



nyhart
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Waterford Township Employees Retirement System

**Board Summary of the December 31, 2020
Actuarial Valuation**

October 13, 2021



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12/31/2020 Valuation Highlights

Prior Year Activity	<ul style="list-style-type: none">• Nyhart selected as new actuary
	<ul style="list-style-type: none">• 17% return on market value compared to the expected return of 6.75% in prior valuation
	<ul style="list-style-type: none">• Small liability gain primarily due to excess deaths and lower salary increases• Total contributions to the plan of \$990K (\$984K Township and \$6K Employees)
Current Year	<ul style="list-style-type: none">• Discount rate kept at 6.75%
	<ul style="list-style-type: none">• Plan funding level increased 6% to 102%: primarily due to strong asset returns. Plan is 112% funded on market-value basis.
	<ul style="list-style-type: none">• Recommended employer contribution for 2022 of \$588K, down from \$858K for the prior year. Subject to mortality update discussed later in this presentation
Looking Ahead	<ul style="list-style-type: none">• Funding Policy for surplus assets
	<ul style="list-style-type: none">• Future projections of funding requirement and funded status
	<ul style="list-style-type: none">• Administrative process



12/31/2019 Match Summary

Participant Counts	GRS	Nyhart	Difference
Actives	60	60	-
Terminated Vested	32	32	-
In Receipt	180	180	-
Total Participants	272	272	-
Payroll	\$3,532,640	\$3,532,640	-
Average Active Age	51.8	51.8	-
Average Active Service	23	23	-
Entry Age Normal Liability	GRS	Nyhart	% Difference
Actives	\$20,671,318	\$20,355,397	(1.5%)
Deferred	3,282,513	3,341,963	1.8%
In Receipt	42,963,169	43,067,278	0.2%
Total	\$66,917,000	\$66,764,638	(0.2%)
Normal Cost	\$533,429	\$496,447	(6.9%)



Participant Information

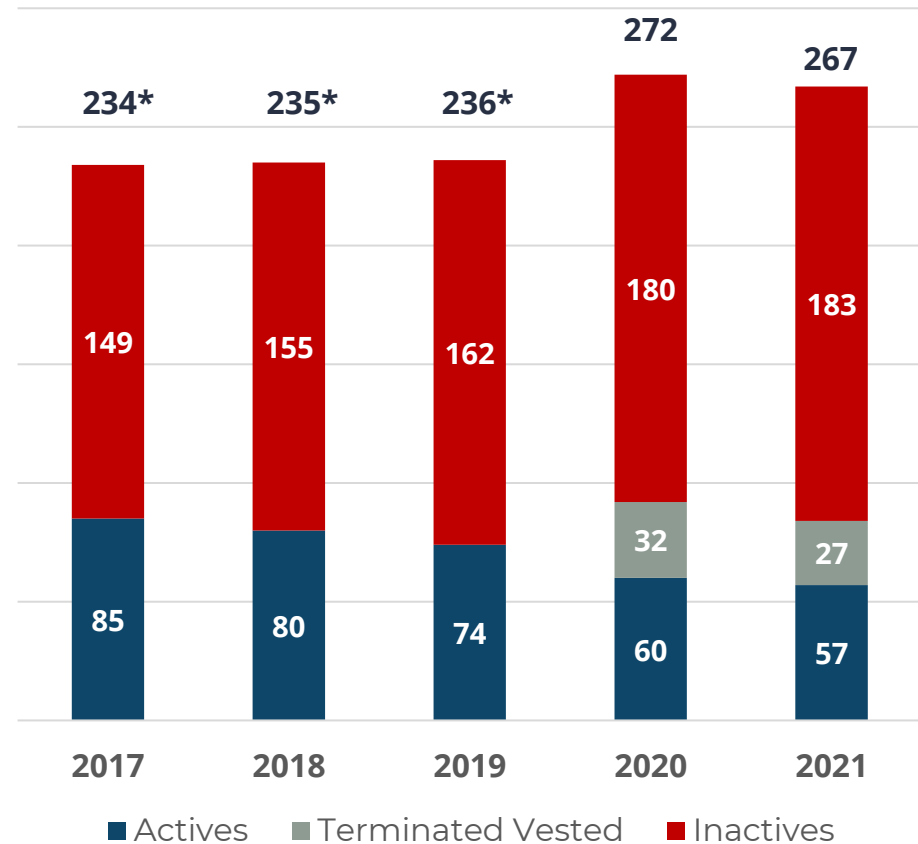
Active Demographics

	2019	2020	2021
Average Age	51.3	51.8	52.3
Average Service	22.7	23.0	23.4
Average Plan Compensation	\$56,552	\$58,877	\$61,818

