BLOOMFIELD TOWNSHIP
OTHER POST-EMPLOYMENT BENEFITS PROGRAM

April 1, 2018 Actuarial Valuation

Prepared by

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Certification

We have performed an actuarial valuation of the Bloomfield Township Other Post-Employment Benefits Program as of April 1, 2018. The results of this valuation, along with supporting data, are set forth in the following report.

The ultimate cost of an 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 any plan assets. The principal purpose of this report is to set forth an actuarial determination of plan liabilities. In addition, this report provides:

- Information needed to meet disclosure requirements
- Review of plan experience since the last 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 operation of the plan

This report may not be used for purposes other than those listed above without Milliman's prior written consent. If this report is distributed to other parties, it must be copied in its entirety, including this certification section. No attempt is being made to offer any accounting opinion or advice. The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions. Additional determinations may be needed for other purposes.

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

In preparing this report, we relied on employee census data, asset information, claims and premium information as of the valuation date, furnished by the Township. We performed a limited review of the information 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 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

In our opinion, each assumption used is individually reasonable (taking into account the experience of the plan and reasonable expectations) and, in combination, offer our best estimate of anticipated experience under the plan. On the basis of the foregoing, we hereby certify that to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

Milliman's work is prepared solely for the internal business use of the Township. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s): (a) The Township may provide a copy of Milliman's work, in its entirety, to the Township's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Township; and (b) The Township may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The undersigned is an actuary. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

The undersigned is a member 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

Discussion of Experience

This valuation reflects a number of changes relative to the April 1, 2017 valuation:

Demographic Changes from 2016 to 2018

From July 1, 2016 to April 1, 2018, the overall membership decreased from 570 to 537. The total number of active members decreased from 206 to 166 and the total number of retirees, deferred members, and spouses of retirees increased from 364 to 371.

The average age of active members increased slightly from 46.0 to 46.1 and the average age of retired members decreased from 69.1 to 67.8.

Assumption Changes

Medical Claims Costs: We updated the expected claims costs based on our analysis of the claims experience and premium information that was provided to us for this valuation.

Amortization: The amortization period was reset to 20 years, closed, starting in 2018. The amortization method was changed to level dollar to be consistent with the State of Michigan Uniform Actuarial Assumptions for closed plans.

Other Changes

Presentation of results: The results for the Library employees were previously presented jointly with the Township's valuation. Since the Library established a Retiree Health Care Benefits Trust, it has now assumed management of future reporting requirements and will have separate valution reports.

The Valuation Process

The process of determining the liability for OPEB benefits is based on many assumptions about future events. The key actuarial assumptions are:

Turnover and retirement rates: How likely is it that an employee will qualify for post-employment benefits and when will they start?

Medical inflation and claims costs assumptions: When an employee starts receiving post-employment benefits many years from now, how much will be paid each year for the benefits and how rapidly will the costs grow?

Mortality assumption: How long is a retiree likely to receive the benefits?

Discount rate assumption: What is the present value of those future benefit payments in terms of today's dollars?

Since the liability is being recognized over the employee's whole career with the Township, the present value is divided into three pieces: the part that is attributed to past years (the "Accrued Liability" or "Past Service Liability"), the part that is being earned this year (the "Normal Cost"), and the part that will be earned in future years (the "Future Service Liability").

Once the Accrued Liability and the Normal Cost have been calculated, the next step is to determine an annual contribution. This consists of three pieces:

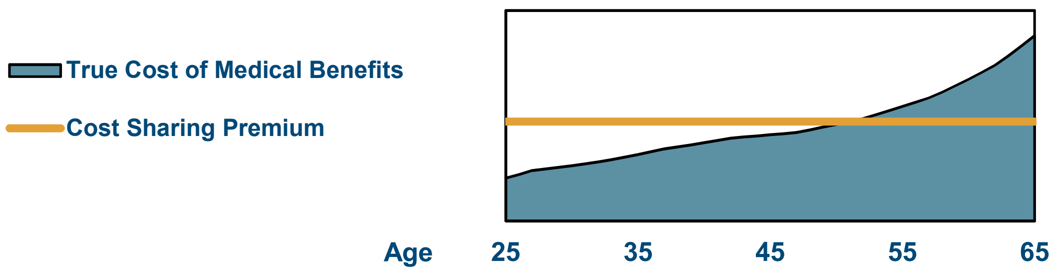
- Normal Cost – because the benefits earned each year should be paid for each year
- Past Service Cost – a catch-up payment to fund the Accrued Liability over time.
- Interest - to adjust for the lag between the valuation date and the end of the fiscal year

The final step is to keep track going forward of how much of the contribution is actually paid. The Discount Rate used to calculate the liabilities must reflect the expected investment income of whatever funds are set aside to prefund the benefits; if there is no prefunding then the Discount Rate will be much lower and the liabilities significantly higher than if the benefits are prefunded.

