

# Redford Township Retiree Health

## Care Plan General

Actuarial Valuation Report

March 31, 2020



# Table of Contents

<b>Section</b>	<b>Page Number</b>	
	--	Cover Letter
		<b>Executive Summary</b>
	1	Executive Summary
<b>A</b>		<b>Valuation Results</b>
	1	Valuation Results
	2-3	Comments
<b>B</b>		<b>Retiree Premium Rate Development</b>
	1-3	Retiree Premium Rate Development
<b>C</b>		<b>Summary of Benefit Provisions</b>
	1-2	Summary of Benefits – General
<b>D</b>		<b>Summary of Participant Data</b>
	1	Active Members by Age and Years of Service
	2	Retired Members by Age
<b>E</b>		<b>Actuarial Cost Method and Actuarial Assumptions</b>
	1	Actuarial Methods
	2-8	Actuarial Assumptions
	9	Miscellaneous and Technical Assumptions
<b>Appendix</b>	1-2	Glossary



July 21, 2021

Mr. Adam Bonarek  
Finance Director  
Redford Township  
15145 Beech Daly Rd.  
Redford, MI 48239

Dear Mr. Bonarek:

The results of the March 31, 2020 Actuarial Valuation of the Redford Township (General) Retiree Health Care Plan are presented in this report.

We understand that the Plan Sponsor finances the liabilities on a pay-as-you-go basis, with additional contributions determined on a year by year basis. Financing through this process may not allow for the accumulation of assets which may jeopardize benefit security in the future.

This report was prepared at the request of the Township and is intended for use by the Township and those designated or approved by the Township. This report may be provided to parties other than the Township only in its entirety and only with the permission of the Township. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the Plan's funding progress and to determine the Actuarial Determined Contribution for the fiscal years ending March 31, 2021 and March 31, 2022. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different. This report does not satisfy Governmental Accounting Standards Board (GASB) Statements No. 74 and No. 75.

The findings in this report are based on data and other information through March 31, 2020. 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

The valuation was based upon information furnished by the Township, concerning retiree health benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the Township of Redford.

All actuarial assumptions used in this report are reasonable for the purposes of this valuation. Additional information about the actuarial assumptions is included in the section of this report entitled Actuarial Cost Method and Actuarial Assumptions.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report has been prepared by actuaries who have substantial experience valuing public employee retiree health plans. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Redford Township Retiree Health Care Plan for General members as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

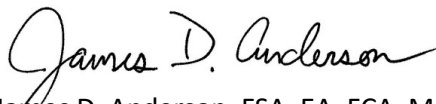
Mark Buis, James D. Anderson, and Kurt Dossan are Members of the American Academy of Actuaries (MAAA). These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

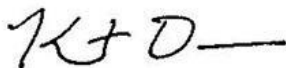
Respectfully submitted,



Mark Buis, FSA, EA, FCA, MAAA



James D. Anderson, FSA, EA, FCA, MAAA



Kurt Dossan, ASA, MAAA

MB/JDA/KD:bd  
273



## **EXECUTIVE SUMMARY**

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# Executive Summary

## Actuarially Determined Contribution

Please note that beginning with the fiscal year ending March 31, 2018, GASB Statement No. 43 was replaced by GASB Statement No. 74. Also, beginning with the fiscal year ending March 31, 2019, GASB Statement No. 45 was replaced by GASB Statement No. 75. A separate GASB report is required to comply with the actuarial requirements of GASB Statement Nos. 74 and 75. As such, there is no longer an “Annual Required Contribution” calculated in this valuation report. Therefore, we have determined the “Actuarially Determined Contribution.”

We have calculated the Actuarially Determined Contribution for the fiscal years ending March 31, 2021 and March 31, 2022, under an interest rate assumption of 3.00%. Below is a summary of the results. The Actuarially Determined Contributions and estimated premiums shown below include an adjustment for any implicit rate subsidy present in your pre-65 rates.

<b>Fiscal Year Ending</b>	<b>Actuarially Determined Contribution</b>	<b>Estimated Premiums Paid for Retirees</b>
March 31, 2021	\$2,556,607	\$1,518,202
March 31, 2022	2,633,305	1,639,085

For additional details please see the Section titled “Valuation Results.”

