Midland County Retiree Health Care Plan

Twenty-Fourth Actuarial Valuation

December 31, 2016

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August 21, 2017

The Retiree Health Plan Board
Midland County
Midland, Michigan

Dear Board Members:

Submitted in this report are the results of the 24th actuarial valuation of the assets, benefit values and contribution requirements associated with the retiree health care plan sponsored by the County. The purpose of the valuation is to measure the Plan's funding progress, determine a contribution amount for the associated fiscal year and provide actuarial information in connection with applicable Governmental Accounting Standards Board Statements. This report should not be relied upon for any other purpose. This report may be distributed to parties other than the Board only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The date of the valuation was December 31, 2016. The valuation was based upon actuarial assumptions adopted by the Retiree Health Plan Board and information furnished by the County, concerning retiree health benefits, financial transactions, individual employees, terminated employees, retirees and beneficiaries. Data was checked for internal consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided.

Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements.

This report was prepared by actuaries with substantial experience in valuing public employee retirement systems. To the best of our knowledge, this report is complete, accurate and prepared in accordance with actuarial standards of practice prescribed by the Actuarial Standards Board. Louise M. Gates and James D. Anderson are independent of the plan sponsor and are Members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Louise Gates — James D. Anderson

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SECTION A

EXECUTIVE SUMMARY

1. Required County Contributions - Fiscal Year Beginning January 1, 2018

The computed employer contribution for both the Sheriff's Department and General employees of the Midland County Retiree Health Care Plan (the Plan) is shown below:

Employment Division	Computed Employer Contribution	
	% of Payroll	$ Amount
Midland County - Total	N/A	$4,584,516

2. Contribution Rate Comparison

Contribution amounts for both the current and prior valuations are shown below:

Employment Division	Computed Employer Contributions as of the Indicated Valuation Date	
	12/31/2015	12/31/2016
Midland County - Total	$4,162,709	$4,584,516

3. Reasons for Change

There are three general reasons why contributions change from one valuation to the next. The first is a change in the benefits or eligibility conditions of the Plan. The second is a change in the valuation assumptions used to predict future occurrences. The third is the difference during the year between the Plan's actual experience and what the assumptions predicted.

The employee contribution rate for Sheriff's department members was increased so that all employees now contribute 3.0% of pay to the Plan. In addition, the retiree health care trend assumption was updated from the last valuation to better reflect anticipated future increases in retiree health care costs. The rest of the changes are attributable to plan experience, and lower than recommended employer contributions to the Plan.

4. Plan Experience

During calendar year 2016 claims costs were overall higher than anticipated by actuarial assumptions. The rate of investment return on trust assets during the 2016 plan year was higher than long term expectations. Additional information related to the investment experience for the 2016 plan year is shown on pages D-3 and D-4.

5. Year 2016 Funding Position

The Plan's funding percent based on the total actuarial value of assets was 33.0% as of December 31, 2016. The funding percent last year was 34.6%. If the market value of assets was used to determine the Plan's funding percent, the result would be 35.0% as of December 31, 2016.

Unless otherwise indicated, a funding status measurement shown in this report is based upon the Plan's actuarial accrued liabilities and the actuarial value of assets. It is important to note that the funding status measurement presented in this report is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations and the need for or the amount of future employer contributions.

6. Accounting Standards

The Governmental Accounting Standard's Board (GASB) has issued new accounting standards for retiree health plans. GASB Statement Number 74 will be effective for the plan year ending December 31, 2016. GASB Statement Number 75 will be effective the following year. A separate report will be needed to comply with the new actuarial requirements of the statements.

SECTION B

VALUATION RESULTS

Financial Objective

The financial objective of the Retiree Health Care Plan is to establish and receive contributions, which will permit the accumulation of assets to pay for the retirement benefit promises. Your annual retiree health benefit valuations determine how well the objective is being met.

Contributions

The retiree health benefits are supported by contributions from the employer and active members and by the investment income earned on accumulated Plan assets. General County employees and Sheriff's department employees contribute 3% of pay to the Plan. This valuation provides an actuarially determined employer contribution needed to meet the financial objective.