Implicit Rate Subsidies

As part of the Other Post-Employment Benefits Program , there are situations where the cost is borne partly or entirely by retirees. In most cases, the premium that is used to split the cost 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 on the prior page. 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 program – 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.

Summary of Assets

This valuation reflects assets that are managed through irrevocable OPEB trusts. While other assets may be used to meet future OPEB liabilities, only those funds that are contributed to an appropriate trust may be reflected in the determination of the Actuarially Determined Contribution.

	Town	Cable Studio	Building Inspection Fund	Water and Sewer	Total
Market Value of Assets as of April 1, 2017	$4,394,101	$1,300,000	$1,800,000	$3,390,848	$10,884,949
Employer Contributions	0	0	0	212,995	212,995
Administrative Expenses	(8,695)	(2,154)	(2,970)	(7,083)	(20,902)
Net Investment Income	249,338	78,227	108,315	206,858	642,738
Market Value of Assets as of April 1, 2018	4,634,744	1,376,073	1,905,345	3,803,618	11,719,780

Assets in the Town OPEB Trust are allocated to the Fire, Police, and Town groups based on their respective Accrued Liability (see following page).

The funding policies for the Town OPEB Trust and the Water and Sewer OPEB Trust are not identical. It is our understanding that the Water and Sewer OPEB Trust is intended to be an enterprise fund which will receive additional contributions annually. The Town OPEB Trust, Cable Studio Trust, and Building Inspection Fund, conversely, may not receive additional funds annually. We have accordingly assumed a 4.50% discount rate for the Water and Sewer group and a 4.00% discount rate for all other groups to reflect this funding strategy.

Summary of Liabilities

We have calculated the Accrued Liability separately for six groups of Township employees. We have broken the accrued liability for each group 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.

	Fire	Police	Town	Cable Studio	Building Inspection Fund	Water and Sewer	Total
Current active members							
Employees under age 65	$4,330,143	$6,974,842	$3,433,550	$194,502	$303,322	$806,506	$16,042,865
Employees over age 65	5,246,621	7,042,775	6,888,136	411,016	717,995	1,006,251	21,312,794
Dependents under age 65	6,514,335	9,034,970	2,885,664	221,506	218,690	785,580	19,660,745
Dependents over age 65	6,214,855	7,704,844	4,827,467	329,800	564,363	809,793	20,451,122
Total	22,305,954	30,757,431	18,034,817	1,156,824	1,804,370	3,408,130	77,467,526
Current retired members							
Employees under age 65	2,276,148	2,539,542	2,080,307	0	0	475,900	7,371,897
Employees over age 65	9,390,227	11,319,384	8,505,863	217,864	546,798	2,307,640	32,287,776
Dependents under age 65	3,526,256	4,135,931	3,225,702	0	7,556	719,624	11,615,069
Dependents over age 65	12,858,501	11,844,647	7,449,947	0	340,055	2,765,806	35,258,956
Total	28,051,132	29,839,504	21,261,819	217,864	894,409	6,268,970	86,533,698
Total Accrued Liability	50,357,086	60,596,935	39,296,636	1,374,688	2,698,779	9,677,100	164,001,224

The following presents information regarding how sensitive the Accrued Liability is to changes in either the discount rate or the trend rate.

	Discount Rate Sensitivity			Trend Rate Sensitivity		
	1% Decrease 3.00%	Baseline 4.00%	1% Decrease 5.00%	1% Decrease	Baseline	1% Decrease
Accrued Liability	196,389,620	164,001,224	139,012,893	138,053,849	164,001,224	198,224,758

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 adjust for the lag between the valuation date and the end of the fiscal year).

