Waterford Township Employees Retirement System

January 1, 2022

Actuarial Valuation Report

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Actuarial Certification

At the request of the plan sponsor, this report summarizes the actuarial results of the Waterford Township Employees Retirement System as of January 1, 2022. The purpose of this report is to communicate the following results of the valuation:

• Funded Status;
• and Determine Recommended Contribution.

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census and asset information has been provided to us by the employer. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

In preparing these results, Nyhart used ProVal valuation software developed by Winklevoss Technologies, LLC. This software is widely used for the purpose of performing pension valuations. We coded the plan provisions, assumptions, methods, and participant data summarized in this report, and reviewed the liability and cost outputs for reasonableness. We are not aware of any weaknesses or limitations in the software, and have determined it is appropriate for performing this valuation.

The actuarial assumptions and methods were chosen by the employer. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

Actuarial Certification

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart

Derek Schmitt, FSA, EA, MAAA

Nick Meggos, FSA, EA, MAAA

August 27, 2022
Date

Executive Summary

The actuarial report provides the plan sponsor with several ways to measure the funded status of the pension plan. The following detail is included in the report:

- Recommended Contribution
- Asset Performance
- Plan Demographics

This report is filled with actuarial terminology. However, the ultimate objective of the valuation is to provide a rational method of funding the plan. It is necessary to fund the benefit promised by the employer in a manner that is logical and employer friendly, yet safeguards the participants' interest. The actuarially derived contribution, however, is not the true cost of the pension plan. The true cost is illustrated by the following formula:

Ultimate Pension Cost = Benefits Paid - Investment Income + Plan Expenses

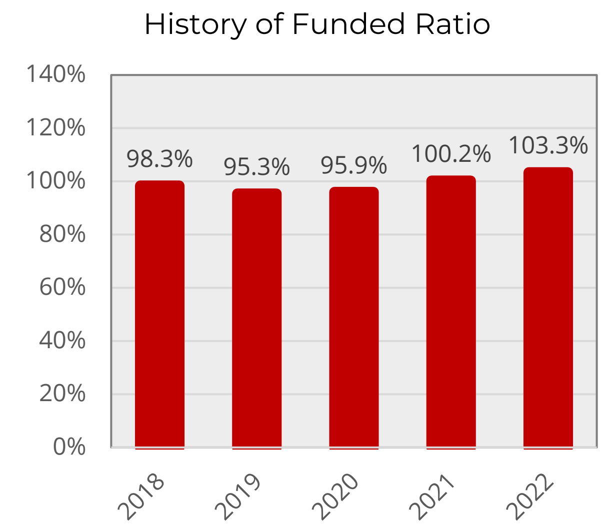
While the plan's liability and normal cost determine the current contribution recommendations, the true cost is controlled only by the "defined" benefit and investment income generated by the underlying assets. The actuarial process only controls the timing of costs.

We suggest that a plan sponsor treat the actuarial report as you would treat a scorecard. It is simply a measure of progress toward the ultimate goal of paying all pension benefits when participants retire.

Summary Results

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level percentage of pay.

	January 1, 2021	January 1, 2022
Funded Status Measures		
Accrued Liability	$67,728,205	$70,061,175
Actuarial Value of Assets	$67,869,092	$72,338,440
Unfunded Actuarial Accrued Liability (UAAL)	($140,887)	($2,277,265)
Funded Percentage (AVA)	100.2%	103.3%
Funded Percentage (MVA)	110.2%	117.5%
Cost Measures		
Recommended Contribution for End of Next Year	$606,783	$657,020
Recommended Contribution (as a percentage of payroll)	17.2%	21.2%
Asset Performance		
Market Value of Assets (MVA)	$74,609,518	$82,303,490
Actuarial Value of Assets (AVA)	$67,869,092	$72,338,440
Actuarial Value/Market Value	91.0%	87.9%
Market Value Rate of Return	17.1%	15.6%
Actuarial Value Rate of Return	11.4%	12.3%
Participant Information		
Active Participants	57	48
Terminated Vested Participants	27	23
Retirees and Beneficiaries	183	190
Total	267	261
Expected Payroll	$3,523,615	$3,104,297



Changes since Prior Valuation and Key Notes

The mortality table has been updated from using PubG-2010 Mortality Table with generational improvements using SOA Scale MP-2020 to PubG-2020 Mortality Table with generational improvements using SOA Scale MP-2021. This change results in an increase in liability and normal cost.

