TOWNSHIP OF BLOOMFIELD RETIREMENT INCOME PLAN

Actuarial Valuation as of January 1, 2024
To Determine Funding for Fiscal Year 2025-26

Prepared by

John M. Chmielewski, FSA
Consulting Actuary

July 24, 2024

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Certification

As part of our engagement with the Bloomfield Township ("Township"), we have performed an actuarial valuation of the Plan as of January 1, 2024. Our findings are set forth in this actuary's report. The main purposes of this valuation are to determine funding for fiscal year 2025-26, to review the Plan's experience since the prior valuation, and to assess the funded position of the Plan.

Actuarial computations presented in this report are for the purposes of determining the recommended funding amounts for the Plan. The calculations in this report have been made on a basis consistent with our understanding of the Plan’s funding policy and on our understanding of the plan provisions as summarized in this report. Determinations for purposes other than meeting these requirements, such as for financial reporting in accordance with GASB standards, may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

We believe that the measures of funded status contained herein are appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations and for assessing the need for or the amount of future contributions. Note that a Plan's funded status is dependent on the selection of both the actuarial cost method and the asset smoothing method; different measurements would result if, for instance, the Market Value of Assets were used in place of the Actuarial Value of Assets.

Actuarial assumptions, including interest rates, mortality tables, and others identified in this report, and actuarial cost methods are adopted by the Township, who is responsible for selecting the Plan’s funding policy, actuarial cost methods, asset valuation methods, and actuarial assumptions. The policies, methods, and assumptions used in this valuation are those that have been so adopted and are described in this report. The Township is solely responsible for communicating to Milliman any changes thereto. All costs, liabilities, rates of interest, and other factors for the Plan have been determined on the basis of actuarial assumptions and methods which, in our professional opinion, are individually reasonable (taking into account the experience of the Plan and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated future experience affecting the Plan and are expected to have no significant bias.

This valuation is only an estimate of the Plan’s financial condition as of a single date. It can neither predict the Plan’s future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of Plan contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, 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 modifications to contribution calculations based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of future measurements.

Certification

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the Township. This information includes, but is not limited to, benefit provisions, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different, and our calculations may need to be revised.

Milliman's work is prepared solely for the use and benefit of the Township. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) the Township may provide a copy of Milliman's work, in its entirety, to the Township's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Township; and (b) the Township may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The valuation results were developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct* and *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States*, published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Jack Chmielewski

John M. Chmielewski, FSA
Consulting Actuary

Section I - Executive Summary
Changes Since the Prior Valuation

Plan Experience

From January 1, 2023 to January 1, 2024, the plan's assets earned 7.47% on a Market Value basis and 4.72% on an Actuarial Value basis. The interest rate assumption for this period was 6.00%; the result is an asset gain of about $3.1 million on a Market Value basis and a loss of about $2.9 million on an Actuarial Value basis.

From January 1, 2023 to January 1, 2024, the Accrued Liability was expected to grow from $259.7 million to $263.15 million, based on expected changes in the plan's membership per the actuarial assumptions. Actual changes in the plan's membership during this period resulted in an Accrued Liability as of January 1, 2024 of $263.20 million (measured before any changes in the plan provisions or the actuarial methods and assumptions). This difference of $0.05 million between the expected Accrued Liability and the actual Accrued Liability is termed a 'liability loss'. The primary factors contributing to this liability loss were: (1) a modest loss from retirement experience, with more retirements than expected; (2) a modest gain from mortality experience, with more retiree deaths than expected; and (3) a small loss from salary growth, with slightly higher pay increases than expected.

Plan Changes

None.

Changes in Actuarial Methods

None.

Changes in Actuarial Assumptions

None.

Other Significant Changes

Although it is possible that the COVID-19 pandemic could have a material impact on the projected mortality, liabilities, and contribution requirements, we have chosen not to make an adjustment in the projections at this time, given the substantial current uncertainty regarding the impact of COVID-19 on mortality and plan costs, including whether the pandemic will increase or decrease mortality during the term of our projections. We will be monitoring this development closely and may adjust future projections to reflect the impact of COVID-19, if and when it becomes appropriate.

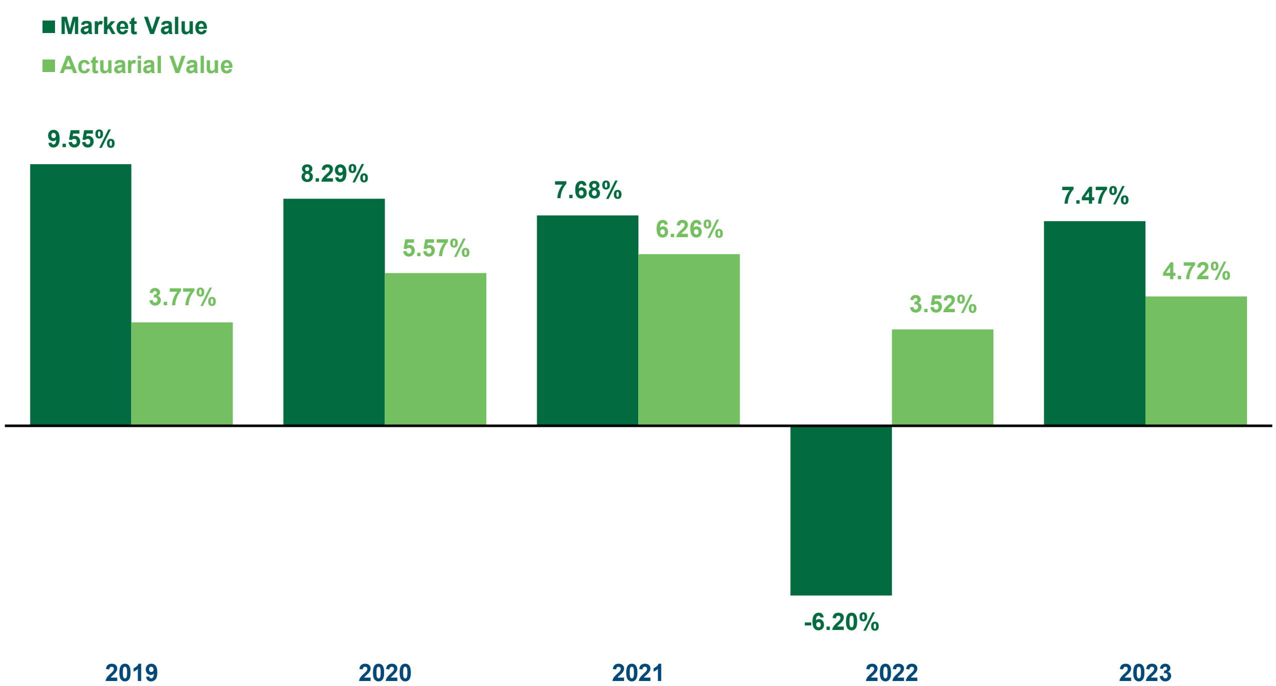
Section I - Executive Summary
Assets

There are two different measures of the plan's assets that are used throughout this report. The Market Value is a snapshot of the plan's investments as of the valuation date. The Actuarial Value is a smoothed asset value designed to temper the volatile fluctuations in the market by recognizing investment gains or losses non-asymptotically over five years.

	Market	Actuarial
Value as of January 1, 2023	$215,732,764	$232,937,865
Township and Member Contributions	7,709,188	7,709,188
Investment Income	15,854,747	10,827,664
Benefit Payments and Administrative Expenses	(14,472,766)	(14,472,766)
Value as of January 1, 2024	224,823,933	237,001,951

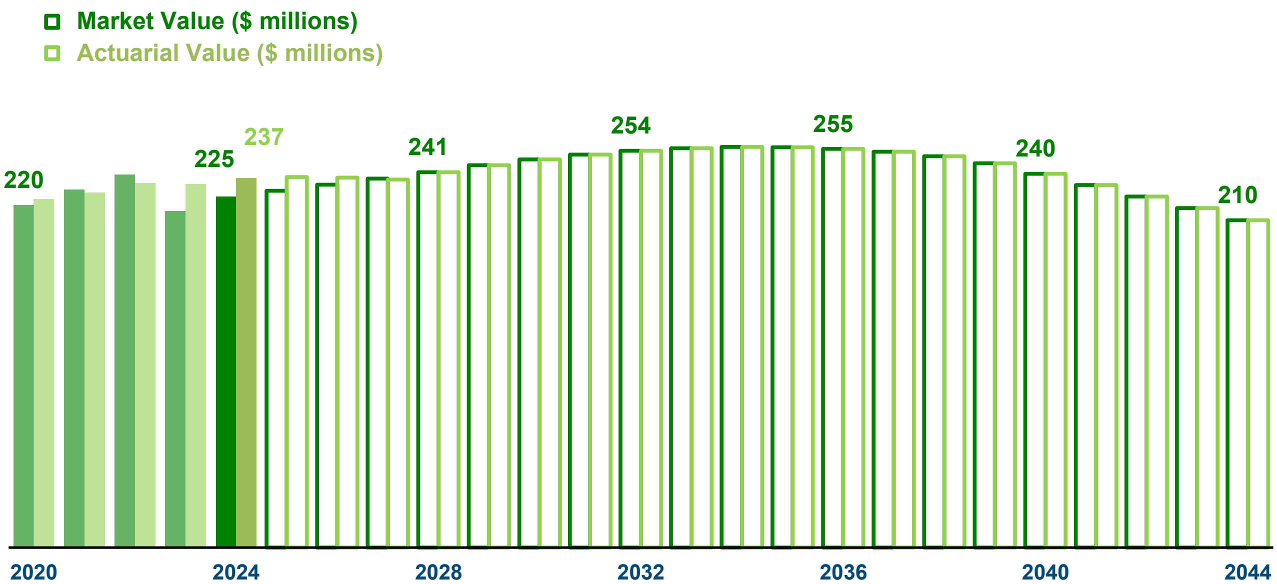
The Actuarial Value currently exceeds the Market Value by $12.2 million. This figure represents investment losses that will be gradually recognized in future years. This process will exert upward pressure on the Township's contribution, unless there are offsetting market gains.

