



nyhart

# GASB 45 ACTUARIAL VALUATION

As of December 31, 2016

## St. Clair County

**Nyhart Actuary & Employee Benefits**

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**November 22, 2017**

**Tami Rumsey  
St. Clair County  
200 Grand River Avenue, Ste. 206  
Port Huron, MI 48060**

This report summarizes the GASB actuarial valuation for St. Clair County as of December 31, 2016. To the best of our knowledge, the report presents a fair position of the funded status of the plan in accordance with GASB Statement No. 45 (Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions).

The information presented herein is based on the actuarial assumptions and substantive plan provisions summarized in this report and participant information furnished to us by the Plan Sponsor. We have reviewed the employee census provided by the Plan Sponsor for reasonableness when compared to the prior information provided but have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based. When relevant data may be missing, we may have made assumptions we feel are neutral or conservative to the purpose of the measurement. We are not aware of any significant issues with and have relied on the data provided.

The discount rate and other economic assumptions have been selected by the Plan Sponsor. Demographic assumptions have been selected by the Plan Sponsor with the concurrence of Nyhart. In our opinion, the actuarial assumptions are individually reasonable and in combination represent our estimate of anticipated experience of the Plan. All calculations have been made in accordance with generally accepted actuarial principles and practice.

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); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement.

To our knowledge, there have been no significant events prior to the current year's measurement date or as of the date of this report that could materially affect the results contained herein.



Neither Nyhart nor any of its employees has any relationship with the plan or its sponsor that could impair or appear to impair the objectivity of this report. Our professional work is in full compliance with the American Academy of Actuaries "Code of Professional Conduct" Precept 7 regarding conflict of interest. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Should you have any questions please do not hesitate to contact us.

A handwritten signature in black ink that reads "Randy Gomez".

Randy Gomez, FSA, MAAA  
Consulting Actuary

A handwritten signature in black ink that reads "Evi Laksana".

Evi Laksana, ASA, MAAA  
Valuation Actuary

## Summary of Results

Presented below is the summary of GASB 45 results as of December 31, 2016 compared to the prior year as shown in the County's Notes to Financial Statement.

	<i>As of December 31, 2015</i>		<i>As of December 31, 2016</i>	
<b>Actuarial Accrued Liability</b>	\$	145,936,590	\$	153,360,160
<b>Actuarial Value of Assets</b>	\$	(40,218,063)	\$	(42,041,565)
<b>Unfunded Actuarial Accrued Liability</b>	\$	105,718,527	\$	111,318,595
<b>Funded Ratio</b>		27.6%		27.4%

	<i>FY 2016</i>		<i>FY 2017</i>	
<b>Annual Required Contribution</b>	\$	12,980,909	\$	14,223,015
<b>Annual OPEB Cost</b>	\$	9,843,142	\$	10,322,778
<b>Annual Employer Contribution</b>	\$	2,401,311	\$	2,203,406 <sup>1</sup>

	<i>As of December 31, 2016</i>		<i>As of December 31, 2017</i>	
<b>Net OPEB Obligation</b>	\$	76,416,799	\$	84,536,173

	<i>As of December 31, 2016</i>		<i>As of December 31, 2017</i>	
<b>Active Participants</b>		691		635
<b>Total Retiree Participants</b>		572		550

The active participants' number above may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

<sup>1</sup> Based on the County's estimated annual employer contributions for FY 2017.

Below is a breakdown of total GASB 45 liabilities allocated to past, current, and future service as of December 31, 2016 compared to the prior year.

	<i>As of December 31, 2015</i>		<i>As of December 31, 2016</i>	
<b>Present Value of Future Benefits</b>	\$	<b>176,329,832</b>	\$	<b>183,498,378</b>
Active Employees		91,330,590		96,283,293
Retired Employees		84,999,242		87,215,085
<b>Actuarial Accrued Liability</b>	\$	<b>145,936,590</b>	\$	<b>153,360,160</b>
Active Employees		60,937,348		66,145,075
Retired Employees		84,999,242		87,215,085
<b>Normal Cost</b>	\$	<b>3,184,703</b>	\$	<b>3,226,610</b>
<b>Future Normal Cost</b>	\$	<b>27,208,539</b>	\$	<b>26,911,608</b>

**Present Value of Future Benefits** is the amount needed as of December 31 to fully fund the County's retiree health care subsidies for existing and future retirees and their dependents assuming all actuarial assumptions are met.

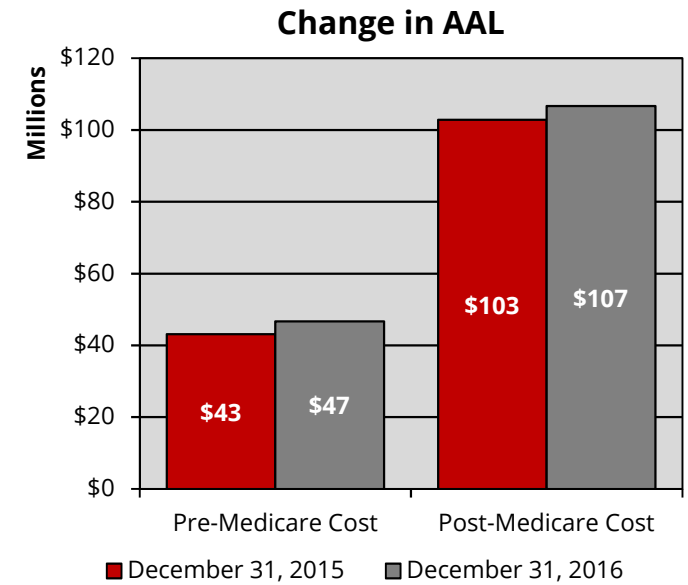
**Actuarial Accrued Liability** is the portion of PVFB considered to be accrued or earned as of December 31. This amount is a required disclosure in the Required Supplementary Information section.

**Normal Cost** is the portion of the total liability amount that is attributed and accrued for current year's active employee service by the actuarial cost method.

**Future Normal Cost** is the portion of the total liability amount that is attributed to the future employee service by the current year's valuation by the actuarial cost method.

Below is a breakdown of total GASB 45 Actuarial Accrued Liability (AAL) allocated to pre and post Medicare eligibility. The liability shown below includes explicit (if any) and implicit subsidies. Refer to the Substantive Plan Provisions section for complete information on the Plan Sponsor’s GASB subsidies.

<b>Actuarial Accrued Liability (AAL)</b>	<b>As of December 31, 2015</b>	<b>As of December 31, 2016</b>
Active Pre-Medicare	\$ 24,805,840	\$ 27,893,017
Active Post-Medicare	36,131,508	38,252,058
<b>Total Active AAL</b>	<b>\$ 60,937,348</b>	<b>\$ 66,145,075</b>
Retirees Pre-Medicare	\$ 18,285,335	\$ 18,772,796
Retirees Post-Medicare	66,713,907	68,442,289
<b>Total Retirees AAL</b>	<b>\$ 84,999,242</b>	<b>\$ 87,215,085</b>
<b>Total AAL</b>	<b>\$ 145,936,590</b>	<b>\$ 153,360,160</b>



## Development of Annual Required Contribution (ARC) For Fiscal Year 2017

Required Supplementary Information	Total	St. Clair County	Mental Health	Road Commission
Expected AAL as of December 31, 2016	\$ 153,360,160	\$ 100,883,309	\$ 25,252,659	\$ 27,224,192
Expected AVA as of December 31, 2016	(42,041,565)	(24,356,391)	(16,324,626)	(1,360,548)
<b>Expected Unfunded AAL (UAAL)</b>	<b>\$ 111,318,595</b>	<b>\$ 76,526,918</b>	<b>\$ 8,928,033</b>	<b>\$ 25,863,644</b>
Funded Ratio	27.4%	24.1%	64.6%	5.0%
Covered payroll	\$ 35,368,535	\$ 21,110,866	\$ 10,660,894	\$ 3,596,775
UAAL as a % of covered payroll	314.7%	362.5%	83.7%	719.1%
Annual Required Contribution	Total	St. Clair County	Mental Health	Road Commission
Normal cost as of beginning of year	\$ 3,226,610	\$ 1,966,806	\$ 808,125	\$ 451,679
Reduction for employee contributions	(353,049)	(353,049)	0	0
Net normal cost	\$ 2,873,561	\$ 1,613,757	\$ 808,125	\$ 451,679
Amortization of the UAAL	10,672,168	7,758,792	747,613	2,165,763
Total normal cost and amortization payment	\$ 13,545,729	\$ 9,372,549	\$ 1,555,738	\$ 2,617,442
Interest to end of year	677,286	468,627	77,787	130,872
<b>Total Annual Required Contribution (ARC)</b>	<b>\$ 14,223,015</b>	<b>\$ 9,841,176</b>	<b>\$ 1,633,525</b>	<b>\$ 2,748,314</b>

**Annual Required Contribution (ARC)** is the annual expense recorded in the income statement under GASB 45 accrual accounting. It replaces the cash basis method of accounting recognition with an accrual method. The GASB 45 ARC is higher than the pay-as-you-go cost because it includes recognition of employer costs expected to be paid in future accounting periods.



## Development of Annual OPEB Cost and Net OPEB Obligation For Fiscal Year 2017

Annual employer contribution for pre-funding is estimated for 2017.

