MILLVILLE BOROUGH

19-066-3 N.1086

GASB 68 Report

Measurement Date of:

December 31, 2023

For questions, please contact:
Richard Cardamone, CPA, CGMA
Chief Financial Officer
Pennsylvania Municipal Retirement System
717-787-2065
PMRS.Finance@pa.gov



TABLE OF CONTENTS

Table of Contents

- Summary
- Certification
- Determination of Discount Rate
- Notes Disclosures
- Required Supplementary Information
- Employer Reporting Amounts
- Appendix A Data, Plan Provisions, and Risk Disclosure
- Appendix B Reconciliation of Deferred Inflows and Outflows
- Appendix C Further Information Regarding Deferred Inflows and Outflows
- Appendix D Market Value of Assets Reconciliation
- Appendix E Actuarial Assumptions and Methods
- Appendix F Glossary of Terms
- Appendix G Additional Information



SUMMARY

The purpose of this report is to provide accounting and financial reporting information under Governmental Accounting Standards Board Statement No. 68 as amended by Statement Nos. 73 and 82 for Millville Borough (the Employer).

This information includes:

- Employees covered by benefit terms,
- Calculation of the Net Pension Liability at the discount rate as well as discount rates 1% higher and lower than the discount rate,
- Changes in the Net Pension Liability,
- Schedule of Employer Contributions,
- Disclosure of Deferred Inflows and Outflows,
- Calculation of Annual Pension Expense, and
- Description of Actuarial Assumptions and Methods/Glossary of Terms

Highlights

The Pennsylvania Municipal Retirement System (PMRS) is an agent multiple-employer defined benefit pension plan. The key results for the Current and Prior Measurement Dates are provided below.

Summary of Results										
Measurement Date 12/31/2023 12/31/2022										
Not Donoion Lightlity (Agget)										
Net Pension Liability (Asset)	\$	(19,740)	\$	(1,131)						
Deferred Inflows		0		0						
Deferred Outflows		(13,359)		(22,979)						
Net Impact on Statement of Net Position	\$	(33,099)	\$	(24,110)						
Total Payroll	\$	130,388	\$	125,140						
Total Pension Expense (\$ Amount)	\$	10,649	\$	19,098						
Total Pension Expense (% of Payroll)		8.17%		15.26%						

Any Employer contributions made between the Measurement Date and the Reporting Date would be reported as deferred outflows to offset the cash outflow reported.

The following "GASB Date Table" outlines the measurement, valuation, and reporting dates used for the prior and current year reports.

	Measurement Date	Valuation Date	Reporting Date Range
Current	December 31, 2023	January 1, 2023	December 31, 2023 – December 31, 2024
Prior	December 31, 2022	January 1, 2023	December 31, 2022 – December 31, 2023

The Total Pension Liability (TPL) for each Measurement Date is based on the actuarial valuation as of the corresponding Valuation Date listed above. The TPL is rolled forward from the Valuation Date (where applicable), with adjustments for any material changes that are effective on or before the applicable Measurement Date, such as plan or assumption changes as outlined in Appendix A and Appendix E of the current and prior year reports.

A breakdown of the components of the net pension expense is shown later in the report.



CERTIFICATION

This report is for the use of the Employer and the Employer's auditors in preparing financial reports in accordance with applicable laws and accounting requirements. This report is not appropriate for other purposes, including the measurement of the Employer's funding requirements under Act 205.

In preparing our report, we relied on information (some oral and some written) supplied by PMRS. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23, Data Quality. It is our understanding that PMRS, as the plan administrator, reviews the data for accuracy based on information provided by the Employer.

Future actuarial measurements may differ significantly from the current measurements 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; and changes in plan provisions or applicable law.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This report was prepared for PMRS for the purposes described herein and for the use by the Employer and the Employer's auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to other users besides PMRS.

Jonathan B. Chipko, FSA, EA, MAAA Consulting Actuary Janet Cranna, FSA, EA, MAAA, FCA Principal Consulting Actuary

HUL



DETERMINATION OF DISCOUNT RATE

The determination of the discount rate is based on the long-term expected rate of return for individual participating municipalities which PMRS develops and is also referred to as the Regular Interest Rate. For more information, please refer to the file titled "2023 Long-Term Expected Rate of Return on Plan Assets" located under the 2023 GASB Reports section of the PMRS website (https://www.pmrs.pa.gov/employers/financial-reporting-information/governmental-accounting-standards-board-gasb/).

Based on the assumptions outlined in the publication described above including the assumption that all MMO payments as determined and required under Act 205 will be paid accordingly, the Plan Fiduciary Net Position was determined to be available to make all projected benefit payments of current plan members. Therefore, the municipal long-term expected rate of return for municipal and member accounts was applied to discount all periods of projected benefit payments to determine the Total Pension Liability.



NOTES DISCLOSURES

The table below shows the changes in the Total Pension Liability and the Plan Fiduciary Net Position (i.e., fair value of Plan assets) during the Measurement Period, and the Net Pension Liability (NPL) as of the Measurement Date.

This report does not reflect changes in benefits, assumptions, or reserve accounts after the Measurement Date. Except where noted below, the TPL as of December 31, 2023 was based on the data, actuarial methods and assumptions, and plan provisions described in Appendix A and Appendix E. The assumptions used to determine the TPL as of the December 31, 2022 measurement date can be found in the January 1, 2023 PMRS actuarial valuation report or the prior year's GASB report.

