Howard County, Maryland
Post-Retirement Medical
Actuarial Valuation
as Required by GASB 45

Fiscal Date:	**July 1, 2016 – June 30, 2017**
	Appendices with July 1, 2015 – June 30, 2016 Expense
Date of Report:	**August 12, 2016**
Prepared By:	**Bolton Partners, Inc.** **100 Light Street** **9th Floor** **Baltimore, MD 21202**

August 12, 2016

Stanley J. Milesky
Director, Department of Finance
Howard County Government
3430 Court House Drive
Ellicott City, MD 21043

Dear Stanley:

The following sets forth the July 1, 2016 GASB 45 Annual Expense for the Howard County Government, Library, Schools, and College for the Fiscal Years Ending June 30, 2017. The FYE 2016 expense is based on the data, plan assumptions, and provisions detailed in our previous report dated April 22, 2015 and is provided in the appendix. This is the final report under the GASB45 accounting standard, starting FY2018 GASB45 will be replaced by the GASB75 accounting standard.

The annual expense (the Annual OPEB Cost) has increased from $65,718,000 in FYE 2016 to $91,163,000 in FYE 2017. The unfunded liability has increased from $642,646,608 as of July 1, 2015 to $908,535,000 as of July 1, 2016. The increase is primarily due to claims experience, updating the trend table to the most recent table released by the Society of Actuaries, decreasing the discount rate to 4.75%, and the passage of time. These increases were partially offset by gains due to demographic assumption changes.

This report has been prepared for Howard County Government for the purposes of complying with the GASB45 accounting standard. It is neither intended nor necessarily suitable for other purposes. Bolton Partners is not responsible for the consequences of any other use nor the reliance upon this report by another party.

In general, post-retirement medical valuations are based on an assumption for post-retirement medical increases. If medical costs increase at a rate greater than our assumption there could be a dramatic increase in the cost. The report shows the impact of 1 percent (over all years) increase in the medical trend assumption. Future actuarial measurements may differ significantly from the current measurements presented in this report, due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions, applicable law or accounting rules.

The report is based on January 1, 2016 census data for the General Government, Library, Schools, and College. The census data was submitted by the County. Medical claims for calendar years 2014 and 2015 for the County and the Schools were reported by the carriers. We have not performed an audit on the data and have relied on this information for purposes of preparing this report.

The actuarial methods and assumptions used in this report comply with GASB 45 and the actuarial standards of practice promulgated by the American Academy of Actuaries.

Bolton Partners is completely independent of Howard County, its programs, activities, and any of its officers or key personnel. Bolton Partners, and anyone closely associated with us, does not have any relationship which would impair our independence on this assignment.

Kevin Binder is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Respectfully submitted,

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1. Executive Summary

Background

In June 2004 the Government Accounting Standards Board (GASB) released Statement 45 which revised the GAAP accounting standards for post employment benefits other than pensions (OPEB). This standard will be applied to post employment medical benefits that are provided to Howard County Government retirees. Prior to the standard these benefits were accounted for on a pay as you go basis. The standard requires that these benefits be accounted for on an accrual basis.

This report determines the expense under the standard for Howard County Government, Library, Schools, and College for FYE 2017. The FYE 2016 results are based on the data, methods, provisions, and assumptions presented in our previous report dated April 22, 2015 with the exception of the discount rate, which was set based on the FYE 2016 trust contribution level. The FYE 2016 results are presented in the appendix of this report.

OPEB Trust Arrangement

The County's OPEB Plan is a multi-employer cost sharing plan. The Plan includes the County, Library, Schools, and College. The Plan has been administered as a trust or an equivalent arrangement. Because the employers are all component units of Howard County, we have determined the Annual Required Contribution according to paragraph 11 of the GASB45 Standard. There will be one disclosure for the County, Library, Schools, and College under GASB 45, and one disclosure for the entire trust under GASB 43.

Funding Policy

The discount rate used to determine the liabilities under GASB 45 depends upon the County's funding policy. Governments that contribute an amount at least equal to the GASB 45 annual required contribution (ARC) to pay benefits or to a trust that can only be used to pay other post-retirement benefits, discount liabilities based on the expected long-term rate of return of the Trust.

It is our understanding that Howard County will contribute $10,000,000 to the trust in FYE 2016 and $13,000,000 to the trust in FYE 2017. For the purpose of the report exhibits we allocated contributions on the actuarial accrued liability. These trust contributions are in addition to benefit payments that are made from general revenues.

1. Executive Summary (cont.)

The Funding Target and Assumed Trust Contributions

Section 3 of the report shows the ARC determined using a fully funded discount rate of 7.50%. This amount is the contribution target. If the County's OPEB expenditures are less than the contribution target GASB 45 requires the use of a blended discount rate, between the long term expected rate of return on trust assets and the expected rate of return of internal funds.

Selection of Blended Discount Rate

Since Howard County's OPEB expenditures are between the pay as you go (PAYGO) and the contribution target, the discount rate is blended discount rate. According to GASB 45, "The discount rate for a partially funded plan should be a blended rate that reflects the proportionate amounts of plan and employer provided assets expected to be used."

For FYE 2017, Howard County's blended discount rate is 4.75%. This rate was selected using the year-by-year method for selecting the blended discount rate. The year-by-year method only considers the current year's cash contribution in determining the discount rate.

If the County's OPEB expenditures equaled the Contribution Target, the estimated trust contribution (in addition to pay-go benefits paid from general revenue) is $39.7 million for FYE 2017. The budgeted FYE 2017 contribution of $13 million is 33% of this amount. The 4.75% discount rate is a blended rate, equal to 33% of the expected rate of return of trust assets of 7.50% and 67% of the expected long term rate of return on internal funds of 3.50% (rounded to the nearest 25 basis points).

Annual Required Contribution (ARC)

The annual cost of OPEB benefits under GASB 45 is called the annual required contribution or ARC. Howard County's ARC is shown in Section 2. The ARC for the FYE June 30, 2017 is $95,915,000. The pay as you go cost for OPEB benefits during the same period is estimated to be $24,886,000.

Annual OPEB Cost (AOC)

If there is a Net OPEB Obligation (NOO) as of the beginning of the Fiscal Year, the ARC is adjusted by adding interest on the NOO and subtracting the amortized amount of the NOO. The adjusted ARC is called the Annual OPEB Cost (AOC). Howard County's AOC is shown in Section 2. The AOC for the FYE June 30, 2017 is $91,163,000.

1. Executive Summary (cont.)

Comparison with Previous Valuation – Expense and Unfunded Actuarial Accrued Liability

The previous valuation was completed April 22, 2015. The expense has increased from $65,718,000 for FYE 2016 to $91,163,000 for FYE 2017. The unfunded liability has increased from $642,646,608 as of July 1, 2015 to $908,535,000 as of July 1, 2016. The increase is primarily due to County claims experience, updating the trend table to the most recent table released by the Society of Actuaries, decreasing the discount rate to 4.75%, and the passage of time. These increases were partially offset by gains due to demographic assumption changes.

The following tables reconcile the expense and the unfunded actuarial liability.

	County	Schools	College	Total
FYE 2016 AOC (5.25%)	$20,740,000	$43,199,000	$1,779,000	$65,718,000
Expected Increase due to the Passage of Time	$1,142,000	$2,136,000	$114,000	$3,392,000
Demographic Experience	$672,000	$1,476,000	$42,000	$2,190,000
Increase/(Decrease) due to Claims Experience	$6,405,000	$1,221,000	$394,000	$8,020,000
Increase/(Decrease) due to Demographic Assumptions	($1,137,000)	$414,000	$19,000	($704,000)
Increase/(Decrease) due to Change in Medical Trend	$1,518,000	$2,539,000	$145,000	$4,202,000
Increase/(Decrease) due to Change in Funding Method	$211,000	$1,616,000	$132,000	$1,959,000
Increase/(Decrease) due to Change in Discount Rate	$2,286,000	$3,884,000	$216,000	$6,386,000
FYE 2017 AOC (4.75%)	$31,837,000	$56,485,000	$2,841,000	$91,163,000

1. Executive Summary (cont.)

Comparison with Previous Valuation – Unfunded Accrued Liability

	County	Schools	College	Total
FYE 2016 UAL (5.25%)	$193,437,690	$434,710,169	$14,498,749	$642,646,608
Expected Increase due to the Passage of Time	$11,140,310	$19,200,831	$1,194,251	$31,535,392
Demographic Experience	$3,115,000	$22,656,000	($13,000)	$25,758,000
Increase/(Decrease) due to Claims Experience	$54,676,000	$11,384,000	$2,875,000	$68,935,000
Increase/(Decrease) due to Demographic Assumptions	($8,044,000)	$2,882,000	$125,000	($5,037,000)
Increase/(Decrease) due to Change in Medical Trend	$12,000,000	$21,164,000	$1,033,000	$34,197,000
Increase/(Decrease) due to Change in Funding Method	($625,000)	$34,807,000	$1,304,000	$35,486,000
Increase/(Decrease) due to Change in Discount Rate	$23,497,000	$49,633,000	$1,884,000	$75,014,000
FYE 2017 UAL (4.75%)	$289,197,000	$596,437,000	$22,901,000	$908,535,000

1. Executive Summary (cont.)

The Net OPEB Obligation (NOO)

The Net OPEB Obligation (NOO) is the cumulative difference between the Annual OPEB expense including the contribution to the unfunded accrued liability and payments made for OPEB benefits (to a trust or directly to participants). This amount is a liability on the statement of net financial position. We estimate that the NOO will increase to $476,591,449 as of June 30, 2017 based on contribution and benefit payout amounts provided by Howard County.

Plan Provisions

There are separate plans for the County and Library, Schools, and College. Each has a subsidy schedule depending on the years of service at retirement. The County and Library subsidy does not depend upon the medical plan chosen by the retiree. For employees who retired prior to July 1, 2009, the County and Library pay a subsidy which is a percentage of the premium for the Aetna PPO plan. For employees who retired on or after July 1, 2009, the County and Library pay a subsidy which is a percentage of the premium for the Aetna HMO plan.

For participants who retired prior to July 2, 2010, the Schools provide a subsidy which is a percent of the premium for the medical plan selected by the retiree. For participants who retired on or after July 2, 2010, the Schools provide a subsidy which is a percent of the premium for the Aetna HMO plan.

The College offers a subsidy to retirees based on a percent of the premium for the medical plan chosen by the retiree.

In addition, the County and Library provide a subsidy for dependent spouses equal to 25% of the additional premium for spouse coverage for the lowest cost plan. The Schools and College do not subsidize spouse benefits. The Schools also provide a post-retirement life insurance at no cost to retirees. There is no provision for post-retirement life insurance for the County, Library, or College.

The plan provisions are detailed in Sections 5, 6, and 7.

1. Executive Summary (cont.)

Demographic Data

Demographic data as of January 1, 2016 for the County, Library, Schools, and College was provided to us by Howard County. This data included current medical coverage for current employees and retirees.

Because the census data is less than 24 months before the first day of fiscal year 2017, it can be relied on to comply with GASB 45 for FYE 2017.

Although we have not audited this data we have no reason to believe that it is inaccurate.

Claims Data

We used the published insurance rates provided by the County. Insurance rates provided were those in effect for calendar year 2015. We received paid claims and enrollment for Howard County Government, Library, School, and College Retirees from January 1, 2014 through December 31, 2015.

