

**THE ANNE ARUNDEL COUNTY
EMPLOYEES'
RETIREMENT PLAN**

**ACTUARIAL VALUATION
AS OF
JANUARY 1, 2013**

Bolton Partners, Inc.
100 Light Street, 9th Floor
Baltimore, MD 21202

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April 30, 2013

PERSONAL & CONFIDENTIAL

Andrea Fulton
Personnel Officer
Anne Arundel County Government
P.O. Box 6675
Annapolis, MD 21401

Re: Employees' Retirement Plan Valuation

Dear Andrea:

The following report sets forth the actuarial valuation as of January 1, 2013 of the Anne Arundel County Employees' Retirement Plan, for the plan year beginning on that date. The valuation is based on participant data submitted by the personnel department of Anne Arundel County, Aetna and Prudential and unaudited asset data submitted by the County.

INVESTMENT PERFORMANCE

The market value of plan assets as of December 31, 2012 was \$525,166,044. The average investment return for the fund for the year ended December 31, 2012 was 13.6% on a market basis and 0.6% on an actuarial basis.

The plan utilizes an actuarial averaging method to smooth out swings in investment performance and thus in asset values from year to year. Under the method, investment gains or losses above or below the 8% actuarial assumption are phased in over a five year period. As of December 31, 2012, the actuarial value of assets was \$508,232,321. Details of the development of the actuarial value of assets are set forth later in this report.

PRINCIPAL RESULTS

The principal purpose of the valuation is to set forth the County's contributions for the fiscal year ending June 30, 2014. In addition, the report sets forth the information on the plan for the County's financial statements and for the plan's own financial statements.

Bolton Partners, Inc.

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Actuarial, Benefit and Investment Consultants

The total recommended employer contribution for the plan year and fiscal year ending June 30, 2014 increased from \$20,764,948 to \$23,958,375. This is in addition to employee contributions of 4% of pay from the employees in Tier 1. The increase can be broken down to the following factors:

January 1, 2012 valuation	17.2%
Investment Loss	1.9%
Pay Increases	(0.6%)
New Entrants/Change in Normal Cost	0.0%
COLA	(0.1%)
Expenses	0.0%
Assumption Changes	0.9%
Demographics and Other Changes	1.3%
January 1, 2013 valuation	20.6%

The overall funded ratio for the plan based on the actuarial value of assets decreased from 79.0% to 73.3%. The increase in the contribution amount and decline in the funded ratio are due primarily to the change in assumptions and the recognition of the final part of the 2008 investment losses. Currently the market value of assets of \$525 million is \$17 million more than the actuarial value of the assets (\$508 million). This difference is eventually expected to reduce the County's contribution by \$1 million/year.

There have been changes in pension accounting rules. These changes do not impact funding or this valuation report. The new GASB 67 rules will impact the plan accounting in 2014 and the new GASB 68 rules will impact the employer's accounting in FY15. We should discuss with the Board and the County how these new rules are to be implemented.

The assumptions have been changed in this valuation based on last year's experience study which was adopted by the Board. There have been no changes in the plan provisions since the last valuation.


The balance of this report sets forth details of changes in participation in the plan and the results of the valuation. A statement of funding progress under GASB 25 is also included.

Sincerely,

BOLTON PARTNERS, INC.



Thomas B. Lowman, FSA



David W. Ballard, CEBS

Trust Fund Asset Statement

**TRUST FUND ASSET STATEMENT FOR
YEAR ENDED DECEMBER 31, 2012**

Original Market Value 1/1/2012	\$470,499,595
Audit Adjustment	\$ 67,075
Market Value 1/1/2012	\$470,566,670
Receipts:	
Employer Contributions	\$ 19,666,959
Employee Contributions	4,559,097
Interest and Dividends	11,638,716
Realized and Unrealized Gain/(Loss)	52,718,075
Stock Loan Income	83,538
Other	<u>1,590,350</u>
Total Receipts:	\$ 90,256,735
Disbursements:	
Benefit Payments	\$ 34,374,217
Administrative Expenses	556,188
Investment Expenses	<u>2,822,809</u>
Total Disbursements	\$ 37,753,214
Net Increase/(Decrease)	\$ 52,503,521
Preliminary Ending Value 12/31/2012	\$523,070,191
Contribution Receivable	\$ 2,095,853
Ending Value 12/31/2012	\$525,166,044