The amortization period is 20 years starting in 2018. The amortization method produces level annual payments. The ADC is assumed to be paid at the beginning of the Fiscal Year. On this basis, the ADC is determined as follows:

	Fire	Police	Town	Cable Studio	Building Inspection Fund	Water and Sewer	Total
Accrued Liability	$50,357,086	$60,596,935	$39,296,636	$1,374,688	$2,698,779	$9,677,100	$164,001,224
Assets	1,553,352	1,869,219	1,212,173	1,376,073	1,905,345	3,803,618	11,719,780
Unfunded Accrued Liability	48,803,734	58,727,716	38,084,463	(1,385)	793,434	5,873,482	152,281,444
Funded Ratio	3.08%	3.08%	3.08%	100.10%	70.60%	39.31%	7.15%
Amortization Period	20	20	20	20	20	20	20
Amortization Growth Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Past Service Cost	3,452,946	4,155,085	2,694,540	(98)	56,137	432,087	10,790,697
Total Normal Cost	1,156,604	1,508,745	970,935	49,154	91,121	175,498	3,952,057
Interest	184,382	226,553	146,619	1,962	5,890	27,341	592,747
Actuarially Determined Contribution for FYE 2020	4,793,932	5,890,383	3,812,094	51,018	153,148	634,926	15,335,501
Expected Benefit Payouts	1,625,854	1,484,197	1,287,171	15,749	59,341	391,582	4,863,894
Net Budget Impact	3,168,078	4,406,186	2,524,923	35,269	93,807	243,344	10,471,607

Valuation Results Using Uniform Actuarial Assumptions

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 adjust for the lag between the valuation date and the end of the fiscal year).

The amortization period is 20 years starting in 2018. The amortization method produces level annual payments. The ADC is assumed to be paid at the beginning of the Fiscal Year. On this basis, the ADC is determined as follows:

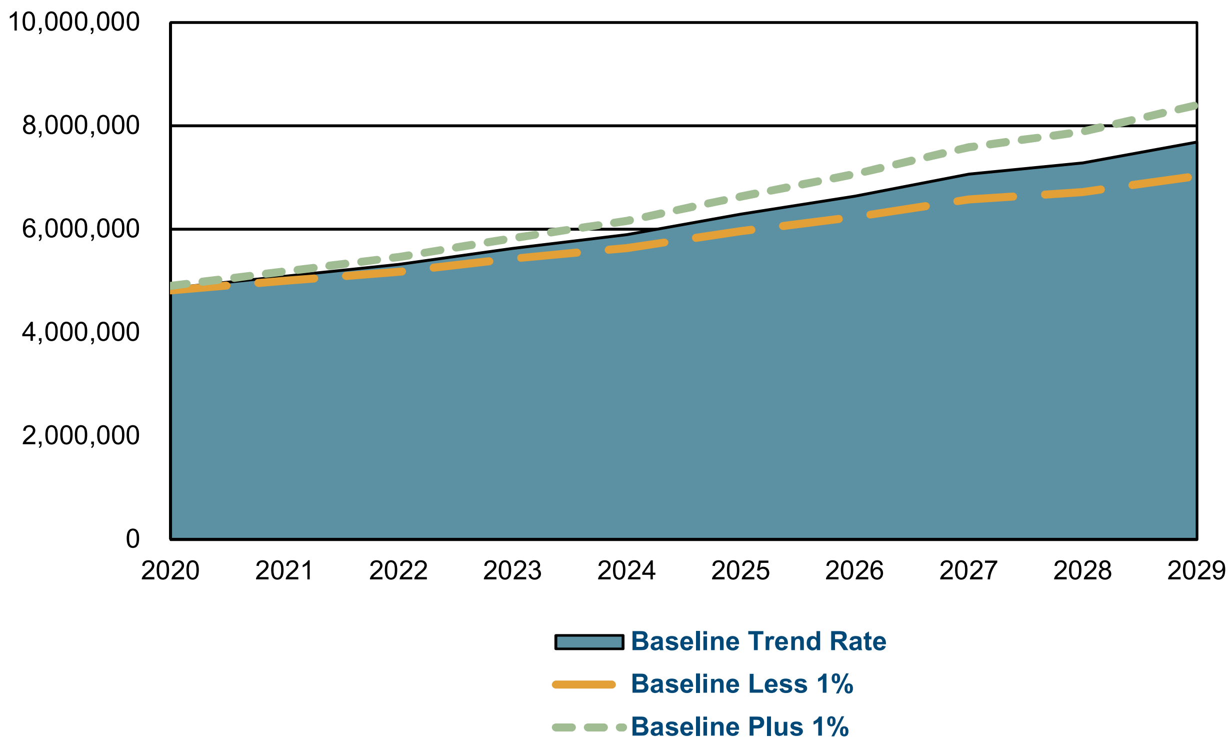
	Fire	Police	Town	Cable Studio	Building Inspection Fund	Water and Sewer	Total
Accrued Liability	$54,352,079	$66,758,731	$42,165,124	$1,253,068	$2,449,874	$8,923,665	$175,902,541
Assets	1,553,352	1,869,219	1,212,173	1,376,073	1,905,345	3,803,618	11,719,780
Unfunded Accrued Liability	52,798,727	64,889,512	40,952,951	(123,005)	544,529	5,120,047	164,182,761
Funded Ratio	2.86%	2.80%	2.87%	109.82%	77.77%	42.62%	6.66%
Amortization Period	20	20	20	20	20	20	20
Amortization Growth Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Past Service Cost	3,445,538	4,234,558	2,672,506	(8,703)	38,526	376,660	10,759,085
Total Normal Cost	1,373,032	1,832,736	1,131,459	44,859	80,827	152,692	4,615,605
Interest	144,557	182,019	114,119	1,446	4,774	23,821	470,736
Actuarially Determined Contribution for FYE 2020	4,963,127	6,249,313	3,918,084	37,602	124,127	553,173	15,845,426

