

**THE ANNE ARUNDEL COUNTY  
POLICE SERVICE  
RETIREMENT PLAN**

**ACTUARIAL VALUATION  
AS OF  
JANUARY 1, 2011**

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

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May 2, 2011

**PERSONAL & CONFIDENTIAL**

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

***Re: Police Service Retirement Plan Valuation***

Dear Andrea:

The following report sets forth the actuarial valuation as of January 1, 2011 of the Anne Arundel County Police Service 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, 2010 was \$391,828,320. The average investment return for the fund on a market basis for the year ended December 31, 2010 was 14.1% and 2.0% 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, 2010, the actuarial value of assets was \$435,891,125. 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, 2012. 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. The January 1, 2010 results reflect the revised results provided in a May 12, 2010 letter and the difference from last year's valuation report is attributable to increased employee contribution percentages.

**Bolton Partners, Inc.**

100 Light Street • 9th Floor • Baltimore, Maryland 21202 • (410) 547-0500 • (800) 394-0263 • Fax (410) 685-1924  
*Actuarial, Benefit and Investment Consultants*

Andrea Fulton  
May 2, 2011  
Page Two

The total recommended employer contribution for the plan year and fiscal year ending June 30, 2012 increased from \$13,803,470 to \$14,502,900. This is in addition to employee contributions of 5% of pay for PSL and 7.25% for PO1. The increase can be broken down to the following factors:

January 1, 2010 valuation	32.5%
Investment Loss	0.2%
Pay Increases	(0.2%)
New Entrants/Change in Normal Cost	(0.1%)
Expenses	0.0%
COLA	(1.2%)
Asset Method Change	3.5%
Demographics and Other Changes	(0.5%)
January 1, 2011 valuation	34.4%

The overall funded ratio for the plan decreased from 88.6% to 86.8% (due to the asset method change described on page 4).

The Normal Cost was adjusted upward to reflect Bill 74-09 which increased the FY10 pensionable pay and has a temporary effect. Pay amounts shown in this report (and employer contributions as a percentage of payroll) are based on cash payroll amounts that exclude the extra pay used for pension purposes.


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

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## **Trust Fund Asset Statement**

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**TRUST FUND ASSET STATEMENT FOR  
YEAR ENDED DECEMBER 31, 2010**

Original Market Value 1/1/2010	\$ 347,382,328
Audit Adjustment	\$ 0
Market Value 1/1/2010	\$ 347,382,328
Receipts:	
Employer Contributions	\$ 13,977,716
Employee Contributions	2,208,582
Interest and Dividends	5,864,807
Realized and Unrealized Gain/(Loss)	43,976,823
Other	<u>551,292</u>
Total Receipts:	\$ 66,579,219
Disbursements:	
Benefit Payments	\$ 21,446,647
Administrative Expenses	399,090
Investment Expenses	<u>1,806,858</u>
Total Disbursements	\$ 23,652,595
Net Increase/(Decrease)	\$ 42,926,624
Preliminary Ending Value 12/31/2010	\$ 390,308,952
Contribution Receivable	\$ 1,519,368
Ending Value 12/31/2010	\$ 391,828,320

(Note: There may be some dollar rounding differences.)

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**Development of Actuarial  
Value of Assets**

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**ACTUARIAL VALUE OF ASSETS**