Member and employer contributions cover both (i) normal cost, and (ii) the financing of the unfunded accrued liability over a period of future years. The normal cost is the portion of health benefit costs allocated to the current year by the valuation method described in Section E. The unfunded accrued liability is the portion of costs not covered by present Plan assets and future normal costs.

The contribution requirements for retiree health benefits for the fiscal year beginning January 1, 2018 are presented on the next page.

Contributions to Provide Retiree Health Benefits for all Employment Groups for the Fiscal Year Beginning January 1, 2018

Contributions for	Expressed as Both %'s of Member Payroll and $ Contributions
Total Normal Cost %	16.54 %
Employee Contribution rate	3.00
Employer Normal Cost %	13.54
Employer Normal Cost $	$ 1,055,958
Unfunded Accrued Liabilities	$ 3,528,558
Computed Employer Contribution	$ 4,584,516

Unfunded Accrued Liabilities (UAL) were financed using a level dollar amortization method over a 27-year period.

Methods for determining contribution amounts are shown on the next page.

Page B-4 shows the unfunded accrued liabilities that are being amortized by the amounts shown above.

Converting Contribution Rates to Dollar Amounts

For any period of time, the percent-of-payroll contribution rate needs to be converted to dollar amounts. We recommend one of the following procedures:

(1) The normal cost component of the contribution, expressed as a percent-of-payroll could be multiplied by covered active member payroll for the period and added to the UAL payment shown on the prior page to get the total County contribution.

(2) Contribute the dollar amounts shown on the prior page. These amounts are based in part on 2016 valuation payroll projected to the fiscal year for which the contributions are being determined.

Determination of Unfunded Accrued Liability as of December 31, 2016

	All Employment Groups
A. Accrued Liability	
1. For retirees and beneficiaries	$ 42,959,495
2. For vested terminated members	3,774,382
3. For present active members	
a. Value of expected future benefit payments	35,554,583
b. Value of future normal costs	11,016,166
c. Active member liability: (a) - (b)	24,538,417
4. Total	71,272,294
B. Valuation Assets	23,521,746
C. Unfunded Accrued Liability: (A.4) - (B)	47,750,548
D. Funding Ratio: (B) / (A.4)	33.0%

SECTION C

CASH FLOW PROJECTIONS

Cash Flow Projections

Until a retirement program reaches a mature state, the number of members receiving benefits will continue to increase, with commensurate increases in the amount of benefit disbursements. When the retirement benefits being paid are health insurance premiums, monthly health rates can be expected to increase as the result of health care inflation, changes in utilization and Medicare cost shifting. When both of these reasons for increased disbursements apply, as they do for the Midland County Retiree Health Plan, it is reasonable to expect that the amount of the Plan's annual disbursements will increase for years to come.

We have projected the Plan's disbursements over the next 10 years. The projections are based upon the same assumptions as were used for the valuation of Plan costs. The schedule on the following page shows the anticipated disbursements for the current Plan members.

10-Year Projection of Benefit Disbursements
All Midland County Retiree Health Care Plan Members

	Retiree Health Payments on Behalf of Present			
Year	Retirees	Employees	Inactives	Total
1	$ 2,520,200	$ 59,600	$ 45,700	$ 2,625,500
2	2,610,800	174,100	59,200	2,844,100
3	2,711,400	288,500	78,500	3,078,400
4	2,719,700	411,000	89,100	3,219,800
5	2,778,100	560,100	94,200	3,432,400
6	2,885,100	721,000	79,700	3,685,800
7	2,977,900	876,300	103,800	3,958,000
8	3,001,200	1,030,600	122,500	4,154,300
9	3,049,200	1,201,600	145,300	4,396,100
10	3,103,800	1,367,900	181,600	4,653,300

Year 1 in the chart above is calendar year 2017.