(Note: There may be dollar rounding differences)

**Development of Actuarial
Value of Assets**

ACTUARIAL VALUE OF ASSETS

	<u>2011</u>	<u>2012</u>
1. MVA Beginning of Year	\$469,576,006	\$470,499,595
2. Contributions	20,666,982	22,144,691
3. Benefit Payments	31,480,080	34,374,217
4. Administrative Expenses	490,418	556,188
5. Expected 8% Return	37,113,940	37,128,539
6. Expected Asset Value (1. + 2. - 3. - 4. + 5.)	\$495,386,431	\$494,842,420
7. Market Value End of Year	\$470,499,595	\$523,070,191
8. Asset Gain/(Loss) (7. - 6.)	(\$24,886,836)	\$28,227,771
9. 80% of 2011 Gain/(Loss) of (\$24,886,836)	(\$19,909,468)	
10. 60% of 2010 Gain/(Loss) of \$27,036,112	\$16,221,667	
11. 40% of 2009 Gain/(Loss) of (\$7,654,192)	(\$3,061,677)	
12. 20% of 2008 Gain/(Loss) of (\$183,699,815)	(\$36,739,963)	
13. Initial Actuarial Value of Assets 1/1/2012	\$513,989,036	
14. Contribution Receivable	\$2,081,365	
15. Final Actuarial Value of Assets 1/1/2012	\$516,070,401	
16. 80% of 2012 Gain/(Loss) of \$28,227,771		\$22,582,217
17. 60% of 2011 Gain/(Loss) of (\$24,886,836)		(\$14,932,101)
18. 40% of 2010 Gain/(Loss) of \$27,036,112		\$10,814,445
19. 20% of 2009 Gain/(Loss) of (\$7,654,192)		(\$1,530,838)
20. Initial Actuarial Value of Assets 1/1/2013		\$506,136,468
21. Contribution Receivable		\$2,095,853
22. Final Actuarial Value of Assets 1/1/2013		\$508,232,321
Rate of Return on Actuarial Value of Assets <i>(net of investment expenses)</i>	0.6%	0.6%

Participant Summary

PARTICIPANT SUMMARY

	<u>Inactive Participants</u>			<u>Total</u>
	<u>Active Participants</u>	<u>With Deferred Benefits</u>	<u>Receiving Benefits</u>	
Participants as of January 1, 2012	2,209	260	1,393	3,862
Retired	(74)	(14)	88	0
Terminated Vested	(41)	41	0	0
Terminated Non-Vested/Paid Lump Sum	(54)	(14)	0	(68)
Disabled	(2)	0	2	0
Deceased/Payments Expired	0	0	(35)	(35)
New Beneficiary	0	0	10	10
Rehires	3	0	0	3
New QDRO	0	0	3	3
Transfers In	0	0	0	0
Transfers Out	(3)	0	0	(3)
New Hires	114	0	0	114
Data Adjustment	0	0	7	7
Net Change	(57)	13	75	31
Participants as of January 1, 2013	2,152	273	1,468	3,893