The following assumptions were updated on January 1, 2022 in conjunction with the experience study performed during 2022:

- The interest rate assumption was changed from 6.75% to 6.50%.
- The salary scale assumption was changed to a flat 4.0%.
- The retirement assumption was changed as shown in the final section of this report.
- The withdrawal assumption was removed. All employees are assumed to work until retirement eligibility.

The plan has an overfunded position as of 1/1/2022. It is our understanding that the funding policy does not address how the overfunded position should affect the calculation of the recommended contribution. As discussed with the Board, we have assumed that the recommended contribution for the current year should NOT be offset by the overfunded position. See "Development of Recommended Contribution" in this report.

Five Year Valuation Summary

	01/01/2018*	01/01/2019*	01/01/2020	01/01/2021	01/01/2022
Funding					
Accrued Liability	$65,091,000	$66,069,000	$66,916,590	$67,728,205	$70,061,175
Actuarial Value of Assets	$63,969,472	$62,972,437	$64,174,653	$67,869,092	$72,338,440
Unfunded Actuarial Accrued Liability	$1,121,528	$3,096,563	$2,741,937	($140,887)	($2,277,265)
Funded Percentage	98.3%	95.3%	95.9%	100.2%	103.3%
Normal Cost (NC)			$533,429	$477,437	$521,940
NC as a Percent of Covered Payroll			15.1%	13.5%	16.8%
Actual Contribution**	$761,758	$984,672	858,317	TBD	TBD
Recommended Contribution	$761,758	$984,672	$858,317	$606,783	$657,020
Recommended Contribution (% of Pay)	18.5%	24.9%	24.0%	17.2%	21.2%
Interest Rate	7.00%	6.75%	6.75%	6.75%	6.50%
Expense Load Assumption			$60,000	$60,000	$60,000
Rate of Return					
Actuarial Value of Assets	6.4%	3.4%	7.7%	11.4%	12.3%
Market Value of Assets	15.3%	(5.0%)	19.4%	17.1%	15.6%
Demographic Information					
Active Participants	73	69	60	57	48
Terminated Vested Participants			32	27	23
Retired Participants	167	169	159	161	168
Beneficiaries			15	16	16
Disabled Participants			6	6	6
Total Participants			272	267	261
Covered Payroll	$4,037,556	$3,902,068	$3,532,640	$3,523,615	$3,104,297
Average Covered Pay	$55,309	$56,552	$58,877	$61,818	$64,673

*Participant counts from the prior actuary did not provide a more detailed split of inactive participants.

** Actual contributions shown are made during the following calendar year. For example, the 1/1/2019 recommended contribution of $984,672 was made during 2020.

Identification of Risks

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the Waterford Township Employees Retirement System. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk	Method to Assess Risk
Investment Return	Scenario Testing; Asset Liability Study
Interest Rates	Scenario Testing; Asset Liability Study
Participant Longevity	Projections and Contribution Strategy
Salary Growth	Scenario testing

Plan Maturity Measures - January 1, 2022

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the Waterford Township Employees Retirement System falls in its life-cycle.

Duration of Liabilities: 10.1
Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 18.4%
A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 3.8%
Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 5.4%
As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.