Change in Net Pension Liability											
			Incre	ase (Decrease)							
	_	tal Pension Liability (a)		nn Fiduciary et Position (b)		Net Pension ability (Asset) (a) - (b)					
Balances at 12/31/2022	\$ 334,159		\$	335,290	\$	(1,131)					
Changes for the year:											
Service cost		19,558				19,558					
Interest		17,541				17,541					
Changes of benefit terms											
Changes of assumptions											
Differences between expected and											
actual experience											
Contributions - employer				19,558		(19,558)					
Contributions - PMRS assessment				80		(80)					
Contributions - employee											
PMRS investment income				17,769		(17,769)					
Market value investment income*				19,376		(19,376)					
Transfers											
Benefit payments		(13,467)		(13,467)							
PMRS administrative expense				(80)		80					
Additional administrative expense				(995)		995					
Net changes		23,632		42,241		(18,609)					
Balances at 12/31/2023	\$	357,791	\$	377,531	\$	(19,740)					

^{*}Reflects the net investment income/(loss) of \$19,223 and the income/(loss) due to the difference between expected and actual asset values of \$153, which includes the impact from allocation of assets in support of the underlying retiree liabilities.



NOTES DISCLOSURES

According to Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68, PMRS is required to allocate/distribute all funds to the respective participating employers for financial reporting purposes to determine the respective Employer "Plan Fiduciary Net Position."

PMRS has determined that net investment income or loss and administrative expenses will be allocated to the employer/municipality accounts pro-rata based on their beginning Plan Fiduciary Net Position balance adjusted for cash flows throughout the year. The "additional administrative expenses" are the expenses in excess of the "PMRS administrative expense" (i.e., \$20 per participant expense paid by each plan). The "PMRS investment income" is based on the regular interest used to credit accounts annually. The "market value investment income" reflects the investment income/(loss) during the year net of PMRS investment income and the income/(loss) due to the difference between expected and actual asset values, including the impact from allocation of assets in support of the underlying retiree liabilities.

Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. As a cash balance plan, however, we have not performed the specific sensitivity calculations based on this plan's demographics or plan provisions for active participants given that the benefits are based on the accumulated account balances at actual retirement. For illustrative purposes, the table below shows the sensitivities as 80% and 120% of the TPL associated with active participants as a reflection of the nature of potential variance that could occur with +1.0% and -1.0% changes in the discount rate, respectively, if the active liabilities were valued by converting each cash balance account to an annuity and then discounting these projected annuities at the sensitivity rates. If the plan has retired participants, the discount rate sensitivity for the TPL associated with the retired participants has been explicitly determined based on the January 1, 2023 actuarial valuation.

Sensitivity of Net Pension Liability to Changes in Discount Rate										
		1% Decrease 4.25%		Discount Rate 5.25%		1% Increase 6.25%				
Total Pension Liability Plan Fiduciary Net Position	\$	412,702 377,531	\$	357,791 377,531	\$	305,543 377,531				
Net Pension Liability (Asset)	\$	35,171	\$	(19,740)	\$	(71,988)				
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		91.48%		105.52%		123.56%				



NOTES DISCLOSURES

The following table contains the number of active employees, inactive employees entitled to but not yet receiving benefits, and inactive employees or beneficiaries currently receiving benefits from the Plan based upon the most recent actuarial valuation date as of January 1, 2023.

Employees Covered by Benefit Terms	
Inactive employees or beneficiaries currently receiving benefits Inactive employees entitled to but not yet receiving benefits Active employees	1 0 3
Total Participant Count	4



NOTES DISCLOSURES

The schedules of Required Supplementary Information show 10 years of historical information. The schedule below and on the next page shows the changes in NPL and related ratios required by GASB. Benefit payments include employee refunds, if applicable.

Sc	hed	lule of Chan	ges	s in Net Pens	sioi	n Liability				
Measurement Date as of:		12/31/2023		12/31/2022		12/31/2021	1	12/31/2020	1	2/31/2019
Total Pension Liability										
Service cost (beginning of year)	\$	19,558	\$	18,771	\$	18,224	\$	17,608	\$	17,637
Interest		17,541		16,353		15,244		13,409		8,256
Changes of benefit terms										
Differences between expected and										
actual experience				1,245				11,412		
Changes of assumptions								6,540		
Transfers										
Benefit payments		(13,467)		(13,467)		(13,467)		(13,467)		(13,250)
Net change in total pension liability	\$	23,632	\$	22,902	\$	20,001	\$	35,502	\$	12,643
Total pension liability - beginning		334,159		311,257		291,256		255,754	_	243,111
Total pension liability - ending	\$	357,791	\$	334,159	\$	311,257	\$	291,256	\$	255,754
Plan fiduciary net position										
Contributions - employer	\$	19,558	\$	18,771	\$	18,224	\$	17,608	\$	17,637
Contributions - PMRS assessment		80		80		80		80		60
Contributions - employee										
PMRS investment income		17,769		16,383		15,272		13,515		8,425
Market value investment income		19,376		(62,163)		32,429		36,039		32,769
Transfers										
Benefit payments		(13,467)		(13,467)		(13,467)		(13,467)		(13,250)
PMRS administrative expense		(80)		(80)		(80)		(80)		(60)
Additional administrative expense		(995)		(866)		(865)		(589)	_	(291)
Net change in plan fiduciary net										
position	\$	42,241	\$	(41,342)	\$	51,593	\$	53,106	\$	45,290
Plan fiduciary net position -										
beginning	_	335,290	_	376,632	_	325,039	_	271,933	_	226,643
Plan fiduciary net position - ending	\$	377,531	\$	335,290	\$	376,632	\$	325,039	\$	271,933
Net pension liability (asset) - ending $ \\$	\$	(19,740)	\$	(1,131)	\$	(65,375)	\$	(33,783)	\$	(16,179)
Plan fiduciary net position as a										
percentage of the total pension liability		105.52%		100.34%		121.00%		111.60%		106.33%
Covered employee payroll	\$	130,388	\$	125,140	\$	121,496	\$	117,387	\$	117,577
Net pension liability (asset) as a percentage of covered employee payroll		-15.14%		-0.90%		-53.81%		-28.78%		-13.76%



