



TOWN OF WATERFORD OPEB PLAN

ACTUARIAL VALUATION REPORT

JULY 1, 2022



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Executive Summary

	July 1, 2022	July 1, 2020
Number of members		
Active members	368	404
Retired members and dependents	<u>179</u>	<u>119</u>
Total	547	523
Covered employee payroll	29,029,526	31,115,420
Average plan salary	78,885	77,018
Actuarial present value of future benefits	32,284,998	27,947,165
Actuarial accrued liability	30,074,765	25,386,650
Plan assets		
Market value of assets	8,465,847	6,109,331
Actuarial value of assets	9,206,097	6,109,331
Unfunded accrued liability	20,868,668	19,277,319
Funded ratio	30.6%	24.1%
Actuarially determined employer contribution (ADEC)		
Fiscal year ending	2024	2022
ADEC	2,505,310	2,217,688
Fiscal year ending	2025	2023
ADEC	2,516,833	2,231,121



Valuation Results and Highlights

Purpose of the Valuation

The purpose of the valuation is to develop the Actuarially Determined Employer Contribution (ADEC).

The ultimate cost of an OPEB plan is based primarily on the level of benefits promised by the plan. The OPEB fund's investment earnings serve to reduce the cost of plan benefits and expenses. Thus,

$$\text{Ultimate cost} = \text{Benefits Paid} + \text{Expenses Incurred} - \text{Investment Return} - \text{Employee Contributions}$$

The actuarial cost method distributes this ultimate cost over the working lifetime of current plan participants. By means of this budgeting process, costs are allocated to both past and future years, and a cost is assigned to the current year. The current year's allocated cost, or normal cost, is the building block upon which the actuarially determined employer contribution is developed. The July 1, 2022 valuation produces the contributions for the fiscal years ending 2024 and 2025.

Information Available in the Valuation Report

The Executive Summary is intended to emphasize the notable results of the valuation from the perspective of the Plan Sponsor. Supporting technical detail is documented in Results of the Valuation, Supporting Exhibits and Description of Actuarial Methods and Assumptions. A concise summary of the principal provisions of the Plan is outlined in Summary of Plan Provisions.

Changes Reflected in the Valuation

This valuation reflects changes in the mortality improvement tables, and medical trend rates. These changes in assumptions increased the liability by 3.4%. Medical premiums increased more than expected resulting in a 8.2% increase in the total liability.

Cash Contribution for Fiscal Years Ending 2024 and 2025

The Town cost is:	2024 Fiscal Year	2025 Fiscal Year
Town	\$595,302	\$595,301
Police and Fire	678,615	678,927
BOE Certified	1,171,162	1,180,779
BOE Non-Certified	60,231	61,826
Total	\$2,505,310	\$2,516,833

Liability Experience During Period Under Review

The accrued liability of \$30,074,765 is slightly higher than expected primarily due to medical premiums that were higher than expected since the last valuation. In addition to the higher premiums, there were more certified personnel that retired since the last valuation that also attributed to the increase in the liability.



Asset Experience During Period Under Review

The plan's assets provided the following rates of return during the past two fiscal years:

	2021 Fiscal Year	2022 Fiscal Year
Market Value Basis	26.2%	-13.7%
Actuarial Value Basis	10.4%	6.0%

The Actuarial Value of assets is used to determine plan contributions.



Certification

This report presents the results of the July 1, 2022 Actuarial Valuation for Town of Waterford OPEB Plan (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarially Determined Employer Contribution (ADEC) for the fiscal years ending June 30, 2024 and June 30, 2025. This report is intended to satisfy the requirements of Connecticut General Statute 7-450a. This report may not be appropriate for any other purpose.

The valuation has been performed in accordance with generally accepted actuarial principles and practices. It is intended to comply with all applicable Actuarial Standards of Practice.

I certify that the actuarial assumptions and methods that were selected by me and represent my best estimate of anticipated actuarial experience under the Plan.

In preparing this valuation, I have relied on employee data provided by the Plan Sponsor, and on asset and contribution information provided by the Trustee. I have audited neither the employee data nor the financial information, although I have reviewed them for reasonableness.

The results in this valuation report are based on the Plan as summarized in the *Summary of Plan Provisions* section of this report and the actuarial assumptions and methods detailed in the *Description of Actuarial Methods and Assumptions* section of this report.

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 additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

I have no relationship with the employer or the Plan that would impair, or appear to impair, my objectivity in performing the work presented in this report. I am a member of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.