Assets and Liabilities

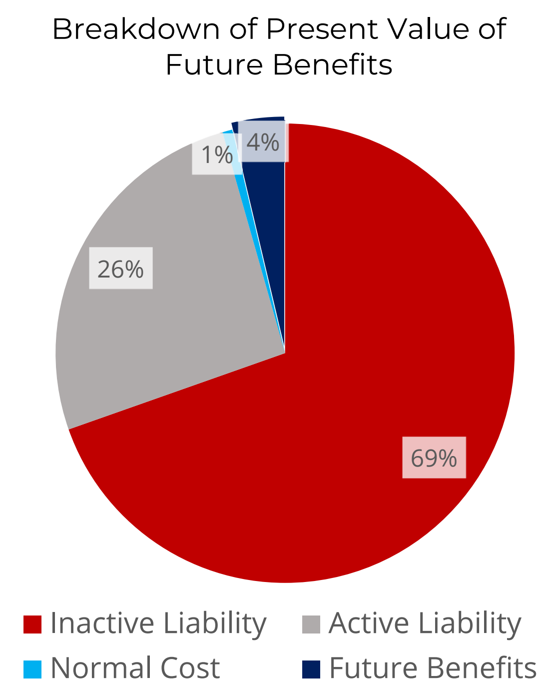
The basic building blocks of the actuarial report are contained in this section. These include:

- Actuarial Accrued Liabilities
- Asset Information
- Summary of Contributions

Present Value of Future Benefits

The Present Value of Future Benefits represents the future benefits payable to the existing participants.

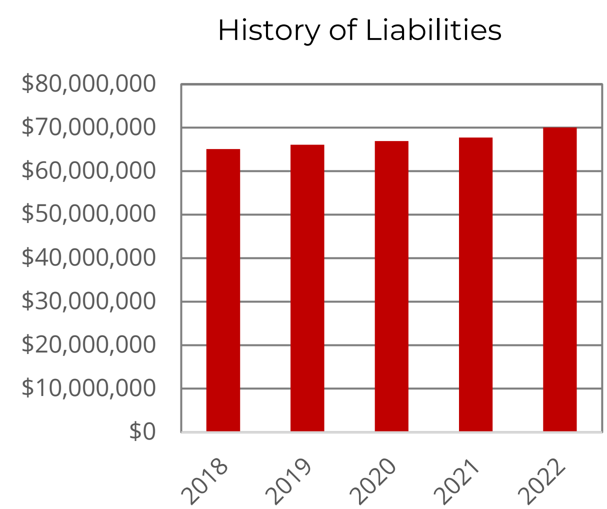
	January 1, 2022
Present Value of Future Benefits	
Active participants	
Retirement	$22,053,308
Death	$220,368
Termination	$0
Total active	$22,273,676
Inactive participants	
Retired participants	$44,825,829
Beneficiaries	$2,234,965
Disabled Participants	$1,146,963
Terminated vested participants	$2,817,761
Total inactive	$51,025,518
Total	$73,299,194
Present value of future payrolls	$16,991,676



Actuarial Accrued Liability

The Actuarial Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions.

	January 1, 2022
Active participants	
Retirement	$18,882,963
Death	$152,694
Termination	$0
Total Ongoing Active	$19,035,657
Inactive participants	
Retired participants	$44,825,829
Beneficiaries	$2,234,965
Disabled Participants	$1,146,963
Terminated vested participants	$2,817,761
Total Inactive	$51,025,518
Total Actuarial Accrued Liability	$70,061,175
Normal Cost	$521,940
Interest Rate	6.50%



Reconciliation of Actuarial Accrued Liabilities

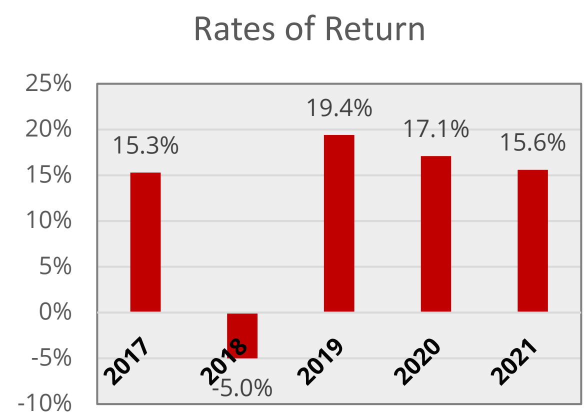
A plan's Actuarial Accrued Liability will change from one year to the next. It increases due to benefit accruals (Normal Cost) and interest, and it decreases as benefits are paid. Demographic experience, assumptions changes, and plan changes can cause increases or decreases.

