortized using a layered approach using the same amortization periods as those used in the Standard funding policy listed on the previous page. Similarly, surplus amortization will follow the methodology outlined in the Standard funding policy.

For plans that switch from the Alternative or Conservation funding policies on or after the July 1, 2020 valuation, the initial unfunded actuarial accrued liability prior to any assumption changes or plan changes that became effective during the year ending on the valuation date will be amortized over the maximum of 15 years and the remaining period described above (26.5 years).

Members hired after the adoption date of the Optional funding policy are covered in the statewide pension plan – The Municipal Police Officers and Firefighters Retirement System (MPFRS).

The Optional funding policy is consistent with generally accepted actuarial standards of practice.

- **Optional II Funding Policy:** Allows plan sponsors using the Alternative funding policy or Conservation funding policy to switch to this funding policy, under which they would contribute to the Plan on an actuarially determined basis. If switching from the Alternative funding policy, the current local Plan would close to new hires. The actuarially determined employer contribution is equal to the net employer normal cost, plus a level dollar amortization of the unfunded actuarial liability, less the state premium tax allocation applicable to the plan year, not less than \$0. The initial unfunded closed amortization period for contributions developed for the fiscal year ending June 30, 2024 is 40 years.

Upon switching to the Optional II funding policy, the initial unfunded actuarial accrued liability prior to any assumption changes or plan changes that became effective during

the year ending on the valuation date will be amortized over the maximum of 15 years and the remaining period described in the previous paragraph (40 years). New unfunded liability bases created after the switch will be amortized using a layered approach using the same amortization periods as those used in the Standard funding policy listed above. Similarly, surplus amortization will follow the methodology outlined in the Standard funding policy.

Members hired after the adoption date of the Optional II funding policy are covered in the statewide pension plan – MPFRS.

The Optional II funding policy is consistent with generally accepted actuarial standards of practice.

- **Conservation Funding Policy:** Formerly allowed plan sponsors using the Alternative funding policy to close the current local Plan to new hires and contribute to the plan on a pay-as-you-go basis. Effective July 1, 2023, plan sponsors are prohibited from switching to the Conservation funding policy. Sponsors using the Conservation funding policy are required to assign a portion of the state premium tax allocation and member contributions to an accumulation account that is projected to grow to 100% of the remaining actuarial liabilities at the end of a 35-year projection period.

Members hired after the adoption date of the Conservation funding policy are covered in the statewide pension plan – MPFRS.

This Conservation funding policy is not consistent with generally accepted actuarial principles.

Amortization Method for GASB

Amortization Policies	
Standard, Optional, and Optional II Funding Policies	Same as for funding purposes (described above)
Alternative and Conservation Funding Policies	The methodology used for plans that switch to the Optional funding policy on or after July 1, 2020 for funding purposes (described above)

Basis for Selection of Actuarial Methods

While the funding policies and funding amortization methodology discussed above are defined in the West Virginia Code, the following actuarial methods used in the valuation were set by the MPOB on the basis of Bolton's 2020 *Actuarial Methods Recommendation Report*. These actuarial methods are, in the opinion of the signing actuaries, reasonable for the intended purpose.

Asset Method

Actuarial Value of Assets using four-year smoothing. Returns on the average market value of assets above or below the assumed rate of return are gradually recognized using straight-line amortization over a four-year period.

Roll-Forward Method

For the actuarially-based funding policies (Standard, Optional, and Optional II), valuation results are rolled forward one year to align the contribution calculation with the contribution year:

- To develop the projected unfunded actuarial accrued liability (UAAL), the UAAL on the valuation date is increased by the employer normal cost (which is net of employee contributions) and expected expenses, both with interest, and decreased by the expected employer contribution, including the premium tax allocation, for the fiscal year beginning on the valuation date, with interest.
- The projected normal cost for the contribution year is derived using a valuation software projection (open-group projection for plans open to new entrants and closed-group projection for plans closed to new entrants).