NOTES DISCLOSURES

Sc	hed	ule of Chan	ges	in Net Pens	sion	Liability				
Measurement Date as of:	1	2/31/2018	1	2/31/2017	1	2/31/2016	12	/31/2015	1	2/31/2014
Total Pension Liability										
Service cost (beginning of year)	\$	17,392	\$	17,181	\$	16,844	\$		\$	
Interest		11,489		10,043		7,296				
Changes of benefit terms		2,290								
Differences between expected and										
actual experience		1				(1)				
Changes of assumptions										
Transfers						160,576				
Benefit payments										
Net change in total pension liability	\$	31,172	\$	27,224	\$	184,715	\$	0	\$	(
Total pension liability - beginning		211,939	_	184,715		0		0		(
Total pension liability - ending	\$	243,111	\$	211,939	\$	184,715	\$	0	\$	(
Plan fiduciary net position										
Contributions - employer	\$	17,392	\$	17,181	\$	16,844	\$		\$	
Contributions - PMRS assessment		80		60						
Contributions - employee										
PMRS investment income		11,638		10,139		7,381				
Market value investment income		(26,457)		22,131		(8,855)				
Transfers						160,576				
Benefit payments										
PMRS administrative expense		(60)		(60)						
Additional administrative expense		(519)	_	(466)		(362)				
Net change in plan fiduciary net										
position	\$	2,074	\$	48,985	\$	175,584	\$	0	\$	(
Plan fiduciary net position -		224,569		175,584		0		0		(
beginning Plan fiduciary net position - ending	\$	226,643	\$	224,569	\$	175,584	\$	0	\$	(
Net pension liability (asset) - ending	\$	16,468	\$	(12,630)		9,131	\$	0	\$	(
_	<u>-</u>		<u>-</u>	(,***)	_	- ,	_		<u> </u>	
Plan fiduciary net position as a percentage of the total pension		93.23%		105.96%		95.06%		N/A		N/A
liability		93.23%		103.90%		93.00%		N/A		N/A
Covered employee payroll	\$	119,696	\$	114,539	\$	112,293	\$	0	\$	(
Net pension liability (asset) as a										
percentage of covered employee		13.76%		-11.03%		8.13%		N/A		N/A
payroll										



REQUIRED SUPPLEMENTARY INFORMATION

There are no Actuarially Determined Contributions for this Plan because it is a cash balance pension plan. The Statutorily Required Contribution is a contribution amount based upon the payroll and the contribution rate as outlined under the terms of the cash balance pension plan. As provided by the Pennsylvania Municipal Retirement System, the employer portion of the Statutorily Required Contribution was the amount recognized by the pension plan during the year.

The information on transfers from the Municipal Account in the exhibit below is not required by GASB. It is intended to provide context for any differences between the Statutorily Required Contribution and Contributions in Relation to the SRC. This information was first included for the December 31, 2022 Measurement Date and will accumulate each year going forward.

	2023		2022	2021	2020	2019
Statutorily Required Contribution (SRC) Contributions in Relation to the SRC* Transfers from the Municipal Reserve	\$ 19,638 19,638	\$	18,851 18,851	\$ 18,304 18,304	\$ 17,688 17,688	\$ 17,69 [°]
Account to Offset the SRC*	0	_	0	N/A	 N/A	N/A
Contribution Deficiency/(Excess)	\$ 0	\$	0	\$ 0	\$ 0	\$ (
Covered Employee Payroll	\$ 130,388	\$	125,140	\$ 121,496	\$ 117,387	\$ 117,57
Contributions and Transfers from the Municipal Reserve Account as a Percentage of Covered Employee Payroll	15.06%		15.06%	15.07%	15.07%	15.05%
	2018		2017	2016	2015	2014
Statutorily Required Contribution (SRC)	\$ 17,452	\$	17,241	\$ 16,844	\$ 0	\$ (
Contributions in Relation to the SRC* Fransfers from the Municipal Reserve	17,472		17,241	16,844	0	
Account to Offset the SRC*	 N/A		N/A	 N/A	 N/A	 N/A
Contribution Deficiency/(Excess)	\$ (20)	\$	0	\$ 0	\$ 0	\$ (
Covered Employee Payroll	\$ 119,696	\$	114,539	\$ 112,293	\$ 0	\$
Contributions and Transfers from the	14.60%		15.05%	15.00%	N/A	N/A

^{*}The Statutorily Required Contribution and the actual Contribution were provided by PMRS. Deviations between these amounts may be due to contributions to or transfers from the Municipal account. Information about transfers from the Municipal account was added to this schedule in 2022 and will accumulate each year going forward.

Notes to Schedules:

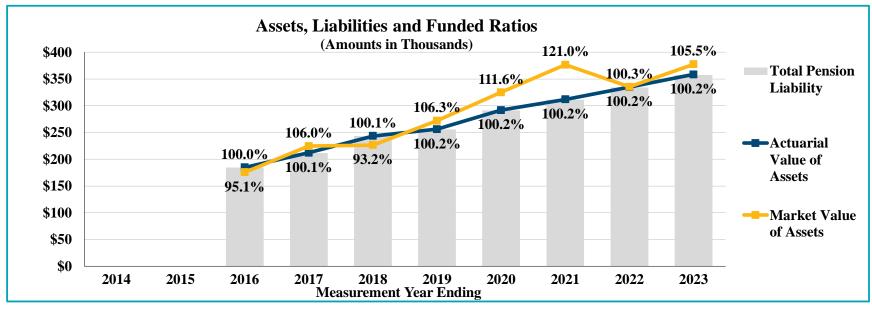
Plan Changes: Plan changes may include excess interest distribution during the measurement year ending in 2018, if applicable.



