SAGINAW CHARTER TOWNSHIP
RETIREE MEDICAL PLAN

Actuarial Valuation as of April 1, 2021
To Determine Funding for Fiscal Year 2021-22

Prepared by

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Consulting Actuary

March 25, 2022

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Certification

We have performed an actuarial valuation of the Plan as of April 1, 2021 to determine funding for fiscal year 2021-22. 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 Township. 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 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.

The valuation results were developed using models employing standard actuarial techniques. In addition to the models described previously, Milliman has developed certain models to develop the expected long term rate of return on assets and estimate the claim costs and 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). The models, including all input, calculations, and output may not be appropriate for any other purpose.

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, FSA
Consulting Actuary

Section I - Executive Summary
Changes Since the Prior Valuation

Demographic Changes and Plan Experience

From April 1, 2019 to April 1, 2021, the overall membership increased from 170 to 180. The number of active members decreased from 101 to 90, and the total number of members and spouses/dependents receiving benefits increased from 69 to 90.

The average age of active members decreased slightly from 52.2 to 50.8, and the average age of members receiving benefits increased from 66.1 to 66.6.

We updated expected claims costs based on our analysis of the claims experience and premium information that was provided to us for this valuation. Per capita healthcare costs did not increase as much as expected while spouse premiums increased more than expected, which decreased liabilities by about $953,000.

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

We updated the pre-65 medical trend rate to an initial inflation rate of 5.2%, grading down to an ultimate inflation rate of 3.6%, over a period of 54 years, and the post-65 medical trend rate to an initial inflation rate of 5.40%, grading down to an ultimate inflation rate of 3.7%, over a period of 53 years. This assumption no longer includes a provision for the excise tax which was eliminated as part of the SECURE Act.

Decrements were updated to reflect the latest Municipal Employees' Retirement System of Michigan (MERS) valuation assumptions. Mortality was updated to the Pub-2010 Mortality Table for Employees and Healthy Annuitants with generational projection of future improvements per the MP-2021 Ultimate scale. PubG-2010 was used for DPS and Non-Union employees and PubS-2010 was used for Police employees.

The above changes, in combination, decreased the liabilities by about $136,000.

Other Significant Changes

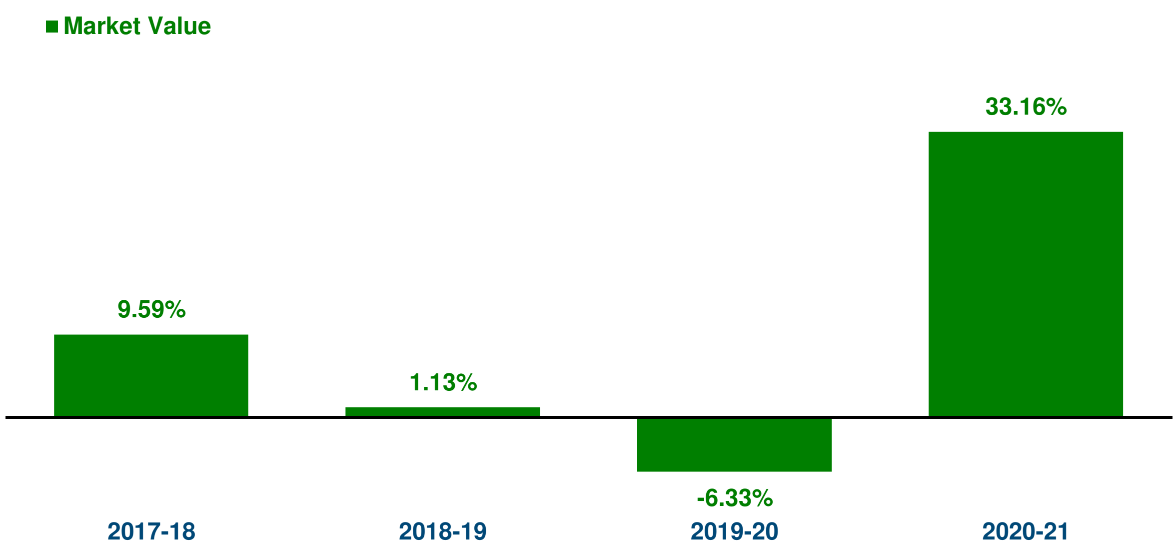
Given the substantial uncertainty regarding the impact of COVID-19 on plan costs, including whether the pandemic will increase or decrease costs during the term of our projections, we have chosen not to make an adjustment in the expected plan costs. It is possible that the COVID-19 pandemic could have a material impact on the projected 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.