	<b><u>2009</u></b>	<b><u>2010</u></b>
<b>1. AVA/MVA Beginning of Year</b>	<b>\$408,261,502</b>	<b>\$347,382,328</b>
2. Contributions	14,188,488	16,186,298
3. Benefit Payments	22,223,077	21,446,647
4. Administrative Expenses	397,866	399,090
5. Expected 8% Return	32,323,622	27,564,209
<b>6. Expected Asset Value (1. + 2. - 3. - 4. + 5.)</b>	<b>\$432,152,669</b>	<b>\$369,287,097</b>
7. Market Value End of Year	\$347,382,328	\$390,308,952
8. Prior Deferred Gain/(Loss)	<b>(\$78,124,080)</b>	N/A
<b>9. Asset Gain/(Loss) (7. - 8. - 6.)</b>	<b>(\$6,646,261)</b>	<b>\$21,021,855</b>
10. 80% of 2009 Gain/(Loss) of (\$6,646,261)	(\$5,317,009)	
11. 60% of 2008 Gain/(Loss) of (\$155,107,554)	(\$93,064,532)	
12. 40% of 2007 Gain/(Loss) of \$25,752,449	\$10,300,980	
13. 20% of 2006 Gain/(Loss) of \$23,197,363	\$4,639,473	
<b>14. Initial Actuarial Value of Assets 1/1/2010</b>	<b>\$430,823,416</b>	
15. Contribution Receivable	\$1,352,620	
16. Audit Adjustment	\$0	
<b>17. Final Actuarial Value of Assets 1/1/2010</b>	<b>\$432,176,036</b>	
18. 80% of 2010 Gain/(Loss) of \$21,021,855		\$16,817,484
19. 60% of 2009 Gain/(Loss) of (\$6,646,261)		(\$3,987,757)
20. 40% of 2008 Gain/(Loss) of (\$155,107,554)		(\$62,043,022)
21. 20% of 2007 Gain/(Loss) of \$25,752,449		\$5,150,490
<b>22. Initial Actuarial Value of Assets 1/1/2011</b>		<b>\$434,371,757</b>
23. Contribution Receivable		\$1,519,368
24. Audit Adjustment		\$0
<b>25. Final Actuarial Value of Assets 1/1/2011</b>		<b>\$435,891,125</b>
 <b>Rate of Return on Actuarial Value of Assets</b> <i>(net of investment expenses)</i>	 <b>7.7%</b>	 <b>2.0%</b>

Effective with the 1/1/2011 actuarial valuation, the actuarial value of assets is calculated by spreading the market value investment gains or losses in excess of the assumed rate of return over a - year period. The actuarial value of assets as of 1/1/2011 using the prior method is \$459,323,278. An amortization charge of \$23,432,153 is established to reflect this change (see page 8).

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## **Participant Summary**

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**PARTICIPANT SUMMARY**

	<u>Inactive Participants</u>				<u>Total</u>
	<u>Active Participants</u>	<u>DROP</u>	<u>With Deferred Benefits</u>	<u>Receiving Benefits</u>	
Participants as of January 1, 2010	587	45	0	571	1,203
Retired	(6)	(2)	0	8	0
Terminated Non-Vested	(7)	0	0	0	(7)
Disabled	(7)	0	0	7	0
Deceased	0	0	0	(14)	(14)
Payment to Beneficiary	0	0	0	3	3
QDRO Put in Pay	0	0	0	3	3
Transfers Out	0	0	0	0	0
Transfers In	0	0	0	0	0
New Hires	10	0	0	0	10
Entered DROP	(14)	14	0	0	0
Data Adjustment	0	0	0	5	5
Net Change	(24)	12	0	12	0
Participants as of January 1, 2011	563	57	0	583	1,203

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## **Service - Age Distribution**

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**AGE, SERVICE AND AVERAGE SALARY DISTRIBUTION**

Age as of 1/1/2011	Under 1	01-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40 +	Total
Under 25	5 41,621	21 44,391	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	26 43,858
25-29	4 41,621	57 47,199	29 51,852	0 0	0 0	0 0	0 0	0 0	0 0	0 0	90 48,450
30-34	0 0	24 52,638	56 57,729	15 67,277	0 0	0 0	0 0	0 0	0 0	0 0	95 57,950
35-39	0 0	9 54,932	28 58,449	52 71,193	12 78,870	0 0	0 0	0 0	0 0	0 0	101 67,123
40-44	1 56,187	3 46,723	14 57,962	45 71,742	63 81,632	29 88,193	0 0	0 0	0 0	0 0	155 77,010
45-49	0 0	7 57,847	2 65,501	16 72,233	15 80,411	25 86,746	2 87,670	0 0	0 0	0 0	67 78,236
50-54	0 0	2 60,444	0 0	3 72,340	4 79,765	4 86,805	5 89,607	1 89,746	0 0	0 0	19 81,156
55-59	0 0	0 0	0 0	2 72,932	5 81,001	3 85,576	0 0	0 0	0 0	0 0	10 80,760
60-64	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
65-69	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
70 & Up	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Total	10 43,078	123 49,156	129 56,710	133 71,114	99 81,005	61 87,380	7 89,054	1 89,746	0 0	0 0	563 66,276