Historical rates of return are shown in the graph below:

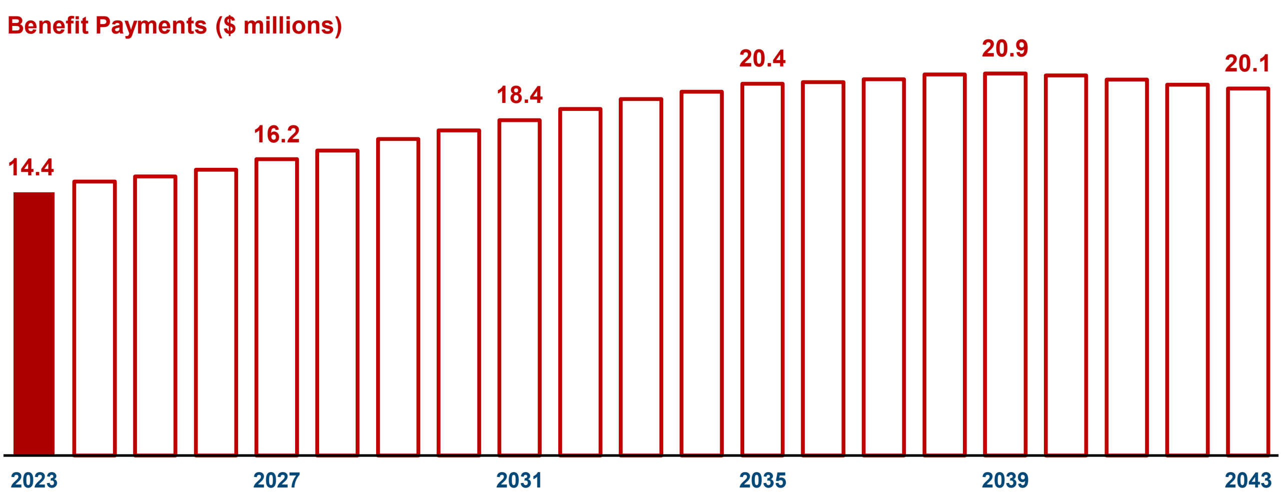


Section I - Executive Summary
Assets (continued)

The graph below shows how this year's asset values compare to where the plan's assets have been over the past several years and how they are projected to change over the next 20 years. For purposes of this projection, we have assumed that the Township always contributes the Actuarially Determined Contribution and the investments always earn the assumed interest rate each year.

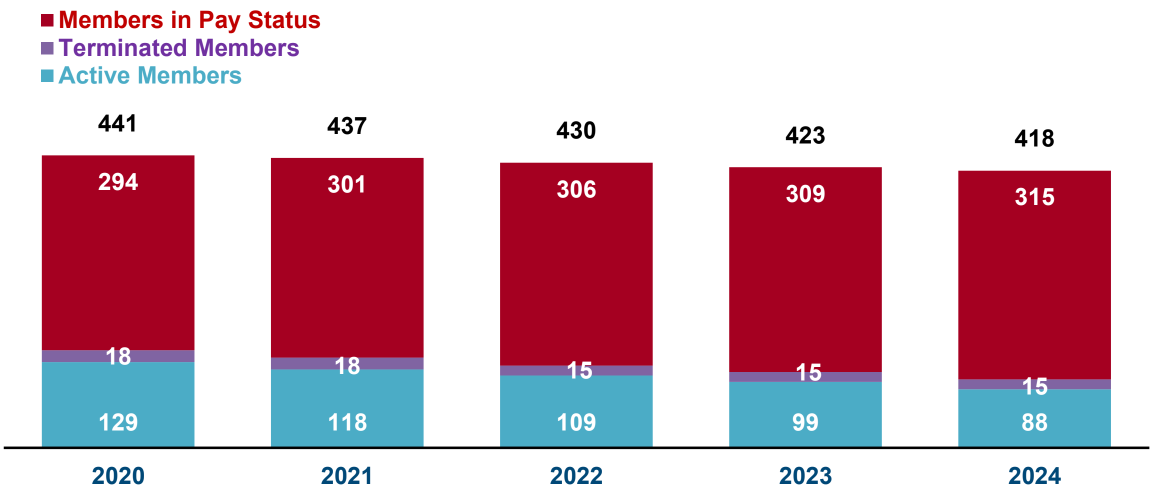


In 2023, the plan paid out $14.4 million in benefits to members. Over the next 20 years, the plan is projected to pay out a total of $376 million in benefits to members.



Section I - Executive Summary
Membership

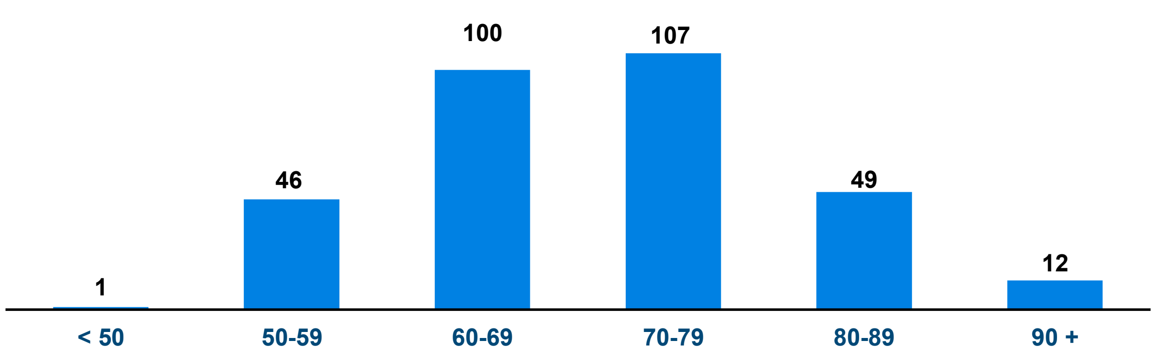
There are three basic categories of plan members included in the valuation: (1) members who are receiving monthly pension benefits, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) active employees who have met the eligibility requirements for membership.



Members in Pay Status on January 1, 2024

Count	315
Average Age	70.9
Total Annual Benefit	$14,706,001
Average Annual Benefit	46,686

The members in pay status fall across a wide distribution of ages:



Section I - Executive Summary
Membership (continued)

Terminated Vested Members on January 1, 2024

Count	15
Average Age	46.5
Total Annual Benefit	$340,381
Average Annual Benefit	22,692

Active Members on January 1, 2024

	Library Employees	Non-Library Employees	Plan Total
Count	6	82	88
Average Age	53.9	48.6	49.0
Average Service	22.1	22.7	22.6
Payroll	$480,545	$8,133,134	$8,613,679
Average Payroll	80,091	99,185	97,883

The tables below illustrate the age and years of service of the active membership:

Library Employees

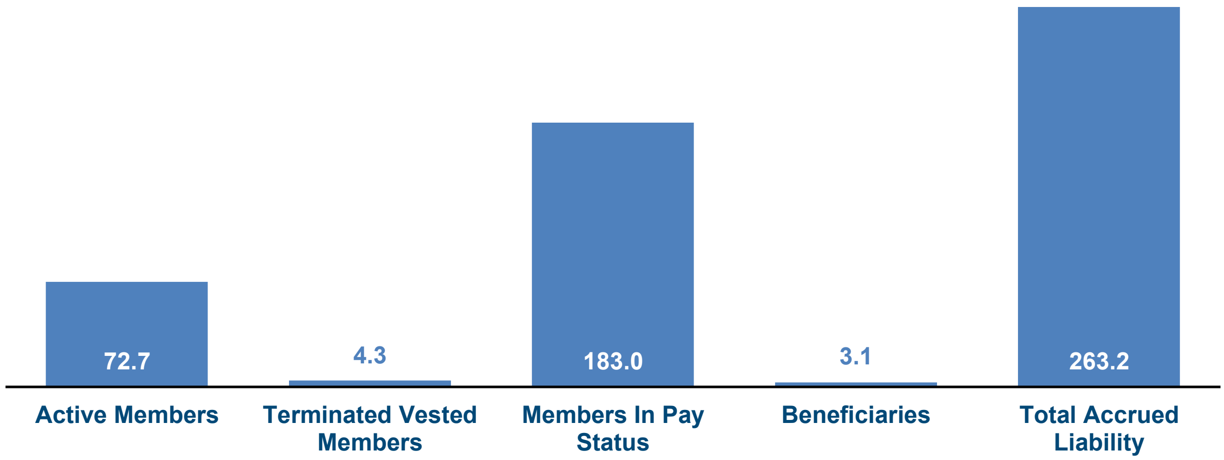
	Years of Service							
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**
<30								0
30-34								0
35-39								0
40-44				1				1
45-49								0
50-54			1		1			2
55-59							1	1
60-64			1		1			2
65+								0
Total	0	0	2	1	2	0	1	6

Non-Library Employees

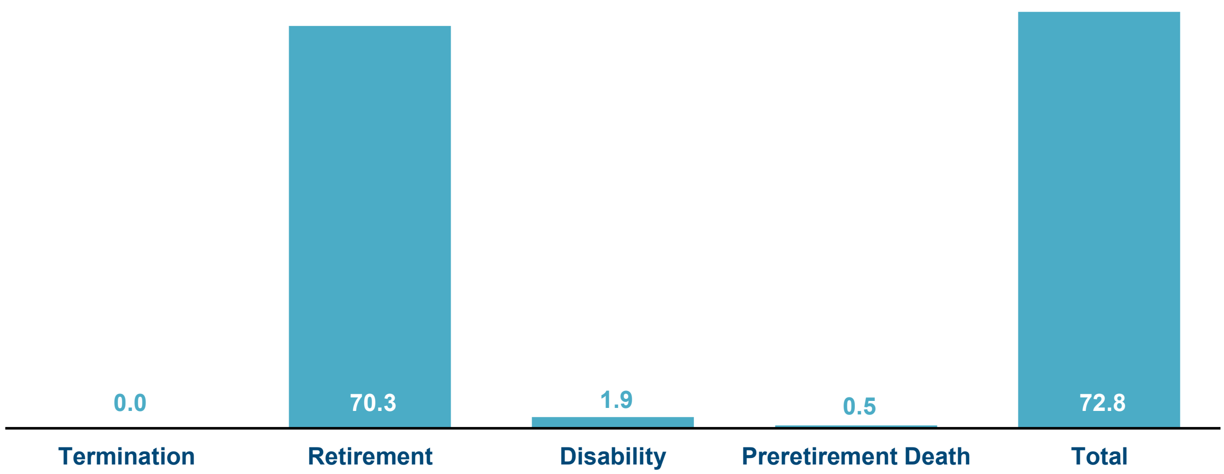
	Years of Service							
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**
<30								0
30-34								0
35-39								0
40-44				8	7			15
45-49				8	23	6		37
50-54					9	9		18
55-59				2	3	3	1	9
60-64					3			3
65+								0
Total	0	0	0	18	45	18	1	82

