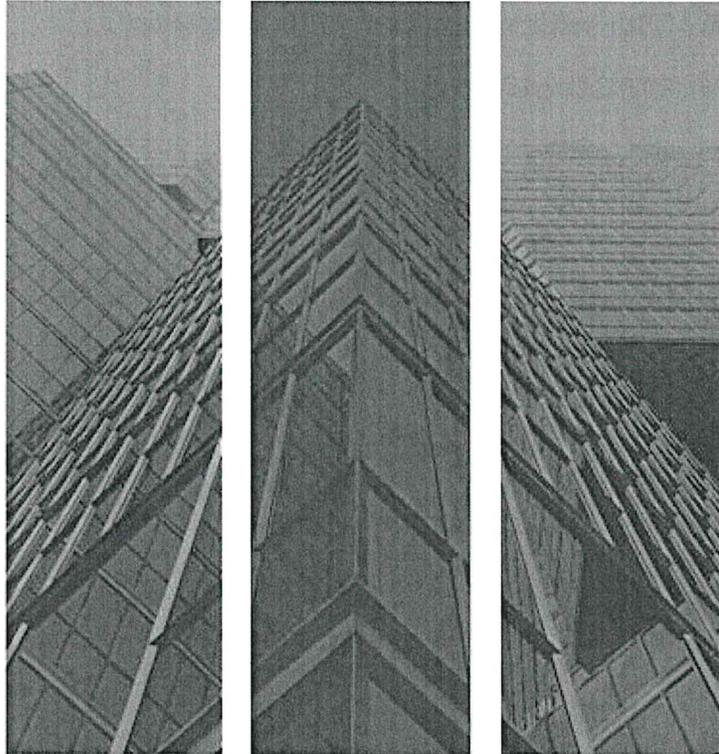


# Actuarial Valuation



**FAIRVIEW TOWNSHIP NON-UNIFORMED  
EMPLOYEES' PENSION PLAN**  
As of January 1, 2023

 **Conrad Siegel**

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
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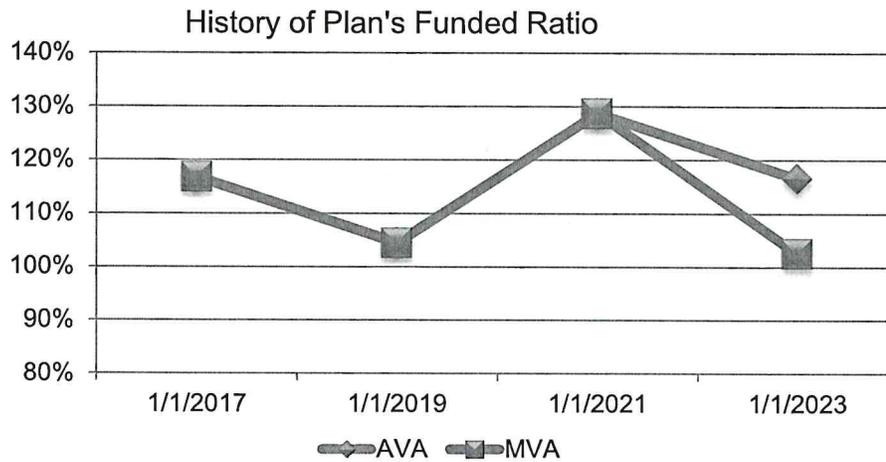
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Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Executive Summary**

The purpose of the valuation report is to determine the actuarial status of the Plan and to serve as the basis for satisfying the reporting requirements under Act 205. The actuarial calculations contained in this report will be used to determine future minimum municipal obligations.

The Summary of Principal Plan Benefit Provisions (SPPB) may be found following the Actuarial Certification. This summary represents our understanding of the current plan provisions in effect at January 1, 2023. Following the SPPB is a summary of the Actuarial Assumptions and Methods used in this valuation report. Changes to actuarial assumptions from the prior valuation include a switch to a five-year smoothed asset methodology.



