MONROE COUNTY
RETIREE HEALTH CARE TRUST

Actuarial Valuation as of December 31, 2020
To Determine Funding for Fiscal Year 2022

Prepared by

Michelle L. Boyles, FSA, MAAA
Consulting Actuary

Christopher J. Giese, FSA, MAAA
Principal and Consulting Actuary

200 Great Pond Drive, Suite 110
Windsor, CT 06095 USA
(860) 687-2110
milliman.com

July 30, 2021

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Certification

We have performed an actuarial valuation of the Plan as of December 31, 2020 to determine funding for fiscal year 2022. This report presents the results of our valuation.

The ultimate cost of an Other Post-Employment Benefits (OPEB) plan is the total amount needed to provide benefits for plan members and beneficiaries and to pay the expenses of administering the plan. OPEB costs are met by contributions and by investment return on plan assets. The principal purpose of this report is to set forth an actuarial recommendation of the contribution, or range of contributions, which will properly fund the plan, in accordance with applicable actuarial standards of practice. In addition, this report provides:

- A valuation of plan assets and liabilities to review the year-to-year progress of funding.
- Review of plan experience since the previous valuation to ascertain whether the assumptions and methods employed for valuation purposes are reflective of actual events and remain appropriate for prospective application.
- Assessment of the relative funded position of the plan, i.e., through a comparison of plan assets and projected plan liabilities.
- Comments on any other matters which may be of assistance in the funding and operation of the plan.

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In preparing this report, we relied on employee census data and financial information as of the valuation date, furnished by the County. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Certification

The valuation results have been developed using models employing standard actuarial techniques. In addition, Milliman has developed certain models to estimate the claims cost and medical trend used in this analysis. 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 (ASOP). Reliance on other experts is based on the Plan's investment policy, Milliman's capital market assumptions, and Milliman's ASOP 27 expected return model maintained by Milliman investment consultants. The models, including all input, calculations, and output may not be appropriate for any other purpose.

The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions. Additional determinations may be needed for purposes other than determining funding amounts, such as judging benefit security at plan termination or meeting employer accounting requirements. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices.

We further certify that, in our opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations. 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 the actuarial assignment, we did not perform an analysis of the potential range of such future measurement.

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 undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Michelle L. Boyles

Michelle L. Boyles, FSA, MAAA
Consulting Actuary

Christopher J. Giese

Christopher J. Giese, FSA, MAAA
Principal and Consulting Actuary

Section I - Executive Summary
Changes Since the Prior Valuation

Demographic Changes and Plan Experience

From December 31, 2019 to December 31, 2020, the overall membership decreased from 869 to 857. The number of active members decreased from 207 to 189, and the total number of members and spouses/dependents receiving benefits increased from 662 to 668.

The average age of active members increased from 50.0 to 50.5, and the average age of members receiving benefits increased from 68.2 to 68.5.

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

Since the December 31, 2019 valuation we have made the following assumption changes to better represent future expectations.

The demographic assumptions have been updated based upon the most recent MCERS experience study.

We updated the mortality improvement assumption from generational projection per scale MP-2018 to generational projection per scale MP-2019.

The combined effect of these changes increased the Unfunded Accrued Liability by about $3.1 million and increased the Actuarially Determined Contribution by about $0.4 million.

Other Significant Changes

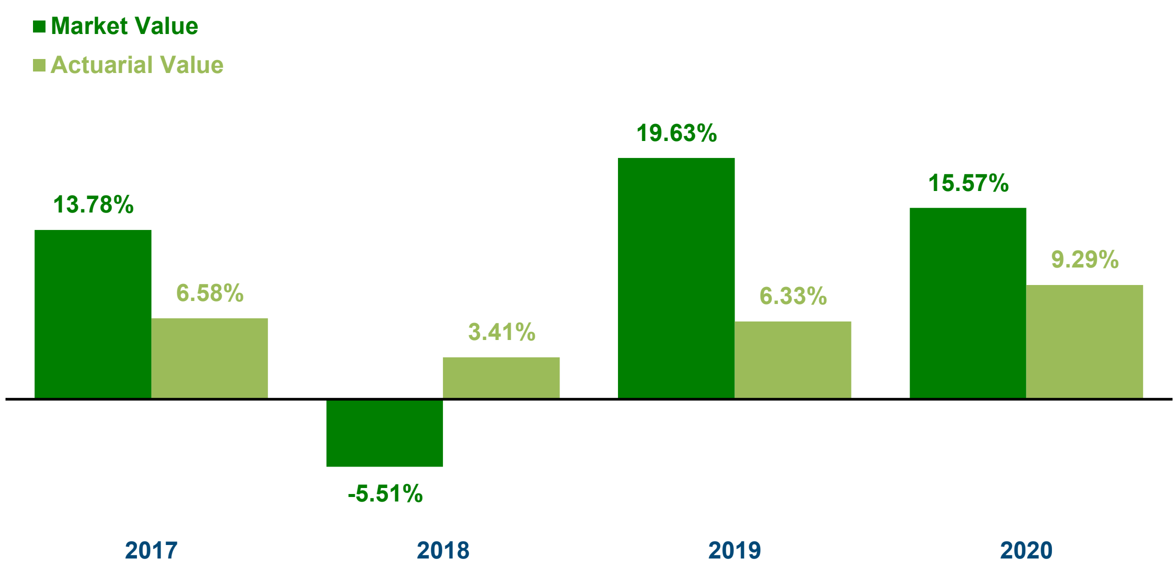
There have been no significant changes between the valuation date and fiscal year end. In developing our projection of medical costs, we considered the potential impact of the emerging situation regarding the COVID-19 pandemic. Given the substantial uncertainty regarding the impact of COVID-19 on claims costs, including whether the pandemic will increase or decrease costs in the future, we have chosen not to make an adjustment to the projected costs. At the time of this report, it is not possible to predict the outcomes; however, it is known that the COVID-19 pandemic could have a material impact on future costs.

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 December 31, 2019	68,424,491	64,420,660
County and Active Member Contributions	7,766,631	7,766,631
Investment Income	10,853,299	6,101,907
Benefit Payments and Administrative Expenses	(5,202,800)	(5,202,800)
Value as of December 31, 2020	81,841,621	73,086,398

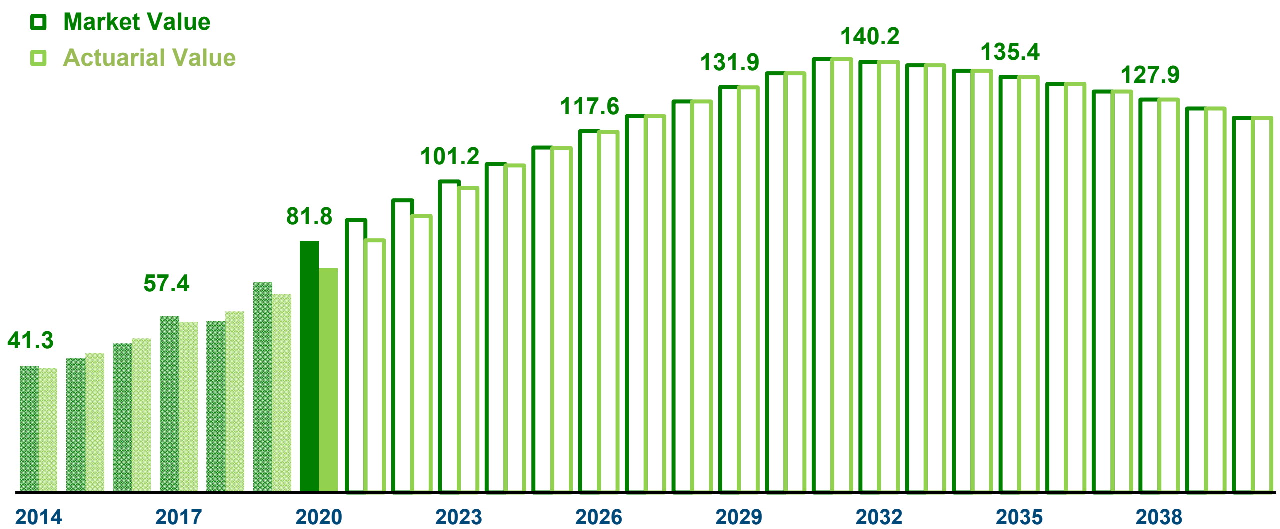
For fiscal year 2020, the plan's assets earned 15.57% on a Market Value basis. The actuarial assumption for this period was 5.50%; the result is an asset gain of about $7.0 million. Historical rates of return are shown in the graph below.