	January 1, 2022
1. Actuarial Accrued Liability prior year	$67,728,205
2. Increases or decreases due to:	
(a) Normal Cost	$477,437
(b) Interest Adjustment	$4,453,298
(c) Benefits Paid	$(4,461,727)
(d) Demographic Experience	$516,014
(e) Interest Rate Changes	$1,691,579
(f) Other Assumption Changes	$(343,631)
(g) Plan Changes	$0
3. Actuarial Accrued Liability current year	$70,061,175

Asset Information

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

	January 1, 2022
Market Value Reconciliation	
Market value of assets, beginning of prior year	$74,609,518
Contributions	
Employer contributions	858,317
Employee contributions	5,120
Total	$863,437
Investment income	11,347,110
Benefit payments	(4,461,727)
Administrative expenses	(54,848)
Market value of assets, beginning of current year (without receivable contributions)	$82,303,490
Discounted receivable contributions	$0
Market value of assets, beginning of current year (with discounted receivables)	$82,303,490
Historical Rates of Return	
Rate of return for 2021	15.6%
Rate of return for 2020	17.1%
Rate of return for 2019	19.4%
Rate of return for 2018	(5.0%)
Actuarial Value of Assets	
Value at beginning of current year	$72,338,440



Monitoring the pension plan's investment performance is crucial to eliminating surprises.

nyhart
part of FuturePlan by Ascensus

Asset Information (continued) – 25% Phase in

Plan Assets are used to develop funded percentages and contribution requirements.

	January 1, 2022
Investment Gain or (Loss)	
1. Prior year's market value of assets	$74,609,518
2. Employer contributions for the prior plan year	858,317
3. Employee contributions for the prior plan year	5,120
4. Benefit payments during the prior plan year	(4,461,727)
5. Administrative expenses during the prior plan year	(54,848)
6. Expected earnings at 6.75% to the end of the plan year on	
(a) Market value of assets	$5,036,142
(b) Contributions	28,664
(c) Benefit payments	(148,124)
(d) Administrative expenses	(3,702)
(e) Total expected earnings, (a) + (b) + (c) + (d)	$4,912,980
7. Expected market value of assets, (1) + (2) + (3) + (4) + (5) + (6e)	$75,869,360
8. Actual market value of assets	$82,303,490
9. Investment Gain or (Loss), (8) – (7)	$6,434,130
Actuarial Value of Assets	
10. Market value of assets	$82,303,490
11. Deferred Investment gains or (losses)	
(a) Current year (75%)	$4,825,598
(b) First prior year (50%)	3,383,495
(c) Second prior year (25%)	1,755,957
(d) Total	9,965,050
12. Preliminary actuarial value of assets, (10 – (11d))	$72,338,440
13. 75% Market value of assets	$61,727,618
14. 125% Market value of assets	$102,879,362
15. Final actuarial value of assets	$72,338,440
16. Return on actuarial value of assets	12.31%

Funding Results

Reconciliation of Gain/Loss

	January 1, 2022
Liability (Gain)/Loss	
1. Actuarial liability, beginning of prior year	$67,728,205
2. Normal cost for prior year	477,437
3. Benefit payments	(4,461,727)
4. Expected Interest	4,453,298
5. Change in Assumptions	1,347,948
6. Change in Plan Provisions	0
7. Expected actuarial liability, beginning of current year	$69,545,161
8. Actual actuarial liability	$70,061,175
9. Liability Gain/(Loss), (8) – (9)	(516,014)
Asset Gain/(Loss)	
10. Actuarial value of assets, beginning of prior year	$67,869,092
11. Contributions	863,437
12. Benefit payments	(4,461,727)
13. Administrative expenses	(54,848)
14. Expected Investment return	4,457,870
15. Expected actuarial value of assets, beginning of current year	$68,673,824
16. Actual actuarial value of assets, beginning of current year	$72,338,440
17. Asset Gain/(Loss), (17) – (16)	$3,664,616
Total Gain/(Loss), (18) + (10)	$3,148,602