Section I - Executive Summary
Accrued Liability

The Accrued Liability as of January 1, 2024 is $263,203,430, which consists of the following pieces (in $ millions):

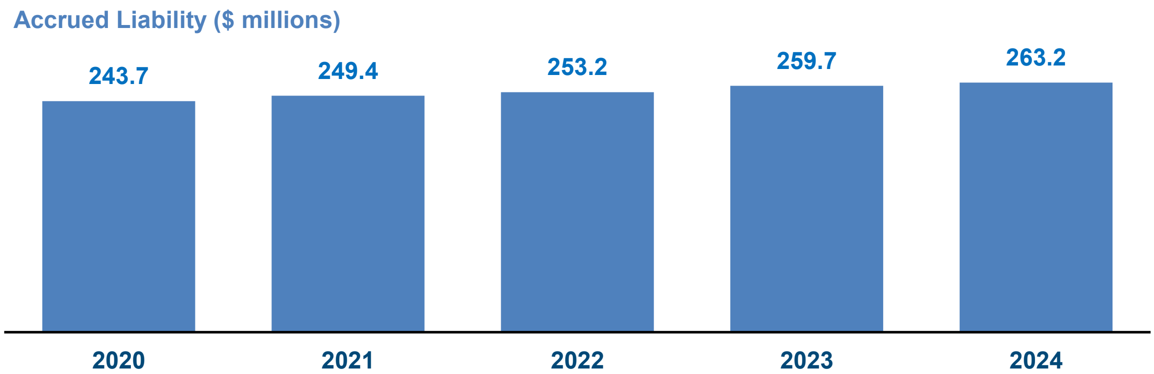


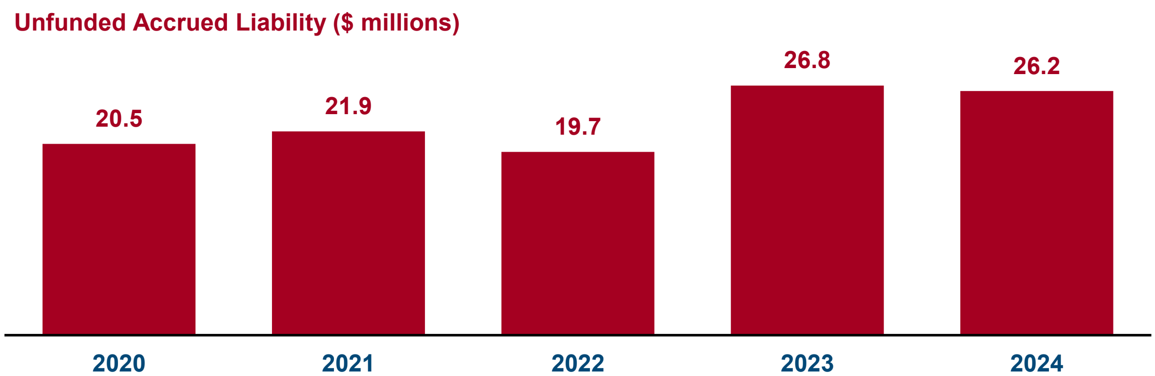
The Accrued Liability for active members can be broken down further by the different types of benefits provided by the plan:

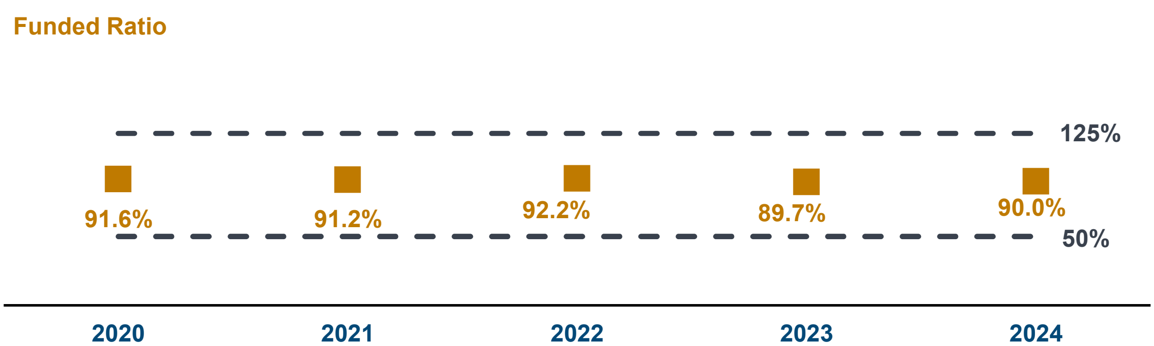


Section I - Executive Summary
Funded Status

The Accrued Liability grows over time as active members earn additional benefits, and goes down over time as members receive benefits; it may also change when there are changes to the plan provisions or changes in the actuarial assumptions. The Unfunded Accrued Liability is the dollar difference between the Accrued Liability and the Actuarial Value of Assets; the Funded Ratio is the ratio of the two.

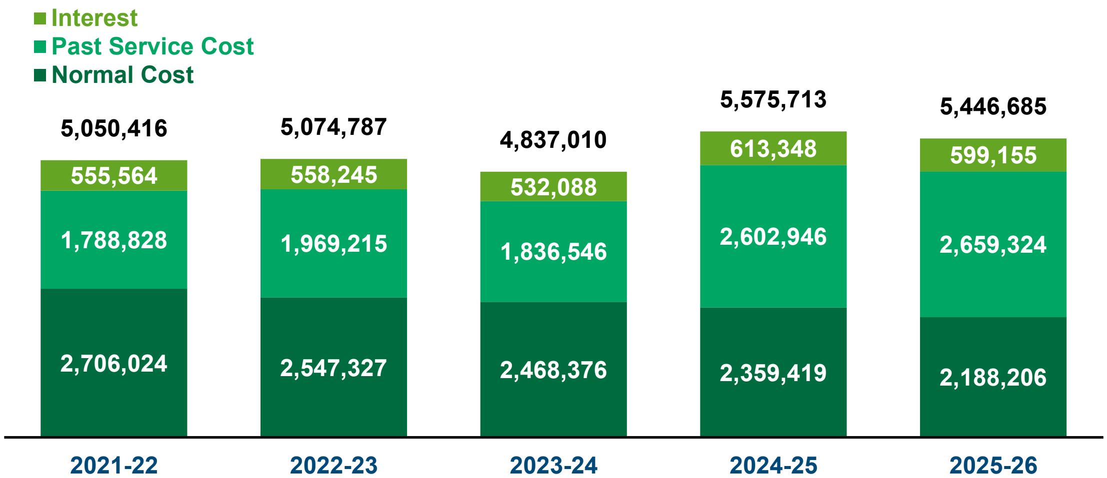






Section I - Executive Summary
Actuarially Determined Contribution (ADC)

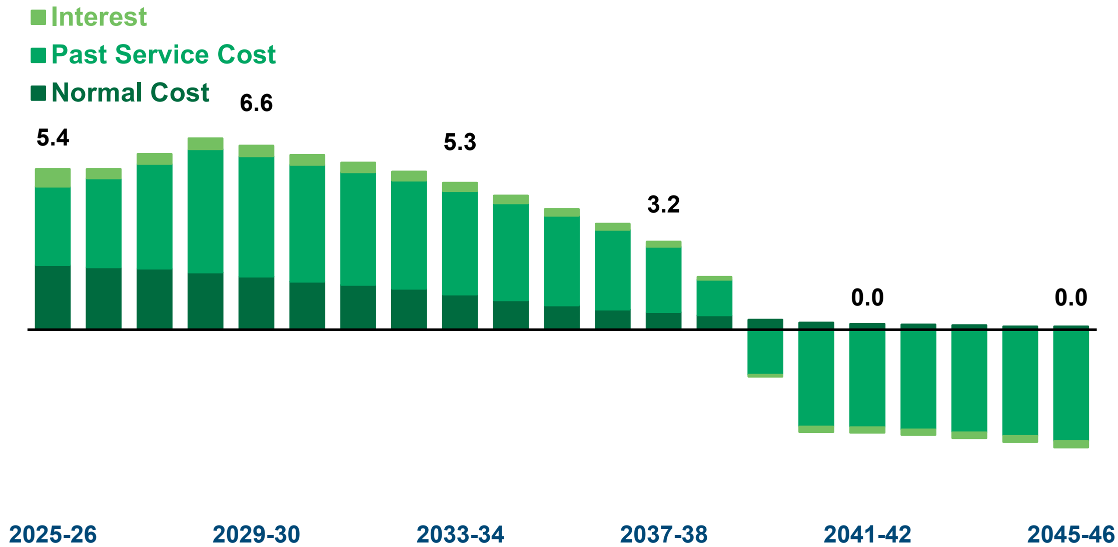
The ADC consists of three pieces: a Normal Cost payment to fund the benefits earned each year, a Past Service Cost to gradually reduce any unfunded or surplus liability, and Interest to reflect the timing of the contribution relative to the valuation date. The ADC for fiscal year 2025-26 is $5,446,685:



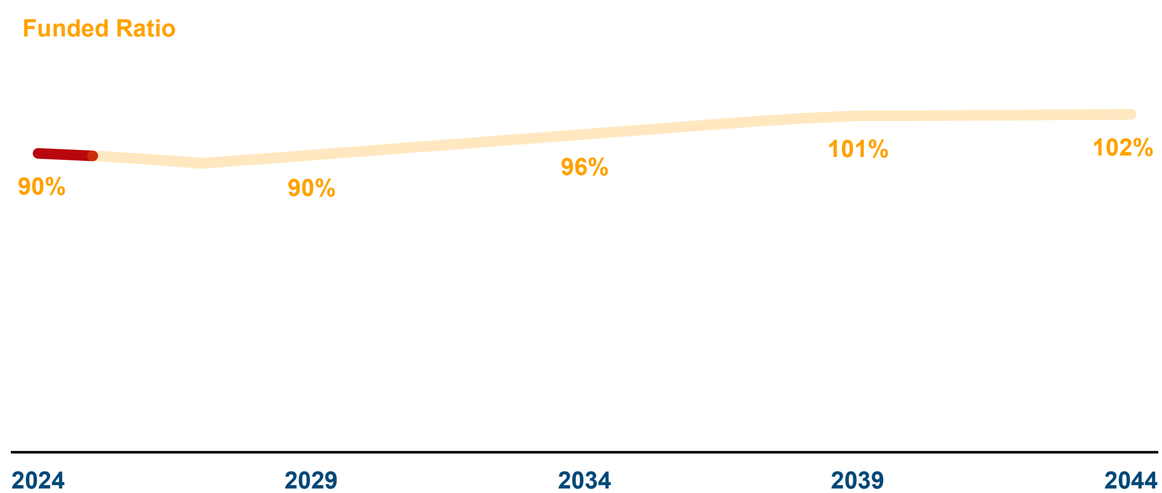
Actuarial Standard of Practice (ASOP) No. 4 requires the actuary to calculate and disclose a 'reasonable' ADC, which considers whether the actuarial methods and actuarial assumptions are in compliance with all applicable ASOPs. Based on the actuarial assumptions and methods used in this report, we believe the ADC is reasonable in accordance with ASOP 4 and reflects a balance among benefit security for plan members, intergenerational equity among stakeholders, and stability of periodic costs.

Section I - Executive Summary
Long-Range Forecast

If the Township pays the Actuarially Determined Contribution each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions, then we project the following long-range Actuarially Determined Contributions (in $ millions):



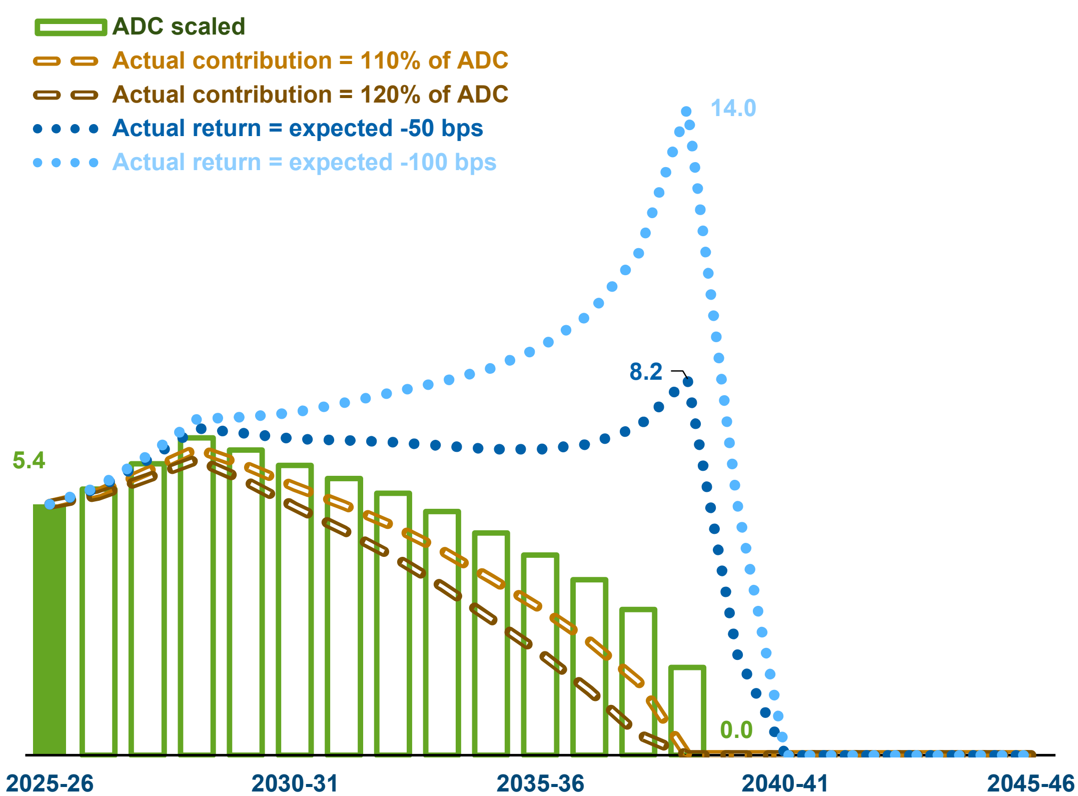
On the basis of this forecast, the Actuarially Determined Contribution currently exceeds the sum of the Normal Cost plus one year's interest on the Unfunded Accrued Liability and the Unfunded Accrued Liability is expected to be fully amortized by 2038. Over time, the funded ratio is expected to change as follows:



To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III E for more details of the long range forecast.

Section I - Executive Summary
Long-Range Forecast (continued)

Pension benefits are paid for through a combination of contributions from the Township and from employees, and from investment income. If the Township investments persistently earn less than the assumed interest rate, then the plan's funded status would suffer, and to compensate, the Township's contribution levels would be pushed higher. Conversely, if the Township contributes more than the ADC, then the plan's funded status would improve, and lower the Township's future contribution levels.The outcomes from overfunding and underearning are illustrated in the hypothetical scenarios below:



The scenarios illustrated above are based on deterministic projections that assume emerging plan experience always exactly matches the actuarial assumptions; in particular that actual asset returns will be constant in every year of the projection period. Variation in asset returns, contribution amounts, and many other factors may have a significant impact on the long-term financial health of the plan, the liquidity constraints on plan assets, and the Township's future contribution levels. Stochastic projections could be prepared that would enable the Township to understand the potential range of future results based on the expected variability in asset returns and other factors. Such analysis was beyond the scope of this engagement.

Section I - Executive Summary
Asset Allocation

Monies that flow out of a pension plan (benefits and expenses) must be matched over the long term by monies that flow into the plan (contributions and investment income). This is expressed in a classic equation: **B** (benefits) + **E** (expenses) = **C** (contributions) + **I** (investment income).

Actuarial assumptions enable us to anticipate the long-term levels of **B** (benefits) and **E** (expenses) that will be paid out of the plan. In order to determine the appropriate level of **C** (contributions) that should come in to the plan, we must first anticipate the long-term level of **I** (investment income) the plan is likely to receive. That is why, for purposes of calculating the Actuarially Determined Contribution, we measure this plan's liability using the long-term rate of investment returns this plan's portfolio is expected to generate.

Pension plans construct their portfolios by allocating assets across a wide range of asset classes with different risk and return profiles; the graph includes nearly 100 asset classes that pension plans invest in. As the graph illustrates, asset classes with higher expected returns also have higher risk levels; that is, a higher likelihood of experiencing both very good returns and very bad returns. Asset classes with lower expected returns also have lower risk levels.

The plan's target allocation represents a balance. Investing in lower-returning asset classes should reduce future investment returns and therefore increase future Township contributions, but the lower risk levels would result in lower year-over-year volatility in the Actuarially Determined Contribution and might provide more benefit security for plan members. Conversely, investing in higher-returning asset classes should increase future investment returns and therefore reduce future Township contributions, but would also increase the volatility of those contributions and potentially reduce benefit security for plan members.

In the graph above, the asset class with the lowest risk level is US Cash, and the asset class with the highest risk level is Private Equity. If the plan were invested 100% in either of these extremes, it would impact the interest rate assumption and therefore the Accrued Liability, Funded Ratio, and ultimately the Township's annual contributions; the volatility of the contributions would also change based on the risk level of the portfolio:

	100% US Cash *	Plan's Interest Rate Assumption	100% Private Equity
Expected long-term return (median)	3.2%	6.00%	9.9%
Expected risk level (standard deviation)	1.1%	12.3%	30.0%
Accrued Liability on January 1, 2024 **	$346.2 million	$263.2 million	$179.1 million
Funded Ratio on January 1, 2024 ***	68%	90%	132%

* This would be considered a "low-default-risk obligation measure" (LDROM) using the language of ASOP 4.

** Calculated using the same actuarial assumptions and methods that were used for this valuation, except for the interest rate; the plan's duration on the valuation date, as measured for GASB 68 purposes, was used to estimate the impact of the interest rate difference relative to the valuation interest rate assumption.