*Excludes DROP participants*

Average Age: 37.69

Average Service: 11.13

Average Salary: \$66,276

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## **Actuarial Costs**

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**ACTUARIAL COSTS**

	<b><u>As of</u></b> <b><u>01/01/2010*</u></b>	<b><u>As of</u></b> <b><u>01/01/2011</u></b>
Participants		
Active excluding DROP	587	563
Active DROP	45	57
Retirees and Beneficiaries	<u>571</u>	<u>583</u>
Total	1,203	1,203
Active Payroll (Rate at January 1 <sup>st</sup> )	\$ 42,499,380	\$ 42,449,204
1. Actuarial Liability		
Active Participants	\$184,044,159	\$191,789,491
Participants Receiving Benefits	<u>303,531,019</u>	<u>310,212,178</u>
Total	\$487,575,178	\$502,001,669
2. Actuarial Value of Assets	\$432,176,036	\$435,891,125
3. Unfunded Actuarial Liability (1-2)	\$ 55,399,143	\$ 66,110,544
4. County's Normal Cost	\$ 9,030,063	\$ 8,994,810
5. Amortization Payment	\$ 3,346,928	\$ 4,035,801
6. Estimated Expenses	\$ 404,000	\$ 398,000
7. Total Recommended Contributions as of January 1 <sup>st</sup> (4 + 5 + 6)	\$ 12,780,991	\$ 13,428,611
8. Total Recommended Contribution as of December 31 <sup>st</sup> (7 x 1.08)	\$ 13,803,470	\$ 14,502,900
9. Contribution as a % of total payroll	32.5%	34.2%

\* Reflects increased employee contribution percentage

**UNFUNDED LIABILITY AMORTIZATION SCHEDULE**

<u>Charge</u>	<u>Amortization Period</u>			<u>Balances</u>		<u>2011 Payment</u>
	<u>Date Created</u>	<u>Initial Years</u>	<u>Years Left</u>	<u>Initial</u>	<u>Outstanding</u>	
Unfunded Accrued Liability	01/01/2004	30	23	\$14,184,341	\$15,623,712	\$ 1,042,806
Actuarial Loss	01/01/2006	30	25	\$ 7,107,916	\$ 7,667,587	\$ 487,815
Actuarial Loss	01/01/2008	30	27	\$ 3,994,073	\$ 4,195,008	\$ 255,888
Assumption Change	01/01/2008	30	27	\$ 413,838	\$ 434,656	\$ 26,514
Actuarial Loss	01/01/2009	30	28	\$38,806,776	\$40,142,055	\$ 2,402,152
Asset Method Change	01/01/2011	30	30	\$23,432,153	\$23,432,153	\$ 1,354,018
<u>Credits</u>						
Actuarial Gain	01/01/2005	30	24	\$ 5,392,880	\$ 5,883,177	\$ 383,069
Actuarial Gain	01/01/2007	30	26	\$ 4,732,240	\$ 5,040,501	\$ 313,791
Actuarial Gain	01/01/2010	30	29	\$ 906,991	\$ 922,947	\$ 54,244
Actuarial Gain	01/01/2011	30	30	\$13,538,002	\$13,538,002	\$ 782,288
Net Total					\$66,110,544	\$ 4,035,801