Stephen Chykirda, ASA, FCA, MAAA
Enrolled Actuary 20-07517

December 21, 2022



Development of Unfunded Accrued Liability and Funded Ratio

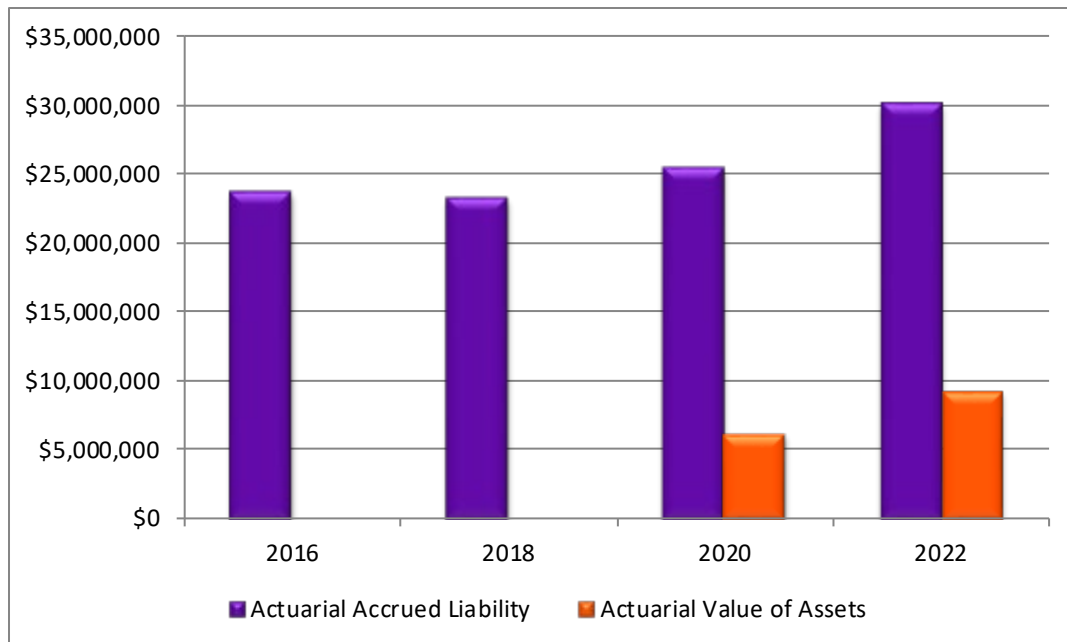
	July 1, 2022	July 1, 2020
Actuarial accrued liability for active members		
Members under age 65	\$5,220,130	\$4,696,437
Members over age 65	358,063	1,075,723
Dependents under age 65	1,889,341	1,809,894
Dependents over age 65	167,335	477,551
Total	7,634,869	8,059,605
Actuarial accrued liability for inactive members		
Members under age 65	3,610,009	2,968,023
Members over age 65	11,169,636	9,271,484
Dependents under age 65	2,310,403	1,748,324
Dependents over age 65	5,349,848	3,339,214
Total	22,439,896	17,327,045
Total actuarial accrued liability	30,074,765	25,386,650
Actuarial value of assets	9,206,097	6,109,331
Unfunded accrued liability	20,868,668	19,277,319
Funded ratio	30.6%	24.1%

	Discount Rate (6.50%)	1% Decrease (5.50%)	1% Increase (7.50%)
Actuarial accrued liability for active members	7,634,869	8,414,392	6,932,280
Actuarial accrued liability for inactive members	22,439,896	24,796,048	20,470,130
Total actuarial accrued liability	30,074,765	33,210,440	27,402,410

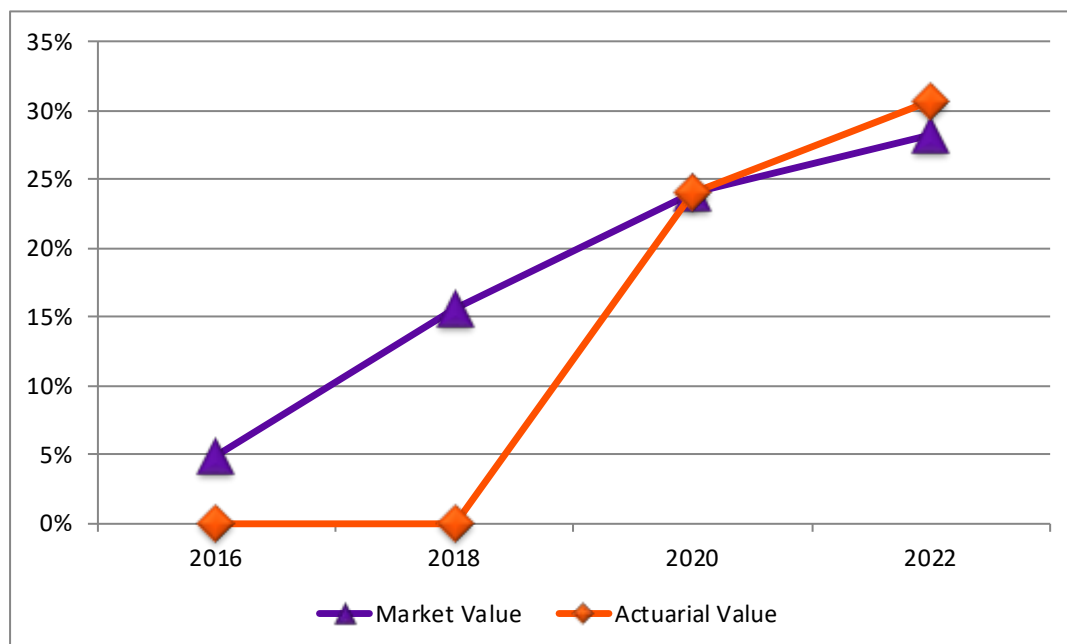
	Healthcare Cost Trend Rates (6.75% decreasing to 4.40%)	1% Decrease (5.75% decreasing to 3.40%)	1% Increase (7.75% decreasing to 5.40%)
Actuarial accrued liability for active members	7,634,869	6,770,237	8,639,606
Actuarial accrued liability for inactive members	22,439,896	20,898,052	24,266,087
Total actuarial accrued liability	30,074,765	27,668,289	32,905,693



Actuarial Accrued Liability vs. Actuarial Value of Assets



Funded Ratio





Development of Unfunded Accrued Liability and Funded Ratio by Group

	Town	Police and Fire	BOE Certified	BOE Non-Certified	Total
Actuarial accrued liability for active members					
Members under age 65	\$0	\$59,611	\$4,936,820	\$223,699	\$5,220,130
Members over age 65	0	137,952	220,111	0	358,063
Dependents under age 65	0	39,037	1,752,515	97,789	1,889,341
Dependents over age 65	0	60,705	106,630	0	167,335
Total	0	297,305	7,016,076	321,488	7,634,869
Actuarial accrued liability for inactive members					
Members under age 65	880,357	1,716,989	1,012,663	0	3,610,009
Members over age 65	4,669,249	3,827,695	2,672,692	0	11,169,636
Dependents under age 65	360,110	1,211,964	738,329	0	2,310,403
Dependents over age 65	2,070,772	1,948,551	1,330,525	0	5,349,848
Total	7,980,488	8,705,199	5,754,209	0	22,439,896
Total actuarial accrued liability	7,980,488	9,002,504	12,770,285	321,488	30,074,765
Actuarial value of assets	2,442,883	2,755,730	3,909,074	98,410	9,206,097
Unfunded accrued liability	5,537,605	6,246,774	8,861,211	223,078	20,868,668
Funded ratio	30.6%	30.6%	30.6%	30.6%	30.6%