*** Measured using the Actuarial Value of Assets

Section I - Executive Summary
Summary of Principal Results

Membership as of	January 1, 2023	January 1, 2024
Active Members	99	88
Terminated Members	15	15
Members in Pay Status	309	315
Total Count	423	418
Payroll	$9,388,798	$8,613,679

Assets and Liabilities as of	January 1, 2023	January 1, 2024
Market Value of Assets	$215,732,764	$224,823,933
Actuarial Value of Assets	232,937,865	237,001,951
Accrued Liability for Active Members	76,712,564	72,744,691
Accrued Liability for Terminated Members	4,222,607	4,339,310
Accrued Liability for Members in Pay Status	178,799,985	186,119,429
Total Accrued Liability	259,735,156	263,203,430
Unfunded Accrued Liability	26,797,291	26,201,479
Funded Ratio	89.7%	90.0%

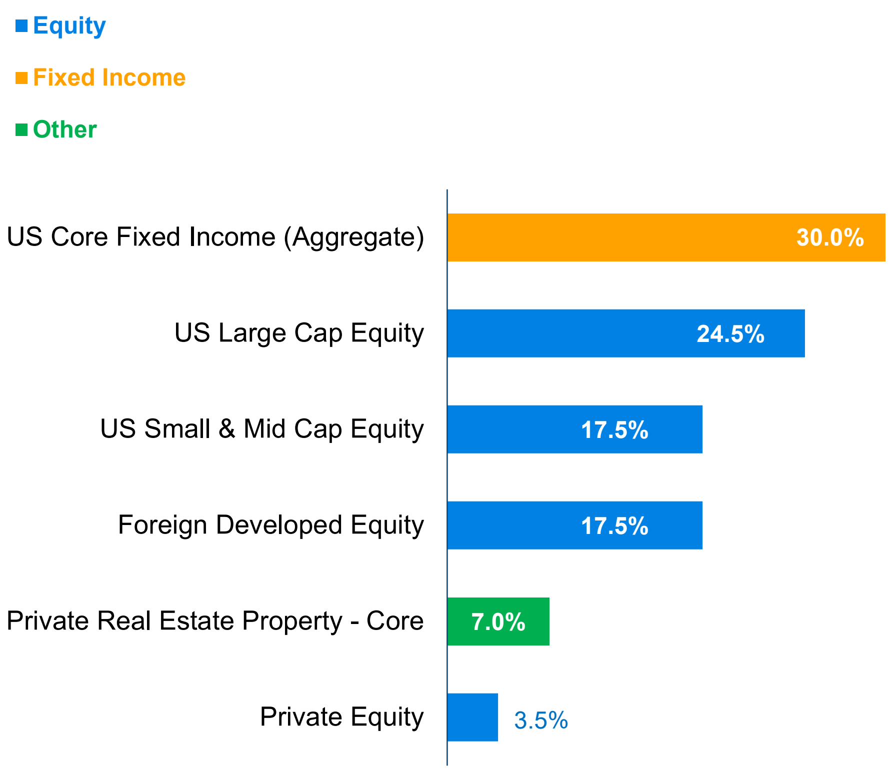
Actuarially Determined Contribution for Fiscal Year	2024-25	2025-26
Normal Cost	$2,359,419	$2,188,206
Past Service Cost	2,602,946	2,659,324
Interest	613,348	599,155
Actuarially Determined Contribution	5,575,713	5,446,685

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of January 1, 2023	$215,732,764
Township Contributions	7,500,000
Member Contributions	209,188
Net Investment Income	15,854,747
Benefit Payments	(14,418,680)
Administrative Expenses	(54,086)
Market Value as of December 31, 2023	224,823,933
Market Value (Gain)/Loss	(3,120,010)
Approximate Rate of Return *	7.47%

* The rate shown here is not the dollar or time weighted investment yield rate which measures investment performance. It is an approximate net return assuming all activity occurred on average midway through the fiscal year.

Target Asset Allocation as of December 31, 2023



Section II - Plan Assets
B. Development of Actuarial Value of Assets

In order to minimize the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes gains and losses in equal installments ('non-asymptotically') over a five year period. The Actuarial Value of Assets as of January 1, 2024 is determined below.

1.	Expected Market Value of Assets:	
	a. Market Value of Assets as of January 1, 2023	$215,732,764
	b. Township and Member Contributions	7,709,188
	c. Benefit Payments and Administrative Expenses	(14,472,766)
	d. Expected Earnings Based on 6.00% Interest	12,734,737
	e. Expected Market Value of Assets as of January 1, 2024	221,703,923
2.	Actual Market Value of Assets as of January 1, 2024	224,823,933
3.	Market Value (Gain)/Loss: (1e) - (2)	(3,120,010)
4.	Delayed Recognition of Market (Gains)/Losses:	

Plan Year End	(Gain)/Loss	Percent Not Recognized	Amount Not Recognized	
12/31/2023	($3,120,010)	80%	($2,496,008)	
12/31/2022	28,629,893	60%	17,177,936	
12/31/2021	(3,791,697)	40%	(1,516,679)	
12/31/2020	(4,936,157)	20%	(987,231)	
				12,178,018

5.	Actuarial Value of Assets as of January 1, 2024: (2) + (4)	237,001,951
6.	Return on Actuarial Value of Assets:	10,827,664
7.	Approximate Rate of Return on Actuarial Value of Assets	4.72%
8.	Actuarial Value (Gain)/Loss	2,936,316

Section III - Development of Contribution
A. Past Service Cost

In determining the Past Service Cost, the Unfunded Accrued Liability is amortized as a level dollar over 20 years beginning January 1, 2018.

		January 1, 2023	January 1, 2024
1.	Accrued Liability		
	Active Members	$76,712,564	$72,744,691
	Terminated Members	4,222,607	4,339,310
	Members in Pay Status	178,799,985	186,119,429
	Total Accrued Liability	259,735,156	263,203,430
2.	Actuarial Value of Assets (see Section IIB)	232,937,865	237,001,951
3.	Unfunded Accrued Liability: (1) - (2)	26,797,291	26,201,479
4.	Funded Ratio: (2) / (1)	89.7%	90.0%
5.	Amortization Period	15	14
6.	Amortization Growth Rate	0.00%	0.00%
7.	Past Service Cost: (3) amortized over (5)	2,602,946	2,659,324

Section III - Development of Contribution
B. Actuarial Gains / (Losses)

From one valuation to the next, the Accrued Liability and Actuarial Value of Assets may change in ways that were not anticipated by the actuarial assumptions that were used in the last valuation. If the Accrued Liability is lower than expected or the Actuarial Value of Assets is higher than expected, we say that the plan has experienced an 'actuarial gain', and if the Accrued Liability is higher than expected or the Actuarial Value of Assets is lower than expected, we say that the plan has experienced an 'actuarial loss'. The actuarial gains / (losses) that arose during 2023 are shown below, along with the impact of plan changes and changes in the actuarial assumptions and method. Please see page 3 for more details on any changes since the last valuation.

	Accrued Liability A	Actuarial Value of Assets B	Unfunded Accrued Liability = A - B
1. Value as of January 1, 2023	$259,735,156	$232,937,865	$26,797,291
2. Normal Cost as of January 1, 2023	2,534,209		2,534,209
3. Township Contributions during 2023		7,500,000	(7,500,000)
4. Employee Contributions during 2023		209,188	(209,188)
5. Benefit Payments during 2023	(14,418,680)	(14,418,680)	0
6. Administrative Expenses during 2023		(54,086)	54,086
7. One year of interest on (1) thru (2) at 6.000%	15,736,162	13,976,272	1,759,890
8. Half year of interest on (3) thru (6) at 6.000%	(432,560)	(212,292)	(220,268)
9. Expected value as of January 1, 2024	263,154,287	239,938,267	23,216,020
10. Actual value as of January 1, 2024 before any plan, assumption, or method changes	263,203,430	237,001,951	26,201,479
11. Experience gains / losses: (10) - (9)	49,143	(2,936,316)	2,985,459
12. Impact of plan changes (see page 3)	0	0	0
13. Impact of assumption changes (see page 3)	0	0	0
14. Impact of method changes (see page 3)	0	0	0
15. Final value as of January 1, 2024	263,203,430	237,001,951	26,201,479

Section III - Development of Contribution
C. Actuarially Determined Contribution

		2024-25	2025-26
1.	Total Normal Cost	$2,534,209	$2,339,905
2.	Expected Member Contributions	226,390	207,399
3.	Expected Administrative Expenses	51,600	55,700
4.	Net Normal Cost: (1) - (2) + (3)	2,359,419	2,188,206
5.	Past Service Cost (see Section IIIA)	2,602,946	2,659,324
6.	Interest on (4) + (5) to December 31 of the fiscal year	613,348	599,155
7.	Actuarially Determined Contribution: (4) + (5) + (6)	5,575,713	5,446,685

Section III - Development of Contribution
D. Allocation of Contribution by Department

Contributions are allocated to each department on the basis of the Accrued Liability for members of the department relative to the total Accrued Liability. These percentages are shown below.

Department	Active Members	Terminated Vested Members	Members in Pay Status	Total
Accounting	0.00%	0.00%	1.12%	1.12%
Assessing	0.39%	0.00%	2.14%	2.53%
Building Inspection	0.23%	0.00%	1.45%	1.68%
Buildings & Grounds	0.73%	0.10%	0.74%	1.57%
Cable Studio	0.30%	0.11%	0.74%	1.15%
Clerk	0.00%	0.00%	0.58%	0.58%
Dispatch	0.64%	0.00%	1.95%	2.59%
Elections	0.00%	0.00%	0.58%	0.58%
Fire	7.38%	0.22%	21.31%	28.91%
Information Technology	0.74%	0.00%	0.61%	1.35%
Library	1.01%	0.11%	2.78%	3.90%
Motor Pool	0.95%	0.00%	2.38%	3.33%
Ordinance	0.00%	0.00%	0.61%	0.61%
Planning	0.23%	0.00%	0.27%	0.50%
Police	10.91%	0.88%	25.86%	37.65%
Road	1.87%	0.05%	2.73%	4.65%
Senior Services	0.31%	0.00%	0.10%	0.41%
Supervisor	0.00%	0.00%	1.00%	1.00%
Treasurer	0.08%	0.00%	0.66%	0.74%
Village Police	0.00%	0.00%	0.06%	0.06%
Water & Sewer	1.86%	0.18%	3.05%	5.09%
Total	27.63%	1.65%	70.72%	100.00%

Section III - Development of Contribution
E. Long Range Forecast

This forecast is based on the results of the January 1, 2024 actuarial valuation and assumes that the Township will pay the Actuarially Determined Contribution each year, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