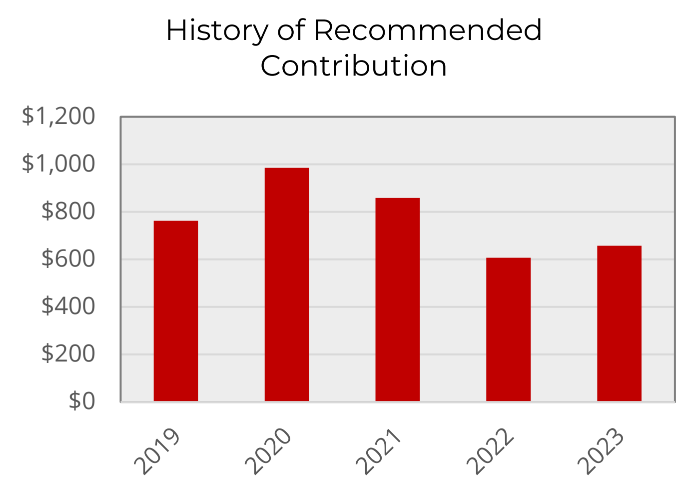
Reconciliation of Unfunded Actuarial Accrued Liability (UAAL)

	January 1, 2022
1. UAAL beginning of prior year	($140,887)
2. Normal Cost for prior year	477,437
3. Administrative Expenses	54,848
4. Contributions	(863,437)
5. Interest	(4,572)
6. Expected UAAL, beginning of current year	$(476,611)
7. Changes due to:	
(a) Amendments	$0
(b) Assumptions	
(1) Interest Rate Update	$1,691,579
(2) All Other Assumption Changes	$(343,631)
(c) Funding Methods	0
(d) Plan Provisions	0
(e) Total	$1,347,948
8. Gain/(Loss) due to:	
(a) Assets	$3,664,616
(b) Liabilities	(516,014)
(c) Total	$3,148,602
9. UAAL beginning of current year [(6)+(7)-(8)]	$(2,277,265)

Development of Recommended Contribution

The recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

Normal Cost	
1. Normal Cost	
(a) Total Normal Cost	$521,940
(b) Expected participant contributions	(2,672)
(c) Expected Administrative Expenses	60,000
(d) Net normal cost as of January 1, 2022	$579,268
As a percentage of expected 2022 payroll	18.8%
(e) Net normal cost as of December 31, 2023	$657,020
Amortization of Unrecognized Actuarial Accrued Liability (UAAL)	
1. Calculation of UAAL	
(a) Entry Age Normal Accrued Liability	$70,061,175
(b) Actuarial Value of Assets	72,338,440
(c) UAAL as of January 1, 2022	$(2,277,265)
2. Anticipated 12/31/2022 UAAL Contribution discounted to January 1	569,749
3. Remaining UAAL to Amortize	(2,847,014)
4. Amortization Period	11
5. UAAL Amortization as of January 1, 2022	$0
6. UAAL Amortization as of December 31, 2023	$0
2023 Contribution	
1. Net Normal Cost	$657,020
2. UAAL Amortization	0
3. Total Contribution Payable on December 31, 2023	$657,020
As a percentage of expected 2023 payroll	21.2%
Payment Timing Alternatives	
Middle of Fiscal Year	$636,654
Beginning of Fiscal Year	$616,920



Funding Results

Michigan PA 202 Reporting Requirements

		January 1, 2022
Funding Assumptions	**Plan Assumptions**	**State Treasury Uniform Assumptions**
Funded Ratio		
Interest Rate	6.50%	6.50%
Mortality	PubG-2010 Mortality with SOA Scale MP-21	No change
Accrued Liability	$70,061,175	$70,061,175
Market Value of Assets	$82,303,490	$82,303,490
Unfunded Accrued Liability, MVA Basis	($12,242,315)	($12,242,315)
Funded Percentage (MVA)	**117.47%**	**117.47%**
Underfunded Status	Not Underfunded	Not Underfunded
Actuarially Determined Contribution (end of the following year)	$657,020	$657,020