SECTION D

SUMMARY OF BENEFIT PROVISIONS, ASSETS AND VALUATION DATA

Brief Summary of Current Benefits
(December 31, 2016)

REGULAR RETIREMENT*

General County Employees.	Coverage begins at retirement: age 55, ages 60 or 65 or 25 years of service with age and service totaling 85 or more. Spouse and eligible dependents are included if there is no other health care coverage.
Sheriff's Deputies and Command Officers.	Coverage begins at retirement: Age 50 with 25 years of service, or age 60 with 10 years of service. Spouse and eligible dependents are included if there is no other health care coverage.

** Including retirement from a deferred status and disability retirement.*

DEATH AFTER RETIREMENT

General County Employees. Sheriff's Department Employees.	Spouse and eligible dependent coverage as long as surviving spouse is in receipt of retiree's pension.

NON-DUTY DEATH-IN-SERVICE

General County Employees.	None.
Sheriff's Deputies and Command Officers.	Spouse and eligible dependent coverage for six months after employee's death.

DUTY DEATH-IN-SERVICE

General County Employees.	None.
Sheriff's Deputies and Command Officers.	Coverage for surviving spouse until death or remarriage.

Brief Summary of Current Benefits
(December 31, 2016)

MEMBER CONTRIBUTIONS

General County Employees.	3.0% of pay.
Sheriff's Deputies and Midland Sheriff Employees	3.0% of pay.
Command Officers.	3.0% of pay.

REFUND OF MEMBER CONTRIBUTIONS

General County Employees.	Employee contributions with accumulated interest are refunded upon termination of employment prior to becoming eligible for health care benefits without rights to health benefits from the plan.
Command Officers and Deputies.	Employee contributions with accumulated interest are refunded upon termination of employment prior to becoming eligible for retiree health care benefits.

RETIREE CONTRIBUTION

A retiree with less than 20 years of County service pays 5% of the cost of spouse health coverage for each year of service under 20 years. The retiree's contribution will not exceed 50% of the spouse's cost. In addition, for individuals retiring on or after January 2012 and 2013, the retiree will pay the difference between the applicable capped medical and prescription drug benefits as defined by PA 152 of 2011 and the illustrative BCBS premium rate.

OTHER

Effective at various dates beginning with January 1, 2007, the Retiree Health Care Plan was closed to all new County employees.

Reported Financial Information
Year Ended December 31, 2016

(Market Value)

Revenues and Disbursements

	2015	2016
Revenues:		
a. Member contributions	$ 166,054	$ 214,163
b. Employer contributions	1,720,286	1,577,541
c. Investment income	623,515	1,479,594
d. Total	2,509,855	3,271,298
Disbursements:		
a. Health care benefits	$2,361,124	$2,489,922
b. Refunds	16,743	0
c. Investment and non-investment expenses	113,976	148,844
d. Other	0	0
e. Total	2,491,843	2,638,766
Reserve Increase:		
Revenues minus disbursements	18,012	632,532
Net Market Value Rate of Return	2.33%	5.89%

The market value of Plan assets as of December 31, 2016 was reported to be $24,965,249.

Development of Valuation Assets

(a) Valuation assets December 31, 2015	$22,840,905
(b) 2016 contribution income	1,791,704
(c) 2016 net interest and dividend income	461,585
(d) 2016 benefit payments and refunds	2,489,922
(e) 2016 administrative expenses	80,236
(f) Preliminary valuation assets: (a)+(b)+(c)-(d)-(e)	22,524,036
(g) Market value adjustment	

2012	1,378,803	/5	=	$ 275,761
2013	2,097,810	/5	=	419,562
2014	365,506	/5	=	73,101
2015	197,031	/5	=	39,406
2016	949,401	/5	=	189,880

	997,710
(h) Intermediate valuation assets: (f)+(g)	23,521,746
(i) Corridor requirement:	
1) Lower limit: 80% x market value	19,972,199
2) Upper limit: 120% x market value	29,958,299
3) Adjustment to (h) to fit limits	N/A
(j) Final valuation assets December 31, 2016: (h)+(i) (3)	23,521,746
(k) Net asset yield	6.5%

Members Receiving Retiree Health Benefits
as of December 31, 2016

	Number of Benefit Recipients*	
	Sheriff's Department	General County
Retiree Health Contracts	42	145

** This schedule excludes those retirees who have opted out of the retiree health program or are ineligible for benefits.*

The number of health benefit recipients shown above refers to the number of insurance contracts as opposed to the number of individuals covered under the Plan.