	1/1/2019	1/1/2021	1/1/2023
Market Value of Assets (MVA)	\$ 8,409,232	\$ 10,743,755	\$ 9,401,430
Actuarial Value of Assets (AVA)	\$ 8,409,232	\$ 10,743,755	\$ 10,685,308
Actuarial Accrued Liability (AAL)	\$ 8,050,889	\$ 8,346,548	\$ 9,167,310
Unfunded Actuarial Accrued Liability (UAAL)	\$ (358,343)	\$ (2,397,207)	\$ (1,517,998)
Change in Estimated Cost	\$ 104,880	\$ (189,283)	\$ 139,223

Normal Cost	\$ 187,000	\$ 200,951	\$ 229,405
W-2 Payroll	\$ 1,052,422	\$ 1,050,543	\$ 1,208,504
Percentage of W-2 Payroll	17.8%	19.1%	19.0%
Average Age	48.3	48.6	49.8
Interest	7.00%	7.00%	7.00%
Salary Scale	5.00%	5.00%	5.00%
Average Life Expectancy*	85.46	85.20	86.94
Mortality Basis	PubG-2010	PubG-2010	PubG-2010
Projection Scale	MP-2018	MP-2020	MP-2021

**Participant Counts:**

Active	18	18	19
DROP	0	0	0
Vested Former	14	12	10
Receiving Benefits	15	17	19
<b>Total</b>	<b>47</b>	<b>47</b>	<b>48</b>

\*Based on a male currently aged 60.

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Executive Summary**

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**History of Investment Results**

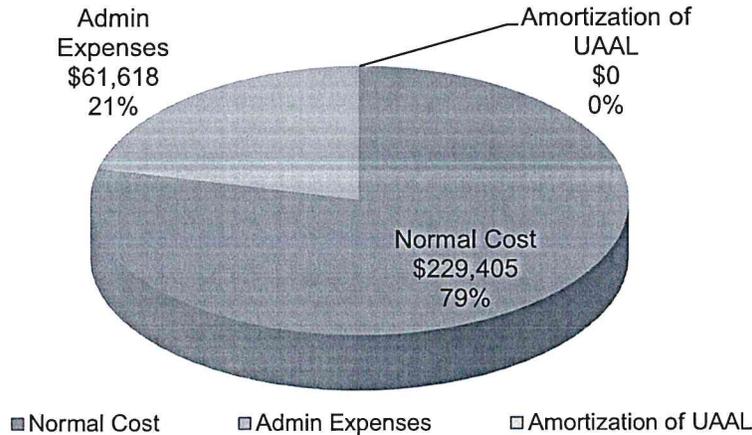
The following is a summary of the net dollar-weighted rates of investment return for the past six calendar years on both a market value and actuarial value basis:

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
Market Value of Assets	16.5%	(7.5%)	19.4%	14.6%	10.9%	(15.3%)
Actuarial Value of Assets	16.5%	(7.5%)	19.4%	14.6%	10.9%	(15.3%)

**Components of Financial Requirements**

There are three cost components that make up the financial requirement of a Plan's Minimum Municipal Obligation.

1. Normal Cost – This is the cost of pension and other benefits earned during the current year.
2. Administrative Expenses – Examples of administrative expenses paid from the plan assets are expenses for: investment advisory services, actuarial services and trustee services.
3. Amortization of the Unfunded Actuarial Accrued Liability – The amount of this cost is comprised of the amortization of the various gains and losses, plan amendments, and changes in actuarial assumptions that have occurred in the Plan over time. The amortization of the Unfunded Actuarial Accrued Liability is \$0 since the Actuarial Value of Assets is greater than the Actuarial Accrued Liability. The plan had an investment loss of \$2,159,210 with the majority of that related to the investment return during the prior two-year period.



**Illustration of Minimum Municipal Obligation**

Financial Requirements	
Normal Cost	\$ 229,405
Administrative Expenses	\$ 61,618
Amortization of Unfunded Actuarial Accrued Liability (UAAL)	\$ 0
<u>Total Financial Requirements</u>	<u>\$ 291,023</u>
Expected Member Contributions	\$ 0
10% Negative Unfunded Actuarial Accrued Liability	\$ (151,800)
<u>Minimum Municipal Obligation (not less than \$0)</u>	<u>\$ 139,223</u>

Please note that the figures shown above are for illustrative purposes only. The actual minimum municipal obligation is determined through the annual budgeting process.

