



**Municipal Pensions
Oversight Board**

**City of Moundsville
West Virginia
Firemen's Pension Plan**

Actuarial Valuation as of July 1, 2023
to Determine the City's Contribution for
the Fiscal Year Ending June 30, 2025

Bolton

Submitted by:

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Bolton

September 6, 2024

Ms. Lacey Williams
City Treasurer
800 Sixth Street, P.O. Box E
Moundsville, WV 26041

Mrs. Karen Ankrom
Pension Board Secretary
City of Moundsville
Firemen's Pension and Relief Fund

*Re: City of Moundsville Firemen's Pension and Relief Fund
Actuarial Valuation Report for the Year Beginning July 1, 2023*

Dear Ms. Williams and Mrs. Ankrom:

The following sets forth the actuarial valuation of the City of Moundsville Firemen's Pension and Relief Fund as of July 1, 2023. Sections I and II of the report provide a summary of results and the actuarial certification, respectively. Sections III and IV contain the development of the City's contribution for the 2025 fiscal year. Section V contains asset information. Sections VI and VII provide experience gain/loss and risk measure information, respectively. Section VIII provides projections. Sections IX through XI provide a summary of the census data, plan provisions, assumptions and actuarial methods. Section XII provides a glossary of many of the terms used in this report.

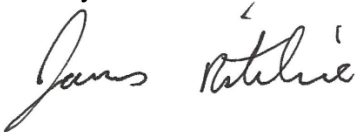
The purpose of this report is to provide information on:

- The sponsor's funding requirements for the fiscal year ending June 30, 2025, based on the selected funding policy, i.e., the **Optional** funding policy as defined in West Virginia Code §8-22-20(e)(1)
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2025
- The Fund's requirement to provide supplemental benefits for the plan year beginning July 1, 2025

If the City is considering the issuance of pension obligation bonds, the City must contact Bolton and the Municipal Pensions Oversight Board for the determination of the adjustments to information in the valuation report required under WV Code.

This report may not be used for any other purpose; Bolton is not responsible for the consequences of any unauthorized use. 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 the following report that sets forth the actuarial valuation of the City of Moundsville Firemen’s Pension and Relief Fund (the Plan) as of July 1, 2023. Please note that some columns and rows in the tables on the following pages may not add due to rounding.

Funding Policy

The Plan is valued using the Optional funding policy as described in WV Code §8-22-20. The City of Moundsville (the City) switched from the Alternative funding policy to the Optional funding policy effective March 16, 2010.

Summary of Results

The following table presents a two-year summary of the Plan’s estimated pension contributions.

Estimated Employer Contribution Requirements	FYE 2024	FYE 2025
1. Estimated Employer Normal Cost with Interest	\$ 51,209	\$ 44,122
2. Estimated Payroll ¹	\$ 121,902	\$ 129,083
3. Normal Cost Rate ¹	42.01%	34.18%
4. Amortization of Unfunded Liability with Interest	\$ 48,386	\$ 37,390
5. Estimated Premium Tax Allocation	\$ 67,794	\$ 84,249
6. Unfunded Liability Payment Net of Premium Tax Allocation (4. – 5., not less than 0)	\$ 0	\$ 0
7. Estimated Net Employer Contribution (1. + 6.)	\$ 51,209	\$ 44,122

The following table presents a three-year historical summary of the Plan assets and liabilities.

	July 1, 2021	July 1, 2022	July 1, 2023
Actuarial Accrued Liability (AAL)	\$ 2,661,369	\$ 2,868,400	\$ 2,730,804
Actuarial Value of Assets (AVA)	\$ 1,651,737	\$ 1,708,477	\$ 1,689,292
Unfunded Actuarial Accrued Liability	\$ 1,009,632	\$ 1,159,923	\$ 1,041,512
Funding Percentage	62.1%	59.6%	61.9%

The contributions shown above are assumed to be paid in equal monthly installments throughout the fiscal year. Details of the determination of the City’s contribution for FYE 2025 are shown in Section IV of this report.

¹ The methodology currently employed by the City for determining the dollar amount of the normal cost (NC) component of the contribution is to multiply the NC rate by the actual payroll for the fiscal year (FY) beginning on the valuation date (i.e. the NC rate in the FYE 2025 column will be multiplied by the actual FY 2024 payroll to determine the NC component of the FY 2025 contribution). As such, the payroll shown here is the estimated payroll for the fiscal year preceding the fiscal year denoted in the column label. For this reason, this NC rate may differ from the NC rate presented in the Projected Net Employer Normal Cost exhibit on page 8.

Risk Measures

Generally, the primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions. For plans that develop contributions using a generally accepted actuarial funding policy, these increases occur most frequently due to variation in the investment returns. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee groups covered by the plan. More detail is provided later in this report.

Risk Measure	July 1, 2021	July 1, 2022	July 1, 2023
Inactive AAL Percent of Total AAL	77.8%	73.5%	72.0%
Assets (MVA) to Payroll	17.4	13.4	12.8
Liabilities to Payroll	23.8	23.5	21.2
Benefit Payments to Contributions	1.2	1.2	2.2

Experience Analysis

The following factors affected the City's funded status:

- The Plan uses the Optional funding policy. City contributions between FY 2024 and FY 2025 are expected to decrease by 13.8% from \$51,209 to \$44,122. This reflects a \$7,087 decrease in employer normal cost in part due to the plan being 'Closed' and a \$0 change to the net amortization (the gross amortization payment is expected to decrease by \$10,996 but the amortization payment after reduction for the premium tax allocation is expected to change by \$0).
- The discount rate changed from 5.75% to 6.50%.
- The 2023 COLA of 8.0% (compared to the 2.5% assumption) generated a liability loss.
- Liabilities decreased by 4.8%, while the market value of assets and actuarial value of assets increased by 1.7% and (1.1%), respectively.
- The Plan's funded ratio increased from 59.6% to 61.9% and the Plan is expected to be 100% funded in 2040.
- The return on the market value of assets for FY 2023 was 9.0%, while the return on the actuarial value of assets for FY 2023 was 5.8%.
- Since the Plan uses the Optional funding policy, the Plan is automatically considered solvent for purposes of receiving the state premium tax allocation and granting COLAs as long as the municipality makes the required contributions each year.

Changes in Methods, Assumptions, and Plan Amendments

Pursuant to the *2023 Experience Study Report*, the Municipal Pensions Oversight Board adopted changes to several demographic assumptions and to one economic assumption (the COLA assumption decreased from 2.50% to 2.45%). Please see the *2023 Experience Study Report* and *Section XI. Actuarial Methods and Assumptions* of this report for more details.

Additionally, the discount rate changed from 5.75% to 6.50%.

There were no changes to the actuarial methods reflected in this valuation.

There were no changes to the Plan provisions reflected in this valuation.

Sources of Information

The July 1, 2023 participant data and market value of assets were provided by or at the direction of the City of Moundsville. While we have reviewed this data for consistency and completeness, we have not audited this data.

Supplemental Benefit 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 that have been 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 supplemental benefits, 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. This plan uses the Optional funding policy. Funds that use the Optional funding policy are expected to be solvent after 15 years given that the required contribution is actuarially developed as the normal cost plus amortization of the unfunded liability. The plan may not be able to grant COLAs if the City is not paying the required contribution determined under the Optional funding policy.

Premium Tax

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 Municipal Pensions Oversight Board (MPOB). The MPOB allocates funds from the Municipal Pensions Security Fund to each eligible municipality's police and fire fund² 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 plan 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

² If pension obligation bonds have been issued to fund a plan, the premium tax dollars are annually allocated to the bond trustee once the plan sponsor deposits into the pension fund the annual required contributions in accordance with Code §8-22-20. The premium tax allocation to the bond trustee ceases once the bonds have been paid in full.



employees and retirees participate in the municipality's pension plan or the West Virginia MPFRS).