Projection Methods

The projections of future assets, liabilities, funded statuses, and contributions are based on the following assumptions:

- Compensation will increase and members will leave the active workforce according to the actuarial valuation assumptions.
- For the open group projections, each active member leaving the workforce will be replaced with a new entrant so that the total number of active members remains the same throughout the projection period. The assumption made regarding the demographic makeup of new entrants is described in the *Open Group Projection New Hire Profile* section below.
- For closed group projections, new hires that replace active members who retire, terminate, die or become disabled are not assumed to enter the plan.
- The sponsor contributes the amount determined by the applicable funding policy each year.
- For plans that are less than 100% funded as of the valuation date, the contribution during the projection period is capped at the amount needed to achieve and maintain a funded status of 100%.
- Assets grow at the assumed rate of return (discount rate).
- Non-vested members receive a refund of their accumulated employee contribution account balance during the year in which they terminate.
- New amortization bases are not created for contribution gains that may occur during the projection period as a result of the premium tax allocation exceeding the unfunded liability amortization payment.
- For projections that illustrate a change from the Alternative funding policy to either the Optional funding policy or Optional II funding policy, new hires that replace active members who, after the change in funding policy, retire, terminate, die or become disabled are assumed to enter the statewide pension plan – The Municipal Police Officers and Firefighters Retirement System (MPFRS). For the MPFRS, employer contributions are currently equal to 8.5% of pay but can range from 8.5% - 10.5% of pay. For these projections, MPFRS employer contributions are assumed to be 8.5% of pay throughout the projection period.

Open Group Projection New Hire Profile

The active population is projected to be stable throughout the open group projections meaning that active exits are replaced by new hires. The profile for new hires contains four separate records corresponding to a different age-at-hire band (under 24, 24-27, 28-31, 32 and above). Each record contains the average (for the associated age-at-hire band) date of birth, compensation, and percentage male of all actives who have two years of service or less within the 53 plans covered by the MPOB. The four records are created using compensation for the fiscal year ending on the valuation date. The beginning salary for new entrants hired after the current plan year is equal to the new entrant profile salary increased by the general wage inflation assumption of 3.50% for each year between the new entrant's assumed date of hire and the valuation date.

Premium Tax Allocation

The premium tax allocation is projected using the following methodology:

- (1) The Base Allocation 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). We assume that the percentage of eligible members of the Pension and Relief Fund and MPFRS for a single municipal plan to the total eligible members for all municipalities remains constant throughout the projection period.
- (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 the total allocation assigned to the individual plan until they are 100% funded. Once a plan attains a funded ratio of at least 100%, the premium tax that would have been allocated to the plan had the funded ratio been lower than 100% is reallocated in subsequent years to all remaining plans that are less than 100% funded.
- (4) The total available premium tax allocation, net of expenses, as of September 1, 2023, includes a Base Allocation of \$8,709,689, an Excess Allocation of \$12,751,652, and an Expired Premium Tax Allocation of \$358,083.
- (5) For the plan year ending June 30, 2023, all Pension and Relief Funds reported a total of 1,736.67 eligible active members and 2,247.38 eligible retired members.
- (6) The total premium tax allocation is assumed to increase by 2.50% in calendar years ending on and after 2024.

Basis for Selection of Actuarial Assumptions

Unless otherwise noted, the actuarial assumptions used in the valuation were set by the MPOB on the basis of Bolton's 2020 *Experience Study Report*, which covered experience during the period from period July 1, 2014 through June 30, 2017. These assumptions are, in the opinion of the actuaries signing this report, reasonable for the intended purposes.