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Actuarial Certification**

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In preparing this report, we have relied upon the data furnished to us. The data with respect to receipts and disbursements and assets of the Plan was furnished by BNY Mellon, N.A. The data with respect to participants and beneficiaries was furnished by Fairview Township. The data has been reviewed and has been determined to be reasonable and consistent.

The information as contained in this report is a projection of liabilities based upon stated assumptions and is not an exact statement of the Plan's ultimate benefits and liabilities. 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 at 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. Due to the limited scope of the assignment, an analysis of the potential range of such future measurements was not performed.

I certify that all costs, liabilities, rates of interest, and other factors under the Plan in Section 2 of the report have been determined on the basis of actuarial assumptions and methods, each of which is reasonable (taking into account the experience of the Plan and reasonable expectations) or which, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption and method were reasonable, and which, in combination, offer my best estimate of anticipated experience under the Plan.

I am a member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and an Enrolled Actuary under ERISA, and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

7/6/2023

Date



Ashley A. Wise, FSA, CERA, EA, MAAA  
Partner & Consulting Actuary  
Enrolled Actuary No. 23-07946

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Summary of Principal Plan Benefit Provisions**

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**Eligibility**

A full-time non-uniformed employee of the Township joins the Plan on his date of employment.

**Normal Retirement**

A Class 2 employee is eligible for normal retirement after attainment of age 65, or after attainment of age 60 and completion of 25 years of vesting service, if earlier. A Class 1 employee is eligible for normal retirement after attainment of age 60 or completion of 25 years of vesting service, if earlier.

The normal retirement pension is payable monthly during the member's lifetime, with payments guaranteed for the first 120 months.

The amount of monthly pension is equal to 2.0% of average monthly compensation multiplied by the number of years of benefit service completed by the member at retirement, up to a maximum of 25 years. For members hired prior to January 1, 2001, the amount of monthly pension is equal to 1.5% of average monthly compensation multiplied by the number of years of benefit service completed by the member at retirement, if greater. Also, a service increment is provided equal to \$100 per month for each completed year of benefit service in excess of 25 years, up to a maximum of \$300 additional per month.

For employees hired before July 1, 2014, average monthly compensation is based upon the final plan year preceding retirement.

For employees hired on or after July 1, 2014, average monthly compensation is based upon the last 36 months of employment.

**Late Retirement**

If a member continues working after his normal retirement date, his pension does not start until he actually retires. The monthly late retirement pension is equal to the benefit accrued to the late retirement date.

**Early Retirement**

A member is eligible for early retirement after attainment of age 55. The monthly early retirement pension is equal to the benefit accrued to the date of early retirement, reduced 1/2 of 1% for each month early.

**Disability Retirement**

If an active member becomes totally and permanently disabled, he is eligible for a disability pension. The monthly disability pension is equal to the benefit accrued to the date of disability.

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Summary of Principal Plan Benefit Provisions**

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**Deferred Retirement Option Program**

An active member hired on or before August 29, 2011, who has met the eligibility requirements for normal retirement may elect to participate in the deferred retirement option program for a period of not less than three months nor more than 24 months. His monthly pension shall be calculated as of his date of participation in the deferred retirement option program and shall be accumulated with 5.0% interest per annum and distributed in a lump sum at retirement.

**Postretirement Cost-of-Living Increase**

An annual cost-of-living increase equal to the percentage increase in the "Wage Earner Index" in the Consumer Price Index during the preceding calendar year, up to a maximum of 3.0%, is made to retirees and beneficiaries, with a maximum total cost-of-living increase of 30%.

**Death Benefits**

The preretirement death benefit for a member is a refund of his contributions with interest.

**Vesting**

For employees hired before July 1, 2014, a member's benefits are always 100% vested. For employees hired on or after July 1, 2014, a member's benefits vest upon completion of 5 years of vesting service. The vested benefit is a deferred monthly pension beginning at normal retirement equal to the benefit accrued to the date of termination. Employees hired before July 1, 2014, may elect a lump sum cash settlement in lieu of a deferred pension.

**Accrued Pension**

The benefit accrued at any date other than the normal retirement date is determined by the normal retirement benefit formula, but based upon compensation and years of benefit service to the date of determination.