<b>Net OPEB Obligation (NOO)</b>	<b>Total</b>		<b>St. Clair County</b>		<b>Mental Health</b>		<b>Road Commission</b>	
ARC as of end of year	\$	14,223,015	\$	9,841,176	\$	1,633,525	\$	2,748,314
Interest on NOO to end of year		3,820,840		2,703,987		341,652		775,203
NOO amortization adjustment to the ARC		(7,721,077)		(5,757,100)		(600,790)		(1,363,188)
Annual OPEB Cost	\$	10,322,778	\$	6,788,063	\$	1,374,387	\$	2,160,329
Annual employer contribution for pay-go cost		0		0		0		0
Annual employer contribution for pre-funding		(2,203,406)		(881,532)		(361,874)		(960,000)
Change in NOO	\$	8,119,372	\$	5,906,531	\$	1,012,513	\$	1,200,329
NOO as of beginning of year		76,416,801		54,079,738		6,833,012		15,504,051
<b>NOO as of end of year</b>	<b>\$</b>	<b>84,536,173</b>	<b>\$</b>	<b>59,986,269</b>	<b>\$</b>	<b>7,845,525</b>	<b>\$</b>	<b>16,704,380</b>

**Pay-as-you-go Cost** is the expected total employer cash cost for the coming period based on all explicit and implicit subsidies. It is also the amount recognized as expense on the Income Statement under pay-as-you-go accounting.

**Net OPEB Obligation** is the cumulative difference between the annual OPEB cost and employer contributions. This obligation will be created if cash contributions are less than the current year expense under GASB 45 accrual rules.

The net obligation is recorded as a liability on the employer's balance sheet which will reduce the net fund balance.

The value of implicit subsidies is considered as part of cash contributions for the current period. Other cash expenditures that meet certain conditions are also considered as contributions for GASB 45 purposes.

## Development of Annual Required Contribution (ARC) For Fiscal Year 2018

**FY 2018 projected Annual Required Contribution was calculated using estimated employee contributions based on December 31, 2016 active data, salary, and Health Care Trust contribution policy by Union group effective on January 1, 2016 as described in the Substantive Plan Provisions section.**

Required Supplementary Information	Total	St. Clair County	Mental Health	Road Commission
<b>Expected AAL</b> as of December 31, 2017	\$ 159,292,676	\$ 104,570,291	\$ 26,662,964	\$ 28,059,422
<b>Expected AVA</b> as of December 31, 2017	(41,660,979)	(23,427,918)	(16,820,217)	(1,412,844)
<b>Expected Unfunded AAL (UAAL)</b>	<b>\$ 117,631,697</b>	<b>\$ 81,142,373</b>	<b>\$ 9,842,747</b>	<b>\$ 26,646,578</b>
Funded Ratio	26.2%	22.4%	63.1%	5.0%
Expected covered payroll <sup>2</sup>	\$ 34,092,271	\$ 20,366,399	\$ 10,297,184	\$ 3,428,688
UAAL as a % of covered payroll	345.0%	398.4%	95.6%	777.2%

Annual Required Contribution	Total	St. Clair County	Mental Health	Road Commission
Normal cost as of beginning of year	\$ 3,387,941	\$ 2,065,147	\$ 848,531	\$ 474,263
Reduction for employee contributions	(509,160)	(509,160)	0	0
Net normal cost	\$ 2,878,781	\$ 1,555,987	\$ 848,531	\$ 474,263
Amortization of the UAAL	12,006,113	8,718,973	886,684	2,400,456
Total normal cost and amortization payment	\$ 14,884,894	\$ 10,274,960	\$ 1,735,215	\$ 2,874,719
Interest to end of year	744,245	513,748	86,761	143,736
<b>Total Annual Required Contribution (ARC)</b>	<b>\$ 15,629,139</b>	<b>\$ 10,788,708</b>	<b>\$ 1,821,976</b>	<b>\$ 3,018,455</b>

**Annual Required Contribution (ARC)** is the annual expense recorded in the income statement under GASB 45 accrual accounting. It replaces the cash basis method of accounting recognition with an accrual method. The GASB 45 ARC is higher than the pay-as-you-go cost because it includes recognition of employer costs expected to be paid in future accounting periods.

<sup>2</sup> FY 2018 covered payroll is projected from FY 2017 and takes into account anticipated terminations and retirements.

## Summary of GASB 45 Financial Results

Presented below is the summary of GASB 45 results for the fiscal year ending December 31, 2016 and prior fiscal years as shown in the County's Notes to Financial Statements.

### Schedule of Funding Progress

<i>As of</i>	<i>Actuarial Accrued Liability (AAL)</i>	<i>Actuarial Value of Assets (AVA)</i>	<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	<i>Funded Ratio</i>	<i>Covered Payroll</i>	<i>UAAL as % of Covered Payroll</i>
<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = B / A</i>	<i>E</i>	<i>F = C / E</i>	
<b>December 31, 2016</b>						
St. Clair County	\$ 100,883,309	\$ 24,356,391	\$ 76,526,918	24.1%	\$ 21,110,866	362.5%
Mental Health	\$ 25,252,659	\$ 16,324,626	\$ 8,928,033	64.6%	\$ 10,660,894	83.7%
Road Commission	\$ 27,224,192	\$ 1,360,548	\$ 25,863,644	5.0%	\$ 3,596,775	719.1%
<b>Total</b>	<b>\$ 153,360,160</b>	<b>\$ 42,041,565</b>	<b>\$ 111,318,595</b>	<b>27.4%</b>	<b>\$ 35,368,535</b>	<b>314.7%</b>
<b>December 31, 2015</b>						
St. Clair County	\$ 95,180,770	\$ 23,975,737	\$ 71,205,033	25.2%	\$ 22,081,884	322.5%
Mental Health	\$ 23,794,416	\$ 15,039,695	\$ 8,754,721	63.2%	\$ 11,497,448	76.1%
Road Commission	\$ 26,961,404	\$ 1,202,631	\$ 25,758,773	4.5%	\$ 3,626,057	710.4%
<b>Total</b>	<b>\$ 145,936,590</b>	<b>\$ 40,218,063</b>	<b>\$ 105,718,527</b>	<b>27.6%</b>	<b>\$ 37,205,389</b>	<b>284.1%</b>
<b>December 31, 2014</b>						
St. Clair County	\$ 82,431,355	\$ 24,027,124	\$ 58,404,231	29.1%	\$ 22,286,492	262.1%
Mental Health	\$ 18,695,889	\$ 12,285,111	\$ 6,410,778	65.7%	\$ 10,389,722	61.7%
Road Commission	\$ 24,824,010	\$ 1,231,400	\$ 23,592,610	5.0%	\$ 3,897,048	605.4%
<b>Total</b>	<b>\$ 125,951,254</b>	<b>\$ 37,543,635</b>	<b>\$ 88,407,619</b>	<b>29.8%</b>	<b>\$ 36,573,262</b>	<b>241.7%</b>

## Summary of GASB 45 Financial Results (Continued)

### Schedule of Employer Contributions

<i>FYE</i>	<i>Employer Contributions</i>		<i>Annual Required Contribution (ARC)</i>		<i>% of ARC Contributed</i>
	<i>A</i>		<i>B</i>		<i>C = A / B</i>
<b>December 31, 2017</b>					
St. Clair County	\$	881,532	\$	9,841,176	9.0%
Mental Health	\$	361,874	\$	1,633,525	22.2%
Road Commission	\$	960,000	\$	2,748,314	34.9%
<b>Total</b>	<b>\$</b>	<b>2,203,406</b>	<b>\$</b>	<b>14,223,015</b>	<b>15.5%</b>
<b>December 31, 2016</b>					
St. Clair County	\$	939,501	\$	8,816,828	10.7%
Mental Health	\$	655,716	\$	1,589,574	41.3%
Road Commission	\$	806,094	\$	2,574,507	31.3%
<b>Total</b>	<b>\$</b>	<b>2,401,311</b>	<b>\$</b>	<b>12,980,909</b>	<b>18.5%</b>
<b>December 31, 2015</b>					
St. Clair County	\$	544,601	\$	7,182,525	7.6%
Mental Health	\$	2,313,287	\$	1,237,131	187.0%
Road Commission	\$	733,691	\$	2,263,066	32.4%
<b>Total</b>	<b>\$</b>	<b>3,591,579</b>	<b>\$</b>	<b>10,682,722</b>	<b>33.6%</b>

## Summary of GASB 45 Financial Results (Continued)

### Historical Annual OPEB Cost

<i>As of</i>	<i>Annual OPEB Cost</i>	<i>% of Annual OPEB Cost Contributed</i>	<i>Net OPEB Obligation</i>
<b>December 31, 2017</b>			
St. Clair County	\$ 6,788,063	13.0%	\$ 59,986,269
Mental Health	\$ 1,374,387	26.3%	\$ 7,845,525
Road Commission	\$ 2,160,329	44.4%	\$ 16,704,380
<b>Total</b>	<b>\$ 10,322,778</b>	<b>21.3%</b>	<b>\$ 84,536,173</b>
<b>December 31, 2016</b>			
St. Clair County	\$ 6,332,644	14.8%	\$ 54,079,738
Mental Health	\$ 1,393,209	47.1%	\$ 6,833,012
Road Commission	\$ 2,117,289	38.1%	\$ 15,504,051
<b>Total</b>	<b>\$ 9,843,142</b>	<b>24.4%</b>	<b>\$ 76,416,799</b>
<b>December 31, 2015</b>			
St. Clair County	\$ 5,139,202	10.6%	\$ 48,686,593
Mental Health	\$ 1,036,089	223.3%	\$ 6,095,519
Road Commission	\$ 1,908,073	38.5%	\$ 14,192,856
<b>Total</b>	<b>\$ 8,083,364</b>	<b>44.4%</b>	<b>\$ 68,974,968</b>

**Reconciliation of Actuarial Accrued Liability**

The Actuarial Accrued Liability (AAL) is expected to change on an annual basis as a result of expected and unexpected events. Under normal circumstances, it is generally expected to have a net increase each year. Below is a list of the most common events affecting the AAL and whether they increase or decrease the liability.