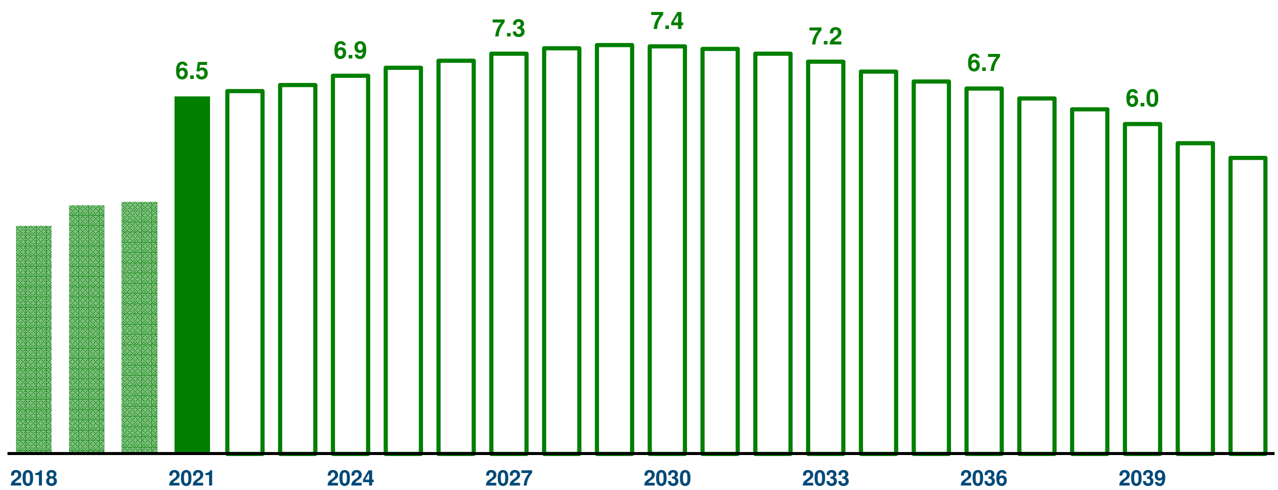
	Market
Value as of April 1, 2019	$4,535,419
Township Contributions	695,428
Investment Income	(290,768)
Benefit Payments and Administrative Expenses	(343,949)
Value as of April 1, 2020	4,596,130
Township Contributions	705,780
Investment Income	1,582,726
Benefit Payments and Administrative Expenses	(352,146)
Value as of April 1, 2021	6,532,490

For fiscal year 2019-20, the plan's assets earned -6.33% on a Market Value basis. The actuarial assumption for this period was 6.00%; the result is an asset loss of about $0.6 million. For fiscal year 2020-21, the plan's assets earned 33.16% on a Market Value basis. The actuarial assumption for this period was 6.00%; the result is an asset gain of about $1.3 million. Historical rates of return are shown in the graph below.

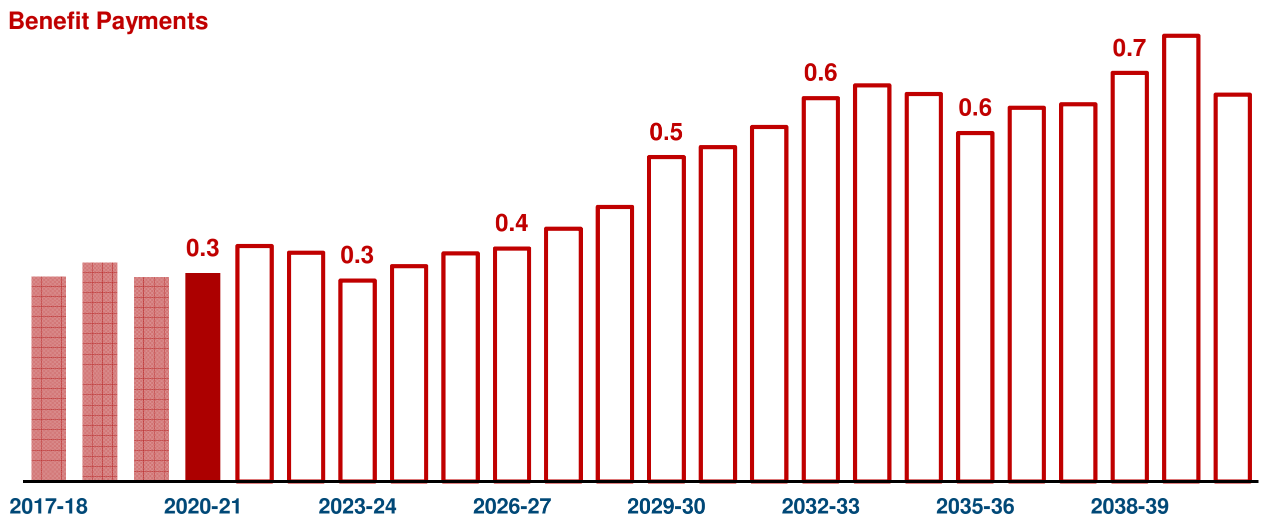


Section I - Executive Summary
Assets (continued)

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

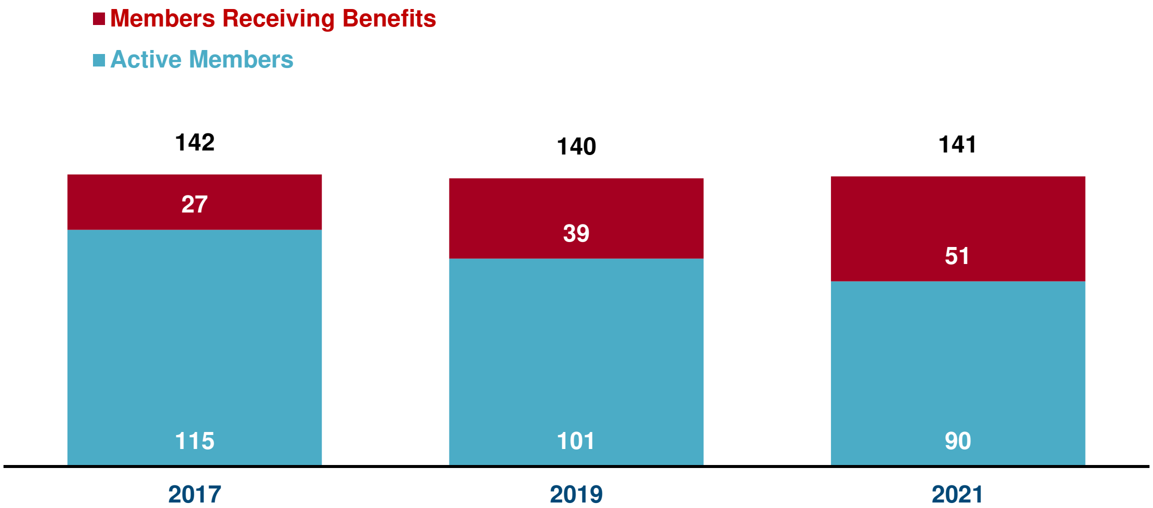


In 2020-21, the plan paid out $0.3 million in benefits to members. Over the next 20 years, the plan is projected to pay out a total of $10 million in benefits to members.