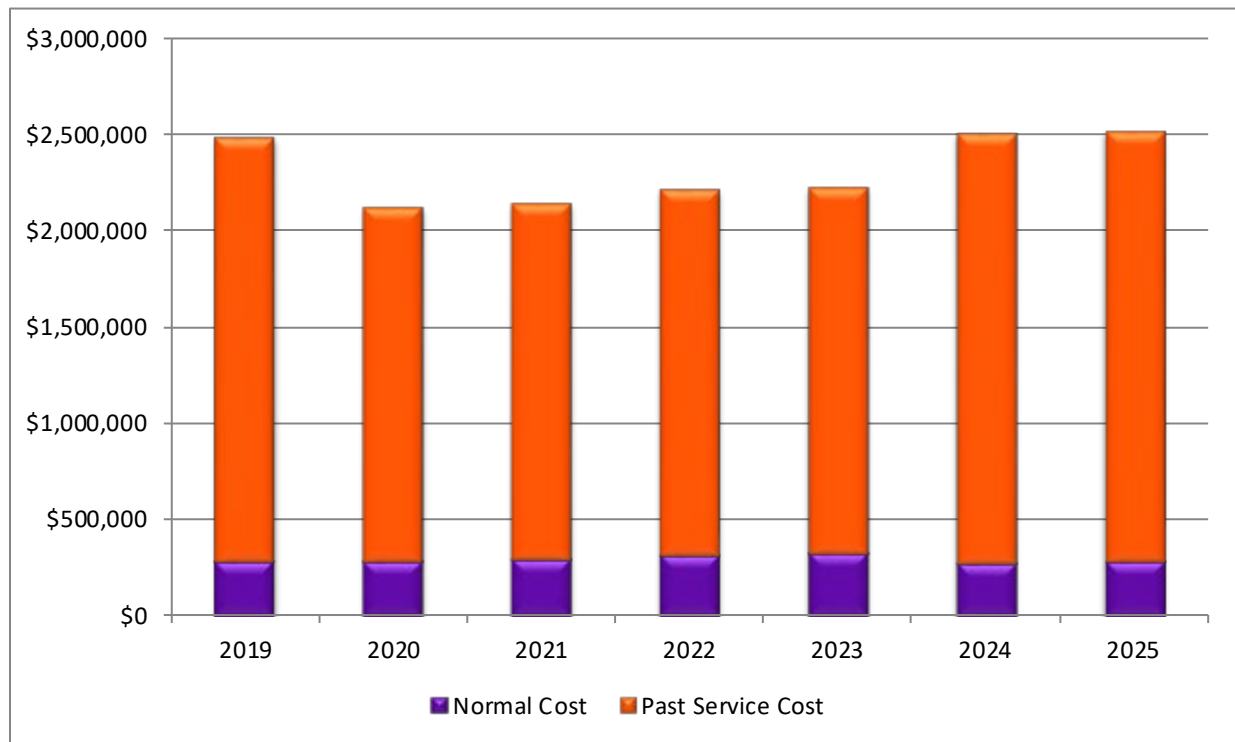


Determination of Normal Cost and Actuarially Determined Employer Contribution

	July 1, 2022		July 1, 2020	
	Cost	Percent of payroll	Cost	Percent of payroll
Town's normal cost	\$243,080	0.8%	\$283,365	0.9%
Amortization of unfunded accrued liability	2,173,878	7.5%	1,853,113	6.0%
Contribution before adjustment as of the valuation date	2,416,958	8.3%	2,136,478	6.9%
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	29,029,526		31,115,420	
Fiscal year ending	2024		2022	
Adjustment for interest and inflation	88,352		81,210	
Actuarially determined employer contribution	2,505,310		2,217,688	
Expected benefit payments	2,126,970		1,644,333	
Fiscal year ending	2025		2023	
Adjustment for interest and inflation	11,523		13,433	
Actuarially determined employer contribution	2,516,833		2,231,121	
Expected benefit payments	2,075,404		1,773,727	



Actuarially Determined Employer Contribution





Actuarially Determined Employer Contribution per Group

	Town	Police and Fire	BOE Certified	BOE Non-Certified	Total
Town's normal cost	\$0	\$6,568	\$202,866	\$33,646	\$243,080
Actuarial accrued liability	7,980,488	9,002,504	12,770,285	321,488	30,074,765
Actuarial value of assets	<u>2,442,883</u>	<u>2,755,730</u>	<u>3,909,074</u>	<u>98,410</u>	<u>9,206,097</u>
Unfunded accrued liability	5,537,605	6,246,774	8,861,211	223,078	20,868,668
Amortization of unfunded accrued liability	576,849	650,723	923,068	23,238	2,173,878
Contribution before adjustment as of the valuation date	576,849	657,291	1,125,934	56,884	2,416,958
Fiscal year ending June 30, 2024					
Adjustment for interest and inflation	<u>18,453</u>	<u>21,324</u>	<u>45,228</u>	<u>3,347</u>	<u>88,352</u>
Actuarially determined employer contribution	595,302	678,615	1,171,162	60,231	2,505,310
Expected benefit payments	686,467	615,216	809,416	15,871	2,126,970
Fiscal year ending June 30, 2025					
Adjustment for interest and inflation	<u>(1)</u>	<u>312</u>	<u>9,617</u>	<u>1,595</u>	<u>11,523</u>
Actuarially determined employer contribution	595,301	678,927	1,180,779	61,826	2,516,833
Expected benefit payments	672,738	643,493	731,170	28,003	2,075,404



Development of Asset Values

Summary of Fund Activity		
	Market Value	Actuarial Value
1. Beginning value of assets July 1, 2021		
Trust assets	\$9,062,017	\$7,943,558
2. Contributions		
Town contributions during year	750,000	750,000
Employee contributions during year	0	0
Total for plan year	750,000	750,000
3. Disbursements		
Benefit payments during year	0	0
Administrative expenses during year	5,940	5,940
Total for plan year	5,940	5,940
4. Net investment return		
Interest and dividends	0	N/A
Realized and unrealized gain / (loss)	(1,340,230)	N/A
Expected return	N/A	633,638
Recognized gain / (loss)	N/A	(115,159)
Required adjustment due to corridor	N/A	0
Reversal of prior year required adjustment	N/A	0
Investment-related expenses	0	N/A
Total for plan year	(1,340,230)	518,479
5. Ending value of assets July 1, 2022		
Trust assets: (1) + (2) - (3) + (4)	8,465,847	9,206,097
6. Approximate rate of return	-13.7%	6.0%