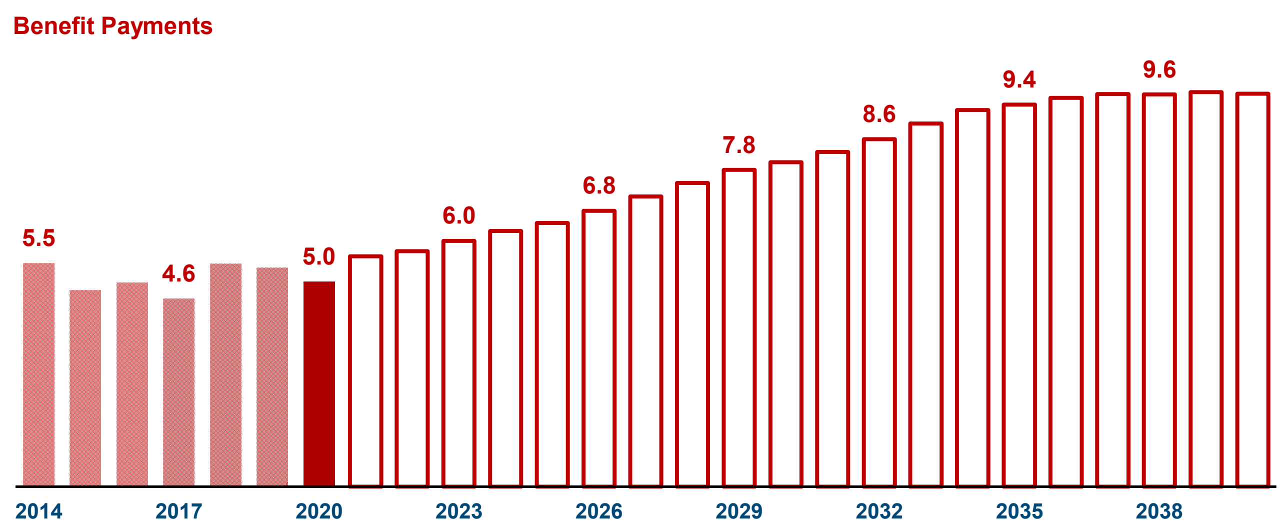
Please note that the Market Value currently exceeds the Actuarial Value by $8.8 million. This figure represents investment gains that will be gradually recognized in future years. This process will exert downward pressure on the County's contribution, unless there are offsetting market losses.

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 County always contributes the Actuarially Determined Contribution and the investments always earn the assumed interest rate each year.

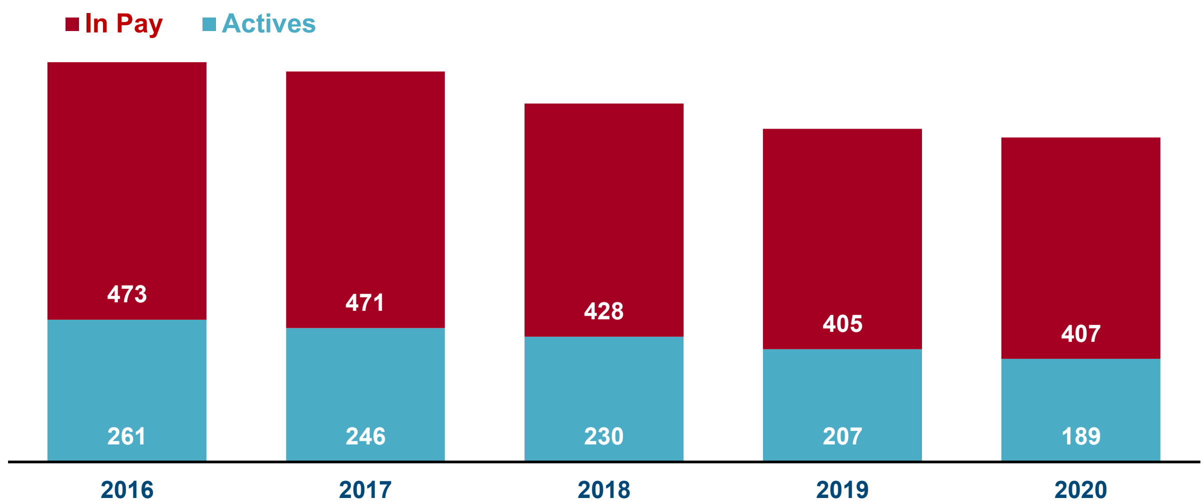


In 2020, the plan paid out $5.0 million in benefits to members. Over the next 20 years, the plan is projected to pay out a total of $160 million in benefits to members.



Section I - Executive Summary
Membership

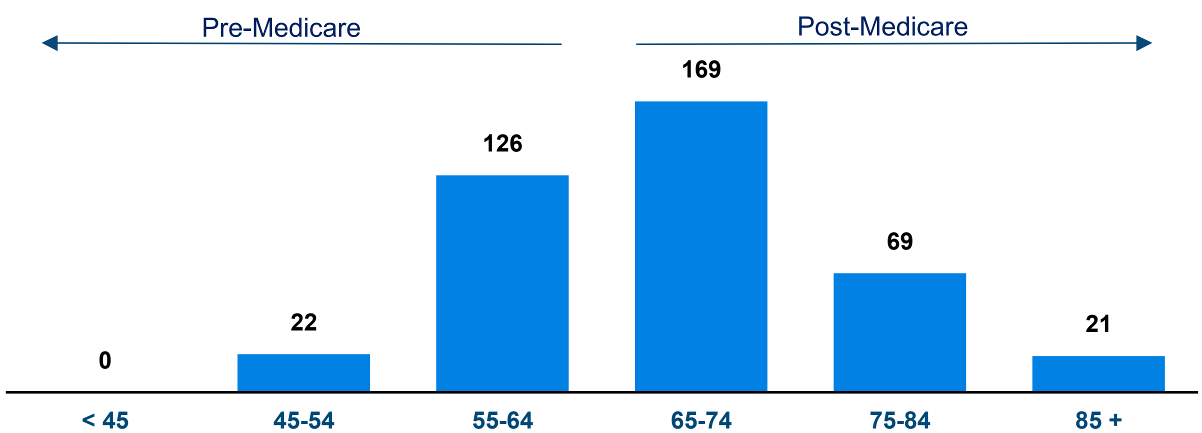
There are two basic categories of plan members included in the valuation: (1) members who are receiving benefits and (2) active employees who have met the eligibility requirements for membership.



Currently Receiving Benefits on December 31, 2020

Members Receiving Benefits	407
Spouses/Dependents Receiving Benefits	261
Total	668

The members receiving benefits fall across a wide distribution of ages:



Section I - Executive Summary
Membership (continued)

Active Members on December 31, 2020

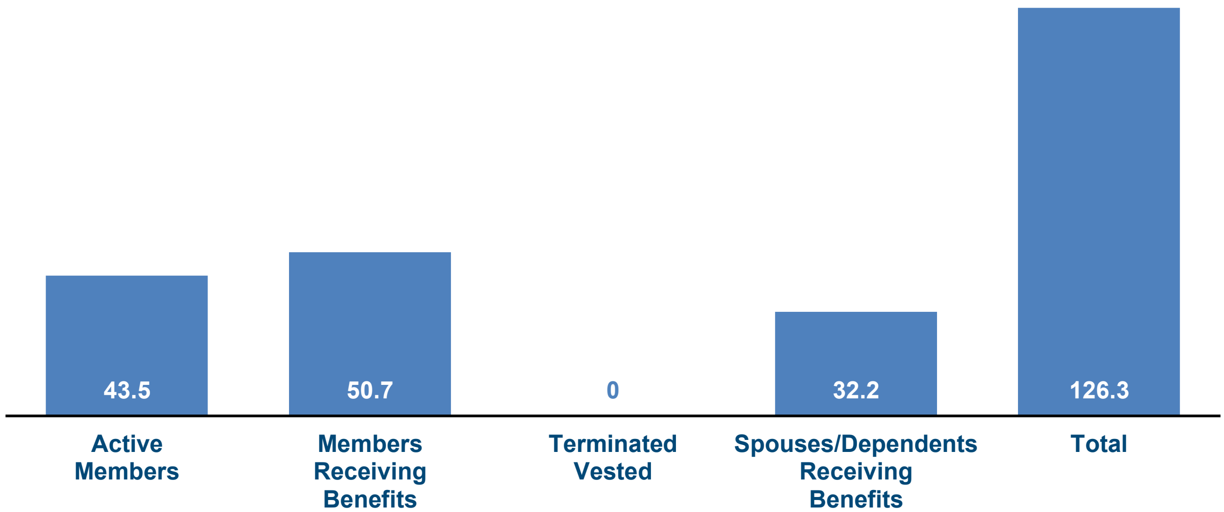
Count	189
Average Age	50.5
Average Service	21.4