Note: The state of Michigan released Uniform Actuarial Assumptions that must be used in reporting liabilities for public Retiree Health Care plans. The above results were determined using the RP-2014 Total Dataset Mortality with generational mortality improvement in accordance with Scale MP-2017. Separate medical trend tables are assumed for Pre/Post Medicare, beginning with 8.50% for Pre-Medicare and 7.00% for Post-Medicare. Both trend rates are assumed to decrease by 0.25% per year, until the ultimate rate of 4.50%. The discount rate used for Fire, Police, and Town Group is 3.00%, lowered from 4.00%, reflecting their funded status.

Projected Payouts

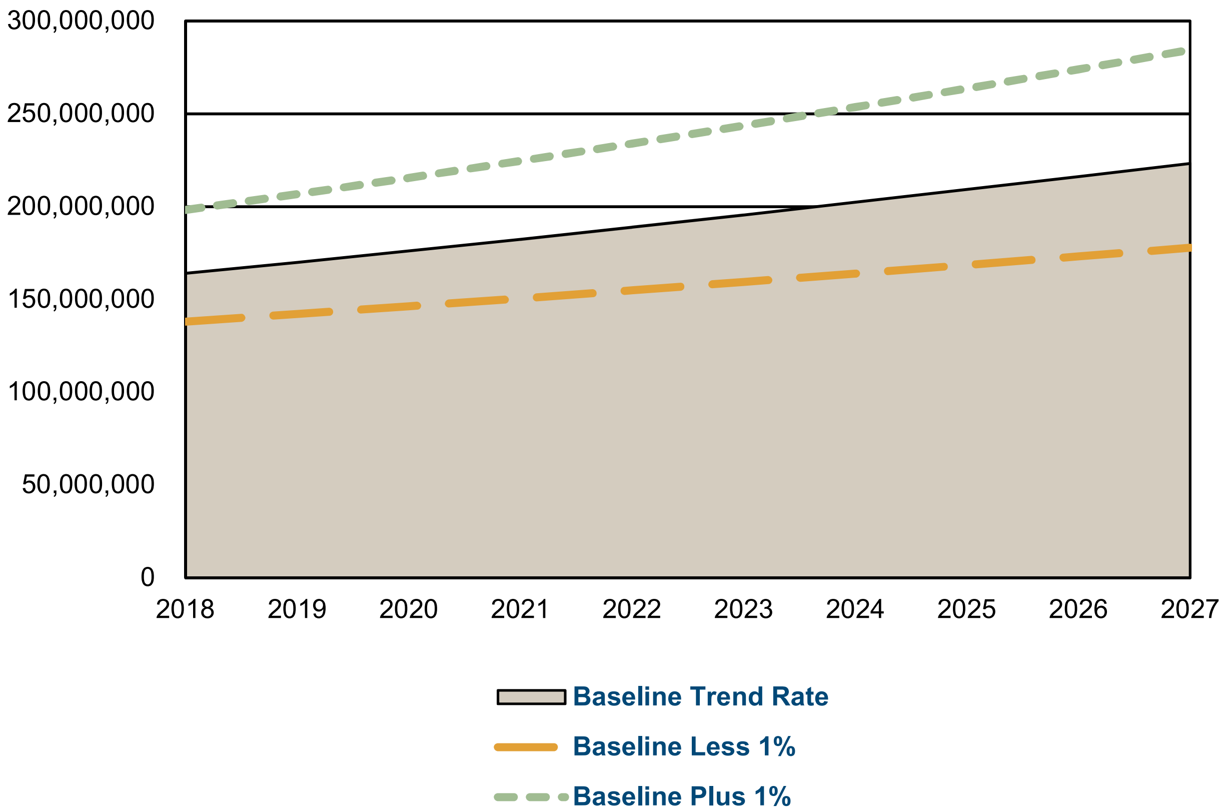
The table and graph below show the expected annual payments for OPEB benefits for the next 10 years.