Relationship of Actuarial Value to Market Value	
1. Market value 7/1/2022	\$8,465,847
2. Gain / (loss) not recognized in actuarial value 7/1/2022	<u>(740,250)</u>
3. Preliminary actuarial value 7/1/2022: (1) - (2)	9,206,097
4. Preliminary actuarial value as a percentage of market value: (3) ÷ (1)	108.7%
5. Gain / (loss) recognized for corridor minimum / maximum	N/A
6. Actuarial value 7/1/2022 after corridor minimum / maximum: (3) + (5)	9,206,097
7. Actuarial value as a percentage of market value: (6) ÷ (1)	108.7%

Development of Market Value Gain / Loss for 2021-2022 Plan Year	
1. Market value 7/1/2021	\$9,062,017
2. Town contributions	750,000
3. Employee contributions	0
4. TRB reimbursements	0
4. Benefit payments	0
5. Administrative expenses	5,940
6. Expected return at 6.50%	<u>633,638</u>
7. Expected value 7/1/2022: (1) + (2) + (3) - (4) - (5) + (6)	10,439,715
8. Market value 7/1/2022	<u>8,465,847</u>
9. Market value gain / (loss) for 2021-2022 plan year: (8) - (7)	(1,973,868)

Recognition of Gain / Loss in Actuarial Value					
Year	(a) Gain / (loss)	(b) Total recognized as of 7/1/2021	(c) Recognized in current year: 20% of (a)	(d) Total recognized as of 7/1/2022: (b) + (c)	(e) Not recognized as of 7/1/2022: (a) - (d)
2017-2018	\$0	\$0	\$0	\$0	\$0
2018-2019	0	0	0	0	0
2019-2020	0	0	0	0	0
2020-2021	1,398,074	279,615	279,615	559,230	838,844
2021-2022	(1,973,868)	0	<u>(394,774)</u>	(394,774)	<u>(1,579,094)</u>
Total			(115,159)		(740,250)



Summary of Fund Activity		
	Market Value	Actuarial Value
1. Beginning value of assets July 1, 2020		
Trust assets	\$6,109,331	\$6,109,331
2. Contributions		
Town contributions during year	1,100,000	1,100,000
Employee contributions during year	0	0
Total for plan year	1,100,000	1,100,000
3. Disbursements		
Benefit payments during year	0	0
Administrative expenses during year	7,791	7,791
Total for plan year	7,791	7,791
4. Net investment return		
Interest and dividends	0	N/A
Realized and unrealized gain / (loss)	1,860,477	N/A
Expected return	N/A	462,403
Recognized gain / (loss)	N/A	279,615
Required adjustment due to corridor	N/A	0
Reversal of prior year required adjustment	N/A	0
Investment-related expenses	0	N/A
Total for plan year	1,860,477	742,018
5. Ending value of assets July 1, 2021		
Trust assets: (1) + (2) - (3) + (4)	9,062,017	7,943,558
6. Approximate rate of return	26.2%	10.4%



Relationship of Actuarial Value to Market Value	
1. Market value 7/1/2021	\$9,062,017
2. Gain / (loss) not recognized in actuarial value 7/1/2021	<u>1,118,459</u>
3. Preliminary actuarial value 7/1/2021: (1) - (2)	7,943,558
4. Preliminary actuarial value as a percentage of market value: (3) ÷ (1)	87.7%
5. Gain / (loss) recognized for corridor minimum / maximum	N/A
6. Actuarial value 7/1/2021 after corridor minimum / maximum: (3) + (5)	7,943,558
7. Actuarial value as a percentage of market value: (6) ÷ (1)	87.7%

Development of Market Value Gain / Loss for 2020-2021 Plan Year	
1. Market value 7/1/2020	\$6,109,331
2. Town contributions	1,100,000
3. Employee contributions	0
4. TRB reimbursements	0
4. Benefit payments	0
5. Administrative expenses	7,791
6. Expected return at 6.50%	<u>462,403</u>
7. Expected value 7/1/2021: (1) + (2) + (3) - (4) - (5) + (6)	7,663,943
8. Market value 7/1/2021	<u>9,062,017</u>
9. Market value gain / (loss) for 2020-2021 plan year: (8) - (7)	1,398,074

Recognition of Gain / Loss in Actuarial Value					
Year	(a) Gain / (loss)	(b) Total recognized as of 7/1/2020	(c) Recognized in current year: 20% of (a)	(d) Total recognized as of 7/1/2021: (b) + (c)	(e) Not recognized as of 7/1/2021: (a) - (d)
2016-2017	\$0	\$0	\$0	\$0	\$0
2017-2018	0	0	0	0	0
2018-2019	0	0	0	0	0
2019-2020	0	0	0	0	0
2020-2021	1,398,074	0	<u>279,615</u>	279,615	<u>1,118,459</u>
Total			279,615		1,118,459