## Liabilities and Assets – As of March 31, 2020

1. Present Value of Future Benefit Payments	\$49,061,303
2. Actuarial Accrued Liability	40,529,882
3. Plan Assets	2,522,749
4. Unfunded Actuarial Accrued Liability (2) – (3)	38,007,133
5. Funded Ratio (3)/(2)	6.2%

The Present Value of Future Benefit Payments (PVFB) is the present value of all benefits projected to be paid from the plan for past and future service to current General members. The Actuarial Accrued Liability is the portion of the PVFB allocated to past service by the Plan’s funding method (see the Section titled “Actuarial Cost Method and Actuarial Assumptions”).

## SECTION A

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### VALUATION RESULTS

## Redford Township Retiree Health Care Plan - General Results as of March 31, 2020

A. Present Value of Future Benefits	
i) Retirees and Beneficiaries	\$28,008,883
ii) Vested Terminated Members	0
iii) Active Members	<u>21,052,420</u>
Total Present Value of Future Benefits	<u>\$49,061,303</u>
B. Present Value of Future Normal Costs	8,531,421
C. Actuarial Accrued Liability (A.-B.)	40,529,882
D. Actuarial Value of Assets	2,522,749
E. Unfunded Actuarial Accrued Liability (C.-D.)	\$38,007,133
F. Funded Ratio (D./C.)	6.2%
G. Fiscal Year Ending March 31, 2021	
i) Employer Normal Cost	\$ 829,010
ii) Amortization of UAAL*	<u>1,727,597</u>
Actuarially Determined Contribution	<b>\$ 2,556,607</b>
H. Fiscal Year Ending March 31, 2022	
Actuarially Determined Contribution	<b>\$ 2,633,305</b>

\* The Unfunded Actuarial Accrued Liabilities (UAAL) were amortized as a level percent of active member payroll over a closed period of 22 years for the fiscal year ending March 31, 2021 and decreasing by 1 each year thereafter.

The long-term rate of investment return used in this valuation is 3.00%.



## Comments

**COMMENT A:** Overall Plan experience was more favorable than expected. Factors contributing to the favorable experience include, but are not limited to:

- More favorable premium experience than projected. Specifically, the Township is now covered by a Medicare Advantage plan for post-65 participants, which significantly reduced expected benefits;
- Partially resetting the health care cost trend rates; and
- Lowering the long-term rate of health care cost trend from 4.5% to 3.5%.

Partially offsetting these factors were liability losses due to:

- New assumptions including:
  - Updating the mortality tables and other demographic assumptions to be consistent with the MERS pension assumptions; and
  - Decreasing the long-term rate of investment return from 3.61% to 3.00%.

The combined impact of the changes in the health care trend, mortality tables and demographic assumptions, and the decrease to the long-term rate of investment return increased the liability by approximately \$2.9 million.

**COMMENT B:** One of the key assumptions used in any valuation of the cost of postemployment benefits is the rate of return on the assets that will be used to pay Plan benefits. Higher assumed investment returns will result in a lower Actuarially Determined Contribution. Lower returns will tend to increase the Actuarially Determined Contribution. We have calculated the liability and the resulting Actuarially Determined Contribution using the assumed annual rate of investment return of 3.00%.

**COMMENT C:** The Plan Sponsor is required by GASB to perform actuarial valuations at least biennially or more frequently if significant changes in the OPEB are made in the interim.

**COMMENT D:** The contributions shown include amortization of the unfunded actuarial accrued liability over a closed 22-year period beginning with the fiscal year ending March 31, 2021 and decreasing by one each year thereafter.

**COMMENT E:** The Health Care Plan is open to new members. Because of the open nature of the Plan, payments of the unfunded accrued liability have been calculated as level percent of active member payroll amounts.

**COMMENT F:** The GASB issued Statement Nos. 74 and 75 for OPEB valuations. GASB Statement No. 74 for the plan OPEB disclosures was effective for fiscal years beginning after June 15, 2016. GASB Statement No. 75 for employer OPEB disclosures was effective for employer fiscal years beginning after June 15, 2017. The GASB implementation guides for Statement Nos. 74 and No. 75 provide additional clarification related to the implementation of these Statements. It is our understanding that the Township is required to comply with both GASB Statement Nos. 74 and 75. The basis for the March 31, 2021 GASB information is expected to be this valuation (as of March 31, 2020), where roll-forward techniques will be applied.