Fiscal Year	Baseline Less 1%	Baseline Trend Rate	Baseline Plus 1%
2020	$4,820,545	$4,863,894	$4,907,244
2021	5,002,808	5,092,974	5,183,999
2022	5,177,524	5,317,931	5,461,028
2023	5,430,484	5,627,714	5,830,636
2024	5,637,162	5,893,982	6,160,730
2025	5,962,673	6,290,462	6,634,162
2026	6,238,474	6,640,643	7,066,347
2027	6,578,560	7,066,035	7,586,948
2028	6,722,425	7,284,969	7,891,822
2029	7,028,798	7,686,107	8,401,934



Projected Liabilities

The graph below shows how the Township's accrued liability for OPEB benefits is expected to grow over the next 10 years.



Allocation of Contribution by Department

Contributions for the three enterprise funds (Cable Studio, Building Inspection Fund, and Water and Sewer) are shown on the preceding pages. Contributions for all other Townships groups are allocated to each department on the basis of the Accrued Liability for members of the department relative to the total Accrued Liability. These percentages are shown below.

Department	Active Members	Terminated Vested Members	Members in Pay Status	Total
Accounting	0.20%	0.00%	0.67%	0.87%
Assessing	1.04%	0.00%	1.36%	2.40%
Building Inspection	0.09%	0.00%	0.19%	0.28%
Buildings & Grounds	0.76%	0.00%	1.05%	1.81%
Clerk	0.32%	0.00%	0.13%	0.45%
Dispatch	0.96%	0.00%	1.52%	2.48%
Elections	0.16%	0.00%	0.13%	0.29%
Fire	14.95%	0.40%	18.35%	33.70%
Information Technology	1.34%	0.00%	0.00%	1.34%
Motor Pool	0.50%	0.00%	2.90%	3.40%
Ordinance	0.32%	0.00%	0.13%	0.45%
Planning	0.09%	0.00%	0.48%	0.57%
Police	22.42%	0.00%	20.13%	42.55%
Road	3.26%	0.00%	2.96%	6.22%
Safety Path	0.16%	0.00%	0.00%	0.16%
Senior Services	0.35%	0.00%	0.00%	0.35%
Supervisor	0.17%	0.00%	1.07%	1.24%
Treasurer	0.20%	0.00%	0.51%	0.71%
Village Police	0.00%	0.00%	0.01%	0.01%
Water & Sewer	0.37%	0.00%	0.35%	0.72%
Total	47.66%	0.40%	51.94%	100.00%

Summary of Census Data

The following were included in our analysis based on information provided as of April 1, 2018 by the Township.

	Fire	Police	Town	Cable Studio	Building Inspection Fund	Water and Sewer	Total
Number of members							
Active	41	52	54	3	6	10	166
Deferred members	1	0	0	0	0	0	1
Retired members	56	66	57	2	6	16	203
Beneficiaries	14	4	4	0	1	1	24
Spouses of retired members	45	49	33	0	1	15	143
Total	157	171	148	5	14	42	537
Average age							
Active	44.5	43.6	49.5	53.6	54.8	40.8	46.1
Deferred members	45.4	0.0	0.0	0.0	0.0	0.0	45.4
Retired members	66.3	67.1	68.0	70.3	77.9	70.7	67.8
Average retirement age							
Active	55.7	53.7	59.3	60.9	62.6	56.1	56.6
Retired members	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Expected lifetime							
Active [to retirement]	11.3	10.2	9.8	7.3	7.8	15.3	10.5
Retired [lifetime]	18.4	18.5	18.3	18.0	10.6	16.1	18.0

The retiree census data excludes post 65 Medicare eligible and dental only retired members and their spouses who are paying 100% of the premium. It is assumed that there is no implicit rate subsidy associated with these benefits. Where complete census data was not available, we have made assumptions which we believe to be reasonable.