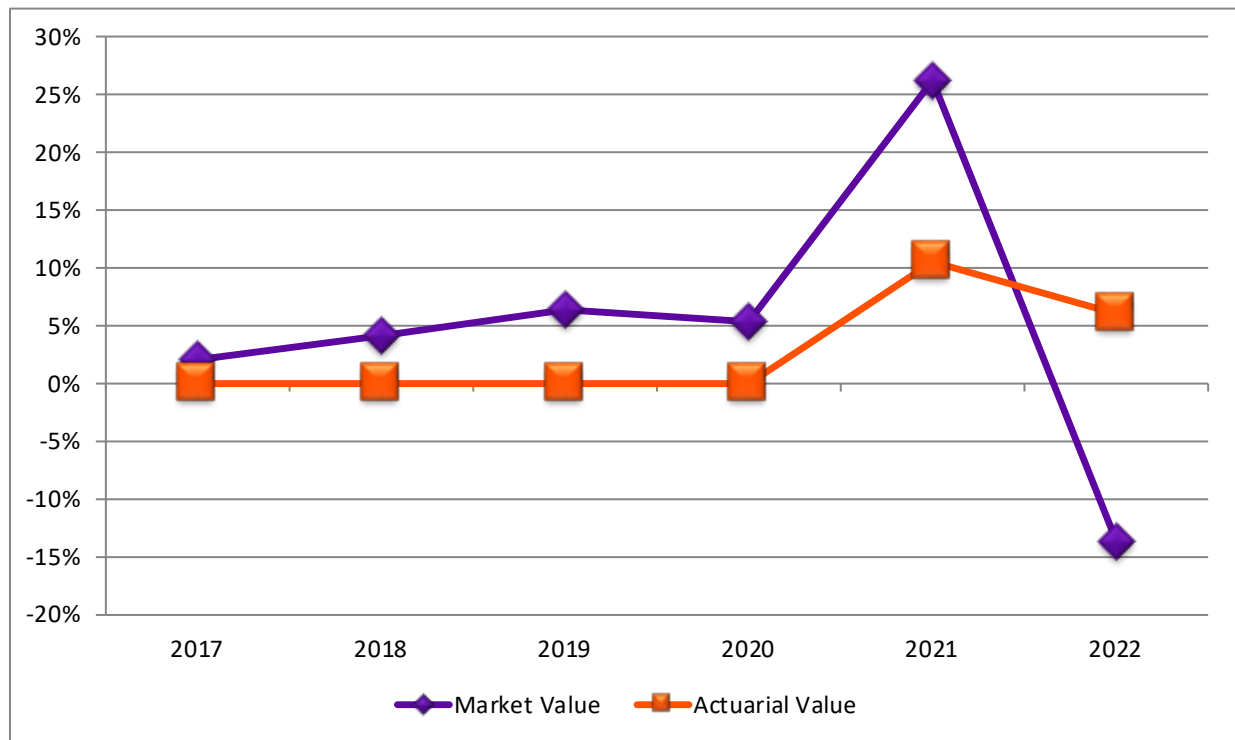


Rate of Return on Market Value of Assets				
Period Ending June 30	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2013	N/A	N/A	N/A	N/A
2014	N/A	N/A	N/A	N/A
2015	N/A	N/A	N/A	N/A
2016	N/A	N/A	N/A	N/A
2017	2.1%	N/A	N/A	N/A
2018	4.1%	N/A	N/A	N/A
2019	6.4%	4.2%	N/A	N/A
2020	5.4%	5.3%	N/A	N/A
2021	26.2%	12.3%	8.5%	N/A
2022	-13.7%	4.7%	4.9%	N/A

Rate of Return on Actuarial Value of Assets				
Period Ending June 30	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2013	N/A	N/A	N/A	N/A
2014	N/A	N/A	N/A	N/A
2015	N/A	N/A	N/A	N/A
2016	N/A	N/A	N/A	N/A
2017	N/A	N/A	N/A	N/A
2018	N/A	N/A	N/A	N/A
2019	N/A	N/A	N/A	N/A
2020	N/A	N/A	N/A	N/A
2021	10.4%	N/A	N/A	N/A
2022	6.0%	N/A	N/A	N/A



Actual Rate of Return on Assets





Target Allocation and Expected Rate of Return July 1, 2022

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
Core Fixed Income	16.00%	1.10%	0.18%
Dynamic Bonds	12.00%	1.10%	0.13%
Global Bonds	2.00%	0.70%	0.01%
US Large Cap	32.25%	4.50%	1.45%
US Small Cap	5.75%	4.80%	0.28%
International Equity Developed	21.00%	7.30%	1.53%
Emerging Markets	6.00%	8.60%	0.52%
Broad Real Assets	5.00%	3.40%	0.17%
	100.00%		4.27%
Long-Term Inflation Expectation			2.40%
Long-Term Expected Nominal Return			6.67%

**Long-Term Real Returns are provided by Fiducient Advisors. The returns are geometric means.*

The long-term expected rate of return on OPEB plan investments was determined using a building block method in which best-estimate ranges of expected future real rates of return are developed. Best estimates of the real rates of return for each major asset class are included in the OPEB plan's target asset allocation.

The information above is based on geometric means and does not reflect additional returns through investment selection, asset allocation and rebalancing. The investment return assumption used assumed a change in the long term asset allocation shown above. The plan sponsor will be reviewing the plan's investment and corresponding assumptions in the coming year. Based on the results of this analysis, we expect that there will be changes in the asset allocation and/or investment return assumption. An expected rate of return of 6.50% was used.



Amortization of Unfunded Liability

Schedule of Amortization Bases				
	Date established	Amortization installment	Years remaining	Present value of remaining installments as of July 1, 2022
2022 base	July 1, 2022	2,173,878	14	20,868,668