Section I - Executive Summary
Membership

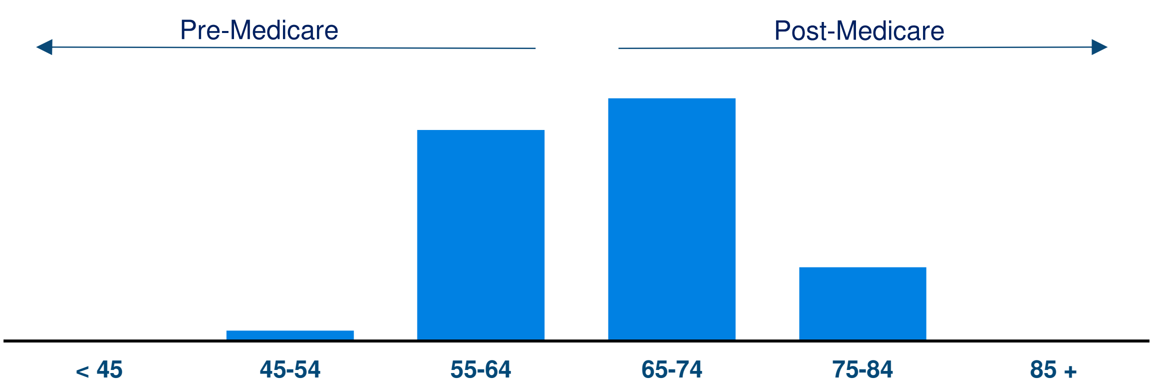
There are two basic categories of plan members included in the valuation: (1) members who are receiving benefits and (2) active employees who have met the eligibility requirements for membership.



Members Receiving Benefits on April 1, 2021

DPS	8	Average Age	66.6
Non-Union	18		
Police	25		
Total	51		

As of April 1, 2021, there were 51 members receiving benefits and 39 spouses/dependents receiving benefits. The members receiving benefits fall across a wide distribution of ages:



Section I - Executive Summary
Membership (continued)

Active Members on April 1, 2021

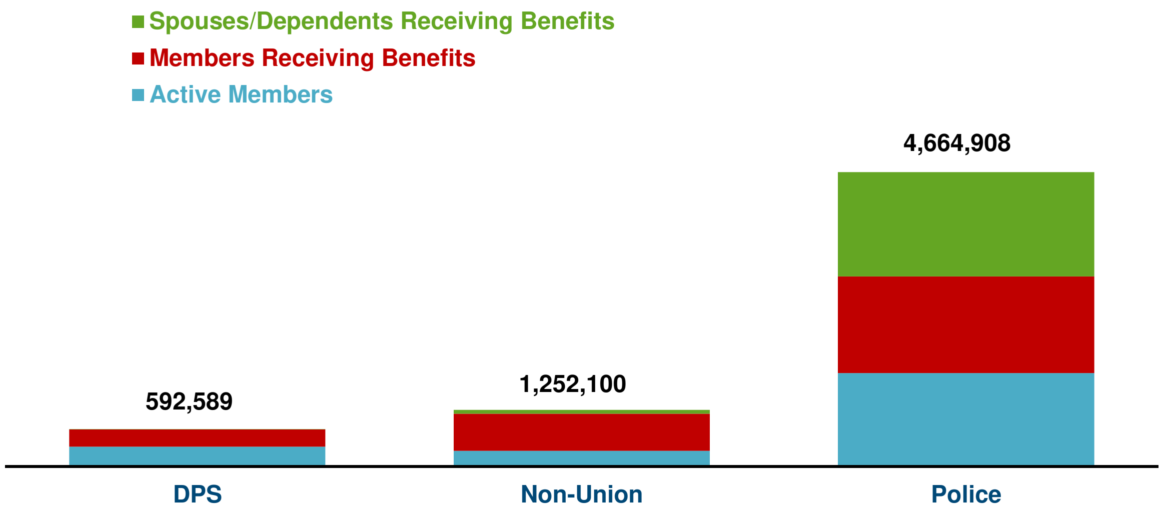
DPS	23	Average Age	50.8
Non-Union	46	Average Service	17.2
Police	21	Payroll	$6,613,149
Total	90	Average Payroll	73,479

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	1	1						2
30-34	2	1						3
35-39	2	4	3					9
40-44	3		1	5	1			10
45-49	5		4		5			14
50-54	3	1	5	2	4	5	2	22
55-59	1		1	2	2	2	2	10
60-64	1		2	3	3	2	6	17
65+				1	1		1	3
Total	18	7	16	13	16	9	11	90