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

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## **Assumptions and Methods**

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## **ASSUMPTIONS AND METHODS**

<u>Funding Method:</u>	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% (costs are shown using the Projected Unit Credit Method).
<u>Asset Method:</u>	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.
<u>Interest:</u>	8% compounded annually.
<u>COLA Increases:</u>	Benefits accrued before Bill 88-96 are assumed to increase by 3.5% of the current 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.
<u>Mortality:</u>	<i>Healthy:</i> RP-2000 Blue Collar Mortality table for males and females projected to 2011 using scale AA. Pre-Termination Mortality uses 70% of these rates.  <i>Disabled:</i> RP-2000 Blue Collar Mortality table for males and females set forward five years and then projected to 2011 using scale AA.  100% of pre-retirement deaths are assumed to be non-duty-related.

**ASSUMPTIONS AND METHODS**

*(continued)*

Salary Increases:

The following graded schedule is used:

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

Disability:

Sample rates are:

<u>Age</u>	<u>Rate</u>
30	0.2448%
35	0.3621%
40	0.7472%
45	1.2495%
50	1.8386%
55	0.0000%

75% of disablement is assumed to be duty-related.

Turnover:

Sample rates are:

<u>Age</u>	<u>Rate</u>
20	5.31%
25	4.25%
30	3.19%
35	2.13%
40	1.28%
45	0.64%
50	0.00%

**ASSUMPTIONS AND METHODS**

(continued)

Retirement:

<u>Age</u>	<u>Sample Rates</u>				
	<u>20</u>	<u>22</u>	<u>24</u>	<u>27</u>	<u>30</u>
40	26.40%	10.00%	18.33%	10%	10%
45	18.34%	10.00%	18.33%	10%	10%
50	36.66%	50.00%	58.33%	50%	100%
55	100.00%	100.00%	100.00%	100%	100%

DROP load:

To reflect the cost of the more valuable benefits provided from the deferred retirement option program the following loads were applied:

<u>Age</u>	<u>Sample Load Rates</u>			
	<u>23</u>	<u>27</u>	<u>30</u>	<u>35</u>
44	0.4%	1.4%	2.3%	12.0%
50	2.0%	3.7%	4.5%	14.6%
55	2.7%	4.6%	5.4%	15.6%
60	3.2%	5.3%	6.1%	16.4%

Disability Leave:

Active liabilities (which depend on credit service) are loaded by 1.75% to account for future crediting of disability service.

Military Service:

Active liabilities (which depend on credit service) are loaded by 3.25% to account for future crediting of military service.

Marriage:

It is assumed that 85% of employees who die are married.

Other Methods and Assumptions:

Administrative Expenses are \$404,000 for FY2011 and \$398,000 for FY2012 (average of actual expenses for the two years preceding the valuation date).

Males are assumed to be four years older than their spouses.

## **ASSUMPTIONS AND METHODS**

*(continued)*

### Valuation Procedures:

Generally, the plan provides a 100% survivor benefit to the spouse at the time of the retiree's death. This allows for post retirement marriages. We have valued the forms of payment originally coded in the data or based this on marital status at time of retirement (generally a 100% survivor benefit but not always). Starting with the 2008 valuation, all new retirements are valued with a 100% Joint and Survivor form of payment. We suggest monitoring this form of payment to see if this reasonably models the combination of single retirees and future remarriages.

### CIGNA Benefit:

Our calculations reflect that some benefits have already been purchased.