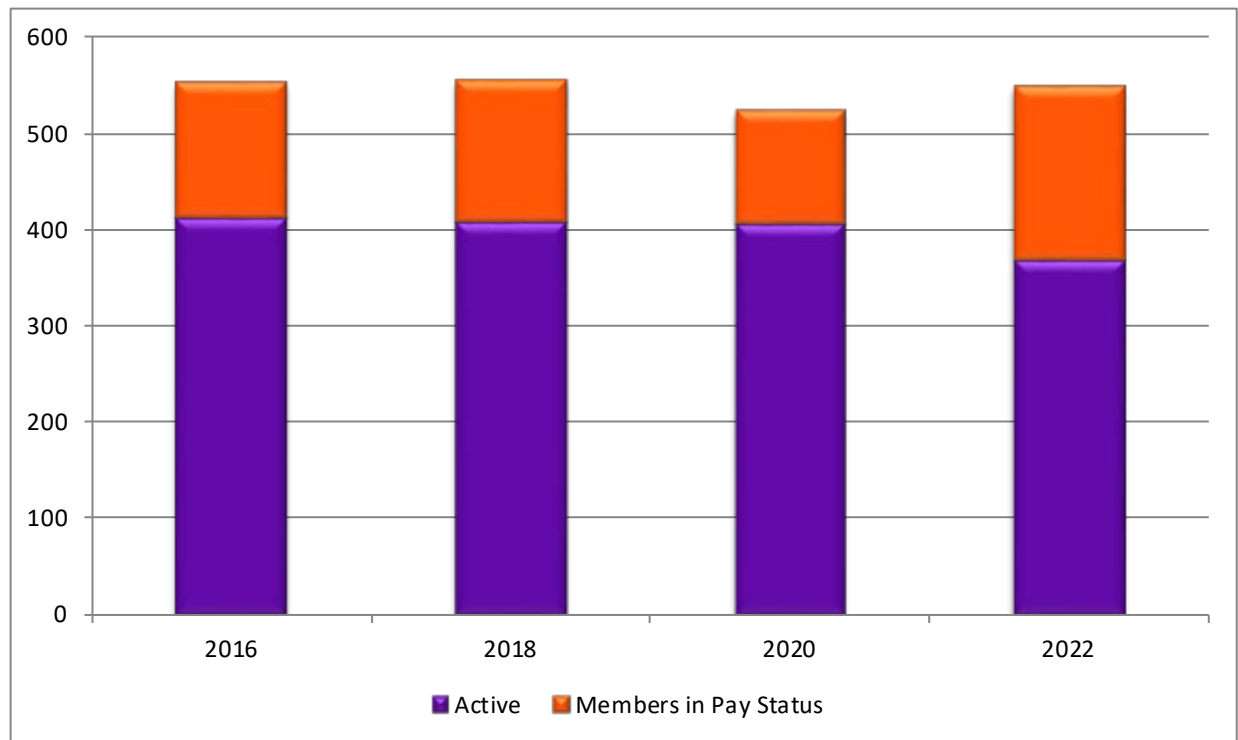
Member Data

The data reported by the Plan Sponsor for this valuation includes 368 active employees who met the Plan's minimum age and service requirements as of July 1, 2022.

	Town	Police and Fire	BOE Certified	BOE Non-Certified	Total
Total members July 1, 2022					
Active members	0	1	241	126	368
Retirees	46	46	26	0	118
Dependents of current retirees	20	24	17	0	61
Total	66	71	284	126	547
Average age July 1, 2022					
Active members	N/A	53.1	46.4	50.8	47.9
Retirees	72.5	67.6	67.7	N/A	69.5
Dependents of current retirees	70.7	63.8	63.9	N/A	66.1
Total members July 1, 2020					
Active members	0	15	244	145	404
Retirees	38	27	18	5	88
Dependents of current retirees	10	13	8	0	31
Total	48	55	270	150	523
Average age July 1, 2020					
Active members	N/A	47.7	46.0	51.1	47.9
Retirees	71.3	69.3	69.1	83.4	70.9
Dependents of current retirees	65.5	71.5	62.1	N/A	67.1



Member Counts by Status





Expected Benefit Payments from Trust Fund

An important consideration in formulating short-term or intermediate-term investment policy is the need for liquidity to meet the payment requirements of the Plan. The Plan's investment advisors may wish to compare expected benefit payments and expenses with anticipated cash income from investments and employer contributions.

The table below presents projected annual benefit payments for the next twenty plan years. The following assumptions are reflected in this table:

- Retirements among active participants will occur consistent with the Plan's retirement assumption.
- Benefits will continue to accrue according to the provisions of the Plan.

Differences between actual experience and that assumed will affect the pattern of benefit payments.

Participant categories reflect status as of July 1, 2022.

Year	Active as of July 1, 2022	Retired and Terminated as of July 1, 2022	Total Benefit Payments
2022	\$41,079	\$2,070,332	\$2,111,411
2023	118,059	2,008,912	2,126,971
2024	205,899	1,869,506	2,075,405
2025	289,699	1,764,425	2,054,124
2026	410,240	1,820,892	2,231,132
2027	537,553	1,787,913	2,325,466
2028	663,315	1,722,635	2,385,950
2029	762,659	1,647,406	2,410,065
2030	892,070	1,620,999	2,513,069
2031	1,047,999	1,578,015	2,626,014
2032	1,031,800	1,518,238	2,550,038
2033	1,242,391	1,478,466	2,720,857
2034	1,213,237	1,457,097	2,670,334
2035	1,181,237	1,424,965	2,606,202
2036	1,140,796	1,420,407	2,561,203
2037	1,038,821	1,419,624	2,458,445
2038	1,101,923	1,367,942	2,469,865
2039	1,070,300	1,360,285	2,430,585
2040	1,020,567	1,350,788	2,371,355
2041	969,202	1,339,060	2,308,262



Expected Per Capita Claims (without Medicare Integration)

Non-RIP Town/Police/Fire

Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$13,409	\$18,690
50	17,511	21,777
55	22,978	25,369
60	29,601	29,590
64	36,150	34,640

RIP Town/Police/Fire

Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$14,423	\$20,104
50	18,836	23,424
55	24,716	27,288
60	31,840	31,828
64	38,884	37,260

BOE

Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$12,665	\$17,652
50	16,539	20,568
55	21,702	23,961
60	27,958	27,947
65	35,597	33,875
70	42,822	39,621
75	49,141	44,475

The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-Medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by Dale H. Yamamoto from May 2013: "Health Care Costs from Birth to Death", we allocate the total projected claims by age and gender.



Description of Actuarial Methods

Asset Valuation Method

The Actuarial Value of assets used in the development of plan contributions phases in the recognition of differences between the Market Value and Expected Actuarial Value by recognizing 20% of the difference each year. The Actuarial Value is adjusted, if necessary, to be within the range of 80% and 120% of the Market Value of assets.

Actuarial Cost Method

Change in Actuarial Method: None.

Entry Age Normal (level percentage of salary).

Normal Cost: Under this method, the total normal cost is the sum of amounts necessary to fund each active member's normal retirement benefit if paid annually from entry age to assumed retirement age. Entry age is the age at which the employee would have been first eligible for the plan, if it had always been in effect. The normal cost for each participant is expected to remain a level percentage of the employee's salary. The normal cost for the plan is the difference between the total normal cost for the year and the anticipated member contributions for that year.