**Contributions**

Effective January 1, 2022, member contributions are suspended.

Past member contributions are credited with 5.0% annual interest.

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Actuarial Assumptions and Methods**

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**Interest**

7.00%

**Salary**

5.00% Annual Increase

**Withdrawal**

Table D-1: Rates of withdrawal at selected ages:

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	5.5000%	35	2.5000%	50	0.0000%
25	5.0000%	40	1.0000%	55	0.0000%
30	4.0000%	45	0.5000%	60	0.0000%

**Mortality**

PubG-2010 mortality table, including rates for disabled retirees and contingent survivors.

Incorporated into the table are rates projected generationally using Scale MP-2021 to reflect mortality improvement.

**Disability**

SOA 1987 Group LTD Table - Males, 6-month elimination. Sample rates are shown below.

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	0.0764%	35	0.1242%	50	0.5396%
25	0.0854%	40	0.1760%	55	0.9770%
30	0.0986%	45	0.2944%	60	1.4774%

100% of disabilities are assumed to be service-related.

**Retirement**

It is assumed that all members hired on or before August 29, 2011 retire upon attainment of age 65 or enter the Deferred Retirement Option Program (DROP) upon attainment of age 60 and completion of 25 years of service, if earlier. It is assumed that all members hired after August 29, 2011 retire upon attainment of age 65 or upon attainment of age 60 and completion of 25 years of service, if earlier. It is also assumed that, for members who enter the DROP, participation in the DROP continues for 24 months.

**Preretirement Death Benefit**

Liabilities computed on the assumption that all participants will have spouses of the same age at the date of eligibility for the benefit.

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Actuarial Assumptions and Methods**

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**Expenses**

Provision for administrative expenses added to annual contribution requirement, per Act 205 of 1984.

**Inflation**

Moderate inflation based on long term historical average rates is a component of the actuarial assumptions used herein. Provision is not made for advance funding of sharply higher rates of inflation experienced in some years. The effects of such higher rates are reflected in the funding after their occurrence.

**Cost-of-Living Increase**

3.00% per year

**Actuarial Value of Assets**

Each year the investment gain (excess of actual investment income including realized and unrealized appreciation over expected investment income) or loss is recognized over a five-year period. In no event is the actuarial value of assets allowed to be greater than 120% or less than 80% of market value.

**Actuarial Cost Method**

Entry Age Normal (required by Act 205 of 1984)

**Changes in Actuarial Assumptions and Methods**

	<u>Prior</u>	<u>Current</u>
Asset Valuation Method	Market Value	5-year Smoothing Method

Fairview Township Non-Uniformed Employees'  
Pension Plan  
Actuarial Valuation  
as of January 1, 2023

Section 1

Summary of Plan Assets and Summary of Plan Membership

Fairview Township Non-Uniformed Employees' Pension Plan  
 Actuarial Valuation as of January 1, 2023  
**Receipts and Disbursements - January 1, 2021 to December 31, 2021**

Market Value at 1/1/2021		\$ 10,743,755.45
<b>Receipts</b>		
Employer Contributions Received	\$	0.00
Employee Contributions		
Received	\$	35,904.58
Receivable at 1/1/2021		(2,052.02)
Receivable at 12/31/2021		1,983.71
Total Employee Contributions		35,836.27
State Contributions Received		176,473.00
Investment Income		
Income Received	\$	56,884.60
Accrued Income at 1/1/2021		(1.89)
Accrued Income at 12/31/2021		1.30
Total Investment Income		56,884.01
Change in Market Value		1,101,554.61
Total Receipts		1,370,747.89
<b>Disbursements</b>		
Monthly Benefit Payments	\$	(408,290.54)
Refund of Employee Contributions		(18,707.81)
Administrative Expenses		(64,028.78)
Total Disbursements		(491,027.13)
Market Value at 12/31/2021		\$ 11,623,476.21
Approximate Net Dollar-Weighted Rate of Investment Return		10.92%

Fairview Township Non-Uniformed Employees' Pension Plan  
 Actuarial Valuation as of January 1, 2023  
**Receipts and Disbursements - January 1, 2022 to December 31, 2022**