West Virginia Code §8-22-19 requires a plan sponsor to deposit into the pension fund 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 plan sponsor does not deposit the required contributions or the pension and relief fund is not eligible for the allocation given it is at least 100% funded), 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. Given these provisions under current law, the projections throughout this report assume that, upon a pension and relief fund attaining a funded status of 100%, the premium tax monies that otherwise would have been allocated to that pension and relief fund had it been less than 100% funded are reallocated to all other pension and relief funds that are less than 100% funded.

Solvency Requirements

West Virginia Code requires that plans be solvent in order to receive the state premium tax allocation as well as to grant the COLA. In order to be considered solvent, the fund must be projected to have assets greater than \$1 for the next 15 years. This plan uses the Optional funding policy. Funds that use the Optional funding policy are expected to be solvent after 15 years as long as the City is contributing the entire contribution calculated under the Optional funding policy each year.

Actuarial Projections

Section VIII of this report provides long-range projections of assets, liabilities, funded status, and contributions for the pension fund. The projections are shown to help the municipality understand the future funded status and future contribution requirements based on an expected set of assumptions.

Section II. Actuarial Certification

This actuarial valuation sets forth our calculation of an estimate of the liabilities of the City of Moundsville Firemen's Pension and Relief Fund, together with a comparison of these liabilities with the value of the Plan assets, as submitted by the City of Moundsville (the City). This liability calculation and comparison with assets is applicable for the valuation date only. The future is uncertain, and the Plan may become better funded or more poorly funded in the future. This valuation does not provide any guarantee that the Plan will be able to provide the promised benefits in the future.

The information in this report was prepared for the internal use of the MPOB, the West Virginia Legislature's Joint Committee on Pensions and Retirement, the City and their auditors in connection with their review of the City's financial statements and our actuarial valuation of the Plan. The purpose of this report is to provide information on the following:

- The sponsor's funding requirements for the fiscal year ending June 30, 2025, based on the selected funding policy, i.e., the **Optional** funding policy as defined in West Virginia Code §8-22-20(e)(1)
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2025
- The Fund's requirement to provide supplemental benefits for the plan year beginning July 1, 2025

This report is neither intended nor necessarily suitable for other purposes, including any analysis surrounding the consideration of pension obligation bonds (POBs). WV Code §8-33-4a(d) requires the POB analysis to be based on the most recent actuarial valuation report with appropriate adjustments for timing, experience and other factors. Cities considering the issuance of POBs must contact Bolton and the MPOB to determine the appropriate adjustments that must be made for purposes of meeting the requirement of the Code. Bolton is not responsible for the consequences of any other use or the reliance upon this report by any other party.

This report is based on plan provisions, census data, and asset data submitted by the City. We have relied on this information for purposes of preparing this report. We have not audited the census or asset data provided; however, based on our review, the data appears to be reasonable and consistent with previously provided information and appropriate for the purpose of producing this report. Unless otherwise noted in our report, we believe the information provided is sufficiently complete and reliable for purposes of the results presented in this report. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The City is solely responsible for the validity and completeness of this information.

The City is responsible for selecting the Plan's funding policy. The MPOB selects the actuarial valuation methods, asset valuation methods, and assumptions based on the advice of the Plan's actuary. The policies, methods and assumptions used in this valuation are those that have been so prescribed by the MPOB, in consultation with Bolton, and are described in this report. The MPOB is solely responsible for communicating to Bolton any changes required thereto.

The City of Moundsville Firemen's Pension Fund Board of Trustees is solely responsible for selecting the Plan's investment manager and assisting the investment manager in the selection of



the Plan's investment policies, asset allocations and individual investments. Bolton's actuaries have not provided any investment advice to the City.

This is a deterministic valuation in that it is based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. We may consider that some factors are not material to the valuation of the Plan and may not provide a specific assumption for those factors. The Plan may have used other assumptions in the past. We will likely consider changes in assumptions at a future date in conjunction with the MPOB.

Different assumptions or scenarios within the range of possibilities may also be reasonable and results based on those assumptions would be different. As a result of the uncertainty inherent in a forward-looking projection over a very long period of time, no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. Two different actuaries could, quite reasonably, arrive at different results based on the same data and different views of the future.

The City could reasonably ask how the valuation would change if we used a different assumption set or if plan experience exhibited variations from our assumptions. This report does not contain such an analysis. That type of analysis would be a separate assignment.

In addition, decisions regarding benefit improvements, benefit changes, the Plan's investment policy, pension obligation bonds, and similar issues should not be based on this valuation. These issues are complex and other factors should be considered when making such decisions. Other factors might include the anticipated vitality of the local economy and future growth expectations, as well as other economic and financial factors.

The cost of this Plan is determined by the benefits promised by the Plan, the Plan's participant population, the investment experience of the Plan and many other factors. An actuarial valuation is a budgeting tool for the City. It does not affect the cost of the Plan. Different funding policies and methods provide for different timing of contributions to the Plan. As the experience of the Plan evolves, it is normal for the level of contributions to the Plan to change. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We are not responsible for the consequences of any decision by the City to make contributions at a future time rather than an earlier time. The City is responsible for funding the cost of the Plan.

The report is conditioned on the assumption of an ongoing plan and is not meant to present the actuarial position of the Plan in the case of plan termination. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status), and changes in plan provisions or applicable law.

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

The calculations in this report have been computed in accordance with our understanding of generally accepted actuarial principles and practices and fairly reflect the actuarial position of the



Plan. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

We make every effort to ensure that our calculations are accurately performed. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report.

Bolton does not practice law and, therefore, cannot and does not provide legal advice. Any statutory interpretation on which this report is based reflects Bolton's understanding as an actuarial firm. Bolton recommends that recipients of this report consult with legal counsel when making any decisions regarding compliance with WV Code, ERISA, the Internal Revenue Code, or any other statute or regulation.

The MPOB, Pension Board, or the City should notify Bolton promptly after receipt of this report if the City disagrees with anything contained in the report or is aware of any information that would affect the results of the report that has not been communicated to Bolton or incorporated herein. The report will be deemed final and acceptable to the City unless the City promptly provides such notice to Bolton.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services, which could create a conflict of interest that would impair the objectivity of our work.

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

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

Jordan McClane, FSA, EA, FCA, MAAA

Section III. Normal Cost and Liabilities

Net Employer Normal Cost

The breakdown of the net employer normal cost as of the valuation date is illustrated below.

Net Employer Normal Cost (BOY)		7/1/2022	7/1/2023
1. Normal Cost	\$	48,402	\$ 41,919
2.a. Administrative Expenses (MOY)	\$	8,708	\$ 8,654
2.b. Administrative Expenses (BOY)	\$	8,468	\$ 8,386
3. Gross Normal Cost (1. + 2.b.)	\$	56,870	\$ 50,305
4. Expected Employee Contributions (BOY)	\$	8,299	\$ 8,757
5. Net Employer Normal Cost (3. – 4.)	\$	48,571	\$ 41,548
(% of Compensation)		40.97%	33.22%

Projected Net Employer Normal Cost

The breakdown of the projected net employer normal cost as of the first anniversary of the valuation date (i.e. the first day of the contribution year) is illustrated below.

Projected Net Employer Normal Cost (BOY)			
Valuation Date		7/1/2022	7/1/2023
Projection Date		7/1/2023	7/1/2024
1. Projected Normal Cost	\$	49,626	\$ 43,179
2.a. Projected Administrative Expenses (MOY)	\$	8,926	\$ 8,870
2.b. Projected Administrative Expenses (BOY)	\$	8,680	\$ 8,595
3. Projected Gross Normal Cost (1. + 2.b.)	\$	58,306	\$ 51,774
4. Projected Employee Contributions (BOY)	\$	8,509	\$ 9,020
5. Projected Net Employer Normal Cost (3. – 4.)	\$	49,797	\$ 42,754
(% of Compensation)		40.97%	33.18%



Unfunded Actuarial Accrued Liability

Below is a summary of the key valuation results.