	Values as of the Valuation Date					Cash Flows Projected to the Following Fiscal Year			
Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year	Township Contributions	Member Contributions	Benefit Payments	Net Cash Flows
1/1/2024	$263,203,430	$237,001,951	$26,201,479	90.0%	2025-26	$5,446,685	$199,882	($15,282,131)	($9,635,564)
1/1/2025	265,969,000	237,589,000	28,380,000	89.3%	2026-27	5,772,000	198,000	(15,650,000)	(9,680,000)
1/1/2026	268,520,000	236,992,000	31,528,000	88.3%	2027-28	6,316,000	186,000	(16,222,000)	(9,720,000)
1/1/2027	270,800,000	235,814,000	34,986,000	87.1%	2028-29	6,885,000	175,000	(16,699,000)	(9,639,000)
1/1/2028	272,473,000	240,554,000	31,919,000	88.3%	2029-30	6,615,000	158,000	(17,328,000)	(10,555,000)
1/1/2029	273,586,000	244,998,000	28,588,000	89.6%	2030-31	6,283,000	150,000	(17,795,000)	(11,362,000)
1/1/2030	273,919,000	248,764,000	25,155,000	90.8%	2031-32	6,001,000	139,000	(18,364,000)	(12,224,000)
1/1/2031	273,667,000	251,924,000	21,743,000	92.1%	2032-33	5,681,000	120,000	(18,980,000)	(13,179,000)
1/1/2032	272,652,000	254,383,000	18,269,000	93.3%	2033-34	5,282,000	102,000	(19,525,000)	(14,141,000)
1/1/2033	270,723,000	256,005,000	14,718,000	94.6%	2034-35	4,819,000	84,000	(19,917,000)	(15,014,000)
1/1/2034	267,879,000	256,732,000	11,147,000	95.8%	2035-36	4,340,000	69,000	(20,359,000)	(15,950,000)
1/1/2035	264,264,000	256,601,000	7,663,000	97.1%	2036-37	3,805,000	57,000	(20,446,000)	(16,584,000)
1/1/2036	259,804,000	255,496,000	4,308,000	98.3%	2037-38	3,159,000	45,000	(20,611,000)	(17,407,000)
1/1/2037	254,880,000	253,670,000	1,210,000	99.5%	2038-39	1,899,000	30,000	(20,876,000)	(18,947,000)
1/1/2038	249,354,000	250,885,000	(1,531,000)	100.6%	2039-40	0	19,000	(20,918,000)	(20,899,000)
1/1/2039	243,048,000	246,345,000	(3,297,000)	101.4%	2040-41	0	13,000	(20,808,000)	(20,795,000)
1/1/2040	236,203,000	239,520,000	(3,317,000)	101.4%	2041-42	0	10,000	(20,586,000)	(20,576,000)
1/1/2041	229,001,000	232,389,000	(3,388,000)	101.5%	2042-43	0	7,000	(20,310,000)	(20,303,000)
1/1/2042	221,566,000	225,053,000	(3,487,000)	101.6%	2043-44	0	2,000	(20,100,000)	(20,098,000)
1/1/2043	213,946,000	217,555,000	(3,609,000)	101.7%	2044-45	0	0	(19,732,000)	(19,732,000)

Section III - Development of Contribution
F. History of Funded Status

Valuation Date	Actuarial Value of Assets	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
January 1, 2015	$222,705,325	$196,449,788	($26,255,537)	113.4%
January 1, 2016	224,127,478	209,302,751	(14,824,727)	107.1%
January 1, 2017	224,014,077	217,109,347	(6,904,730)	103.2%
January 1, 2018	223,568,307	225,992,017	2,423,710	98.9%
January 1, 2019	223,182,109	231,858,972	8,676,863	96.3%
January 1, 2020	223,171,968	243,702,806	20,530,838	91.6%
January 1, 2021	227,490,769	249,360,668	21,869,899	91.2%
January 1, 2022	233,524,849	253,198,382	19,673,533	92.2%
January 1, 2023	232,937,865	259,735,156	26,797,291	89.7%
January 1, 2024	237,001,951	263,203,430	26,201,479	90.0%

Section III - Development of Contribution
G. History of Township Contributions

Fiscal Year	Actuarially Determined Contribution	Actual Township Contribution	Payroll	Actual Contribution as a Percent of Payroll
2016-17	$0	$0	$13,603,792	0.0%
2017-18	0	0	12,575,569	0.0%
2018-19	3,718,845	3,718,845	11,858,422	31.4%
2019-20	3,506,480	3,506,480	12,273,467	28.6%
2020-21	4,120,637	4,620,637	12,138,645	38.1%
2021-22	5,050,416	5,050,416	11,128,632	45.4%
2022-23	5,074,787	5,074,787	10,601,057	47.9%
2023-24	4,837,010	7,500,000	9,936,258	75.5%
2024-25	5,575,713	TBD	9,388,798	TBD
2025-26	5,446,685	TBD	8,613,679	TBD

Section IV - Membership Data
A. Reconciliation of Membership from Prior Valuation

Details of the changes in the Plan membership since the last valuation are shown below. Additional details on the Plan membership are provided in the remainder of Section IV.

	Active Members	Terminated Vested Members	Retirees in Pay Status	Beneficiaries in Pay Status	Total
Count January 1, 2023	99	15	285	24	423
Terminated					
- no benefits due	-	-	-	-	0
- paid refund	-	-	-	-	0
- vested benefits due	(1)	1	-	-	0
Retired	(10)	(1)	11	-	0
Died					
- with beneficiary	-	-	(6)	-	(6)
- no beneficiary	-	-	(4)	(1)	(5)
Benefits expired	-	-	-	-	0
New member	-	-	-	-	0
Rehired	-	-	-	-	0
New Alternate Payee	-	-	-	6	6
Correction	-	-	-	-	0
Count January 1, 2024	88	15	286	29	418

Section IV - Membership Data
B. Statistics of Active Membership

	As of January 1, 2023	As of January 1, 2024
Library		
Number of Active Members	6	6
Average Age	52.9	53.9
Average Service	21.1	22.1
Total Payroll	$466,539	$480,545
Average Payroll	77,757	80,091
Non-Library		
Number of Active Members	93	82
Average Age	48.7	48.6
Average Service	22.0	22.7
Total Payroll	$8,922,259	$8,133,134
Average Payroll	95,938	99,185
Plan Total		
Number of Active Members	99	88
Average Age	49.0	49.0
Average Service	21.9	22.6
Total Payroll	$9,388,798	$8,613,679
Average Payroll	94,836	97,883

Section IV - Membership Data
C. Statistics of Inactive Membership

	As of January 1, 2023	As of January 1, 2024
Terminated Vested Members		
Library		
Number	2	2
Total Annual Benefit	$29,997	$29,997
Average Annual Benefit	14,999	14,999
Average Age	44.9	45.9
Non-Library		
Number	13	13
Total Annual Benefit	$293,901	$310,384
Average Annual Benefit	22,608	23,876
Average Age	46.4	46.6
Plan Total		
Number	15	15
Total Annual Benefit	$323,898	$340,381
Average Annual Benefit	21,593	22,692
Average Age	46.2	46.5
Nonvested Members Due Refunds		
Number	0	0
Participants Receiving Benefits		
Library		
Number	18	18
Total Annual Benefit	$557,635	$563,211
Average Annual Benefit	30,980	31,289
Average Age	71.1	72.1
Non-Library		
Number	291	297
Total Annual Benefit	$13,558,291	$14,142,790
Average Annual Benefit	46,592	47,619
Average Age	70.6	70.8
Plan Total		
Number	309	315
Total Annual Benefit	$14,115,926	$14,706,001
Average Annual Benefit	45,683	46,686
Average Age	70.6	70.9

Section IV - Membership Data
D. Distribution of Inactive Members as of January 1, 2024

Terminated Vested Members

	Library		Non-Library	
Age	Number	Annual Benefits	Number	Annual Benefits
< 50	1	$17,161	8	$211,281
50 - 59	1	12,836	5	99,103
60 - 69	0	0	0	0
70 - 79	0	0	0	0
80 - 89	0	0	0	0
90 +	0	0	0	0
Total	2	29,997	13	310,384

Participants Receiving Benefits

	Library		Non-Library	
Age	Number	Annual Benefits	Number	Annual Benefits
< 50	0	$0	1	$24,596
50 - 59	2	54,335	44	2,599,871
60 - 69	5	201,838	95	5,368,256
70 - 79	7	253,472	100	4,644,083
80 - 89	3	37,992	46	1,368,396
90 +	1	15,575	11	137,588
Total	18	563,211	297	14,142,790

Section V - Analysis of Risk
A. Introduction

The results of this actuarial valuation are based on one set of reasonable assumptions. However, it is almost certain that future experience will not exactly match these assumptions. As an example, the plan's investments may perform better or worse than assumed in any single year and over any longer time horizon. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the plan, or of the plan's members.

In addition, as plans mature they accumulate larger pools of assets and liabilities. The increase in size in turn increases the potential magnitude of adverse experience. As an example, the dollar impact of a 10% investment loss on a plan with $1 billion in assets and liabilities is much greater than the dollar impact for a plan with $1 million in assets and liabilities. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the plan is today, and how mature it may become in the future.

Actuarial Standard of Practice No. 51 (ASOP 51) directs actuaries to provide pension plan sponsors with information concerning the risks associated with the plan:

- Identify risks that may be significant to the plan.

- Assess the risks identified as significant to the plan. The assessment does not need to include numerical calculations.

- Disclose plan maturity measures and historical information that are significant to understanding the plan's risks.

This section of the report uses the framework of ASOP 51 to communicate important information about significant risks to the plan, the plan's maturity, and relevant historical plan data.

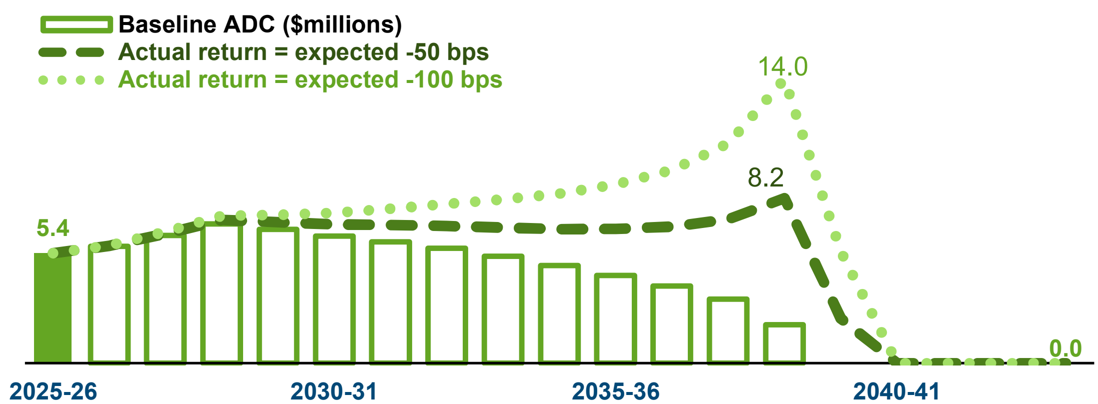
Please see Section III E for more information on the basis for the projected results shown on the following pages.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Investment Risk

Definition: This is the potential that investment returns will be different than expected.