## Comments (Concluded)

**COMMENT G:** On December 20, 2019, the “Further Consolidated Appropriations Act of 2020,” H.R. 1865, was signed into law. The Act repeals the “Cadillac tax” which was a tax provision from the Affordable Care Act (ACA). As a result, any liability/provision analysis included as part of the prior funding valuation is no longer required. In addition, no further adjustments associated with the “Cadillac tax” are required. For purposes of the Redford Township Retiree Health Care Plan valuation, the repeal of the “Cadillac tax” does not have an impact on plan liabilities because no load was applied as part of the March 31, 2018 funding valuation.

**COMMENT H:** Michigan Public Act 202 of 2017 created new reporting and other requirements for local units of government. In order to facilitate compliance, we intend to supply the required information as part of the Township’s Annual GASB Statement Nos. 74 and 75 report.

**Comment I:** This report does not reflect the recent and still developing impact of COVID-19, which is likely to influence demographic and economic experience, at least in the short term. We will continue to monitor these developments and their impact on the Retiree Health Care Plan. Actual experience will be reflected in each subsequent funding valuation, as experience emerges. Premium rates used for purposes of determining long-term health care costs were Base Rates, before COVID credits were applied, where applicable.

**COMMENT J:** Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the market value of assets. Unless otherwise indicated, with regards to any funded status measurements presented in this report:

- The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligations;
- A funded status measurement of 100% is not synonymous with no required future contributions. If the funded status were 100%, the Plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit); and
- The measure is inappropriate for assessing the need for or the amount of future employer contributions.

## **SECTION B**

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### **RETIREE PREMIUM RATE DEVELOPMENT**

## Retiree Premium Rate Development

Initial premium rates were developed for the two classes of retirees (pre-65 and post-65). The January 1, 2021 fully-insured rates provided by Redford Township were utilized to determine the appropriate premium rates. The pre-65 fully-insured premiums are blended rates based on the combined experience of active and pre-65 retired members; therefore, there is an implicit employer subsidy for the non-Medicare eligible retirees since the average costs of providing health care benefits to retirees under age 65 is higher than the average cost of providing health care benefits to active employees. The true per capita cost for the pre-65 retirees is developed by adjusting the demographic differences between the active employees and retirees to reflect this implicit rate subsidy for the retirees. For the post-65 retirees, the fully-insured premium rates are used as the basis of the initial per capita cost without adjustments since the rates reflect the demographics of the post-65 retiree group.

The Township will continue to fund the deductible (\$1,400 single/\$2,800 family) into the HSA for pre-65 retirees on the high deductible plan. The valuation is adjusted to recognize anticipated payments under this program.

The post-65 Humana plans are Medicare Advantage programs. In a Medicare Advantage Program, the liability is based on the difference between the present value of future claims minus the present value of future reimbursements from CMS. Each of these items will experience future growth under arguably differing forces. As a conservative assumption, it is anticipated that gross claim costs will increase slightly faster than the reimbursements from CMS. When the plan is insured, this effect is buried in the rates being charged by the insurer. To account for this expectation, we have increased the fully-insured Medicare rates to account for the expected CMS reimbursement lagging behind medical increases. This adjustment will be revisited at the time of the next valuation.

For purposes of this valuation, the COVID Credit applied to the 2021 Humana rates is assumed to be temporary and future increases in the Humana rate are determined based on the 2021 Base rate.

Age graded and sex distinct premiums are utilized by this valuation. The premiums developed by the preceding process are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process “distributes” the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific premiums more accurately reflect the health care utilization and cost at that age.

The combined monthly one-person medical and drug premiums at select ages are shown below. Please note the future rates shown on the following page do not include an adjustment for the funding of the deductible.