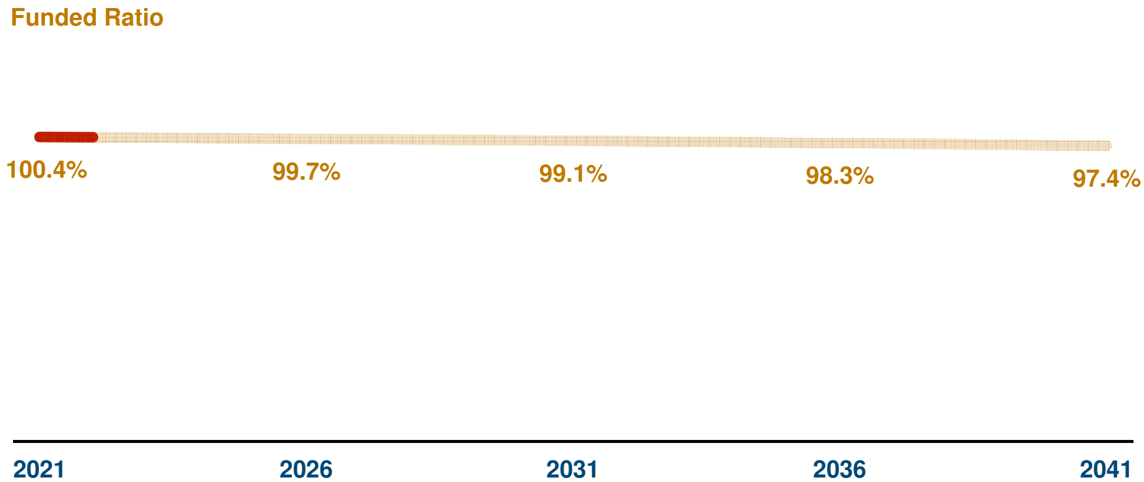
Section I - Executive Summary
Accrued Liability

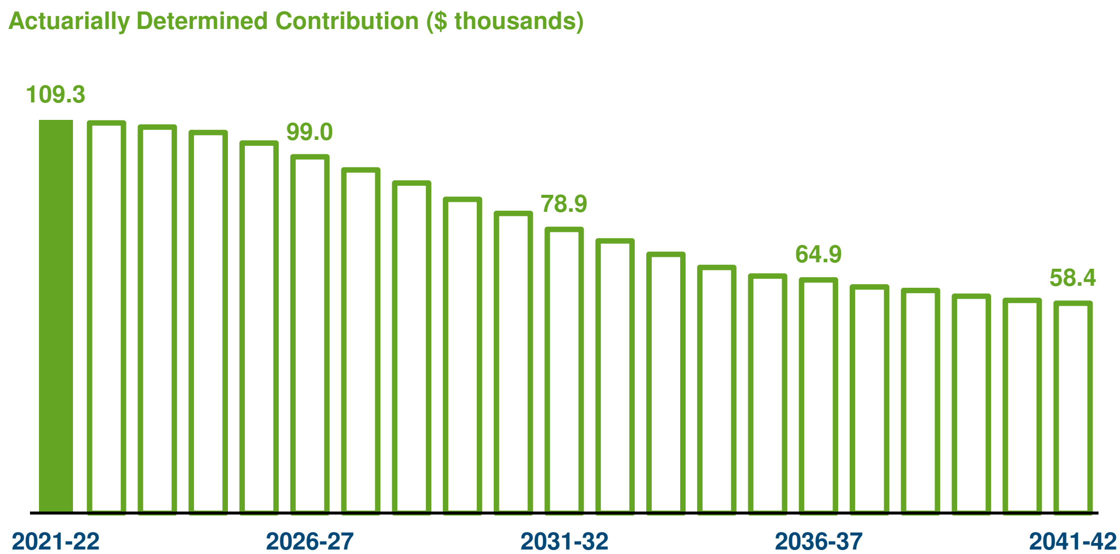
The Accrued Liability as of April 1, 2021 is $6,509,597, which consists of the following pieces:



Section I - Executive Summary
Long-Range Forecast

If the Township pays the Actuarially Determined Contribution each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions, then we project the following changes in the plan's funded status and the long-range contribution levels:

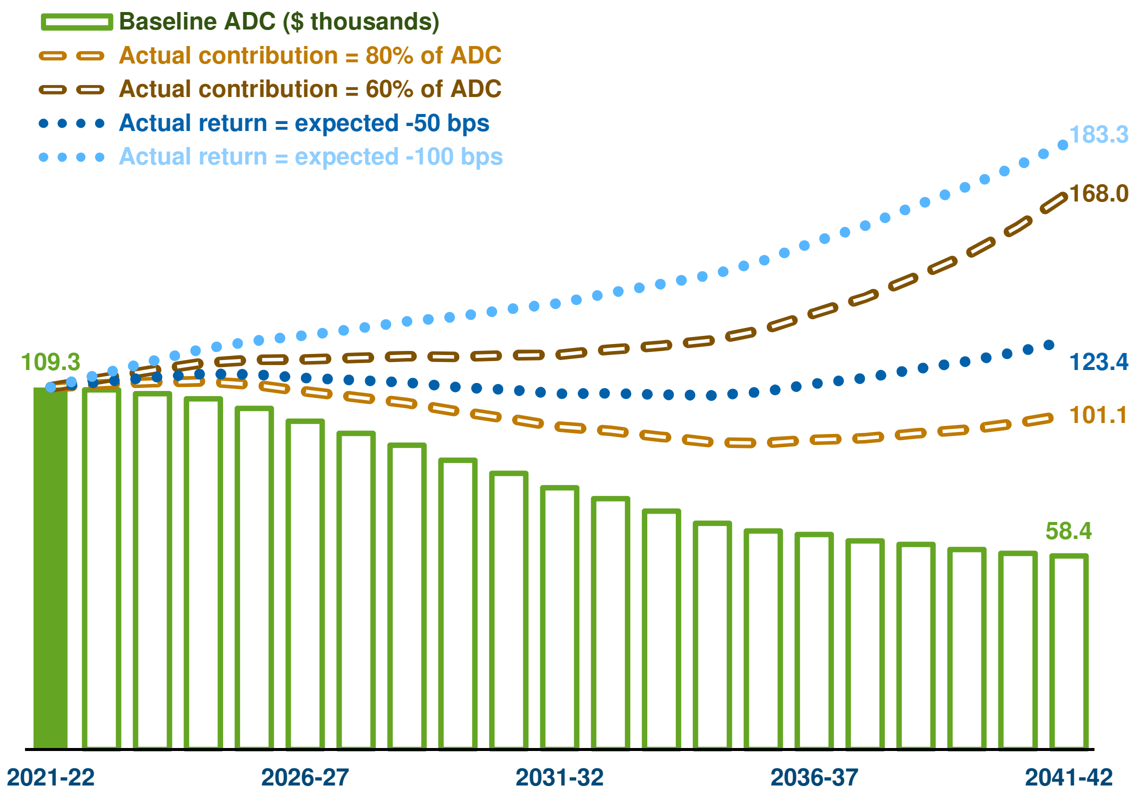




To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

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

Benefits are paid for through a combination of contributions from the Township and from employees, and from investment income. If the Township 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 Township'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 Township's future contribution levels. Stochastic projections could be prepared that would enable the Township to understand the potential range of future results based on the expected variability in asset returns and other factors. Such analysis was beyond the scope of this engagement.

Section I - Executive Summary
Summary of Principal Results

Membership as of	April 1, 2019	April 1, 2021
Active Members	101	90
Members Receiving Benefits	39	51
Total Count	140	141
Payroll	$7,000,992	$6,613,149

Assets and Liabilities as of	April 1, 2019	April 1, 2021
Market Value of Assets	$4,535,419	$6,532,490
Accrued Liability for Active Members	4,443,993	3,386,841
Accrued Liability for Members Receiving Benefits	3,059,928	3,122,756
Total Accrued Liability	7,503,921	6,509,597
Unfunded Accrued Liability	2,968,502	(22,893)
Funded Ratio	60.4%	100.4%

Actuarially Determined Contribution for Fiscal Year	2019-20	2021-22
Normal Cost	N/A	$104,734
Past Service Cost	N/A	(1,635)
Interest	N/A	6,186
Actuarially Determined Contribution	N/A	109,285
Expected Benefit Payments	N/A	(386,842)
Net Budget Impact	N/A	(277,557)

Section II - Plan Assets
Summary of Fund Transactions

Market Value as of April 1, 2019	$4,535,419
Township Contributions	695,428
Member Contributions	0
Net Investment Income	(290,768)
Benefit Payments	(335,428)
Administrative Expenses	(8,521)
Market Value as of March 31, 2020	4,596,130
Expected Return on Market Value of Assets, 2019-20	282,516
Market Value (Gain)/Loss, 2019-20	573,284
Approximate Rate of Return, 2019-20*	-6.33%
Market Value as of April 1, 2020	$4,596,130
Township Contributions	705,780
Member Contributions	0
Net Investment Income	1,582,726
Benefit Payments	(342,280)
Administrative Expenses	(9,866)
Market Value as of March 31, 2021	6,532,490
Expected Return on Market Value of Assets, 2020-21	286,222
Market Value (Gain)/Loss, 2020-21	(1,296,504)
Approximate Rate of Return, 2020-21*	33.16%

* 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.

Section III - Development of Contribution
A. Summary of Liabilities

We have calculated the Accrued Liability separately for 3 groups, who are eligible for different OPEB benefits. We have broken the accrued liability into several pieces: benefits that are expected to be paid prior to age 65 (i.e. prior to Medicare) and after age 65 (i.e. after Medicare) to current active members and their covered dependents after retirement, and the same figures for members who have already retired and are currently receiving benefits. In all cases, the Accrued Liability only reflects benefits that are paid for by the Township, taking into account any implicit rate subsidies.

	DPS	Non-Union	Police	Total
Current active members				
Members Under Age 65	$237,162	$188,188	$1,126,415	$1,551,765
Members Over Age 65	211,044	388,957	140,562	740,563
Spouses/Dependents Under Age 65	(241,404)	(115,826)	865,294	508,064
Spouses/Dependents Over Age 65	175,886	296,782	113,781	586,449
Total	382,688	758,101	2,246,052	3,386,841
Current members receiving benefits				
Members Under Age 65	67,072	118,598	720,730	906,400
Members Over Age 65	141,408	330,195	439,681	911,284
Spouses/Dependents Under Age 65	(132,020)	(71,792)	894,211	690,399
Spouses/Dependents Over Age 65	133,441	116,998	364,234	614,673
Total	209,901	493,999	2,418,856	3,122,756
Total Accrued Liability	592,589	1,252,100	4,664,908	6,509,597

Accrued Liability Sensitivity at April 1, 2021

	1% Decrease	Baseline	1% Increase
Discount Rate	7,254,502	6,509,597	5,876,311
Trend Rate	5,850,360	6,509,597	7,298,448

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) plus a **Past Service Cost** (a catch-up accrual to amortize the Unfunded Accrued Liability) plus **Interest** to reflect the timing lag between the valuation date and the contribution date.