		7/1/2022		7/1/2023	
1. Actuarial Accrued Liability	<u>Count</u>			<u>Count</u>	
a. Active	2	\$	759,111	2	\$ 763,906
b. Retirees	3		846,293	3	817,206
c. Survivors	7		1,026,265	6	918,397
d. Disableds	1		236,731	1	231,295
e. Deferred Vesteds	0		0	0	0
f. Former Members Due Refunds	0		0	0	0
g. Total	13	\$	2,868,400	12	\$ 2,730,804
2. Present Value of Future Normal Costs		\$	361,809	\$	278,338
3. Present Value of Benefits (1.g. + 2.)		\$	3,230,209	\$	3,009,142
4. Actuarial Value of Assets		\$	1,708,477	\$	1,689,292
5. Unfunded Actuarial Accrued Liability (1.g. – 4.)		\$	1,159,923	\$	1,041,512
6. Funded Ratio (4. / 1.g.)			59.56%		61.86%

Projected Unfunded Actuarial Accrued Liability

The development of the projected unfunded actuarial accrued liability as of the first anniversary of the valuation date (i.e. the first day of the contribution year) is illustrated below.

Projected Unfunded Actuarial Accrued Liability	7/1/2022	7/1/2023
1. Unfunded Actuarial Accrued Liability on Valuation Date	\$ 1,159,923	\$ 1,041,512
2. Net Employer Normal Cost, Excluding Expenses (BOY)	\$ 40,103	\$ 33,162
3. Expected Expenses (MOY)	\$ 8,708	\$ 8,654
4. Projected Employer Contribution Fiscal Year Beginning on the Valuation Date	\$ 33,325	\$ 51,209
5. Expected Premium Tax Allocation Fiscal Year Beginning on the Valuation Date	\$ 54,482	\$ 67,794
6. Projected Unfunded Actuarial Accrued Liability on Valuation Date + 1 Year	\$ 1,187,686	\$ 1,030,649



Section IV. Determination of City Contributions

Development of Estimated Minimum Required Contribution for Funding Purposes and Actuarially Determined Contribution for GASB Purposes

The development of the estimated minimum employer contribution for funding purposes and the actuarially determined contribution for GASB purposes is illustrated below.

This contribution satisfies the conditions of a reasonable actuarially determined contribution as defined in *Actuarial Standard of Practice (ASOP) 4: Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*.

Estimated Minimum Employer Contribution	FYE 2024	FYE 2025
1. Projected Gross Normal Cost, Including Administrative Expenses (BOY)	\$ 58,306	\$ 51,774
2. Projected Employee Contributions (BOY)	\$ 8,509	\$ 9,020
3. Projected Net Employer Normal Cost (BOY) (1. – 2.)	\$ 49,797	\$ 42,754
4. Interest on Normal Cost	\$ 1,412	\$ 1,368
5. Projected Total Employer Normal Cost with Interest (3. + 4.)	\$ 51,209	\$ 44,122
6. Amortization of Projected Unfunded Liability	\$ 47,052	\$ 36,231
7. Interest on Projected Unfunded Liability Payment	\$ 1,334	\$ 1,159
8. Unfunded Liability Payment with Interest (6. + 7.)	\$ 48,386	\$ 37,390
9. Estimated Premium Tax Allocation	\$ 67,794	\$ 84,249
10. Unfunded Liability Payment Net of Premium Tax Allocation (8. – 9., not less than 0)	\$ 0	\$ 0
11. Net Employer Contribution (5. + 10.)	\$ 51,209	\$ 44,122
12. Actuarially Determined Contribution for GASB Purposes (5. + 8., not less than 0)	\$ 99,595	\$ 81,512



Schedule of Amortization Bases for Funding and GASB Purposes

Below is a schedule of the amortization bases as of July 1, 2024 used to develop the estimated minimum employer contribution for funding purposes and the actuarially determined contribution for GASB purposes.

Description	Date Established	Remaining Years	Outstanding Amount	Payment / (Credit)
Initial Unfunded	7/1/2019	25.5	\$ 2,207,176	\$ 168,539
Actuarial (Gain)/Loss	7/1/2021	12.0	\$ (373,191)	\$ (42,950)
Assumption and Method Changes	7/1/2021	12.0	\$ (416,878)	\$ (47,977)
Actuarial (Gain)/Loss	7/1/2022	13.0	\$ (200,449)	\$ (21,886)
Assumption Change	7/1/2022	13.0	\$ (174,532)	\$ (19,056)
Actuarial (Gain)/Loss	7/1/2023	14.0	\$ 39,349	\$ 4,099
Assumption Change	7/1/2023	14.0	\$ 124,746	\$ 12,995
Actuarial (Gain)/Loss	7/1/2024	15.0	\$ 46,965	\$ 4,690
Assumption Change	7/1/2024	15.0	\$ (222,537)	\$ (22,223)
Total			\$ 1,030,649	\$ 36,231



Section V. Assets

Asset Allocation

The table below shows the amount of funds invested in each account as of June 30, 2022 and June 30, 2023.

Assets Held by Category	June 30, 2022		June 30, 2023	
Cash and Deposits	\$	49,639	\$	104,107
Receivables				
Contributions	\$	0	\$	0
Investment Income		0		0
Total Receivables	\$	0	\$	0
Investment				
Government Securities	\$	0	\$	0
Fixed Income		454,610		466,483
Equities		1,125,824		1,086,409
Alternative Investments		0		0
Other		0		0
Total Investments	\$	1,580,434	\$	1,552,892
Total Assets	\$	1,630,073	\$	1,656,999
Payables				
Investment Expense	\$	0	\$	0
Benefits and Withdrawals		0		0
Administrative Expense		0		0
Total Payables	\$	0	\$	0
Net Position	\$	1,630,073	\$	1,656,999



Reconciliation of Assets

Below is a reconciliation of assets (unaudited) for the years ending June 30, 2022 and June 30, 2023.

Plan Year Ending	June 30, 2022		June 30, 2023	
1. Beginning of Year Market Value of Assets	\$	1,940,960	\$	1,630,073
Adjustments to Market Value of Assets		0		0
Beginning of Year Market Value of Assets	\$	1,940,960	\$	1,630,073
2. Additions				
a. Contributions				
(i) Local Government	\$	101,048	\$	35,673
(ii) State Government		71,466		54,481
(iii) Employee		8,118		8,687
(iv) Total		180,632		98,841
b. Receivable Contributions				
(i) Local Government		0		0
(ii) State Government		0		0
(iii) Employee Contributions		0		0
(iv) Total		0		0
c. Earnings on Investments				
(i) Net Appreciation/(Depreciation)		(342,348)		92,259
(ii) Net Realized Gain (Loss) on Sale/Exchange		75,901		31,838
(iii) Interest and Dividends		24,847		29,779
(iv) Other Income		0		0
(v) Investment Expense		(13,912)		(11,964)
(vi) Receivable Investment Income		0		0
(vii) Payable Investment Expenses		0		0
(viii) Net Investment Income		(255,512)		141,912
d. Other Revenue		0		49
e. Total Additions	\$	(74,880)	\$	240,802
3. Disbursements				
a. Benefit Payments	\$	219,184	\$	213,814
b. Withdrawals		0		0
c. Administrative Expenses				
(i) Municipal Fees		0		0
(ii) Other Expenses		16,823		62
(iii) Total Administrative Expenses		16,823		62
d. Payable Benefits and Withdrawals		0		0
e. Payable Administrative Expenses		0		0
f. Total Disbursements	\$	236,007	\$	213,876
4. Net Increase (2.e. – 3.f.)		(310,887)		26,926
5. Net Assets (1. + 4.)	\$	1,630,073	\$	1,656,999
6. Rate of Return Net of Investment Fees (2I / [A + B – I] Method ³)		-13.4%		9.0%

