

Howard County Police and Fire Employees' Retirement Plan *July 1, 2018 Actuarial Valuation Results*

Ann Sturner, FSA, EA, MAAA | Senior Consulting Actuary

Thomas Lowman, FSA, FCA, EA, MAAA | President, Bolton Retirement

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Bolton

Purpose

- Funding Valuation
 - Provides the County's recommended contribution to the plan
 - July 1, 2018 valuation provides the County's recommended contribution for FY2020

- Accounting Valuation
 - Provides information for the County's financial statements
 - GASB 67/68
 - Not covered in today's presentation

Actuarially Determined Contribution (ADC)

- The County contributes an Actuarially Determined Contribution (ADC) to the Retirement Plan
 - **The ADC is used to help ensure sufficient assets are accumulated to pay the expected benefits**
 - **The ADC allocates the expected value of future benefits (paid after employment) to the service periods when they are earned**
 - **Contributing the ADC creates generational equity for taxpayers and added security for plan members**

Plan Funded Ratio

- The Plan's assets relative to the expected value of benefits provides the Plan's Funded Ratio
 - **The shortfall between the assets and the expected value of benefits is referred to as the Unfunded Liability**
 - **A portion of the County's ADC is a payment toward reducing the Unfunded Liability**

Changes for Consideration

- An experience study was presented on September 20, 2018
 - **Recommended demographic and salary scale assumption changes**
 - Update mortality tables to more recent standard tables
 - Lower retirement rates at 20 years of service and raise rates at 24 years
 - Change employee turnover slightly
 - Increase disablement rates for Firefighters
 - Raise salary increases for Police Officers. Small changes for Firefighters
 - **Recommended investment return and inflation/COLA reductions**
 - Decrease investment return assumption from 7.50% to 7.45%
 - Decrease inflation/COLA assumption from 2.75% to 2.70% (COLA continues to be capped at 2%)
 - Revisit these assumptions each year and consider further reductions

Results

	2017 Valuation for FY19	2018 Valuation (FY20) Change assumptions retain 7.50%/2.75%	2018 Valuation (FY20) Change assumptions including 7.45%/2.70%
Contribution Amount	\$27,974,552	\$29,878,725	\$30,577,565
Contribution as a Percentage of Payroll	33.1%	34.6%	35.4%
Funded Percentage	82.6%	83.9%	83.3%

Historical County Contribution Rates

FYE	% of Payroll		FYE	% of Payroll
6/30/2020	34.6% or 35.4%		6/30/2015	32.0%
6/30/2019	33.1%		6/30/2014	31.0%
6/30/2018	32.5%		6/30/2013	30.5%
6/30/2017	30.6%		6/30/2012	29.6%
6/30/2016	30.0%		6/30/2011	26.3%