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Market Value at 1/1/2022		\$ 11,623,476.21
<b>Receipts</b>		
Employer Contributions Received	\$	0.00
Employee Contributions		
Received	\$	2,460.83
Receivable at 1/1/2022		(1,983.71)
Receivable at 12/31/2022		0.00
Total Employee Contributions		477.12
Investment Income		
Income Received	\$	53,343.16
Accrued Income at 1/1/2022		(1.30)
Accrued Income at 12/31/2022		65.08
Total Investment Income		53,406.94
Change in Market Value		(1,789,689.27)
Total Receipts		(1,735,805.21)
<b>Disbursements</b>		
Monthly Benefit Payments	\$	(427,034.12)
Administrative Expenses		(59,207.27)
Total Disbursements		(486,241.39)
Market Value at 12/31/2022		\$ 9,401,429.61
Approximate Net Dollar-Weighted Rate of Investment Return		(15.28%)

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Assets and Liabilities**

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**Assets**

Cash	\$	0.00
Money Markets		94,688.94
Mutual Funds		<u>9,306,675.59</u>
Total Assets in Fund	\$	9,401,364.53
Employee Contributions Receivable		0.00
Accrued Income		<u>65.08</u>
Total Assets	\$	9,401,429.61

**Liabilities**

Total Liabilities		<u>0.00</u>
Net Assets	\$	<u><u>9,401,429.61</u></u>

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Summary of Plan Membership**

<b>Active Members</b>	Number of Members	Annual Payroll
Active Members as of 1/1/2021	18	
New Members During the Period	5	
Returned to Active	1	
Members No Longer Active:		
Retired with Disability Benefit	0	
Retired with Service Retirement Benefit	(1)	
Elected DROP Benefit	0	
Separated with Deferred Benefit	0	
Separated with Refund of Contributions	(4)	
Separated with Neither Deferred Benefit nor Refund of Contributions	0	
Deceased	0	
Total	<u>(5)</u>	
Active Members as of 1/1/2023	<u>19</u>	<u>\$ 1,208,504</u>
<b>Vested Former Members</b>	Number of Members	Annual Benefit
Vested Former Members as of 1/1/2021	12	
Separated with Deferred Benefit	0	
Beneficiary of Deceased Participant	0	
Returned to Active	(1)	
Retired with Service Retirement Benefit	(1)	
Deceased or Paid in Full	<u>0</u>	
Vested Former Members as of 1/1/2023	<u>10</u>	<u>\$ 82,596</u>
<b>Retired Members</b>		
Retired Members as of 1/1/2021	13	
Retired with Service Retirement Benefit	2	
Retired from DROP Benefit	0	
Deceased or Paid in Full	<u>(1)</u>	
Retired Members as of 1/1/2023	<u>14</u>	<u>\$ 333,385</u>
<b>Disabled Members</b>		
Disabled Members as of 1/1/2021	2	
Retired with Disability Benefit	0	
Retired from DROP Benefit	0	
Deceased	<u>0</u>	
Disabled Members as of 1/1/2023	<u>2</u>	<u>\$ 35,946</u>

Fairview Township Non-Uniformed Employees' Pension Plan  
 Actuarial Valuation as of January 1, 2023  
**Summary of Plan Membership**

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<b>Spouse Beneficiaries of Deceased Members</b>	Number of Members	Annual Benefit
Spouse Beneficiaries of Deceased Members as of 1/1/2021	2	
Additional Spouse Beneficiaries of Deceased Members Deceased	1 <u>0</u>	
Spouse Beneficiaries of Deceased Members as of 1/1/2023	<u>3</u>	<u>\$ 70,234</u>

Fairview Township Non-Uniformed Employees'  
Pension Plan  
Actuarial Valuation  
as of January 1, 2023