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, 2023

MVA (Gain)/Loss for Plan Year Ended June 30, 2023		
Market Value of Assets (MVA)		
a. MVA as of 7/1/2022	\$	1,630,073
b. Interest on a. to 6/30/2023		93,729
c. Contributions with Interest to 6/30/2023		101,643
d. Benefit Payments with Interest to 6/30/2023		219,875
e. Administrative Expenses with Interest to 6/30/2023		64
f. Expected MVA at 6/30/2023 (a. + b. + c. – d. – e.)		1,605,506
g. Actual MVA at 6/30/2023		1,656,999
h. MVA (Gain)/Loss (f. - g.)		(51,493)

Development of Actuarial Value of Assets

The actuarial asset value as of July 1, 2023 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, 2023
1.	Market Value of Assets		\$	1,656,999
2.	Spreading of Investment (Gains)/Losses			
	Fiscal Year	(Gain)/Loss	% Deferred	Amount Deferred
	2023	\$ (51,493)	75%	\$ (38,620)
	2022	375,117	50%	187,559
	2021	(466,582)	25%	(116,646)
	2020	121,428	0%	0
	a. Total Deferred			32,293
3.	Actuarial Value of Assets (1. + 2.a.)		\$	1,689,292
4.	Rate of Return Net of Investment Fees (2I / [A + B – I] Method)			5.81%



Section VI. Experience (Gain)/Loss

Experience (Gain)/Loss for Plan Year Ended June 30, 2023

Experience (Gain)/Loss for Plan Year Ended June 30, 2023		
1. Liabilities		
a. Actuarial Accrued Liability as of 7/1/2022	\$	2,868,400
b. Normal Cost as of 7/1/2022		48,402
c. Interest on a. and b. to 6/30/2023		167,716
d. Benefit Payments with Interest to 6/30/2023		219,875
e. Effect of Assumption Changes		(220,130)
f. Expected Liability at 7/1/2023 (a. + b. + c. - d. + e.)		2,644,513
g. Actual Liability at 7/1/2023		2,730,804
h. Liability (Gain)/Loss (g. - f.)		86,291
2. Actuarial Value of Assets (AVA)		
a. AVA as of 7/1/2022	\$	1,708,477
b. Interest on a. to 6/30/2023		98,237
c. Contributions with Interest to 6/30/2023		101,643
d. Benefit Payments with Interest to 6/30/2023		219,875
e. Administrative Expenses with Interest to 6/30/2023		64
f. Expected AVA at 6/30/2023 (a. + b. + c. - d. - e.)		1,688,418
g. Actual AVA at 6/30/2023		1,689,292
h. AVA (Gain)/Loss (f. - g.)		(874)
3. Total (Gain)/Loss (1h. + 2h.)	\$	85,417

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 VII. Risk Discussion

Risk Measures

Pension plans are complicated financial instruments designed to provide income security for plan participants as they move through their working lives and into retirement. As such they can be subject to many different forces that can put the plan in better or worse positions over time. The primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions.

The “maturity” level of a plan can indicate the likely sensitivity the plan will have to different events whether positive or negative. Variations in the investment returns are a common source of these types of events or shocks. Other sources might be experience that differs from that assumed, assumption changes, or plan changes.

The purpose of this section is to provide the reader with a basic understanding of the fundamentals of pension financing and the associated risks, including implications of the Plan’s funding policy on future plan funding, how future experience may differ from the assumptions used, and the potential volatility of future measurements resulting from these differences.

Elements of Pension Plan Financing

The following equation lays out the fundamental elements of pension plan financing:

$$\text{Contributions} + \text{Investment Returns} = \text{Benefit Payments} + \text{Expenses}$$

Employers and employees **contribute** to a plan based on the statutory requirements, plan terms, and plan sponsor funding policy. The plan invests these contributions and earns a **return** on that investment. Together, these contributions and investment returns are the sole sources of income to the plan. **Benefits** are paid to participants who have met the eligibility and vesting requirements defined by the plan. Plans also pay administrative, investment, auditing, legal, and other **expenses** for maintaining the plan. **Over time, contributions and investment earnings must equal benefits and expenses.**

From this equation, it is evident that funding, investment, and benefit policies must be developed together. Once the benefit terms are established, each plan sponsor must determine the desired balance of contributions versus investment returns needed to finance benefits accrued to participants. It is important to remember that the plan sponsor’s investment and funding policies, along with the selected actuarial assumptions, determine the assumed balance between contributions and investment returns. **The actual cost of a plan is based on the actual experience of the plan and may result in a different balance than is assumed.** Ultimately, the expected return does not impact the long-term relationship between the contributions required and the benefit level that can be supported by such contributions. Using a higher expected return assumption may give a false sense of benefit security if the plan does not realize that level of actual returns over time.

The development of integrated benefit, funding, and investment policies generally requires consideration of many factors such as:

- Balancing benefit security and intergenerational equity;
- Risk appetite and ability to absorb short-term volatility in plan contributions;
- Current plan funded status;
- Timing and expected duration of benefit payments; and
- Nature and frequency of past and anticipated future plan amendments.

Significant Risks Affecting Pension Plans

Examples of risk common to most public plans include the following (generally listed from greatest to least risk):

- **Investment risk:** The potential that investment returns will be different than expected.
- **Contribution risk:** the potential that actual future contributions are not made in accordance with the plan's actuarially-based funding policy.
- **Longevity and other demographic risks:** The potential that mortality or other demographic experience will be different than expected.
- **Asset/liability mismatch risk:** The potential that changes in the value of liabilities are not matched by changes in asset values.
- **Cash flow risks:** The potential that contributions to the plan will not cover benefit payments and expenses.

Investment risk is often the single most significant risk for defined benefit plans. Plans that seek a higher investment return are typically forced to accept a higher level of volatility that can change the plan's funded status drastically year-to-year. Use of an asset smoothing method that phases in investment gains and losses over a period of years can give the perception of less volatility in the funded status from year to year.

Contribution risk most commonly results from either large contribution increases that are difficult for the plan sponsor to meet, or from a material decrease in the number of covered employees and/or covered payroll.

Assumptions regarding mortality and other demographic factors related to participant behavior bring the risk that future experience will diverge from the reasonable assumptions utilized within the actuarial valuation model. For example, participants living longer than expected will increase plan costs, while people terminating sooner than expected will generally decrease plan costs. Additionally, what is considered a reasonable assumption may change over time and lead to an increase or decrease in future contributions. Actual life expectancies may be longer or shorter than what is reflected in the valuation and benefit payment projections and will increase or decrease the cost of the plan as actual experience emerges.

Asset/liability mismatch risk is also another major risk for many pension plans. To the extent that the duration of plan assets is not matched to the duration of plan liabilities the change in discount rates could have a significant impact on the plan's funded status. For most public

pension plans, changes in asset values and interest rates do not directly affect the measurement of the plan's liability. Liability-driven investment approaches (where the liability is immunized by investments in fixed income whose cash inflows are matched to the benefit payment outflows, or the asset and liability durations are brought into close alignment) will reduce this risk; however, it is difficult to invest in a manner that hedges all risks.

As plans mature, they become more reliant on investment returns to pay benefits and expenses. When plans have negative cash flows, they must spend interest and dividends, or may be forced to sell assets at inopportune times, to meet those obligations. Plans with DROP or other lump sum payment features are particularly exposed to this risk.

One item left off this list is "interest rate risk" (i.e., the potential that interest rates will be different than expected). This risk is common in corporate ERISA plans where funding is based on bond rates. Interest rates on bonds are still an important consideration when setting an expected return assumption and can change over time, along with long-term capital market expectations. Together these may lead to a change in the interest rate used to value plan liabilities which will increase or decrease the measurement of plan liabilities and the actuarially determined contribution.