Expected Events

- Increases in AAL due to additional benefit accruals as employees continue to earn service each year
- Increases in AAL due to interest as the employees and retirees age
- Decreases in AAL due to benefit payments

Unexpected Events

- Increases in AAL when actual premium rates increase more than expected. A liability decrease occurs when premium rates increase less than expected.
- Increases in AAL when more new retirements occur than expected or fewer terminations occur than anticipated. Liability decreases occur when the opposite outcomes happen.
- Increases or decreases in AAL depending on whether benefit provisions are improved or reduced.

	<i>2016</i>	<i>2017</i>
Actuarial Accrued Liability as of beginning of year	\$ 145,936,590	\$ 153,360,160
Normal cost as of beginning of year	3,184,703	3,226,610
Expected benefit payments during the year	(4,656,378)	(4,999,958)
Interest adjustment to end of year	7,341,075	7,705,864
Expected Actuarial Accrued Liability as of end of year	\$ 151,805,990	\$ 159,292,676
Actuarial loss due to normal activity	1,554,170	TBD
Actual Actuarial Accrued Liability as of end of year	\$ 153,360,160	\$ TBD

**Reconciliation of AAL** shows what the actuary expects the actuarial accrued liability to be at the beginning of the following fiscal year based on current assumptions and plan provisions. The expected end of year AAL will change as actual plan experience varies from assumptions. Generally, the AAL is expected to have a net increase each year.

Summary of Assets	Market Value as of December 31, 2015	Market Value as of December 31, 2016
Cash / money market	\$ 5,080,591	\$ 4,680,466
Fixed income	4,598,663	8,303,786
Equities	24,741,024	26,419,355
Other assets	6,115,763	2,687,141
Total market value of assets	\$ 40,536,041	\$ 42,090,748
Less: Accounts Payable, Accrued Liabilities	(207,224)	(208,337)
Net market value of assets	\$ 40,328,817	\$ 41,882,411

Reconciliation of Market Value of Assets	2015	2016
Market value of assets as of January 1	\$ 39,555,185	\$ 40,328,817

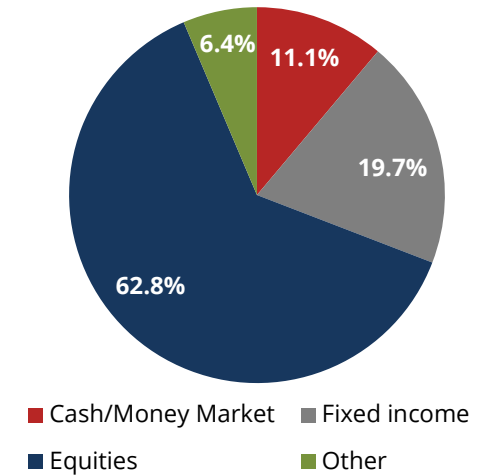
Revenues		
Member contributions	\$ 491,767	\$ 474,413
Employer contributions	3,630,467	2,402,903
Recognized investment income	312,707	2,553,436
Medicare Part D reimbursements	13,982	0
Total	\$ 4,448,923	\$ 5,430,752

Expenditures		
Benefit payments	\$ (3,581,771)	\$ (3,773,024)
Investment expenses and professional fees	(93,520)	(104,134)
Total	\$ (3,675,291)	\$ (3,877,158)

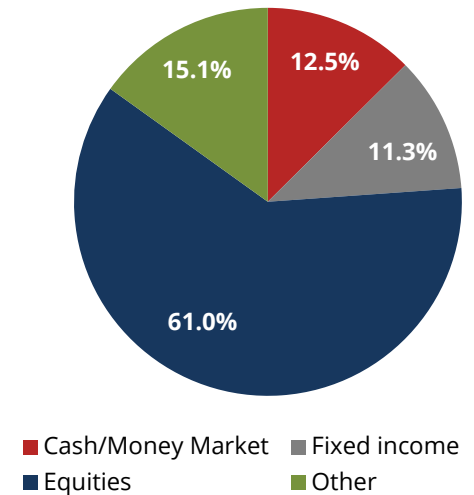
Miscellaneous adjustment	\$ 0	\$ 0
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Market value of assets as of December 31	\$ 40,328,817	\$ 41,882,411
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Asset Allocation as of 12/31/2016



Asset Allocation as of 12/31/2015



## Funding Value of Trust Assets

The Trust assets are actuarially adjusted to reduce the impact of market-based fluctuations when determining future funding requirements. The adjusted assets are referred to as the “funding value of assets”. The actuarial smoothing method essentially spreads investment gains and losses over a five-year period. Below is a schedule with the calculation details for this adjustment.

Year Ended December 31,	2015	2016	2017 <sup>3</sup>
A. Funding value as of beginning of year	\$ 37,543,635	\$ 40,218,063	\$ 42,041,565
B. Market value as of end of year	\$ 40,328,817	\$ 41,882,411	\$ 39,740,285
C. Market value as of beginning of year	\$ 39,555,185	\$ 40,328,817	\$ 41,882,411
D. Non-investment net cash flow	\$ 446,943	\$ (999,842)	\$ (2,548,209)
E. Investment income:			
E1. Reflecting actual market conditions (B – C – D)	\$ 326,689	\$ 2,553,436	\$ 406,083
E2. Amount for immediate recognition (7.5%)	\$ 2,832,533	\$ 2,978,861	\$ 3,057,560
E3. Amount for phased-in recognition (E1 – E2)	\$ (2,505,844)	\$ (425,425)	\$ (2,651,477)
F. Phased-in recognition of investment income			
F1. Current year (E3 / 5)	\$ (501,169)	\$ (85,085)	\$ (530,295)
F2. First prior year	(75,705)	(501,169)	(85,085)
F3. Second prior year	302,317	(75,705)	(501,169)
F4. Third prior year	204,125	302,317	(75,705)
F5. Fourth prior year	(534,616)	204,125	302,317
F6. Total recognized gain recognized in current period	\$ (605,048)	\$ (155,517)	\$ (889,937)
G. Funding value as of end of year (A + D + E2 + F6)	\$ 40,218,063	\$ 42,041,565	\$ 41,660,979
I. Recognized rate of return using funding value	5.7%	6.9%	5.3%
J. Rate of return using market value of assets (net of expenses)	0.4%	5.9%	0.7%
K. Ratio funding value to market value (G / B)	99.7%	100.4%	104.8%

<sup>3</sup> CY 2017 non-investment net cash flow is based on expected contributions and benefit payments. The end of year fair market value is projected from the beginning of year fair market value assuming a 1.0% asset rate of return.



**Asset Allocations**

<b>2015</b>		<b>Total</b>	<b>St. Clair County</b>	<b>Mental Health</b>	<b>Road Commission</b>
A.	Actuarial Value of Assets as of BOY	\$ 37,543,635	\$ 24,027,124	\$ 12,285,111	\$ 1,231,400
B.	Member contributions	491,767	398,954	92,813	0
C.	Employer contributions	3,630,467	544,600	2,352,176	733,691
D.	Benefit payments	(3,581,771)	(2,310,133)	(442,522)	(829,116)
E.	Professional expenses	(93,520)	(59,851)	(30,602)	(3,067)
F.	Investment Income Allocation	2,227,485	1,375,043	782,719	69,723
G.	Actuarial Value of Assets as of EOY	\$ 40,218,063	\$ 23,975,737	\$ 15,039,695	\$ 1,202,631