In addition to the benefit recipients shown above, there were 19 terminated vested County employees included in this valuation of the Plan. These individuals are eligible for Plan benefits at a future date.

General County Active Members December 31, 2016
by Age and Years of Service

	Years of Service on Valuation Date							Totals	
Age	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39		1	4	5				10	$ 495,993
40-44			5	10	1			16	893,266
45-49			8	7	5	4		24	1,433,164
50-54			6	6	2			14	853,690
55-59			3	9	5	3	1	21	1,166,615
60				2	1		1	4	283,581
61					2			2	123,191
62				1				1	48,452
63							1	1	46,024
64			1	1				2	186,487
65			2				1	3	208,187
66		1						1	35,681
Totals		**2**	**29**	**41**	**16**	**7**	**4**	**99**	**$5,774,331**

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

Age: 50.2 years

Service: 18.1 years

Annual Pay: $58,327

Sheriff's Department Active Members December 31, 2016
by Age and Years of Service

	Years of Service on Valuation Date							Totals	
Age	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No	Valuation Payroll
30-34		1						1	$ 55,812
35-39			11	1				12	723,155
40-44			2	7	1			10	636,352
45-49			1	2	4	3		10	701,419
50-54			1		1	1		3	213,812
55-59				1				1	66,754
Totals		**1**	**15**	**11**	**6**	**4**		**37**	**$2,397,304**

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

Age: 42.9 years

Service: 17.0 years

Annual Pay: $64,792

SECTION E

ACTUARIAL METHODS, ACTUARIAL ASSUMPTIONS AND PREMIUM DEVELOPMENT

Valuation Methods

The normal cost was computed as follows:

The series of contributions necessary to accumulate the present value at time of retirement of an employee's health insurance benefits was computed so that each contribution in the series, from entry-age to retirement, was a constant percentage of the employee's year-by-year projected covered compensation. This is referred to as the individual entry-age actuarial cost method.

The accrued liability was computed as follows:

Retirees and Beneficiaries: The discounted value of health insurance premiums likely to be paid for retirees and beneficiaries was computed using the investment return, premium increase and mortality assumptions.

Active and Inactive Employees. The discounted value of health benefits likely to be paid for active and inactive employees was computed using the assumptions outlined on the following pages and was reduced by the value of normal costs to be paid for service after the valuation date.

Asset Valuation Method. The valuation assets at the beginning of the year are increased by contributions and regular investment income and reduced by benefit payments and administrative expenses. This preliminary value is then adjusted by 20% of the market value gains and losses for each of the previous five years. If necessary, this amount will be adjusted to fall within 20% of market value.

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities were amortized by level dollar contributions over 27 years.

Actuarial Assumptions Used for the Valuation

Investment Return (net of investment expenses).

The rate of investment return compounded annually, net of investment expenses was assumed to be 5.50% per year.

Pay Projections. These assumptions are used to project current pays to those upon which future contributions will be paid. The Base (Economic) assumptions were first used for the December 31, 2015 valuation.

Annual Rate of Pay Increase - General			
Years of Service	**Base (Economic)**	**Merit and Longevity**	**Total**
1	3.0 %	4.4 %	7.4 %
2	3.0	4.4	7.4
3	3.0	4.4	7.4
4	3.0	4.4	7.4
5	3.0	4.4	7.4
6	3.0	4.4	7.4
7	3.0	1.7	4.7
8	3.0	1.7	4.7
9	3.0	1.7	4.7
10	3.0	1.7	4.7
11	3.0	1.7	4.7
12 and over	3.0	1.0	4.0

Annual Rate of Pay Increase for Sample Ages - Sheriff			
Sample Ages	**Base (Economic)**	**Merit and Longevity**	**Total**
20	3.5 %	3.0 %	6.5 %
25	3.5	3.0	6.5
30	3.5	2.6	6.1
35	3.5	1.1	4.6
40	3.5	0.2	3.7
45	3.5	0.2	3.7
50	3.5	0.2	3.7
55	3.5	0.1	3.6
60	3.5	0.0	3.5