Quantifying Investment and Funded Status Risk

Although cash and money market funds have the lowest absolute investment risk, they are typically not the lowest risk investment for a pension plan. With respect to interest rate risk, a pension plan liability behaves like the price of a bond because both equal the discounted value of a series of future cash flows. The present value will change in the opposite direction to a change in interest rates. Therefore, a bond portfolio with the timing of expected income cash flows matched to the expected benefit payment outflows is typically the lowest risk investment approach for a pension plan.

Corporate, Treasury, and municipal bonds, often considered lower risk investment classes, can still have a high level of interest rate risk in their present values. If the duration (timing and pattern of income payments) of the fixed income assets are misaligned with the duration of the plan's liability, there can be significant funded status volatility as interest rates change. The way to mitigate this volatility is minimizing the asset/liability (or duration) mismatch risk.

One means of quantifying the expected cost of assuming future investment and asset/liability mismatch risk is to compare the Plan's current assets to a liability calculated assuming very low default risk. One such measure is called a **Low Default-Risk Obligation Measure (LDROM)**. An example of an LDROM is the Plan's Funding Liability determined using a discount rate based on the yields on high quality municipal bonds, similar to what is referenced under GASB statement 68.

	Liability Measure	Assumed Return
Actuarial Liability – Funding Policy Return	\$ 2,730,804	6.50%
Actuarial Liability – Municipal Bond Yield (LDROM)	\$ 3,549,343	3.86%
Market Value of Assets	\$ 1,656,999	6.50%

The difference between the LDROM and the Actuarial Liability used to determine funding contributions can be viewed in several ways, and certain views of this measure may be more relevant for some plan sponsors:

- The expected long-term contribution savings to be achieved by investing in asset classes with higher expected risk and returns than bonds.
- The cost of investing in an all-bond portfolio and significantly lowering expected long-term investment returns in exchange for protecting the Plan’s current funded status.
- A measure of the Plan’s non-diversifiable investment risk.

Investors expect to be compensated for assuming risk when they make an investment. The risk premium of an investment is the return an asset is expected to generate in excess of the risk-free rate of return. The more risk assumed by the investor, the greater the return they expect to achieve in exchange for accepting that risk.

For plans whose assumed long-term rate of return on plan assets is greater than the municipal bond yield used for the LDROM calculation, the expected cost to the plan sponsor of funding the plan will be lower because of the greater level of investment risk accepted. This in turn leads to greater volatility in the plan’s funded status because the actual return on plan investments is expected to vary considerably year-to-year. Conversely, if a plan has taken steps to reduce asset/liability mismatch risk, the expected cost of contributions to fund the plan will be greater (if the plan is not already fully funded) and the volatility in the plan’s funded status will be reduced.

Selecting the right level of investment risk (and associated asset/liability mismatch risk) for a plan requires complex analysis that goes beyond the scope of these basic disclosures. Included in any such analysis must be an evaluation of the plan sponsor’s funding policy.

Risk Considerations in Assessing a Funding Policy

When assessing a plan’s funding policy, two primary considerations are:

- Whether the contributions are determined using reasonable and appropriate actuarial cost, amortization, and asset valuation methods (i.e., is the contribution an Actuarially Determined Contribution (ADC)), and
- The projected period until any Unfunded Actuarial Accrued Liability (UAAL) is fully amortized.

Under the current funding policy, the annual contribution is an ADC. The Plan’s UAAL is required to be amortized over varying periods ranging from 1 – 25.5 years, depending on the source of the change, with new layered amortization bases established annually.

Assuming all actuarial assumptions reflected in the annual valuation are met and contributions are made according to the funding policy, the plan’s UAAL is expected to decrease in future years. The effect of declining interest rates, investment losses, or other actuarial losses may offset the favorable effect of these contributions and cause the UAAL to remain steady or increase in future years.

The second consideration for plan sponsors is the projected period until full funding. Based on the Plan’s amortization policy, if contributions are made as expected based on the current valuation and plan funding policy, and all actuarial assumptions are met, the plan is expected to pay off the UAAL in approximately 25.5 years. Depending on future actuarial and investment experience, the plan may be projected to reach \$0 in UAAL in greater than or fewer than 25.5 years.

Some examples of changes from year to year that will shorten or lengthen the period until the UAAL is fully amortized include:

⊘

Factors that Shorten the Amortization Period	Factors that Lengthen the Amortization Period
Contributing more than the ADC	Contributing less than the ADC
Investment and demographic gains	Investment and demographic losses
Increasing interest rates	Decreasing interest rates
Shorter life expectancies	Longer life expectancies
Reducing or eliminating future benefit accruals	Increasing benefit accruals (past and/or future)

Historical Plan Risk and Maturity Measures

While historical plan experience is no guaranteed predictor of the future, it can be informative in assessing the degree of risk and variability in the annual valuation results year-to-year, and in understanding how certain factors influence future outcomes.

There are several plan maturity measures that can be significant to understanding the risks associated with the plan and how they change over time. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee group covered by the plan and how they have changed over time.

Risk Measure	July 1, 2021	July 1, 2022	July 1, 2023
Inactive AAL Percent of Total AAL	77.8%	73.5%	72.0%
Assets (MVA) to Payroll	17.4	13.4	12.8
Liabilities to Payroll	23.8	23.5	21.2
Benefit Payments to Contributions	1.2	1.2	2.2

The Assets to Payroll ratio, also called the Asset Volatility Ratio (AVR), is equal to the market value of assets (MVA) divided by payroll. A higher AVR implies that the plan is exposed to greater contribution volatility. The current *Assets to Payroll* of 12.8 indicates that a 1% asset gain/loss is about 12.8% of the annual payroll.

The Liabilities to Payroll ratio, also called the Liability Volatility Ratio (LVR), is equal to the Actuarial Accrued Liability (AAL) divided by payroll. A higher LVR implies that the plan is exposed to greater contribution volatility due to changes in liability measurements. The current *Liabilities to Payroll* of 21.2 indicates that a 1% change in liability is about 21.2% of the annual payroll.

As the plan approaches a 100% funded level, the AVR will converge to the LVR.

The use of payroll in these risk measures is generally an easily available substitute for the employer's revenue and often reflects the employer's ability to afford the plan. However, this plan is closed to new entrants, and thus, the payroll figure used in these metrics generally does not align with revenue as it represents only current active members (as of July 1, 2023) who were hired prior to adopting the Optional funding policy. Each of these measures is a measure of plan maturity. The common evolution of a pension plan is to become more mature over time. Mature plans present more risk to plan sponsors because changes to the liability or assets will result in large changes in the unfunded liability as compared to the overall size of the employer as measured by payroll. As a result, the change in the metrics over time can be as important as the nominal size of the metric itself.

Additional Review

In some instances, more detailed quantitative assessment of risks is warranted either by the above maturity metrics, part of a periodic self-assessment of risks, or due to changes in investment allocations and capital market assumptions. When risks are identified and discussed early, Plan Sponsors may have more options available to them to address those risks. As plans mature, however, certain tools become less effective for addressing potential future funding shortfalls.

The following are examples of tests that could be performed:

- **Scenario Test**—A process for assessing the impact of one possible event, or several simultaneously or sequentially occurring possible events, on a plan’s financial condition. A scenario test could show, for example, the effect of a layoff or reduction in workforce, or early retirement program.
- **Sensitivity Test**—A process for assessing the impact of a change in an actuarial assumption on an actuarial measurement. A sensitivity analysis could demonstrate, for example, the impact of a decrease in the valuation discount rate or a change in future life expectancies.
- **Stochastic Modeling**—A process for generating numerous potential outcomes by allowing for random variations in one or more inputs over time for the purpose of assessing the distribution of those outcomes. This type of analysis could show, for example, a range of potential future contribution levels and the likelihood of contributions increasing to a certain level.
- **Stress Test**—A process for assessing the impact of adverse changes in one or relatively few factors affecting a plan’s financial condition. A stress test could show, for example, the impact of a single year or period of several years with significant investment losses.