Inactive Demographics

2021	In Receipt	Deferred
Counts	183	27
Average Age	70.3	53.9
Average Monthly Benefit	\$1,940	\$1,129

Participant Counts

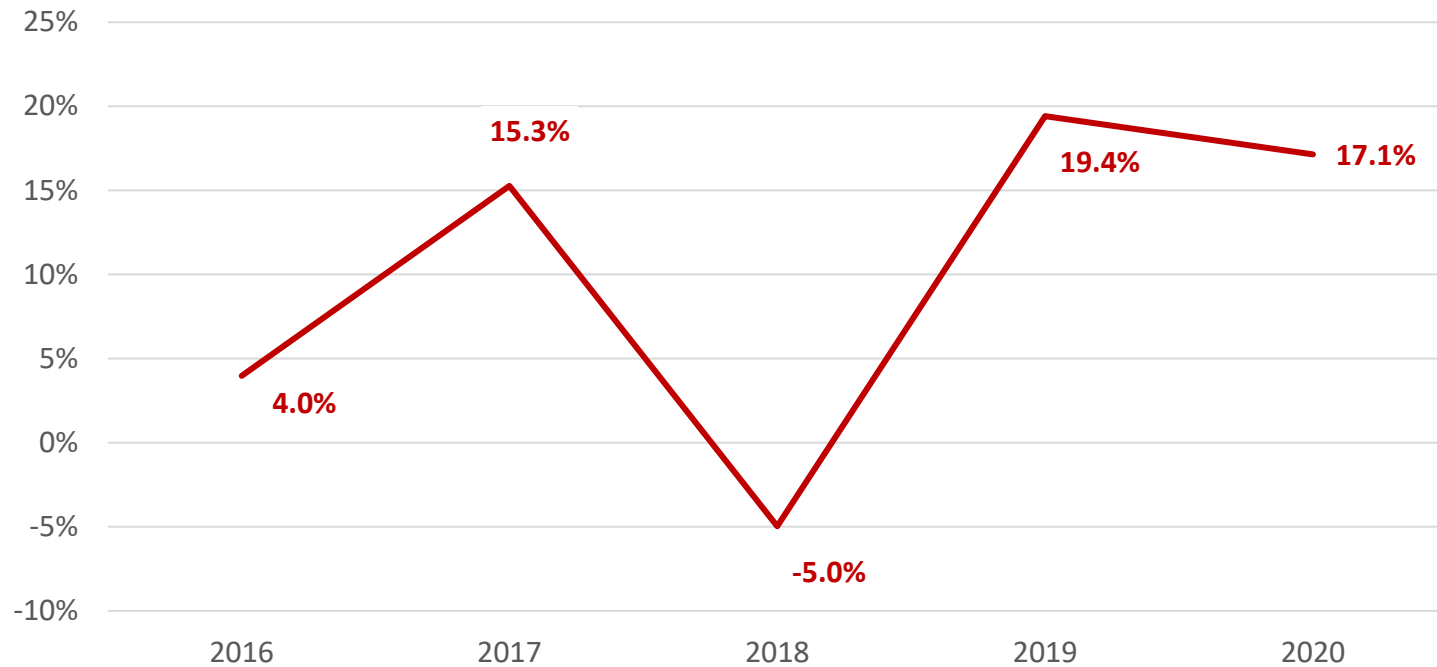


*The counts for Terminated Vested participants for years before 2020 were not provided in the 12/31/2019 GRS report