Current Premiums

We received the following information from the Township regarding the current premiums for health benefits provided to retirees:

2018 - 2019 Monthly Premiums		Employee	Spouse
PPO	Pre 65	N/A	N/A
	Post 65	$742.57	$822.69
HRA	Pre 65	598.08	1,231.43
	Post 65	430.43	933.33
Dental		39.73	66.09

Expected Healthcare Costs

Milliman's Health Cost Guidelines were used to develop the expected true cost of health care benefits by age. Representative health care costs (per person per month) are shown below.

	HRA Plan		PPO Plan	
Age	Employee	Spouse*	Employee	Spouse*
40	$723	$805	$0	$0
45	796	906	0	0
50	892	1,059	0	0
55	1,055	1,245	0	0
60	1,309	1,490	0	0
65	324	350	595	602
70	373	402	686	691
75	421	451	774	776
80	458	489	841	841

It is assumed that there is no implicit rate subsidy associated with dental benefits. Unadjusted age premium rates were used to value these benefits.

*Child dependent claim costs are included with pre-65 spouse claim costs.

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. The statement assumes a closed group of employees and other participants unless otherwise stated; that is, no new entrants are assumed. Six methods are permitted under GASB 45 – Unit Credit, Entry Age Normal, Attained Age, Aggregate, Frozen Entry Age, and Frozen Attained Age. Entry Age Normal is required under GASB 75.

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 discount rate, medical cost inflation, and rates of mortality, turnover and retirement.

Actuarial Present Value of Benefits - This is the value, as of the applicable 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 discount rate.

Actuarial Value of Assets - This is the value of cash, investments and other property belonging to the Plan, as used by the actuary for the purpose of an Actuarial Valuation. Gains and losses are recognized over a five year period in order to minimize the impact of market fluctuations on the contribution.

Amortization Payment - This is the amount of the contribution required to pay interest on and to amortize over a given period the Unfunded Actuarial Accrued Liability. 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 actuarial valuation date.

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

Attribution Period - The period of an employee’s service to which the expected postretirement 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.

Glossary

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.

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 Actuarial Accrued Liability over time (generally 10 to 30 years). 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 Actuarial Accrued Liability over the Actuarial Value of Assets.

Actuarial Method

The actuarial funding method used is the **Entry Age Normal Cost Method**. Recommended annual contributions consist of three pieces: Normal Cost plus a payment towards the Unfunded Accrued Liability plus Interest to reflect the time lag between the valuation date and the fiscal year.

The **Normal Cost** is determined by calculating the present value of future benefits for present active Members. 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 and Terminated Vested Members to the present value of benefits for Active Members and subtracting the present value of future Normal Cost contributions.

The **Unfunded Accrued Liability** is the Accrued Liability less the value of any plan assets.

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 judgement 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.

Discount Rate

Water and Sewer: 4.50%

All Others: 4.00%

Inflation Rate 2.70%

Medical Inflation Rate 5.50% - 4.60% over 66 years (Prior: 7.10% - 4.60% over 68 years)

Dental Inflation Rate 3.00%

Salary Increases 3.50%

Amortization Growth Rate 0.00% (Prior: 4.00%)

Mortality RP-2000 Mortality Table with generational projection per Scale BB. This assumption includes a margin for mortality improvement beyond the valuation date.

Turnover 50% of Prudential Scale ½ A

Age	Male	Female
20	2.500%	3.750%
25	2.500%	3.750%
30	1.875%	2.500%
35	1.250%	1.875%
40	0.750%	1.250%
45	0.375%	0.625%
50 & Over	0.000%	0.000%

Disability Table C-4 of TSA Volume XXXIX, 100% of the 6-month rates:

Age	Male	Female
20	0.080%	0.100%
30	0.099%	0.140%
40	0.176%	0.276%
50	0.540%	0.622%
60	1.477%	1.179%

All disabilities are assumed to be Service-Connected.

The turnover and disability assumptions are based on the January 1, 2018 Actuarial Valuation Report of the Township of Bloomfield Retirement Income Plan.

Actuarial Assumptions

Retirement

Fire:

For members hired after March 31, 1999 who retire with less than 25 Years of Service:

Age	Rate
52-64	5%
65	100%

Otherwise:

Age	Rate
52	20%
53-54	10%
55-56	30%
57-64	50%
65	100%

Police:

For members hired after March 31, 1999 who retire with less than 25 Years of Service:

Age	Rate
50-62	5%
63	100%

Otherwise:

Age	Rate
50-51	35%
52-54	10%
55-56	30%
57-62	50%
63	100%

Actuarial Assumptions

Retirement

Others: 25% at the earlier of age 52 with 25 years of service or 30 years of service; at all other ages (with at least 15 years of service):

Age	Rate
< 53	5%
54	7%
55	10%
56-59	15%
60-61	25%
62	30%
63-64	15%
65-69	50%
70	100%

Future Retiree Coverage

All active and former vested members are assumed to elect coverage at retirement.