Section VIII. Projections



Table 1 – 40-Year Projection of Optional Funding

Year End June 30	Number (BOY)		Assets									Actuarial Accrued Liability	Unfunded Liability	Projected Unfunded Liability	Funded Ratio
	Active	Non- Active	MVA (BOY)	Benefit Payments	Expenses	Employer Contrib.	Employee Contrib.	Premium Tax Allocation	Investment Income	MVA (EOY)	AVA (EOY)				
2023	2	11	\$1,630,073	\$213,814	\$62	\$35,673	\$8,687	\$54,481	\$141,961	\$1,656,999	\$1,689,292	\$2,730,804	\$1,041,512	\$1,030,649	61.86%
2024	2	10	\$1,656,999	\$218,312	\$8,654	\$51,209	\$9,037	\$67,794	\$104,540	\$1,662,613	\$1,730,646	\$2,727,655	\$997,009	\$974,870	63.45%
2025	2	10	\$1,662,613	\$216,474	\$8,870	\$44,122	\$9,309	\$84,249	\$105,266	\$1,680,215	\$1,667,342	\$2,727,540	\$1,060,198	\$1,041,589	61.13%
2026	2	9	\$1,680,215	\$213,885	\$8,334	\$44,627	\$9,584	\$84,809	\$106,553	\$1,703,569	\$1,703,569	\$2,731,448	\$1,027,879	\$1,002,774	62.37%
2027	2	9	\$1,703,569	\$209,914	\$8,542	\$45,990	\$9,889	\$89,067	\$108,381	\$1,738,440	\$1,738,440	\$2,741,214	\$1,002,774	\$972,902	63.42%
2028	2	9	\$1,738,440	\$204,984	\$8,756	\$47,484	\$10,225	\$92,106	\$110,954	\$1,785,469	\$1,785,469	\$2,758,371	\$972,902	\$938,508	64.73%
2029	2	8	\$1,785,469	\$220,827	\$8,159	\$39,241	\$8,247	\$94,606	\$113,276	\$1,811,853	\$1,811,853	\$2,750,361	\$938,508	\$898,998	65.88%
2030	1	9	\$1,811,853	\$242,864	\$8,363	\$27,884	\$5,156	\$97,397	\$113,907	\$1,804,970	\$1,804,970	\$2,703,968	\$898,998	\$854,203	66.75%
2031	1	9	\$1,804,970	\$249,267	\$8,572	\$22,946	\$3,792	\$100,029	\$113,130	\$1,787,028	\$1,787,028	\$2,641,231	\$854,203	\$803,025	67.66%
2032	0	9	\$1,787,028	\$250,812	\$7,908	\$18,781	\$2,865	\$103,393	\$111,881	\$1,765,228	\$1,765,228	\$2,568,253	\$803,025	\$745,331	68.73%
2033	0	8	\$1,765,228	\$248,859	\$7,205	\$15,710	\$2,240	\$106,485	\$110,529	\$1,744,128	\$1,744,128	\$2,489,459	\$745,331	\$680,403	70.06%
2034	0	8	\$1,744,128	\$244,258	\$7,385	\$14,308	\$1,821	\$109,860	\$109,349	\$1,727,823	\$1,727,823	\$2,408,226	\$680,403	\$608,216	71.75%
2035	0	7	\$1,727,823	\$237,611	\$6,623	\$12,559	\$1,560	\$112,805	\$108,556	\$1,719,069	\$1,719,069	\$2,327,285	\$608,216	\$527,919	73.87%
2036	0	7	\$1,719,069	\$229,910	\$6,789	\$11,970	\$1,361	\$116,116	\$108,309	\$1,720,126	\$1,720,126	\$2,248,045	\$527,919	\$422,521	76.52%
2037	0	6	\$1,720,126	\$230,146	\$5,965	\$20,640	\$333	\$121,950	\$108,827	\$1,735,765	\$1,735,765	\$2,158,286	\$422,521	\$266,663	80.42%
2038	0	6	\$1,735,765	\$219,884	\$6,114	\$55,445	\$294	\$129,402	\$111,518	\$1,806,426	\$1,806,426	\$2,073,089	\$266,663	\$118,871	87.14%
2039	0	6	\$1,806,426	\$212,345	\$6,267	\$33,436	-	\$132,838	\$115,743	\$1,869,831	\$1,869,831	\$1,988,702	\$118,871	-	94.02%
2040	0	5	\$1,869,831	\$201,795	\$5,353	\$5,353	-	\$122,674	\$119,008	\$1,909,718	\$1,909,718	\$1,909,718	-	-	100.00%
2041	0	5	\$1,909,718	\$191,606	\$5,487	\$5,487	-	-	\$118,003	\$1,836,115	\$1,836,115	\$1,836,115	-	-	100.00%
2042	0	4	\$1,836,115	\$181,908	\$4,499	\$4,499	-	-	\$113,529	\$1,767,736	\$1,767,736	\$1,767,736	-	-	100.00%
2043	0	4	\$1,767,736	\$172,795	\$4,611	\$4,611	-	-	\$109,375	\$1,704,316	\$1,704,316	\$1,704,316	-	-	100.00%
2044	0	4	\$1,704,316	\$164,373	\$4,726	\$4,726	-	-	\$105,523	\$1,645,466	\$1,645,466	\$1,645,466	-	-	100.00%
2045	0	3	\$1,645,466	\$156,677	\$3,633	\$3,633	-	-	\$101,943	\$1,590,732	\$1,590,732	\$1,590,732	-	-	100.00%
2046	0	3	\$1,590,732	\$149,751	\$3,724	\$3,724	-	-	\$98,607	\$1,539,588	\$1,539,588	\$1,539,588	-	-	100.00%
2047	0	3	\$1,539,588	\$143,601	\$3,817	\$3,817	-	-	\$95,480	\$1,491,467	\$1,491,467	\$1,491,467	-	-	100.00%
2048	0	3	\$1,491,467	\$138,212	\$3,912	\$3,912	-	-	\$92,524	\$1,445,779	\$1,445,779	\$1,445,779	-	-	100.00%
2049	0	2	\$1,445,779	\$133,544	\$2,673	\$2,673	-	-	\$89,704	\$1,401,939	\$1,401,939	\$1,401,939	-	-	100.00%
2050	0	2	\$1,401,939	\$129,546	\$2,740	\$2,740	-	-	\$86,982	\$1,359,375	\$1,359,375	\$1,359,375	-	-	100.00%
2051	0	2	\$1,359,375	\$126,147	\$2,809	\$2,809	-	-	\$84,324	\$1,317,552	\$1,317,552	\$1,317,552	-	-	100.00%
2052	0	2	\$1,317,552	\$123,268	\$2,879	\$2,879	-	-	\$81,698	\$1,275,982	\$1,275,982	\$1,275,982	-	-	100.00%
2053	0	2	\$1,275,982	\$120,821	\$2,951	\$2,951	-	-	\$79,074	\$1,234,235	\$1,234,235	\$1,234,235	-	-	100.00%
2054	0	2	\$1,234,235	\$118,713	\$3,025	\$3,025	-	-	\$76,428	\$1,191,950	\$1,191,950	\$1,191,950	-	-	100.00%
2055	0	2	\$1,191,950	\$116,847	\$3,101	\$3,101	-	-	\$73,739	\$1,148,842	\$1,148,842	\$1,148,842	-	-	100.00%
2056	0	2	\$1,148,842	\$115,131	\$3,179	\$3,179	-	-	\$70,992	\$1,104,703	\$1,104,703	\$1,104,703	-	-	100.00%
2057	0	2	\$1,104,703	\$113,474	\$3,258	\$3,258	-	-	\$68,176	\$1,059,405	\$1,059,405	\$1,059,405	-	-	100.00%
2058	0	2	\$1,059,405	\$111,786	\$3,339	\$3,338	-	-	\$65,286	\$1,012,904	\$1,012,904	\$1,012,904	-	-	100.00%
2059	0	2	\$1,012,904	\$109,985	\$3,422	\$3,422	-	-	\$62,321	\$965,240	\$965,240	\$965,240	-	-	100.00%
2060	0	2	\$965,240	\$107,995	\$3,508	\$3,508	-	-	\$59,286	\$916,531	\$916,531	\$916,531	-	-	100.00%
2061	0	2	\$916,531	\$105,746	\$3,596	\$3,596	-	-	\$56,192	\$866,977	\$866,977	\$866,977	-	-	100.00%
2062	0	2	\$866,977	\$103,181	\$3,686	\$3,686	-	-	\$53,053	\$816,849	\$816,849	\$816,849	-	-	100.00%
2063	0	2	\$816,849	\$100,252	\$3,778	\$3,778	-	-	\$49,888	\$766,485	\$766,485	\$766,485	-	-	100.00%
2064	0	1	\$766,485	\$96,916	\$1,936	\$1,936	-	-	\$46,721	\$716,290	\$716,290	\$716,290	-	-	100.00%