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## **Plan Provisions**

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## **PLAN PROVISIONS**

<u>Normal Retirement:</u>	For those hired prior to February 25, 2002: 20 years of service or age 50. For those hired on or after February 25, 2002: 20 years of service, or age 50 with 5 years of service.
<u>Normal Form of Benefit:</u>	For single participants, monthly life annuities with payments guaranteed for 5 years.  For married participants, unreduced 100% Joint & Survivor Annuity with payments guaranteed for 5 years.
<u>Cost of Living Increase</u> <u>(for benefits accrued as of 1/31/97):</u>	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of:  <ul style="list-style-type: none"><li>a. Base benefit multiplied by ratio of current 12 month average CPI to 12 month average CPI at retirement.</li><li>b. Prior year benefit increased by 4%.</li></ul>
<u>Cost of Living Increase</u> <u>(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"><li>a. Prior year benefit multiplied by 60% of the increase in the current March CPI from March CPI for prior year, or</li><li>b. Prior year benefit increased by 2.5%.</li></ul>
<u>Employee Contributions:</u>	5% of compensation for PSL and 7.25% for PO1.
<u>Compensation:</u>	Regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses, and commissions. Some members receive a special FY10 increase for pension purposes.
<u>Final Earnings:</u>	The average of the highest 3 years of the last 5 years of compensation.

**PLAN PROVISIONS**

*(continued)*

<u>Benefit Formula:</u>	2 ½% of final earnings for each year of service up to 20 years plus 2% of final earnings for each year of service after 20 years (maximum 70% plus 2% times unused disability credit and pre-employment military service credit).
<u>Termination Prior to Retirement:</u>	At less than 20 years of service, return of employee contributions with 3% interest.
<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.
<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>	The greater of the accrued benefit or 20% of final earnings, payable immediately, unreduced.
<u>Pre-Retirement Spouse's Benefit:</u>	
<i>Line of Duty Death Benefit:</i>	Greater of accrued benefit or 66 2/3% of final earnings.
<i>Non-Line of Duty Death Benefit:</i>	Accrued benefit.
<u>Other Pre-Retirement Death Benefits:</u>	Return of employee contributions with 3% interest.
<u>Deferred Retirement Option Program (DROP):</u>	Allows accumulation of pension after 20 years of County service. DROP period must be between 3 and 5 years.

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## **Summary of Legislative Changes**

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## **SUMMARY OF MAJOR LEGISLATIVE CHANGES**

County Council Bill No. 48-89:

Effective 9/13/89.

The previously combined Police and Fire plan was separated into distinct plans for each group.

The reduction for retirement prior to age 50 was changed to 0.2% per month from 0.3% per month.

County Council Bill No. 34-92:

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

Participants age 50 or with at least 20 years of service could elect to retire with an additional pension equal to 1/12 of 2.5% of final earnings for the first 20 years of service, plus 1/12 of 2% of final earnings for each additional year of 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.

County Council Bill No. 66-92:

Effective 7/2/92.

The plan was amended to allow normal, unreduced retirement after 20 years of service.

Employee contributions were increased to 6% from 5%.

Participants under age 50 were not allowed to retire and receive retirement incentives (under Bill No. 34-92) in addition to unreduced retirement. They could either retire early with the incentives, or normally without the incentives.

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).

**SUMMARY OF MAJOR LEGISLATIVE CHANGES**

*(continued)*

County Council Bill 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. 80-00/  
Recodification:Effective 2/25/2002.

Allows a benefit based on disability leave service and pre-plan military service to be paid over the 70% cap. Normal Retirement was changed to the earlier of 20 years of service or age 50 with 5 years of service. Elimination of Tier 2 benefits implemented a Deferred Retirement Option Program (DROP), a voluntary program that provides an alternative way to earn and receive retirement benefits.

County Council Bill 66-05:

Effective 10/10/2005.

Reduced the contribution percentage for Category II participants from 6% to 5%.

County Council Bill 58-07:

Effective 10/11/2007.

Reduced the contribution percentage for Category I participants from 6% to 5%.

**SUMMARY OF MAJOR LEGISLATIVE CHANGES**

*(continued)*

County Council Bill 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 average basic pay. Clarified the limits on those entering DROP. The effective annual interest rate for the DROP account changed from 8% to 4.25% for those entering DROP on or after July 1, 2009.

County Council Bill 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.

County Council Bill 41-10:

Effective 7/1/2010.

