THE ANNE ARUNDEL COUNTY POLICE SERVICE RETIREMENT PLAN

ACTUARIAL VALUATION AS OF JANUARY 1, 2009

Bolton Partners, Inc.
575 South Charles Street
Suite 500
Baltimore, Maryland 21201

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BOLTON PARTNERS, INC.

April 30, 2009

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, 2009 of the Anne Arundel County Police Service Retirement Plan, for the plan year beginning on that date. The valuation is based on participant data as submitted by the personnel department of Anne Arundel County, Aetna and CIGNA and unaudited asset data submitted by the County.

INVESTMENT PERFORMANCE

The market value of plan assets as of December 31, 2008 was $309,026,161. The average investment return for the fund on a market basis for the year ended December 31, 2008 was (29.7%) and 0.5% 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, 2008, the actuarial value of assets was $408,261,502. 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, 2010. 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 total recommended employer contribution for the plan year and fiscal year ending June 30, 2010 increased from $11,268,277 to $13,588,002. This is in addition to employee contributions of 5% of pay for the Police Department. The increase can be broken down to the following material factors:

- On an actuarial basis the investment return was 0.5% and generated an investment loss. On a market value basis the return was (29.7%). The difference is a deferred loss. The amount of the deferred gain decreased from $36.4 million to $(99.2) million.
- Salary increases for continuing actives (non-DROP) was above the assumption.

The above material factors had the following effect on the County's contribution (as a percentage of payroll) since last year's valuation.

January 1, 2008 valuation	27.5%
Investment Loss	4.3%
Pay Increases	0.3%
New Entrants/Change in Normal Cost	(0.6%)
Expenses	0.0%
COLA	0.0%
Demographics and Other Changes	1.2%
January 1, 2009 valuation	32.7%

The overall funded ratio for the plan decreased from 96.2% to 88.0%.

The ratio of the Actuarial Value of Assets to the Market Value of Assets is relatively high at 132%. This is a reflection of the severe market losses since the prior valuation. These losses will be fully phased in over the next four valuations. This means the County should expect increases from FY11 through FY14. To have a rough idea of the size of the increase, had the current valuation's contribution amount been based on the Market Value, the $13,588,002 amount would be $19,781,022. This does not factor in additional investment losses after January 1, 2009.

Since 2007 there has been an actuarial standard of practice covering reasonable asset smoothing methods. We believe that the five year smoothing method meets those standards even with a ratio of 132%. Some plan use a more conservative method which limits the ratio of the Actuarial Value of Assets to the Market Value to 120%. A very few others use a more aggressive approach and smooth losses over ten years. Given the unusual nature of these market losses, we expect many plans to be looking to switch to a ten year smoothing period.

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

TBL/DWB/tlc

Trust Fund Asset Statement

TRUST FUND ASSET STATEMENT FOR YEAR ENDED DECEMBER 31, 2008

Original Market Value 1/1/2008	$452,764,442
Audit Adjustment	$ (2)
Market Value 1/1/2008	$452,764,440
Receipts:	
Employer Contributions	$ 10,398,386
Employee Contributions	1,900,811
Interest and Dividends	8,852,116
Realized and Unrealized Gain/(Loss)	(140,695,847)
Other	780,865
Total Receipts:	($ 118,763,669)
Disbursements:	
Benefit Payments	$ 23,875,621
Administrative Expenses	409,570
Investment Expenses	1,777,566
Total Disbursements	$ 26,062,757
Net Increase/(Decrease)	($ 144,826,426)
Preliminary Ending Value	$307,938,014
Contribution Receivable	$ 1,088,147
Ending Value 12/31/2008	$309,026,161

