



15800 Bluemound Road
Suite 100
Brookfield, WI 53005-6043
USA

Main +1 262 784 2250
Fax +1 262 923 3687

www.milliman.com

August 10, 2016

PERSONAL & CONFIDENTIAL

Mr. Michael Bosanac
County of Monroe
125 East Second Street
Monroe, Michigan 48161

RE: Actuarial Assumptions for the January 1, 2016 GASB 45 Valuation

Dear Mr. Bosanac:

This letter outlines the economic and demographic assumptions used in the January 1, 2016 actuarial valuation of retiree medical benefits under GASB 45 for Monroe County. A number of assumptions have been updated in the January 1, 2016 actuarial valuation based on the revised assumptions used in the December 31, 2014 Monroe County Employees Retirement System (MCERS). Based upon the data and information we received, we used the following assumptions:

1. **Discount Rate:** 5.50% (unchanged from prior valuation). The discount rate reflects the partial funding anticipated by the County and follows GASB's Implementation Guide for GASB Statements 43 and 45. The process we used to develop the discount rate is as follows:
 - a. Determine expected long term rate of return on both trust fund assets using the December 31, 2015 asset allocation and on the County's assets assuming that the County's funds are invested in short term fixed income investments.
 - b. Estimate the percentage of the Annual Required Contribution (ARC) that the County is contributing to the plan.
 - c. Select a discount rate from the range in (a) above based on the percentage of the ARC the County is expected to contribute to the plan.

The analysis used in setting the January 1, 2016 discount rate is summarized below:

- a. Expected long term rate of return¹

Expected Long Term Rate of Return	
County Assets	Trust Fund Assets
3.00%	6.50%

¹ Milliman's investment consultants develop long-term capital market expected returns based on current yields and valuation levels, published surveys of expert forecasts of real GDP growth and inflation, and historical risk measures of asset class return volatility and covariance. These capital market assumptions underlie our expected return model based on the guidance in Actuarial Standard of Practice No. 27 (ASOP27), *Selection of Economic Assumptions for Measuring Pension Obligations*. Our model considers asset allocation, expected return and variance of each class, and correlation and covariance between asset classes. We then analyze the output ranges and adjust for expected investment expenses in order to develop the expected long term rate of return assumption.

b. County's Funding Policy

i. Percentage of GASB 45 ARC contributed for FY 2011-2015 is as follows:

Fiscal Year	Total Contribution	Total ARC (Employee plus Employer)	Funded % of ARC
2011	\$6,123,990	\$6,752,713	90.69%
2012	6,810,500	9,087,406	74.94%
2013	6,483,447	8,868,718	73.10%
2014	6,669,735	9,264,797	71.99%
2015	7,486,835	12,818,063	58.41%
Total	\$33,574,507	\$46,791,697	71.75%

ii. Milliman's estimate of County's funding policy based on the contributions made in the last 5 fiscal years: contribute 70% of the ARC to the plan

c. Resulting Discount Rate for January 1, 2016 GASB 45 actuarial valuation:

$$[30\% \times 3.00\% + 70\% \times 6.50\%] = 5.45\%$$

Final result: use 5.50%

- Mortality Rates:** RP-2014 Blue Collar Mortality Tables (Healthy Annuitant, Employee, and Disabled, as appropriate) for Males and Females projected back to 2006 base year using Projection Scale MP-2014 with generational mortality improvement using Projection Scale MP-2015. This assumption set is first used in the January 1, 2016 GASB 45 valuation. The base mortality assumption is the same as used in the MCERS valuation, and the projection scale is the most recent set of assumptions provided by the Society of Actuaries in 2015. In our judgment, this mortality assumption is reasonable.
- Medical Claim Costs:** The projected pre-65 medical claim costs used in the valuation are based on the actual CY 2014 and 2015 combined experience of the County's active employees and pre-65 retirees. We projected CY 2014 and CY 2015 experience separately to CY 2016 and blended the results equally to determine targeted claim costs for CY 2016. We added an administrative cost component to the pre-65 projected claim costs. For post-65 retirees we used the CY 2016 Medicare supplement premiums.

Age	Male		Female	
	Single	Family	Single	Family
55	\$ 867	\$1,899	\$ 959	\$1,899
60	1,123	2,325	1,129	2,325
64	1,422	2,799	1,303	2,799
65	411	822	410	822
70	471	921	451	921

The pre-65 medical costs shown in the table above are multiplied by a factor of 0.945 for each of the next six years to reflect the phase-in of the health benefit plans available to future retirees.

4. **Monthly 2016 Retiree Premiums:** The current employee premium rates for plan members are shown in the following table.