Past Service Liability: The present value of future benefits that relates to service before the valuation date is the total past service liability. The unfunded past service liability is the difference between the total past service liability and any assets (including accumulated member contributions).

The Unfunded Accrued Liability is amortized each year over 30 years on a closed basis, as a level dollar amount. The amortization began July 1, 2006 and as of July 1, 2022, 14 years remain.



Description of Actuarial Assumptions

Changes in Actuarial Assumptions

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Mortality Improvement
- Healthcare Cost Trend Rates

The assumptions indicated were changed to represent the Enrolled Actuary's current best estimate of anticipated experience of the plan.

Interest

6.50%.

Since the OPEB plan's fiduciary net position and future contributions are projected to be sufficient to cover expected benefit payments for current plan members, the long-term expected rate of return on OPEB plan investments was used to discount liabilities.

Rate of compensation increase (including inflation)

2.40%.

The plan does not have statistically credible data on which to form a rate of compensation increase assumption. This assumption is consistent with the inflation assumption.

Inflation

2.40%.

This assumption is consistent with the Social Security Administration's current best estimate for the ultimate long-term (75-year horizon) annual percentage increase in the CPI, as published in the 2022 OASDI Trustee Report.

Mortality

Pub-2010 Public Retirement Plans Mortality Tables (with separate tables for General employees, Public Safety employees and Teachers) and for non-annuitants and annuitants, projected to the valuation date with Scale MP-2021.

Pub-2010 Public Retirement Plans Mortality Tables (with separate tables for General employees, Public Safety employees and Teachers) and for non-annuitants and annuitants, projected to the valuation date with Scale MP-2020.

Mortality Improvement

Projected to date of decrement using Scale MP-2021 (generational).

(Prior: Projected to date of decrement using Scale MP-2020 (generational).)

We have selected this mortality assumption because it is based on the latest published public retirement plan mortality study released by the Society of Actuaries. The plan does not have sufficiently credible data on which to perform a mortality experience study.



Retirement

Town: Not applicable.

Police and Fire:

Age	Rate
45	25%
50	15%
55	13%
60	15%
65	100%

The actuarial assumption in regards to rates of retirement shown above are based on the rates used by the state of Connecticut Municipal Employee Retirement System actuaries.

Non-Certified BOE:

Age	Rate
45	13.00%
50	13.00%
55	7.50%
60	9.50%
65	18.00%
70	18.00%
75	100.00%

The actuarial assumption in regards to rates of retirement shown above are based on the rates used by the state of Connecticut Municipal Employee Retirement System actuaries.



Retirement (cont.)

Certified BOE: Per table below (from Connecticut State TRS 2020 Pension Valuation):

Age	Eligible for Normal (Unreduced) Retirement (Age 60 and 20 Yrs. Serv. Or 35 Yrs. Serv.) Less than 35 years of Serv.		Eligible for Normal (Unreduced) Retirement (Age 60 and 20 Yrs. Serv. Or 35 Yrs. Serv.) 35 or more years of Serv.		Eligible for Early (Reduced) Retirement (Age 50 and 20 Yrs. Serv. Or 25 Yrs. Serv.)	
	Male	Female	Male	Female	Male	Female
50			35.0%	30.0%	1.50%	1.25%
51			35.0%	30.0%	1.50%	1.25%
52			35.0%	30.0%	1.50%	1.25%
53			35.0%	30.0%	1.50%	1.75%
54			35.0%	30.0%	2.00%	2.25%
55			35.0%	30.0%	3.00%	3.00%
56			35.0%	30.0%	4.00%	3.75%
57			35.0%	30.0%	5.00%	4.50%
58			35.0%	30.0%	6.50%	5.50%
59			35.0%	30.0%	8.00%	7.00%
60	20.0%	20.0%	30.0%	30.0%		
61	20.0%	20.0%	30.0%	30.0%		
62	22.5%	20.0%	30.0%	30.0%		
63	22.5%	20.0%	30.0%	30.0%		
64	25.0%	25.0%	30.0%	30.0%		
65	27.5%	32.5%	35.0%	37.5%		
66	27.5%	30.0%	35.0%	37.5%		
67-68	27.5%	30.0%	30.0%	32.5%		
69-74	27.5%	30.0%	30.0%	32.5%		
75-80	100.0%	100.0%	100.0%	100.0%		

The actuarial assumption in regards to rates of retirement shown above are based on the rates used by the Connecticut State Teachers' Retirement System actuaries.

Termination prior to retirement

Town: Not applicable.

Police and Fire:

Withdrawal and Vesting		
Age	0-4 Years	5-24 Years
20	6.50%	5.00%
25	6.50%	5.00%
30	5.75%	4.00%
35	3.50%	2.50%
40	3.50%	2.00%
45	3.50%	1.50%
50	3.50%	0.00%
55	3.50%	0.00%
60	3.50%	0.00%
65	0.00%	0.00%



Termination prior to retirement (cont.)

The actuarial assumption in regards to rates of withdrawal shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.

Non-Certified BOE:

Male Rate			Female Rate	
Age	0-4 Years	5-24 Years	0-4 Years	5-24 Years
20	16.00%	12.00%	24.00%	18.00%
25	16.00%	12.00%	19.00%	18.00%
30	12.50%	10.00%	16.00%	12.00%
35	10.00%	8.00%	12.00%	10.00%
40	9.50%	5.75%	10.00%	8.00%
45	8.50%	5.00%	9.00%	6.00%
50	8.50%	4.50%	9.00%	4.50%
55	6.50%	0.00%	8.00%	0.00%
60	6.50%	0.00%	8.00%	0.00%
65	6.00%	0.00%	8.00%	0.00%
70	6.00%	0.00%	8.00%	0.00%

The actuarial assumption in regards to rates of withdrawal shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.

Certified BOE: Rates based on gender and length of service for first Ten years and gender and age thereafter (Connecticut State TRS 2020 Pension Valuation):

Service	Male Rate	Female Rate
0-1	15.00%	12.00%
1-2	11.00	11.00
2-3	8.50	9.50
3-4	7.00	8.00
4-5	5.50	7.50
5-6	4.50	7.00
6-7	4.00	6.50
7-8	3.50	6.00
8-9	3.50	5.50
9-10	3.50	5.00
10 +	use age-related rates until eligible to retire	



Termination prior to retirement (cont.)