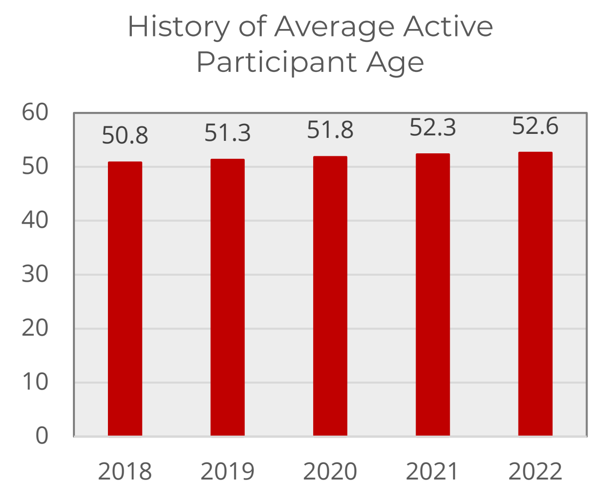
Data, Assumptions, and Plan Provisions

- Demographic Information
- Plan Provisions
- Assumptions and Methods

Demographic Information

The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

	January 1, 2021	January 1, 2022
Participant Counts		
Active Participants	57	48
Retired Participants	161	168
Beneficiaries	16	16
Disabled Participants	6	6
Terminated Vested Participants	27	23
Total Participants	267	261
Active Participant Demographics (Ongoing)		
Average Age	52.3	52.6
Average Service	23.4	24.4
Average Compensation	$61,818	$64,673
Total Covered Payroll	$3,523,615	$3,104,297
DROP Balances	$0	$0



Demographic Information (continued)

	January 1, 2021	January 1, 2022
Retiree Statistics		
Average Age	70.0	70.0
Average Monthly Benefit	$2,046	$2,067
DROP Balances	$52,749	$0
Beneficiary Statistics		
Average Age	76.5	75.7
Average Monthly Benefit	$1,209	$1,325
Disabled Participant Statistics		
Average Age	64.1	62.6
Average Monthly Benefit	$1,052	$1,356
Terminated Vested Participant Statistics		
Average Age	53.9	52.8
Average Monthly Benefit	$1,129	$1,187

Monitoring the average age of the population is important due to the relationship of actuarial cost to age. Generally speaking, an older population generates a higher actuarial cost.

Changes in the ratio of active to retired participants can be a significant driver of costs in a volatile asset market.

Participant Reconciliation

	Active	Terminated Vested	Retired	Beneficiaries	Disabled	Totals
Prior Year	57	27	161	16	6	267
Active						
To Terminated Vested	(1)	1	0	0	0	0
To Retired	(7)	0	7	0	0	0
To Disabled	(1)	0	0	0	1	0
Terminated Vested						
To Active	0	0	0	0	0	0
To Retired	0	(5)	5	0	0	0
To Survivor	0	0	0	0	0	0
To Death	0	0	0	0	0	0
Retired						
To Death with Beneficiary	0	0	(5)	0	0	(5)
Survivor						
To Death	0	0	0	(1)	0	(1)
Disabled						
To Death	0	0	0	0	(1)	(1)
Additions	0	0	0	1	0	1
Departures	0	0	0	0	0	0
Current Year	48	23	168	16	6	261

Active Participant Schedule

Active participant information grouped based on age and service.