Impact of Health Care Reform

We have adjusted the pre-65 medical care trend due to the projected impact of the “Cadillac Tax”. The Cadillac Tax is one of the provisions of the Affordable Care Act (ACA) of 2010. The Cadillac Tax provision is effective in 2020. The Cadillac Tax only applies to plans that cost $10,200 or more for an individual or $27,500 per family. There will be a 40 percent excise tax for expenditures over these thresholds. The cost thresholds are indexed by general inflation each year after 2018. Because medical trends are projected to be higher than general inflation we would expect the percentage of the premium that is subject to the premium tax to increase over time.

There are other provisions of the ACA that could impact future costs. Some of the provisions (for example risk adjustment charges for plans that cover healthier populations) could increase costs, while others (for example, less uninsured care costs might be passed on to those with insurance) may reduce costs over time. Because the impact of these provisions is unclear at this time, we have made no other adjustments to the medical care trend.

1. Executive Summary (cont.)

Implicit Subsidy

The published insurance rates for persons prior to Medicare eligibility are based primarily on the healthcare usage of active employees. Since retirees use healthcare at a rate much higher than employees, using these blended rates creates an implicit subsidy for the retiree group. GASB 45 requires that the claims assumption we use for this valuation be based on the actual per-capita retiree cost. The difference between the actual usage of healthcare by retirees and the assumption built into the published rates is identified as the implicit subsidy amount. The impact on rates can be seen in Section 9, 10, and 11. The liabilities could be reduced by publishing rates for retirees prior to Medicare eligibility that more closely reflect the true cost of healthcare for each group.

Demographic Assumptions

The demographic assumptions mirror those used for the pension plans. For County employees there are separate demographic assumptions for general, police, fire, and correction employees. School and College employees use the same assumptions as the State of Maryland Pension System.

These assumptions have been revised since the last valuation for the County and Library Employees.

Sections 9, 10, and 11 detail the assumptions for electing coverage.

Economic Assumptions

The discount rate assumption is tied to the return expected on the funds used to pay these benefits. The discount assumption will be materially tied to the decision of whether or not to pre-fund these benefits. The discount rate of 4.75% for 2017 was selected based on a long term expected rate of return on trust assets of 7.50% and a long term expected rate of return on internal funds of 3.50%. This rate was lowered to 3.50% to better reflect current economic conditions.

The medical trend assumption was updated. It was developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model baseline assumptions. The prior valuation used the SOA model as released in September 2014. The current valuation uses the model as updated in November 2015. The following baseline assumptions were used as input variables into the following model:

1. Executive Summary (cont.)

Economic Assumptions (cont.)

Rate of Inflation	2.3%
Rate of Growth in Real Income / GDP per capita	1.6%
Extra Trend due to Technology and other factors	1.3%
Health Share of GDP Resistance Point	25.0%
Year for Limiting Cost Growth to GDP Growth	2075

The SOA Long-Run Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variables have been developed under the guidance of an SOA Project Oversight Group.

The pre-65 medical trend was increased to reflect the impact of the Cadillac tax. For this purpose, general inflation is assumed to be 2.75% per annum.

Payroll is assumed to increase at 3.0% per annum. This assumption is used to determine the level percentage of payroll amortization factor.

Actuarial Certification

In preparing the valuation we relied on demographic and claims data provided by Howard County Government, Schools and College. We reviewed the data for reasonableness, but did not audit the data. The actuarial methods and assumptions used in this report comply with GASB 45 and the actuarial standards of practice promulgated by the American Academy of Actuaries.

Future medical care cost increase rates are unpredictable and could be volatile. They will depend upon the economy, future health care delivery systems and emerging technologies. The trend rate selected is based on an economic model developed by a health care economist for the Society of Actuaries. Future medical trend increases could vary significantly from the model. Model inputs will be updated periodically based on the best estimate of the economy at that time. Small changes in the model inputs can results in actuarial losses or gains of 5 to 15 percent of liabilities.

Kevin Binder is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

2. Plan Expense FYE 2017

Below is a summary of the calculation of the Plan's expense as of July 1, 2016 under current Plan provisions. The discount rate was selected using the current GASB 45 methodology for determining partially funded rates.

		FYE 2017 County	FYE 2017 Schools	FYE 2017 College	FYE 2017 Total
1)	Discount Rate	4.75%	4.75%	4.75%	4.75%
2)	Actuarial Accrued Liability				
	a. Actives	$208,615,000	$349,837,000	$21,360,000	$579,812,000
	b. Retirees in Pay Status	$106,429,000	$304,684,000	$3,479,000	$414,592,000
	c. Total (a + b)	$315,044,000	$654,521,000	$24,839,000	$994,404,000
3)	Assets[1]	$25,847,000	$58,084,000	$1,938,000	$85,869,000
4)	Amortization of Unfunded Accrued Liability				
	a. Unfunded Accrued Liability	$289,197,000	$596,437,000	$22,901,000	$908,535,000
	b. Amortization Period (years)	21	21	21	21
	c. Amortization Factor (rounded)	17.03	17.03	17.03	17.03
	d. Amortization Amount (a / c)	$16,983,000	$35,028,000	$1,345,000	$53,356,000
5)	Annual Required Contribution of Employer (ARC) – As of End of Fiscal Year				
	a. Normal Cost (end of year)	$16,322,000	$24,627,000	$1,610,000	$42,559,000
	b. Amortization of Unfunded Accrued Liability	$16,983,000	$35,028,000	$1,345,000	$53,356,000
	c. Total ARC (a + b)	$33,305,000	$59,655,000	$2,955,000	$95,915,000
6)	Annual OPEB Cost (AOC)				
	a. ARC	$33,305,000	$59,655,000	$2,955,000	$95,915,000
	b. NOO Amortization	($7,679,000)	($16,583,000)	($598,000)	($24,860,000)
	c. Interest on NOO	$6,211,000	$13,413,000	$484,000	$20,108,000
	d. Total Cost (a + b + c)	$31,837,000	$56,485,000	$2,841,000	$91,163,000
7)	1% Sensitivity ARC	$42,626,000	$75,211,000	$3,817,000	$121,654,000
8)	Net OPEB Obligation (NOO)				
	a. Beginning of Year NOO[1]	$130,762,307	$282,370,168	$10,181,974	$423,314,449
	b. Current AOC	$31,837,000	$56,485,000	$2,841,000	$91,163,000
	c. Expected Pay-go Benefits	($7,008,000)	($17,477,000)	($401,000)	($24,886,000)
	d. Expected Trust Contribution[2]	($3,913,000)	($8,794,000)	($293,000)	($13,000,000)
	e. Projected End of Year NOO (a + b + c + d)	$151,678,307	$312,584,168	$12,328,974	$476,591,449

[1] Estimated
[2] As provided by Howard County

3. Funding Target and Cash Contribution FYE 2017

Below is a summary of the contribution target for FYE 2017. The contribution target is similar to the ARC calculation, except that it is determined using a discount rate of 7.50%. The contribution target is used to determine the blended discount rate under the GASB 45 standard.

			FYE 2017 7/1/2016
1)	Actuarial Accrued Liability		
	a.	Actives	$356,188,000
	b.	Retirees in Pay Status	$306,351,000
	c.	Total (a + b)	$662,539,000
2)	Expected Assets		$85,869,000
3)	Amortization of Unfunded Accrued Liability		
	a.	Unfunded Accrued Liability	$576,670,000
	b.	Amortization Period (years)	21
	c.	Amortization Factor (rounded)	13.17
	d.	Amortization Amount (a / c)	$43,789,000
4)	Funding Target		
	a.	Normal Cost	$20,842,000
	b.	Amortization of Unfunded Accrued Liability	$43,789,000
	c.	Total Funding Target (a + b)	$64,631,000
5)	Trust Contribution		
	a.	Funding Target	$64,631,000
	b.	Expected Pay-Go Benefits	$24,886,000
	c.	Net Funding Target (a – b)	$39,745,000
	d.	Expected Contribution [1]	$13,000,000
	e.	Percent Funding	33%
	f.	Discount Rate [(e) x 7.50%) + (1 – (e) x 3.50%] [2]	4.75%

[1] *As provided by Howard County.*
[2] *Rounded to the nearest quarter percent.*

4. Valuation Data

Counts - Government and Library

The following table summarizes the counts, ages, and coverage for the current and prior valuation.

Data as of			*07/01/2014*	*01/01/2016*
(1)	Number of Participants			
	(a)	Active Employees [1]	2,398	2,484
	(b)	Retirees in Pay Status (Pre Medicare)	306	306
	(c)	Retirees in Pay Status (Medicare Age)	399	437
	(d)	Long Term Disabled	2	4
	(e)	Deferred Vested Terminations [2]	35	35
	(f)	Opt out inactives [3]	38	56
	(g)	Total [4]	3,178	3,322
(2)	Active Statistics			
	(a)	Average Age	44.58	44.85
	(b)	Average Service	12.18	12.36
(3)	Inactive Statistics – Average Age			
	(a)	Retirees in Pay Status (Pre-Medicare)	57.77	58.21
	(b)	Retirees in Pay Status (Medicare Age)	72.70	72.58
	(c)	Long Term Disabled	46.50	45.25
	(d)	Deferred Vested Terminations	56.26	57.74
	(e)	Opt out inactives	63.13	62.55

[1] *Does not include active participants not currently enrolled in medical coverage.*
[2] *For this valuation, we excluded deferred vested participants over the age of 65.*
[3] *These individuals opted out of OPEB benefits but could later decide to commence OPEB benefits.*
[4] *All Library employees are assumed to participate in the Howard County Retirement Plan.*

4. Valuation Data (cont.)

Counts - Government and Library (cont.)

Active participants by pension plan			*07/01/2014*	*01/01/2016*
(1)	Howard County Retirement Plan			
	(a)	General	1,357	1,422
	(b)	Corrections	65	77
(2)	Howard County Police and Fire Employees Retirement Plan			
	(a)	Police	381	392
	(b)	Fire	355	354
(3)	Maryland State Pension and Retirement System		81	74
(4)	Library		159	165
(5)	**Total**		**2,398**	**2,484**

Retirees Coverage

The following table summarizes the counts of coverage by ages for the current retired employees as of 01/01/2016.

Age	*Individual*	*Parent/Child*	*Husband/Wife*	*Family*	*Total*
Less Than 55	55	5	3	8	71
55 – 60	70	1	8	3	82
60 – 65	123	1	32	1	157
65 – 70	143	0	36	0	179
70 – 75	97	0	25	0	122
75 – 80	44	0	23	0	67
80 – 85	26	0	16	0	42
Greater than 85	22	0	5	0	27
Total	580	7	148	12	747

4. Valuation Data (cont.)

Counts - Schools

The following table summarizes the counts, ages, and coverage for the current and prior valuation.

Data as of	*12/01/2014*	*01/01/2016*
(1) Number of Participants		
(a) Active Employees with Medical Coverage	6,751	6,865
(b) Active Employees without Medical Coverage [1]	1,393	347
(c) Retirees in Pay Status (Pre Medicare)	504	608
(d) Retirees in Pay Status (Medicare Age)	1,535	1,752
(e) Retirees with only Life Insurance	430	508
(f) Total	10,613	10,080
(2) Active Statistics (for participants with medical coverage)		
(a) Average Age	45.27	44.24
(b) Average Service	11.37	10.60
(3) Inactive Statistics (for participants with medical coverage)		
(a) Average Age – Retirees (Pre Medicare)	61.39	60.95
(b) Average Age – Retirees (Medicare Eligible)	73.33	72.78

[1] *Only life insurance benefit is valued for these active participants.*

4. Valuation Data (cont.)

Counts – Schools (cont.)