Table 1 – 40-Year Projection of Optional Funding (Cont.)



Year End June 30	Total Payroll	Employer Contributions									Optional Employer Contrib.
		Employee Contrib. (BOY)	Gross Normal Cost	Interest on Net Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Mid-Year Interest on Amortization	Premium Tax Allocation	Net Employer Amortization	Expenses	
2025	\$132,962	\$9,020	\$43,179	\$1,093	\$35,252	\$36,231	\$1,159	\$84,249	-	\$8,870	\$44,122
2026	\$136,894	\$9,287	\$44,455	\$1,125	\$36,293	\$32,654	\$1,045	\$84,809	-	\$8,334	\$44,627
2027	\$141,243	\$9,582	\$45,869	\$1,161	\$37,448	\$41,729	\$1,335	\$89,067	-	\$8,542	\$45,990
2028	\$146,060	\$9,908	\$47,436	\$1,200	\$38,728	\$40,270	\$1,288	\$92,106	-	\$8,756	\$47,484
2029	\$117,256	\$7,991	\$38,110	\$963	\$31,082	\$40,270	\$1,288	\$94,606	-	\$8,159	\$39,241
2030	\$73,445	\$4,996	\$23,912	\$605	\$19,521	\$40,270	\$1,288	\$97,397	-	\$8,363	\$27,884
2031	\$54,020	\$3,674	\$17,602	\$446	\$14,374	\$40,270	\$1,288	\$100,029	-	\$8,572	\$22,946
2032	\$40,836	\$2,776	\$13,312	\$337	\$10,873	\$40,270	\$1,288	\$103,393	-	\$7,908	\$18,781
2033	\$31,939	\$2,171	\$10,412	\$264	\$8,505	\$40,270	\$1,288	\$106,485	-	\$7,205	\$15,710
2034	\$25,981	\$1,765	\$8,473	\$215	\$6,923	\$40,270	\$1,288	\$109,860	-	\$7,385	\$14,308
2035	\$22,261	\$1,512	\$7,264	\$184	\$5,936	\$40,270	\$1,288	\$112,805	-	\$6,623	\$12,559
2036	\$19,420	\$1,319	\$6,339	\$161	\$5,181	\$40,268	\$1,288	\$116,116	-	\$6,789	\$11,970
2037	\$4,756	\$323	\$1,527	\$39	\$1,243	\$131,186	\$4,196	\$121,950	\$13,432	\$5,965	\$20,640
2038	\$4,192	\$285	\$1,345	\$34	\$1,094	\$172,133	\$5,506	\$129,402	\$48,237	\$6,114	\$55,445
2039	-	-	-	-	-	\$155,047	\$4,960	\$132,838	\$27,169	\$6,267	\$33,436
2040	-	-	-	-	-	\$172,578	\$5,520	\$122,674	\$55,424	\$5,353	\$5,353
2041	-	-	-	-	-	-	-	-	-	\$5,487	\$5,487
2042	-	-	-	-	-	-	-	-	-	\$4,499	\$4,499
2043	-	-	-	-	-	-	-	-	-	\$4,611	\$4,611
2044	-	-	-	-	-	-	-	-	-	\$4,726	\$4,726
2045	-	-	-	-	-	-	-	-	-	\$3,633	\$3,633
2046	-	-	-	-	-	-	-	-	-	\$3,724	\$3,724
2047	-	-	-	-	-	-	-	-	-	\$3,817	\$3,817
2048	-	-	-	-	-	-	-	-	-	\$3,912	\$3,912
2049	-	-	-	-	-	-	-	-	-	\$2,673	\$2,673
2050	-	-	-	-	-	-	-	-	-	\$2,740	\$2,740
2051	-	-	-	-	-	-	-	-	-	\$2,809	\$2,809
2052	-	-	-	-	-	-	-	-	-	\$2,879	\$2,879
2053	-	-	-	-	-	-	-	-	-	\$2,951	\$2,951
2054	-	-	-	-	-	-	-	-	-	\$3,025	\$3,025
2055	-	-	-	-	-	-	-	-	-	\$3,101	\$3,101
2056	-	-	-	-	-	-	-	-	-	\$3,179	\$3,179
2057	-	-	-	-	-	-	-	-	-	\$3,258	\$3,258
2058	-	-	-	-	-	-	-	-	-	\$3,338	\$3,338
2059	-	-	-	-	-	-	-	-	-	\$3,422	\$3,422
2060	-	-	-	-	-	-	-	-	-	\$3,508	\$3,508
2061	-	-	-	-	-	-	-	-	-	\$3,596	\$3,596
2062	-	-	-	-	-	-	-	-	-	\$3,686	\$3,686
2063	-	-	-	-	-	-	-	-	-	\$3,778	\$3,778
2064	-	-	-	-	-	-	-	-	-	\$1,936	\$1,936



Section IX. 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, 2022	July 1, 2023
1. Actives		
a. Number	2	2
b. Average Age	45.1	46.1
c. Average Service	14.5	15.5
d. Average Salary	\$ 61,751	\$ 65,153
2. Retirees		
a. Number	3	3
b. Average Age	79.7	80.7
c. Total Annual Benefits	\$ 90,798	\$ 96,562
3. Survivors		
a. Number	7	6
b. Average Age	77.7	76.9
c. Total Annual Benefits	\$ 104,569	\$ 94,570
4. Disableds		
a. Number	1	1
b. Average Age	77.6	78.6
c. Total Annual Benefits	\$ 26,944	\$ 29,066
5. Deferred Vesteds		
a. Number	0	0
b. Average Age	N/A	N/A
c. Total Annual Benefits	\$ N/A	\$ N/A
6. Members Owed Refunds		
a. Number	0	0
b. Average Age	N/A	N/A
c. Total Refunds Owed	\$ N/A	\$ N/A



Active Age/Service Distribution Including Compensation

Shown below is the age and service distribution of active participants in the City of Moundsville Firemen’s Pension and Relief Fund. The compensation shown is the average projected pay for the plan year beginning July 1, 2023.

Credited Service as of July 1, 2023

		0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	Total
Participant Age	Under 25	-	-	-	-	-	-	-	-
	25 - 29	-	-	-	-	-	-	-	-
	30 - 34	-	-	-	-	-	-	-	-
	35 - 39	-	-	-	-	-	-	-	-
	40 - 44	-	-	-	-	-	-	-	-
	45 - 49	-	-	-	2	-	-	-	2
	50 - 54	-	-	-	65,153	-	-	-	65,153
	55 - 59	-	-	-	-	-	-	-	-
	60 - 64	-	-	-	-	-	-	-	-
	65 & Up	-	-	-	-	-	-	-	-
	Totals	-	-	-	2	-	-	-	2
		-	-	-	65,153	-	-	-	65,153

Averages

Age	46.1
Service	15.5



Participant Reconciliation

Shown below is the reconciliation of participants between the prior and current valuation date.