Discount Rate

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

Discount Rate Matrix for Plans Not Investing with the IMB ⁴				
Funded Ratio as of Valuation Date ⁵	Equity Exposure ⁶	Projected Funded Ratio after 15 Years ⁵	Discount Rate – Standard and Optional Policies	Discount Rate – Alternative and Conservation Policies
30% or more	60% or more	70% or more	6.50%	6.25%
30% or more	50% or more	70% or more	6.25%	6.00%
30% or more	40% or more	60% or more	6.00%	5.50%
15% or more	30% or more	50% or more	5.75%	5.00%
15% or more	20% or more	40% or more	5.50%	4.75%
Less than 15%	Less than 20%	15% or more	5.00%	4.25%
Less than 15%	Less than 20%	Less than 15%	5.00%	4.00%

Discount Rate Matrix for Plans Investing with the IMB				
Funded Ratio as of Valuation Date ⁵	Equity Exposure ⁶	Projected Funded Ratio after 15 Years ⁵	Discount Rate – Standard and Optional Policies ⁷	Discount Rate – Alternative and Conservation Policies
30% or more	N/A	70% or more	7.00%	6.50%
30% or more	N/A	70% or more	7.00%	6.00%
15% or more	N/A	50% or more	7.00%	5.50%
15% or more	N/A	40% or more	7.00%	5.25%
Less than 15%	N/A	15% or more	7.00%	4.75%
Less than 15%	N/A	Less than 15%	7.00%	4.50%

Inflation

2.50%, compounded annually.

Cost of Living Increase in Benefits

2.50% 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.

⁴ West Virginia Investment Management Board has been abbreviated IMB.

⁵ Funded ratios based on a 6.0% investment return assumption for plans using an actuarially sound funding policy (Standard, Optional, or Optional II) and a 5.0% investment return assumption for other plans (Alternative or Conservation).

⁶ Based on target allocation percentage outlined in the investment policy.

⁷ Assumes the IMB maintains a current growth asset target above 70%. If this policy changes, the assumption should be reviewed.

Salary Increases

The following assumed rates are used:

Years of Service	Increase
0	20.00%
1	9.00%
2	6.50%
3	6.00%
4-28	5.00%
29-33	4.00%
34+	3.50%

Pay Spiking

A load of 6% is applied to active retirement and active termination pension benefits to account for unused accrued leave time (vacation and sick) that is included in pensionable earnings used to compute the average annual compensation.

Mortality

Pre Decrement

SOA PubS-2010(B) Employee⁸ Mortality Table⁹ with the 2010 base rates projected generationally from 2010 using the SOA Mortality Improvement **Scale MP-2019**.

Post Decrement

For Healthy Retirees and Beneficiaries:

SOA PubS-2010(B) Healthy Retiree Mortality Table with the 2010 base rates projected generationally from 2010 using the SOA Mortality Improvement **Scale MP-2019**.

For Disabled Retirees:

SOA PubS-2010 Disabled Retiree Mortality Table with the 2010 base rates **set forward five years** and projected generationally from 2010 using the SOA Mortality Improvement **Scale MP-2019**.

Mortality improvement projections to the valuation date represent current mortality and mortality improvement projections beyond the valuation date represent future mortality improvement.

⁸ Table name abbreviations from *Society of Actuaries Pub-2010 Public Retirement Plans Mortality Tables Report* published in January 2019. For example, *PubS-2010(B) Employee* translates to the Amount-Weighted Public Safety 2010 Below Median Employee Mortality Table.

⁹ Assumes 10% of deaths are duty-related and 90% are non-duty related.

Retirement Rates

For Plans with Open DROPs - Fire

For fire plans with open DROPs, the retirement rates below reflect retirement at DROP entry:

Age	Years of Service										
	20	21	22	23	24	25	26	27	28	29	30
50	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
51	73%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%
52	73%	46%	38%	38%	38%	38%	38%	38%	38%	38%	38%
53	69%	39%	32%	36%	36%	36%	36%	36%	36%	36%	36%
54	69%	39%	32%	36%	32%	32%	32%	32%	32%	32%	32%
55	87%	82%	85%	94%	100%	100%	100%	100%	100%	100%	100%
56	84%	57%	49%	73%	100%	100%	100%	100%	100%	100%	100%
57	81%	48%	49%	73%	100%	100%	100%	100%	100%	100%	100%
58	81%	40%	35%	73%	100%	100%	100%	100%	100%	100%	100%
59	70%	40%	25%	40%	100%	100%	100%	100%	100%	100%	100%
60	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