Retirees Coverage

The following table summarizes the counts of coverage by ages for the current retired employees as of 01/01/2016.

Age	*Individual*	*Parent/Child*	*Husband/Wife*	*Family*	*Total*
Less Than 55	28	1	2	1	32
55 – 60	97	2	20	6	125
60 – 65	341	6	104	0	451
65 – 70	571	3	142	2	718
70 – 75	386	3	87	2	478
75 – 80	231	0	45	0	276
80 – 85	131	0	20	0	151
Greater than 85	123	0	6	0	129
Total	1,908	15	426	11	2,360

4. Valuation Data (cont.)

Counts – College

The following table summarizes the counts, ages, and coverage for the current and prior valuation.

Data as of			*07/01/2014*	*01/01/2016*
(1)	Number of Participants			
	(a)	Active Employees	515	546
	(b)	Retirees in Pay Status (Pre- Medicare)	5	7
	(c)	Retirees in Pay Status (Post-Medicare)	40	44
	(d)	Total	560	597
(2)	Active Statistics			
	(a)	Average Age	48.04	48.63
	(b)	Average Service	10.70	10.57
(3)	Inactive Statistics (In Pay Status)			
	(a)	Average Age (Pre-Medicare)	60.80	60.43
	(b)	Average Age (Post-Medicare)	72.53	73.52

4. Valuation Data (cont.)

Counts – College (cont.)

Retiree Coverage

The following table summarizes the counts of coverage by ages for the current retired employees as of 01/01/2016.

Age	*Individual*	*Husband/Wife*	*Total*
Less Than 60	1	1	2
60 – 65	4	1	5
65 – 70	9	5	14
70 – 75	14	0	14
75 – 80	5	4	9
80 – 85	4	1	5
Above 85	2	0	2
Total	39	12	51

4. Valuation Data (cont.)

Active Age & Service Distribution - General Government (All groups)

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the county as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	12	31	0	0	0	0	0	43
25 – 29	19	148	64	2	0	0	0	233
30 – 34	10	122	139	80	7	0	0	358
35 – 39	10	62	85	100	39	0	0	296
40 – 45	10	52	56	63	84	19	6	290
45 – 50	4	48	52	51	67	54	46	322
50 – 55	6	43	56	44	43	40	87	319
55 – 60	2	26	49	44	37	27	100	285
60 – 65	4	17	38	32	32	23	82	228
65 – 70	0	4	12	13	15	6	41	91
70 & Up	0	2	0	3	5	2	7	19
Totals	77	555	551	432	329	171	369	2,484

The following table shows averages in total for active participants in this valuation.

Averages	**Amount**
Age:	44.85
Service:	12.36

4. Valuation Data (cont.)

Active Age & Service Distribution – Government (General and Library)

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the county as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	Under 1	01-04	05-09	10-14	15-19	20-24	25+	Total
Under 25	7	15	0	0	0	0	0	22
25 – 30	18	86	25	1	0	0	0	130
30 – 35	9	81	54	28	6	0	0	178
35 - 40	10	52	43	34	19	0	0	158
40 - 44	10	44	30	30	29	5	4	152
45 - 49	4	44	41	32	28	21	25	195
50 - 54	5	41	52	38	37	17	53	243
55 - 59	2	25	47	36	36	22	87	255
60 - 64	4	16	37	31	32	21	78	219
65 - 69	0	4	12	13	15	6	40	90
70 & Up	0	2	0	3	5	2	7	19
Totals	69	410	341	246	207	94	294	1,661

The following table shows averages in total for Active participants in this valuation.

Averages	Amount
Age:	47.72
Service:	12.61

4. Valuation Data (cont.)

Active Age & Service Distribution – Government (Corrections Group)

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the county as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	0	0	0	0	0	0	0	0
25 - 29	0	6	2	0	0	0	0	8
30 - 34	0	2	3	3	0	0	0	8
35 - 39	0	4	1	0	1	0	0	6
40 - 44	0	4	9	3	2	0	0	18
45 - 49	0	2	2	8	3	0	0	15
50 - 54	0	1	3	5	2	2	0	13
55 - 59	0	0	1	3	1	0	1	6
60 - 64	0	0	0	1	0	0	1	2
65 - 69	0	0	0	0	0	0	1	1
70 & Up	0	0	0	0	0	0	0	0
Totals	0	19	21	23	9	2	3	77

The following table shows averages in total for Active participants in this valuation.

Averages	Amount
Age:	43.65
Service:	9.47

4. Valuation Data (cont.)

Active Age & Service Distribution - Government (Fire Group)

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the county as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	0	9	0	0	0	0	0	9
25 - 29	0	25	23	1	0	0	0	49
30 - 34	0	17	25	29	1	0	0	72
35 - 39	0	4	21	31	6	0	0	62
40 - 44	0	3	11	16	26	5	1	62
45 - 49	0	1	4	8	20	14	13	60
50 - 54	0	0	0	1	2	9	14	26
55 - 59	0	0	1	2	0	3	7	13
60 - 64	0	0	0	0	0	0	1	1
65 - 69	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0
Totals	0	59	85	88	55	31	36	354

The following table shows averages in total for Active participants in this valuation.

Averages	Amount
Age:	38.64
Service:	12.19

4. Valuation Data (cont.)

Active Age & Service Distribution - Government (Police Group)

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the county as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	5	7	0	0	0	0	0	12
25 - 29	1	31	14	0	0	0	0	46
30 - 34	1	22	57	20	0	0	0	100
35 - 39	0	2	20	35	13	0	0	70
40 - 44	0	1	6	14	27	9	1	58
45 - 49	0	1	5	3	16	19	8	52
50 - 54	1	1	1	0	2	12	20	37
55 - 59	0	1	0	3	0	2	5	11
60 - 64	0	1	1	0	0	2	2	6
65 - 69	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0
Totals	8	67	104	75	58	44	36	392

The following table shows averages in total for Active participants in this valuation.

Averages	Amount
Age:	38.51
Service:	11.97

4. Valuation Data (cont.)

Active Age & Service Distribution – Schools

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the schools as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	47	86	0	0	0	0	0	133
25 - 29	129	437	159	4	0	0	0	729
30 - 34	67	236	444	152	2	0	0	901
35 - 39	57	144	220	318	93	2	0	834
40 - 44	50	132	178	179	203	40	1	783
45 - 49	36	168	225	183	180	113	46	951
50 - 54	29	109	214	216	162	88	156	974
55 - 59	24	64	160	209	191	87	152	887
60 - 64	3	29	67	120	128	75	104	526
65 - 69	0	8	16	27	24	14	28	117
70 & Up	0	2	3	12	6	2	5	30
Totals	442	1,415	1,686	1,420	989	421	492	6,865

The following table shows averages in total for active participants in this valuation.

Averages	**Amount**
Age:	44.24
Service:	10.60

4. Valuation Data (cont.)

Active Age & Service Distribution – College

Shown below is a distribution based on age and service of active participants who are currently receiving medical and drug benefits from the college as of 01/01/2016.

	Years of Service as of 01/01/2016							
Age	**Under 1**	**01-04**	**05-09**	**10-14**	**15-19**	**20-24**	**25+**	**Total**
Under 25	0	1	0	0	0	0	0	1
25 - 29	5	24	8	0	0	0	0	37
30 - 34	3	23	15	3	0	0	0	44
35 - 39	5	22	20	14	2	0	0	63
40 - 44	0	23	21	9	8	2	0	63
45 - 49	3	24	14	13	8	5	0	67
50 - 54	5	17	16	12	12	6	4	72
55 - 59	3	12	12	14	16	5	14	76
60 - 64	0	10	15	12	14	11	18	80
65 - 69	1	4	3	6	3	3	10	30
70 & Up	0	0	0	4	0	2	7	13
Totals	25	160	124	87	63	34	53	546

The following table shows averages in total for active participants in this valuation.

Averages	**Amount**
Age:	48.63
Service:	10.57

5. Summary of Principal Plan Provisions - Government

General Eligibility Rules

Employees, former employees, and beneficiaries of Howard County Government who are receiving pensions are currently eligible for benefits under this Plan. To receive benefits under the Plan, the retiree must have 15 years of County service for retirements after July 1, 2009. (Previously, 10 years of County service was required.) Also, immediately preceding retirement, the retiree must have been enrolled in a medical insurance plan offered to active employees of the County.

There is a grandfathered group. Employees who satisfy either of the following conditions will be eligible for OPEB benefits under this Plan:

- Employees with 10 years or more of County service as of July 1, 2009, or
- Employees hired between July 1, 1999 and June 30, 2009, and were age 50 or older at the time of hire and have at least 10 years of County service at time of retirement.

Eligible retirees who enroll at retirement and subsequently drop their coverage will be allowed a one time only opt in during a future open enrollment period or due to a qualifying event as defined by applicable IRS guidelines. Eligible retirees who elect to not enroll at retirement will be allowed a one-time only opt-in during a future open enrollment period or due to a qualifying event as defined by applicable IRS guidelines.

Eligible retirees and their dependents over the age of 65 must be enrolled in Medicare Part A and Part B. The plan options for the Medicare eligible retirees are one of two Medicare Advantage plans with Aetna or one Cost Plus plan with Kaiser. All three plans have a PDP.

Pension Plan Eligibility Rules

Each participant in the OPEB plan is also a participant in one of four possible pension plans:

- Howard County Retirement Plan,
- Howard County Police and Fire Employees' Retirement Plan,
- Maryland State Retirement System, or
- Maryland State Pension System,

The retirement and disability eligibility conditions for these plans are summarized below.

5. Summary of Principal Plan Provisions – Government (cont.)

Pension Plan Eligibility Rules (cont.)

Retirement eligibility

The eligibility conditions for retirement depend upon the pension plan as follows.

Howard County Retirement Plan
General employees hired after June 30, 1995, participate in the Howard County Retirement Plan. Consequently, most active participants are in this pension plan. The earliest retirement eligibility conditions depend upon whether the participant is a "general" employee or "corrections" employee.

General: earlier of

- Age 62 when age plus eligibility service is at least 67, and at least 2 years of eligibility service,
- Age 55 with 15 years of eligibility service (early), or
- 25 years of eligibility service (regardless of age) (early).

Corrections: earlier of

- Meets one of the requirements for retirement described above, or
- 20 years of eligibility service (regardless of age).

Howard County Police and Fire Employees' Retirement Plan
Earlier of

- Age 62 with 5 years of eligibility service, or
- 20 years of eligibility service (regardless of age) if at least 10 years were served as a covered employee.

Maryland State Pension System (for members hired before 7/1/2011)
There is a closed group of active participants who are members of the Maryland State Pension System. A smaller closed group of active participants are members of the old Maryland State Retirement System. Because these are small closed groups, we summarize below the earliest retirement eligibility for only the Maryland State Pension System. For member hired before 7/1/2011, the earliest retirement eligibility is the earlier of:

- Age 55 with 15 years of service,
- Age 62 with 5 years of service,
- Age 63 with 4 years of service,
- Age 64 with 3 years of service,
- Age 65 with 2 years of service, or
- 30 years of service (regardless of age).

5. Summary of Principal Plan Provisions – Government (cont.)

Pension Plan Eligibility Rules (cont.)

Disability eligibility

Retirees collecting line of duty disability benefits from the Howard County Police and Fire Employees' Retirement Plan will receive health insurance benefits in accordance with that plan. All other disability retirements must satisfy this OPEB Plan's general eligibility rules to receive OPEB benefits.