REQUIRED SUPPLEMENTARY INFORMATION

Assets, Liabilities and Funded Ratio:

In the following graph, the bars show the Plan's liability (referred to as TPL for GASB 68 purposes and Actuarial Accrued Liability for funding purposes). The blue and gold lines show the Actuarial Value of Assets and the Market Value of Assets, respectively. The Market Value of Assets is the Plan Fiduciary Net Position used for GASB 68 purposes. The Actuarial Value of Assets is described in Appendix E. The Market Value of Assets is provided in Appendix D. The funded ratios related to both measures are shown adjacent to the respective lines in the following graph.



Measurement Year Ending	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1. Total Pension Liability			\$ 184,715	\$ 211,939	\$ 243,111	\$ 255,754	\$ 291,256	\$ 311,257	\$ 334,159	\$ 357,791
2. Actuarial Value of Assets* 3. AVA Funded Ratio [2. / 1.]			\$ 184,801 100.0%	\$ 212,121 100.1%	\$ 243,441 100.1%	\$ 256,253 100.2%	\$ 291,865 100.2%	311,898 100.2%	\$ 334,833 100.2%	\$ 358,653 100.2%
4. Market Value of Assets* 5. MVA Funded Ratio [4. / 1.]			\$ 175,584 95.1%	\$ 224,569 106.0%	\$ 226,643 93.2%	\$ 271,933 106.3%	\$ 325,039 111.6%	\$ 376,632 121.0%	\$ 335,290 100.3%	\$ 377,531 105.5%

^{*}Actuarial Value of Assets are estimated amounts for odd year-end Measurement Dates.



EMPLOYER REPORTING AMOUNTS

The impact of experience gains or losses and assumption changes on the TPL are recognized in the pension expense over the average expected remaining service life of all active and inactive members of the Plan, as provided below. The impact of investment gains or losses are recognized in the pension expense over a period of five years. The impact of plan changes is recognized immediately.

There may be experience gains or losses between the beginning of year and end of year liabilities in a roll-forward year because the liabilities are based on actual cash flows including possible forfeitable contributions for non-vested termination participants.

Schedule of Deferred Inflows and Outflows*									
		Inflows of urces	Deferred Outflows of Resources						
Differences between expected and actual experience	\$	0	\$	7,817					
Changes in assumptions		0		3,924					
Net difference between projected and actual earnings on pension plan investments		0		1,618					
Total	\$	0	\$	13,359					

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

Year ended December 31:	
2024	(3,202)
2025	4,006
2026	10,489
2027	(1,943)
2028	1,933
Thereafter \$	2,076

The recognition period for experience gains/losses and assumption changes is 9 years.



^{*}See Appendix C for more details on the deferred inflows and outflows.

EMPLOYER REPORTING AMOUNTS

The annual pension expense recognized can be calculated two different ways. First, it is the change in the amounts reported for the Employer's Statement of Net Position that relate to the plan and are not attributable to employer contributions. That is, it is the change in NPL plus the changes in deferred outflows and deferred inflows plus employer contributions.

Alternatively, annual pension expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table below, we believe it helps to understand the level and volatility of pension expense, as outlined below.

Calculation of Pension Expense									
		Measureme	nt D	ate as of					
		12/31/2023		12/31/2022					
Change in Net Pension Liability	\$	(18,609)	\$	64,244					
Change in Deferred Outflows		9,620		(8,617)					
Change in Deferred Inflows		0		(55,380)					
Employer Contributions		19,638		18,851					
Pension Expense	\$	10,649	\$	19,098					
Pension Expense as % of Payroll		8.17%		15.26%					
Operating Expenses									
Service cost	\$	19,558	\$	18,771					
Employee contributions		0		0					
PMRS administrative expense		80		80					
Additional administrative expense		995		866					
Total	\$	20,633	\$	19,717					
Financing Expenses									
Interest cost	\$	17,541	\$	16,353					
Expected return on assets		(17,769)		(16,383)					
Total	\$	(228)	\$	(30)					
Changes									
Change of benefits	\$	0	\$	0					
Recognition of assumption changes		654		654					
Recognition of liability gains and losses		1,279		1,279					
Recognition of investment gains and losses		(11,689)		(2,522)					
Total	\$	(9,756)	\$	(589)					
Pension Expense	\$	10,649	\$	19,098					



APPENDIX A

DATA, PLAN PROVISIONS AND RISK DISCLOSURE

Data

The participant data used in this report was provided by PMRS and is effective on January 1, 2023. For a summary of the data of the Plan please refer to the 2023 Act 205 filing.

All data was provided by PMRS and reviewed for reasonability, but not audited, by Cheiron.

Plan Provisions

Key Provisions of the Plan as of the Current Measurement Date:

Description	Plan Provisions
Normal Retirement Age:	Accrued Benefit available upon attainment of age 65.
Vesting Service Required:	A member is 100% vested after 3 years of service.
Early Retirement Eligibility:	Early Retirement benefit is available upon attainment of
	age 55 and 7 years of service.
Employer Contribution Rate:	15.00% of payroll
Required Employee Contribution Rate:	None
Voluntary Employee Contribution Rate:	Up to 20.00% of payroll

Risk Disclosure

Actuarial valuation reports for pension plans must include a risk section to comply with the requirements under the Actuarial Standards of Practice No. 51. This actuarial standard addresses the "Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions". A discussion of the risks associated with plans participating in PMRS can be found in the January 1, 2023 Pennsylvania Municipal Retirement System Actuarial Valuation Report, available at https://www.pmrs.pa.gov/financial-reports/.