Asset Information

Market Value Rates of Return



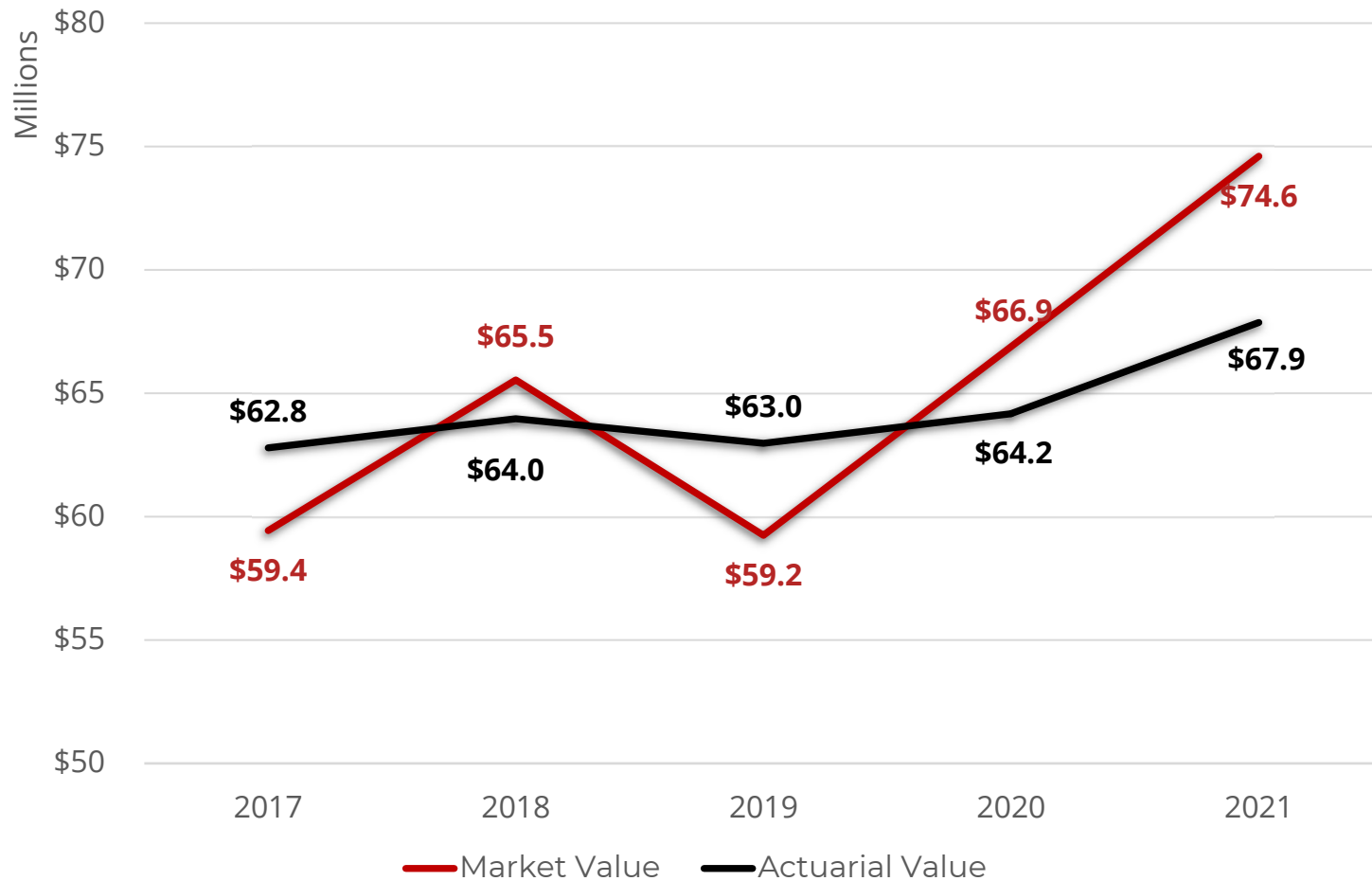
Average Rates of Return

5 - Years	
Market Value	9.8%



Assets Information

Actuarial Value vs. Market Value of Assets





Plan Experience and Impact on Unfunded Accrued Liability

Source	Effect (\$ millions)	Reason/Note
12/31/2019 Unfunded/(Surplus)	\$2.7	
Expected Change	<u>(\$1.2)</u>	Interest, Benefits Earned, Contributions, Asset Smoothing Effect
12/31/2020 Expected	\$1.5	
Change in Actuary	(\$0.2)	
Liability Experience	(\$1.0)	Primarily excess deaths and low salary increases
Asset Experience	<u>(\$1.7)</u>	17% return on MVA, but only 25% of excess return recognized
Total Experience	(\$2.9)	
12/31/2020 "Baseline" Unfunded/(Surplus)	(\$1.4)	Before potential mortality change discussed later