Line of Duty – Line of duty disabilities that occur after 6 months of employment are immediately eligible. Retirees collecting ordinary disability benefits, who are also covered by Medicare because they have been receiving disability benefits under Social Security for more than 24 months, will be eligible retirees under this OPEB Plan. The County will pay 100% of the premium for these retirees.

Ordinary – Participants must meet retirement eligibility to be eligible for access to the plan.

Deferred vested participants

There is a closed group of terminated vested participants in this Plan. Except for this closed group, deferred vested individuals cannot receive OPEB benefits under this Plan.

Employer Subsidy

For medical coverage, the County provides an explicit subsidy that depends upon service as follows:

Service at retirement	*Subsidy for employees retiring prior to July 1, 2009*	*Subsidy for employees retiring on or after July 1, 2009*
Under 15	50%	0%
15 to 19	50%	50%
20 to 24	75%	75%
25 to 29	90%	90%
30 or More	100%	90%

The subsidy is a percentage of the premium for the Aetna PPO plan for employees who retired before July 1, 2009. The subsidy is a percentage of the premium for the Aetna HMO plan (also called Aetna Select Open Access) for Pre-Medicare employees who retired after July 1, 2009. The subsidy is a percentage of the premium for the Medicare Advantage 10 plan for Medicare eligible retirees who retired on or after July 1, 2009. Employees with 25 or more years of service as of July 1, 2009, are grandfathered in the old subsidy schedule. The County subsidy cannot be greater than the premium for individual coverage under the medical plan chosen.

5. Summary of Principal Plan Provisions - Government (cont.)

Employer Subsidy (cont.)

Dependent spouse subsidy is 25% of the difference between husband/wife and individual coverage under the lowest cost plan. The spouse subsidy does not depend upon the age of the spouse. It only depends upon the age of the retired employee. The current monthly subsidy for dependent spouse coverage (or family coverage) is summarized below:

Age of retired employee	*Monthly County subsidy for dependent spouse medical coverage*
Under 65	161.11
Age 65 or more	70.41

The retiree subsidy plus the spouse subsidy cannot be greater than the premium for husband/wife coverage under the medical plan chosen. Participants with individual plus children coverage do not receive any additional explicit subsidy due to the children coverage.

The surviving spouse of an eligible retiree may continue OPEB coverage but must pay 100% of the published costs. The surviving spouse of an employee who dies while in active service may enroll in the OPEB Plan by paying the full cost of the Plan if the employee would have met the definition of an eligible retiree on the day prior to his/her death and if the surviving spouse will receive a monthly benefit allowance from one of the four pension plans named previously.

Effective January 1, 1999, the County pays 100% of the cost for surviving spouses and dependent children of any employee killed in the line of duty.

There is a closed group of disabled employees who receive the same subsidy as an active employee. This subsidy level will continue for the life of the employee.

The County pays 25% of the individual dental premium based upon the lowest cost plan (currently Denta Quest EPPO) for a retired employee. Dependent spouse dental subsidy is 25% of the difference between the premium for husband/wife coverage versus individual coverage under the lowest cost plan (again Denta Quest EPPO currently).

5. Summary of Principal Plan Provisions - Government (cont.)

Underlying Plan Description

Retirees Under Age 65

Retirees under age 65 can choose between the Aetna Open Choice PPO Plan, the Aetna Select Open Access HMO Plan, and the Kaiser Permanente Select HMO Plan.

The HMO plans have no deductibles or coinsurance payments. Office visits are covered in full after a co-pay ($10 for primary care, $20 for specialist). There are no out-of-network benefits.

Prescription drug benefits are covered at plan pharmacies with a $10 copayment for generic drugs, $30 copayment for preferred brand name drugs, and a $50 copayment for non-preferred brand drugs.

Deductibles, copayment and maximum out-of-pocket payments for the Aetna PPO Plan depend upon whether services are provided in or out of networks as summarized in the following table.

Howard County Government, Library and College (Aetna PPO Plan)		
	In Network	Out-of-Network
Deductible	$250/individual, $500/family per calendar year	$500/individual, $1,000/family per calendar year
Co payment	10% coinsurance after $20 co-pay/visit	30% coinsurance
Co-Insurance	90% of allowed benefit	70% of allowed benefit
Yearly maximum out of pocket	$1,500/individual, $3,000/family combined with deductible and copays	$4,000/individual, $8,000/family combined with deductible and copays

These benefits are subject to change at any time.

5. Summary of Principal Plan Provisions - Government (cont.)

Underlying Plan Description (cont.)

Retirees Over Age 65

Post Medicare retirees will have a choice between two fully-insured Medicare Advantage Plans with a PDP with Aetna or the Kaiser Medicare Cost Plus Plan also fully-insured with a PDP.

Prescription drug benefits are the same as for retirees under age 65.

These benefits are subject to change at any time.

Vision Benefits

The medical plans also include vision benefits as summarized below.

	Kaiser Permanente	*Vision Service Plan* *(for Aetna Plans)*
Routine Exam	Primary care: $10 / visit Specialist: $20 / visit	In net work: $10 copay Out of network: $52 retail allowance
Frames	25% discount when purchased from a Maryland Eye Care provider	In network: allowance up to $130 retail plus $20% off any out of pocket cost Out of network: retail allowance up to $70

Dental Benefits

Retirees can choose between two dental plans, the Delta Dental PPO Plus and Denta Quest EPPO.

Life Insurance

None.

Changes in plan provisions since prior valuation

None

6. Summary of Principal Plan Provisions - Schools

General Eligibility Rules

Employees, former employees, and beneficiaries of the Howard County Public School System (HCPSS) who are receiving pensions, are currently eligible for benefits under this Plan. Participants must meet the pension eligibility requirements of the State of Maryland Employees' Retirement and Pension System.

- Dependents and surviving spouses are allowed access to the plan but must pay the full cost to participate.
- The Plan requires 15 years of service at retirement for employees retiring on or after July 2, 2010. There are grandfathered groups, see below for more details.
- The Plan allows employees who waive coverage at retirement to rejoin the plan if there is a qualifying event (e.g. loss of a job).
- Employees who left employment prior to retirement eligibility are not allowed access to the Plan even when they are eligible to receive deferred vested pension benefits.
- Disabled participants must meet retirement eligibility to participate.

Pension Eligibility

Under the State of Maryland Employees' Pension System (EPS), members hired on or after July 1, 2011 are in the Reformed Contributory Pension System. The earliest retirement eligibility under the Reformed Contributory Pension System is the earlier of

- Rule of 90 (age plus service is at least 90),
- Age 65 with 10 years of service, or
- Age 60 with 15 years of service.

For members of EPS hired before July 1, 2011, the earliest retirement eligibility is the earlier of:

- Age 55 with 15 years of service,
- Age 62 with 5 years of service,
- Age 63 with 4 years of service,
- Age 64 with 3 years of service,
- Age 65 with 2 years of service, or
- 30 years of service (regardless of age).

6. Summary of Principal Plan Provisions - Schools (cont.)

Employer Subsidy

The Howard County Public School System's (HCPSS) subsidy is based on the participant's age and service. The subsidy percent is applied to the premium for individual coverage to arrive at the dollar amount of HCPSS subsidy, regardless of the actual coverage level chosen by the participant (for example, individual, husband/wife, or family). The retiree must pay any difference between the actual premium and the HCPSS subsidy.

The subsidy schedule for retired employees is as follows.

Participants who retired before July 2, 2010 ("Old Plan")

Years of Service	Pre-Medicare	Post -Medicare
Less than 10	0%	0%
10	50%	50%
11	55%	55%
12	60%	60%
13	65%	65%
14	70%	70%
15	75%	75%
16-19	80%	80%
20-24	90%	90%
25-29	90%	90%
30 or more	90%	100%

For "Old Plan" participants, the subsidy is as a percentage of the premium for the medical plan selected by the retired employee.

Participants who retired on or after July 2, 2010 ("New Plan")

Among participants who retired on or after July 2, 2010, there are two grandfathered groups.

Grandfathered 1
This group is comprised of employees with 25 or more years of HCPSS service as of 7/1/2009, who retire with at least 30 consecutive years of service.

Grandfathered 2
This group is comprised of the participants who are not in the Grandfathered 1 group, but satisfy one of the following:

1. Have 10 or more years of HCPSS service as of 7/1/2009, or

6. Summary of Principal Plan Provisions - Schools (cont.)

Employer Subsidy (cont.)

Participants who retired on or after July 2, 2010 ("New Plan") (cont.)

2. Meet all of the requirements below:
   - Hired between 7/1/1999 and 6/30/2009,
   - Age 50 at date of hire or turned age 50 within the calendar year of hire, and
   - Have at least 10 years of HCPSS service at date of retirement.

The employer subsidy is summarized below.

Years of Service	*Regular*	*Grandfathered 1- Pre Medicare*	*Grandfathered 1 – Post Medicare*	*Grandfathered 2*
Less than 10	0%	0%	0%	0%
10-14	0%	50%	50%	50%
15-19	50%	50%	50%	50%
20-24	75%	75%	75%	75%
25-29	90%	90%	90%	90%
30 or more	90%	90%	100% *	90%

* *The 100% subsidy is available to participants with 30 or more years of HCPSS service who have reached age 65, and satisfy the criteria for the Grandfathered 1 group.*

For "New Plan" participants, the subsidy is as a percentage of the premium for the Aetna HMO plan. (The medical plan actually chosen by the retiree has no impact on the amount of the subsidy.)

The employer subsidy is for medical benefits only. There is no employer subsidy for dental or vision benefits. There is no subsidy for dependents and surviving spouses.

Underlying Plan Description

The underlying medical plan is described below. These benefits are subject to change at any time.

Retirees can choose between three plans:
- Aetna Open Choice PPO
- Open Access Aetna Select HMO
- Blue Choice HMO Open Access

6. Summary of Principal Plan Provisions - Schools (cont.)

Underlying Plan Description (cont.)

The Aetna PPO is very similar to the Open Access Aetna Select HMO with no need to select a primary care physician and no need to get a referral to see a specialist. However, the PPO allows for out-of network coverage. Deductibles, copayment and maximum out-of-pocket payments for the Aetna PPO Plan are summarized in the following table.

Howard County Schools – Aetna PPO Plan – Retirees Under Age 65		
	In Network	*Out-of-Network*
Deductible	$0	$100 individual; $300 family
Co-Insurance Hospital	100%	80% after deductible
Office Visits	$15	80% after deductible
Specialist Office Visits	$20	80% after deductible
Maximum out of pocket (calendar year)	$500 individual, $1,500 family	$1,000 individual, $3,000 family

The two HMO plans are summarized in the table below. Aetna Select HMO offers a nationwide network of doctors. There is no requirement for a primary care physician. No referrals are necessary for specialists.

Blue Choice HMO offers a regional network of doctors in the Maryland, DC, and northern Virginia area. Blue Choice HMO requires each member to have a primary care physician. No referrals are necessary for specialists.

Howard County Schools – HMO Plans – Retirees Under Age 65		
	Aetna Select HMO	*Blue Choice HMO*
Deductible	$0	$0
Co-Insurance Hospital	100%	100%
Office Visits	$10	$10
Specialist Office Visits	$15	$15
Maximum out of pocket (calendar year)	$2,000 individual, $6,000 family	$2,000 individual, $6,000 family

6. Summary of Principal Plan Provisions - Schools (cont.)

Underlying Plan Description (cont.)