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

Development of Actuarial Value of Assets

ACTUARIAL VALUE OF ASSETS

		2007	2008
1.	**Actuarial Value of Assets Beginning of Year**	**$389,877,885**	**$417,278,055**
2.	Contributions	12,053,826	12,299,197
3.	Benefit Payments	21,073,229	23,875,621
4.	Administrative Expenses	494,604	409,570
5.	Expected 8% Return	30,809,671	32,902,805
6.	**Expected Asset Value** (1. + 2. - 3. - 4. + 5.)	**$411,173,549**	**$438,194,865**
7.	Market Value End of Year	$452,764,442	$307,938,014
8.	Prior Deferred Gain/(Loss)	$ 15,838,444	$ 24,850,702
9.	**Asset Gain/(Loss)** (7. - 8. - 6.)	**$ 25,752,449**	**($155,107,554)**
10.	80% of 2007 Gain/(Loss) of $25,752,449	$ 20,601,959	
11.	60% of 2006 Gain/(Loss) of $23,197,363	13,918,418	
12.	40% of 2005 Gain/(Loss) of $601,439	240,576	
13.	20% of 2004 Gain/(Loss) of $8,397,252	1,679,450	
14.	**Preliminary Actuarial Value of Assets 1/1/2008**	**$416,324,039**	
15.	Contribution Receivable	$ 954,016	
16.	Audit Adjustment	0	
17.	**Final Actuarial Value of Assets**	**$417,278,055**	
18.	80% of 2008 Gain/(Loss) of ($155,107,554)		($124,086,043)
19.	60% of 2007 Gain/(Loss) of $25,752,449		15,451,469
20.	40% of 2006 Gain/(Loss) of $23,197,363		9,278,945
21.	20% of 2005 Gain/(Loss) of $601,439		120,288
22.	**Actuarial Value of Assets 1/1/2009**		**$407,173,355**
23.	Contribution Receivable		$ 1,088,147
24.	Audit Adjustment		0
25.	**Final Actuarial Value of Assets**		**$408,261,502**
Rate of Return on Actuarial Value of Assets		**9.3%**	**0.5%** **0.7%**

Participant Schedules

PARTICIPANT SUMMARY

			Inactive Participants		
	Active Participants	DROP	With Deferred Benefits	Receiving Benefits	Total
Participants as of January 1, 2008	611	47	0	511	1,169
Retired	(11)	(20)	0	31	0
Terminated Non-Vested	(14)	0	0	0	(14)
Disabled	(8)	0	0	8	0
Deceased	(1)	0	0	(8)	(9)
Payment to Beneficiary	0	0	0	6	6
QDRO Put in Pay	0	0	0	3	3
Transfers Out	(1)	0	0	0	(1)
Transfers In	0	0	0	0	0
New Hires	22	0	0	0	22
DROP	(7)	7	0	0	0
Data Adjustment	2	0	0	2	4
Net Change	(18)	(13)	0	42	11
Participants as of January 1, 2009	593	34	0	553	1,180

Service - Age Distribution

AGE, SERVICE AND AVERAGE SALARY DISTRIBUTION

Age as of 1/1/2009	Under 1	01-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40 +	Total
Under 25	11	38	0	0	0	0	0	0	0	0	49
	42,150	44,341	0	0	0	0	0	0	0	0	43,849
25-29	5	63	17	0	0	0	0	0	0	0	85
	49,592	48,937	53,683	0	0	0	0	0	0	0	49,925
30-34	2	25	44	24	0	0	0	0	0	0	95
	46,746	50,448	56,537	65,477	0	0	0	0	0	0	56,987
35-39	1	14	21	72	15	0	0	0	0	0	123
	54,404	53,087	57,019	70,542	79,959	0	0	0	0	0	67,264
40-44	1	3	12	47	68	16	0	0	0	0	147
	56,177	50,942	58,736	71,463	79,861	82,697	0	0	0	0	75,009
45-49	2	2	5	8	21	17	7	0	0	0	62
	55,904	53,099	58,339	70,067	81,785	85,081	82,989	0	0	0	77,662
50-54	0	1	2	3	6	9	4	1	0	0	26
	0	57,940	69,067	72,704	76,854	85,621	85,828	75,991	0	0	79,431
55-59	0	0	0	2	2	1	0	0	1	0	6
	0	0	0	69,784	81,396	79,032	0	0	98,675	0	80,011
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	22	146	101	156	112	43	11	1	1	0	593
	46,704	48,557	56,755	70,048	80,101	84,166	84,021	75,991	98,675	0	64,867

Average Age: 37.12

Average Service: 10.72

Average Salary: $64,867

Actuarial Costs

ACTUARIAL COSTS

	As of 01/01/2008	As of 01/01/2009
Participants		
Active excluding DROP	611	593
Active DROP	47	34
Retirees and Beneficiaries	511	553
Total	1,169	1,180
Active Payroll (Rate at January 1st)	\$ 41,011,366	\$ 41,508,547
1. Actuarial Liability		
Active Participants	\$177,286,484	\$177,449,171
Participants Receiving Benefits	256,380,618	286,232,025
Total	\$433,667,102	\$463,681,196
2. Actuarial Value of Assets	\$417,278,055	\$408,261,502
3. Unfunded Actuarial Liability (1-2)	\$ 16,389,047	\$ 55,419,694
4. County's Normal Cost	\$ 8,967,282	\$ 8,845,098
5. Amortization Payment	\$ 1,006,716	\$ 3,284,385
6. Estimated Expenses	\$ 459,000	\$ 452,000
7. Total Recommended Contributions as of January 1st (4 + 5 + 6)	\$ 10,433,544	\$ 12,581,483
8. Total Recommended Contribution as of December 31st (7 x 1.08)	\$ 11,268,277	\$ 13,588,002
9. Contribution as a % of total payroll	27.48%	32.74%