The amortization method is **Level Dollar** which produces level annual payments. On this basis, the ADC is determined as follows:

	DPS	Non-Union	Police	Total
Accrued Liability	$592,589	$1,252,100	$4,664,908	$6,509,597
Market Value of Assets*	594,673	1,256,503	4,681,314	6,532,490
Unfunded Accrued Liability	(2,084)	(4,403)	(16,406)	(22,893)
Funded Ratio	100.4%	100.4%	100.4%	100.4%
Amortization Period	27	27	27	27
Amortization Growth Rate	0.00%	0.00%	0.00%	0.00%
Past Service Cost	(149)	(314)	(1,172)	(1,635)
Normal Cost	3,696	12,471	88,567	104,734
Employee Contributions	0	0	0	0
Expenses	0	0	0	0
Employer Normal Cost	3,696	12,471	88,567	104,734
Interest	213	729	5,244	6,186
ADC for FY 2021-22	3,760	12,886	92,639	109,285
Expected Benefit Payments	(13,965)	(50,100)	(322,777)	(386,842)
Net Budget Impact	(10,205)	(37,214)	(230,138)	(277,557)

The ADC is assumed to be paid at the end of the Fiscal Year.

*Market Value of Assets is allocated by group in proportion to the liability.

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

The state of Michigan released Uniform Actuarial Assumptions that must be used in reporting liabilities for public Retiree Health Care plans. The below results were determined using the Pub-2010 Mortality Table with generational mortality improvement in accordance with Scale MP-2020. Separate medical trend tables are assumed for Pre/Post Medicare, beginning with 7.25% for Pre-Medicare and 5.50% 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.

The amortization period is 28 years starting in Fiscal Year 2020-21. The amortization method is **Level Dollar** which produces level annual payments. On this basis, the ADC is determined as follows:

	DPS	Non-Union	Police	Total
Accrued Liability	$526,373	$1,227,286	$5,169,836	$6,923,495
Market Value of Assets*	496,646	1,157,975	4,877,869	6,532,490
Unfunded Accrued Liability	29,727	69,311	291,967	391,005
Funded Ratio	94.4%	94.4%	94.4%	94.4%
Amortization Period	27	27	27	27
Amortization Growth Rate	0.00%	0.00%	0.00%	0.00%
Past Service Cost	2,123	4,950	20,850	27,923
Normal Cost	3,176	12,069	103,997	119,242
Employee Contributions	0	0	0	0
Expenses	0	0	0	0
Employer Normal Cost	3,176	12,069	103,997	119,242
Interest	318	1,021	7,491	8,830
ADC for FY 2021-22	5,617	18,040	132,338	155,995
Expected Benefit Payments	(13,965)	(50,099)	(322,768)	(386,832)
Net Budget Impact	(8,348)	(32,059)	(190,430)	(230,837)

The ADC is assumed to be paid at the end of the Fiscal Year.

*Market Value of Assets is allocated by group in proportion to the liability.

Section III - Development of Contribution
D. Long Range Forecast

This forecast is based on the results of the April 1, 2021 actuarial valuation and assumes that the Township will pay the Actuarially Determined Contribution each year, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

	Values as of the Valuation Date					Cash Flows Projected to the Following Fiscal Year			
Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year	Township Contributions	Member Contributions	Benefit Payments	Net Cash Flows
04/01/2021	$6,509,597	$6,532,490	($22,893)	100.4%	2021-22	$109,285	$0	($386,842)	($277,557)
04/01/2022	6,613,000	6,628,000	(15,000)	100.2%	2022-23	108,000	0	(376,000)	(268,000)
04/01/2023	6,733,000	6,740,000	(7,000)	100.1%	2023-24	107,000	0	(330,000)	(223,000)
04/01/2024	6,905,000	6,904,000	1,000	100.0%	2024-25	106,000	0	(353,000)	(247,000)
04/01/2025	7,061,000	7,051,000	10,000	99.9%	2025-26	103,000	0	(375,000)	(272,000)
04/01/2026	7,202,000	7,183,000	19,000	99.7%	2026-27	99,000	0	(382,000)	(283,000)
04/01/2027	7,337,000	7,310,000	27,000	99.6%	2027-28	95,000	0	(415,000)	(320,000)
04/01/2028	7,443,000	7,406,000	37,000	99.5%	2028-29	92,000	0	(451,000)	(359,000)
04/01/2029	7,515,000	7,468,000	47,000	99.4%	2029-30	87,000	0	(533,000)	(446,000)
04/01/2030	7,500,000	7,445,000	55,000	99.3%	2030-31	83,000	0	(549,000)	(466,000)
04/01/2031	7,464,000	7,398,000	66,000	99.1%	2031-32	79,000	0	(582,000)	(503,000)
04/01/2032	7,385,000	7,310,000	75,000	99.0%	2032-33	76,000	0	(629,000)	(553,000)
04/01/2033	7,249,000	7,164,000	85,000	98.8%	2033-34	72,000	0	(650,000)	(578,000)
04/01/2034	7,077,000	6,983,000	94,000	98.7%	2034-35	68,000	0	(636,000)	(568,000)
04/01/2035	6,905,000	6,801,000	104,000	98.5%	2035-36	66,000	0	(572,000)	(506,000)
04/01/2036	6,785,000	6,672,000	113,000	98.3%	2036-37	65,000	0	(613,000)	(548,000)
04/01/2037	6,612,000	6,491,000	121,000	98.2%	2037-38	63,000	0	(620,000)	(557,000)
04/01/2038	6,419,000	6,291,000	128,000	98.0%	2038-39	62,000	0	(671,000)	(609,000)
04/01/2039	6,158,000	6,024,000	134,000	97.8%	2039-40	60,000	0	(732,000)	(672,000)
04/01/2040	5,815,000	5,676,000	139,000	97.6%	2040-41	59,000	0	(635,000)	(576,000)