Service - Age Distribution

AGE, SERVICE AND AVERAGE SALARY DISTRIBUTION

Age as of 1/1/2013	Under 1	01-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40 +	Total
Under 25	9 32,695	20 33,941	3 37,953	0 0	0 0	0 0	0 0	0 0	0 0	0 0	32 33,967
25-29	18 33,122	53 38,546	35 39,120	2 38,287	0 0	0 0	0 0	0 0	0 0	0 0	108 37,823
30-34	15 39,175	55 40,002	71 43,285	28 45,522	2 33,910	0 0	0 0	0 0	0 0	0 0	171 42,125
35-39	10 50,040	32 48,425	63 50,107	53 51,257	11 54,422	2 52,992	0 0	0 0	0 0	0 0	171 50,456
40-44	13 45,882	36 42,521	78 47,784	63 53,404	23 57,701	24 57,292	2 59,181	0 0	0 0	0 0	239 50,374
45-49	8 33,079	41 43,068	76 48,786	80 53,001	50 63,337	54 64,281	40 57,934	1 52,187	0 0	0 0	350 54,245
50-54	9 54,309	50 45,335	90 49,403	77 57,453	46 59,443	68 66,168	52 64,158	25 63,361	0 0	0 0	417 57,026
55-59	8 34,895	27 48,260	56 44,777	60 61,179	41 64,942	50 61,931	46 70,432	33 67,249	26 64,366	0 0	347 59,516
60-64	6 18,933	21 47,141	45 66,003	48 62,989	32 67,098	26 69,502	25 69,093	13 69,888	11 73,494	4 75,232	231 64,054
65-69	0 0	5 43,666	13 60,757	17 53,514	10 63,975	7 57,775	5 56,717	3 86,855	5 74,036	0 0	65 59,637
70 & Up	1 5,987	6 31,459	3 51,723	4 63,737	5 47,117	2 25,536	0 0	0 0	0 0	0 0	21 42,453
Total	97 38,424	346 42,586	533 48,812	432 55,452	220 61,727	233 63,565	170 64,840	75 66,994	42 67,908	4 75,232	2,152 53,915

Average Age: 48.63

Average Service: 13.08

Average Salary: \$53,915

Actuarial Costs

ACTUARIAL COSTS

	<u>As of</u> <u>01/01/2012</u>	<u>As of</u> <u>01/01/2013</u>
Participants		
Active	2,209	2,152
Terminated Vested	260	273
Disabled	79	80
Retirees	1,222	1,282
Beneficiaries	<u>92</u>	<u>106</u>
Total	3,862	3,893
Active Payroll (Rate at January 1 st)	\$120,415,534	\$116,024,717
1. Actuarial Liability		
Active Participants	\$270,093,704	\$270,478,936
Terminated Vested Participants	17,049,234	18,040,162
Participants Receiving Benefits	<u>366,510,120</u>	<u>405,061,577</u>
Total	\$653,653,058	\$693,580,675
2. Actuarial Value of Assets	\$516,070,401	\$508,232,321
3. Unfunded Actuarial Liability (1-2)	\$137,582,657	\$185,348,354
4. County's Normal Cost	\$ 10,370,286	\$ 10,356,158
5. Amortization Payment	\$ 8,365,518	\$ 11,304,523
6. Estimated Expenses	\$ 491,000	\$ 523,000
7. Total Recommended Contributions as of January 1 st (4 + 5 + 6)	\$ 19,226,804	\$ 22,183,681
8. Total Recommended Contribution as of December 31 st (7 x 1.08)	\$ 20,764,948	\$ 23,958,375
9. Contribution as a % of total payroll	17.2%	20.6%

UNFUNDED LIABILITY AMORTIZATION SCHEDULE

<u>Charge</u>	<u>Amortization Period</u>			<u>Balances</u>		<u>2013 Payment</u>
	<u>Date Created</u>	<u>Initial Years</u>	<u>Years Left</u>	<u>Initial</u>	<u>Outstanding</u>	
Actuarial Loss	01/01/2005	30	22	\$ 9,888,883	\$10,978,590	\$ 752,457
Actuarial Loss	01/01/2006	30	23	\$ 7,157,528	\$ 7,883,844	\$ 526,208
Actuarial Loss	01/01/2007	30	24	\$ 8,028,164	\$ 8,758,057	\$ 570,258
Assumption Change	01/01/2008	30	25	\$13,407,985	\$14,463,708	\$ 920,191
Actuarial Loss	01/01/2009	30	26	\$45,836,717	\$48,822,571	\$3,039,397
Asset Method Change	01/01/2011	30	28	\$28,621,055	\$29,605,859	\$1,771,653
Actuarial Loss	01/01/2012	30	39	\$30,934,590	\$31,478,810	\$1,850,108
Assumption Change	01/01/2013	30	30	\$12,159,909	\$12,159,909	\$ 702,656
Actuarial Loss	01/01/2013	30	30	\$33,631,456	\$33,631,456	\$1,943,381
<u>Credit</u>						
Unfunded Accrued Liability	01/01/2004	30	21	\$ 215,150	\$ 240,298	\$ 16,945
Actuarial Gain	01/01/2008	30	25	\$ 5,585,598	\$ 6,025,397	\$ 383,340
Actuarial Gain	01/01/2010	30	27	\$ 1,937,140	\$ 2,034,594	\$ 124,107
Actuarial Gain	01/01/2011	30	28	\$ 3,996,644	\$ 4,134,161	\$ 247,394
Net Total					\$185,348,354	\$11,304,523