Future Dependent Coverage

Current active members are assumed to elect dependent coverage at retirement as follows. All female spouses are assumed to be 3 years younger than males.

	Male	Female
Fire	95%	95%
Police	90%	90%
Town	80%	50%

Future Post-65 Coverage

All current actives and pre-65 retirees are assumed to continue coverage at age 65.

Valuation of Dental Benefits

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

Summary of Plan Provisions

This summary is intended only to describe our understanding of the essential features of the benefits that will be provided to future retirees based on copies of bargaining agreements, applicable personnel rules and the benefits being currently provided to retired members. All eligibility requirements and benefit amounts shall be determined in strict accordance with the relevant plan documents. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Eligibility

Fire

Members who retire from active service at age 52 or older, can elect to continue medical and dental coverage for self and spouse.

Members who terminate before age 52 with 15 or more years of service are eligible for post-retirement medical and dental benefits upon the attainment of age 52.

Normal Retirement for pension purposes is age 52 with 8 years of service.

Effective with hire date after May 1, 2011, employees shall have their retiree healthcare provided through a Retirement Health Savings Plan.

Police / Police Command

Hire date prior to April 1, 1999:

Members who retire from active service on or after Normal Retirement, can elect to continue medical and dental coverage for self and spouse.

Members who terminate before Normal Retirement with 25 or more years of service are eligible for post-retirement medical and dental benefits upon the attainment of Normal Retirement Date (age 50).

Members who terminate before Normal Retirement with between 15 and 25 years of service are eligible for post-retirement medical and dental benefits upon the attainment of age 52.

Effective for retirement from active service on or after June 7, 2006, eligibility for retiree health insurance is the earlier of age 50 with 25 years of service, or age 52 with 10 years of service, as long as the member has satisfied the minimum requirements to retire as defined in the Township defined benefit pension plan.

Summary of Plan Provisions

Eligibility

Police / Police Command

Hire date after March 31, 1999:

Members who retire from active service at age 50 or older and with 25 or more years of service, can elect to continue medical and dental coverage for self and spouse.

Members who terminate before age 50, but who have 25 years of service, are eligible for post-retirement medical and dental benefits upon the attainment of age 50.

Members who terminate with between 15 and 25 years of service are eligible for post-retirement medical and dental benefits upon the attainment of age 52.

Effective with hire date after May 1, 2011, employees shall have their retiree healthcare provided through a Retirement Health Savings Plan.

Town

Hire date prior to April 1, 1999:

Members who retire from active service at age 55 or older, can elect to continue medical and dental coverage for self and spouse, as long as the member has satisfied the minimum requirements to retire as defined in the Township defined benefit pension plan.

Members who retire from active service at age 52 with 15 years of service, or 30 years of service regardless of age, can elect to continue medical and dental coverage for self and spouse.

Members who terminate before normal retirement with 15 or more years of service, are eligible for post-retirement medical and dental benefits upon the attainment of normal retirement date.

Normal Retirement for Library is age 55 with 8 years of service.

Normal Retirement for Town Others is the earlier of age 52 with 8 years of service, or completion of 30 years of service regardless of age.

Summary of Plan Provisions

Eligibility

Town

Hire date after March 31, 1999:

Members who retire on or after normal retirement with 15 or more years of service, can elect to continue medical and dental coverage for self and spouse.

Members who terminate before normal retirement with 15 or more years of service are eligible for post-retirement medical and dental benefits upon the attainment of normal retirement date.

Effective with hire date after May 1, 2011, employees shall have their retiree healthcare provided through a Retirement Health Savings Plan.

Cost Sharing

Fire

Hire date prior to April 1, 1999:

An employee who retires from active service at age 52 or older who has satisfied the minimum requirements to retire as defined in the Township pension plan qualifies for post-retirement health insurance at no cost.

An employee who terminates prior to Normal Retirement Date with 25 years of service qualifies for post-retirement health insurance at Normal Retirement at no cost.