APPENDIX B

RECONCILIATION OF DEFERRED INFLOWS AND OUTFLOWS

	Differ betw expecte acti exper	een ed and	Deferred anges in mptions	Net l pro ea per	lows) difference between ojected and actual crnings on nsion plan vestments	Total	_	be expe	ferences etween ected and actual perience	Deferred Changes in sumptions	pro-	tflows t difference between ojected and actual arnings on ension plan avestments	Total
12/31/2022	\$	0	\$ 0	\$	0	\$ 0	1	\$	9,096	\$ 4,578	\$	9,305 \$	22,979
Adjustments due to investment earnings*	\$	0	\$ 0	\$	0	\$ 0	١	\$	0	\$ 0	\$	0 \$	0
2023 deferred amounts		0	0		0	0	1		0	0		(19,376)	(19,376)
Recognition amounts		0	0		0	0	_		(1,279)	(654)		11,689	9,756
Net changes	\$	0	\$ 0	\$	0	\$ 0	_	\$	(1,279)	\$ (654)	\$	(7,687) \$	(9,620)
12/31/2023	\$	0	\$ 0	\$	0	\$ 0	_	\$	7,817	\$ 3,924	\$	1,618 \$	13,359

^{*}This represents the adjustment due to aggregation of deferred amounts arising from differences between projected and actual pension plan investment earnings per paragraph 33b in GASB 68.



APPENDIX C

FURTHER INFORMATION REGARDING DEFERRED INFLOWS AND OUTFLOWS

			Det	ailed Sched	ule	of Inflows a	nd (Outflows of	Res	sources					
Recognition of diff	Recognition of differences between expected and actual experience														
From Measurement	Remaining Recognition	Remaining (Inflows)]	Reco	ognition Year					
Year Ending	Period	and Outflows	s	2023		2024		2025		2026	2027		2028	The	ereafter
2023	9	\$	0 \$	0	\$	0	\$	0	\$	0 \$	0	\$	0	\$	0
2022	8	1,10	7	138		138		138		138	138		138		279
2021	7		0	0		0		0		0	0		0		0
2020	7	7,98	9	1,141		1,141		1,141		1,141	1,141		1,141		1,143
2019	6		0	0		0		0		0	0		0		0
2018	5		0	0		0		0		0	0		0		0
2017	4		0	0		0		0		0	0		0		0
2016	0		0	0		0		0		0	0		0		0
2015	0		0	0		0		0		0	0		0		0
2014	0		0	0		0		0		0	0		0		0
Deferred (Inflows)			0	0		0		0		0	0		0		C
Deferred Outflows		9,09	6	1,279		1,279		1,279		1,279	1,279		1,279		1,422
Total		\$ 9,09	6 \$	1,279	\$	1,279	\$	1,279	\$	1,279 \$	1,279	\$	1,279	\$	1,422

Remaining Periods and (Inflows)/Outflows are prior to any recognition for 2023.



APPENDIX C

FURTHER INFORMATION REGARDING DEFERRED INFLOWS AND OUTFLOWS

			Deta	ailed Sched	ule	of Inflows a	nd (Outflows of	Res	sources				
Recognition of cha	Recognition of changes in assumptions													
From	Remaining	Remaining												
Measurement	Recognition	(Inflows)]	Reco	ognition Year				
Year Ending	Period	and Outflows		2023		2024		2025		2026	2027		2028	Thereafter
2023	9	\$ 0	\$	0	\$	0	\$	0	\$	0 \$	0	\$	0	\$
2022	8	0		0		0		0		0	0		0	
2021	7	0		0		0		0		0	0		0	
2020	7	4,578		654		654		654		654	654		654	65
2019	6	0		0		0		0		0	0		0	
2018	5	0		0		0		0		0	0		0	
2017	4	0		0		0		0		0	0		0	
2016	0	0		0		0		0		0	0		0	
2015	0	0		0		0		0		0	0		0	
2014	0	0		0		0		0		0	0		0	
Deferred (Inflows)		0		0		0		0		0	0		0	
Deferred Outflows		4,578		654		654		654		654	654		654	65
Total		\$ 4,578	\$	654	\$	654	\$	654	\$	654 \$	654	\$	654	\$ 65

Remaining Periods and (Inflows)/Outflows are prior to any recognition for 2023.



APPENDIX C

FURTHER INFORMATION REGARDING DEFERRED INFLOWS AND OUTFLOWS

Recognition of net	difference bet	ween projected	and	actual earni	ings	on pension p	pla	n investment	ts				
From	Remaining	Remaining											
Measurement	Recognition	(Inflows)						Re	co	gnition Year			
Year Ending	Period	and Outflows		2023		2024		2025		2026	2027	2028	Thereafter
2023	5	\$ (19,376)	\$	(3,875)	\$	(3,875)	\$	(3,875)	\$	(3,875) \$	(3,876)	\$ 0	\$,
2022	4	49,730		12,433		12,433		12,433		12,431	0	0	(
2021	3	(19,457)		(6,486)		(6,486)		(6,485)		0	0	0	(
2020	2	(14,415)		(7,208)		(7,207)		0		0	0	0	(
2019	1	(6,553)		(6,553)		0		0		0	0	0	(
Deferred (Inflows)		(59,801)		(24,122)		(17,568)		(10,360)		(3,875)	(3,876)	0	C
Deferred Outflows		49,730		12,433		12,433		12,433		12,431	0	0	(
Total		\$ (10,071)	\$	(11,689)	\$	(5,135)	\$	2,073	\$	8,556 \$	(3,876)	\$ 0	\$, (
Grand Total		\$ 3,603	\$	(9,756)	\$	(3,202)	\$	4,006	\$	10,489 \$	(1,943)	\$ 1,933	\$ 2,076

Remaining Periods and (Inflows)/Outflows are prior to any recognition for 2023.