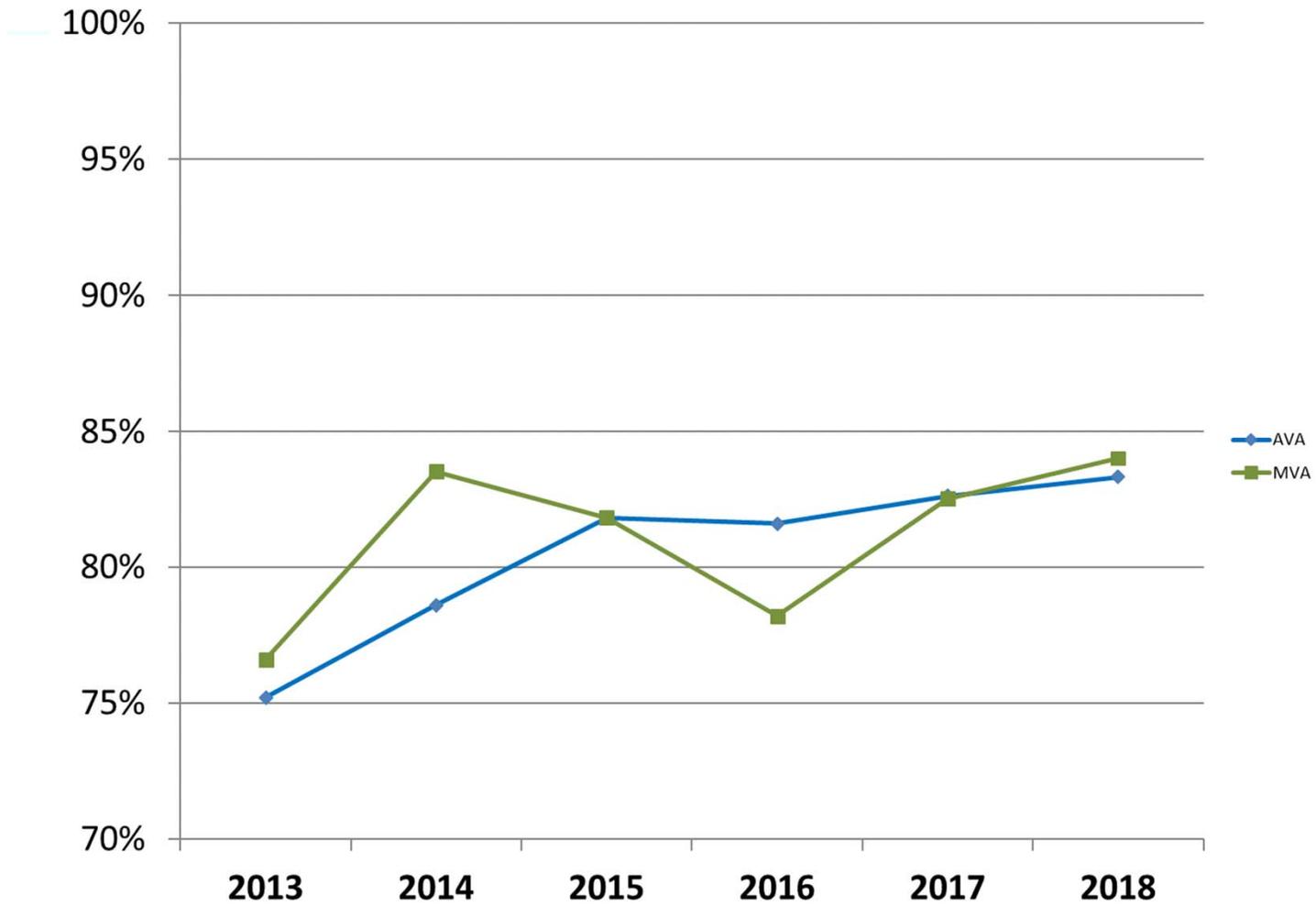
Funded Ratio

	7/1/2015	7/1/2016	7/1/2017	7/1/2018
Actuarial Value of Assets	\$432.2	\$468.5	\$516.8	\$567.2
Actuarial Accrued Liabilities	\$528.5	\$574.4	\$625.9	\$680.9
Funded Ratio on AVA	81.8%	81.6%	82.6%	83.3%
Market Value of Assets	\$432.0	\$448.9	\$516.3	\$571.9
Funded Ratio on MVA	81.8%	78.2%	82.5%	84.0%
Unfunded Actuarial Accrued Liabilities based on AVA	\$96.3	\$105.9	\$109.1	\$113.7
UAAL as a Percentage of Payroll	153.5%	166.3%	160.0%	164.4%

(Dollars in millions)

- 7/1/2018 using 7.45% investment return and 2.70% COLA

Funded Ratio



Historical Investment Returns

FYE	MVA	AVA
6/30/2018	8.9%	7.9%
6/30/2017	12.3%	7.8%
6/30/2016	1.5%	5.9%
6/30/2015	2.8%	9.0%
6/30/2014	15.7%	11.0%
6/30/2013	11.5%	5.9%
6/30/2012	-1.0%	3.9%
6/30/2011	20.2%	4.8%
6/30/2010	14.0%	2.3%
6/30/2009	-15.6%	2.6%

Participant Summary

	2014	2015	2016	2017	2018
Active	856	828	799	830	821
DROP	26	54	73	74	79
Terminated Vested	20	18	19	18	18
Retirees & Beneficiaries	286	304	320	341	370
Disabled	27	31	33	33	34
Total Population	1,215	1,235	1,244	1,296	1,322
Active Average Age	38.31	38.82	39.41	39.37	39.48
Active Average Service	11.99	12.53	13.08	13.02	13.20
Active Average Salary	\$78,323	\$82,529	\$86,787	\$88,574	\$90,960

Hot Topics

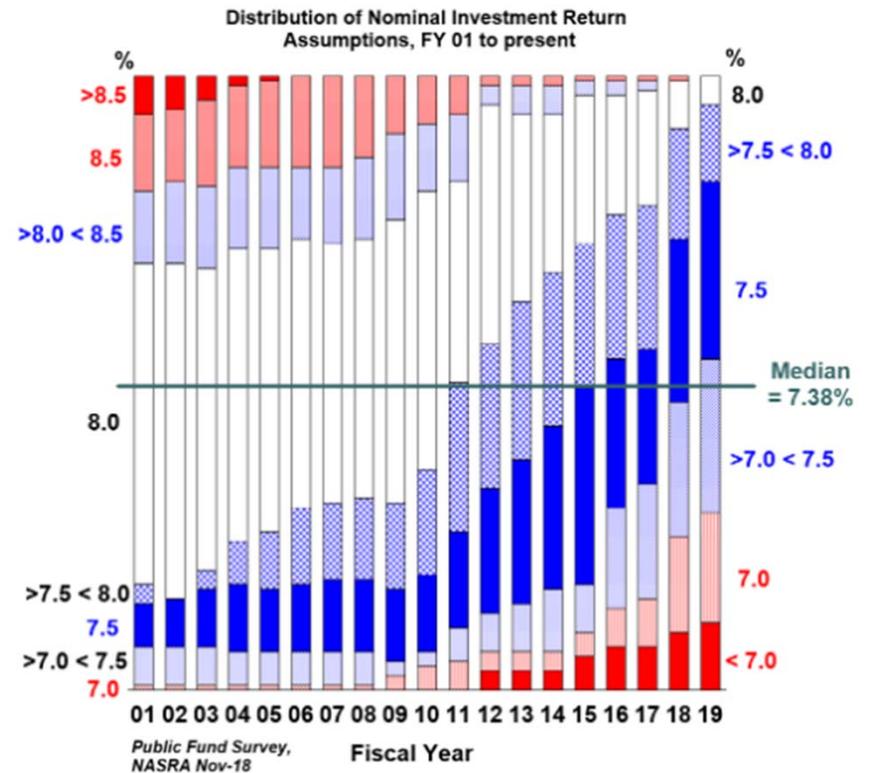
- NASRA Study of Investment Returns
 - **75% of 128 plans surveyed have reduced their investment return since 2010**
 - **Median return in 2010 was about 8%, currently 7.4%**
 - **Approximately 30% at 7% or lower**
- Public Plan Mortality Study Released by SOA
- Actuarial Standards of Practice No. 51 – Risk Disclosure
- Proposals to disclosure liability at risk free interest rate
 - **Proposed change to Actuarial Standard of Practice No. 4**
 - **Public Employee Pension Transparency Act (PEPTA)**
 - Introduced by Congress
 - Disclose liability at Treasury Bond Rate
 - **Multiemployer plan proposed legislation**