An employee who terminates prior to Normal Retirement Date and has between 15 and 25 years of service qualifies for post-retirement health insurance at Normal Retirement. Retiree’s contributions are based on the following schedule:

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Summary of Plan Provisions

Cost Sharing

Fire

Hire date after March 31, 1999:

An employee who retires on or after Normal Retirement with 25 years of service qualifies for post-retirement health insurance at no cost.

An employee who terminates prior to Normal Retirement with 25 years of Service qualifies for post-retirement health insurance at Normal Retirement at no cost.

An employee who retires on or after Normal Retirement or terminates prior to Normal Retirement and has between 15 and 25 Years of Service qualifies for post-retirement health insurance at Normal Retirement. Retiree's contributions are based on the following schedule:

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Summary of Plan Provisions

Cost Sharing

Police / Police Command

Hire date prior to April 1, 1999:

An employee who retires from active service on or after Normal Retirement and who has satisfied the minimum requirements to retire as defined in the Township pension plan qualifies for post-retirement health insurance at no cost.

An employee who terminates prior to Normal Retirement Date with 25 years of service qualifies for post-retirement health insurance at Normal Retirement (age 50) at no cost.

An employee who terminates prior to Normal Retirement Date and has between 15 and 25 years of service qualifies for post-retirement health insurance at age 52. Retiree's contributions are based on the following schedule:

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Retiree's contributions for employees who retire on or after July 1, 2009 are the greater of:

- $100 per year for single ($200 per year for family), or

- The above schedule

Summary of Plan Provisions

Cost Sharing

Police / Police Command

Hire date after March 31, 1999:

An employee who retires directly from the Township at age 50 or older with 25 years of service qualifies for post-retirement health insurance at no cost.

An employee who terminates prior to age 50 with 25 years of service qualifies for post-retirement health insurance at age 50 at no cost.

An employee who retires at age 52 or terminates prior to age 52, and who has between 15 and 25 years of service, qualifies for post-retirement health insurance at age 52. Retiree's contributions are based on the following schedule:

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Retiree's contributions for employees who retire on or after July 1, 2009 are the greater of:

- $100 per year for single ($200 per year for family), or

- The above schedule

Summary of Plan Provisions

Cost Sharing **Town**

Hire date prior to April 1, 1999:

An employee who retires from active service at the earlier of age 55 or 30 years of service regardless of age, and who has satisfied the minimum requirements to retire as defined in the Township pension plan, qualifies for post-retirement health insurance at no cost.

An employee who retires from active service between age 52 and 55 with 25 years of service qualifies for post-retirement health insurance at no cost.

An employee who retires between age 52 and 55 and has between 15 and 25 years of service qualifies for post-retirement health insurance. Retiree's contributions are based on the following schedule (contribution will stop when retiree reaches age 55):

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Summary of Plan Provisions

Cost Sharing **Town**

Hire date prior to April 1, 1999:

An employee who terminates prior to Normal Retirement Date with 25 years of service qualifies for post-retirement health insurance at Normal Retirement at no cost.

An employee who terminates prior to Normal Retirement Date and has between 15 and 25 years of service qualifies for post-retirement health insurance at Normal Retirement. Retiree's contributions are based on the following schedule:

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Summary of Plan Provisions

Cost Sharing

Town

Hire date after March 31, 1999:

An employee who retires from active service on or after Normal Retirement with 25 years of service qualifies for post-retirement health insurance at no cost.

An employee who terminates prior to Normal Retirement with 25 years of service qualifies for post-retirement health insurance at Normal Retirement at no cost.

An employee who retires on or after Normal Retirement, or terminates prior to Normal Retirement, and has between 15 and 25 years of service qualifies for post-retirement health insurance at Normal Retirement. Retiree's contributions are based on the following schedule:

Years of Service	Retiree's % of Premium
Less than 15	No Coverage
15	40%
16	36%
17	32%
18	28%
19	24%
20	20%
21	16%
22	12%
23	8%
24	4%
25	0%

Summary of Plan Provisions

Disability

Fire

An employee who is eligible for early retirement and suffers a service-connected disability shall receive the same post-retirement health and dental insurance benefits that are available to an employee who retires on or after their Normal Retirement Date. An employee who is not eligible for early retirement and suffers a service-connected disability shall receive post-retirement health and dental insurance benefits for 54 months only.

Police / Police Command

An employee who suffers a service-connected disability shall receive post-retirement health benefits for 54 months only. An employee who suffers a non service-connected disability shall receive post-retirement health benefits for 30 months only.

Life Insurance

Fire / Police: $6,000

Police Command: $8,000

Town: $8,000