Age Group	Years of Service 0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	Total
Under 25										
25 to 29										
30 to 34										
35 to 39										
40 to 44				1	5					6
45 to 49					7	4				11
50 to 54			1	1	7	2	1	1		13
55 to 59			1		4	3	5			13
60 to 64				1		1	1			3
65 to 69						1		1		2
70 & up										
Total	0	0	2	3	23	11	7	2	0	48

Plan Status

The plan is closed to new entrants and participants continue to accrue benefits

Eligibility for Participation

Full-time employees of the Township not covered by Act 345, excluding Firefighters

Members hired after the below dates are not eligible to participate

Division	Hire Date
Management/Elected Officials	1/1/2005
Court	1/1/2005
Dispatch	7/1/2006
Teamster	7/1/2006

Accrual of Benefits

A participant shall accumulate a benefit payable at Normal Retirement Date based on Compensation as of the date of determination of the accrued benefit and benefit service as of the date of determination.

Benefits

Normal Retirement

Division	Eligibility	Benefit
Management, Elected Court Officials hired before January 1, 1999, and Court Supervisors hired before April 1 , 2002	Sum of age and credited service of 75, Age 55 with 25 years of service, or Age 60 with 5 years of service	A monthly benefit equal to 2.5% multiplied by the final Average Compensation multiplied by years of service with a maximum benefit equal to 75% of final average compensation
Dispatchers	25 years of service or Age 60 with 8 years of service	A monthly benefit equal to 2.5% multiplied by the final Average Compensation multiplied by years of service
Crime Scene Investigators (CSI)	25 years of service or Age 60 with 10 years of service	A monthly benefit equal to 2.5% multiplied by the final Average Compensation multiplied by years of service with a maximum benefit equal to 75% of final average compensation
Teamsters hired before July 1, 2006	Age 55 with 25 years of service or Age 60 with 8 years of service	A monthly benefit equal to 2.375% multiplied by the final Average Compensation multiplied by years of service
Community Service Officers (CSO)	Age 55 with 25 years of service, Age 60 with 8 years of service, or 30 ears of service	A monthly benefit equal to 2.25% multiplied by the final average compensation multiplied by years of service with a maximum benefit equal to 75% of FAS
All Others (Note that Elected Officials had separate eligibility/benefit provisions, but none remain or will enter the plan.)	Age 55 with 25 years of service or Age 60 with 8 years of service	A monthly benefit equal to 2.25% multiplied by the final average compensation multiplied by years of service

Deferred Retirement

Eligibility	8 years of service Management & Administrative hired before 1/1/1999 and Court Supervisors hired before 4/1/2002: 5 years of service
Benefit	Accrued retirement benefit payable at age 60 or at age 55 for participants with 25 or more years of service at time of termination. For CSI, the benefit is payable at the date the participant would have reached normal retirement eligibility had the participant remained in employment.

Late Retirement

Eligibility	Participation continues after normal retirement date.
Benefit	Retirement benefit determined at Late Retirement Date based on Normal Retirement Benefit formula and plan compensation and benefit service at such date.

Non-Duty Death before Retirement*

Eligibility	10 years of service
Benefit	Spouse receives 100% of the benefit the participant would have received if retirement occurred on the day before death and the joint and 100% survivor annuity option was elected. Payments begin immediately if participant is eligible for early retirement at death or deferred to earliest retirement date of participant if later.

Duty Death before Retirement*

Eligibility	Payable to survivors of a member who died as a result of a job related injury. No age or service requirements.
Benefit	Upon termination of worker's compensation the same amount is continued to widow or dependent, widower and unmarried children under 18 years old.

Non-Duty Disability*

Eligibility	10 years of service and deemed to be totally and permanently disabled
Benefit	Accrued benefit with a minimum benefit of 10% of final average salary

*Death and disability benefits for CSI members are the same as those for Police members in the Waterford Township Policemen and Firemen Retirement System

Non-Duty Disability*

Eligibility	Immediately upon total and permanent disability
Benefit	Accrued benefit with a minimum benefit of 10% of final average salary

Credited Service

For Vesting and Benefit Accrual
All years and completed months of service with Waterford Township

Compensation

Base pay and longevity pay. Overtime is included for Crime Scene Investigators.

Average Compensation

Average Compensation is the average of the 3 highest consecutive amounts of the last 5 completed years preceding retirement.
CSI: Average Compensation is the average of the 3 highest consecutive amounts of the last 10 completed years preceding retirement.