Note: Bases are amortized as an equal percent of payroll each year. Total payroll is assumed to increase 3.5% annually.

Assumptions and Methods

ASSUMPTIONS AND METHODS

Funding Method: Projected Unit Credit Actuarial Cost Method. The contribution equals the sum of the normal cost and the amount necessary to amortize the frozen unfunded actuarial liabilities and any actuarial gains or losses over a period of years. Amortization payments increase 3.5%.

Asset Method: Asset smoothing method. Spreading the investment gains or losses in excess of the assumed return over a 5-year period. Actuarial Value of Assets recognizes adjustments resulting from an audit.

Interest: 8% compounded annually.

COLA Increases: Benefits accrued before Bill 88-96 are assumed to increase by 3.0% of the original benefit each year from retirement.

Benefits accrued after Bill 88-96 are assumed to increase by 2.1% of the current benefit each year from retirement.

Salary Increases: The following graded schedule is used:

<u>Attained Age</u>	<u>% Increase at Attained Age</u>
20	7.0%
25	6.5%
30	6.0%
35	5.5%
40	5.0%
45	4.5%
50	4.0%
55	4.0%

Mortality (Eff. 1/1/2013): *Healthy:* RP-2000 Blue Collar Mortality Table for males and females projected generationally using scale AA. Pre-Termination mortality uses 60% of these rates.

Disabled: RP-2000 Blue Collar Mortality Table for males and females set forward nine years and then projected generationally using scale AA.

ASSUMPTIONS AND METHODS

(continued)

100% of pre-retirement deaths are assumed to be non-duty-related.

Disability (Eff. 1/1/2013):

Sample rates are:

<u>Age</u>	<u>Rate</u>
30	.0198%
35	.0297%
40	.0607%
45	.1003%
50	.1622%
55	.2661%
60	.3973%
64	.5408%

10% of disablement is assumed to be duty-related.

Turnover¹ (Eff. 1/1/2013):

Sample rates are:

<u>Age</u>	<u>Males</u>	<u>Rate</u>	<u>Females</u>
20	12.47%		21.57%
25	9.97%		18.12%
30	6.78%		13.34%
35	4.37%		9.05%
40	3.48%		7.48%
45	2.40%		5.95%
50	0.63%		1.56%
55	0.43%		1.07%
60	0.00%		0.00%

Retirement (Eff. 1/1/2013):

Sample Rates

<u>Age</u>	<u>Service</u>		
	<u>20</u>	<u>30</u>	<u>31</u>
50	6%	40%	40%
55	9%	30%	5%
60	15%	15%	15%
65	40%	40%	40%
68	100%	100%	100%

¹ Tier 1 terminations prior to age 40 are assumed to elect a refund of employee contributions with interest

ASSUMPTIONS AND METHODS

(continued)

<u>Disability Leave:</u>	Active liabilities (which depend on credited service) are loaded by 1.5% to account for future crediting of disability service.
<u>Military Service:</u>	Active liabilities (which depend on credited service) are loaded by 1% to account for future crediting of military service.
<u>Marriage:</u>	It is assumed that 70% of employees are married.
<u>Other Methods and Assumptions:</u>	Administrative Expenses are \$523,000 for FY2014 and \$491,000 for FY2013 (average of actual expenses for the two years preceding the valuation date). Males are assumed to be four years older than their spouses. The Tier 1 service cap of 60% is valued as 62% to account for Disability and Military service credit not being limited by the 30-year cap on service. Actual military service information for actives is not available. Members are assumed to stay in their current tier.