	Actives	Retirees	Survivors	Disableds	Deferred Vesteds	Due Refund	Total
Participants as of 7/1/2022	2	3	7	1	-	-	13
New	-	-	-	-	-	-	-
Rehired	-	-	-	-	-	-	-
Terminated - Vested	-	-	-	-	-	-	-
Terminated - Nonvested	-	-	-	-	-	-	-
Disabled	-	-	-	-	-	-	-
Retired	-	-	-	-	-	-	-
Paid Refund	-	-	-	-	-	-	-
Payments Expired	-	-	-	-	-	-	-
Deceased - No Survivor	-	-	(1)	-	-	-	(1)
Deceased - With Survivor	-	-	-	-	-	-	-
New Beneficiary	-	-	-	-	-	-	-
New QDRO	-	-	-	-	-	-	-
Corrections	-	-	-	-	-	-	-
Participants as of 7/1/2023	2	3	6	1	-	-	12

Section X. 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 immediate preceding the twelve-consecutive-month period used to determine benefits.

Employee Contributions

Participating employees hired before January 1, 2010: 7.00% of compensation.

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

Employer Contributions

The municipality has elected to contribute the minimum employer contribution under the Optional funding policy.

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% for each year of service between 20 and 25 years
- 1% for each year of service between 25 and 30 years
- Employees serving in the military are eligible for an additional 1% of average annual compensation for each year of military service up to four years.

The maximum benefit is limited to 75% of average annual compensation.

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 2023, indexed by state minimum wage for years after 2023) 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 dies without leaving a spouse or dependents, the excess of (a) the member's contributions with 6% per annum interest over (b) the retirement or disability benefits already received shall be refunded to the member's named beneficiary or estate.

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 death benefits payable as described in the *Death Benefit* section on the previous page. 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. Although the percentages of the member's benefit payable to other categories of surviving dependents differ from the 60% payable to the surviving spouse, the same benefit indexing methodology applies. 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. 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 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.

Changes in Plan Provisions Since Prior Valuation

None.

Section XI. 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 (7.0 years remaining for contributions developed for the fiscal year ending June 30, 2025). 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, 2025 is 7.0 years for sponsors who previously used the Standard funding policy and 25.5 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 above. Similarly, surplus amortization will follow the methodology outlined in the Standard Funding Policy.

For plans that switch from the Alternative or Conservation funding policy 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 (25.5 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, 2025 is 39 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 (39 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.

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

Generally, contributions produced using the Standard, Optional, or Optional II funding policies satisfy the conditions of a reasonable actuarially determined contribution as defined in *Actuarial Standard of Practice (ASOP) 4: Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*.

This Plan is valued using the **Optional** funding policy.

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 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 purposes.

Asset Method

Actuarial Value of Assets using four-year smoothing. Returns on the 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 status 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 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.

Premium Tax Allocation

The premium tax allocation is projected using the following methodology:

- 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 (e.g., Moundsville Fire) to the total eligible members for all municipalities remains constant throughout the projection period.
- 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.
- 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.
- The total available premium tax allocation, net of expenses, as of September 1, 2024, includes a Base Allocation of \$8,709,689, an Excess Allocation of \$15,410,279, and an Expired Premium Tax Allocation of \$445,012.
- For the plan year ending June 30, 2024, all Pension and Relief Funds reported a total of 1,735.5 eligible active members and 2,238.64 eligible retired members. The City of Moundsville Firemen's Pension and Relief Fund reported 4.92 eligible active members and 10.00 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2024. The Fund is eligible to receive a premium tax allocation of \$84,249.37 for the fiscal year ending June 30, 2025.
- The total premium tax allocation is assumed to increase by 2.50% in calendar years ending on and after 2025.

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 an actuarial experience study prepared in 2023 covering the period July 1, 2017 through July 1, 2020. 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 <u>Not Investing with the IMB</u>				
Funded Ratio as of Valuation Date⁴	Equity Exposure⁵	Projected Funded Ratio after 15 Years⁴	Discount Rate – Standard, Optional, and Optional II 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 <u>Investing with the IMB</u>				
Funded Ratio as of Valuation Date⁴	Equity Exposure⁵	Projected Funded Ratio after 15 Years⁴	Discount Rate – Standard, Optional, and Optional II Policies⁶	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%

As of June 30, 2023	
Plan Investing with the IMB	No
Actuarially-Based Funding Policy	Yes
Actuarial Value of Assets	\$ 1,689,292
Liabilities Using a 6.0% Discount Rate	\$ 2,858,325
Funded Ratio	59.10%
Equity Exposure	65%
Projected Funded Ratio after 15 Years	76%
Discount Rate	6.50%

⁴ 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).

⁵ If a recent investment policy statement (IPS) was provided to Bolton, the plan's equity exposure percentage used for this discount rate matrix is based on the target equity allocation percentage (if provided) in the IPS; otherwise, it is based on a review of the actual equity exposure over the past four years.

⁶ Assumes the IMB maintains a current growth asset target above 70%. If this policy changes, the assumption should be reviewed.

Inflation

2.50%, compounded annually.

Cost of Living Increase in Benefits

2.45% 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.

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) Employee⁷ Mortality Table⁸ with the 2010 base rates projected generationally from 2010 using the SOA Mortality Improvement **Scale MP-2021**.

Post Decrement

For Terminated Vested Members, 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-2021**.

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-2021**.

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

⁷ 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.

⁸ Assumes 10% of deaths are duty-related and 90% are non-duty related.

Retirement Rates

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:

Age	Fire	Police
50	55%	70%
51-52	35%	40%
53-54	25%	40%
55-56	25%	50%
57-59	15%	50%
60	100%	100%

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	20%	25%
25	10%	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.

Disability Rates

Sample disability rates are as follows:

Age	Rates ⁹
30	0.25%
40	0.57%
50	0.88%

⁹ 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.

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.

Changes in Methods/Assumptions Since Prior Valuation

Pursuant to the *2023 Experience Study Report*, the WV MPOB adopted the following assumption changes:

- **COLA:** decreased rate from 2.50% to 2.45%
- **Mortality improvement projection scale:** scale updated from SOA Scale MP-2019 to SOA Scale MP-2021
- **Retirement rates:**
 - Fire: decreased rates at ages 57-59
 - Police: increased rates at ages 50 and 57-59
- **Termination rates:**
 - Fire: increased all rates below age 30
 - Police: increased rates at ages 21-24 and 27-28
- **Disability rates:** decreased all rates by 25%.

Additionally, the discount rate changed from 5.75% to 6.50%.

There were no changes to the actuarial methods reflected in this valuation.

Section XII. 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 or projections 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. Assumptions of a long-term nature are representative of average expectations (i.e., they will not be exactly realized in every year, however over an extended period are a reasonable projection of future outcomes).

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 or Experience Gain or Loss

A measure of the difference between actual 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. Such gains or losses are not actual economic gains or losses immediately incurred by a plan, as experience in future years could offset the effect of experience in a single year due to the typically long-term average nature of actuarial assumptions.

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).

Funded Ratio

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

Low-Default-Risk Obligation Measure (LDRM)

The present value of benefits accrued at the valuation date using actuarial assumptions that are generally the same as those used in determining the plan's funding liability, with the discount rate changed to reflect the expected return on a low-default-risk investment portfolio. For plans using a funding method that does not quantify gains and losses annually (but rather spreads them over future years through the changes in the normal cost), the actuarial cost method is also changed to reflect a different pattern of allocating costs to historical periods than is used to determine the ADC.

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).