APPENDIX D

MARKET VALUE OF ASSETS RECONCILIATION

	Mem	ber/ Municipal			All	located Retiree			1	Undistributed	
		Reserve	DROP	Reserve		Reserve	Disabili	ty Reserve		Earnings	Total
Reported 12/31/2022 GASB 68 MVA	\$	159,761	\$	0	\$	175,847	\$	0	\$	(318)	\$ 335,290
Adjustments*		0		0		0		0		0	(
1/1/2023 GASB 68 MVA	\$	159,761	\$	0	\$	175,847	\$	0	\$	(318)	\$ 335,290
Changes of assumptions	\$	0	\$	0	\$	0	\$	0	\$	0	\$ C
Transfers		0		0		0		0		0	(
Contributions - employer		19,558		0		0		0		0	19,55
Contributions - PMRS assessment		0		0		0		0		80	8
Contributions - employee		0		0		0		0		0	
Excess Interest Award		0		0		0		0		0	
PMRS investment income		8,909		0		8,860		0		0	17,76
Market value investment income		0		0		0		0		19,223	19,22
Benefit payments		0		0		(13,467)		0		0	(13,46
PMRS administrative expense		0		0		0		0		(80)	(8
Additional administrative expense		0		0		0		0		(995)	(99.
Net changes	\$	28,468	\$	0	\$	(4,607)	\$	0	\$	18,228	\$ 42,088
Preliminary 12/31/2023 GASB 68 MVA	\$	188,229	\$	0	\$	171,240	\$	0	\$	17,909	\$ 377,378
Differences between expected and actual experience*		0		0		(57)		0		210	15
Final 12/31/2023 GASB 68 MVA	\$	188,229	\$	0	\$	171,183	\$	0	\$	18,119	\$ 377,53

^{*}For an explanation of the adjustments and differences between expected and actual experience, please refer to the description of the Reserve Account Allocation Methods in Appendix E.

The Allocated Retiree Reserve is based on the Retiree Liability as of the applicable Measurement Date. Employer contributions may be net of the PMRS administrative expense assessment, which is then offset by the "Contributions – PMRS assessment" in the Undistributed Earnings.

Amounts may not add due to rounding.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

Reserve Account Allocation Methods:

The Pennsylvania Municipal Retirement System maintains the following funds:

- Members' Reserve Account
- Municipal Reserve Account
- DROP Participants' Reserve Account, when applicable
- Retired Members' Reserve Account
- Disability Reserve Account, when applicable
- Undistributed Earnings Account

The separate accounts are maintained for each member/plan within the Members' Reserve Account, the Municipal Reserve Account, and the DROP Participants' Reserve Account. The Market Value of Assets Reconciliation shows these reserves directly.

Separate accounts are not maintained within the Retired Members' Reserve Account, the Disability Reserve Account, and the Undistributed Earnings Account. These accounts are allocated to individual plans for GASB No. 68 purposes based on the methodology described below.

The Market Value of Assets within this GASB report reflects accounting requirements on a stand-alone basis and may differ from the Market Value of Assets reported on the Act 205 Form, which historically reflected reserves for an on-going PMRS plan without adjusting for the Retired Members' Reserve Account, the Disability Reserve Account, and the Undistributed Earnings Account.

Per Pennsylvania Municipal Retirement Law (PMRL) and the Board policies, the Actuarial Value of Assets equals the Municipal, Members', and DROP Participants' Reserve Accounts plus the Retiree Liability within the applicable corridor as outlined in Act 205.

The excess interest award is a transfer from the Undistributed Earnings Account to the Municipal, Members', and/or Retired Members' Reserve Accounts and does not impact the Market Value of Assets. An excess interest award as of December 31, 2018 increased the Actuarial Value of Assets for the plan which is used for determination of the MMO as reported on the Act 205 Form. There has been no subsequent excess interest awarded.

1. Retired Members' Reserve Account

The Retired Members' Reserve is allocated proportionally based on the retiree liability determined as of the Valuation Date corresponding to the Measurement Date, as shown on page 1 of this report. The retiree liability is rolled forward from the Valuation Date (where applicable) to reflect actual benefit payments and new retirements along with any material changes, such as plan or assumption changes, that are effective on or before the applicable Measurement Date.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

In alternating years, retiree experience (gains)/losses are developed for each individual plan and for the System as a whole. These experience (gains)/losses are shown as differences between expected and actual experience. The amount under Allocated Retiree Reserve represents the individual plan's retiree experience (gain)/loss and the individual plan's share of the collective System retiree experience gain/(loss). For example, the experience gains/(losses) for the Allocated Retiree Reserve might represent the apportionment to the individual plans of the remaining assets when a retiree dies.

2. Disability Reserve Account

The Disability Reserve is allocated proportionally based on combined employer contributions and surplus transfers to the Disability Reserve in the year preceding the Measurement Date, excluding any amounts for plans that withdrew prior to the Measurement Date. The allocation reflects contributions due, but not yet made, as of the Measurement Date, as reported by PMRS.

The amount shown as differences between expected and actual experience represent disability insurance premiums when negative and payouts in the event of a disability when positive.

3. Undistributed Earnings Account

The Undistributed Earnings Account is allocated proportionally based on the value of the reserve accounts as of the Measurement Date.

The amount shown as differences between expected and actual experience reflects the change in the size of the individual plan's reserves relative to the collective System's reserves. When applicable, the excess interest award is a transfer from the Undistributed Earnings Account to the Municipal, Members', and/or Retired Members' Reserve Accounts. The net impact of this allocation on the Market Value of Assets is zero.

4. Historical changes in the assets

- A. 2020 Retired Members' Reserve Transfer: As of January 1, 2021, the Retired Members' Reserve Account was increased in total by \$67.8 million to ensure it was fully funded. This increase was offset by a decrease in the Undistributed Earnings Account.
- B. 2019 Retired Members' Reserve Transfer: As of January 1, 2020, the Retired Members' Reserve Account was increased in total by \$6.5 million to ensure it was fully funded. This increase was offset by a decrease in the Undistributed Earnings Account.
- C. 2018 Excess Interest Award Distribution: The excess interest award is a transfer from the Undistributed Earnings Account to the Municipal, Members' and/or Retired Members' Reserve Accounts and does not impact the Market Value of Assets. During 2018, this excess interest award as of December 31, 2018 increased the Actuarial Value of Assets for the Plan. The Actuarial Value of Assets is used for determination of the MMO as reported on the Act 205.
- D. 2017 Retired Members' Reserve Transfer: As of December 31, 2017, the Retired Members' Reserve Account was increased in total by \$45 million and restated in the December 31, 2018 PMRS ACFR. This increase was offset by a decrease in the Undistributed Earnings Account.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions:

The actuarial assumptions used in this report are described below. The combined effect of the assumptions is expected to have no significant bias for the purpose of this measurement. For active participants, liabilities are equal to their cash balance account as of the Valuation Date. As such, for these participants the assumptions described below are used solely for the determination of the average expected working lifetime.