Plan Provisions

PLAN PROVISIONS

(for Members in Tier 1)

<u>Normal Retirement Age:</u>	Age 60, or if earlier, when the participant has reached 30 years of service.
<u>Early Retirement Age:</u>	Age 50 and the completion of 20 years of service.
<u>Normal Form of Benefit:</u>	Monthly life annuity with modified cash refund.
<u>Cost of Living Increase</u> <u>(simple, for benefits accrued as of 1/31/97):</u>	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: a. Prior year benefit plus base benefit multiplied by increase in the current March CPI from March CPI for prior year, or b. Benefit increased by 3% of original benefit.
<u>Cost of Living Increase</u> <u>(compound, for benefits accrued after 1/31/97):</u>	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: a. Prior year benefit multiplied by 60% of the increase in the current March CPI from March CPI for prior year, or b. Benefit increased by 2.5%.
<u>Employee Contributions:</u>	4% of compensation.
<u>Compensation:</u>	Regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses, and commissions.
<u>Final Earnings:</u>	The average of the highest 3 years of the last 5 annual basic pays.
<u>Normal Retirement Benefit Formula:</u>	2% of final earnings for each year of service, maximum 60%.
<u>Early Retirement Benefit Formula:</u>	Same as normal retirement, but reduced by the following factors:

PLAN PROVISIONS

(for Members in Tier 1)

(continued)

<u>Years Early</u>	<u>Reduction Factor</u>
1	2%
2	5%
3	9%
4	14%
5	20%
6	28%
7	36%
8	44%
9	52%
10	60%

Termination Prior to Retirement:

Less than 5 years of service:

Return of employee contributions with 4.25% interest.

5 years of service or more:

At the discretion of the employee, either a return of contributions with interest or the accrued normal retirement benefit taking into account final earnings and service at date of termination, payable at normal retirement date.

Disability:

Must be totally and permanently disabled (except as the result of activities specified in the County code) regardless of length of service.

Line of Duty Disability:

The greater of the accrued benefit or 66 2/3% of final earnings, payable immediately, unreduced.

Non-Line of Duty Disability:

Five years of service are required to receive non-duty benefits. The greater of the accrued benefit or 25% of final earnings, payable immediately, unreduced.

PLAN PROVISIONS

(for Members in Tier 1)

(continued)

Pre-Retirement Spouse's Benefit:

*Married and eligible for early
retirement:*

The greatest of:

- \$10 per month
- 50% of the final earnings
- The accrued benefit, reduced actuarially for early commencement and the joint and 100% survivor form.

Other Pre-Retirement Death Benefits:

Return of employee contributions with 4.25% interest plus a lump sum of 50% of final earnings.

PLAN PROVISIONS

(for Members in Tier 2)

<u>Normal Retirement Age:</u>	Age 60, or if earlier, when the participant has reached 30 years of service.
<u>Early Retirement Age:</u>	Age 50 and the completion of 20 years of service.
<u>Normal Form of Benefit:</u>	Monthly life annuity.
<u>Cost of Living Increase</u> <u>(compound, for benefits accrued after 1/31/97):</u>	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: <ul style="list-style-type: none">a. Prior year benefit multiplied by 60% of the increase in the current March CPI from March CPI for prior year, orb. Benefit increased by 2.5%.
<u>Employee Contributions:</u>	No employee contributions required or allowed.
<u>Compensation:</u>	Regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses, and commissions.
<u>Final Earnings:</u>	The average of the highest 3 years of the last 5 years of annual basic pays.
<u>Normal Retirement Benefit Formula:</u>	1.0% of final earnings for each year of service.
<u>Early Retirement Benefit Formula:</u>	Same as normal retirement, but reduced for early commencement (using the same factors as Tier 1).
<u>Termination Prior to Retirement:</u> <i>Less than 5 years of service:</i>	No benefit is payable.
<i>5 years of service or more:</i>	The accrued normal retirement benefit taking into account final earnings and service at date of termination, payable at normal retirement date.
<u>Disability:</u>	Must be totally and permanently disabled (except as the result of activities specified in the County code) regardless of length of service.