Summary of Results (\$ in Millions)

Valuation Date	12/31/2019	12/31/2020 "Baseline"*
Funding rate	6.75%	6.75%
Entry Age Accrued Liability	\$ 66.9	\$ 66.4
Actuarial Value of Assets	<u>64.2</u>	<u>67.9</u>
Unfunded Liability / (Surplus)	\$ 2.7	(\$ 1.5)
Funded Ratio- Actuarial Value	96%	102%
Market Value of Assets	\$ 66.9	\$74.6
Funded Ratio- Market Value	100%	112%
Recommended Contribution		
Normal Cost + Expenses	\$ 0.59	\$ 0.59
Unfunded Amortization (12-yr closed)	<u>0.27</u>	<u>0.00</u>
Township Contributions w Interest	\$ 0.86	\$ 0.59
Pct. of Expected Payroll	24%	17%
Payment to be made	December 2021**	December 2022**

* See following slides for possible mortality change

** Lower if paid earlier in the year.



Changes to Consider-Mortality

- Base table
 - Current assumption: Based on data centered in 2006; Based on private sector mortality
 - Recommended: PubG-2010 which is more recent and specific to public plan participants (non-teacher, non-public safety)
- Mortality improvement scale
 - Current assumption: MP-2017 scale, and no improvement beyond 2026
 - Recommended: MP-2020 projected generationally; Update annually to avoid “catching up”



Summary of Results (\$ in Millions)

Valuation Date	12/31/2020 "Baseline"	12/31/2020 With Mortality Update
Funding rate	6.75%	6.75%
Entry Age Accrued Liability	\$ 66.4	\$ 67.7
Actuarial Value of Assets	<u>67.9</u>	<u>67.9</u>
Unfunded Liability / (Surplus)	(\$ 1.4)	(\$ 0.2)
Funded Ratio- Actuarial Value	102%	100%
Market Value of Assets	\$74.6	\$74.6
Funded Ratio- Market Value	112%	110%
Recommended Contribution		
Normal Cost + Expenses	\$ 0.59	\$ 0.61
Unfunded Amortization (12-yr closed)	<u>0.00</u>	<u>0.00</u>
Township Contributions w Interest	\$ 0.59	\$ 0.61
Pct. of Expected Payroll	17%	18%
Payment to be made	December 2022**	December 2022**

** Lower if paid earlier in the year.



Funding Policy for Overfunded Plans

- Recommended contribution = Normal Cost + Expected Expenses + Amortization of Unfunded
- Does the funding policy address what to do for an overfunded plan?
 1. \$0 amortization. Continue contributing NC + Expenses
 2. Negative amortization, offsets NC + Expenses
 3. Dollar-for-dollar offset
- May need to set specific thresholds. For example:
 - Use #1 for funded percentage up to 110%
 - Use #3 for funded percentage over 110%



Administrative Process- Benefit Calculations

- GRS provided the township a tool for calculating individual benefits
 - The tool required monthly interest rate updates
 - The tool can no longer be updated
- Nyhart has matched prior sample calculations
- HR has continued using the GRS tool as a first step, then sends to Nyhart for matching and new interest rates
- We recommend that Nyhart develops a new tool to replace the current GRS tool



Next Steps

- Valuation Report
- Projections
- Benefit Calculation Tool
- GASB Report in 2022



Certification



This report has been prepared for the primary purpose of summarizing the actuarial valuation for the Waterford Township Employees Retirement System as of December 31, 2020. To the best of our knowledge, the reports summarized herein present fair positions of the funded status of the plan in accordance with the Actuarial Standards of Practice as described by the American Academy of Actuaries, and are based on the plan provisions and assumptions summarized within each report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such facts as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or other additional cost or contribution requirement based on the plan's funded status); and changes in plan provisions of applicable law. The scope of our assignment did not include an analysis of the potential range of future measurements.

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.

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

To our knowledge there have been no significant events prior to the current year's measurement date or as of the date of this report which could materially affect the results contained herein.