A. Mortality:

1) Healthy Life Mortality Base Tables:

Pre-Retirement:

Males: PUB-2010 General Employees male table Females: PUB-2010 General Employees female table

Type of Death:

- (a) 20% of pre-retirement deaths are assumed to be service related for municipal plans, and
- (b) 70% of pre-retirement deaths are assumed to be service related for uniform plans.

Post-Retirement:

Males: RP-2006 annuitant male table Females: RP-2006 annuitant female table

2) Disabled Life Mortality Base Tables:

Males: RP-2006 disabled annuitant male table Females: RP-2006 disabled annuitant female table

3) Mortality Improvement:

All base mortality tables described above are projected from the applicable table's base year to 2023 using Mortality Improvement Scale MP-2018.

The mortality assumption, inclusive of the projected mortality improvements described above, was selected as a reasonable representation of the ultimate projected payout of benefits from the Plan using nationally available mortality tables as well as data provided by PMRS.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

B. Termination Rates Before Retirement:

N	Municipal Members Number of Active Members in Plan								
Service	<25	25+							
<=1	11.0%	12.0%							
2	10.0%	11.0%							
3	9.0%	10.0%							
4	8.0%	9.0%							
5	7.0%	7.5%							
6	8.0%	7.5%							
7	6.0%	7.0%							
8	5.0%	6.0%							
9	4.0%	5.0%							
10+	3.0%	3.5%							

Uniformed Members								
Service	Termination Rate							
<=4	10.0%							
5	5.0%							
6-8	4.0%							
9+	3.0%							

C. Disability Incidence Rates:

50% of 2017 CALPERS Public Miscellaneous Group disability rates for males. Sample rates are:

Age	Rate
25	0.0085%
35	0.0245%
45	0.0955%
55	0.1105%
65	0.1050%

Type of Disability:

- (a) 20% of disablements are assumed to be service related for municipal plans, and
- (b) 70% of disablements are assumed to be service related for uniform plans.
- **D. Workers Compensation:** Service-related disability benefits payable from municipal plans are offset by 25% of final average salary.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

E. Salary Scale:

Inflation rate of 2.2% plus merit based increases, as shown below for select ages:

	Total Rate ¹
Age	(including inflation)
25	6.22%
30	5.16%
35	4.49%
40	4.14%
45	3.82%
50	3.55%
55	3.28%
60	3.11%
65	2.79%

¹Add 3% for each of the first 2 years of service, 2% for years 3 and 4, and 1% for years 5 and 6.

For 2021 and 2022, merit based increases are assumed to be 0%.

F. Rates of Retirement and Retirement Age:

Retirement Age: The age at which unreduced benefits are available. No early retirement is assumed. Specific assumptions regarding retirement age are:

(a) Municipal Members:

Members are assumed to retire over a range of ages as shown below.

Age	Rate ¹	Age	Rate ¹
<55	33%	63	18%
55	30%	64	15%
56 - 57	12%	65 - 67	25%
58 - 59	14%	68 - 70	20%
60	18%	71 - 73	22%
61	10%	74	20%
62	20%	75	100%

Rates indicated are adjusted by adding 10% for ages 61-63 and 5% for ages 64-70 for the year in which the member is first eligible for normal retirement.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

(b) Uniformed Members:

Members are assumed to retire over a range of ages as shown below.

Age	Rate	Age	Rate
<49	0%	62	28%
50	25%	63	22%
51 - 53	10%	64	25%
54 - 55	15%	65	35%
56 - 58	17%	66	30%
59 - 60	15%	67+	100%
61	20%		

For any members participating in a Deferred Retirement Option Program (DROP), the participant's date of entry into the DROP is considered the retirement date.

G. DROP (Deferred Retirement Option Plan) or In-Service Distribution Plan:

For plans with these options, at Participant's Normal Retirement Age, retirement rate multiplied by the following factors:

(a) Uniform: 130%

(b) Non-uniform: 115%

H. Marital Status and Spouse's Age (if applicable):

For plans with the 50% J&S form of payment, 85%/65% of active male/female members are assumed to be married. Male spouses are assumed to be three years older than female spouses.

I. Social Security Projections (if applicable):

- (a) The Social Security Taxable Wage Base will increase by 2.7% compounded annually;
- (b) The Consumer Price Index will increase 2.2% compounded annually; and
- (c) The Average Total Wages of All Workers will increase by 2.7% compounded annually.

J. Post-Retirement Cost of Living Increases (if applicable)/Inflation:

2.2% per year, subject to plan limitations.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

K. Investment Return Assumption for municipal assets:

5.25% compounded annually, net of investment and certain administration expenses. For detailed description and rationale, please refer to the file titled "2023 Long-Term Expected Rate of Return on Plan Assets" located under the 2023 GASB Reports section of the PMRS website (https://www.pmrs.pa.gov/employers/financial-reporting-information/governmental-accounting-standards-board-gasb/).

L. Administrative Expenses:

The expense assumption is based on the expected expenses for the current year. The administrative expenses consist of two pieces: (1) the PMRS administrative expenses (i.e. the \$20 per participant charge paid directly by the municipality) and (2) the additional administrative expenses in excess of the PMRS administrative expense that are paid through the Undistributed Earnings.