<b>For Those Not Eligible for Medicare (Pre-65)</b>				
<b>Age</b>	<b>Future Retirees</b>		<b>Current Retirees</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
40	\$ 350.02	\$ 568.76	\$ 350.02	\$ 568.76
50	567.38	698.96	567.38	698.96
60	964.28	949.49	964.28	949.49
64	1,172.60	1,106.61	1,172.60	1,106.61

<b>For Those Eligible for Medicare (Post-65)</b>				
<b>Age</b>	<b>Future Retirees</b>		<b>Current Retirees</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
65	\$ 349.08	\$ 329.25	\$ 361.95	\$ 341.39
75	408.42	398.53	423.48	413.23
85	431.88	436.97	447.81	453.08

We did not “age grade” the dental and vision premium rates for this valuation, since dental and vision claims do not vary significantly by age. The average monthly dental premium used in this valuation for pre-65 and post-65 members is \$36.88 per member per month. The monthly vision premium used in this valuation for pre-65 and post-65 members is \$2.78, per member per month.

## **Health Care Trend Assumption**

The health care cost trend rate is the rate of change in per capita health care claims over time as a result of factors such as medical inflation, utilization of health care services, plan design, and technological improvements. It is a crucial economic assumption that is required for measuring retiree health care benefit obligations.

Retiree health care valuations use a health care cost trend assumption (trend vector) that changes over the years. The trend vector used in this valuation begins with a near-term trend assumption and declines over time to an ultimate trend rate. The near-term rates reflect the increases in the current cost of health care goods and services. The process of trending down to a lower ultimate trend relies on the theory that premium levels will moderate over the long-term, otherwise the healthcare sector would eventually consume the entire GDP. It is on this basis that projected premium rate increases continue to exceed wage inflation for the next twelve years, but by less each year until leveling off at an ultimate rate, assumed to be 3.50% in this valuation, see below for further details regarding the trend vector used in this valuation.

While experience is often the best starting point for future costs, GRS does not rely on a group’s experience in setting the near-term trend assumptions since trends vary significantly from year to year and are not credible for most groups. Therefore, professional judgment, trends from GRS’ book of business and industry benchmarks (e.g., trend reports from various Pharmacy Benefit Management (PBM) organizations and national healthcare benefit consulting firms) are used to establish the trend assumptions.

Year After Valuation	Health Care Trend Inflation Rates		
	Medical/Drug		Dental
	Non-Medicare (Pre-65)	Medicare (Post-65)	
1	7.50%	6.25%	3.50%
2	7.25	6.00	3.50
3	6.75	5.75	3.50
4	6.50	5.50	3.50
5	6.00	5.25	3.50
6	5.75	5.00	3.50
7	5.25	4.75	3.50
8	5.00	4.50	3.50
9	4.50	4.25	3.50
10	4.25	4.00	3.50
11	3.75	3.75	3.50
12 +	3.50	3.50	3.50

## Actuarial Disclosures

The premium rates used in this valuation were developed using proprietary Excel models which in James E. Pranschke’s professional judgment provide initial projected costs which are consistent with the purposes of the valuation. We perform tests to ensure that the models, in their entirety, reasonably represent that which is intended to be modeled.

Aging factors used in the premium development models were developed based on information and data from a 2013 study commissioned by the Society of Actuaries entitled "Health Care Costs – From Birth to Death".

James E. Pranschke is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to certify the per capita retiree health care rates shown above.

  
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 James E. Pranschke, FSA, FCA, MAAA

## SECTION C

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### SUMMARY OF BENEFIT PROVISIONS

# Redford Township Retiree Health Care Plan

## Summary of Benefits as of March 31, 2020

### Participants in MERS Pension

#### Plan Members

Employees of Redford Township included in the Municipal Employees Retirement System are eligible to receive retiree health care benefits (hospitalization and medical) under the Plan. For purposes of retiree health care, dispatch members are considered MERS employees. The Township pays for all coverage minus the required retiree contributions. See the summary on the following page for a description of required retiree contributions.

#### Eligibility

**Normal Retirement:** Any age with 25 or more years of service\* or age 55 with 20 years of service or age 60 with 10 years of service.

*\*Appointed/Elected members must be age 50 with 25 years of service.*

**Early Retirement:** Age 55 with 15 years of service.

**Deferred Retirement:** Not eligible for retiree health care.

**Duty Disability Retirement:** No age or service requirements. Must be in receipt of worker's compensation.

**Non-Duty Disability Retirement:** Total and permanent disability with 10 years of service.

**Duty Death-in-Service Retirement:** No age or service requirements.

**Non-Duty Death-in-Service Retirement:** 10 years of service.

#### Medicare

Active members and eligible spouses are required to enroll in Medicare when eligible. Redford Township coordinates with Medicare to continue to provide complimentary retiree health care benefits after the retiree becomes Medicare eligible.