Prescription drugs

Express Scripts was chosen by Howard County Public School System for its prescription benefit plan starting January 1, 2012. Prescription drug benefits are covered as follows.

Howard County Schools – PPO Plan		
	In Network Pharmacy – up to 30 day supply	*Mail order – up to 90 day supply*
Generic	$10	$20
Preferred brand name	$20	$40
Non preferred brand name	$35	$70

Howard County Schools – HMO Plan		
	In Network Pharmacy – up to 30 day supply	*Mail order – up to 90 day supply*
Generic	$5	$10
Preferred brand name	$10	$20
Non preferred brand name	$25	$50

Retirees Over Age 65

Medicare eligible retirees must enroll in Medicare Parts A and B. This Plan only offers supplemental coverage for Medicare eligible retirees. Consequently, retirees eligible for Medicare receive a reduction in premium. The medical plans are set up so that the total benefits remain unchanged post Medicare.

This Plan includes a prescription drug plan for Medicare eligible participants, and as a result it is not necessary for retirees to enroll in Medicare Part D.

Dental and Vision Benefits

Retirees may choose between two dental plans, Delta Dental and Cigna DHMO. Retirees may also choose vision coverage offered through VSP vision. The retiree must pay the entire premium for this coverage. There is no employer subsidy for dental or vision benefits.

6. Summary of Principal Plan Provisions - Schools (cont.)

Life Insurance

An employee who retires as a member of the Maryland State Retirement and Pension Systems, with at least 10 consecutive years of service, and who reside in the United States are included for life insurance fully paid for by HCPSS.

Life insurance benefit starts at lesser of one times basic yearly earnings or $250,000. The basic yearly earnings does not include bonuses, commissions or overtime pay. The life insurance benefit reduces as follows:

a) 10% at the date of retirement, and
b) 10% of the original amount of insurance on each of the next four anniversaries of the date of retirement.

For example, for a person with $100,000 basic yearly earnings at date of retirement, his/her life insurance will be $50,000 on the fourth anniversary of the date of retirement. ReliaStar Life Insurance Company is the life insurance carrier.

Changes in plan provisions since prior valuation

None.

7. Summary of Principal Plan Provisions - College

General Eligibility Rules

Employees, former employees, and beneficiaries of the Community College of Howard County (HCC) who had health coverage as active employees and are receiving pension benefits are eligible for coverage. HCC employees may choose between three different retirement plans:

- Maryland State Retirement and Pension System,
- TIAA-CREF, and
- Fidelity.

Both TIAA-CREF and Fidelity are defined contribution plans and they are called Optional Retirement Programs (ORP). The Optional Retirement Programs are available only to professional employees with baccalaureate degrees or higher. Full and part time, position control/budgeted support staff are automatically enrolled in the Maryland Teachers' Pension System or the Maryland Employees' Pension System.

Retirees must meet one of the following rules to be considered a retiree eligible to participate in the group health plan:

- Age 55 with at least 15 years of HCC service.
- Age 59 ½ with at least 10 years of HCC service,
- Age 62 with at least 5 years of HCC service, or
- 30 years of HCC service regardless of age.

Employees who enroll in retiree insurance at retirement and subsequently drop their coverage are allowed a one-time only opt-in during a future open enrollment period or due to a qualifying event. Employees who elect not to enroll at retirement will be allowed a one-time only opt-in during a future open enrollment period or due to a qualifying event. Qualifying events are defined by applicable IRS guidelines.

Eligible retirees over age 65 must be enrolled in Medicare Part A and Part B and have a choice between two Medicare Advantage Aetna plans with PDP or Kaiser Medicare Cost Plus plan. All three plans are fully insured.

Dependents and surviving spouses are allowed access to the plan, but must pay the full cost to participate.

Terminated vested participants are not allowed access to the plan.

7. Summary of Principal Plan Provisions – College (cont.)

General Eligibility Rules (cont.)

Retirement Eligibility

The retirement eligibility requirements of the State Retirement and Pension System of Maryland are as follows. Under the State of Maryland Employees' Pension System (EPS), members hired on or after July 1, 2011 are in the Reformed Contributory Pension System. The earliest retirement eligibility under the Reformed Contributory Pension System is the earlier of:

- Rule of 90 (age plus service is at least 90),
- Age 65 with 10 years of service, or
- Age 60 with 15 years of service.

For members of EPS hired before July 1, 2011, the earliest retirement eligibility is the earlier of:

- Age 55 with 15 years of service,
- Age 62 with 5 years of service,
- Age 63 with 4 years of service,
- Age 64 with 3 years of service,
- Age 65 with 2 years of service, or
- 30 years of service (regardless of age).

Long term disability

Employees who are disabled and on approved long-term disability leave who do not meet the retiree policy requirements may continue coverage with the college by paying full cost of the insurance until Medicare becomes available up to a maximum of two years. In order to be eligible for this coverage, employees must be in the plan at the time that the long-term disability begins.

Underlying Medical Plan Description

College retirees participate in the same medical plan as general County employees. See the underlying medical plan description in Section 5.

7. Summary of Principal Plan Provisions - College (cont.)

Employer Subsidy

HCC provides a subsidy for employees with 10 or more years of full time service. The subsidy is a percent of the premium for the medical plan chosen by the retiree. The subsidy schedule is as follows:

Years of Service	Employer Subsidy %
0 – 9	0%
10 – 14	37.5%
15 – 19	50%
20 – 24	60%
25 – 29	70%
30+	80%

There is no explicit subsidy for dependents and surviving spouses.

Life Insurance, dental

No retiree life insurance or dental benefit is provided.

Changes in plan provisions since prior valuation

None.

8. Cost Method and Economic Assumptions (All groups - County, Schools, and College)

Cost Method

This valuation uses the Entry Age Normal cost method calculated on an individual basis with level percentage of payroll.

Amortization

The unfunded liability was amortized over a closed period of 21 years using level percentage of pay for FYE 2017.

Asset Method

Market Value of Assets. Assets are assumed to earn a 7.50% return.

Future Payroll Growth

3.0% per annum

Interest Assumptions

Long Term Expected Rate of Return on Trust Assets:	7.50%
Long Term Expected Rate of Return of Internal Funds:	4.00%
Discount Rate:	4.75%

8. Cost Method and Economic Assumptions (cont.) (All groups - County, Schools, and College) (cont.)

Trend Assumptions

Based upon 2015 SOA Model, 1.6% GDP, adjusted for the anticipated impact of the ACA Excise Tax. Representative Rates are as follows:

	Pre 65			Post 65	
Year	County/College Aetna	County/College Kaiser	Schools All Plans	County/College All Plans	Schools All Plans
2016	5.90%	5.90%	5.90%	5.90%	5.90%
2017	5.60%	5.60%	5.60%	5.60%	5.60%
2018	5.40%	5.40%	5.40%	5.40%	5.40%
2019	5.40%	5.40%	5.40%	5.40%	5.40%
2020	5.30%	5.30%	5.30%	5.30%	5.30%
2021	5.30%	5.30%	5.30%	5.30%	5.30%
2030	6.20%	5.30%	5.30%	5.30%	5.30%
2040	6.00%	6.20%	6.00%	5.30%	5.30%
2050	5.40%	5.50%	5.40%	4.90%	4.90%
2060	5.10%	5.10%	5.10%	4.70%	4.70%
2070	4.50%	4.50%	4.50%	4.30%	4.30%
2080	4.10%	4.10%	4.10%	3.90%	3.90%
2090	4.10%	4.10%	4.10%	3.90%	3.90%
Ultimate	4.00%	4.10%	4.00%	3.90%	3.90%

The Community College follows the same trend as the County.

Dental Trend 5.00%

Changes in assumptions and methods since prior valuation

The medical trend was updated. The trend was developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model baseline assumptions. The prior valuation used the SOA model as released in September 2014. The current valuation uses the model as updated in November 2015.

The funding method was changed from Projected Unit Credit to Entry Age Normal.

9. Valuation Methods and Assumptions – Government

Election Percent

For active participants who currently have medical coverage and are eligible for OPEB benefits at retirement, the table below shows the probability of the participant continuing OPEB coverage at date of retirement:

Service	Election Rate
0 to 9	0%
10 to 19	90%
20 to 24	95%
25 or More	100%

Opt-Out Opt-In Coverage

For actives who decrement prior to age 60, the people who elect OPEB coverage given above is further subdivided into two groups, one group that commences OPEB benefits immediately upon retirement, a second group that defers OPEB benefits until age 60. We assumed that the following percentage times the election rate above would defer OPEB benefits (opt-out of OPEB coverage at retirement) and rejoin the Plan at age 60.

Percent of Employees Deferring Coverage To Age 60			
Age at Retirement	*Public safety*	*General*	*Corrections*
<50	15%	15%	15%
50-54	10%	15%	10%
55-59	5%	10%	5%

In addition, for actives who decrement prior to age 60, are eligible for OPEB benefits, but do NOT elect OPEB benefits, we have assumed that 25% of these individuals will come back and elect OPEB coverage starting at age 60. For example, an individual with 10 years of service has 10% probability of not electing OPEB coverage (100% – 90% = 10%). Of this 10%, there is 25% chance the person will come back to the OPEB plan, i.e. 0.25% of the person will come back to the OPEB plan.

Participants who go from active to disabled status are assumed to take immediate OPEB benefits. In other words, we assume no disabled person elects to opt out.

9. Valuation Methods and Assumptions – Government (cont.)

Payroll Assumption

Years of Service	*Police/Fire*	*Corrections*	*All Others*
0 – 4	7.55%	6.25%	6.55%
5 – 9	6.55%	6.75%	5.75%
10 – 14	5.85%	6.75%	5.50%
15 – 19	5.80%	6.75%	4.80%
20 – 24	4.55%	4.25%	4.00%
25 +	4.25%	4.25%	4.00%

9. Valuation Methods and Assumptions – Government (cont.)

Coverage Status, Age of Spouse, and Medical Plan

Actual coverage status is used. For example, participants with individual coverage at valuation date are assumed to retain individual coverage until death. Participants with husband/wife coverage at valuation date are assumed to retain husband/wife coverage until death.

Females are assumed 3 years younger than male spouse. Employees with family coverage are assumed to continue family coverage in retirement. Employees with individual coverage are assumed to elect individual coverage in retirement. Employees currently waiving coverage are assumed to continue to waive coverage in retirement.

We also assumed that participants will stay in their current medical plan. For example, if a participant is currently enrolled in Kaiser Permanente, then we assumed the participant will remain in Kaiser until death. If a participant is currently enrolled in Aetna PPO, then we assumed the participant will remain in Aetna PPO until death. For Medicare eligible retirees we assumed the Medicare Advantage Plan closest to their current medical plan.

The closed group of terminated vested participants are assumed to elect individual coverage when they commence OPEB benefits. The small group of current inactives who opted out of OPEB coverage are assumed to elect individual coverage when they commence OPEB benefits.

Decrement Assumptions

Below is a summary of decrements used in this valuation. Sample Retirement, Disability, and Termination rates are illustrated in the tables below.

Mortality Decrements - Police and Fire

Healthy	Pre-Retirement: Generational RP-2000 Combined Mortality Table for Males and Females set back 2 years, projected using Scale AA. 20% of active participant mortality is assumed to be service connected and 80% is assumed to be non-service connected. Post-Retirement: Generational RP-2000 Combined Mortality Table for Males and Females projected using Scale AA.
Disabled	PBGC Disabled Life Mortality Tables (III & IV) set forward 2 years

9. Valuation Methods and Assumptions – Government (cont.)

Decrement Assumptions (cont.)