The table below illustrates the age and years of service of the active membership:

	Years of Service							
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**
< 25								0
25-29								0
30-34			1					1
35-39			2	7				9
40-44			2	21	11	2		36
45-49			5	12	25	6		48
50-54			2	5	11	7	5	30
55-59			2	14	10	3	10	39
60-64				4	9	4	3	20
65+					3		3	6
Total	0	0	14	63	69	22	21	189

Section I - Executive Summary
Accrued Liability

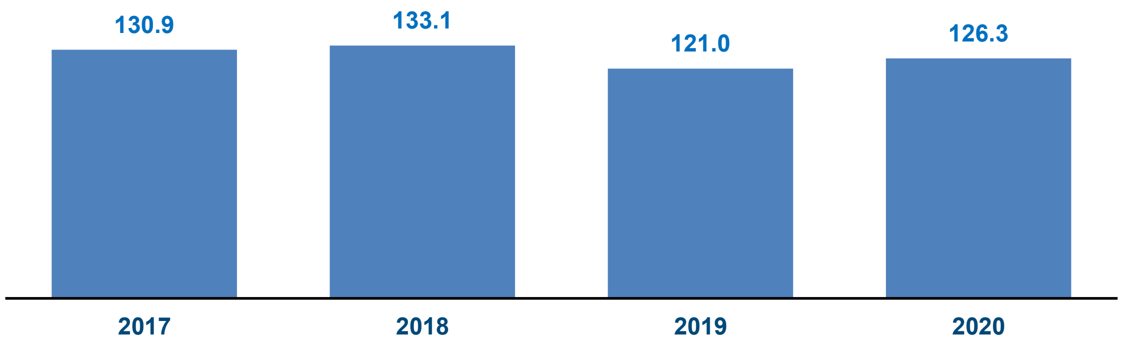
The Accrued Liability ($ millions) as of December 31, 2020 consists of the following pieces:



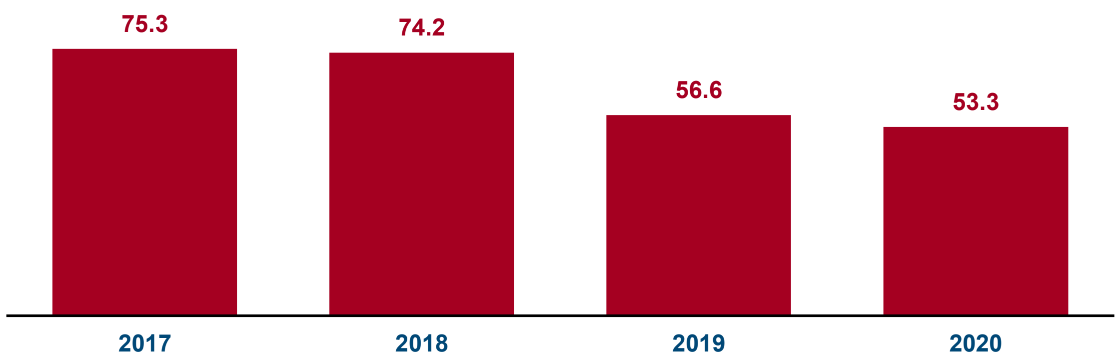
Section I - Executive Summary
Funded Status

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.

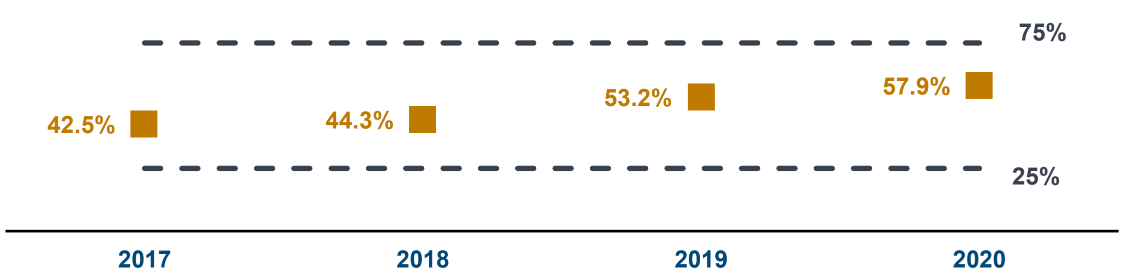
Accrued Liability ($ millions)



Unfunded Accrued Liability ($ millions)



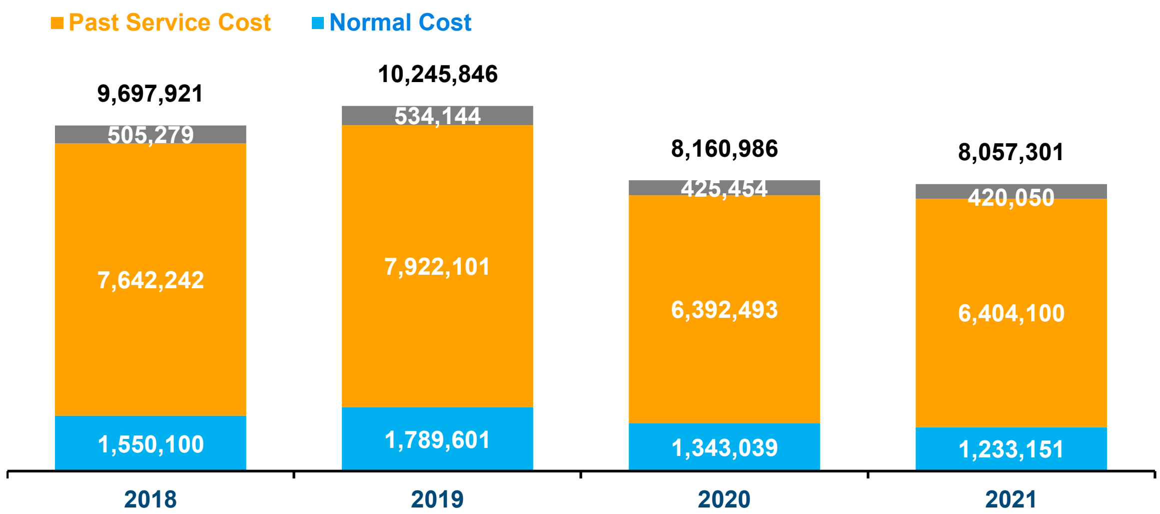
Funded Ratio



Section I - Executive Summary
Actuarially Determined Contribution

The Actuarially Determined Contribution 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.

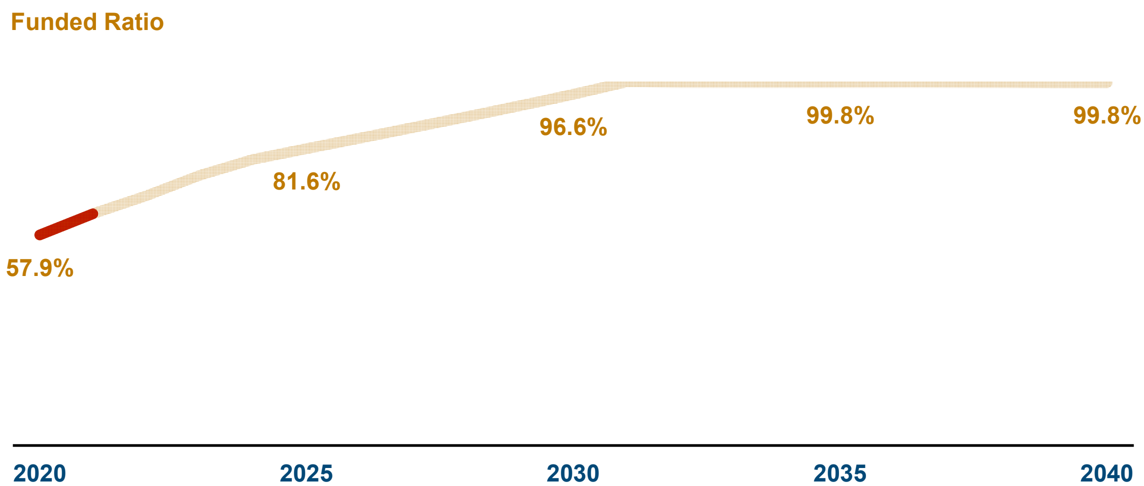
The Actuarially Determined Contribution for fiscal year 2022 is shown graphically below, along with the comparable figures for the preceding four fiscal years. Note that the Normal Cost is relatively consistent from year to year, whereas the Past Service Cost tends to be more volatile since it reflects the impact of asset performance.