PLAN PROVISIONS

(for Members in Tier 2)

(continued)

<i>Line of Duty Disability:</i>	The greater of the accrued benefit or 66 2/3% of final earnings, payable immediately, unreduced.
<i>Non-Line of Duty Disability:</i>	Five years of service are required to receive non-duty benefits. The greater of the accrued benefit or 25% of final earnings, payable immediately, unreduced.
<u>Pre-Retirement Spouse's Benefit:</u>	
<i>Married and eligible for early retirement:</i>	The greatest of: <ul style="list-style-type: none">• \$10 per month• 50% of the final earnings• The accrued benefit, reduced actuarially for early commencement and the joint and 100% survivor form.
<i>Unmarried or not eligible for early retirement:</i>	A lump sum of 50% of final earnings.

Summary of Legislative Changes

SUMMARY OF MAJOR LEGISLATIVE CHANGES

County Council Bill No. 36-89:

Effective 7/1/89.

Pension benefits and vesting provisions were improved. The accrual percentage per year of service was increased from 1.8% to 2.0%, permitting accrual of the maximum 60% benefit in 30 years instead of 33-1/3.

Full vesting was granted after 5 years of service. The old provisions used a graded scale granting 75% vesting after 10 years, climbing to 100% vesting after 15 years.

County Council Bill No. 34-92:

Effective 6/1/92 through 8/31/92.

Participants age 50 or older with at least 20 years of service could elect to retire with an additional pension equal to 1/12 of 2% for each year of credited service. The additional amount could be taken as a pension increase, a lump sum, or as a temporary supplement to age 62. Appropriate actuarial adjustments apply.

State House Bill No. 687:

Effective 7/1/90.

County employees were given the opportunity to apply for credit under the County's plan for previous service with the State of Maryland (or a political subdivision of the State).

County Council Bill 90-93:

Effective 12/22/93.

Plan participants are required to pay the full actuarial value for service purchases. Purchases can only be made at retirement. To be eligible, an employee must have 60 months of County service. Existing plan participants must be notified of their right to purchase service under existing law.

SUMMARY OF MAJOR LEGISLATIVE CHANGES

(continued)

County Council Bill No. 82-94:

Effective 10/31/94.

Transfers assets from general employees plan to A&E plan for participants who have transferred between these two plans.

County Council Bill No. 88-96:

Effective 12/4/96.

The previous method of calculating cost of living increases will only apply to benefits accrued as of 1/31/97. The cost of living increase for future benefits is a compound increase equal to 60% of the annual change in the CPI, not to exceed 2.5%. Employees hired, or rehired, on or after 12/4/96 will be Tier Two employees and will have different benefits than current employees.

County Council Bill No. 41-99:

Effective 6/15/99.

Employees paid under the deputy sheriff employees pay schedule become Tier Two members of the Detention Center Plan effective as of January 1, 1999. Service credited under the Employees' Plan will count as credited service in the Detention Center Plan and no future benefit will be paid from the Employees' Plan. Assets are transferred from the Employees' Plan to the Detention Center Plan in an amount equal to the projected unit credit accrued liability in the Employees' Plan.

Recodification:

Effective 2/25/2002.

Allows a benefit based on disability leave service and pre-plan military service to be paid over the 60% cap. Normal Retirement was changed to the earlier of 30 years of service or age 60.

SUMMARY OF MAJOR LEGISLATIVE CHANGES

(continued)

County Council Bill No. 74-09:

Effective 12/11/2009.

For non-represented members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 3% for determining the final average basic pay.

County Council Bill No. 6-10:

Effective 4/18/2010.

Provides for a disability benefit for those participants who are totally and permanently disabled as a result of qualified military service.