Mortality Decrements – Corrections and General

Healthy	Pre-Retirement: 70% of the Generational RP-2000 Combined Mortality Table for Males and Females projected using Scale AA. Post-Retirement: Generational RP-2000 Combined Mortality Table for Males and Females projected using Scale AA.
Disabled	2014 ERISA 4044 Mortality - eligible for Social Security for General Employees. 2014 ERISA 4044 Mortality – not eligible for Social Security for Corrections Employees.

For corrections and general employees, no death is assumed to be in the line of duty.

Termination of Employment

Police and Fire

Years of Service	Police Termination Rates	Fire Termination Rates
0	7.00%	4.00%
1	4.00%	4.00%
2 – 4	2.00%	2.00%
5 – 9	1.50%	1.00%
10 – 14	1.00%	0.50%
15 or More	0.00%	0.00%

Corrections and General

Years of Service	Corrections	General
0	17.00%	11.80%
1	3.00%	11.70%
2	3.00%	7.00%
3	3.00%	7.00%
4 – 9	5.00%	4.30%
10 – 14	5.00%	3.50%
15 – 19	0.00%	3.50%
20 or More	0.00%	1.00%

9. Valuation Methods and Assumptions – Government (cont.)

Decrement Assumptions (cont.)

Retirement Rates

Police and Fire

Rates of retirement are assumed as follows:

Eligibility Service	Police	Fire
20	15.00%	10.00%
21 – 23	3.00%	5.00%
24	20.00%	7.50%
25 – 28	8.00%	3.00%
29	8.00%	5.00%
30	100.00%	10.00%
31 – 34	N/A	5.00%
35	N/A	100.00%

The retirement rate for Fire employees is 100.00% once an employee reaches age 62 (regardless of service).

Corrections Employees

Age/Retirement Eligibility	Rate
Early retirement	
First eligibility	30.00%
Early retirement after first eligibility	5.00%
Normal retirement eligible, age < 62	
First eligible for normal	55.00%
After first eligible for normal, age <= 49 and service < 25	1.00%
All other age/service groups	16.00%
Normal retirement eligible and age 62+	70.00%
Age 70 and over	100.00%

9. Valuation Methods and Assumptions – Government (cont.)

Decrement Assumptions (cont.)

Retirement Rates (cont.)

General Employees

Age/Retirement Eligibility	***Rate***
Early retirement	5.00%
First eligible for normal retirement	
Before age 60	20.00%
Age 60 and over	22.00%
After first eligible for normal, by age group	
Under age 50	1.00%
50 – 59	6.00%
60 – 74	22.00%
Age 75 and over	100.00%

Disability Rates

Sample rates are as given below.

Police and Fire

Age	**Police**	**Fire**
25	0.1222%	0.0750%
35	0.1577%	0.0968%
45	0.2700%	0.1658%
55	0.8700%	0.5340%

85% of the disabilities are assumed to be line of duty.

9. Valuation Methods and Assumptions – Government (cont.)

Decrement Assumptions (cont.)

Disability Rates (cont.)

Corrections Employees

Age	Annual Percent of Disablement
25	0.0500%
35	0.0646%
45	0.1768%
55	0.5696%

66.67% of the disabilities are assumed to occur in the line of duty.

General Employees

Age	Annual Percent of Disablement
25	0.0240%
35	0.0310%
45	0.0530%
55	0.1709%

None of the disabled employees were assumed to eligible for Medicare Disabled benefits.

Claims Assumption

The plan is self-insured for actives and non-Medicare eligible retirees. The two Aetna Medicare Advantage and Kaiser Medicare Cost Plus plan are fully insured. The retiree contribution and County subsidy was provided for each retiree. We assumed that each employee would continue in the same medical plan after retirement for non-Medicare eligible retirees and the closest Medicare Advantage plan for Medicare eligible retirees.

The gross claims for the AETNA plans are based on enrollment and paid medical claims and prescription for pre and post age 65 retirees paid for January 1, 2014 – December 31, 2015. Claims and enrollments were divided into Medicare and non Medicare eligible retirees. The claims were projected to Fiscal Year 2016. Pre 65 claims were projected assuming 5% annual increases and Post 65 claims were projected assuming 5% annual increases.

9. Valuation Methods and Assumptions – Government (cont.)

Claims Assumption (cont.)

The gross claims for the Kaiser plans are based on premiums for employees and pre age 65 retirees paid for FYE 2016. The claims were projected to Fiscal Year 2016 assuming 9% annual increases.

The pre Medicare AETNA claims assumption is a weighted average of the projected claims with fiscal year 2014 claims weighted 40%, and the fiscal year 2015 claims weighted 60%. Pre Medicare AETNA claims were adjusted for IBNR and prescription rebates as follows:

Year	*Adjustment*
01/01/2015 – 12/31/2015	1.005
01/01/2014 – 12/31/2014	1.005

The resulting average pre age 65 were age adjusted.

The post Medicare claims are based on the weighted average of the Medicare Advantage plans premium based on the plan that matched closest to their active plan.

Administrative fixed costs were assumed to be $45.53 per month for single coverage for pre Medicare eligible participants. Family coverage was assumed to be 2.06 times the cost of the individual coverage for AETNA retirees less than age 65, 2.40 times the cost of the individual coverage for Kaiser retirees less than age 65, and 2.00 for retirees age 65 or older.

The charts below shows the current cost broken down between the published per capita cost (i.e., the blended rates) and the total costs (including implicit subsidies).

FYE 2016 Kaiser Claims

	Single	Family
1. Assumed Costs		
a. Under Age 65	5,949	14,277
b. Over Age 65	N/A	N/A
2. Total Costs		
a. Under Age 50	5,837	14,009
b. Ages 50-54	7,112	17,070
c. Ages 55-59	8,339	20,013
d. Ages 60-64	10,005	24,133
e. Age 65 and above	N/A	N/A

9. Valuation Methods and Assumptions – Government (cont.)

Claims Assumption (cont.)

FYE 2016 AETNA Claims

	Single	Family
1. Assumed Costs		
c. Under Age 65	7,242	14,919
d. Over Age 65	5,988	11,976
2. Total Costs		
f. Under Age 50	7,704	15,870
g. Ages 50-54	9,340	19,240
h. Ages 55-59	10,877	22,407
i. Ages 60-64	12,879	26,531
j. Ages 65-69	5,510	11,020
k. Ages 70-74	6,551	13,102
l. Ages 75-79	6,857	13,714
m. Ages 80-84	7,347	14,694
n. Age 85 and older	7,316	14,632
3. Dental	365	
4. Vision	64	

9. Valuation Methods and Assumptions – Government (cont.)

Claims Assumption (cont.)

Monthly premium for individual medical coverage – Pre Medicare

Aetna PPO	633.67
Aetna HMO	536.71
Kaiser	495.71

Monthly premium for individual medical coverage – Medicare Eligible

Medicare Advantage ESA95	537.69
Medicare Advantage 10	516.63
Kaiser	281.65

Monthly premium for individual dental coverage

Delta Dental PPO Plus	33.46
Denta Quest EPPO	13.00

Other Assumptions

- Active participants who are in the Maryland State Retirement or Pension System were valued like active participants in the Howard County Retirement Plan.
- Retirees are assumed to not change their medical plan. For example, if a retiree has Aetna PPO as of valuation date, we assumed that the retiree will stay in Aetna PPO for the remainder of his/her life. Medicare eligible retirees are assumed to stay in the Medicare Advantage plan closest to their active plan.
- Regarding the closed group of terminated vested participants who are eligible for benefits under this plan:
  - All participants who are retired in the pension plan are excluded from this valuation.
  - The terminated vested participants over age 65 as of valuation date were not valued.
  - 20% of participants in this closed group are assumed to elect coverage upon reaching age 62.
- Opt out inactives who are less than age 60 on valuation date were assumed to return to the OPEB plan at age 60 with 15% probability. When they return, they were assumed to have 90% County subsidy, elect Kaiser, individual medical coverage. They were assumed to elect individual dental coverage.

Changes in assumptions and methods since prior valuation

- The payroll, mortality, termination, retirement, and disability assumptions were updated to the most recent assumptions used for the pension plan.
- The claims assumption was updated to include the most recent plan experience.

10. Valuation Methods and Assumptions - Schools

Payroll Assumption

Merit Scale:

First 10 Years		10 or More Years	
Service	Increase	Service	Increase
0	8.90%	25	7.15%
1	7.90%	30	7.15%
2	7.15%	35	6.65%
3	7.15%	40	5.65%
4	7.15%	45	5.15%
5	7.15%	50	4.90%
6	7.15%	55	4.40%
7	7.15%	60	3.90%
8	7.15%	65	3.40%
9	7.15%		

Total payroll is assumed to grow 3% per year.

Percent of Employees Currently Electing Coverage Assumed to Continue Coverage In Retirement

The table below summarizes the percent of active participants assumed to elect OPEB benefits upon decrement.

Service	Election Rate
0 - 14	35%
15 - 19	85%
20 - 24	95%
25 or more	100%

Opt-Out Opt-In Coverage

For actives who decrement prior to age 60, the people who elect OPEB coverage given above is further subdivided into two groups, one group that commences OPEB benefits immediately upon retirement, a second group that defers OPEB benefits until age 60. We assumed that the following percentage times the election rate above would defer OPEB benefits (opt-out of OPEB coverage at retirement) and rejoin the Plan at age 60.

Age at Retirement	
< 50	10%
50-54	10%
55-59	5%

10. Valuation Methods and Assumptions – Schools (cont.)

Opt-Out Opt-In Coverage (cont.)

Participants who go from active to disabled status are assumed to take immediate OPEB benefits. In other words, we assume no disabled person elects to opt out.

Coverage Status and Age of Spouse

For active participants with spousal coverage, 25% are assumed to continue husband/wife coverage upon decrement. The remainder, 75%, are assumed to elect individual coverage upon decrement. Participants with individual coverage on valuation date are assumed to only elect individual coverage. Participants who waived medical coverage on valuation date are assumed to always waive the coverage in the future.

Females assumed 3 years younger than male spouse.

Decrement Assumptions

Below is a summary of decrements used in this valuation. Sample Retirement, Disability, and Termination rates are illustrated in the tables below.

Mortality Decrements		Description
(4)	Healthy – Pre Retirement	RP 2000 (62.25% for Males, 57.375% for Females) Projected to 2025 with Scale AA[1]
(5)	Healthy – Post Retirement	RP 2000 (83% for Males, 76.5% for Females) Projected to 2025 with Scale AA[1]
(6)	Disabled	RP-2000 Disabled (66.5% for Males 83% for Females)[1]

1) Mortality is based on the 2014 State of Maryland Pension Valuation

10. Valuation Methods and Assumptions – Schools (cont.)

Decrement Assumptions (cont.)