Mortality. For General County Employees, the post-retirement mortality table used was the RP-2014 Healthy Annuitant Mortality Table projected to 2020 using a static projection based on the 2 dimensional MP-2014 improvement scales. For Sheriff's Department Employees, the post-retirement mortality table used was the RP-2014 Healthy Annuitant Mortality Table projected to 2025 using a static projection based on the 2 dimensional MP-2014 improvement scales. These assumptions were first used for the December 31, 2015 valuation and were developed based on the results of the 2015 assumption studies. Sample values follow:

General County Employees

Sample Ages	Future Life Expectancy (Years) Men	Future Life Expectancy (Years) Women
50	33.38	36.08
55	29.04	31.57
60	24.85	27.14
65	20.81	22.86
70	16.95	18.78
75	13.35	14.97
80	10.09	11.50

Sheriff's Department

Sample Ages	Future Life Expectancy (Years) Men	Future Life Expectancy (Years) Women
50	33.92	36.62
55	29.56	32.08
60	25.34	27.64
65	21.26	23.33
70	17.37	19.22
75	13.73	15.36
80	10.42	11.85

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. The membership size in this group is not sufficiently large to determine if there is a margin for mortality improvements. However, based upon our experience with a broad cross section of public sector plans similar in nature to this plan, it is our opinion that there is a provision for future mortality improvement in the current mortality assumption.

Pre-retirement mortality rates for current General County Employees are 95% of the standard mortality rates and for current Sheriff's Department Employees are 100% of the standard mortality rates.

Disabled mortality rates are the standard post-retirement rates set forward 10 years.

The rates of retirement used to measure the probability of eligible members retiring during the next year were as follows:

General County Employees Retirement			
Age	Rate	Age	Rate
50	15 %	60	20 %
51	10	61	10
52	10	62	20
53	10	63	10
54	10	64	10
55	10	65	80
56	10	66	30
57	10	67	40
58	10	68	50
59	10	69	90
		70	100

Sheriff's Department Retirement	
Age	Rate
50	30 %
51	20
52	15
53	15
54	15
55	15
56	15
57	15
58	15
59	30
60	100

Rates of disability were as follows:

Sample Ages	% of Active Members Becoming Disabled Within Next Year: Male	Female
20	0.07 %	0.03 %
25	0.09	0.05
30	0.10	0.07
35	0.14	0.13
40	0.21	0.19
45	0.32	0.28
50	0.52	0.45
55	0.92	0.76
60	1.53	1.10

For the Sheriff's Department, 50% of disabilities are assumed to be duty-related.

Rates of separation from active membership were as shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

		% of Active Members Separating Within Next Year	
Sample Ages	**Years of Service**	**General County**	**Sheriff's Department**
ALL	0	30.00 %	15.00 %
	1	20.00	11.25
	2	15.00	8.75
	3	10.00	6.25
	4	7.00	5.63
20	5 & Over	6.00	5.63
25		6.00	5.63
30		6.00	4.88
35		6.00	2.88
40		6.00	1.13
45		3.50	0.63
50		1.50	0.63
55		1.50	0.63
60		1.50	0.63

Election of two-person coverage - For the General group, 65% of men and 30% of women were assumed to elect two-person coverage at retirement. For the Sheriff's group, 70% of men and 30% of women were assumed to elect this coverage. This assumption is used to predict the extent of premiums for single persons and for couples and participants who have not yet retired.

Election of joint and survivor option - For the General group, 75% of men and 20% of women were assumed to elect a joint and survivor option at retirement. For the Sheriff's group, 100% of men and women were assumed to retire with a joint and survivor option. This assumption is used to predict coverage for survivors of deceased retirees.

Medicare coverage was assumed to be available for all covered employees on attainment of age 65, or immediately if retired for disability.

Administration expenses - 0.10% of payroll.

Decrement Timing - Decrements of all types are assumed to occur mid-year.