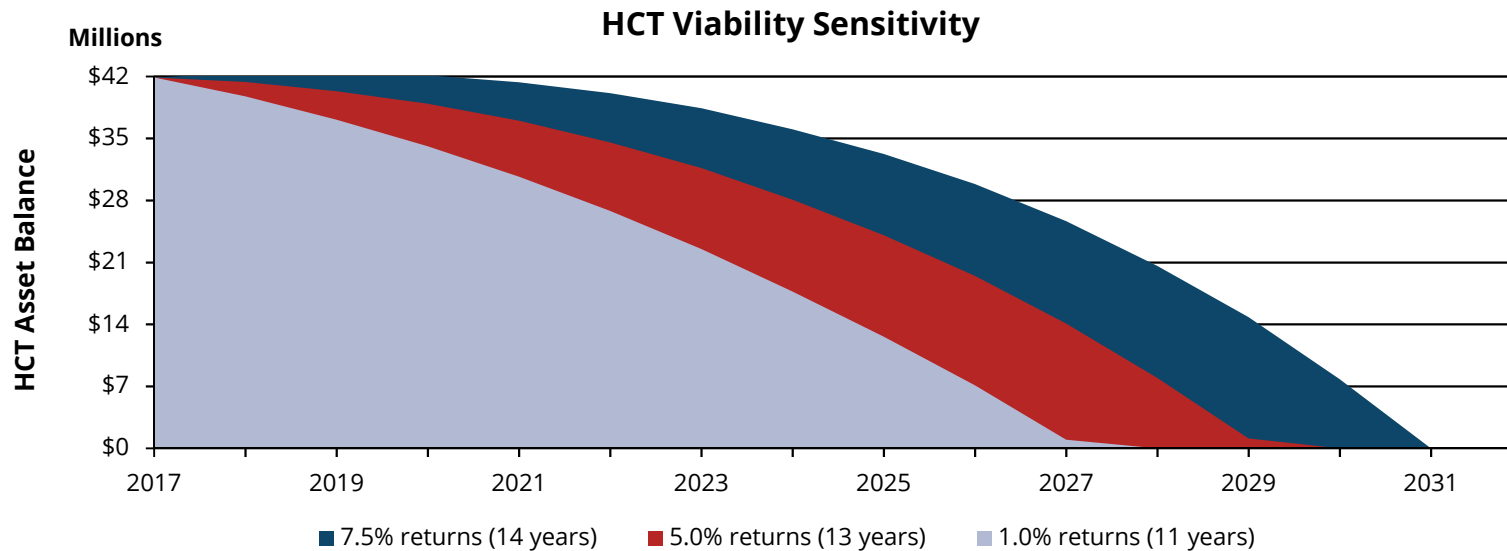
<b>2016</b>		<b>Total</b>	<b>St. Clair County</b>	<b>Mental Health</b>	<b>Road Commission</b>
A.	Actuarial Value of Assets as of BOY	\$ 40,218,063	\$ 23,975,737	\$ 15,039,695	\$ 1,202,631
B.	Member contributions	474,413	374,096	100,317	0
C.	Employer contributions	2,402,903	939,501	657,308	806,094
D.	Benefit payments	(3,773,024)	(2,529,736)	(510,251)	(733,037)
E.	Professional expenses	(104,134)	(62,079)	(38,941)	(3,114)
F.	Investment Income Allocation	2,823,344	1,658,872	1,076,498	87,974
G.	Actuarial Value of Assets as of EOY	\$ 42,041,565	\$ 24,356,391	\$ 16,324,626	\$ 1,360,548

<b>2017 (Projected)</b>		<b>Total</b>	<b>St. Clair County</b>	<b>Mental Health</b>	<b>Road Commission</b>
A.	Actuarial Value of Assets as of BOY	\$ 42,041,565	\$ 24,356,391	\$ 16,324,626	\$ 1,360,548
B.	Member contributions (expected)	353,049	353,049	0	0
C.	Employer contributions (expected)	2,203,406	881,532	361,874	960,000
D.	Benefit payments (expected)	(4,999,958)	(3,339,852)	(683,969)	(976,137)
E.	Professional expenses	(104,706)	(60,660)	(40,657)	(3,389)
F.	Investment Income Allocation	2,167,623	1,237,458	858,343	71,822
G.	Actuarial Value of Assets as of EOY	\$ 41,660,979	\$ 23,427,918	\$ 16,820,217	\$ 1,412,844

St. Clair County established a Health Care Trust (HCT) for the purpose of funding future retiree health benefits. Currently both the County and its employees (except for Road Commission) contribute a percentage of salary to this Trust, and payments for retirees' premiums are made from this Trust annually.

The viability of this Trust is highly sensitive to the investment return earned and future Trust contribution. Below is a comparison of the viability of the Trust under three different investment return scenario:

1. Low return (1.0%) – the HCT will be depleted in 11 years.
2. Medium return (5.0%) – the HCT will be depleted in 13 years.
3. High return (7.5%) – the HCT will be depleted in 14 years.

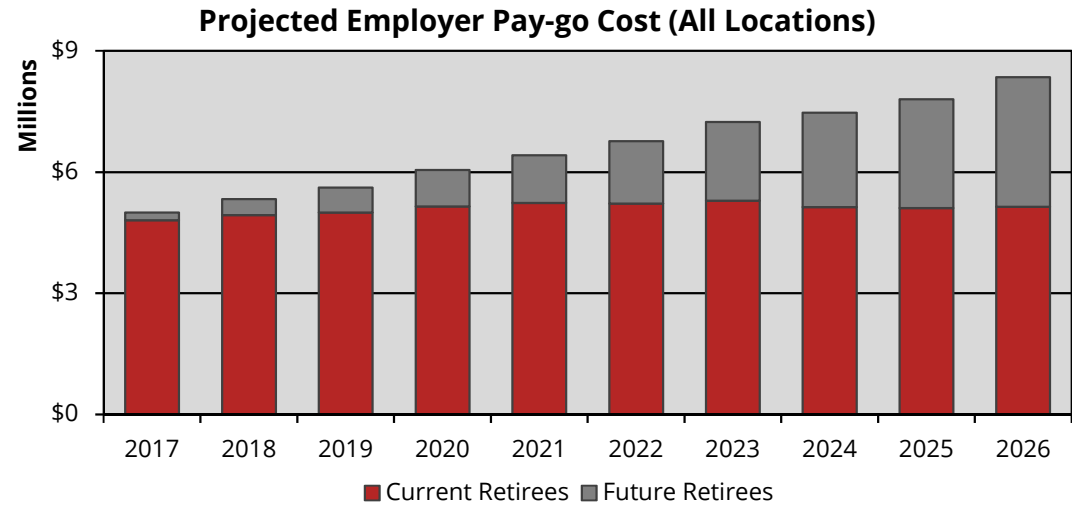


Additional assumptions made in our analysis:

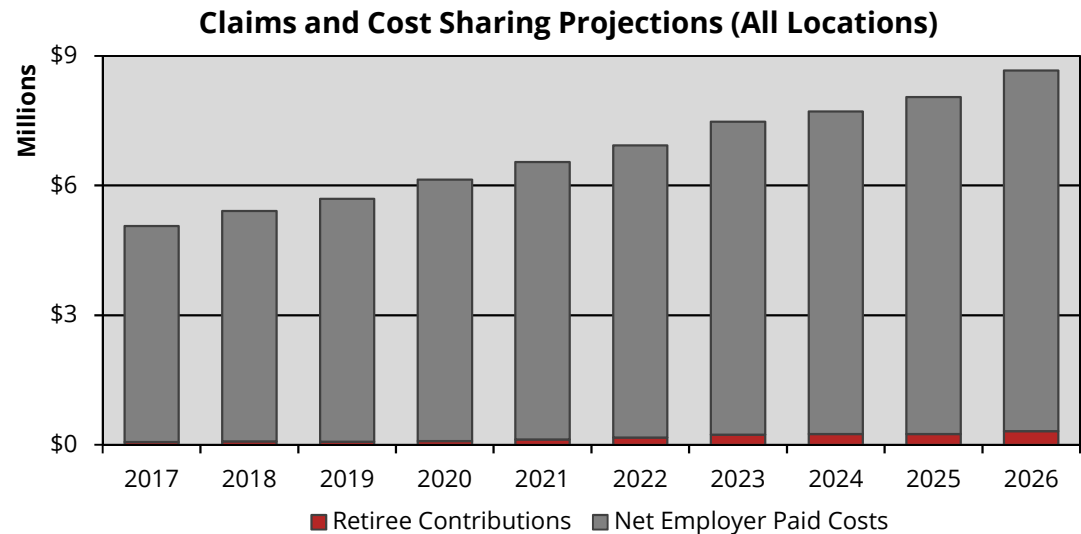
1. Market value of assets of \$41,882,411 as of January 1.
2. Active employee contributions to HCT effective on 1/1/2017 as shown on page 21 of this report.
3. Flat dollar employer contributions determined based on the average contribution in the past six fiscal years (projected for FY 2017): \$763,000 for the County (including Sheriff), \$423,000 for Mental Health Authority, and \$503,000 for Road Commission.
4. Projected future retiree health costs using current retirement and health care trend assumptions.

The below projections show the actuarially estimated pay-go expenses of retiree health benefits for the next ten years. Results are shown separately for current /future retirees and gross claim costs/retiree contributions for all locations combined. These projections include explicit and implicit subsidies.

FYE	Current Retirees	Future Retirees <sup>4</sup>	Total
2017	\$ 4,806,792	\$ 193,166	\$ 4,999,958
2018	\$ 4,938,897	\$ 391,323	\$ 5,330,220
2019	\$ 5,001,672	\$ 618,420	\$ 5,620,092
2020	\$ 5,150,082	\$ 900,821	\$ 6,050,903
2021	\$ 5,239,903	\$ 1,178,206	\$ 6,418,109
2022	\$ 5,217,256	\$ 1,547,206	\$ 6,764,462
2023	\$ 5,294,405	\$ 1,947,644	\$ 7,242,049
2024	\$ 5,129,365	\$ 2,337,965	\$ 7,467,330
2025	\$ 5,109,361	\$ 2,689,292	\$ 7,798,653
2026	\$ 5,143,885	\$ 3,202,704	\$ 8,346,589



FYE	Estimated Claims Costs	Retiree Contributions	Net Employer-Paid Costs
2017	\$ 5,065,826	\$ 65,868	\$ 4,999,958
2018	\$ 5,409,184	\$ 78,964	\$ 5,330,220
2019	\$ 5,690,615	\$ 70,523	\$ 5,620,092
2020	\$ 6,138,450	\$ 87,547	\$ 6,050,903
2021	\$ 6,540,125	\$ 122,016	\$ 6,418,109
2022	\$ 6,928,839	\$ 164,377	\$ 6,764,462
2023	\$ 7,474,295	\$ 232,246	\$ 7,242,049
2024	\$ 7,715,918	\$ 248,588	\$ 7,467,330
2025	\$ 8,047,045	\$ 248,392	\$ 7,798,653
2026	\$ 8,660,691	\$ 314,102	\$ 8,346,589



<sup>4</sup> Projections for future retirees do not take into account future new hires.