Rates of normal retirement

Age	*At least 30 years of service*		*Less than 30 years of service*	
	Male	*Female*	*Male*	*Female*
45	10.0%	9.0%	-	-
46	10.0%	9.0%	-	-
47	10.0%	9.0%	-	-
48	10.0%	9.0%	-	-
49	10.0%	9.0%	-	-
50	10.0%	9.0%	-	-
51	10.0%	9.0%	-	-
52	10.0%	9.0%	-	-
53	10.0%	9.0%	-	-
54	10.0%	9.0%	-	-
55	10.0%	10.0%	-	-
56	10.0%	10.0%	-	-
57	10.0%	10.0%	-	-
58	10.0%	10.0%	-	-
59	10.0%	11.0%	-	-
60	13.0%	12.0%	-	-
61	15.0%	16.0%	-	-
62	22.0%	23.0%	14.0%	21.0%
63	18.0%	20.0%	14.0%	16.0%
64	18.0%	18.0%	14.0%	16.0%
65	20.0%	20.0%	16.0%	16.0%
66	22.0%	22.0%	16.0%	19.0%
67	18.0%	15.0%	16.0%	15.0%
68	18.0%	15.0%	16.0%	15.0%
69	18.0%	15.0%	16.0%	15.0%
70	18.0%	20.0%	16.0%	15.0%
71	18.0%	20.0%	16.0%	15.0%
72	18.0%	20.0%	16.0%	15.0%
73	18.0%	20.0%	16.0%	15.0%
74	18.0%	20.0%	16.0%	15.0%
75 & over	100.0%	100.0%	100.0%	100.0%

10. Valuation Methods and Assumptions – Schools (cont.)

Decrement Assumptions (cont.)

Reformed system -
Additional rate added to annual rate of normal retirement at age of first eligibility

Age	*At least 30 years*	*Less than 30 years*
55 and Under	35.0%	-
56	28.0%	-
57	21.0%	-
58	14.0%	-
59	7.0%	-
60	0.0%	-
61	0.0%	-
62	0.0%	-
63	0.0%	-
64	0.0%	-
65+	0.0%	25.0%

Rates of early retirement

	Non-Reformed		*Reformed*	
Age	*Male*	*Female*	*Male*	*Female*
55	2.0%	3.5%		
56	1.5%	3.0%		
57	2.0%	3.5%		
58	2.0%	3.5%		
59	3.5%	4.5%		
60	4.5%	5.5%	10.0%	15.0%
61	6.5%	7.0%	6.5%	7.0%
62			6.5%	7.0%
63			6.5%	7.0%
64			6.5%	7.0%

10. Valuation Methods and Assumptions – Schools (cont.)

Decrement Assumptions (cont.)

Rates of disability

Age	*Male*	*Female*
25	0.02947%	0.02493%
30	0.02947%	0.02493%
35	0.02947%	0.05706%
40	0.09792%	0.11493%
45	0.19577%	0.19692%
50	0.29366%	0.28692%
55	0.39158%	0.49185%
60	0.48941%	0.49185%

Annual rates of withdrawal for first 10 years of service

Service	*Male*	*Female*
0	18.00%	14.00%
1	15.00%	12.50%
2	14.00%	12.00%
3	11.00%	9.00%
4	8.50%	7.75%
5	6.50%	6.50%
6	5.75%	5.50%
7	5.00%	5.00%
8	4.50%	4.25%
9	3.75%	4.00%

10. Valuation Methods and Assumptions – Schools (cont.)

Decrement Assumptions (cont.)

Annual rates of withdrawal after 10 years of service

Age	*Male*	*Female*
25	4.00%	4.00%
30	3.75%	4.00%
35	3.00%	3.50%
40	1.50%	2.50%
45	1.00%	2.00%
50	1.00%	1.00%
55	1.00%	1.00%
60	1.00%	1.00%
65	1.00%	1.00%

Claims Assumption

We received monthly enrollment and paid medical and prescription drug claims for pre and post age 65 retirees paid from January 1, 2015 – December 31, 2015. Claims and enrollments were divided into Medicare and Non Medicare eligible retirees. The medical claims and prescription drugs were projected to Fiscal Year 2016 assuming 5% pre age 65 and 5% post age 65 annual increases.

Administrative expenses were assumed to be $42.96/month for Pre-Medicare retirees and $30.26/month for Post-Medicare retirees. There was a 13% adjustment for prescription drug rebates and a 3% medical adjustment for IBNR claims.

Family coverage was assumed to be 2.04 times the cost of the individual coverage for retirees less than age 65 and 2.00 for retirees age 65 or older.

The chart below shows the FYE 2016 cost of medical and drug broken down between the published per capita cost (i.e., the blended rates) and the hidden subsidy.

10. Valuation Methods and Assumptions - Schools (cont.)

Claims Assumption (cont.)

FYE 2016 Claims

		Single	Family
1.	Assumed Costs		
a.	Under Age 65	6,307	12,866
b.	Over Age 65	5,377	10,754
2.	Total Costs		
a.	Under Age 50	6,511	13,283
b.	Ages 50-54	7,917	16,150
c.	Ages 55-59	9,219	18,808
d.	Ages 60-64	10,849	22,132
e.	Ages 65-69	5,441	10,882
f.	Ages 70-74	6,203	12,406
g.	Ages 75-79	6,065	12,130
h.	Ages 80-84	6,084	12,168
i.	Age 85 and older	5,673	11,346

Note: Because there is no subsidy provided by Howard County Public Schools for dental or vision coverage, no liability was computed for dental coverage and vision coverage.

Aetna HMO monthly premium for individual medical coverage	
Pre Medicare	470.49
Post Medicare	385.81

Other Assumptions

- Active participant records missing salary were assigned the average salary for all of the active population.
- Surviving spouses are assumed to elect coverage until they reach age 65.

10. Valuation Methods and Assumptions - Schools (cont.)

Changes in assumptions and methods since prior valuation

- The payroll assumption was updated to the most recent payroll assumption used by the State of Maryland Pension Plan.
- The claims assumption was updated to include the most recent plan experience.

11. Valuation Methods and Assumptions - College

Payroll Assumption

Total Payroll is assumed to grow 3% per year.

Percent of Employees Currently Electing Coverage Assumed to Continue Coverage In Retirement

The table below details the participant's election rates:

Years of Service	Election Percentage
0 – 9	0%
10 – 14	50%
15 - 19	65%
20 - 24	75%
25 - 29	85%
30 or more	95%

Coverage Status and Age of Spouse

Actual coverage status is used; females assumed 3 years younger than male spouse. Employees with family coverage are assumed to continue family coverage in retirement. Employees with individual coverage are assumed to elect individual coverage in retirement. Employees currently waiving coverage are assumed to continue to waive coverage in retirement.

Decrement Assumptions

Below is a summary of decrements used in this valuation. Sample Retirement, Disability, and Termination rates are illustrated in the tables below.

Mortality Decrements		Description
(1)	Healthy – Pre Retirement	RP 2000 (62.25% for Males, 57.375% for Females) Projected to 2025 with Scale AA[1]
(2)	Healthy – Post Retirement	RP 2000 (83% for Males, 76.5% for Females) Projected to 2025 with Scale AA[1]
(3)	Disabled	RP-2000 Disabled (66.5% for Males, 83% for Females)[1]

1) Mortality is based on the 2014 State of Maryland Pension Valuation

11. Valuation Methods and Assumptions - College (cont.)

Decrement Assumptions (cont.)

Rates of normal retirement

Age	*At least 30 years of service*		*Less than 30 years of service*	
	Male	*Female*	*Male*	*Female*
45	10.0%	9.0%	-	-
46	10.0%	9.0%	-	-
47	10.0%	9.0%	-	-
48	10.0%	9.0%	-	-
49	10.0%	9.0%	-	-
50	10.0%	9.0%	-	-
51	10.0%	9.0%	-	-
52	10.0%	9.0%	-	-
53	10.0%	9.0%	-	-
54	10.0%	9.0%	-	-
55	10.0%	10.0%	-	-
56	10.0%	10.0%	-	-
57	10.0%	10.0%	-	-
58	10.0%	10.0%	-	-
59	10.0%	11.0%	-	-
60	13.0%	12.0%	-	-
61	15.0%	16.0%	-	-
62	22.0%	23.0%	14.0%	21.0%
63	18.0%	20.0%	14.0%	16.0%
64	18.0%	18.0%	14.0%	16.0%
65	20.0%	20.0%	16.0%	16.0%
66	22.0%	22.0%	16.0%	19.0%
67	18.0%	15.0%	16.0%	15.0%
68	18.0%	15.0%	16.0%	15.0%
69	18.0%	15.0%	16.0%	15.0%
70	18.0%	20.0%	16.0%	15.0%
71	18.0%	20.0%	16.0%	15.0%
72	18.0%	20.0%	16.0%	15.0%
73	18.0%	20.0%	16.0%	15.0%
74	18.0%	20.0%	16.0%	15.0%
75 & over	100.0%	100.0%	100.0%	100.0%

11. Valuation Methods and Assumptions - College (cont.)

Decrement Assumptions (cont.)

Reformed system -
Additional rate added to annual rate of normal retirement at age of first eligibility

Age	*At least 30 years*	*Less than 30 years*
55 and Under	35.0%	-
56	28.0%	-
57	21.0%	-
58	14.0%	-
59	7.0%	-
60	0.0%	-
61	0.0%	-
62	0.0%	-
63	0.0%	-
64	0.0%	-
65+	0.0%	25.0%

Rates of early retirement

	Non-Reformed		*Reformed*	
Age	*Male*	*Female*	*Male*	*Female*
55	2.0%	3.5%		
56	1.5%	3.0%		
57	2.0%	3.5%		
58	2.0%	3.5%		
59	3.5%	4.5%		
60	4.5%	5.5%	10.0%	15.0%
61	6.5%	7.0%	6.5%	7.0%
62			6.5%	7.0%
63			6.5%	7.0%
64			6.5%	7.0%

11. Valuation Methods and Assumptions - College (cont.)

Decrement Assumptions (cont.)

Rates of disability

Age	*Male*	*Female*
25	0.02947%	0.02493%
30	0.02947%	0.02493%
35	0.02947%	0.05706%
40	0.09792%	0.11493%
45	0.19574%	0.19692%
50	0.29366%	0.28692%
55	0.39158%	0.49185%
60	0.48941%	0.49185%

Annual rates of withdrawal for first 10 years of service

Service	*Male*	*Female*
0	18.00%	14.00%
1	15.00%	12.50%
2	14.00%	12.00%
3	11.00%	9.00%
4	8.50%	7.75%
5	6.50%	6.50%
6	5.75%	5.50%
7	5.00%	5.00%
8	4.50%	4.25%
9	3.75%	4.00%

11. Valuation Methods and Assumptions - College (cont.)

Decrement Assumptions (cont.)

Annual rates of withdrawal after 10 years of service

Age	*Male*	*Female*
25	4.00%	4.00%
30	3.75%	4.00%
35	3.00%	3.50%
40	1.50%	2.50%
45	1.00%	2.00%
50	1.00%	1.00%
55	1.00%	1.00%
60	1.00%	1.00%
65	1.00%	1.00%

Claims Assumption

See the description for Howard County Government.

Other Assumptions

- Retirees are assumed to not change their medical plan. For example, if a retiree has Aetna PPO as of valuation date, we assumed that the retiree will stay in Aetna PPO until age 65 and move to a Medicare Advantage plan closest to their active plan.

Changes in assumptions and methods since prior valuation

- The claims assumption was updated to include the most recent plan experience.
- The payroll assumption was updated to the most recent payroll assumption used by the State of Maryland Pension Plan.

12. Glossary

Actuarial Accrued Liability
The portion of the Present Value of Benefits allocated to prior service.

Annual OPEB Cost (AOC):
An accrual-basis measure of the periodic cost of an employer's participation in an OPEB plan. The AOC is equal to the ARC (see below) plus interest on the Net OPEB Obligation (defined below) minus the Net OPEB Obligation divided by the amortization factor.

Annual Required Contributions of the Employer(s) (ARC):
The sum of the normal cost plus the amortization of the unfunded actuarial accrued liability. This amount is the first step to determining the Annual OPEB Cost (AOC). There is no *requirement* to make a plan contribution.