Nyhart

Derek Schmitt, FSA, EA, MAAA

Nick H. Meggos, FCA, EA

October 13, 2021

Date

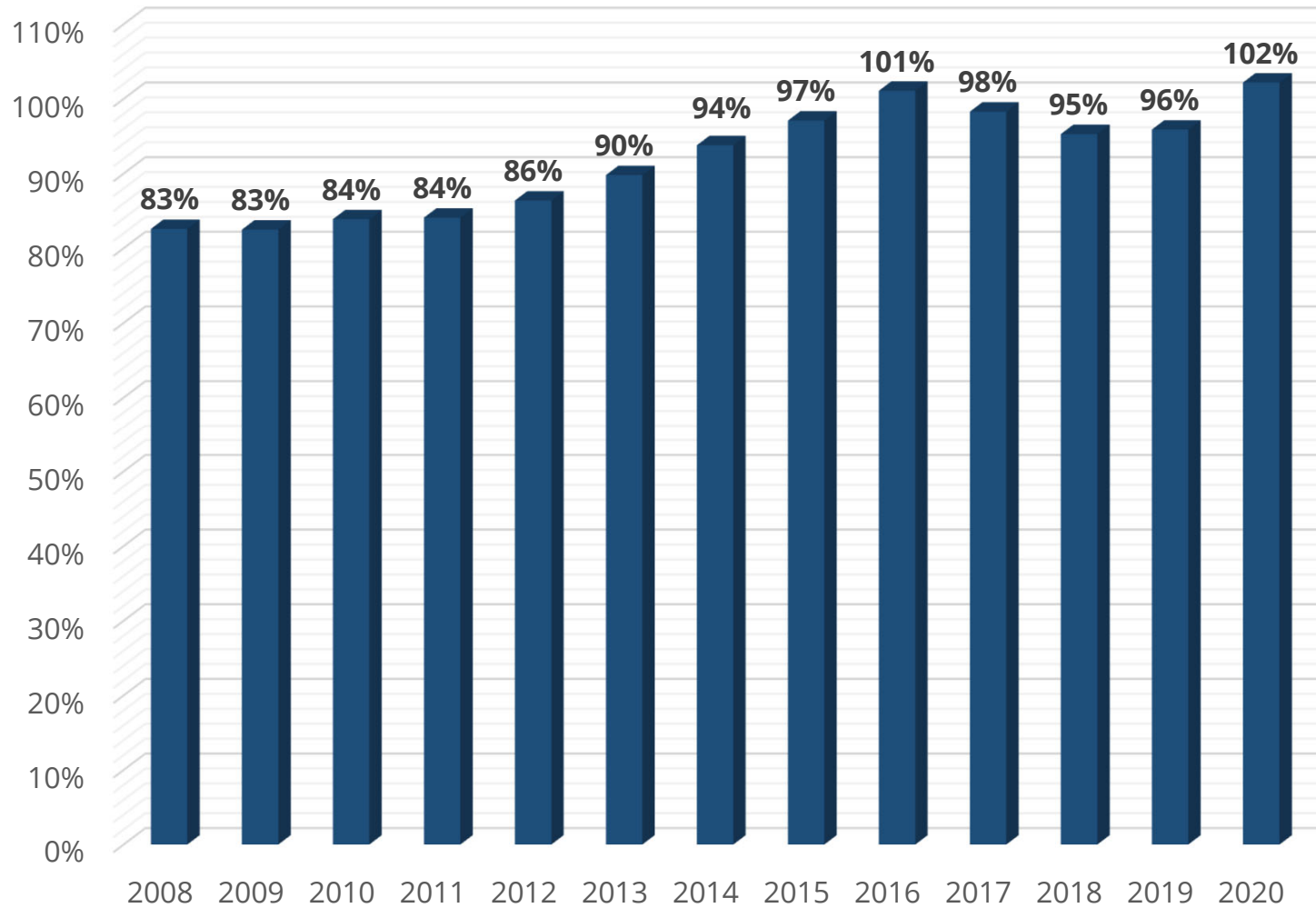
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Appendix