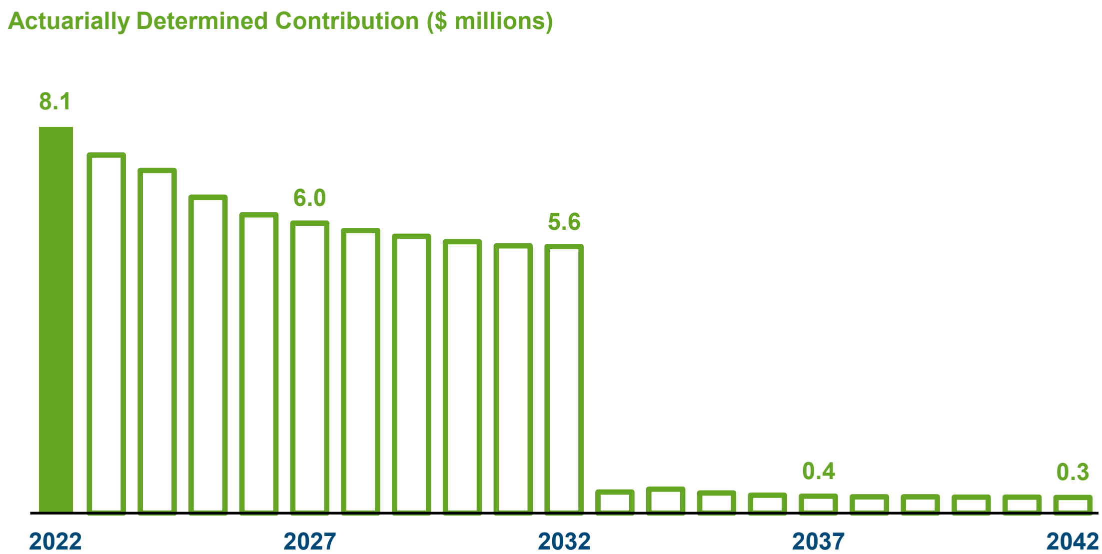


These numbers are presented prior to the required employee contributions.

Section I - Executive Summary
Long-Range Forecast

If the County 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 changes in the plan's funded status and the long-range contribution levels:

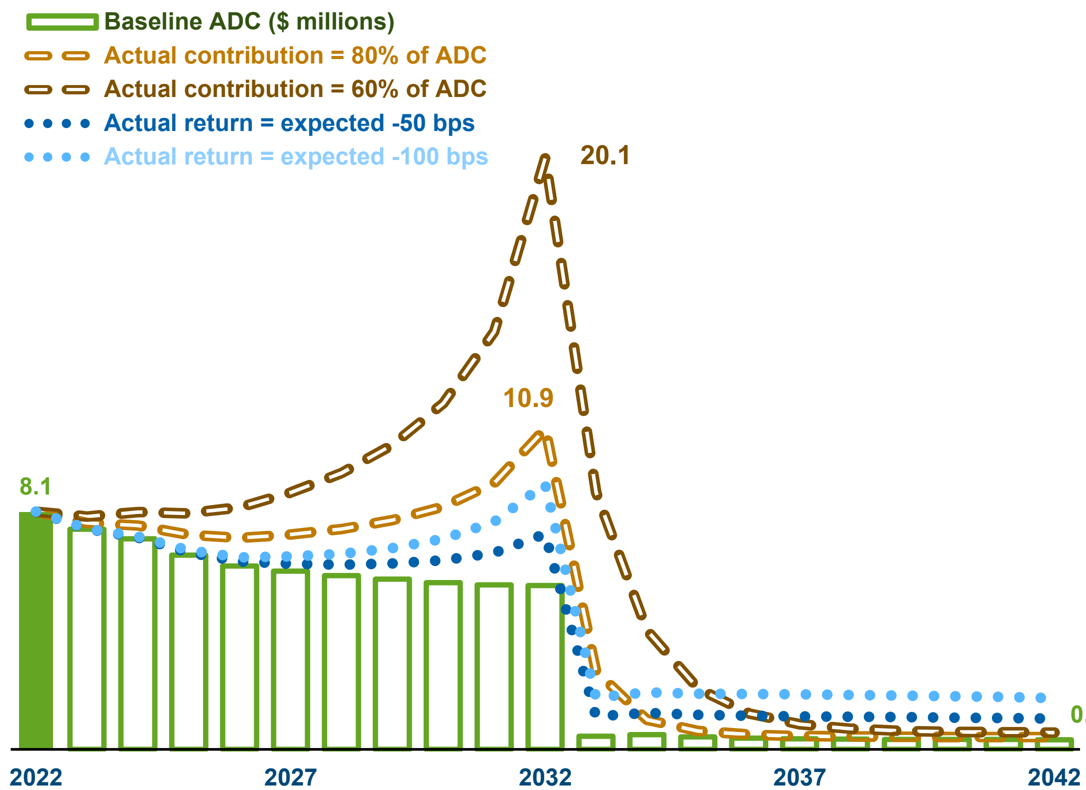




To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

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

Benefits are paid for through a combination of contributions from the County and from employees, and from investment income. If the County pays less than the Actuarially Determined Contribution each year, or if the investments persistently earn less than the assumed interest rate, then the plan's funded status would suffer, and to compensate, the County's contribution levels would be pushed higher. The risks of underfunding 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 County's future contribution levels. Stochastic projections could be prepared that would enable the County 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
Summary of Principal Results

Membership as of	December 31, 2019	December 31, 2020
Active Members	207	189
Members Receiving Benefits	405	407
Spouses/Dependents Receiving Benefits	257	261
Total Count	869	857

Assets and Liabilities as of	December 31, 2019	December 31, 2020
Market Value of Assets	$68,424,491	$81,841,621
Actuarial Value of Assets	64,420,660	73,086,398
Accrued Liabiilty for Active Members	40,299,641	43,455,625
Accrued Liability for Members with Deferred Benefits	0	0
Accrued Liabiilty for Spouses/Dependents Receiving	80,729,739	82,881,492
Total Accrued Liability	121,029,380	126,337,117
Unfunded Accrued Liability	56,608,720	53,250,719
Funded Ratio	53.2%	57.9%

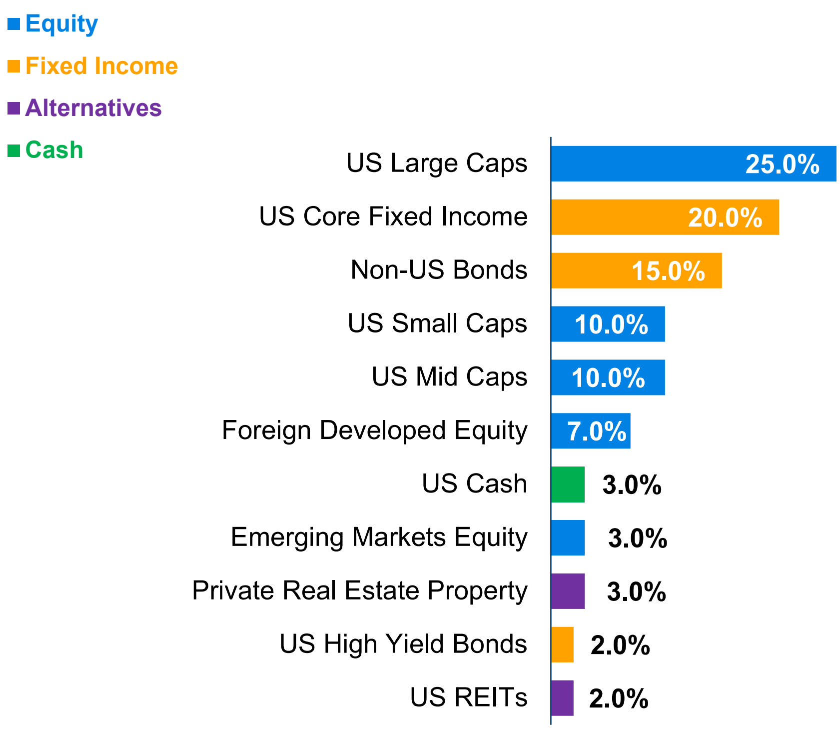
Actuarially Determined Contribution for Fiscal Year	2021	2022
Normal Cost	$1,343,039	$1,233,151
Past Service Cost	6,392,493	6,404,100
Interest	425,454	420,050
Actuarially Determined Contribution	8,160,986	8,057,301