Section IV - Membership Data
A. Statistics of Active Membership

		As of April 1, 2019	As of April 1, 2021
Number of Active Members	DPS	28	23
	Non-Union	47	46
	Police	26	21
	Total	101	90
Average Age	DPS	50.1	50.5
	Non-Union	57.8	53.7
	Police	44.5	44.9
	Total	52.2	50.8
Average Service	DPS	23.9	23.5
	Non-Union	21.2	14.9
	Police	14.7	15.6
	Total	20.2	17.2

Section IV - Membership Data
B. Distribution of Active Members as of April 1, 2021

DPS

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

Non-Union

	Years of Service							
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**
< 25								0
25-29	1							1
30-34	2							2
35-39	2							2
40-44	3		1	1				5
45-49	5							5
50-54	3	1	1	1		1		7
55-59	1			2	2	1	1	7
60-64	1		1	3	3	2	4	14
65+				1	1		1	3
Total	18	1	3	8	6	4	6	46

Police

	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		4	2					6
40-44				2	1			3
45-49			2		2			4
50-54			2	1	2	1		6
55-59			1					1
60-64								0
65+								0
Total	0	5	7	3	5	1	0	21

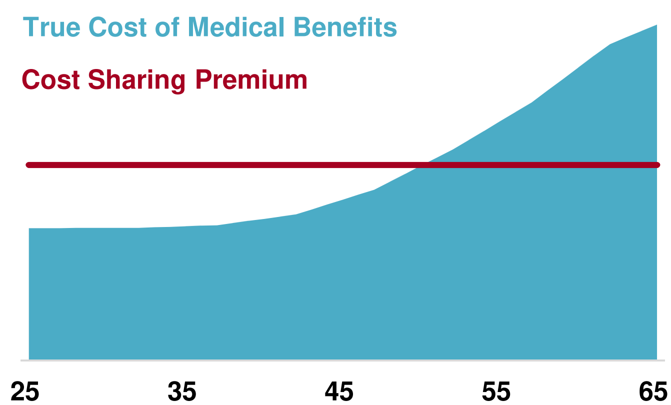
Section IV - Membership Data
C. Information on Members Receiving Benefits

	As of April 1, 2019	As of April 1, 2021
Members Receiving Benefits		
Number		
DPS	4	8
Non-Union	9	18
Police	26	25
Total	39	51
Average Age		
DPS	69.5	66.8
Non-Union	68.8	67.4
Police	64.6	66.1
Total	66.1	66.6
Spouses/Dependents Receiving Benefits		
Number		
DPS	4	8
Non-Union	6	11
Police	20	20
Total	30	39
Average Age		
DPS	67.4	63.4
Non-Union	69.5	67.2
Police	63.1	64.0
Total	64.9	64.8

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 this report. 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 Medical Plan – 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 Township is calculated as the difference between the gross liability and the offset liability.

Section V - Healthcare Information
B. Current Premiums

The annual medical premiums are shown below.

Pre-65 Medical Plan	Employee	Spouse	Effective Date
Community Blue PPO 1	$15,747.72	$21,800.04	04/01/2021
BCBS Simply Blue HSA	13,257.12	21,222.48	04/01/2021
Post-65 Medical Plan			
Medigap Payment Allowance	1,547.00	1,547.00	04/01/2021
Dental Plan			
Dental	398.40	398.40	04/01/2021

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 beginning April 1, 2021 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	0.3442	0.5353	0.3449	0.5367
50	0.4562	0.6281	0.4568	0.6287
55	0.5955	0.7368	0.5959	0.7371
60	0.7609	0.8609	0.7612	0.8611
65	1.0000	1.0000	1.0000	1.0000
Age 65 per capita claims cost				
Pre-Medicare	$18,592.22	$16,895.35	$18,614.07	$16,917.04

Dental

	Employee		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
45	0.6339	0.7485	0.6351	0.7493
50	0.6874	0.7967	0.6884	0.7974
55	0.7769	0.8665	0.7777	0.8670
60	0.8859	0.9418	0.8863	0.9420
65	1.0000	1.0000	1.0000	1.0000
Age 65 per capita claims cost				
Pre-Medicare	$527.80	$515.79	$529.50	$517.48

Appendix A - Actuarial Funding Method

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

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

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

The Unfunded Accrued Liability is the excess of the Accrued Liability over the assets which have been accumulated for the plan. This Unfunded Accrued Liability is amortized as a level dollar over a closed 27 year period starting April 1, 2021.

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. For those unions whose new employees are eligible to participate in this plan, members who are projected to leave active employment are assumed to be replaced by new active members with the same age, service, gender, and pay characteristics as those hired in the past few years.

Appendix B - Actuarial Assumptions

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

Interest Rate 6.00%

Inflation 2.30%

Amortization Growth Rate 0.00% (prior: 3.00%)

Medical Trend

The medical trend assumption used in this valuation is based on long-term healthcare trend rates generated by the Society of Actuaries' Getzen Trend Model. Inputs to the model are consistent with other assumptions used in the valuation.

The medical trend assumption includes the impact of the Further Consolidated Appropriations Act, 2020, which became law on December 20, 2019. This law repeals the Cadillac Tax completely and removes the Health Insurer Fee permanently beginning in 2021.