Projection of the actuarially estimated pay-go expenses of retiree health benefits for the next ten years by location are as shown below.

FYE	St. Clair County			Mental Health Authority			Road Commission		
	Current Retirees	Future Retirees <sup>5</sup>	Total	Current Retirees	Future Retirees	Total	Current Retirees	Future Retirees	Total
2017	\$ 3,218,190	\$ 121,662	\$ 3,339,852	\$ 652,344	\$ 31,625	\$ 683,969	\$ 936,258	\$ 39,879	\$ 976,137
2018	\$ 3,295,059	\$ 240,774	\$ 3,535,833	\$ 674,765	\$ 67,489	\$ 742,254	\$ 969,073	\$ 83,060	\$ 1,052,133
2019	\$ 3,350,257	\$ 382,752	\$ 3,733,009	\$ 664,582	\$ 101,758	\$ 766,340	\$ 986,833	\$ 133,910	\$ 1,120,743
2020	\$ 3,453,650	\$ 551,429	\$ 4,005,079	\$ 662,466	\$ 148,489	\$ 810,955	\$ 1,033,966	\$ 200,903	\$ 1,234,869
2021	\$ 3,488,666	\$ 696,888	\$ 4,185,554	\$ 710,685	\$ 183,535	\$ 894,220	\$ 1,040,552	\$ 297,783	\$ 1,338,335
2022	\$ 3,412,267	\$ 923,632	\$ 4,335,899	\$ 799,884	\$ 229,499	\$ 1,029,383	\$ 1,005,105	\$ 394,075	\$ 1,399,180
2023	\$ 3,491,344	\$ 1,191,982	\$ 4,683,326	\$ 832,456	\$ 266,969	\$ 1,099,425	\$ 970,605	\$ 488,693	\$ 1,459,298
2024	\$ 3,398,789	\$ 1,442,389	\$ 4,841,178	\$ 833,119	\$ 330,917	\$ 1,164,036	\$ 897,457	\$ 564,659	\$ 1,462,116
2025	\$ 3,377,508	\$ 1,664,760	\$ 5,042,268	\$ 827,545	\$ 381,919	\$ 1,209,464	\$ 904,308	\$ 642,613	\$ 1,546,921
2026	\$ 3,436,817	\$ 2,022,482	\$ 5,459,299	\$ 792,090	\$ 440,015	\$ 1,232,105	\$ 914,978	\$ 740,207	\$ 1,655,185

FYE	Estimated Claims Costs	Retiree Contributions	Net Employer-Paid Costs	Estimated Claims Costs	Retiree Contributions	Net Employer-Paid Costs	Estimated Claims Costs	Retiree Contributions	Net Employer-Paid Costs
2017	\$ 3,393,375	\$ 53,523	\$ 3,339,852	\$ 683,969	\$ 0	\$ 683,969	\$ 988,482	\$ 12,345	\$ 976,137
2018	\$ 3,601,411	\$ 65,578	\$ 3,535,833	\$ 742,254	\$ 0	\$ 742,254	\$ 1,065,519	\$ 13,386	\$ 1,052,133
2019	\$ 3,796,817	\$ 63,808	\$ 3,733,009	\$ 766,340	\$ 0	\$ 766,340	\$ 1,127,458	\$ 6,715	\$ 1,120,743
2020	\$ 4,085,310	\$ 80,231	\$ 4,005,079	\$ 810,955	\$ 0	\$ 810,955	\$ 1,242,185	\$ 7,316	\$ 1,234,869
2021	\$ 4,277,830	\$ 92,276	\$ 4,185,554	\$ 915,298	\$ 21,078	\$ 894,220	\$ 1,346,997	\$ 8,662	\$ 1,338,335
2022	\$ 4,442,454	\$ 106,555	\$ 4,335,899	\$ 1,073,958	\$ 44,575	\$ 1,029,383	\$ 1,412,427	\$ 13,247	\$ 1,399,180
2023	\$ 4,864,416	\$ 181,090	\$ 4,683,326	\$ 1,136,729	\$ 37,304	\$ 1,099,425	\$ 1,473,150	\$ 13,852	\$ 1,459,298
2024	\$ 5,044,764	\$ 203,586	\$ 4,841,178	\$ 1,193,079	\$ 29,043	\$ 1,164,036	\$ 1,478,075	\$ 15,959	\$ 1,462,116
2025	\$ 5,243,868	\$ 201,600	\$ 5,042,268	\$ 1,239,747	\$ 30,283	\$ 1,209,464	\$ 1,563,430	\$ 16,509	\$ 1,546,921
2026	\$ 5,731,507	\$ 272,208	\$ 5,459,299	\$ 1,256,748	\$ 24,643	\$ 1,232,105	\$ 1,672,436	\$ 17,251	\$ 1,655,185

<sup>5</sup> Projections for future retirees do not take into account future new hires.

**Eligibility**

Retiree health benefits eligibility requirements:

1. Original Plan members – earlier of:
  - a. Age 55 (or age 50 for Sheriff) with 25 years of service
  - b. Age 60 with 8 years of service
  - c. 25 years of service and 80 points
2. Modified Plan members – earlier of:
  - a. Age 55 (or age 50 for Sheriff) with 25 years of service
  - b. Age 60 with 20 years of service
  - c. 25 years of service and 80 points

Employees hired after the eligibility cut-off date shown below are not eligible for retiree health benefits.

Union Code	Union Name	Retiree Health Eligibility Cut-Off Date
CBSO	Bailiff and Court Security Officers Association	Hired after 7/1/2012
	Road Commission	
RC	Production and Op Eng Clerical and TPOAM	Hired after 9/14/2011 Hired after 8/23/2011
CDCO	Communication Officers POAM	
FOCP	Friend of the Court Supervisors	Hired after 7/1/2011
PCCL	Probate Clerical	
SDEI	Correction Officers and Support Staff	Hired after 10/21/2009
PSE	Public Service Employees	Hired after 6/29/2011
FOCE	Friend of the Court	Hired after 5/11/2011
PCJC	Probate Court Juvenile Counselors	Hired after 12/16/2009
DCE	District Court AFSCME	Hired after 8/19/2009
CMH	Mental Health	Hired after 1/1/2016
SDEE	Sheriff's Deputies	Hired after 1/6/2011

**Eligibility (continued)**

Employees hired after the eligibility cut-off date shown below are not eligible for retiree health benefits.

Union Code	Union Name	Retiree Health Eligibility Cut-Off Date
BDMB	Board Member	
CANUE	CANUE Non-Affiliated	
COMM	Commissioners	
SDCO	Correction Officers Supervisors	
ELEC	Elected Officials	
HRE	Human Resources Clerks and Specialists	Hired after 1/1/2009
JDGS	Judges	
PCSP	Probate Court Supervisors	
PAPE	Prosecuting Attorneys	
PHNS	Public Health Nurse Supervisors	
PHNA	Public Health Nurses	
CPEA	Circuit Court Probate Court Employee Associates	
SDSP	Sheriff Deputies Supervisors	Based on lower unit cut-off date

**Terminated Vested Employees**

Employees who terminated employment with vested pension benefits are eligible for retiree health benefits commencing at age 55 if they have at least 25 years of service at termination or at age 60 if they have fewer than 25 years of service at termination. Upon benefits commencement, contribution requirements follow regular retirees.

**Disability Retirement**

Employees disabled in the line of duty are eligible for retiree health benefits without any age or service requirement. Employees disabled under any other circumstances are eligible for retiree health benefits if they have at least ten years of service at time of disability. Retiree contribution requirements follow regular retirees.

**Spouse Benefit**

Surviving spouse can continue coverage upon death of the retiree or active employees who have at least ten years of service at time of death. Surviving spouse contribution requirement follows member's contribution requirements prior to their death.

**Health Care Trust Contributions**

Health Care Trust contribution requirements as a % of salary while actively employed are as shown below:

Union Code	Union Name	Eff. 1/1/2017
CBSO	Bailiff and Court Security Officers Association	
COMM	Commissioners	
ELEC	Elected Officials	
JDGS	Judges	
CDCO	Communication Officers POAM	
SDEI	Correction Officers and Support Staff	
SDCO	Correction Officers Supervisors	
FOCE	Friend of the Court	
FOCP	Friend of the Court Supervisors	
PCCL	Probate Clerical	
PCJC	Probate Court Juvenile Counselors	2.50%*
PCSP	Probate Court Supervisors	
PAPE	Prosecuting Attorneys	
SDEE	Sheriff Deputies	
SDSP	Sheriff Deputies Supervisors	
CPEA	Circuit Court Probate Court Employee Associates	
PSE	Public Service Employees	
BDMB	Board Member	
CANUE	CANUE Non-Affiliated	
DCE	District Court AFSCME	
HRE	Human Resources Clerks and Specialists	
CMH	Mental Health	2.00%
PHNS	Public Health Nurse Supervisors	2.50%
PHNA	Public Health Nurses	

\* Limited to the first \$50,000 of salary.