Sample Age-Based Withdrawal Rates (until eligible to retire):

Age	Male Rate	Female Rate
25	1.80%	6.00%
30	1.80	6.00
35	1.80	4.25
40	1.80	2.50
45	1.80	2.00
50	2.25	2.40
55	4.00	3.90
59+	5.50	4.00

The actuarial assumption in regards to rates of withdrawal shown above are based on the rates used by the Connecticut State Teachers' Retirement System actuaries.

Utilization

Town/RIP eligible Police/RIP eligible Fire: Percentage of actives who continue with medical coverage: 100% if retirement during RIP period. Percentage of suspended retirees who may elect medical coverage at a future date: 20%.

Non-Certified BOE and Non-RIP eligible Fire: 50% of current active members will elect medical coverage at retirement.

Certified BOE: 100% of current active members will elect medical coverage at retirement.

Medicare Replacement

30%.

Medicare Eligibility

25% of current Certified BOE members hired prior to April 1, 1986 are assumed to continue coverage post-65, without Medicare coverage.

Spousal Coverage

50% of active members are assumed to be married and elect spousal benefits at retirement with wives 3 years younger than husbands.

Healthcare Cost Trend Rates

6.50% in 2022, reducing by 0.20% each year to an ultimate rate of 4.40% per year for 2033 and later.

(Prior: 6.50% in 2020, reducing by 0.25% each year to an ultimate rate of 4.40% per year for 2029 and later.)

Dental is assumed to increase by 4.00% per year.

The trend rates were changed to align with the inflation assumption change and better reflect actual experience.



Premiums/Allocation rates

Town/Non-RIP Police/Non-RIP Fire

Employee	Employee Plus Spouse
\$18,212.04	\$38,288.64

Town/RIP Police/RIP Fire

Employee	Employee Plus Spouse
\$19,903.92	\$41,845.80

BOE

Employee	Employee Plus Spouse
\$19,369.68	\$41,526.36

Post-65

Employee	Employee Plus Spouse
\$5,965.80	\$11,913.60

Premiums were used as the basis for per capita costs.

Dental Premiums

Non-RIP Town/Non-RIP Police/Non-RIP Fire

Employee	Employee Plus Spouse
\$397.56	\$1,033.92

RIP Town/RIP Police/ RIP Fire

Employee	Employee Plus Spouse
\$445.08	\$1,157.28

BOE

Employee	Employee Plus Spouse
\$388.68	\$1,088.72

Patient Protection and Affordable Care Act (PPACA)

For purposes of this valuation, extended coverage for adult children and 100% coverage of preventive care are assumed to be reflected in per capita costs.

For purposes of this valuation, elimination of lifetime maximum benefits and removal of the limits on essential healthcare are assumed to have no impact on plan liabilities.



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. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

For Town Employees

Eligibility

Town - Current retirees with medical benefits (no future retirees). In addition, there is a group of current retirees who have currently suspended benefits. These individuals and their spouse may elect medical at a future date.

Police and Fire - RIP eligible employees may qualify for subsidized benefits if they retire within a specific date range. Fire employees who are either not RIP eligible or retire outside the eligibility period may continue medical after retirement.

Benefits

Medical and dental benefits pre-65.

Medical benefits post-65.

Dependent Coverage

Coverage available for spouses at retirement for the spouse's lifetime.

Retiree Contributions

Pre-65: RIP eligible employees who are eligible for subsidized benefits pay the contribution percentage at time of retirement times the premium rate at retirement. The premium rate at retirement becomes the Town's cap and the retiree pays any premium above the Town's cap. All other Fire employees can continue coverage by paying 100% of the cost.

Post 65: The Town's cap is 50% of the Medicare supplement rate at the time of retirement and the retiree pays any premium above the cap. Fire employees who do not retire under the RIP may continue coverage by paying 100% of the cost.

All others are not eligible for post-retirement medical benefits.

For existing retirees: Individual caps were provided by the Town. For pre-65 retirees, the post-65 cost is capped at 50% of the pre-65 cap. For two retirees, the Town pays 100% of the cost.



For Board of Education Employees

Eligibility for Medical and Dental

Non-Certified Administrators and Supervisors: 25 years of teaching/administrative experience (the last 10 years in Waterford) and be eligible to collect CT Teacher Retirement Benefits.

Teachers and Certified Administrators: Age 55 with 20 years of teaching/administrative experience (the last 10 years in Waterford) and be eligible to collect CT Teacher Retirement Benefits.

Paraprofessionals: Age 60 with 20 years of service.

Secretaries: 10 years of service.

Contract Workers: Age 55 with 5 years of service or 25 years of service.

Custodians: Age 55 with 5 years of service or 25 years of service.

Retiree/Spouse cost of medical coverage

Administrators: Administrators hired before 7/1/2004: Retirees and spouses pay 50% of the premium owed under age 65 and 100% on or after age 65. Administrators hired on or after 7/1/2004 but before July 1, 2014: Retirees and spouses pay 70% of the premium owed under age 65 and 100% on or after age 65. Administrators hired on or after 7/1/2014: Retirees and spouses pay 100% of the premium owed under age 65 and 100% on or after age 65.

Teachers: Teachers hired before 10/1/1993: Retirees and spouses pay 50% of the premium owed under age 65 and 100% on or after age 65. Teachers hired between October 1, 1993 and August 31, 2004: Retirees and spouses pay 60% of the premium under age 65 and 100% on or after age 65. Teachers hired between September 1, 2004 and June 30, 2012: Retirees and spouses pay 70% of the premium under age 65 and 100% on or after age 65. Teachers hired after July 1, 2012: Retirees and spouses pay 100% of the premium.

Non-Certified BOE: Retirees and spouses pay 100% of the premium owed for active employees while employee is under age 65. There are no benefits on or over 65. Food Service employees are not eligible for benefits.

Plan of Coverage: Assumed the same as Active's Plan. Assumed that retirees with current Medicare coverage are not participating in this plan.