Investment Returns

LOCAL

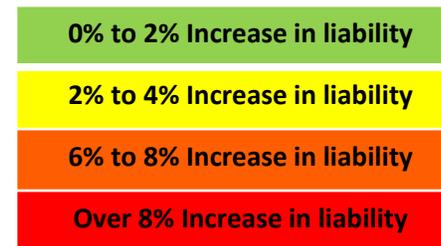
County	Discount Rate
Anne Arundel County	7.50%/7.45%
Baltimore County	6.375%
Caroline County	7.05%
Carroll County	7.00%
Cecil County	7.00%
Charles County	7.50%/7.40%
Frederick County	7.00%
Harford County	7.00%
St. Mary's County	7.25%

NATIONAL



Public Plan Mortality Tables

- Final tables released in January 2019
- Based on data from NASRA
 - **Data from 2008 – 2013**
 - **35 pension systems**
 - **78 plans**
 - **46 million life-years of exposure**
 - **580,000 deaths**
- 3 Job Classification Tables
 - **PUBT-2010: Teachers**
 - **PUBS-2010: Safety**
 - **PUBG-2010: General**
- Highlights
 - **Teachers live longest**
 - **Public safety has modest improvement over recent studies**
 - **General employees between total mortality and white collar mortality of recent studies**



Employee Group	Male	Female	Total
Teachers	Red	Orange	Red
Safety	Yellow	Green	Yellow
General	Yellow	Yellow	Yellow

Compared to RP-2006 with MP-2017

ASOP 51

- Purpose
 - **Disclosure of the risk that actual future measurements may differ from expected future measurement**
 - **Future measurements include:**
 - Pension obligations
 - Actuarially determined contributions
 - Funded Status
- Types of risk
 - **Investment risk**
 - **Asset/liability matching risk**
 - **Interest rate risk**
 - **Longevity risk**
 - **Contribution risk**
- Possible enhancements
 - **Long-range projections**
 - **Sensitivities**
- Effective Date
 - **Measurements after November 1, 2018**
 - **For Howard County, July 1, 2019 actuarial valuation**

Risk Measures

Risk Measure	7/1/2016	7/1/2017	7/1/2018	Conservative Measure
Retiree Liability as a Percent of Total Liability	42%	42%	44%	<50%
Assets to Payroll	5.9	6.4	7.0	<5
Liabilities to Payroll	7.6	7.8	8.3	<5
Benefit Payments to Contributions	0.6	0.6	0.7	1-3

- 7/1/2018 using 7.45% investment return and 2.70% COLA

Summary

- Current Year Valuation Highlights
 - **Assumption changes as recommended in experience study**
 - **Increase in ADC as a percentage of payroll due to both non-discount rate assumption changes and decrease in discount rate**
 - **Continued increase in funded status**
- Future Considerations
 - **Review public plan mortality tables**
 - **Impact of declining equity markets**
 - **Risk measures for ASOP 51**
 - **Lowering discount rate**

Disclosures

- In preparing this presentation, we relied without audit, on information supplied by Howard County.
- The actuarial assumptions, data and methods are those used in the preparation of the latest actuarial valuation report prepared for this plan as of July 1, 2018.
- The assumptions reflect our understanding of the likely future experience of the plans and the assumptions as a whole represent our best estimate for the future experience of the plans. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the plans could vary from our results.
- We certify that, to the best of our knowledge, this report and its contents, which are work products of Bolton are complete and accurate and have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.
- Bolton's report was prepared exclusively for Howard County for a specific and limited purpose. It is not for the use or benefit of any third party for any purpose. The term third party does not include the County's auditor, attorney, third party administrator or other professional, when providing professional services to the County, or any governmental agency to which this certification is required to be submitted by law or regulation. Any third party recipient of Bolton's work product who desires professional guidance should not rely upon Bolton's work product, but should engage qualified professionals for advice appropriate to its own specific needs.