Employee Contributions

Dispatchers and CSI: 5.00% of compensation. Annuity withdrawal based on Merrill Lynch Corporate and Government Master Bond Average for the month of retirement.
Other divisions are not required to make contributions to the plan.

Payment Forms

Normal Form

A Single Life Annuity for single participants, Joint and 60% Survivor Annuity for married participants (reduced for Actuarial Equivalence).

Optional Forms

Life Annuity, 60% Joint and Survivor Annuity, 100% Joint and Survivor Annuity. Pop-up feature available on Joint and Survivor options.

*Death and disability benefits for CSI members are the same as those for Police members in the Waterford Township Policemen and Firemen Retirement System

Deferred Retirement Option Plan (DROP)

Certain employees in the dispatch Union deemed eligible to participate as of December 31, 2016 can participate.

These members may participate in the DROP after reaching eligibility for Normal Retirement. A monthly amount equal to the amount that would have been paid had the member retired and member contributions accumulate in a DROP account. The account is credited with interest each year at the greater of the System's prior calendar year market rate of return and 4%. At the earlier of 5 years of DROP participation or separation from service, additions to the DROP account cease but interest continues to accrue. Participants can continue in covered employment after 5 years of participation or until their 33rd year of service, but do not accumulate additional service credit. Upon retirement, the member has the option to receive the DROP account balance as a lump sum or as an additional annuity. Upon retirement, the original monthly amount established upon entry in the DROP continues to be paid in addition to any additional benefits or adjustments. Member contributions continue during DROP participation and are added to the DROP account.

Actuarial Equivalence

All optional forms (other than annuity withdrawal) are actuarially equivalent based on:

- 7.0% interest
- 1971 GAM Male table, blended 90% with no setback and 10% with 5-year setback

Plan Provisions Not Included

We are not aware of any plan provisions not included in the valuation.

Adjustments Made for Subsequent Events

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

Data, Assumptions, and Plan Provisions

Except where otherwise indicated, the following assumptions were selected by the plan sponsor with the concurrence of the actuary. Prescribed assumptions are based on the requirements of the relevant law, the Internal Revenue Code, and applicable regulation. The actuary was not able to evaluate the prescribed assumptions for reasonableness for the purpose of the measurement.

Valuation Date	January 1, 2022
Participant and Asset Information Collected as of	January 1, 2022
Cost Method	Entry Age Normal Level Percent of Pay Method
Amortization Method	11-year closed level dollar amortization of UAAL (currently set to $0 if overfunded)
Asset Valuation Method	Market value of assets with a 4-year phase in of gains and losses, subject to a 25% corridor
Interest Rates *(CO)*	6.50% This rate has been set by the plan sponsor in conjunction with the 2022 assumption study. It reflects forward-looking expectations from the plan's asset advisor and published studies, as well as historical returns and peer benchmarks.
Annual Pay Increases *(FE)*	4.00%

Mortality Rates *(FE)*

Healthy	PubG-2010 Mortality with generational improvements projected beginning in 2010 based on the SOA Scale MP-21
Disabled	PubG-2010 Disabled Mortality with generational improvements projected beginning in 2010 based on the SOA Scale MP-21 As the plan is not large enough to have credible experience, mortality assumptions are set to reflect general population trends.
Marital Status and Ages *(FE)*	100% of Participants assumed to be married. Wives assumed to be 3 years younger than husbands.
Payment Form Election *(FE)*	100% Single Life Annuity at Normal Retirement. Annuity withdrawal and DROP are not elected
Retirement Rates *(FE)*	Retirement rates vary by year once the participant becomes retirement eligible.

Status	Rate
First Eligible for Retirement	60%
Thereafter Until Age 65	20%
Age 65	100%

Disability Rates *(FE)*	None
Withdrawal Rates *(FE)*	None
Expense Loading	$60,000 was added to cover anticipated administrative expenses

FE indicates an assumption representing an estimate of future experience
MD indicates an assumption representing observations of estimates inherent in market data
CO indicates an assumption representing a combination of an estimate of future experience and observations of market data