Increased the contribution rate for Police Officers, Police Officer First Class, Police Corporals, and Police Sergeants to 7.25%.

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**Statement No. 25 of the GASB**

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

**Schedules of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Unfunded AAL (UAAL) (b - a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Funded Ratio (a/b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll ((b - a)/c)</b>
01/01/1998	\$192,151,789	\$31,510,057	\$223,661,846	85.9%	\$23,327,935	135.1%
01/01/1999	\$212,252,477	\$31,995,957	\$244,248,434	86.9%	\$25,658,546	124.7%
01/01/2000	\$235,557,469	\$32,449,508	\$268,006,977	87.9%	\$26,840,786	120.9%
01/01/2001	\$252,149,932	\$35,868,050	\$288,017,982	87.5%	\$28,535,848	125.7%
01/01/2002	\$268,703,856	\$36,293,986	\$304,997,842	88.1%	\$31,105,473	116.7%
01/01/2003	\$281,967,318	\$36,668,475	\$318,635,793	88.5%	\$33,459,024	109.6%
01/01/2004	\$311,371,499	\$14,184,341	\$325,555,840	95.6%	\$31,915,536	44.4%
01/01/2005	\$337,113,153	\$ 9,041,000	\$346,154,153	97.4%	\$33,530,370	27.0%
01/01/2006	\$360,268,341	\$16,292,562	\$376,560,903	95.7%	\$36,694,307	44.4%
01/01/2007	\$389,877,885	\$11,820,220	\$401,698,105	97.1%	\$37,805,038	31.3%
01/01/2008 <sup>1</sup>	\$417,278,055	\$15,975,209	\$433,253,264	96.3%	\$41,011,366	39.0%
01/01/2008 <sup>2</sup>	\$417,278,055	\$16,389,047	\$433,667,102	96.2%	\$41,011,366	40.0%
01/01/2009	\$408,261,502	\$55,419,694	\$463,681,196	88.0%	\$41,508,547	133.5%
01/01/2010	\$432,176,036	\$55,393,143	\$487,575,178	88.6%	\$42,499,380	130.4%
01/01/2011 <sup>3</sup>	\$459,323,278	\$42,678,391	\$502,001,669	91.5%	\$42,449,204	100.5%
01/01/2011 <sup>4</sup>	\$435,891,125	\$66,110,544	\$502,001,669	86.8%	\$42,449,204	155.7%

**Schedules of County's Contributions**

<b><i>Year Ended December 31</i></b>	<b><i>Annual Required Contribution</i></b>	<b><i>Actual Contribution</i></b>	<b><i>Percentage Contributed</i></b>
2010	\$13,695,736	\$14,055,660 <sup>5</sup>	102.7%

<sup>1</sup> Prior to Assumption Changes

<sup>2</sup> After Assumption Changes

<sup>3</sup> Prior to Asset Method Change

<sup>4</sup> After Asset Method Change

<sup>5</sup> On an accrual basis. Subject to verification.

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*(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 23 to 30 years with an average of 27 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	3.5% for pre 2/97 accruals 2.1% for post 2/97 accruals

## **ACTUARIAL CERTIFICATION**

The information contained in this report was prepared for the internal use of The Anne Arundel County Police Service Retirement Plan 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. A valuation report is a snapshot of a plan's estimated financial condition at a particular point in time; it does not predict a pension plan's future financial condition or its ability to pay benefits in the future.

In preparing the results presented in this report, we have relied upon information provided to us regarding plan provisions, plan participants, and plan assets. We have reviewed this information for overall reasonableness and consistency, but have neither audited nor independently verified this information. 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 valuation summarized in this report involves actuarial calculations that require assumptions about future events. We believe that the assumptions and methods used in this report are reasonable and appropriate for the purposes for which they have been used.

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.

The undersigned credentialed actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report and 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.

**BOLTON PARTNERS, INC.**



Thomas B. Lowman, FSA, EA, MAAA