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of December 31, 2019	$68,424,491
County Contributions	7,427,769
Member Contributions	338,862
Net Investment Income	10,853,299
Benefit Payments	(5,044,439)
Administrative Expenses	(158,361)
Market Value as of December 31, 2020	81,841,621
Expected Return on Market Value of Assets, 2020	3,833,856
Market Value (Gain)/Loss, 2020	(7,019,443)
Approximate Rate of Return, 2020*	15.57%

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

Target Asset Allocation as of December 31, 2020



Section II - Plan Assets
B. Development of Valuation Assets

Valuation Date December 31:	2016	2017	2018	2019	2020
1. Beginning of Year Assets					
a) Market Value	$43,833,965	$48,491,075	$57,398,966	$55,610,810	$68,424,491
b) Valuation Assets	45,238,831	50,126,969	55,573,568	58,907,665	64,420,660
2. End of Year MVA	48,491,075	57,398,966	55,610,810	68,424,491	81,841,621
3. Beginning of Year Assets					
a) Net Contributions	7,148,657	6,712,697	6,890,853	7,158,816	7,766,631
b) Net Investment Income = (3d)-(3a)-(3c)	2,690,795	6,826,384	(3,200,530)	11,086,481	10,853,299
c) Benefit Payments, Refunds, and Admin Expenses	(5,182,342)	(4,631,190)	(5,478,479)	(5,431,616)	(5,202,800)
d) Total Additions to Market Value = (2)-(1a)	4,657,110	8,907,891	(1,788,156)	12,813,681	13,417,130
4. Average Valuation Assets = (1b) + .5*[(3a)+(3c)]	46,221,989	51,167,723	56,279,755	59,771,265	65,702,575
5. Expected Income at Valuation Date = 5.5%*(4)	3,004,429	2,814,225	3,095,387	3,287,420	3,613,642
6. Gain (Loss) = (3b)-(5)	(313,634)	4,012,159	(6,295,917)	7,799,061	7,239,657
7. Phased-In Recognition of Investment Return					
a) Current Year: 0.2*(6)	(62,727)	802,432	(1,259,183)	1,559,812	1,447,931
b) First Prior Year	(541,959)	(62,727)	802,432	(1,259,183)	1,559,812
c) Second Prior Year	(112,227)	(541,959)	(62,727)	802,432	(1,259,183)
d) Third Prior Year	465,348	(112,227)	(541,959)	(62,727)	802,432
e) Fourth Prior Year	168,959	465,348	(112,227)	(541,959)	(62,727)
f) Total Recognized Investment Gain	(82,606)	550,867	(1,173,664)	498,375	2,488,265
8. Change in Valuation Assets = (3a)+(3c)+(5)+(7f)	4,888,138	5,446,599	3,334,097	5,512,995	8,665,738
9. End of Year Assets					
a) Market Value = (2)	48,491,075	57,398,966	55,610,810	68,424,491	81,841,621
b) Valuation Assets = (1b) + (8)	50,126,969	55,573,568	58,907,665	64,420,660	73,086,398
c) Difference Between Market & Valuation Assets	(1,635,894)	1,825,398	(3,296,855)	4,003,831	8,755,223
10. Recognized Rate of Return = [(5)+(7f)]/(4)	6.32%	6.58%	3.41%	6.33%	9.29%
11. Market Rate of Return = 2*(3b)/[(1a)+(2)-(3b)]	6.00%	13.78%	-5.51%	19.63%	15.57%

Section III - Development of Contribution
A. Summary of Liabilities

We have calculated the Accrued Liability separately for six groups of County employees, who are eligible for different OPEB benefits. In all cases, the Accrued Liability only reflects benefits that are paid for by the County, taking into account any implicit rate subsidies.

	Dispatchers	General County Billable	General County Non-Billable	Sheriff Billable	Sheriff Non-Billable	SubTotal Others	County Agency	Total
Current active members								
Members Under Age 65	$477,823	$1,223,440	$1,637,061	$1,952,288	$3,211,285	$8,501,897	$355,810	$8,857,707
Members Over Age 65	550,357	3,873,969	5,860,377	2,135,046	3,518,955	15,938,704	1,183,331	17,122,035
Spouses/Dependents Under Age 65	338,174	577,088	909,447	1,930,340	3,308,348	7,063,397	257,649	7,321,046
Spouses/Dependents Over Age 65	358,155	1,489,273	2,838,549	1,751,434	2,987,546	9,424,957	729,880	10,154,837
Total	1,724,509	7,163,770	11,245,434	7,769,108	13,026,134	40,928,955	2,526,670	43,455,625
Current members receiving benefits and terminated members who are entitled to deferred benefits								
Members Under Age 65	389,669	1,434,968	1,731,303	1,718,874	3,697,619	8,972,433	1,088,947	10,061,380
Members Over Age 65	1,040,422	7,710,622	16,333,541	2,685,998	10,175,498	37,946,081	2,664,307	40,610,388
Spouses/Dependents Under Age 65	353,379	1,074,949	1,582,263	2,048,153	3,920,528	8,979,272	1,056,032	10,035,304
Spouses/Dependents Over Age 65	383,633	3,190,082	7,212,321	2,368,322	7,471,333	20,625,691	1,548,729	22,174,420
Total	2,167,103	13,410,621	26,859,428	8,821,347	25,264,978	76,523,477	6,358,015	82,881,492
Total Accrued Liability	3,891,612	20,574,391	38,104,862	16,590,455	38,291,112	117,452,432	8,884,685	126,337,117

Accrued Liability Sensitivity at December 31, 2020

	1% Decrease	Baseline	1% Increase
Discount Rate	145,683,257	126,337,117	110,787,235
Trend Rate	110,729,639	126,337,117	145,728,242

Section III - Development of Contribution
B. Actuarially Determined Contribution

The Actuarially Determined Contribution (ADC) for the OPEB program consists of three pieces: a **Normal Cost** (the cost of benefits earned each year should be accrued in that year), **Past Service Cost** (a catch-up accrual to amortize the Unfunded Accrued Liability) and Interest to reflect the timing of the contribution relative to the valuation date.

	Dispatchers	General County Billable	General County Non-Billable	Sheriff Billable	Sheriff Non-Billable	SubTotal Others	County Agency	Total
Accrued Liability	$3,891,612	$20,574,391	$38,104,862	$16,590,455	$38,291,112	$117,452,432	$8,884,685	$126,337,117
Actuarial Value of Assets	2,624,037	11,959,981	22,215,330	10,402,051	20,596,051	67,797,450	5,288,948	73,086,398
Unfunded Accrued Liability	1,267,575	8,614,410	15,889,532	6,188,404	17,695,061	49,654,982	3,595,737	53,250,719
Funded Ratio	67.43%	58.13%	58.30%	62.70%	53.79%	57.72%	59.53%	57.9%
Amortization Period	11	11	11	11	11	11	11	11
Amortization Growth Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Past Service Cost	152,443	1,035,996	1,910,925	744,237	2,128,064	5,971,665	432,435	6,404,100
Normal Cost	66,806	154,100	258,092	246,949	429,939	1,155,886	77,265	1,233,151
Interest	12,059	65,455	119,296	54,515	140,691	392,016	28,034	420,050
ADC for FY 2022*	231,308	1,255,551	2,288,313	1,045,701	2,698,694	7,519,567	537,734	8,057,301

*Prior to Employee Contributions

Section III - Development of Contribution
C. Valuation Results Using Uniform Actuarial Assumptions

The State of Michigan released Uniform Actuarial Assumptions that must be used in reporting liabilities for public Retiree Health Care plans. The following results were determined using separate medical trend tables for Pre/Post Medicare, beginning with 7.50% for Pre-Medicare and 5.75% for Post-Medicare. Both trend rates are assumed to decrease by 0.25% per year, until the ultimate rate of 4.50%. All other assumptions match those disclosed in Appendix B.