Year Beginning			Pre-65	Year Beginning			Post-65
2021	to	2022	5.20%	2021	to	2022	5.40%
2022	to	2023	5.00%	2022	to	2023	5.30%
2023	to	2024	4.80%	2023	to	2024	5.10%
2024	to	2025	4.70%	2024	to	2025	5.00%
2025	to	2026	4.60%	2025	to	2026	4.90%
2026	to	2027	4.50%	2026	to	2027	4.80%
2027	to	2028	4.40%	2027	to	2028	4.60%
2028	to	2029	4.30%	2028	to	2029	4.50%
2029	to	2038	4.20%	2029	to	2037	4.40%
2038	to	2065	4.10%	2037	to	2044	4.30%
2065	to	2067	4.00%	2044	to	2065	4.20%
2067	to	2069	3.90%	2065	to	2067	4.10%
2069	to	2072	3.80%	2067	to	2069	4.00%
2072	to	2074	3.70%	2069	to	2071	3.90%
2074	to	-	3.60%	2071	to	2073	3.80%
				2073	to	-	3.70%

Dental Trend The lesser of the Medical Trend and 5%.

Appendix B - Actuarial Assumptions

Mortality

Pub-2010 General Headcount-weighted Mortality Tables (Employee, Retiree, Survivor, and Disabled, as appropriate) with generational projection using Projection Scale MP-2021 for general employees and Pub-2010 Safety Headcount-weighted Mortality Tables (Employee, Retiree, Survivor, and Disabled, as appropriate) with generational projection using Projection Scale MP-2021 for police.

Salary Scale*

Years of Service	Base (Wage Inflation)	Merit and Longevity	Total Percentage Increase in Pay
0	3.00%	6.70%	9.70%
1	3.00%	4.60%	7.60%
2	3.00%	3.20%	6.20%
3	3.00%	2.70%	5.70%
4	3.00%	2.30%	5.30%
5	3.00%	1.90%	4.90%
10	3.00%	1.10%	4.10%
15	3.00%	0.70%	3.70%
20	3.00%	0.60%	3.60%
25	3.00%	0.40%	3.40%
30	3.00%	0.20%	3.20%
35	3.00%	0.10%	3.10%
40+	3.00%	0.00%	3.00%

Turnover*

Years of Service	General	Public Safety
0	23.40%	13.90%
1	19.50%	11.60%
2	15.80%	9.40%
3	12.50%	7.40%
4	10.30%	6.10%
5	8.30%	4.90%
10	5.40%	3.20%
15	4.00%	2.40%
20	3.10%	1.80%
25	2.60%	1.50%

Appendix B - Actuarial Assumptions

Disability

Age	Percent Becoming Disabled Within One Year
20	0.02%
25	0.02%
30	0.02%
35	0.05%
40	0.08%
45	0.20%
50	0.29%
55	0.38%
60	0.39%
65	0.39%

Retirement

The MERS retirement assumptions are based on the “replacement index”. Because we do not have sufficient data to determine a participant’s “replacement index”, we have developed our own retirement rates for all employees. We believe these retirement rates are reasonable for the current plan population. Rates are shown in the table below:

Service	Rate
5-9	5%
10-14	15%
15-19	20%
20-24	20%
25-29	20%
30-34	30%
35+	40%

The retirement rate is 100% at age 75.

Future Retiree Coverage

100% of active participants are assumed to elect coverage at retirement.

Future Dependent Coverage

75% of future retirees that take coverage are assumed to elect two-party coverage.

Future Post-65 Coverage

Medicare eligible retirees receive a Medigap payment allowance once they become Medicare eligible.

Valuation of Dental Benefits

100% of active participants are assumed to elect coverage at retirement until age 65.

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.

*Certain actuarial demographic assumptions are based on the assumptions used in the December 31, 2020 valuation for the Municipal Employees' Retirement System of Michigan (MERS).

Appendix C - Summary of Plan Provisions

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

Eligibility

DPS: Any retiree who has attained age 55 with 25 years of continuous service with the Township. Employees hired after April 1, 2016 participate in a retiree health care savings account and are not eligible for benefits under this plan.

Non-Union: Any retiree who has attained age 55 with 20 years of continuous service with the Township.

Police: Any retiree who has applied for a MERS annuity. Employees hired after April 1, 2015 participate in a retiree health care savings account and are not eligible for benefits under this plan.

Medical Benefits

DPS & Non-Union: The Township will reimburse 50% of the premium, not to exceed the following annual rates, depending on age and service at retirement and single or dual coverage. In the alternative, retirees shall have the option of receiving an annual cash payment of $1,000.00 until the retiree reaches age 65.

Age	Service	Single	Dual
55-60	20+	$3,500	$7,000
60-62	25+	4,000	8,000
62-65	25+	4,500	9,000

Police: The retiree pays 100% of the premium between the ages of 50 and 52. After age 52, the Township provides health insurance for single or double coverage at no cost to the retiree until age 65. Beginning April 1, 2014, retirees pay a monthly copay of $25 for single and $40 for double coverage. If an employee selects the Community Blue 1 plan the copay is $125. In the alternative, retirees shall have the option of receiving an annual cash payment of $1,000 for single and $2,000 for double until the retiree reaches age 65.

Post-65 (all groups): Retirees get a per person annual premium reimbursement ($1,547 at January 1, 2021) increasing each year with the CPI.

Dental Benefits

DPS & Non-Union: The Township will reimburse 50% of the premium for single or double coverage until age 65.

Police: The retiree pays 100% of the premium between the ages of 50 and 52. After age 52, the Township provides dental insurance for single or double coverage at no cost to the retiree until age 65.

Appendix D - Glossary

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

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

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

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

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

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

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

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

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

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

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

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