Monthly 2016 Pre-Medicare Health Insurance Premiums				
Description	Single	Employee & Spouse	Employee & Child(ren)	Family
BCBSM PPO 1, \$10 Rx	\$801.22	\$2,003.06	\$1,602.47	\$2,403.70
BCBSM PPO 1, \$10/\$20/\$30 Rx	\$822.58	\$1,815.87	\$1,452.72	\$2,179.07
BCBSM PPO 1, \$10/\$40 Rx	\$694.47	\$1,736.21	\$1,388.98	\$2,083.46
BCBSM PPO 2, \$10/\$20/\$30 Rx	\$680.98	\$1,702.43	\$1,361.95	\$2,042.93
BCBSM PPO 2, \$10/\$40 Rx	\$649.11	\$1,622.77	\$1,298.21	\$1,947.32
BCBSM PPO 3, \$10/\$40 Rx	\$578.51	\$1,446.29	\$1,157.01	\$1,735.53
BCBSM PPO 3, \$10/\$20/\$30 Rx	\$610.38	\$1,525.95	\$1,220.75	\$1,831.14
BCBSM PPO 4, \$10/\$40 Rx	\$535.87	\$1,339.65	\$1,071.72	\$1,607.58
BCBSM PPO 5, \$10/\$40 Rx	\$520.48	\$1,301.19	\$1,040.95	\$1,561.43
BCBSM PPO 6, \$10/\$40 Rx	\$493.81	\$1,234.49	\$987.60	\$1,481.40
BCBSM PPO 3R, 50% (\$5/\$50) Rx	\$537.00	\$1,342.50	\$1,074.00	\$1,610.98
BCBSM PPO 6R, 50% (\$5/\$50) Rx	\$474.67	\$1,186.69	\$949.33	\$1,424.02
BCBSM FB3 w/H.S.A., Integrated Rx	\$393.06	\$982.65	\$786.12	\$1,179.19
BCBSM EPO 1, \$2 Rx (Formerly Paramount & Blue Care Network)	\$848.26	\$2,120.65	\$1,696.53	\$2,544.79
BCBSM EPO 2, \$10/\$20/\$30 Rx (Formerly Blue Care Network)	\$744.03	\$1,860.05	\$1,488.05	\$2,232.08
BCBSM EPO 1, \$10/\$20 Rx (Formerly Paramount)	\$818.91	\$2,047.24	\$1,637.80	\$2,456.70
BCBSM EPO 3, \$10/\$20/\$30 Rx (Formerly Paramount)	\$733.82	\$1,834.54	\$1,467.65	\$2,201.47
BCBSM CMM 1, \$5 Rx	\$944.38	\$2,360.97	\$1,888.78	\$2,833.15
BCBSM CMM 2, \$2 Rx	\$953.96	\$2,384.92	\$1,907.93	\$2,861.89
BCBSM CMM 3, \$2 Rx	\$951.50	\$2,378.73	\$1,902.98	\$2,854.49
BCBSM CMM 4, \$10 Rx	\$905.71	\$2,264.23	\$1,811.39	\$2,717.09

Monthly 2016 Post-Medicare Health Insurance Premiums		
Description	Single	Employee & Spouse
Plan F \$100 Deductible, \$10 Rx	\$497.40	\$994.80
Plan F \$100 Deductible, \$10/\$20/\$30 Rx	\$475.40	\$950.80
Plan F, \$100 Deductible, \$10/\$40 Rx	\$407.40	\$814.80
Plan F, \$100 Deductible, 50% (\$5/\$50) Rx	\$377.40	\$754.80
Plan F, \$0 Deductible, \$2 Rx	\$552.40	\$1,104.80
Plan F, \$0 Deductible, \$10 Rx	\$507.40	\$1,014.80
Plan F, \$0 Deductible, \$10/\$20/\$30 Rx	\$485.40	\$970.80
Plan F, \$100 Deductible, \$5 Rx	\$522.40	\$1,044.80
Plan F, \$50 Deductible, \$2 Rx	\$546.40	\$1,092.80
Plan F, \$100 Deductible, \$2 Rx	\$542.40	\$1,084.80

Monthly 2016 Dental and Vision Insurance Premiums				
Description	Single	Employee & Spouse	Employee & Child(ren)	Family
BCBSM Dental 1 (75%/25% w/ \$800 Max Benefit)	\$27.57	\$70.30	\$55.14	\$85.47
BCBSM Dental 2 (100%/75%/50% w/ \$1000 Max Benefit)	\$23.20	\$59.17	\$46.40	\$71.93
BCBSM Vision 1 (24 Month Exam, Lenses & Frames)	\$2.45	\$6.25	\$4.90	\$7.60
BCBSM Vision 2 (12 Month Exam, Lenses & Frames)	\$3.28	\$8.36	\$6.56	\$10.17
BCBSM Vision 3 (12 Month Exam & Lenses, 24 Month Frames)	\$3.23	\$8.23	\$6.46	\$10.01