#### Spouse and Dependent Coverage

Spouse at time of retirement and qualified dependents are eligible to receive health care from Redford Township for the life of the retiree. Coverage continues after the death of the retiree for eligible surviving spouse and eligible dependents of retired members. Members are responsible for the entire portion of the premium attributable to the eligible non-spouse dependent(s).





# Redford Township Retiree Health Care Plan Summary of Benefits as of March 31, 2020 Participants in MERS Pension (concluded)

## Life Insurance

The Township provides \$2,000 life insurance for retirees until age 65.

## Active Member Contributions

Employees pay a portion of their annual compensation towards retiree healthcare based on the following rate schedule:

<u>General:</u>	0%
<u>Court MAPE:</u>	2%
<u>Trustee:</u>	3%
<u>Appointed/Elected:</u>	0%
<u>MAPE:</u>	2%
<u>MAPE (after 1/1/2011):</u>	3%
<u>MAPE (after 8/3/2017):</u>	5%

## Retiree Contributions

Members make biweekly contributions for medical coverage based on the plan and coverage election they have made, in accordance with the contract in effect at the date of retirement.

Future MERS retirees will make contributions for retiree health coverage at the following rates:

<u>MAPE/General:</u>	10% of the illustrative rate with a \$1,250 annual cap
<u>Court:</u>	7% of the illustrative rate with a \$1,250 annual cap
<u>Dispatch:</u>	8% of the illustrative rate with a \$1,250 annual cap

*This is a brief summary of the Redford Township Retiree Health Care Plan provisions. In the event that any description contained herein differs from the actual eligibility or benefit, the appropriate Plan Sponsor Ordinance and/or employee contract will prevail.*



## SECTION D

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### SUMMARY OF PARTICIPANT DATA

## General Active Members as of March 31, 2020 by Age and Years of Service

Age	Years of Service to Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.
20-24	2							2
25-29	5	2						7
30-34	11	4						15
35-39	1	1	2					4
40-44	1	2		2	2			7
45-49	2	3		1	1			7
50-54	9	3	1	2	2	1	1	19
55-59	5		1	2	4	2		14
60 & Over	3	3	2	1	3			12
<b>Totals</b>	<b>39</b>	<b>18</b>	<b>6</b>	<b>8</b>	<b>12</b>	<b>3</b>	<b>1</b>	<b>87</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

**Age:** 46.5 years  
**Service:** 9.4 years

## General Retired Members as of March 31, 2020 by Age

Age	Retired Members
Under 55	8
55-59	14
60-64	13
65 & Over	102
<b>Totals</b>	<b>137</b>

The number counts above only include those retirees who have elected to receive retiree health care coverage or dental/vision coverage only through the Redford Township Retiree Health Care Plan for General members.

There are 0 terminated members eligible for deferred Plan benefits.

## **SECTION E**

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### **ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS**

## Actuarial Methods for Redford Township – General as of March 31, 2020

**Actuarial Cost Method.** Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

- (i) The annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member’s benefit at the time of retirement; and
- (ii) Each annual normal cost is a constant percentage of the member’s year by year projected covered pay.

Actuarial gains (losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

**Financing of Unfunded Actuarial Accrued Liabilities.** Unfunded actuarial accrued liabilities (UAAL) (full funding credit if assets exceed liabilities) were amortized as a level percent of active member payroll. The UAAL was determined using the actuarial value of assets and actuarial accrued liability calculated as of the valuation date and projected to the beginning of the fiscal year at the assumed rate of investment return.

**Actuarial Value of Assets.** The Actuarial Value of Assets is set equal to the reported market value of assets.

**Amortization Factors.** The following amortization factors were used in developing the Actuarially Determined Contribution for the fiscal years shown:

	Fiscal Year Ending March 31,	
	2021	2022
General (Level Percent of Pay)	22.0000	21.0000

## Actuarial Assumptions for Redford Township – General as of March 31, 2020

All assumptions are expectations of future experience, not market measures. The rationale for the rates of merit and longevity salary increase, base wage inflation, rates of mortality, normal retirement rates, early retirement rates, rates of separation from active membership, disability rates, and marriage assumption used in this valuation is included in the MERS 5-year experience study for the period January 1, 2014 to December 31, 2018, issued February 14, 2020. These assumptions were first used in the March 31, 2020 OPEB Funding Valuation.