Decrement Operation - Disability and mortality decrements do not operate during the first 5 years of service.

Decrement Relativity - Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Eligibility Testing - Eligibility for benefits is determined based upon the age nearest birthday and exact fractional service.

Incidence of Contributions - Contributions are assumed to be received continuously throughout the year.

Retiree Premium Rate Development

Initial premium rates were developed for the two classes of retirees (pre-65 and post-65). For the self-funded medical and prescription drug benefits, the actual claim experience and exposure data provided by Blue Cross Blue Shield of Michigan (BCBSM) for calendar years 2014, 2015 and 2016 were used for developing the initial rates effective January 1, 2017. Pre-65 and post-65 medical retiree experience were analyzed separately due to the significant impact of the Medicare program on the post-65 claim costs. Prescription drug experience was also analyzed separately.

The separate premium rates were developed for current retirees in the General and Sheriff groups in order to reflect the different benefit plans that are available to each respective group. Current General retirees are in suffixes 902, 905, 906, 907, 908, 909, 914, 918, 919, and 920. Current Sheriff retirees are in suffixes 901, 904, 905, 907, 908, 909, 914, 918, and 920. The future suffixes available to General and Sheriff retirees are 905, 919, and 920. Future retirees on/after January 1, 2012 who participate in suffixes 914, 918, 919, and 920 are subject to the hard cap limits of Michigan Public Act 152 of 2011. For coverage years beginning on January 1, 2017, the annual limits are $6,344.80 for a single retiree, $13,268.93 for a retiree and spouse and $17,304.02 for family coverage.

Age graded and sex distinct premiums are utilized in 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 specific age/sex combination. The age/sex specific premiums more accurately reflect health care cost and utilization at that age.

The monthly one-person medical premiums for participants at select ages are shown on the following page.

Retiree Premium Rate Development

Monthly 1-Person Premium Rates for Medical and Prescription Drugs				
	General Division		Sheriff's Department	
Age	Male	Female	Male	Female
	Current Retirees		Current Retirees	
55	$ 749.54	$ 818.38	$ 968.55	$ 1,057.52
60	968.07	953.21	1,250.94	1,231.74
64	1,177.19	1,110.95	1,521.17	1,435.58
65	565.45	533.34	669.40	631.37
70	615.98	596.06	729.21	705.63

Future Retirees		
Age	Male	Female
55	$ 773.26	$ 844.29
60	998.71	983.39
64	1,214.46	1,146.12
65	565.45	533.34
70	615.98	596.06

The dental premium rates for retirees were not “age graded” for this valuation since these claims do not vary significantly by age. The pre-65 dental rates used for this valuation were $23.13 for the first person and $23.13 for the second person per month. Pre-65 vision rates used were $4.39 for the first person and $4.40 for the second person per month.

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.

James E. Pranschke

James E. Pranschke, FSA, MAAA

Health Cost Trend Assumption

Background

Retiree health care valuations require an assumption about how the health costs that the plan is absorbing will change over the years. This assumption includes more than just "health inflation." It includes the impact of:

- The introduction of new procedures and medications and how they are priced.
- The utilization of services and products by covered retirees and their dependents and how that utilization changes over the years.

Retiree health valuations use a health cost trend assumption that changes over the years. The near term rates reflect the fact that currently employers are seeing sharp increases in the cost of health goods and services. However, they do not anticipate that health costs will increase at these rates indefinitely. To do so would be to ignore the real world implications of this sort of projection. For example, if health costs represent 20% of disposable income initially and grow at 12% per year for the next 10 years while disposable income increases at 4% would imply that after 10 years health costs would absorb 40% of our disposable income. Over a 20-year period, these rates of increase would imply that at the end of the 20-year period, health costs would absorb almost 80% of our disposable income.

The valuations attempt to deal with the future by recognizing that it is more reasonable to assume that current trends will have to change in the future before we reach the absurd situation of having little or no money to spend on things that are not related to health (including food, shelter, clothes, etc.). Health costs are assumed to increase at rates greater than general inflation for a temporary "cooling off" period. At the end of the cooling off period, health costs are assumed to increase in line with general inflation. As years elapse, there are fewer remaining years in the cooling off period. A summary of the rates of medical inflation used in this valuation of the program are shown on the next page.