Section 2

Act 205 Funding Calculations

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Actuarial Value of Assets**

	2019	2020	2021	2022
Market Value at 1/1	\$ 8,409,231.64	\$ 9,717,134.35	\$10,743,755.45	\$11,623,476.21
Contributions	128,651.58	122,456.92	212,309.27	477.12
Benefit Payments and Expenses	(413,706.45)	(488,051.18)	(491,027.13)	(486,241.39)
Expected Investment Income <sup>1</sup>	578,669.29	667,403.61	742,307.76	796,641.59
Expected Value at 12/31	\$ 8,702,846.06	\$ 10,018,943.70	\$ 11,207,345.35	\$ 11,934,353.53
Market Value at 12/31	9,717,134.35	10,743,755.45	11,623,476.21	9,401,429.61
Gain/(Loss): (Market Value less Expected Value)	\$ 1,014,288.29	\$ 724,811.75	\$ 416,130.86	\$ (2,532,923.92)
Percentage of Gain/(Loss) to be recognized in the future	20%	40%	60%	80%
Gain/(Loss) to be recognized in the future	\$ 202,857.66	\$ 289,924.70	\$ 249,678.52	\$ (2,026,339.14)
Market Value at 12/31/2022				\$ 9,401,429.61
Total (Gain)/Loss for 2019-2022 to be recognized in the future				<u>1,283,878.26</u>
Actuarial Value of Assets at 12/31/2022				<u><u>\$ 10,685,307.87</u></u> <sup>2</sup>

<sup>1</sup> 7.00% annual interest rate

<sup>2</sup> Actuarial Value of Assets cannot be greater than 120% nor be less than 80% of the Market Value.

Fairview Township Non-Uniformed Employees' Pension Plan  
 Actuarial Valuation as of January 1, 2023  
**Unfunded Actuarial Accrued Liability and Normal Cost**

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**Unfunded Actuarial Accrued Liability**

Actuarial Present Value of Future Benefits

Active Members Retirement Pension Benefits	\$	5,298,084
Active Members Vested Withdrawal Benefits		9,376
Active Members Disability Benefits		425,765
Active Members Refund of Member Contributions		13,902 <sup>1</sup>
Voluntary Employee Contribution Accounts		5,098
Vested Former Members Benefits		852,219
Retired Members Benefits		3,413,065
Disabled Members Benefits		391,160
Surviving Spouses Benefits		<u>668,250</u>
Total	\$	11,076,919
Actuarial Present Value of Future Normal Costs		<u>(1,909,609)</u>
Actuarial Accrued Liability	\$	9,167,310
Actuarial Value of Assets		<u>(10,685,308)</u>
Unfunded Actuarial Accrued Liability	\$	<u>(1,517,998)</u>
 <b>Normal Cost</b>		
Normal Cost	\$	<u>229,405</u>
Normal Cost as a Percentage of Annual Payroll		<u>19.0%</u>

<sup>1</sup> Accumulated Member Contributions Without Interest as of 1/1/2023 = \$260,292  
 Accumulated Member Contributions With Interest as of 1/1/2023 = \$396,054

Fairview Township Non-Uniformed Employees' Pension Plan  
 Actuarial Valuation as of January 1, 2023  
**Analysis of the Change in the Unfunded Actuarial Accrued Liability**

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Unfunded Actuarial Accrued Liability at 1/1/2021		\$ (2,397,207)
<b>Additions</b>		
Normal Costs	\$ 411,950	
Administrative Expenses	123,236	
Interest on Unfunded Actuarial Accrued Liability, Normal Costs, and Administrative Expenses	<u>(294,515)</u>	
Total		240,671
<b>Contributions</b>		
Employer Contributions	\$ 0	
Employee Contributions	(36,313)	
State Contributions	(176,473)	
Interest on Contributions	<u>(24,008)</u>	
Total		(236,794)
Modification in the Benefit Plan		0
Change in Actuarial Assumptions		(1,283,878)
<b>Actuarial Loss</b>		
Investment Loss	\$ 2,090,894	
Experience Loss	<u>68,316</u>	
Total		<u>2,159,210</u>
Unfunded Actuarial Accrued Liability at 1/1/2023		<u><u>\$ (1,517,998)</u></u>

Fairview Township Non-Uniformed Employees' Pension Plan  
 Actuarial Valuation as of January 1, 2023  
**Illustration of Minimum Municipal Obligation**

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Financial Requirements

Normal Cost	\$ 229,405	
Administrative Expenses	<u>61,618</u> <sup>1</sup>	
Total		\$ 291,023
Expected Member Contributions		0
10% of Negative Unfunded Actuarial Accrued Liability		<u>(151,800)</u>
Minimum Municipal Obligation		<u><u>\$ 139,223</u></u> <sup>2</sup>

Note: Average Future Service is 12 years.