Covered Group:
Plan members included in an actuarial valuation.

Employer's Contributions:
Contributions made in relation to the annual required contributions of the employer (ARC). An employer has made a contribution in relation to the ARC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a trust, or an equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator.

Funded Ratio:
The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Healthcare Cost Trend Rate:
The rate of change in per capita health claim costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

Investment Return Assumption (Discount Rate):
The rate used to adjust a series of future payments to reflect the time value of money.

12. Glossary (cont.)

Level Percentage of Projected Payroll Amortization Method: Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation; in dollars adjusted for inflation, the payments can be expected to remain level. This method can not be used if the plan is closed to new entrants.

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.

Normal Cost or Normal Actuarial Cost: That portion of the Present Value of plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

OPEB Plan: An OPEB plan having terms that specify the amount of benefits to be provided at or after separation from employment. The benefits may be specified in dollars (for example, a flat dollar payment or an amount based on one or more factors such as age, years of service, and compensation), or as a type or level of coverage (for example, prescription drugs or a percentage of healthcare insurance premiums).

Other Post-employment Benefits: Post-employment benefits other than pension benefits. Other post-employment benefits (OPEB) include post-employment healthcare benefits, regardless of the type of plan that provides them, and all post-employment benefits provided separately from a pension plan, excluding benefits defined as termination offers and benefits.

Pay-as-you-go (PAYGO): 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.

Present Value of Benefits: The PVB is the estimated amount needed to provide all future OPEB benefits for current participants. There is no provision for future hires.

12. Glossary (cont.)

Payroll Growth Rate: An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.

Plan Liabilities: Obligations payable by the plan at the reporting date, including, primarily, benefits and refunds due and payable to plan members and beneficiaries, and accrued investment and administrative expenses. Plan liabilities do not include actuarial accrued liabilities for benefits that are not due and payable at the reporting date.

Plan Members: The individuals covered by the terms of an OPEB plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.

Post-employment: The period between termination of employment and retirement as well as the period after retirement.

Post-employment Healthcare Benefits: Medical, dental, vision, and other health-related benefits provided to terminated or retired employees and their dependents and beneficiaries.

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 2015, 7.5% for 2016, and 7% for 2017 and thereafter, then 8% and 7.5% are select rates, and 7% is the ultimate rate.

13. FYE 2017 County Expense – Library Allocation

Below is a summary of the calculation of the Plan's expense as of July 1, 2016 under current Plan provisions.

		FYE 2017 County	FYE 2017 Library	FYE 2017 Total
1)	Discount Rate	4.75%	4.75%	4.75%
2)	Actuarial Accrued Liability			
	a. Actives	$199,146,000	$9,469,000	$208,615,000
	b. Retirees in Pay Status	$102,451,000	$3,978,000	$106,429,000
	c. Total (a + b)	$301,597,000	$13,447,000	$315,044,000
3)	Assets[1]	$24,719,000	$1,128,000	$25,847,000
4)	Amortization of Unfunded Accrued Liability			
	a. Unfunded Accrued Liability	$276,878,000	$12,319,000	$289,197,000
	b. Amortization Period (Years)	21	21	21
	c. Amortization Factor (Rounded)	17.03	17.03	17.03
	d. Amortization Amount (a / c)	$16,260,000	$723,000	$16,983,000
5)	Annual Required Contribution of Employer (ARC) – As of End of Fiscal Year			
	a. Normal Cost (End of Year)	$15,652,000	$670,000	$16,322,000
	b. Amortization of Unfunded Accrued Liability	$16,260,000	$723,000	$16,983,000
	c. Total ARC (a + b)	$31,912,000	$1,393,000	$33,305,000
6)	Annual OPEB Cost (AOC)			
	a. ARC	$31,912,000	$1,393,000	$33,305,000
	b. NOO Amortization	($7,345,000)	($334,000)	($7,679,000)
	c. Interest on NOO	$5,941,000	$270,000	$6,211,000
	d. Total Cost (a + b + c)	$30,508,000	$1,329,000	$31,837,000
7)	1% Sensitivity ARC	$40,854,000	$1,772,000	$42,626,000
8)	Net OPEB Obligation (NOO)			
	a. Beginning of Year NOO[1]	$125,072,529	$5,689,778	$130,762,307
	b. Current AOC	$30,508,000	$1,329,000	$31,837,000
	c. Expected Pay-go Benefits	($6,675,000)	($333,000)	($7,008,000)
	d. Expected Trust Contribution[2]	($3,742,000)	($171,000)	($3,913,000)
	e. Projected End of Year NOO (a + b + c + d)	$145,163,529	$6,514,778	$151,678,307

[1] Estimated
[2] As provided by Howard County.

Appendix 1 – FYE 2016 Plan Expense

Below is a summary of the roll forward calculation of the Plan's expense as of July 1, 2015 under the plan assumptions and provisions reported in our previous report dated April 22, 2015.

		FYE 2016 County	FYE 2016 Schools	FYE 2016 College	FYE 2016 Total
1)	Discount Rate	5.25%	5.25%	5.25%	5.25%
2)	Actuarial Accrued Liability				
	a. Actives	$141,207,000	$257,540,000	$13,443,000	$412,190,000
	b. Retirees in Pay Status	$73,474,000	$224,910,000	$2,648,000	$301,032,000
	c. Total (a + b)	$214,681,000	$482,450,000	$16,091,000	$713,222,000
3)	Assets[1]	$21,243,310	$47,739,831	$1,592,251	$70,575,392
4)	Amortization of Unfunded Accrued Liability				
	a. Unfunded Accrued Liability	$193,437,690	$434,710,169	$14,498,749	$642,646,608
	b. Amortization Period (years)	22	22	22	22
	c. Amortization Factor (rounded)	16.82	16.82	16.82	16.82
	d. Amortization Amount (a / c)	$11,503,000	$25,850,000	$862,000	$38,215,000
5)	Annual Required Contribution of Employer (ARC) – As of End of Fiscal Year				
	a. Normal Cost (end of year)	$10,062,000	$19,164,000	$979,000	$30,205,000
	b. Amortization of Unfunded Accrued Liability	$11,503,000	$25,850,000	$862,000	$38,215,000
	c. Total ARC (a + b)	$21,565,000	$45,014,000	$1,841,000	$68,420,000
6)	Annual OPEB Cost (AOC)				
	a. ARC	$21,565,000	$45,014,000	$1,841,000	$68,420,000
	b. NOO Amortization	($7,046,000)	($15,491,000)	($530,000)	($23,067,000)
	c. Interest on NOO	$6,221,000	$13,676,000	$468,000	$20,365,000
	d. Total Cost (a + b + c)	$20,740,000	$43,199,000	$1,779,000	$65,718,000
7)	1% Sensitivity ARC	$27,336,000	$55,348,000	$2,356,000	$85,040,000
8)	Net OPEB Obligation (NOO)				
	a. Beginning of Year NOO[1]	$118,478,307	$260,500,168	$8,904,974	$387,883,449
	b. Current AOC	$20,740,000	$43,199,000	$1,779,000	$65,718,000
	c. Expected Pay-go Benefits	($5,446,000)	($14,565,000)	($276,000)	($20,287,000)
	d. Expected Trust Contribution[2]	($3,010,000)	($6,764,000)	($226,000)	($10,000,000)
	e. Projected End of Year NOO *(a + b + c + d)*	$130,762,307	$282,370,168	$10,181,974	$423,314,449

[1] As provided in the FYE 2015 CAFR.
[2] As provided by Howard County.

Appendix 2 – Partially Funded Discount Rate Determination for FYE 2016

Below is a summary of the Contribution Target for FYE 2016. The contribution target is similar to the ARC calculation, except that it is determined using a discount rate of 7.50%. The contribution target is used to determine the blended discount rate.

		FYE 2016 7/1/2015
1)	Actuarial Accrued Liability	
	a. Actives	$260,418,000
	b. Retirees in Pay Status	$237,217,000
	c. Total (a + b)	$497,635,000
2)	Assets	$70,575,392
3)	Amortization of Unfunded Accrued Liability	
	a. Unfunded Accrued Liability	$427,059,608
	b. Amortization Period (years)	22
	c. Amortization Factor (rounded)	13.55
	d. Amortization Amount (a / c)	$31,522,000
4)	Funding Target	
	a. Normal Cost	$17,763,000
	b. Amortization of Unfunded Accrued Liability	$31,522,000
	c. Total Funding Target (a + b)	$49,285,000
5)	Trust Contribution	
	a. Funding Target	$49,285,000
	b. Expected Pay-Go Benefits	$20,287,000
	c. Net Funding Target (a - b)	$28,998,000
	d. Expected Contribution [1]	$10,000,000
	e. Percent Funding	34%
	f. Discount Rate [(e) x 7.50%) + (1 – (e) x 4.00%] [2]	5.25%

[1] *As provided by Howard County.*
[2] *Rounded to the nearest quarter percent.*

Appendix 3 - FYE 2016 County Expense – Library Allocation

Below is a summary of the roll forward calculation of the County's expense broken down between the Library and County group as of July 1, 2015 under the plan assumptions and provisions reported in our previous report dated April 22, 2015.

			FYE 2016 County	FYE 2016 Library	FYE 2016 Total
1)	Discount Rate		5.25%	5.25%	5.25%
2)	Actuarial Accrued Liability				
	a.	Actives	$134,878,000	$6,329,000	$141,207,000
	b.	Retirees in Pay Status	$70,430,000	$3,044,000	$73,474,000
	c.	Total (a + b)	$205,308,000	$9,373,000	$214,681,000
3)	Assets[1]		$20,315,824	$927,486	$21,243,310
4)	Amortization of Unfunded Accrued Liability				
	a.	Unfunded Accrued Liability	$184,992,176	$8,445,514	$193,437,690
	b.	Amortization Period (Years)	22	22	22
	c.	Amortization Factor (Rounded)	16.82	16.82	16.82
	d.	Amortization Amount (a / c)	$11,001,000	$502,000	$11,503,000
5)	Annual Required Contribution of Employer (ARC) – As of End of Fiscal Year				
	a.	Normal Cost (End of Year)	$9,601,000	$461,000	$10,062,000
	b.	Amortization of Unfunded Accrued Liability	$11,001,000	$502,000	$11,503,000
	c.	Total ARC (a + b)	$20,602,000	$963,000	$21,565,000
6)	Annual OPEB Cost (AOC)				
	a.	ARC	$20,602,000	$963,000	$21,565,000
	b.	NOO Amortization	($6,738,000)	($308,000)	($7,046,000)
	c.	Interest on NOO	$5,949,000	$272,000	$6,221,000
	d.	Total Cost (a + b + c)	$19,813,000	$927,000	$20,740,000
7)	1% Sensitivity ARC		$26,128,000	$1,208,000	$27,336,000
8)	Net OPEB Obligation (NOO)				
	a.	Beginning of Year NOO[1]	$113,305,529	$5,172,778	$118,478,307
	b.	Current AOC	$19,813,000	$927,000	$20,740,000
	c.	Expected Pay-go Benefits	($5,167,000)	($279,000)	($5,446,000)
	d.	Expected Trust Contribution[2]	($2,879,000)	($131,000)	($3,010,000)
	e.	Projected End of Year NOO (a + b + c + d)	$125,072,529	$5,689,778	$130,762,307

[1] As provided in the FYE 2015 CAFR.
[2] As provided by Howard County.