**The rate of investment return** was 3.00% a year, compounded annually net after investment expenses.

**Rates of price inflation** are not specifically used for this valuation. However, a rate of price inflation of 2.50% would be consistent with other assumptions in this report.

**The rates of salary increase** used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which future contributions will be based.

Percentage Increase in Salary at Sample Years of Service							
Sample Years of Service	Base (Wage Inflation)	Merit and Longevity	Total Percentage Increase in Pay	Sample Years of Service	Base (Wage Inflation)	Merit and Longevity	Total Percentage Increase in Pay
0	3.00 %	6.70 %	9.70 %	21	3.00 %	0.60 %	3.60 %
1	3.00	4.60	7.60	22	3.00	0.50	3.50
2	3.00	3.20	6.20	23	3.00	0.40	3.40
3	3.00	2.70	5.70	24	3.00	0.40	3.40
4	3.00	2.30	5.30	25	3.00	0.40	3.40
5	3.00	1.90	4.90	26	3.00	0.30	3.30
6	3.00	1.70	4.70	27	3.00	0.30	3.30
7	3.00	1.30	4.30	28	3.00	0.30	3.30
8	3.00	1.20	4.20	29	3.00	0.30	3.30
9	3.00	1.20	4.20	30	3.00	0.20	3.20
10	3.00	1.10	4.10	31	3.00	0.20	3.20
11	3.00	1.10	4.10	32	3.00	0.20	3.20
12	3.00	0.90	3.90	33	3.00	0.20	3.20
13	3.00	0.90	3.90	34	3.00	0.20	3.20
14	3.00	0.80	3.80	35	3.00	0.10	3.10
15	3.00	0.70	3.70	36	3.00	0.10	3.10
16	3.00	0.70	3.70	37	3.00	0.10	3.10
17	3.00	0.60	3.60	38	3.00	0.10	3.10
18	3.00	0.60	3.60	39	3.00	0.10	3.10
19	3.00	0.60	3.60	40 and Over	3.00	0.00	3.00
20	3.00	0.60	3.60				

The payroll growth rate for financing Unfunded Actuarial Accrued Liabilities for open divisions was assumed to be 3.00% per year.

## Actuarial Assumptions for Redford Township – General as of March 31, 2020

*The rates of mortality* used for individual members are based upon the sex distinct Pub-2010 tables, as published by the Society of Actuaries, and include a margin for future mortality improvements projected using a fully generational improvement scale. The tables used were as follows:

- **Healthy Pre-Retirement Mortality:** Sex distinct Pub-2010 General Employees table without adjustment. The base year is 2010 and future mortality improvements are assumed each year using scale MP-2019, as published by the Society of Actuaries. Ninety percent (90%) of active member deaths are assumed to be non-duty deaths and 10% of the deaths are assumed to be duty related.
- **Healthy Post-Retirement Mortality:** Sex distinct Pub-2010 General Healthy Retiree tables scaled by a factor of 106%. The base year is 2010 and future mortality improvements are assumed each year using scale MP-2019, as published by the Society of Actuaries.
- **Disability Retirement Mortality:** Sex distinct PubNS-2010 Disabled tables without adjustment. The base year is 2010 and future mortality improvements are assumed each year using scale MP-2019, as published by the Society of Actuaries.

Note that the Pub-2010 tables do not include rates at all ages. For purposes of selecting mortality rates that are not otherwise published, we use the corresponding Employee or Healthy Retiree rates as applicable.