Health Cost Trend and Related Assumptions

Rates of Inflation for Retiree Health Benefits

Year Ending Dec 31,	Health Cost Increases Medical/Drug	Dental/Vision
2018	9.00 %	3.50 %
2019	8.25	3.50
2020	7.50	3.50
2021	6.75	3.50
2022	6.25	3.50
2023	5.75	3.50
2024	5.25	3.50
2025	4.75	3.50
2026	4.25	3.50
2027 & After	3.50	3.50

Cumulative Age Factors at Select Ages

Age	Male	Female
45	0.475	0.655
50	0.618	0.762
55	0.813	0.888
59	1.000	1.000
60	1.051	1.034
65	1.320	1.245

Glossary

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." Under the actuarial cost method used the "AAL" differs somewhat from the value of future payments based on benefits earned as of the valuation date.

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

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, retirement, investment income and salary increases. Decrement assumptions (rates of mortality, separation 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 appropriate 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 normal costs to be paid in the future and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

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 contributions of interest and principal, as opposed to a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." An amortization payment toward the unfunded actuarial accrued liability is in addition to the normal cost.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for the future service and salary. The termination liability will generally be less than the liabilities computed on a "going-concern" basis and is not normally determined in a routine actuarial valuation.

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 accrued liability."

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

APPENDIX

Required Supplementary Information
Schedule of Funding Progress for the Retiree Health Plan

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)
2009	$18,536,454	$51,403,291	$32,866,837	36.1	$11,411,331
2011	19,492,079	53,084,882	33,592,803	36.7	10,381,948
2013	21,145,002	56,434,810	35,289,808	37.5	9,751,849
2014	22,263,715	59,867,986	37,604,271	37.2	8,755,065
2015	22,840,905	65,950,792	43,109,887	34.6	8,510,773
2016	23,521,746	71,272,294	47,750,548	33.0	8,171,635

Required Supplementary Information
Schedule of Employer Health Contributions

Valuation Date Dec. 31	Fiscal Year Ended Dec. 31	Total Actuarially Computed Employer Contribution	Total Actual Contributions	Percentage Contributed
2007	2010	$3,689,109	$1,240,760	33.6%
2009	2011	4,125,335	1,276,441	30.9%
2009	2012	4,323,497	1,266,541	29.3%
2011	2013	3,947,578	1,325,171	33.6%
2011	2014	4,100,781	1,517,522	37.0%
2013	2015	3,959,083	1,720,286	43.5%
2014	2016	4,029,878	1,577,541	39.1%
2015	2017	4,162,709		
2016	2018	4,584,516		

Required Supplementary Information for the Retiree Health Plan

The following assumptions and methods were used in the December 31, 2016 actuarial valuation for the Retiree Health Plan:

Valuation Date	December 31, 2016
Actuarial Cost Method	Entry-Age
Amortization Method	Level dollar, closed
Remaining Amortization Period	27 years
Asset Valuation Method	5-year smoothed market
Premium Rate Development Method	Please refer to Section E
Actuarial Assumptions	Please refer to Section E
Annual Rate of Return (discount rate)	5.50% per year
Dependent Coverage Elections	Please refer to Section E
Coverage Election	All eligible future retirees are assumed to elect benefits
Rates of Inflation for Medical Benefits	Please refer to Section E

GRS Retirement Consulting

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August 21, 2017

Mr. Craig Maxwell
Benefits Accountant
220 West Ellsworth Street
Midland, Michigan 48640-5194

Re: Retiree Health Valuation Report

Dear Mr. Maxwell:

We are pleased to provide you with this copy of the December 31, 2016 Actuarial Valuation of the Retiree Health Care Plan provided by Midland County. We look forward to meeting with you and the Board to discuss the report.

Sincerely,

Louise Gates

Louise M. Gates

LMG:dj
Enclosures

One Towne Square | Suite 800 | Southfield, Michigan 48076-3723