UNFUNDED LIABILITY AMORTIZATION SCHEDULE

	Amortization Period			Balances		
Charge	Date Created	Initial Years	Years Left	Initial	Outstanding	2009 Payment
Unfunded Accrued Liability	01/01/2004	30	25	$14,184,341	$15,301,195	$ 973,471
Actuarial Loss	01/01/2006	30	27	$ 7,107,916	$ 7,465,508	$ 455,381
Actuarial Loss	01/01/2008	30	29	$ 3,994,073	$ 4,064,339	$ 238,874
Assumption Change	01/01/2008	30	29	$ 413,838	$ 421,118	$ 24,751
Actuarial Loss	01/01/2009	30	30	$38,806,776	$38,806,776	$2,242,435
Credits						
Actuarial Gain	01/01/2005	30	26	$ 5,392,880	$ 5,744,174	$ 357,599
Actuarial Gain	01/01/2007	30	28	$ 4,732,240	$ 4,895,068	$ 292,928
Net Total					$ 55,419,694	$3,284,385

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% (costs are shown using the Projected Unit Credit Method).

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 3.5% 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.

Mortality: *Healthy:* RP-2000 Blue Collar Mortality table projected to 2008 (by Male Scale AA).

Disabled: RP-2000 Blue Collar Mortality table projected to 2008 (by Male Scale AA), set forward five years.

Salary Increases: The following graded schedule is used:

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

ASSUMPTIONS AND METHODS
(continued)

Disability:

Sample rates are:

Age	Rate
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:

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

Retirement:

Sample Rates

	Service				
Age	20	22	24	27	30
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:

Sample Load Rates

	Service			
Age	23	27	30	35
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%

ASSUMPTIONS AND METHODS
(continued)

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.
Other Methods and Assumptions:	Administrative Expenses are $459,000 for FY2009 and $452,000 for FY2010 (average of actual expenses for the two years preceding the valuation date). Males are assumed to be four years older than their spouses.
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.

Plan Provisions

PLAN PROVISIONS

Normal Retirement:	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.
Normal Form of Benefit:	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.
Cost of Living Increase (for benefits accrued as of 1/31/97):	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: a. Base benefit multiplied by ratio of current 12 month average CPI to 12 month average CPI at retirement. b. Prior year benefit increased by 4%.
Cost of Living Increase (for benefits accrued after1/31/97):	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. Prior year benefit increased by 2.5%.
Employee Contributions:	5% of compensation for all participants.
Compensation:	Regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses, and commissions.
Final Earnings:	The average of the highest 3 years of the last 5 years of compensation.
Benefit Formula:	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).

PLAN PROVISIONS
(continued)

Termination Prior to Retirement:	At less than 20 years of service, return of employee contributions with 3% interest.
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:	The greater of the accrued benefit or 20% of final earnings, payable immediately, unreduced.
Pre-Retirement Spouse's Benefit:	
Line of Duty Death Benefit:	Greater of accrued benefit or 66 2/3% of final earnings.
Non-Line of Duty Death Benefit:	Accrued benefit.
Other Pre-Retirement Death Benefits:	Return of employee contributions with 3% interest.
Deferred Retirement Option Program (DROP):	Allows accumulation of pension after 20 years of County service. DROP period must be between 3 and 5 years.

Summary of Legislative Changes

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 Sate 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%.

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)
01/01/1998	$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[1]	$417,278,055	$15,975,209	$433,253,264	96.3%	$41,011,366	39.0%
01/01/2008[2]	$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%

Schedules of County's Contributions

Year Ended December 31	*Annual Required Contribution*	*Actual Contribution*	*Percentage Contributed*
2008	$10,522,635	$10,522,656[3]	100.0%

[1] *Prior to Assumption Changes*
[2] *After Assumption Changes*
[3] *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 25 to 30 years with an average of 28 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