The life expectancies and mortality rates projected for employees are shown below for selected ages, based on retirements in 2020. Retirements in future years will reflect improvements in life expectancy:

Age	Expected Years of Life Remaining		Mortality Rates	
	Male	Female	Male	Female
20	70.01	72.73	0.04%	0.01%
25	64.72	67.41	0.03	0.01
30	59.44	62.08	0.05	0.02
35	54.21	56.79	0.07	0.03
40	49.03	51.53	0.08	0.04
45	43.86	46.29	0.10	0.06
50	38.73	41.07	0.14	0.08
55	33.65	35.90	0.21	0.13
60	28.69	30.81	0.33	0.20
65	23.87	25.82	0.47	0.29
70	19.15	20.91	0.66	0.44
75	14.52	16.11	1.00	0.74
80	10.00	11.47	1.59	1.25
85	6.89	8.03	8.02	5.95
90	4.80	5.57	13.85	11.03



## Actuarial Assumptions for Redford Township – General as of March 31, 2020

The life expectancies and mortality rates projected for non-disabled retirees are shown below for selected ages, based on retirements in 2020. Retirements in future years will reflect improvements in life expectancy:

Age	Expected Years of Life Remaining		Mortality Rates	
	Male	Female	Male	Female
20	66.74	70.06	0.04%	0.02%
25	61.37	64.66	0.04	0.01
30	56.01	59.26	0.05	0.02
35	50.70	53.90	0.07	0.03
40	45.43	48.56	0.09	0.04
45	40.18	43.24	0.11	0.06
50	34.97	37.95	0.30	0.23
55	30.09	32.99	0.45	0.32
60	25.41	28.15	0.68	0.43
65	20.95	23.44	0.98	0.63
70	16.73	18.92	1.51	1.02
75	12.82	14.68	2.58	1.82
80	9.39	10.90	4.65	3.36
85	6.61	7.73	8.50	6.30
90	4.57	5.33	14.68	11.69

The life expectancies and mortality rates projected for disabled retirees are shown below for selected ages, based on retirements in 2020. Retirements in future years will reflect improvements in life expectancy:

Age	Expected Years of Life Remaining		Mortality Rates	
	Male	Female	Male	Female
20	52.22	55.97	0.43%	0.26%
25	47.40	50.80	0.33	0.20
30	42.57	45.69	0.49	0.35
35	38.10	40.96	0.65	0.54
40	33.88	36.60	0.80	0.73
45	29.81	32.48	1.02	0.97
50	25.97	28.64	1.50	1.43
55	22.51	25.22	2.07	1.83
60	19.44	22.07	2.61	2.08
65	16.59	18.89	3.08	2.18
70	13.80	15.55	3.65	2.59
75	11.04	12.28	4.73	3.66
80	8.48	9.37	6.76	5.66
85	6.31	7.02	10.10	8.94
90	4.57	5.26	15.34	13.12

# Actuarial Assumptions for Redford Township – General as of March 31, 2020

## Retirement Rates

A schedule of retirement rates is used to measure the probability of eligible members retiring during the next year. Certain retirement service amounts (normal retirement) or age (early reduced pension retirement) may not apply, depending on the benefit age of first eligibility.

### Normal Retirement – Unreduced Pension Benefit Service Based Retirement Rates

Sample Years of Service	Percent of Eligible Active Members Retiring within Next Year <sup>#</sup>	Sample Years of Service	Percent of Eligible Active Members Retiring within Next Year <sup>#</sup>
Under 5	15.00 %	23	26.00 %
5	15.00	24	30.00
6	15.00	25	34.00
7	15.00	26	25.00
8	15.00	27	25.00
9	15.00	28	25.00
10	20.00	29	25.00
11	20.00	30	25.00
12	20.00	31	28.00
13	20.00	32	28.00
14	20.00	33	28.00
15	20.00	34	28.00
16	20.00	35	25.00
17	20.00	36	25.00
18	20.00	37	25.00
19	20.00	38	25.00
20	20.00	39	25.00
21	22.00	40 and Over	25.00
22	24.00		

*# For Appointed/Elected members eligible prior to age 50, the retirement rate is 3% per year.*

Rates of retirement are set to 100% beginning at age 85.

# Actuarial Assumptions for Redford Township – General as of March 31, 2020

## Early Retirement (Reduced Pension Benefit)

<b>Retirement Ages</b>	<b>Percent of Eligible Active Members Retiring within Next Year</b>
50	4.00 %
51	4.00
52	4.00
53	4.00
54	4.00
55	4.00
56	4.00
57	4.00
58	4.00
59	4.00

## Actuarial Assumptions for Redford Township – General as of March 31, 2020

*Rates of separation from active membership* are used to estimate the number of employees at each age that are expected to terminate employment before qualifying for retirement benefits. The rates of separation from active membership do not apply to members eligible to retire, and do not include separation on account of death or disability. The assumed rates of separation applied in the current valuation are based on years of service. Sample rates of separation from active employment are shown below.