For fire plans with open DROPs, the percentage of members electing DROP at each retirement age is presented below:

Age	Years of Service										
	20	21	22	23	24	25	26	27	28	29	30
50	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%
51	81%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%
52	81%	27%	42%	42%	42%	42%	42%	42%	42%	42%	42%
53	86%	37%	54%	54%	54%	54%	54%	54%	54%	54%	54%
54	86%	37%	54%	54%	70%	70%	70%	70%	70%	70%	70%
55	88%	70%	83%	83%	90%	100%	100%	100%	100%	100%	100%
56	88%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
57	88%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
58	88%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
59	86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
60	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%



For Plans with Open DROPs - Police

For police plans with open DROPs, the retirement rates below reflect retirement at DROP entry:

Age	Years of Service										
	20	21	22	23	24	25	26	27	28	29	30
50	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
51	82%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
52	82%	60%	52%	52%	52%	52%	52%	52%	52%	52%	52%
53	81%	59%	51%	64%	64%	64%	64%	64%	64%	64%	64%
54	80%	59%	49%	62%	66%	66%	66%	66%	66%	66%	66%
55	86%	77%	72%	86%	100%	100%	100%	100%	100%	100%	100%
56	87%	74%	66%	83%	100%	100%	100%	100%	100%	100%	100%
57	83%	62%	56%	77%	100%	100%	100%	100%	100%	100%	100%
58	83%	57%	49%	77%	100%	100%	100%	100%	100%	100%	100%
59	76%	57%	40%	57%	100%	100%	100%	100%	100%	100%	100%
60	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

For police plans with open DROPs, the percentage of members electing DROP at each retirement age is presented below:

Age	Years of Service										
	20	21	22	23	24	25	26	27	28	29	30
50	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%
51	80%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
52	80%	12%	21%	21%	21%	21%	21%	21%	21%	21%	21%
53	80%	12%	21%	21%	21%	21%	21%	21%	21%	21%	21%
54	80%	12%	21%	21%	35%	35%	35%	35%	35%	35%	35%
55	77%	21%	35%	35%	52%	100%	100%	100%	100%	100%	100%
56	77%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
57	81%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
58	81%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
59	79%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
60	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

For Plans without Open DROPs

Members need a minimum of 20 years of service in order to be eligible for normal retirement. The retirement rates below are for years of service greater than or equal to 20 years of service for plans without open DROPs:

Age	Fire	Police
50	55%	60%
51-52	35%	40%
53-54	25%	40%
55-56	25%	50%
57-59	25%	40%
60	100%	100%

For All Plans

Terminated-vested members (members who terminate employment after attaining 20 years of service but prior to commencing pension benefits) are assumed to retire at age 50.

Termination of Employment

Sample termination rates are as follows:

Age	Fire	Police
20	15%	25%
25	7%	10%
30	5%	8%
35	2%	6%
40	2%	3.5%
45	1%	2%
50	0%	0%

Non-Vested Terminations

The employee contribution account balance is assumed to be paid on the valuation date for current non-vested terminated members and on the termination date for future non-vested terminations.

Valuation of Members with DROP

For municipalities with open DROPs, the DROP is available to active members who are retirement eligible. Members currently in DROP as of the valuation date are assumed to exit DROP upon the earlier of attaining 5 years of DROP participation and attaining age 60. If a member is at least age 60 on the valuation date but has fewer than 5 years of DROP service, the member is assumed to exit DROP in one year. Upon DROP exit, a member is assumed to receive the DROP account balance as a lump sum and start receiving annuity payments. For active members who are not currently in DROP as of the valuation date, the same methodology is applied.

DROP members are considered retired members for purposes of supplemental benefits (COLA).