Using the Uniform Actuarial Assumptions, the key valuation results are:

	Dispatchers	General County Billable	General County Non-Billable	Sheriff Billable	Sheriff Non-Billable	SubTotal Others	County Agency	Total
Accrued Liability	$4,388,978	$21,580,082	$39,735,305	$18,923,091	$42,342,808	$126,970,264	$9,464,480	$136,434,744
Actuarial Value of Assets	2,624,037	11,959,981	22,215,330	10,402,051	20,596,051	67,797,450	5,288,948	73,086,398
Unfunded Accrued Liability	1,764,941	9,620,101	17,519,975	8,521,040	21,746,757	59,172,814	4,175,532	63,348,346
Funded Ratio	59.79%	55.42%	55.91%	54.97%	48.64%	53.40%	55.88%	53.57%
Amortization Period	11	11	11	11	11	11	11	11
Amortization Growth Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Past Service Cost	212,257	1,156,944	2,107,007	1,024,767	2,615,333	7,116,308	502,163	7,618,471
Normal Cost	79,062	164,859	275,768	292,934	512,432	1,325,055	82,336	1,407,391
Interest	16,023	72,699	131,053	72,474	172,026	464,275	32,147	496,422
ADC for FY 2022*	307,342	1,394,502	2,513,828	1,390,175	3,299,791	8,905,638	616,646	9,522,284

*Prior to Employee Contributions

Section III - Development of Contribution
D. Long Range Forecast

This forecast is based on the results of the December 31, 2020 actuarial valuation and assumes that the County 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	County Contributions	Member Contributions	Benefit Payments	Net Cash Flows
12/31/2020	$126,337,117	$73,086,398	$53,250,719	57.9%	2021	$8,057,301	$0	($5,668,039)	$2,389,262
12/31/2021	128,761,000	82,041,000	46,720,000	63.7%	2022	7,462,000	0	(5,793,000)	1,669,000
12/31/2022	131,151,000	90,012,000	41,139,000	68.6%	2023	7,144,000	0	(6,044,000)	1,100,000
12/31/2023	133,378,000	99,146,000	34,232,000	74.3%	2024	6,587,000	0	(6,291,000)	296,000
12/31/2024	135,431,000	106,415,000	29,016,000	78.6%	2025	6,220,000	0	(6,487,000)	(267,000)
12/31/2025	137,326,000	112,057,000	25,269,000	81.6%	2026	6,047,000	0	(6,787,000)	(740,000)
12/31/2026	138,894,000	117,425,000	21,469,000	84.5%	2027	5,892,000	0	(7,141,000)	(1,249,000)
12/31/2027	140,060,000	122,488,000	17,572,000	87.5%	2028	5,774,000	0	(7,466,000)	(1,692,000)
12/31/2028	140,854,000	127,313,000	13,541,000	90.4%	2029	5,657,000	0	(7,790,000)	(2,133,000)
12/31/2029	141,236,000	131,921,000	9,315,000	93.4%	2030	5,574,000	0	(7,983,000)	(2,409,000)
12/31/2030	141,332,000	136,488,000	4,844,000	96.6%	2031	5,556,000	0	(8,236,000)	(2,680,000)
12/31/2031	141,092,000	141,019,000	73,000	99.9%	2032	441,000	0	(8,552,000)	(8,111,000)
12/31/2032	140,433,000	140,211,000	222,000	99.8%	2033	499,000	0	(8,937,000)	(8,438,000)
12/31/2033	139,240,000	139,014,000	226,000	99.8%	2034	418,000	0	(9,265,000)	(8,847,000)
12/31/2034	137,560,000	137,323,000	237,000	99.8%	2035	375,000	0	(9,398,000)	(9,023,000)
12/31/2035	135,597,000	135,351,000	246,000	99.8%	2036	353,000	0	(9,566,000)	(9,213,000)
12/31/2036	133,322,000	133,067,000	255,000	99.8%	2037	342,000	0	(9,663,000)	(9,321,000)
12/31/2037	130,803,000	130,539,000	264,000	99.8%	2038	336,000	0	(9,650,000)	(9,314,000)
12/31/2038	128,144,000	127,872,000	272,000	99.8%	2039	333,000	0	(9,710,000)	(9,377,000)
12/31/2039	125,266,000	124,986,000	280,000	99.8%	2040	335,000	0	(9,666,000)	(9,331,000)

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

Valuation Date	Actuarial Value of Assets	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
December 31, 2014	$40,476,574	$138,086,777	$97,610,203	29.3%
December 31, 2015	45,238,831	135,145,366	89,906,535	33.5%
December 31, 2016	50,126,969	127,617,401	77,490,432	39.3%
December 31, 2017	55,573,568	130,875,639	75,302,071	42.5%
December 31, 2018	58,907,665	133,120,326	74,212,661	44.3%
December 31, 2019	64,420,660	121,029,380	56,608,720	53.2%
December 31, 2020	73,086,398	126,337,117	53,250,719	57.9%

Section III - Development of Contribution
F. History of County Contributions

Fiscal Year	Actuarially Determined Contribution	Actual County Contribution	Contribution Deficiency (Excess)
2013	N/A	N/A	N/A
2014	N/A	N/A	N/A
2015	N/A	N/A	N/A
2016	N/A	N/A	N/A
2017	$8,693,115	$6,308,394	$2,384,721
2018	9,476,760	6,105,285	3,371,475
2019	9,697,921	6,797,410	2,900,511
2020	10,245,846	7,427,769	2,818,077
2021	8,160,986	TBD	TBD
2022	8,057,301	TBD	TBD

Section IV - Membership Data
A. Statistics of Active Membership

		As of December 31, 2019	As of December 31, 2020
Number of Active Members	Dispatchers	7	7
	General County Billable	46	39
	General County Non-Billable	65	63
	Sheriff Billable	28	25
	Sheriff Non-Billable	47	42
	SubTotal Others	**193**	**176**
	County Agency	14	13
	Total	**207**	**189**
Average Age	Dispatchers	44.9	45.9
	General County Billable	53.7	54.0
	General County Non-Billable	53.0	53.5
	Sheriff Billable	45.7	46.1
	Sheriff Non-Billable	44.6	45.1
	County Agency	52.3	53.3
	Total	50.0	50.5
Average Service	Dispatchers	16.3	17.3
	General County Billable	23.6	23.8
	General County Non-Billable	22.3	23.1
	Sheriff Billable	18.7	19.2
	Sheriff Non-Billable	17.7	18.7
	County Agency	21.1	20.4
	Total	20.8	21.4

Section IV - Membership Data
B. Information on Members Receiving Benefits

	As of December 31, 2019	As of December 31, 2020
Terminated Members with Deferred Benefits		
Number	0	0
Average Age	N/A	N/A
Members Receiving Benefits		
Number		
Dispatchers	12	10
General County Billable	75	76
General County Non-Billable	170	171
Sheriff Billable	25	29
Sheriff Non-Billable	100	96
SubTotal Others	**382**	**382**
County Agency	23	25
Total	**405**	**407**
Average Age		
Dispatchers	64.1	65.6
General County Billable	66.7	67.3
General County Non-Billable	72.1	72.2
Sheriff Billable	60.4	60.3
Sheriff Non-Billable	65.7	66.4
County Agency	65.8	65.9
Total	68.2	68.5

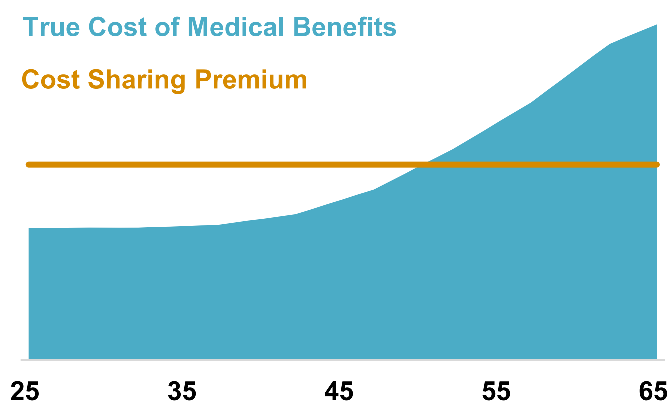
Section IV - Membership Data
B. Information on Members Receiving Benefits