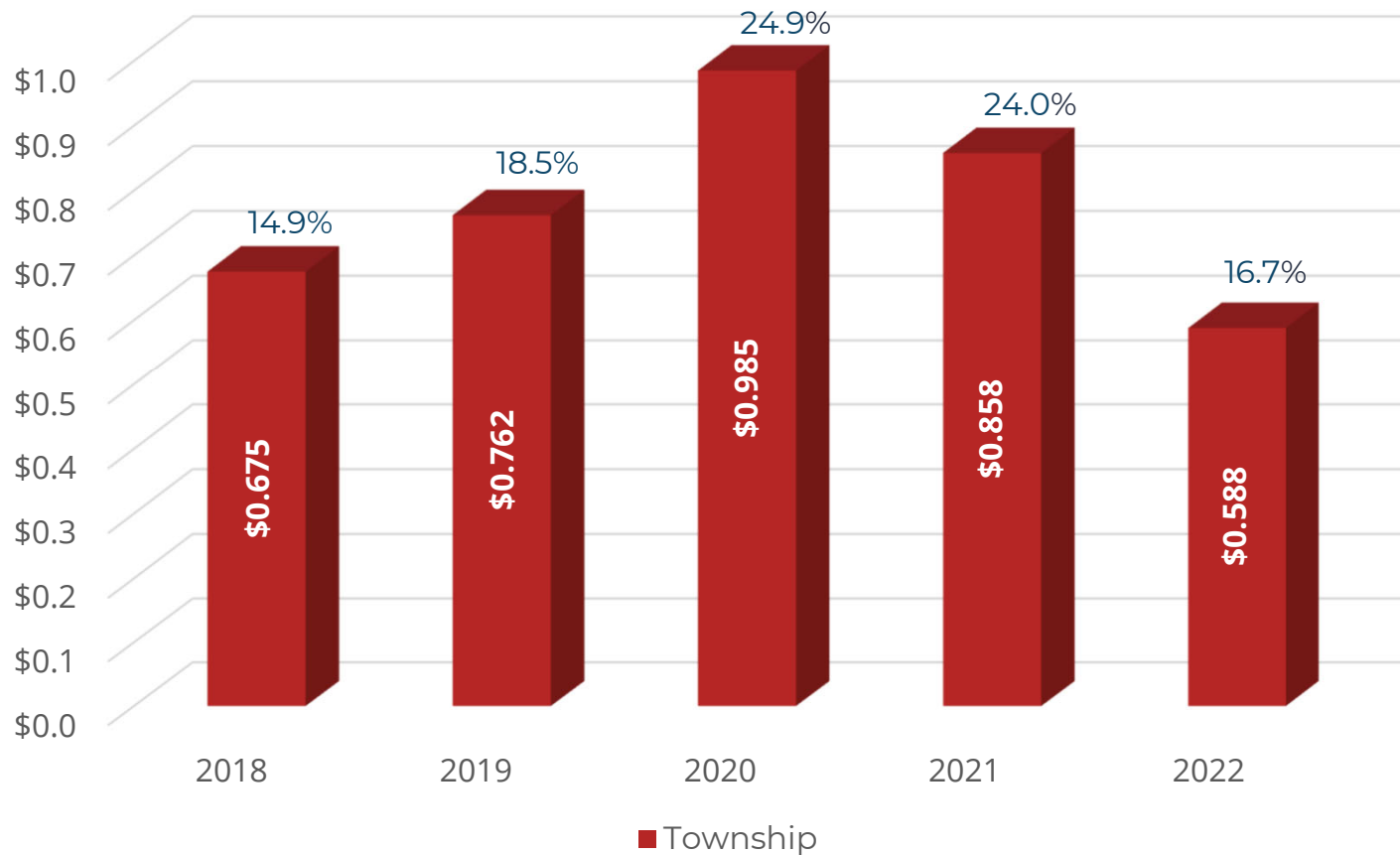
Funded Ratio as of December 31





Annual Funding Requirement (\$ millions)

Annual Recommended Contribution and Township Percentage of Payroll





Summary of Assumptions and Methods



Assumption/Method*	Description
Funding Interest Rate	6.75% (net of investment expenses)
Annual Pay Increases	3.50% plus merit scale (0.0% - 3.2%) based on age
Mortality Rates	RP-2014 Mortality with improvements projected to 2026 using SOA Scale MP-17
Retirement Rates	Varies by Age, Service, Year of Hire, and Division
Withdrawal Rates	Varies by Age and Service
Disability	N/A
Valuation Method	Entry Age Cost Method % of pay
Asset Method	Spreads actual vs expected investment income over a period of five years
Amortization of UAAL	12 year closed level dollar amortization of Unfunded Actuarial Accrued Liability