DROP members are considered active members for purposes of the premium tax allocation.

Disability Rates

Sample disability rates are as follows:

Age	Rates ¹⁰
30	0.33%
40	0.76%
50	1.18%

Marital Status

70% assumed to be married with wives 3 years younger than husbands. Widows and widowers are not expected to re-marry in the future.

Form of Payment

Benefits are assumed to be paid as a life annuity with a 60% spousal death benefit taking into account the re-indexing of the spouse’s supplemental benefit as provided in WV Code §8-22-26a.

Non-Spouse Beneficiaries

Pre-retirement death benefits are loaded by 6% and post-retirement death benefits are loaded by 1% to estimate the impact of benefits provided to non-spouse beneficiaries (children, parents, siblings).

Administrative Expenses

Total administrative expenses for the fiscal year are equal to the average of the administrative expenses for the prior two fiscal years, increased by 2.50% annually for inflation.

Future expenses are assumed to increase by the general inflation assumption and are adjusted for headcount.

Data Corrections

We understand that the MPOB conducts compliance audits throughout the year. From time to time, the MPOB identifies potential calculation errors and notifies us of these errors as they discover them. We do not reflect the corrections of these errors until the MPOB conducts a thorough review of the error and directs a correction method to the plan. We use the data that was submitted to us by the plans’ representatives. We do not audit the data but we do conduct several reasonableness tests and ask questions accordingly. We do not make any adjustments for identified errors until instructed to do so by the MPOB. If a correction is made subsequent to the issuance of the actuarial valuations, the corrections are reflected in the following year’s valuation.

¹⁰ Assumes that 50% of disabilities are duty related and 50% are non-duty related. Also assumes that 5% of non-duty disabled members receive a 20% reduction in benefits through age 65 due to gainful employment.



Changes in Methods/Assumptions Since Prior Valuation

Thirteen plans had a change in their discount rate, but the method for selecting the discount rate did not change.

Section XI. Glossary

Actuarial Accrued Liability (AAL)

The difference between the Present Value of Future Benefits and the Present Value of Future Normal Costs or the portion of the present value of future benefits allocated to service before the valuation date in accordance with the actuarial cost method. Represents the present value of benefits expected to be paid from the plan in the future allocated to service prior to the date of the measurement.

Actuarial Assumptions

Estimates of future plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the pension plan. Demographic, or “people” assumptions include rates of mortality, retirement and separation. Economic, or “money” assumptions, include expected investment return, inflation and salary increases.

Actuarial Cost Method

A procedure for allocating the Present Value of Future Benefits into the Present Value of Future Normal Costs and the Actuarial Accrued Liability. Also known as the “funding method”.

Actuarial Value of Assets (AVA)

The value of the assets as of a given date, used by the actuary for valuation purposes. The AVA may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution (ADC).

Actuarially Determined Contribution (ADC)

The employer’s periodic determined contribution to a pension plan, calculated in accordance with the assumptions and methods used by the plan actuary.

Amortization Method

A procedure for payment of the Unfunded Actuarial Accrued Liability (UAAL) by means of periodic contributions of interest and principal. The components of the amortization payment for the UAAL includes the amortization period length, amortization payment increase (level dollar or level percentage of pay), and amortization type (closed or open).

Experience Gain/Loss

A measure of the difference between actuarial experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Funded Ratio

The actuarial value of assets expressed as a percentage of the plan’s actuarial accrued liability.

Market Value of Assets (MVA)

The value of the assets as of a given date held in the trust available to pay for benefits of the pension plan.

Normal Cost

That portion of the Present Value of Future Benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Present Value of Future Benefits (PVFB)

The present value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Present Value of Future Normal Cost (PVFNC)

The portion of the Present Value of Future Benefits (PVFB) allocated to future service.

Unfunded Actuarial Accrued Liabilities (UAAL)

The difference between the Actuarial Accrued Liability (AAL) and the Actuarial Value of Assets (AVA).