	As of December 31, 2019	As of December 31, 2020
Spouses/Dependents Receiving Benefits		
Number		
Dispatchers	6	6
General County Billable	38	38
General County Non-Billable	95	97
Sheriff Billable	21	24
Sheriff Non-Billable	81	78
SubTotal Others	**241**	**243**
County Agency	16	18
Total	**257**	**261**
Average Age		
Dispatchers	60.8	61.8
General County Billable	66.3	66.9
General County Non-Billable	71.3	71.7
Sheriff Billable	58.3	59.2
Sheriff Non-Billable	63.1	64.0
County Agency	68.4	66.9
Total	66.5	67.0

Section V - Healthcare Information
A. Introduction

In many cases, the cost sharing premium is lower than the true cost of providing the medical benefits, for two reasons:

- The cost sharing premium is usually a fixed amount such as a COBRA premium that does not take into account the age of the retiree and his/her dependents. Since medical costs generally increase with age, the cost sharing premium is often lower than the true cost of the medical benefits:



- The cost sharing premium is usually a blended rate that takes into account the cost of medical benefits for active employees as well as retirees. Medical costs are generally higher for retirees than for active employees of the same age. This means that, again, the cost sharing premium is often lower than the true cost of the medical benefits.

Because of these two factors, a retiree who is paying 100% of the cost sharing premium is most likely not paying 100% of the true cost of the medical benefits. This situation is known as an "implicit rate subsidy." GASB 74 and 75 require the plan sponsor to measure the liability for this subsidy; that is, the difference between the true cost of the medical benefits and the cost sharing premiums paid by the retiree. To do this, our valuation consists of several steps:

First, we calculate the liability for the true cost of medical benefits expected to be received by retirees and their dependents. This liability is based on factors developed by Milliman's health actuaries that reflect how the cost of medical benefits varies by age and gender, as well as the other assumptions discussed in Appendix B. We term this amount the "gross liability."

Next, we calculate the liability for the future premiums expected to be paid by the retiree for their own and their dependents' coverage. This liability is based on the current premium rates without adjustment for age or gender. It also is based on the terms of the Retiree Health Care Trust – different retirees pay different percentages based on their union, date of retirement, age at retirement, and other factors. We term this amount the "offset liability."

Finally, the net liability for the County is calculated as the difference between the gross liability and the offset liability.

Section V - Healthcare Information
B. Current Premiums

Monthly 2021 Pre-Medicare Health Insurance Premiums

Description	Single	Employee & Spouse	Employee & Child(ren)	Family
BCBSM PPO 1, $10 Rx	$859.67	$2,149.16	$1,719.38	$2,579.03
BCBSM PPO 1, $10/$20/$30 Rx	$778.68	$1,946.76	$1,557.45	$2,336.14
BCBSM PPO 1, $10/$40 Rx	$745.13	$1,862.85	$1,490.32	$2,235.43
BCBSM PPO 2, $10/$20/$30 Rx	$730.00	$1,825.04	$1,460.03	$2,190.07
BCBSM PPO 2, $10/$40 Rx	$696.45	$1,741.13	$1,392.90	$2,089.36
BCBSM PPO 3, $10/$40 Rx	$620.70	$1,551.79	$1,241.41	$1,862.12
BCBSM PPO 3, $10/$20/$30 Rx	$654.25	$1,635.70	$1,308.54	$1,962.83
BCBSM PPO 4, $10/$40 Rx	$574.95	$1,437.37	$1,149.88	$1,724.82
BCBSM PPO 5, $10/$40 Rx	$558.44	$1,396.11	$1,116.88	$1,675.30
BCBSM PPO 6, $10/$40 Rx	$529.84	$1,324.55	$1,059.64	$1,589.45
BCBSM PPO 3R, 50% ($5/$50) Rx	$576.16	$1,440.40	$1,152.32	$1,728.50
BCBSM PPO 6R, 50% ($5/$50) Rx	$509.29	$1,273.25	$1,018.56	$1,527.90
BCBSM FB3 w/H.S.A., Integrated Rx	$421.74	$1,054.31	$843.46	$1,265.20
BCBSM EPO 1, $2 Rx	$908.12	$2,319.40	$1,855.53	$2,783.28
(Formerly Paramount & Blue Care Network)				
BCBSM EPO 2, $10/$20/$30 Rx	$797.66	$1,994.16	$1,595.34	$2,392.99
(Formerly Blue Care Network)				
BCBSM EPO 1, $10/$20 Rx	$878.65	$2,196.56	$1,757.26	$2,635.87
(Formerly Paramount)				
BCBSM EPO 3, $10/$20/$30 Rx	$786.71	$1,966.78	$1,573.45	$2,360.18
(Formerly Paramount)				
BCBSM CMM 1, $5 Rx	$1,013.27	$2,533.17	$2,026.55	$3,039.80
BCBSM CMM 2, $2 Rx	$1,023.54	$2,558.85	$2,047.09	$3,070.62
BCBSM CMM 3, $2 Rx	$1,008.10	$2,552.21	$2,041.78	$3,062.68
BCBSM CMM 4, $10 Rx	$958.98	$2,429.37	$1,943.52	$2,915.28

Monthly 2021 Post-Medicare Health Insurance Premiums

Description	Single	Employee & Spouse
Plan F $100 Deductible, $10 Rx	$567.90	$1,135.80
Plan F $100 Deductible, $10/$20/$30 Rx	$540.21	$1,080.42
Plan F, $100 Deductible, $10/$40 Rx	$454.89	$909.78
Plan F, $100 Deductible, 50% ($5/$50) Rx	$417.14	$834.28
Plan F, $150 Deductible, 50% ($5/$50) Rx	$412.14	$824.28
Plan F, $0 Deductible, $2 Rx	$635.47	$1,270.94
Plan F, $0 Deductible, $10 Rx	$578.90	$1,157.80
Plan F, $0 Deductible, $10/$20/$30 Rx	$551.21	$1,102.42
Plan F, $100 Deductible, $5 Rx	$599.30	$1,198.60
Plan F, $50 Deductible, $2 Rx	$628.47	$1,256.94
Plan F, $100 Deductible, $2 Rx	$624.47	$1,248.94

Section V - Healthcare Information
B. Current Premiums

Monthly 2021 Dental and Vision Insurance Premiums

Description	Single	Employee & Spouse	Employee & Child(ren)	Family
BCBSM Dental 1 (75%/25% w/ $800 Max Benefit)	$28.94	$73.80	$57.88	$89.71
BCBSM Dental 2 (100%/75%/50% w/ $1000 Max Benefit)	$25.74	$65.64	$51.48	$79.79
BCBSM Vision 1 (24 Month Exam, Lenses & Frames)	$2.60	$6.63	$5.20	$8.06
BCBSM Vision 2 (12 Month Exam, Lenses & Frames)	$3.44	$8.77	$6.88	$10.66
BCBSM Vision 3 (12 Month Exam & Lenses, 24 Month Frames)	$3.39	$8.64	$6.78	$10.51

Section V - Healthcare Information
C. Expected Healthcare Costs

Milliman's Health Cost Guidelines were used to develop the expected true cost of healthcare benefits by age and gender, separately for employees and spouses. Representative healthcare cost factors are shown in the table below. These factors were then applied to the plan's healthcare rates for the year begininng December 31, 2020 to arrive at the expected annual per capita claims costs for a 65-year-old, which are also shown below.

Medical

	Employee		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
45	0.34179	0.53249	0.37227	0.55698
50	0.45427	0.62559	0.47972	0.64484
55	0.59419	0.73480	0.61293	0.74828
60	0.76049	0.86000	0.77153	0.86715
65	1.00000	1.00000	1.00000	1.00000
70	1.14359	1.09802	1.14359	1.09802
75	1.27622	1.17791	1.27622	1.17791
80	1.35656	1.21936	1.35656	1.21936
85	1.35321	1.19131	1.35321	1.19131
90	1.32065	1.14193	1.32065	1.14193

Age 65 per capita claims cost

Pre-Medicare	$19,190.01	$17,383.60	$20,127.04	$18,313.82
Medicare	5,936.84	5,748.99	5,936.84	5,748.99

Dental

	Employee		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
45	0.63678	0.74956	0.65542	0.76271
50	0.69790	0.80744	0.71343	0.81758
55	0.79512	0.88342	0.80572	0.88958
60	0.90267	0.95676	0.90769	0.95906
65	1.00000	1.00000	1.00000	1.00000
70	1.07940	1.02059	1.07513	1.01950
75	1.07940	1.02059	1.07513	1.01950
80	1.07940	1.02059	1.07513	1.01950
85	1.07940	1.02059	1.07513	1.01950
90	1.07940	1.02059	1.07513	1.01950

Age 65 per capita claims cost

Pre-Medicare	$436.43	$426.51	$460.07	$450.11
Medicare	430.20	420.42	453.50	$443.68

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.