Road Commission employees are not required to contribute to the Health Care Trust.

**Retiree Contributions**

Employees are eligible for retiree health benefits if they meet all of the following requirements:

1. Original Plan members – have at least 8 years of service at retirement and contribute to Health Care Trust (HCT) while actively employed if it's required in their Collective Bargaining Unit (CBA).
2. Modified Plan members – have at least 20 years of service at retirement and contribute to HCT while actively employed if it's required in their CBA.

Any employees may purchase retiree health benefits at retirement if they have at least 11 years of service at retirement regardless of whether they contribute to HCT while actively employed.

**Medical Benefit**

All health plans are self-insured except for the Medicare Advantage plan. The monthly retiree illustrative rates for medical and prescription drug benefits (excluding dental) by suffix are as shown below. These illustrative rates are calculated based on the blended claims experience for active employees and retirees.

<b>Pre-65</b>		<b>Eff. 1/1/2017</b>	
<b>Suffix</b>	<b>Group</b>	<b>Single</b>	<b>2-person</b>
900/40/54/2000	St. Clair County Non-Hardship Retirees	\$ 541.97	\$ 1,300.73
901/41/57/2000	St. Clair County Hardship Retirees <sup>6</sup>	\$ 601.61	\$ 1,443.87
920/44/56/2002	Mental Health Non-Hardship Retirees	\$ 541.97	\$ 1,300.73
921/45/59/2002	Mental Health Hardship Retirees <sup>6</sup>	\$ 601.61	\$ 1,443.87
910/42/55/2001	Road Commission Non-Hardship Retirees	\$ 541.97	\$ 1,300.73
911/43/58/2001	Road Commission Hardship Retirees <sup>6</sup>	\$ 601.61	\$ 1,443.87

<b>Post-65 (Medicare Advantage Plan)</b>		<b>Rates Per Person</b>	
<b>Suffix</b>	<b>Group</b>	<b>Eff. 1/1/2017</b>	<b>Eff. 1/1/2018</b>
600/601/602	Non-Hardship Retirees	\$ 269.26	\$ 282.74
603/604/605	Hardship Retirees	\$ 313.35	\$ 329.02

**Dental Benefit**

Dental monthly illustrative rates effective on January 1, 2017 for all locations are as shown below.

	<b>Single</b>	<b>2-person</b>
All ages	\$ 22.61	\$ 43.01

<sup>6</sup> Hardship retirees are those with annual household incomes of \$24,999 or less and have at least 20 years of service at retirement. Annual household income means any and all income (taxable or not) received by a retired member and/or their spouse residing in the same household.



The actuarial assumptions used in this report represent a reasonable long-term expectation of future OPEB outcomes. As national economic and County experience change over time, the assumptions will be tested for ongoing reasonableness and, if necessary, updated.

There are no significant changes to the actuarial methods and assumptions since the last GASB valuation, which was as of December 31, 2015. For the current year GASB valuation, we have updated the mortality table, health care trend rates and per capita costs. We expect to update health care trend rates, mortality table, per capita costs, and discount rate in the next full GASB valuation, which will be as of December 31, 2017 and disclosed under GASB 74/75.

<b>Measurement Date</b>	December 31, 2016
<b>Discount Rate</b>	5.0%
<b>Payroll Growth</b>	3.5% for general inflation plus merit increases as follows:

<b>YOS</b>	<b>Rates</b>
0 – 1	4.5%
2	3.5%
3	3.0%
4	2.5%
5	2.0%
6 – 19	0.5%
20+	0.0%

<b>Inflation Rate</b>	3.0% per year
<b>Cost Method</b>	Entry Age Normal Level % of Salary
<b>Census Data</b>	Census information was provided by the County as of December 31, 2016. We have reviewed it for reasonableness and no material modifications were made.
<b>Employer Funding Policy</b>	Partial pre-funding at the County’s discretion
<b>Asset Valuation Method</b>	Actuarial value of assets with a five-year smoothing
<b>Amortization</b>	Mental Health and Road Commission: Level % of pay over a closed period St. Clair County: Level dollar over a closed period The remaining amortization period for all locations is 13 years as of December 31, 2016.

**Mortality**

RP-2016 Mortality Table with generational improvements from 2006 based on the Social Security mortality improvement assumptions from the 2016 Trustees' Report (prior valuation used RP-2015 Mortality Table with generational improvements from 2006 based on the Social Security mortality improvement assumptions from the 2015 Trustees' Report)

**Disability**

Annual sample rates are as shown below. Disability benefit is only valued for the Sheriff group (CDCO, SDEI, SDCO, SDEE, and SDSP unions) and 25% of disability is assumed to be duty-related.

Age	Rates	Age	Rates
20	0.08%	45	0.27%
25	0.08%	50	0.49%
30	0.08%	55	0.89%
35	0.08%	60	1.41%
40	0.20%		

**Turnover Rate**

Assumption used to project terminations (voluntary and involuntary) prior to meeting minimum retirement eligibility for retiree health coverage. The rates represent the probability of termination in the next 12 months.

YOS	General / Mental Health	Sheriff / Road Commission
0 - 2	11.0%	4.0%
3 - 4	10.0%	4.0%
5	6.0%	4.0%
6+	4.0% <sup>7</sup>	4.0%

<sup>7</sup> Annual turnover rate before age 35 for employees with at least 6 years of service is 6.0%.

**Retirement Rate**

Annual rates of retirement by group are as shown below:

Age	General / Mental Health	Road Commission	Sheriff <sup>8</sup>				
			Age	<25 YOS	25 - 29 YOS	30 - 34 YOS	35+ YOS
50 - 59	15%	25%	40 - 59	0%	25%	100%	100%
60	15%	15%	60 - 61	15%	15%	15%	100%
61	20%	15%	62	40%	40%	40%	100%
62	40%	40%	63 - 64	20%	20%	20%	100%
63 - 64	20%	20%	65+	100%	100%	100%	100%
65	40%	100%					
66 - 69	25%	100%					
70+	100%	100%					

**Health Care Trend Rates**

FYE	Rates	FYE	Rates
2018	8.5%*	2022	6.5%
2019	8.0%	2023	6.0%
2020	7.5%	2024	5.5%
2021	7.0%	2025+	5.0%

The initial trend rate was based on a combination of employer history, national trend surveys, and professional judgment.

The ultimate trend rate was selected based on historical medical CPI information.

\* Annual health care trend rate for Medicare Advantage plan in FYE 2018 is based on the actual premium increase from 2017 to 2018, which is 5.0% for all three entities.

**Retiree Contributions**

Retiree contributions are assumed to increase according to health care trend rates.

<sup>8</sup> Applies to CDCO, SDEI, SDCO, SDEE, and SDSP unions.

**Health Care Coverage Election Rate**

Active employees eligible for retiree health benefits are assumed to elect coverage according to the table below:

<b>Group</b>	<b>Rates</b>
County General	85%
County Police	100%
Mental Health	80%
Road Commission	95%

All retirees that currently have coverage are assumed to continue coverage in the future.  
All retirees that currently have no coverage are assumed never to elect coverage in the future.

**Spousal Coverage**

Spousal coverage and age for current retirees is based on actual data. 80% of male and 50% of female employees is assumed to be married at retirement. Husbands are assumed to be three years older than wives.

**Per Capita Costs<sup>9</sup>**

Annual per capita costs were calculated based on the County’s illustrative rates effective on January 1, 2017 actuarially increased using health index factors and current enrollment. The costs are assumed to increase with health care trend rates. Annual per capita costs applicable to all groups are as shown below:

<b>Age</b>	<b>Male</b>	<b>Female</b>
< 55	\$ 7,400	\$ 7,700
55 - 59	\$ 9,200	\$ 8,900
60 - 64	\$ 12,500	\$ 11,000
65 - 69	\$ 2,500	\$ 2,500
70 - 74	\$ 3,100	\$ 3,100
75 - 79	\$ 3,600	\$ 3,600
80+	\$ 4,300	\$ 4,300

The per capita costs represent the cost of coverage for a retiree-only population.

Actuarial standards require the recognition of higher inherent costs for a retired population versus an active population.

Annual dental per capita costs are \$271 and they are assumed to increase with dental trend rates.

<sup>9</sup> Nyhart used the 2017 County’s illustrative rates without adjustment in our calculations. The rates were provided by BCBS and were assumed to represent the expected cost of claims and administrative expenses under the self-insured health plan. To the extent the rates do not reflect the full cost of coverage, our actuarial results will need to be revised. Common reasons for rates not reflecting the full cost are (1) use of asset reserves to pay a portion of the expected costs which leads to lower rates than required based on claims experience and (2) use of maximum claim exposure under the plan’s aggregate stop-loss policy to set rates which overstate the expected costs for GASB 45 purposes.

**Explicit Subsidy**

The difference between (a) the illustrative rate and (b) the retiree contribution. Below is an example of the monthly explicit subsidies for a County retiree in the Modified plan enrolled in the non-hardship plan with 20 years of service at retirement.