Statement No. 25 of the GASB

**STATEMENT NO. 25 OF THE
 GOVERNMENTAL ACCOUNTING STANDARDS BOARD**

Schedules of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Unfunded AAL (UAAL) (b-a)	Actuarial Accrued Liability (AAL) (b)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a)/c)
01/01/2003	\$335,539,414	\$36,932,955	\$372,472,369	90.1%	\$101,172,221	36.5%
01/01/2004	\$367,756,502	\$ (215,150)	\$367,541,352	100.1%	\$100,944,238	(0.2)%
01/01/2005	\$395,501,876	\$ 9,669,948	\$405,171,824	97.6%	\$103,105,736	9.4%
01/01/2006	\$422,234,496	\$16,997,830	\$439,232,326	96.1%	\$107,290,189	15.8%
01/01/2007	\$456,656,849	\$25,314,781	\$481,971,630	94.7%	\$116,709,102	21.7%
01/01/2008 ¹	\$492,788,674	\$20,144,823	\$512,933,497	96.1%	\$117,222,681	17.2%
01/01/2008 ²	\$492,788,674	\$33,552,808	\$526,341,482	93.6%	\$117,222,681	28.6%
01/01/2009	\$488,275,803	\$79,919,177	\$568,194,980	85.9%	\$124,803,488	64.0%
01/01/2010	\$519,556,093	\$79,285,038	\$598,841,131	86.8%	\$126,030,706	62.9%
01/01/2011 ³	\$550,786,200	\$76,483,387	\$627,269,587	87.8%	\$123,498,129	61.9%
01/01/2011 ⁴	\$522,165,144	\$105,104,443	\$627,269,587	83.2%	\$123,498,129	85.1%
01/01/2012	\$516,070,401	\$137,582,657	\$653,653,058	79.0%	\$120,415,534	114.3%
01/01/2013 ¹	\$508,232,321	\$173,188,445	\$681,420,766	74.6%	\$116,024,717	149.3%
01/01/2013 ²	\$508,232,321	\$185,348,354	\$693,580,675	73.3%	\$116,024,717	159.7%

Schedules of County's Contributions

Year Ended December 31	Annual Required Contribution	Actual Contribution	Percentage Contributed
2012	\$19,823,814	\$19,824,014 ⁵	100.0%

¹ Prior to Assumption Changes

² After Assumption Changes

³ Prior to Asset Method Change

⁴ After Asset Method Change

⁵ On an accrual basis. Subject to verification.

**STATEMENT NO. 25 OF THE
GOVERNMENTAL ACCOUNTING STANDARDS BOARD**

(continued)

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows.

Actuarial cost method	Projected Unit Credit
Amortization method	Level percent of pay
Remaining amortization period	Remaining Amortization periods range from 21 to 30 years with an average of 26 years.
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return	8.0%
Projected salary increases	Varies by age
Post Retirement Cost-of-living adjustments	3.0% for pre 2/97 accruals 2.1% for post 2/97 accruals

ACTUARIAL CERTIFICATION

This actuarial valuation sets forth our calculation of an estimate of the liabilities of the pension plan, together with a comparison of these liabilities with the value of the plan assets, as submitted by the County. This calculation and comparison with assets is applicable for the valuation date only. The future is uncertain, and the plan may become better funded or more poorly funded in the future. This valuation does not provide any guarantee that the plan will be able to provide the promised benefits in the future.

This is a deterministic valuation in that it is based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. Other assumptions may be equally valid. The future is uncertain and the plan's actual experience will differ from those assumptions; these differences may be significant or material because these results are very sensitive to the assumptions made and, in some cases, to the interaction between the assumptions. We may consider that some factors are not material to the valuation of the plan and may not provide a specific assumption for those factors. We may have used other assumptions in the past. We will likely consider changes in assumptions at a future date.

Different assumptions or scenarios within the range of possibilities may also be reasonable and results based on those assumptions would be different. As a result of the uncertainty inherent in a forward looking projection over a very long period of time, no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. Two different actuaries could, quite reasonably, arrive at different results based on the same data and different views of the future. A "sensitivity analysis" shows the degree to which results would be different if you substitute alternative assumptions within the range of possibilities for those utilized in this report. We have not been engaged to perform such a sensitivity analysis and thus the results of such an analysis are not included in this report. At the County's request, Bolton Partners, Inc. is available to perform such a sensitivity analysis.