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 dollar amount. 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 amount over 30 years beginning December 31, 2001.

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. Where consistent with the terms of the plan, actuarial assumptions have utilized the assumptions for the Monroe County Employees Retirement System (MCERS) as provided in the December 31, 2019 Actuarial Valuation report.

Interest Rate 5.50%

Inflation 2.30%

Salary Scale MCERS merit and longevity for all employees:

Service	Base	Merit and Longevity	Total
0-8	2.25%	2.50%	4.75%
9+	2.25%	0.50%	2.75%

Medical Trend

Pre-Medicare: 4.6% graded down to 3.7% over 54 years
Post-Medicare: 5.5% graded down to 3.7% over 54 years

Dental Trend

Pre-Medicare: 5.0% graded down to 3.7% over 54 years
Post-Medicare: 5.0% graded down to 3.7% over 54 years

Mortality

Sheriff's Office & Dispatchers

PubS-2010 Mortality Table with generational projection per the MP-2019 (prior: MP-2018) scale, with employee rates before benefit commencement and healthy, contingent survivor, or disabled annuitant rates after benefit commencement. This assumption includes a margin for improvements in longevity beyond the valuation date.

General County & County Agency

PubG-2010 Mortality Table with generational projection per the MP-2019 (prior: MP-2018) scale, with employee rates before benefit commencement and healthy, contingent survivor, or disabled annuitant rates after benefit commencement. This assumption includes a margin for improvements in longevity beyond the valuation date.

Appendix B - Actuarial Assumptions

Disability*

Age	Male	Female
20	0.0702%	0.0612%
25	0.0702%	0.0612%
30	0.0702%	0.0612%
35	0.0702%	0.0612%
40	0.1809%	0.3936%
45	0.2385%	0.2430%
50	0.4428%	0.3582%
55	0.8037%	0.4596%
60	1.2726%	0.6102%

Turnover*

Age	Service	Sheriff's Office & Dispatchers	General County & County Agency
All	0	22.50%	15.00%
	1	13.50%	13.00%
	2	10.50%	12.00%
	3	10.50%	10.00%
	4	10.50%	8.00%
25	5+	3.00%	6.12%
30		3.00%	6.12%
35		2.00%	5.44%
40		2.00%	5.10%
45		1.75%	3.40%
50		1.00%	3.40%
55		0.50%	0.85%
60		0.00%	0.85%

Retirement*

Age	Service	Sheriff's Office & Dispatchers	General County & County Agency
50-64	20-24	20.00%	N/A
	25	60.00%	N/A
	26-29	50.00%	N/A
	30+	100.00%	N/A
55		N/A	37.50%
56-59		N/A	12.50%
60-62		N/A	20.00%
63-64		N/A	25.00%
65		100.00%	25.00%
66-69		100.00%	30.00%
70		100.00%	100.00%

*MCERS rates of disability, turnover, and retirement

Appendix B - Actuarial Assumptions

Future Retiree Coverage

100% of active participants are assumed to elect health insurance coverage at retirement. 80% of current eligible employees are assumed to elect dental and vision insurance coverage at retirement.

Future Dependent Coverage

Percent electing dual coverage at retirement:

	Sheriff's Office & Dispatchers	General County & County Agency
Males	90%	85%
Females	50%	30%

Spouses are assumed to be the same age as retirees.

Current Retiree Coverage

Actual retiree participation for the health insurance plan and dental insurance program. 80% retiree participation for the vision insurance program.

Valuation of Dental Benefits

It is assumed that there is no implicit rate subsidy associated with these benefits.

Valuation of Benefits for Children

Benefits attributed to children have been excluded from this valuation for all groups, as they were determined to be de minimis.

Valuation of Medical Insurance Buyouts

Benefits attributed to medical insurance buyouts have been excluded from this valuation for all groups, as they were determined to be de minimis.

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.

Plan Eligibility

Members hired before the applicable dates below are eligible for retiree benefits.

	Medical and Dental	Life Insurance
General County		
Non-Union Other	10/28/2003	01/01/2003
Non-Union Management	10/29/2003	01/01/2003
Elected Officials-Non-Union	10/30/2003	01/01/2003
Michigan Nurses Association Unit I	10/31/2003	08/28/2007
UAW/Friend of the Court	11/01/2003	03/23/2004
UAW/Probate Court	11/02/2003	08/24/2004
United Steelworkers/Youth Center	06/14/2005	01/01/2011
POAM/District Court Units I and II	09/02/2005	01/01/2011
POAM/Assistant Prosecutors	09/13/2005	01/01/2011
AFSCME General/District Court	07/25/2006	07/25/2006
AFSCME Youth Center	07/25/2006	07/25/2006
UAW/Youth Center	08/28/2007	08/28/2007
County (Non-Union) Part-time	N/A	N/A
County Agency		
Utility Workers of America/County Agency	01/01/2008	Available
Non-Union/County Agency	10/28/2003	01/01/2003
Sheriff's Office		
POAM/Sheriff Deputies	07/01/2003	07/01/2003
POLC/Command Officers	07/01/2003	07/01/2003
POAM/Correctional Officers Unit I	01/01/2011	12/11/2007
POAM/Correctional Officers Unit II	01/01/2011	02/12/2008
Dispatchers		
POLC/Communication Officers	10/01/2007	10/01/2007
POLC/Communication Supervisors	10/01/2007	10/01/2007

Retirement Eligibility

General County & County Agency: Age 55 with 30 years of service or age 60 with 8 years of service.

Sheriff's Office & Dispatchers: Age 50 with 25 years of service or age 60 with 8 years of service.

Appendix C - Summary of Plan Provisions

Plan Benefits	County paid medical, dental and vision coverage for retiree and spouse.
Spouse Coverage	General County & County Agency: For members who retire on or after 12/31/1996. Coverage to the spouse continues upon the retiree's death, provided the spouse is receiving the deceased retiree's retirement allowance. The county pays 50% plus 2.27% for each year in excess of 8 years of service at retirement. Sheriff's Office & Dispatchers: For members who retire on or after 1/1/2001. Coverage to the spouse continues upon the retiree's death, provided the spouse is receiving the deceased retiree's retirement allowance. The county pays 50% plus 2.94% for each year of service in excess of 8 years at retirement.
Disability Eligibility	Disabled retirees receive coverage.
Death Eligibility	Survivors of deceased employees receive coverage.
Cost Sharing	All eligible groups mirror active employee cost sharing.
Retiree Life Insurance	Retirees are also provided Life Insurance in the amount of $10,000 for Department Heads, and $4,000 for all other Retirees.

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.

Benefit Payments - The monetary or in-kind benefits or benefit coverage to which participants may be entitled under a post-employment benefit plan, including health care benefits and life insurance not provided through a pension plan.

Discount Rate - GASB 75 requires that the interest rate used to discount future benefit payments back to the present day be based on the expected rate of return on any investments set aside to pay for these benefits. If no funds are set aside for this purpose, the discount rate is based on a municipal bond index at the measurement date.

Implicit Rate Subsidy - This is the excess of the expected health care cost per retired member over the gross premium charged for that coverage. In most cases, the gross premium charged to a retiree is less than the expected health care cost, since the premium is a blended average rate that does not fully reflect the above-average, increasing costs by age that apply during retirement.

Appendix D - Glossary

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

Other Post-Employment Benefits ("OPEB") - This refers to post-employment benefits other than pension benefits, including healthcare benefits regardless of the type of plan that provides them, and all other post-employment benefits provided separately from a pension plan, excluding benefits defined as termination benefits or offers.

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.

Substantive Plan - The terms of the postretirement benefit plan as understood by an employer that provides postretirement benefits and the employees who render services in exchange for those benefits. The substantive plan is the basis for the accounting for the plan.

Trend Rate - This is the rate at which medical or dental costs are assumed to increase over time.

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