	<b>Illustrative Rate</b>	<b>Retiree Contribution</b>	<b>Explicit Subsidy</b>
	<b>A</b>	<b>B</b>	<b>C = A - B</b>
Retiree	\$ 541.97	\$ 0.00	\$ 541.97
Spouse	\$ 758.76	\$ 0.00	\$ 758.76

**Implicit Subsidy**

The difference between (a) the per capita cost and (b) the illustrative rate. Below is an example of the monthly implicit subsidies for a male County retiree age 60 in the Modified plan enrolled in the non-hardship plan with a spouse of the same age.

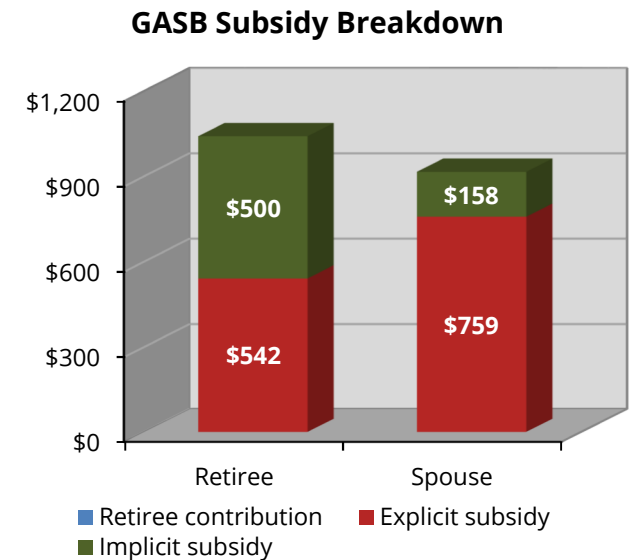
	<b>Per Capita Cost</b>	<b>Premium Rate</b>	<b>Implicit Subsidy</b>
	<b>A</b>	<b>B</b>	<b>C = A - B</b>
Retiree	\$ 1,041.67	\$ 541.97	\$ 499.70
Spouse	\$ 916.67	\$ 758.76	\$ 157.91

All employers that utilize premium rates based on blended active/retiree claims experience will have an implicit subsidy. There is an exception for Medicare plans using a true community-rated premium rate.

**GASB Subsidy Breakdown**

Below is a breakdown of the GASB 45 monthly total cost for a male County retiree age 60 in the Modified plan and his / her spouse of the same age enrolled in the non-hardship plan.

	<b>Retiree</b>	<b>Spouse</b>
Retiree contribution	\$ 0.00	\$ 0.00
Explicit subsidy	\$ 541.97	\$ 758.76
Implicit subsidy	\$ 499.70	\$ 157.91
<b>Total monthly cost</b>	<b>\$ 1,041.67</b>	<b>\$ 916.67</b>



Summary of Plan Participants

<i>Actives</i>	<i>Total</i>	<i>Avg. Age</i>	<i>Avg. Svc</i>	<i>Salary</i>
St. Clair County	385	48.2	15.0	\$ 21,110,866
Mental Health Authority	188	46.4	10.5	\$ 10,660,894
Road Commission	62	51.5	18.9	\$ 3,596,775
<b>Total actives</b>	<b>635</b>	<b>48.0</b>	<b>14.1</b>	<b>\$ 35,368,535</b>

Active enrollment above includes employees that are eligible for retiree health benefits only. Employees hired after the cut-off date as noted on pages 20 and 21 of this report are not eligible for retiree health benefits.

	<i>Retirees<sup>10</sup></i>		<i>Terminated Vested<sup>11</sup></i>	
	<i>Total</i>	<i>Avg. Age</i>	<i>Total</i>	<i>Avg. Age</i>
St. Clair County	360	70.2	44	53.2
Mental Health Authority	71	69.1	29	51.4
Road Commission	119	73.5	7	53.8
<b>Total</b>	<b>550</b>	<b>70.8</b>	<b>80</b>	<b>52.6</b>

<sup>10</sup> Includes disabled retirees and beneficiaries but excludes all those without coverage.

<sup>11</sup> Includes all terminated vested employees, including those that are not eligible for retiree health benefits. Out of 80 terminated vested employees, 15 of them are not eligible for retiree health benefits.

**Active Age-Service Distribution**

**All Groups** (including those eligible for retiree health benefits only)

Age	Years of Service										Total	
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	3											3
25 to 29	1	9	2									12
30 to 34	1	14	18	16								49
35 to 39	1	9	18	47	5	1						81
40 to 44		9	15	39	25	4						92
45 to 49		6	21	36	33	24	5					125
50 to 54		8	12	27	29	21	10	8				115
55 to 59		5	10	26	19	11	4	3	3			81
60 to 64		2	6	11	22	8	5	3	1			58
65 to 69		1	3	4	1		1	2	1			13
70 & up				1	3	1					1	6
<b>Total</b>	<b>6</b>	<b>63</b>	<b>105</b>	<b>207</b>	<b>137</b>	<b>70</b>	<b>25</b>	<b>16</b>	<b>5</b>	<b>1</b>		<b>635</b>

**Active Age-Service Distribution (Continued)**

**St. Clair County** (including those eligible for retiree health benefits only)

Age	Years of Service										Total	
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	3											3
25 to 29	1		1									2
30 to 34	1	2	11	13								27
35 to 39	1		13	37	4	1						56
40 to 44		2	8	24	18	2						54
45 to 49		2	8	23	24	14	4					75
50 to 54		1	7	21	18	11	9	6				73
55 to 59			4	20	13	5		1	1			44
60 to 64			4	10	16	5	4	1				40
65 to 69			1	2			1	1	1			6
70 & up				1	2	1					1	5
<b>Total</b>	<b>6</b>	<b>7</b>	<b>57</b>	<b>151</b>	<b>95</b>	<b>39</b>	<b>18</b>	<b>9</b>	<b>2</b>	<b>1</b>		<b>385</b>



**Active Age-Service Distribution (Continued)**

**Mental Health Authority** (including those eligible for retiree health benefits only)

Age	Years of Service										Total
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25											0
25 to 29		9									9
30 to 34		12	7	2							21
35 to 39		9	5	7	1						22
40 to 44		7	7	11	4						29
45 to 49		4	13	12	4	6					39
50 to 54		7	5	5	5	3		1			26
55 to 59		5	5	5	4	2	2	1	2		26
60 to 64		2	1	1	2	1	1	1	1		10
65 to 69		1	2	1	1			1			6
70 & up											0
<b>Total</b>	<b>0</b>	<b>56</b>	<b>45</b>	<b>44</b>	<b>21</b>	<b>12</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>188</b>

**Active Age-Service Distribution (Continued)**

**Road Commission** (including those eligible for retiree health benefits only)

Age	Years of Service										Total
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25											0
25 to 29			1								1
30 to 34				1							1
35 to 39				3							3
40 to 44				4	3	2					9
45 to 49				1	5	4	1				11
50 to 54				1	6	7	1	1			16
55 to 59			1	1	2	4	2	1			11
60 to 64			1		4	2		1			8
65 to 69				1							1
70 & up					1						1
<b>Total</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>12</b>	<b>21</b>	<b>19</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>62</b>

**APPENDIX**

## Comparison of Participant Demographic Information

The active participants' number below may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

	<i>As of December 31, 2015</i>	<i>As of December 31, 2016</i>
Active Participants	691	635
Retired Participants <sup>12</sup>	572	550
Averages for Active		
Age	47.5	48.0
Service	13.4	14.1
Salary	\$ 53,843	\$ 55,698
Averages for Inactive		
Age	70.8	70.8

<sup>12</sup> Retired participants' enrollment includes only those who have medical coverage.

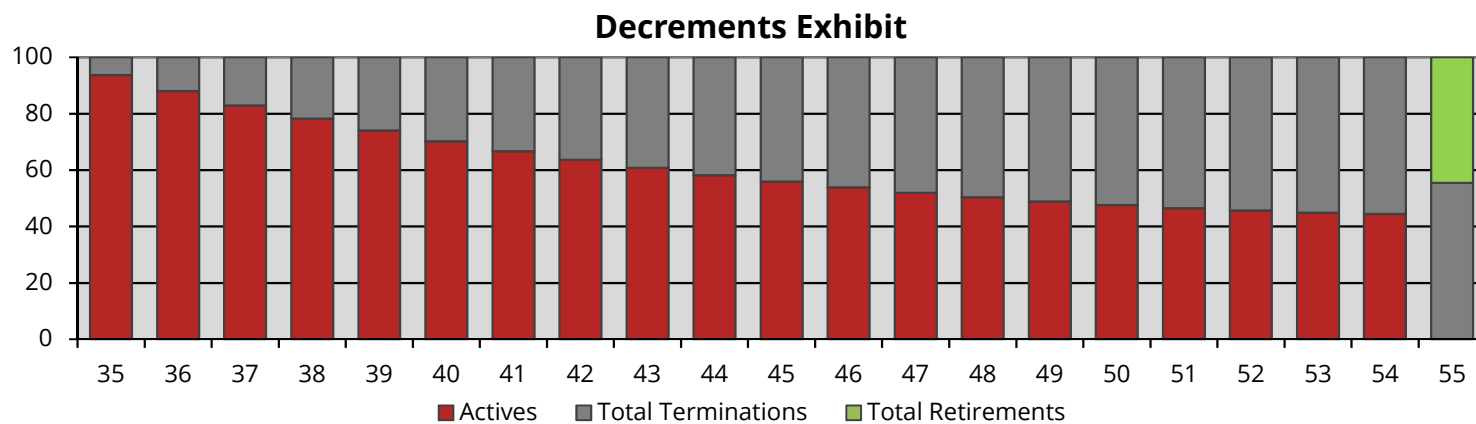
## GLOSSARY

### Decrements Exhibit

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. Starting with 100 employees at age 35, the illustrated actuarial assumptions show that 44.430 employees out of the original 100 are expected to retire and could elect retiree health benefits at age 55.