5. **Annual Medical Trend Rate Assumptions:** The healthcare trend assumption is based on the Society of Actuaries-Getzen Model version 2014 utilizing the baseline assumptions included in the model for medical and pharmacy benefits. Further adjustments are made for aging, percentage of costs associated with administrative expenses, and trend on administrative costs. Short-term trends reflect current conditions and are graded into the long-term trend that takes into account a variety of factors such as medical cost increases, changes in utilization of healthcare services, and technological advances.

Annual Trend Rate—Pre-65			
Year	Medical	Year	Dental/Vision
2016	6.30%	2016	5.00%
2017	5.90	2017	5.00
2018	5.20	2018	5.00
2019	5.10	2019	5.00
2020	5.10	2020	5.00
2030	5.20	2030	5.00
2040	6.00	2040	5.00
2050	5.60	2050	5.00
2060	5.40	2060	4.90
2070	4.60		
2080	4.50		
2090	4.50		
Ultimate (2097)	4.40	Ultimate (2070)	4.30

Annual Trend Rate—Post-65			
Year	Medical	Year	Dental/Vision
2016	4.70%	2016	4.70%
2017	8.90	2017	5.00
2018	5.30	2018	5.00
2019	5.30	2019	5.00
2020	5.30	2020	5.00
2030	5.30	2030	5.00
2040	5.70	2040	5.00
2050	5.80	2050	5.00
2060	5.50	2060	5.00
2070	4.70	2070	4.40
Ultimate (2080)	4.50	Ultimate (2071)	4.30

6. **Withdrawal Rates:** Sample rates of employee withdrawal (exclusive of leaving active status by death or retirement) are illustrated in the table below. This assumption set is first used in the January 1, 2016 GASB 45 valuation and is the same assumption as used in the MCERS valuation.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Sheriff's Office & Dispatchers	General County & County Agency
ALL	0	22.50%	2.00%
	1	13.50	13.00
	2	10.50	12.00
	3	10.50	10.00
	4	10.50	8.00
25	5 & Over	3.00	6.12
30		3.00	6.12
35		2.00	5.44
40		2.00	5.10
45		1.75	3.40
50		1.00	3.40
55		0.50	0.85
60		0.00	0.85

7. **Disablement:** MCERS disability rates for all employees. Rates are shown in the table below. This assumption set is first used in the January 1, 2016 GASB 45 valuation and is the same assumption as used in the MCERS valuation.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Men	Women
20	0.1170%	0.1020%
25	0.1170	0.1020
30	0.1170	0.1020
35	0.1170	0.1020
40	0.3015	0.3560
45	0.3975	0.4050
50	0.7380	0.5670
55	1.3395	0.7660
60	2.1210	1.0170

8. **Retirement Rates:** Sample rates of employee retirement (exclusive of leaving active status by death or withdrawal) are illustrated below. This assumption set is first used in the January 1, 2016 GASB 45 valuation and is the same assumption as used in the MCERS valuation.

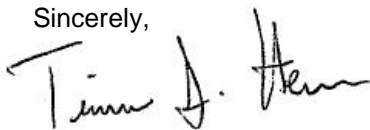
Age	Percent of Active Members Retiring Within Next Year	
	General County & County Agency	Sheriff's Office & Dispatchers
50		23.50%
51		23.50
52		23.50
53		31.25
54		31.25
55	37.50%	31.25
56	12.50	31.25
57	12.50	15.63
58	12.50	7.88
59	12.50	7.88
60	20.00	7.88
61	20.00	7.88
62	20.00	7.88
63	25.00	7.88
64	25.00	7.88
65	25.00	100.00
66	30.00	
67	30.00	
68	30.00	
69	30.00	
70	100.00	

Qualification Statement

We, Timothy J. Herman and Gerald R. Bernstein, are actuaries for Milliman, Inc. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. This letter uses the expertise of Milliman healthcare and retirement actuaries. Gerry is responsible for the work related to the current expected healthcare benefit costs and trend rates. Tim is responsible for projecting the current costs into future years using the valuation assumptions and methodology and then calculating the accounting costs and liabilities reported herein.

Please review these assumptions with your auditors and let us know if there are any questions.

Sincerely,



Timothy J. Herman, FSA, EA, MAAA
 Principal and Consulting Actuary



Gerald R. Bernstein, FSA, EA, MAAA
 Principal and Consulting Actuary

TJH/GRB/crl