M. Rational for Assumptions:

An experience study is completed every five years for the System. The assumptions above were reviewed and adopted by the Board based on the most recent experience study for the period covering January 1, 2014 – December 31, 2018. The assumption changes from this experience study were first reflected as of the December 31, 2020 Measurement Date.

Actuarial Cost Method:

For the determination of the Total Pension Liability for the non-retired participants, the members' account balances as reported by PMRS were used as the Entry Age Normal liability required under GASB. As a cash balance plan, the benefits that will be paid to participants are based on the accumulated account balances at actual retirement converted to a lifetime annuity on an actuarially equivalent basis. The regular interest rate credited to accounts each year and the actuarial equivalence basis for converting the benefits use the same mortality and interest rate as the actuarial assumptions for the valuation and therefore the account balances for the non-retired participants represent the actual liability accrued under the plan as of the Measurement Date. It is our understanding along with confirmation from PMRS, that the conversion of account balances to annuities uses the actuarial basis in effect at the time of annuitization, not at the time of termination from the Plan.

The Total Pension Liability for retired participants is determined as the present value of the projected benefits, which is the basis used under the Entry Age Normal Method.

As a cash balance plan, the service cost is equal to employer and employee contributions credited to the member accounts during the year. Actuarial gains (or losses), including the effect of account forfeitures, are reflected by decreases (or increases) in the Net Pension Liability.



APPENDIX E

ACTUARIAL ASSUMPTIONS AND METHODS

Historical Changes in Assumptions and Methods:

- 12/31/2020: Assumptions based on the PMRS Experience Study for the period covering January 1, 2014 through December 31, 2018 issued by the actuary in September 2020.
- 12/31/2016: Investment Return Assumption for municipal assets decreased from 5.50% to 5.25%.
- 12/31/2015: Assumptions based on the PMRS Experience Study for the period covering January 1, 2009 through December 31, 2013 issued by the actuary in July 2015.

Valuation Software:

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have used it in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this report.



APPENDIX F

GLOSSARY OF TERMS

1. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's Reporting Date.

3. Agent Multiple Employer Pension Plan

Pension plans in which the assets of the participating government employers are pooled for investment purposes but separate accounts are maintained for each individual employer.

4. Deferred Inflow of Resources

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB No. 68, these are experience gains on the Total Pension Liability, assumption changes reducing the Total Pension Liability, or investment gains that are recognized in future reporting periods.

5. Deferred Outflow of Resources

A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB No. 68, these are experience losses on the Total Pension Liability, assumption changes increasing the Total Pension Liability, or investment losses that are recognized in future reporting periods.

6. Discount Rate

Based on the Long-Term Expected Rate of Return, which PMRS develops and is also referred to as the Regular Interest Rate.

7. Excess Interest

As defined by the Pennsylvania Municipal Retirement Law (Act 15 of 1974), these are the investment earnings in the fund in excess of that required for allocation to regular interest and expenses. The Pennsylvania Municipal Retirement Board Policy Statement 05-2 (https://www.pmrs.pa.gov/wp-content/uploads/2023/08/policy05-2-ExcInt.pdf) describes how Excess Interest is calculated to award to the plans participating in PMRS.



APPENDIX F

GLOSSARY OF TERMS

8. Excess Interest Award

This is the amount of excess interest awarded by the Board of Trustees to plans participating in PMRS. If the plan is 95% or more funded as of the plan's most recent Act 205/Act 293 filing with the State, then the excess interest award increases pension benefits for participants in the plan and/or increases the municipal account for the plan. The exact terms of these increases are based on individual contracts each plan has with PMRS. If the plan is less than 95% funded, then the excess interest award increases the municipal account for the plan. Allocation of Excess Interest to Municipal, Members', and Retired Members' Reserve Accounts is described in Pennsylvania Municipal Retirement Board Policy Statement Rule Number 97-1 (https://www.pmrs.pa.gov/wp-content/uploads/2023/08/allocofexcinterest.pdf).

9. Measurement Date

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be rolled forward from the Actuarial Valuation Date to the Measurement Date. The Current Measurement Date within this report is December 31, 2023.

10. Measurement Period

The period between the Prior and the Current Measurement Dates.

11. Minimum Municipal Obligation (MMO)

The minimum employer contribution required to be paid to the pension fund annually, as statutorily defined.

12. Net Pension Liability

The liability of employers and nonemployer contributing entities for employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position. The Net Pension Liability is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling a Plan's benefit obligation in the event of a plan termination or other similar action.

13. Plan Fiduciary Net Position

The fair or market value of assets based on the municipal and member accounts for each pension plan and an allocated portion of the Retired Members' Reserve Account, the Disability Reserve Account, and the Undistributed Earnings Account.

14. Regular Interest Rate

As defined by the Pennsylvania Municipal Retirement Law (Act 15 of 1974), this is the rate fixed and annually reviewed by the board on the basis of earnings on investments to be applied to the Municipal and Members' Reserve Accounts as well as the Retired Members' Reserve Account and the Disability Reserve Account.



APPENDIX F

GLOSSARY OF TERMS

15. Reporting Date

The last day of the employer's fiscal year that ends no later than 12 months after the measurement date.

16. Service Cost

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB No. 68. The Service Cost is determined based on the Actuarial Cost Method described in Appendix E.

17. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB No. 68. The Total Pension Liability is determined based on the Actuarial Cost Method described in Appendix E.



APPENDIX G

ADDITIONAL INFORMATION

The following PMRS Actuarial and Audit Reports are available under the "*Financial Reports*" section of the PMRS website (http://www.pmrs.pa.gov/financial-reports/):

- PMRS Actuarial Valuation
- PMRS Annual Comprehensive Financial Report (ACFR)
- PMRS SSAE 18 (SOC 1 Type 2) Audit Report
- PMRS Schedule of Changes in Fiduciary Net Position by Participating Municipality Report