Identification: To the extent that actual investment returns differ from the assumed investment return, the plan's future assets, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. The consequences of persistent underperformance on future Actuarially Determined Contribution levels are illustrated below:



Contribution Risk

Definition: This is the potential that actual future contributions will be less than the Actuarially Determined Contribution.

Identification: Starting in FY 2018-19, contributions greater than $0 have been required. Over this same period, at least 100% of these Actuarially Determined Contributions have been contributed. If the Township contributes less than the ADC, then the plan's funded status would suffer, and to compensate, the Township's future contribution levels would be pushed higher.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Liquidity Risk

Definition: This is the potential that assets must be liquidated at a loss earlier than planned in order to pay for the plan's benefits and operating costs. This risk is heightened for plans with negative cash flows, in which contributions are not sufficient to cover benefit payments plus expenses.

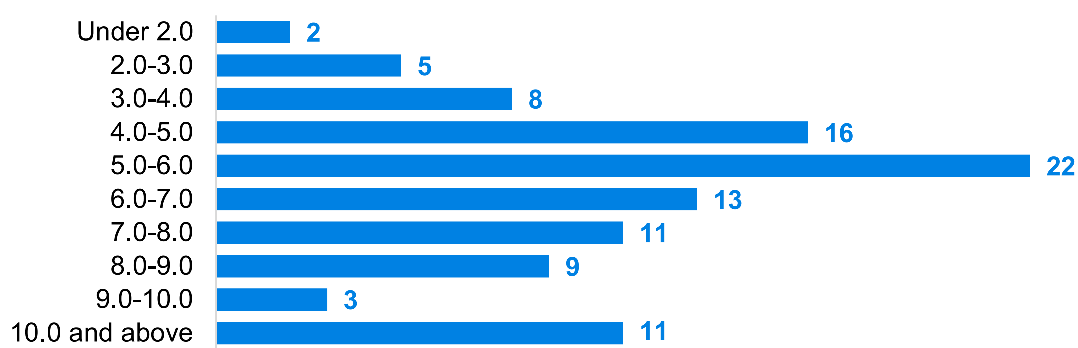
Identification: In calendar year 2023, the plan had negative cash flow, with town and member contributions to the plan of $7,709,188 compared to $14,472,766 of benefit payments and administrative expenses paid out of the plan. We suggest that you consult with your investment advisors with respect to the liquidity characteristics of the plan's investment holdings.

Maturity Risk

Definition: This is the potential for total plan liabilities to become more heavily weighted toward inactive liabilities over time, and for plan assets and/or liabilities to become larger relative to the active member liability.

Identification: The plan is subject to maturity risk because as plan assets and liabilities continue to grow, the dollar impact of any gains or losses on the assets or liabilities also becomes larger.

Assessment: As of January 1, 2024, the plan's Asset Voliatility Ratio (the ratio of the market value of plan assets to payroll) is 26.1. According to Milliman's 2022 Public Pension Funding Study, the 100 largest US public pension plans have the following range of Asset Volatility Ratios:



Inflation Risk

Definition: This is the potential for a pension to lose purchasing power over time due to inflation.

Identification: The members of pension plans without fully inflation-indexed benefits are subject to the risk that their purchasing power will be reduced over time due to inflation.

Assessment: This plan provides for some postretirement benefit increases, but the increases are not directly tied to each year's rate of actual inflation; this leaves members bearing some inflation risk.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Insolvency Risk

Definition: This is the potential that a plan will become insolvent; that is, assets will be fully depleted.

Identification: If a plan becomes insolvent, contractually required benefits must be paid from the plan sponsor's other remaining assets.

Assessment: Under the GASB 68 depletion date methodology, the plan is not projected to become insolvent. Please see the GASB 68 report for more details on the underlying analysis.

Demographic Risks

Definition: This is the potential that mortality, turnover, retirement, or other demographic experience will be different than expected.

Identification: The pension liabilities reported herein have been calculated by assuming that members will follow patterns of demographic experience as described in Appendix B. If actual demographic experience or future demographic assumptions are different from what is assumed to occur in this valuation, future pension liabilities, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. Formal Experience Studies performed on a regular basis are helpful in ensuring that the demographic assumptions reflect emerging plan experience.

Retirement Risk

Definition: This is the potential for members to retire and receive subsidized benefits that are more valuable than expected.

Identification: This plan has valuable early retirement benefits. If members retire at earlier ages than are anticipated by the actuarial assumptions, this will put upward pressure on subsequent Actuarially Determined Contributions.

Pensionable Earnings Risk

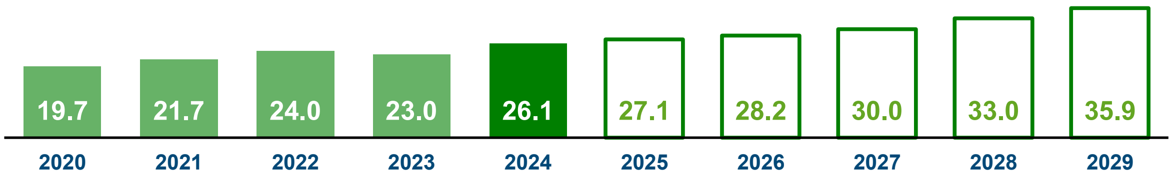
Definition: This is the potential for active members to add items to their pensionable earnings and receive pension benefits that are higher than expected.

Identification: This plan's pensionable earnings includes longetivity adjustments but excludes overtime commisions, bonuses and other compensation.

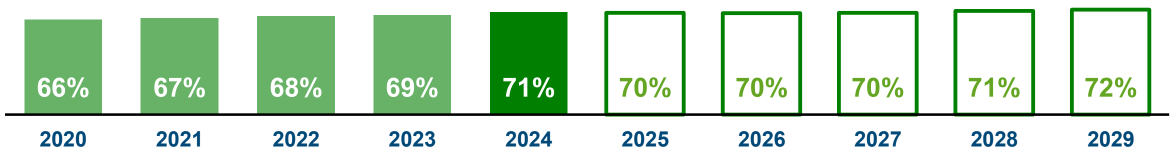
Section V - Analysis of Risk
C. Maturity Measures

The metrics presented below are different ways of understanding the plan's maturity level, both in the past and as it is expected to change in the coming years.

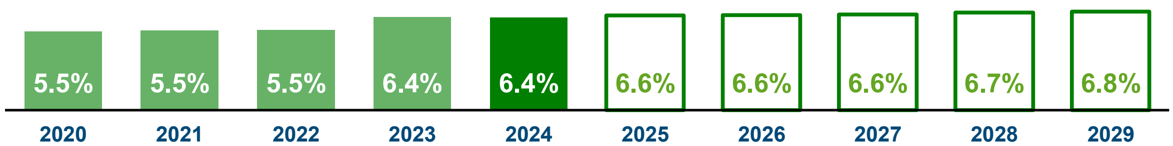
Asset Volatility Ratio: Market Value of Assets compared to Payroll



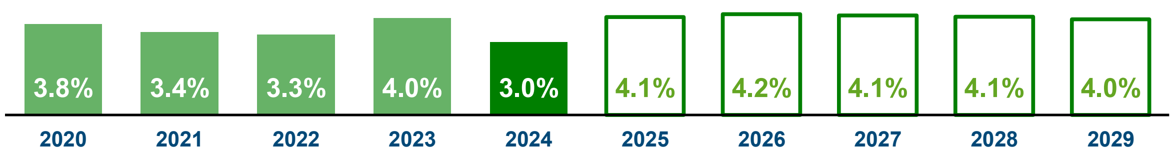
Accrued Liability for members in pay status compared to total Accrued Liability



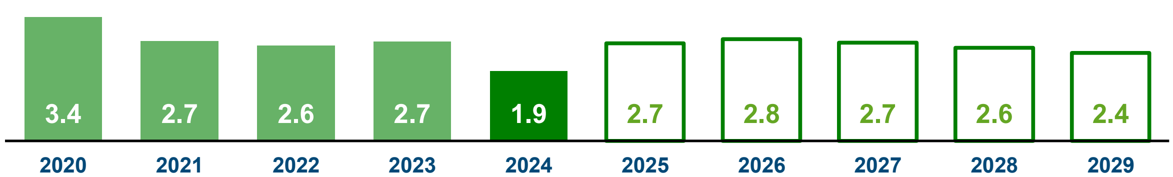
Benefit Payments compared to Market Value of Assets



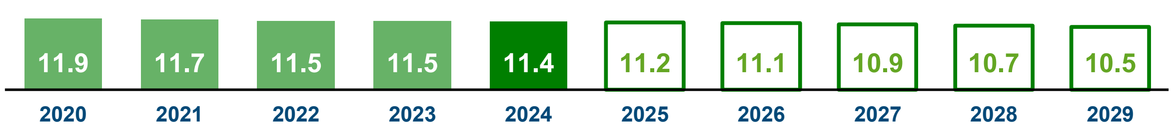
Net Cash Flows compared to Market Value of Assets



Benefit Payments compared to Township Contributions



Duration of Accrued Liability (based on GASB 68 sensitivity disclosures)



Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is known as the Entry Age Normal Method. The Actuarially Determined Contribution consists of three pieces: Normal Cost plus a Past Service Cost payment to gradually eliminate the Unfunded Accrued Liability plus Interest to reflect the timing of the contribution relative to the valuation date.

The Normal Cost is determined by calculating the present value of future benefits for present active Members that will become payable as the result of death, disability, retirement or termination. This cost is then spread as a level percentage of earnings from entry age to termination as an Active Member. If Normal Costs had been paid at this level for all prior years, a fund would have accumulated. Because this fund represents the portion of benefits that would have been funded to date, it is termed the Accrued Liability. In fact, it is calculated by adding the present value of benefits for Retired Members and Terminated Vested Members to the present value of benefits for Active Members and subtracting the present value of future Normal Cost contributions.