The County is responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in this report. The County is solely responsible for communicating to Bolton Partners, Inc. any changes required thereto.

The County could reasonably ask how the valuation would change if we used a different assumption set or if plan experience exhibited variations from our assumptions. This report does not contain such an analysis. This type of analysis would be a separate assignment.

In addition, decisions regarding benefit improvements, benefit changes, the trust's investment policy, and similar issues should not be based on this valuation. These are complex issues and other factors should be considered when making such decisions. These other factors might include the anticipated vitality of the local economy and future growth expectations, as well as other economic and financial factors.

Actuarial Certification
(Continuation)

The cost of this plan is determined by the benefits promised by the plan, the plan's participant population, the investment experience of the plan and many other factors. An actuarial valuation is a budgeting tool for the County. It does not affect the cost of the plan. Different funding methods provide for different timing of contributions to the plan. As the experience of the plan evolves, it is normal for the level of contributions to the plan to change. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We will not be responsible for contributions that are made at a future time rather than an earlier time. The plan sponsor is responsible for funding the cost of the plan.

We make every effort to ensure that our calculations are accurately performed. These calculations are complex. Despite our best efforts, we may make a mistake. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report.

Because modeling all aspects of a situation is not possible or practical, we may use summary information, estimates, or simplifications of calculations to facilitate the modeling of future events in an efficient and cost-effective manner. We may also exclude factors or data that are immaterial in our judgment. Use of such simplifying techniques does not, in our judgment, affect the reasonableness of valuation results for the plan.

This report is based on plan provisions, census data, and asset data submitted by the personnel department of Anne Arundel County. We have relied on this information for purposes of preparing this report, but have not performed an audit. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The plan sponsor is solely responsible for the validity and completeness of this information.

The County is solely responsible for selecting the plan's investment policies, asset allocations and individual investments. Bolton Partners, Inc.'s actuaries have not provided any investment advice to Anne Arundel County.

The information in this report was prepared for the internal use of the County and its auditors in connection with our actuarial valuations of the pension plan. It is neither intended nor necessarily suitable for other purposes. Bolton Partners, Inc. is not responsible for the consequences of any other use.

Actuarial Certification
(Continuation)

The only purposes of this report are to:

- Present Bolton Partners, Inc.'s actuarial estimates of the plan's liabilities and expenses for Anne Arundel County to incorporate, as Anne Arundel County deems appropriate, in its financial statements and
- Provide the recommended employer contribution for the fiscal year ending June 30, 2014.

This report may not be used for any other purpose; Bolton Partners, Inc. is not responsible for the consequences of any unauthorized use.

The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, the lower the estimated liability will be. For purposes of estimating the liabilities (future and accrued) in this report, you selected an assumption based on the expected long-term rate of return on plan investments. Using a lower discount rate assumption, such as a rate based on long-term bond yields, could substantially increase the estimated present value of future and accrued liabilities.

Because valuations are a snapshot in time and are based on estimates and assumptions that are not precise and will differ from actual experience, contribution calculations are inherently imprecise. There is no uniquely "correct" level of contributions for the coming plan year.

This report provides certain financial calculations for use by the auditor. These values have been computed in accordance with our understanding of generally accepted actuarial principles and practices and fairly reflect the actuarial position of the Plan. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

The report is conditioned on the assumption of an ongoing plan and is not meant to present the actuarial position of the Plan in the case of Plan termination. 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 or applicable law.

Anne Arundel County should notify Bolton Partners, Inc. promptly after receipt of this report if the County disagrees with anything contained in the report or is aware of any information that would affect the results of the report that has not been communicated to Bolton Partners, Inc. or

Actuarial Certification

(Continuation)

incorporated therein. The report will be deemed final and acceptable to the County unless the County promptly provides such notice to Bolton Partners, Inc.

The undersigned credentialed actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. He is currently compliant with the Continuing Professional Development Requirement of the Society of Actuaries. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services that could create a conflict of interest that would impair the objectivity of our work.

I am available to answer any questions on the material in this report to provide explanations or further details as appropriate.

BOLTON PARTNERS, INC.



Thomas B. Lowman, FSA, EA