<sup>1</sup> Total Administrative Expenses for Plan Year 1/1/2021 to 12/31/2021 - \$ 64,029

Total Administrative Expenses for Plan Year 1/1/2022 to 12/31/2022 - \$ 59,207

<sup>2</sup> This is not an actual MMO. Figures from this report will be used to prepare actual MMOs in future years.

Fairview Township Non-Uniformed Employees'  
Pension Plan  
Actuarial Valuation  
as of January 1, 2023

Section 3

Supplemental Information

Fairview Township Non-Uniformed Employees' Pension Plan  
Actuarial Valuation as of January 1, 2023  
**Supplemental Information**

**Schedule of Funding Progress**

Valuation Date	Market Value of Assets (a)	Entry Age Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Net Position as a % of Total Liability (b-a)/b	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2013	\$ 5,613,539	\$ 6,312,722	\$ 699,183	11.1%	88.9%	\$ 1,424,717	49.1%
1/1/2014	7,388,381	6,982,129	(406,252)	-5.8%	105.8%	1,600,786	-25.4%
1/1/2015	8,006,356	7,422,441	(583,915)	-7.9%	107.9%	1,568,816	-37.2%
1/1/2016	8,087,334	6,904,480	(1,182,854)	-17.1%	117.1%	1,192,260	-99.2%
1/1/2017	8,377,902	7,172,348	(1,205,554)	-16.8%	116.8%	985,845	-122.3%
1/1/2018	9,436,032	7,372,549	(2,063,483)	-28.0%	128.0%	1,056,790	-195.3%
1/1/2019	8,409,232	8,050,889	(358,343)	-4.5%	104.5%	1,052,422	-34.0%
1/1/2020	9,717,134	8,143,542	(1,573,592)	-19.3%	119.3%	978,547	-160.8%
1/1/2021	10,743,755	8,346,548	(2,397,207)	-28.7%	128.7%	1,050,543	-228.2%
1/1/2022	11,623,476	8,719,160	(2,904,316)	-33.3%	133.3%	1,109,814	-261.7%
1/1/2023	9,401,430	9,167,310	(234,120)	-2.6%	102.6%	1,208,504	-19.4%

**Schedule of Interest Rate Sensitivity Testing**

Interest Rate <sup>1</sup>	Market Value of Assets (a)	Entry Age Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Net Position as a % of Total Liability (b-a)/b	Funded Ratio (a/b)
6.00%	\$ 9,401,430	\$ 10,235,162	\$ 833,732	8.1%	91.9%
7.00%	9,401,430	9,167,310	(234,120)	-2.6%	102.6%
8.00%	9,401,430	8,265,570	(1,135,860)	-13.7%	113.7%

<sup>1</sup> Valuation interest rate is 7.00%

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**Schedule of Contributions from the Employer and Other Contributing Entities**

Year	Actuarially <sup>1</sup> Determined Contribution	Contributions <sup>2</sup> From Employer	Contribution Deficiency/ (Surplus)
2013	\$ 379,594	\$ 379,594	\$ 0
2014	343,824	343,824	0
2015	347,807	347,807	0
2016	173,104	173,104	0
2017	70,359	70,359	0
2018	86,761	86,761	0
2019	99,132	99,132	0
2020	91,962	91,962	0
2021	176,473	176,473	0
2022	0	0	0

<sup>1</sup> Minimum Municipal Obligation under Act 205 of 1984

<sup>2</sup> Includes general municipal pension system State aid

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**Pension Plan Risks**

Measuring pension obligations and calculating actuarially determined contributions requires the use of assumptions regarding future economic and demographic experience. Future experience may differ from the assumptions used in these calculations resulting in a different outcome than expected. This uncertainty inherent in pension plans results in required contribution and funding level volatility. In many cases when discussing risks, the focus is on downside risk, there is also upside risk. It is essential that the entity taking on the risk understands the risk, bears the potential loss or reaps the potential reward.