The funding cost of the Plan is derived by making certain specific assumptions as to rates of interest, mortality, turnover, etc. which are assumed to hold for many years into the future. Since actual experience may differ somewhat from the assumptions, the costs determined by the valuation must be regarded as estimates of the true costs of the Plan.

The Unfunded Accrued Liability is the excess of the Accrued Liability over the assets which have been accumulated for the plan. This Unfunded Accrued Liability is amortized as a level dollar over 20 years beginning January 1, 2018.

The Actuarial Value of Assets is determined by recognizing market gains and losses non-asymptotically over a five year period.

The long-range forecasts included in this report have been developed by assuming that members will terminate, retire, become disabled, and die according to the actuarial assumptions with respect to these causes of decrement, and that pay increases, cost of living adjustments, and so forth will likewise occur according to the actuarial assumptions.

Appendix B - Actuarial Assumptions

Each of the assumptions used in this valuation was set based on industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Interest Rate 6.00%

Inflation 2.50%

Amortization Growth Rate 0.00%

Estimated Expenses The prior year's administrative expenses increased by 3.0% and rounded to the nearest $100.

Salary Scale 3.50%

Turnover 50% of Prudential Scale 1/2A

Age	Male	Female
<25	2.500%	3.750%
30	1.875%	2.500%
35	1.250%	1.875%
40	0.750%	1.250%
45	0.375%	0.625%
50+	0.000%	0.000%

Retirement

	Years of Service	
Age	<25 Years	25+ Years
52	10%	25%
53-54	15%	25%
55	20%	30%
56-59	0%	0%
60	20%	100%
61	0%	
62	50%	
63-64	0%	
65	100%	

Marital Status 80% of active participants are assumed to be married. Female spouses are assumed to be 3 years younger than male spouses.

Appendix B - Actuarial Assumptions

Disability

Table C-4 of the Society of Actuaries Transactions Volume XXXIX, 100% of the 6-month rates

Age	Male	Female
20	0.080%	0.100%
25	0.085%	0.110%
30	0.099%	0.140%
35	0.124%	0.201%
40	0.176%	0.276%
50	0.540%	0.622%
55	0.977%	0.932%
60	1.477%	1.179%
62	1.671%	1.253%

These rates apply to members in Divisions eligible for disability benefits. We assume 25% Non-service and 75% Service Disability.

Mortality

General Administrative Employees, Library Employees and Police Department Civilians: PubG-2010 Mortality Table with Ultimate Scale MP-2021, with employee rates before benefit commencement and healthy or disabled annuitant rates after benefit commencement. This assumption includes a margin for future improvements in longevity.

Fire Department Bargaining Members, Police Department Command Officers, Police Department Bargaining Members and Fire Department Command Officers: PubS-2010 Mortality Table with Ultimate Scale MP-2021, with employee rates before benefit commencement and healthy or disabled annuitant rates after benefit commencement. This assumption includes a margin for future improvements in longevity.

Appendix C - Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Eligibility

Any employees hired or rehired after the freeze dates below are not eligible to enter the Plan. The plan is closed to new entrants.

Division	Freeze Date
General Administrative Employees	6/1/2005
Library Employees	12/31/2012
Fire Dpt. Bargaining Members	6/17/2008
Police Dpt. Civilians	6/1/2005
Police Dpt. Command Officers	6/7/2006
Police Dpt. Bargaining Members	6/7/2006
Bloomfield Village Police	12/31/2012
Fire Dpt. Command Officers	6/17/2008

Rate of Earnings

Basic compensation including longevity adjustments but excluding overtime, commisions, bonuses and any other additional compensation.

Final Earnings

General Administrative Employees, Police Department Civilians and Police Department Command Officers: Average Rate of Earnings as of the highest three consecutive May 1's during the last 10 years before Retirement Date.

Fire Department Bargaining Members, Police Department Bargaining Members and Fire Department Command Officers: Average Rate of Earnings as of the highest three consecutive May 1's before Retirement Date.

Library Employees and Bloomfield Village Police: Average Rate of Earnings as of the highest five consecutive May 1's during the last 10 years before Retirement Date.

Credited Service

Whole years and full months of service from date of employment to the earlier of retirement, termination or death.

Form of Annuity

Modified Cash Refund with 50% benefit continuation to the spouse. Members who are not married receive an actuarially increased benefit.

Vesting

Police Department Command Officers and Police Department Bargaining Officers: 100% after 10 years of service or Normal Retirement Date.

All Others: 100% after 8 years of service or Normal Retirement Date.

Appendix C - Summary of Plan Provisions

Normal Retirement Date

General Administrative, Police Civilian, and Dispatch Employees: Age 52 with 8 years of service or 30 years of service.

Library Employees: Age 55 with 8 years of service.

Fire Department Bargaining Members and Command Officers: Age 52 with 8 years of service.

Police Department Bargaining Members and Command Officers: Age 50 with 25 years of service or age 52 with 10 years of service.

Bloomfield Village Police: Age 55 with 10 years of service or age 60 with 8 years of service.

Normal Retirement Benefit

Equal to a percentage of Final Earnings multiplied by years of Credited Service with a cap on the overall benefit.

Division	Multiplier	Benefit Cap	Cap Effective
General Administrative Employees	2.85%	90%*	6/1/2005
Library Employees	2.10%	None	
Fire Dpt. Bargaining Members	2.75%	80%	7/8/1996
Police Dpt. Civilians	2.85%	90%*	6/2/2005
Police Dpt. Command Officers	3.00%	90%	4/27/2000
Police Dpt. Bargaining Members	3.00%	85%	4/1/1999
Bloomfield Village Police	2.10%	None	
Fire Dpt. Command Officers	2.75%	80%	12/18/1996

* applies to members with 36 or fewer years of Credited Service on April 1, 1996.

Early Retirement Eligibility

Age 50 with a Vesting Percentage of 100%.

Early Retirement Benefit

Normal Retirement Benefit reduced by 0.5% for each month that Early Retirement Date precedes Normal Retirement Date.

Disability Eligibility

Fire Department Bargaining Members, Police Department Command Officers, Police Department Bargaining Members and Fire Department Command Officers are eligible. These members are eligible immediately.

Non-Service Disability Benefit

2.75% (3.00% for Police Department Command Officers and Police Department Bargaining Members) of Final Earnings multiplied by Credited Service as of the date of disability.

Appendix C - Summary of Plan Provisions

Service Disability Benefit

2.75% (3.00% for Police Department Command Officers and Police Department Bargaining Members) of Final Earnings as of the date of disability, adjusted by increases negotiated by job classification between date of disability and the earlier of the date the participant is no longer disabled or Normal Retirement Date, multiplied by Credited Service calculated from date of employment through the earlier of the date the participant is no longer disabled or Normal Retirement Date.

Preretirement Death Benefit Eligibility

Library Employees and Bloomfield Village Police are not eligible for this benefit. All other active members are eligible once they have met criteria for 100% Vesting.

Preretirement Death Benefit

50% of the benefit accrued to date of death. If eligible for early retirement, 100% of the benefit accrued to date of death.

Preretirement Spouse Benefit Eligibility

Active Library Employees and Bloomfield Village Police that are eligible for Early Retirement and married.

Preretirement Death Benefit

100% of the benefit accrued to date of death.

Employee Contributions

Active members contribute a percentage of earnings based on Division:

Division	% Earnings
General Administrative Employees	2.0%
Library Employees	5.0%
Fire Dpt. Bargaining Members	1.0%
Police Dpt. Civilians	2.0%
Police Dpt. Command Officers	3.5%
Police Dpt. Bargaining Members	3.5%
Bloomfield Village Police	5.0%
Fire Dpt. Command Officers	1.0%

Employee Contributions are credited with interest at a rate of 5.0% per annum.

Death or Termination Refund

Pre-retirement: Refund of Employee Contributions with interest to date of termination or death.

Post-retirement: Refund of the excess of Employee Contributions with interest over annuity payments made to date of death, unless the form of annuity elected is other than the Normal Form.

Cost of Living Adjustment

1% increase each January 1.

Appendix D - Glossary

Actuarial Cost Method - This is a procedure for determining the Actuarial Present Value of Benefits and allocating it to time periods to produce the Actuarial Accrued Liability and the Normal Cost.

Accrued Liability - This is the portion of the Actuarial Present Value of Benefits attributable to periods prior to the valuation date by the Actuarial Cost Method (i.e., that portion not provided by future Normal Costs).

Actuarial Assumptions - With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. Some examples of key assumptions include the interest rate, salary scale, and rates of mortality, turnover and retirement.

Actuarial Present Value of Benefits - This is the present value, as of the valuation date, of future payments for benefits and expenses under the Plan, where each payment is: a) multiplied by the probability of the event occurring on which the payment is conditioned, such as the probability of survival, death, disability, termination of employment, etc.; and b) discounted at the assumed interest rate.

Actuarial Value of Assets - This is the value of cash, investments and other property belonging to the plan, typically adjusted to recognize investment gains or losses over a period of years to dampen the impact of market volatility on the Actuarially Determined Contribution.

Actuarially Determined Contribution ("ADC") - This is the employer's periodic contributions to a defined benefit plan, calculated in accordance with actuarial standards of practice.

Attribution Period - The period of an employee's service to which the expected benefit obligation for that employee is assigned. The beginning of the attribution period is the employee's date of hire and costs are spread across all employment.

Interest Rate - This is the long-term expected rate of return on any investments set aside to pay for the benefits. In a financial reporting context (e.g., GASB 68) this is termed the Discount Rate.

Normal Cost - This is the portion of the Actuarial Present Value of Benefits allocated to a valuation year by the Actuarial Cost Method.

Past Service Cost - This is a catch-up payment to fund the Unfunded Accrued Liability over time (generally 10 to 30 years). A closed amortization period is a specific number of years counted from one date and reducing to zero with the passage of time; an open amortization period is one that begins again or is recalculated at each valuation date. Also known as the Amortization Payment.

Return on Plan Assets - This is the actual investment return on plan assets during the fiscal year.

Unfunded Accrued Liability - This is the excess of the Accrued Liability over the Actuarial Value of Assets.