Sample Years of Service	Percent of Active Members Withdrawing Within the Next Year
0	23.40 %
1	19.50
2	15.80
3	12.50
4	10.30
5	8.30
6	7.20
7	6.60
8	6.00
9	5.70
10	5.40
11	5.20
12	4.70
13	4.50
14	4.20
15	4.00
16	3.90
17	3.70
18	3.40
19	3.20
20	3.10
21	3.00
22	2.80
23	2.80
24	2.70
25 and Over	2.60

# Actuarial Assumptions for Redford Township – General as of March 31, 2020

## Disability Rates

Disability rates are used in the valuation to estimate the incidence of member disability in future years. The assumed rates of disablement at various ages are shown below.

Sample Ages	Percent Becoming Disabled within the Next 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

80% of the disabilities are assumed to be non-duty and 20% of the disabilities are assumed to be duty related.

## Miscellaneous and Technical Assumptions Redford Township – General as of March 31, 2020

<b>Administrative Expenses</b>	No explicit assumption has been made for administrative expenses.
<b>Decrement Operation</b>	Disability and withdrawal do not operate during retirement eligibility.
<b>Decrement Timing</b>	Decrements of all types are assumed to occur mid-year.
<b>Eligibility Testing</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Incidence of Contributions</b>	Contributions are assumed to be received continuously throughout the year based upon the computed contribution shown in this report.
<b>Life Insurance</b>	Lump sum benefit was valued.
<b>Marriage Assumption</b>	80% of actives are assumed to be married for purposes of the death-in-service decrements. Male spouses are assumed to be three years older than female spouses for active member valuation purposes and for purposes of two-person retiree coverages where a spouse date of birth was not provided.
<b>Medicare Coverage</b>	Assumed to be available for all covered employees on attainment of age 65. Disabled retirees were assumed to be eligible for Medicare coverage at age 65.
<b>Election Percentage</b>	It was assumed that all members would elect coverage. It was assumed that 70% of members would elect two-person coverage, if eligible. For those that elect two-person coverage, it was assumed that coverage would continue to the spouse upon death of the retiree, if eligible.

## APPENDIX

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## Glossary

**Accrued Service.** The service credited under the plan which was rendered before the date of the actuarial valuation.

**Actuarial Accrued Liability.** The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

**Actuarial Assumptions.** Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

**Actuarial Cost Method.** A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

**Actuarial Equivalent.** A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

**Actuarial Present Value.** The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

**Amortization.** Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

**Actuarially Determined Contribution (ADC).** The ADC is the normal cost plus the portion of the unfunded actuarial accrued liability to be amortized in the current period. The ADC is an amount so that, if paid on an ongoing basis, it would be expected to provide sufficient resources to fund both the normal cost for each year and the amortized unfunded actuarial accrued liability.

**Governmental Accounting Standards Board (GASB).** GASB is the private, nonpartisan, nonprofit organization that works to create and improve the rules U.S. state and local governments follow when accounting for their finances and reporting them to the public.

**Implicit Rate Subsidy.** It is common practice for employers to allow retirees to continue in the employer's group health insurance plan (which also covers active employees), often charging the retiree some portion of the premium charged for active employees. Under the theory that retirees have higher utilization of services, the difference between the true cost of providing retiree coverage and what the retiree is being charged is known as the implicit rate subsidy.





## Glossary

**Medical Trend Rate (Health Care Inflation).** The increase in the cost of providing health care benefits over time. Trend includes such elements as pure price inflation, changes in utilization, advances in medical technology, and cost shifting.

**Normal Cost.** The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

**Other Postemployment Benefits (OPEB).** OPEB are postemployment benefits other than pensions. OPEB generally takes the form of health insurance, dental, vision, prescription drugs, life insurance or other health care benefits.

**Reserve Account.** An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

**Unfunded Actuarial Accrued Liability.** The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded actuarial accrued liability."

**Valuation Assets.** The value of current plan assets recognized for valuation purposes.