The following are examples of risks that may significantly affect the plan's future financial condition:

1. Investment risk is the potential that investment returns will be different than expected. Investment returns less than expected will lead to lower asset values, a reduction to the plan's funded status, and higher contribution requirements. The reverse is true if investment returns are higher than expected.
2. Asset/liability mismatch risk is the potential that changes in asset values do not match changes in the value of liabilities. If there is a change in asset values relative to liabilities which reduces the plan's funded status, higher contributions may be required in order for the Plan to meet its benefit payment obligations as they become due.
3. Interest rate risk is the potential that interest rates will be different than expected. A decrease in the interest rates used to value plan liabilities results in an increase in liabilities and vice versa. The interest rates used for valuing liabilities for contribution determination is based on the expected long term rate of investment return for the plan's assets. A change to the investment allocation could warrant a change to the interest rate used, a lower long-term return would result in higher contribution requirement and vice versa. An illustration of the impact of a 1% change to the interest rates is provided in Section 3 of this report.
4. Longevity and other demographic risks are the potential that mortality or other demographic experience will be different than anticipated. This can lead to actuarial gains or losses. For example, if fewer participants die than expected, this will create an actuarial loss and may result in a higher required contribution.
5. Contribution risk is the potential of actual future contributions deviating from expected future contributions. For example, if actual contributions are not made in accordance with the plan's funding policy or there are material changes in the anticipated number of employees or covered payroll, it may impact future contributions.

There are a variety of different maturity measures that can help assess this risk. A mature plan may have more difficulty recovering from adverse experience. A plan that is closed to new entrants will mature over time as the member population ages. There are a number of ways to measure plan maturity. The following maturity measures are relevant to this plan:

1. The ratio of the retired members' liability to the total accrued liability is 48.79%. To the extent that the expected benefit payment streams for retired members are not supported by investments that provide matching income streams (asset/liability mismatch), the risk of a larger funding shortfall with respect to the retired member liability rises as this percentage increases.
2. The ratio of prior year contributions reduced by prior year disbursements (benefit payments and expenses) to market value of assets is -5.17%. A negative percentage indicates negative cash flow, which leads to lower asset values and may amplify investment risk. If the plan experiences lower than expected investment returns in combination with negative cash flow, the plan will be more underfunded (or less overfunded), and may have higher contribution requirements than would otherwise be the case if it had positive cash flow. A positive percentage indicates positive cash flow, which leads to higher asset values and may mitigate the effect of investment risk.

Negative cash flow is expected for a mature or well-funded plan. It does not indicate that a plan had been poorly managed.

3. Duration measures the sensitivity of the liability to interest rate changes. The duration of the plan's liability is 14.44 years. This means for every 1% decrease in the interest rate, the present value of future benefits liability will increase by approximately 14.44% and vice versa. The lower the duration, the less sensitive the liabilities are to a change in interest rate.

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**Supplemental Information for Assumptions for Act 205 Funding Calculations**

In accordance with regulations under Act 205 of 1984, all actuarial assumptions are selected jointly by the actuary and the governing body of the pension plan.

**Interest Rates**

The interest rate assumption is the long term expected rate of return on pension plan investments. It is based on the Plan's current asset allocation, expected long term inflation, and historical long term expected real rates of return on the Plan's major asset classes.

**Salary**

Based on expected long term salary increases for active participants, considering the effects of future inflation.

**Withdrawal**

Historical rates of withdrawal were considered as well as future expectations of withdrawal for the affected population.

**Mortality**

Uses the most recent study of public sector data prepared by the Society of Actuaries and takes into account the occupational makeup of the participant group.

**Disability**

Based on the Society of Actuaries Group LTD Table – Males, 6-month elimination (1987).

**Retirement**

Due to the plan size and design, use of a single retirement age was assumed. The use of retirement rates is not expected to produce materially different results.

**Preretirement Survivor Death Benefit**

A conservative assumption was made of percent married compared to current marital statistics for the general population.

**Expenses**

Expected expenses are determined by averaging the two prior year's expenses.

**Inflation**

Moderate inflation based on long term historical average rates is a component of the actuarial assumptions used herein.

**Cost-of-Living Increase**

Based on expected future inflation using long term historical averages, and taking into consideration annual COLA limits per Plan provisions.