Age	# Remaining Employees	# of Terminations per Year*	# of Retirements per Year*	Total Decrements
35	100.000	6.276	0.000	6.276
36	93.724	5.677	0.000	5.677
37	88.047	5.136	0.000	5.136
38	82.911	4.648	0.000	4.648
39	78.262	4.209	0.000	4.209
40	74.053	3.814	0.000	3.814
41	70.239	3.456	0.000	3.456
42	66.783	3.131	0.000	3.131
43	63.652	2.835	0.000	2.835
44	60.817	2.564	0.000	2.564
45	58.253	2.316	0.000	2.316

Age	# Remaining Employees	# of Terminations per Year*	# of Retirements per Year*	Total Decrements
46	55.938	2.085	0.000	2.085
47	53.853	1.866	0.000	1.866
48	51.987	1.656	0.000	1.656
49	50.331	1.452	0.000	1.452
50	48.880	1.253	0.000	1.253
51	47.627	1.060	0.000	1.060
52	46.567	0.877	0.000	0.877
53	45.690	0.707	0.000	0.707
54	44.983	0.553	0.000	0.553
55	44.430	0.000	44.430	44.430

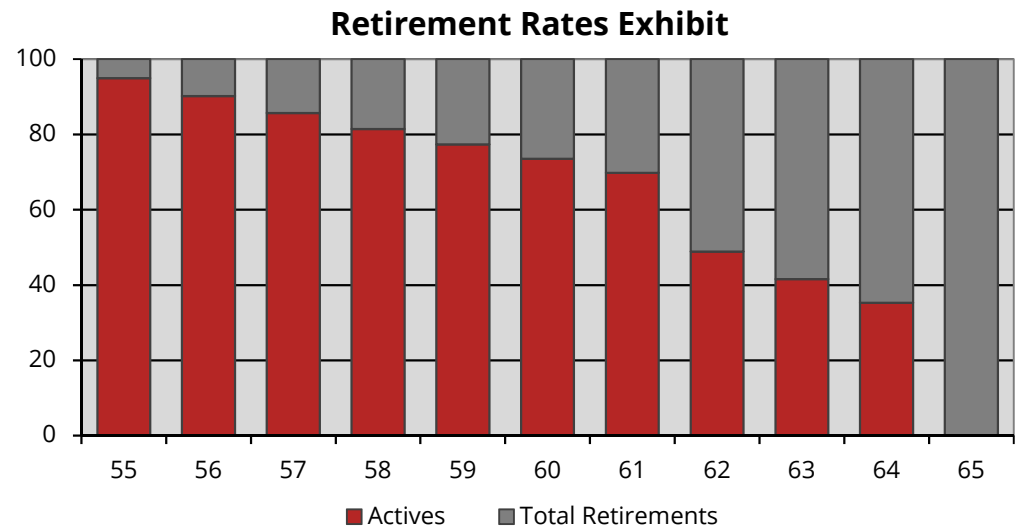


\* The above rates are illustrative rates and are not used in our GASB calculations.

### Retirement Rates Exhibit

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. The illustrated retirement rates show the number of employees who are assumed to retire annually based on 100 employees age 55 who are eligible for retiree health care coverage. The average age at retirement is 62.0.

Age	Active Employees BOY	Annual Retirement Rates*	# Retirements per Year	Active Employees EOY
55	100.000	5.0%	5.000	95.000
56	95.000	5.0%	4.750	90.250
57	90.250	5.0%	4.513	85.738
58	85.738	5.0%	4.287	81.451
59	81.451	5.0%	4.073	77.378
60	77.378	5.0%	3.869	73.509
61	73.509	5.0%	3.675	69.834
62	69.834	30.0%	20.950	48.884
63	48.884	15.0%	7.333	41.551
64	41.551	15.0%	6.233	35.318
65	35.318	100.0%	35.318	0.000



\* The above rates are illustrative rates and are not used in our GASB calculations.

## Illustration of GASB Calculations

The purpose of the illustration is to familiarize non-actuaries with the GASB 45 actuarial calculation process.

### I. Facts

1. The employer provides subsidized retiree health coverage worth \$100,000 to employees retiring at age 55 with 25 years of service. The employer funds for retiree health coverage on a pay-as-you-go basis.
2. Employee X is age 50 and has worked 20 years with the employer.
3. Retiree health subsidies are paid from the general fund assets which are expected to earn 4.5% per year on a long-term basis.
4. Based on Employee X's age and sex he has a 98.0% probability of living to age 55 and a 95.0% probability of continuing to work to age 55.

### II. Calculation of Present Value of Future Benefits

**Present Value of Future Benefits** represents the cost to finance benefits payable in the future to current and future retirees and beneficiaries, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

	Value	Description
A.	\$100,000	Projected benefit at retirement
B.	80.2%	Interest discount for five years = $(1 / 1.045)^5$
C.	98.0%	Probability of living to retirement age
D.	95.0%	Probability of continuing to work to retirement age
E.	\$74,666	Present value of projected retirement benefit measured at employee's current age = $A \times B \times C \times D$



## Illustration of GASB Calculations (Continued)

### III. Calculation of Actuarial Accrued Liability

**Actuarial Accrued Liability** represents the portion of the Present Value of Future Benefits which has been accrued recognizing the employee's past service with the employer. The Actuarial Accrued Liability is a required disclosure in the Required Supplementary Information section of the employer's financial statement.

	Value	Description
A.	\$74,666	Present value of projected retirement benefit measured at employee's current age
B.	20	Current years of service with employer
C.	25	Projected years of service with employer at retirement
D.	\$59,733	Actuarial accrued liability measured at employee's current age = $A \times B / C$

### IV. Calculation of Normal Cost

**Normal Cost** represents the portion of the Present Value of Future Benefits allocated to the current year.

	Value	Description
A.	\$74,666	Present value of projected retirement benefit measured at employee's current age
B.	25	Projected years of service with employer at retirement
C.	\$2,987	Normal cost measured at employee's current age = $A / B$

### V. Calculation of Annual Required Contribution

**Annual Required Contribution** is the total expense for the current year to be shown in the employer's income statement.

	Value	Description
A.	\$2,987	Normal Cost for the current year
B.	\$3,509	30-year amortization (level dollar method) of Unfunded Actuarial Accrued Liability using a 4.5% interest rate discount factor
C.	\$292	Interest adjustment = $4.5\% \times (A + B)$
D.	\$6,788	Annual Required Contribution = $A + B + C$

## Definitions

GASB 45 defines several unique terms not commonly employed in the funding of pension and retiree health plans. The definitions of the terms used in the GASB actuarial valuations are noted below.

1. **Actuarial Accrued Liability** – That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of plan benefits and expenses which is not provided for by the future Normal Costs.
2. **Actuarial Assumptions** – Assumptions as to the occurrence of future events affecting health care costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided health care benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
3. **Actuarial Cost Method** – A procedure for determining the Actuarial Present Value of future benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.
4. **Actuarial Present Value** – The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:
  - a) adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.);
  - b) multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned; and
  - c) discounted according to an assumed rate (or rates) of return to reflect the time value of money.
5. **Annual OPEB Cost** – An accrual-basis measure of the periodic cost of an employer's participation in a defined benefit OPEB plan.
6. **Annual Required Contribution (ARC)** – The employer's periodic required contributions to a defined benefit OPEB plan, calculated in accordance with the parameters.
7. **Explicit Subsidy** – The difference between (a) the amounts required to be contributed by the retirees based on the premium rates and (b) actual cash contribution made by the employer.
8. **Funded Ratio** – The actuarial value of assets expressed as a percentage of the actuarial accrued liability.
9. **Healthcare Cost Trend Rate** – The rate of change in the per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

## Definitions (Continued)

10. **Implicit Subsidy** – In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group (which, because of the effect of age on claim costs, generally will be higher than the blended premium rates for all group members) and (b) the amounts required to be contributed by the retirees.
11. **Net OPEB Obligation** – The cumulative difference since the effective date of this Statement between annual OPEB cost and the employer's contributions to the plan, including the OPEB liability (asset) at transition, if any, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to OPEB-related debt.
12. **Normal Cost** – The portion of the Actuarial Present Value of plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.
13. **Pay-as-you-go** – A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.
14. **Per Capita Costs** – The current cost of providing postretirement health care benefits for one year at each age from the youngest age to the oldest age at which plan participants are expected to receive benefits under the plan.
15. **Present Value of Future Benefits** – Total projected benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Expressed another way, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay total projected benefits when due.
16. **Select and Ultimate Rates** – Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 20W0, then 7.5% for 20W1, and 7% for 20W2 and thereafter, then 8% and 7.5% select rates, and 7% is the ultimate rate.
17. **Substantive Plan** – The terms of an OPEB plan as understood by the employer(s) and plan members.