THE ANNE ARUNDEL COUNTY DETENTION OFFICERS' AND DEPUTY SHERIFFS' 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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April 30, 2009

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

Re: *Detention Officers' and Deputy Sheriffs' Retirement Plan Valuation*

Dear Andrea:

The following report sets forth the actuarial valuation as of January 1, 2009 of the Anne Arundel County Detention Officers' and Deputy Sheriffs' 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 and Aetna and unaudited asset data submitted by the County.

INVESTMENT PERFORMANCE

The market value of plan assets as of December 31, 2008 was $56,448,735. The average investment return for the fund on a market basis for the year ended December 31, 2008 was (29.9%) and 0.4% 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 $76,525,847. 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 $4,019,403 to $4,678,430. This is in addition to employee contributions of 5% of pay for the Detention Center employees and deputy sheriffs. The increase can be broken down to the following material factors:

- On an actuarial basis the investment return was 0.3% and generated a large investment loss. On a market value basis the return was (29.9%). The difference between (29.9%) and 0.3% is a deferred loss. The amount of the deferred gain decreased from $4.2 million to ($20.0) million.

- Salary increases were higher than 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	22.2%
Pay Increases	0.3%
Investment Loss	1.6%
New Entrants/Change in Normal Cost	(0.5%)
COLAs	0.1%
Demographics and Other Changes	0.0%
January 1, 2009 valuation	23.7%

The overall funded ratio for the plan decreased from 83.7% to 77.7%.

The ratio of the Actuarial Value of Assets to the Market Value of Assets is relatively high at 136%. 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 $4,678,430 amount would be $5,931,390. 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 133%. 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	$78,176,166
Audit Adjustment	$ 1
Market Value 1/1/2008	$78,176,167
Receipts:	
Employer Contributions	$ 3,749,732
Employee Contributions	945,284
Interest and Dividends	1,575,312
Realized and Unrealized Gain/(Loss)	(25,063,154)
Other	137,924
Total Receipts:	($18,654,902)
Disbursements:	
Benefit Payments	$ 3,107,095
Administrative Expenses	71,437
Investment Expenses	304,766
Total Disbursements	$ 3,483,298
Net Increase/(Decrease)	($22,138,200)
Preliminary Ending Value	$56,037,967
Contribution Receivable	$ 410,768
Ending Value 12/31/2008	$56,448,735

(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**	**$66,233,757**	**$74,355,737**
2.	Contributions	4,487,436	4,695,016
3.	Benefit Payments	2,644,842	3,107,095
4.	Administrative Expenses	85,476	71,437
5.	Expected 8% Return	5,368,985	6,009,118
6.	**Expected Asset Value** (1. + 2. - 3. - 4. + 5.)	**$73,359,859**	**$81,881,338**
7.	Market Value End of Year	$78,176,167	$56,037,967
8.	Prior Deferred Gain/(Loss)	$ 1,671,190	$ 2,987,924
9.	**Asset Gain/(Loss)** (7. - 8. - 6.)	**$ 3,145,118**	**($28,831,295)**
10.	80% of 2007 Gain/(Loss) of $3,145,116	$ 2,516,093	
11.	60% of 2006 Gain/(Loss) of $3,105,132	1,863,079	
12.	40% of 2005 Gain/(Loss) of ($705,993)	(282,397)	
13.	20% of 2004 Gain/(Loss) of $452,540	90,508	
14.	**Actuarial Value of Assets 1/1/2008**	**$73,988,884**	
15.	Contributions Receivable	$ 366,853	
16.	Adjustment	$ 0	
17.	**Final Actuarial Value of Assets**	**$74,355,737**	
18.	80% of 2008 Gain/(Loss) of ($28,831,295)		($23,065,036)
19.	60% of 2007 Gain/(Loss) of $3,145,116		1,887,070
20.	40% of 2006 Gain/(Loss) of $3,105,132		1,242,053
21.	20% of 2005 Gain/(Loss) of ($705,993)		(141,199)
22.	Actuarial Value of Assets 1/1/2009		$76,115,079
23.	Contributions Receivable		410,768
24.	Adjustment		0
25.	**Final Actuarial Value of Assets**		**$76,525,847**

	2007	2008
Rate of Return on Actuarial Value of Assets *(net of investment expenses)*	**8.9%**	**0.3%**

Participant Schedules

PARTICIPANT SUMMARY

	Active Participants	Inactive Participants With Deferred Benefits	Inactive Participants Receiving Benefits	Total
Participants as of January 1, 2008	357	16	119	492
Retired	(14)	(1)	15	0
Terminated	(9)	2	0	(7)
Disabled	0	0	0	0
Deceased/Payment Expired	0	0	(2)	(2)
Lump Sum	(2)	(1)	0	(3)
Rehired	2	0	0	2
Transfers in from:				
Fire	0	0	0	0
Police	0	0	0	0
Employee	4	0	0	4
Transfers out to:				
Fire	0	0	0	0
Police	0	0	0	0
Employee	0	0	0	0
New Hires	35	0	0	35
New QDRO	0	0	1	1
Data Adjustment	0	0	0	0
Net Change	16	0	14	30
Participants as of January 1, 2009	373	16	133	522

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	9	9	0	0	0	0	0	0	0	0	18
	37,675	41,628	0	0	0	0	0	0	0	0	39,652
25-29	7	15	1	0	0	0	0	0	0	0	23
	38,170	42,184	45,604	0	0	0	0	0	0	0	41,111
30-34	4	12	16	5	0	0	0	0	0	0	37
	37,675	44,293	47,914	54,278	0	0	0	0	0	0	46,493
35-39	4	11	24	27	2	0	0	0	0	0	68
	40,713	42,143	48,836	56,377	66,135	0	0	0	0	0	50,779
40-44	2	11	7	25	20	0	0	0	0	0	65
	42,262	44,967	47,363	57,486	65,379	0	0	0	0	0	56,237
45-49	2	10	10	18	16	7	1	0	0	0	64
	42,232	43,811	47,863	56,109	66,779	73,022	77,742	0	0	0	57,321
50-54	1	9	8	12	8	1	3	0	0	0	42
	41,201	47,550	48,977	57,666	69,830	128,128	76,811	0	0	0	58,813
55-59	3	2	10	10	1	0	2	2	0	0	30
	42,691	47,005	50,145	56,818	65,420	0	74,014	83,600	0	0	55,745
60-64	2	1	7	11	2	0	0	0	0	0	23
	43,438	44,782	47,152	67,539	59,173	0	0	0	0	0	57,522
35-69	0	0	1	2	0	0	0	0	0	0	3
	0	0	48,834	57,458	0	0	0	0	0	0	54,583
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	34	80	84	110	49	8	6	2	0	0	373
	39,558	43,775	48,412	57,806	66,341	79,910	76,034	83,600	0	0	53,045

Average Age: 43.19

Average Service: 9.16

Average Salary: $53,045

Actuarial Costs

ACTUARIAL COSTS

	As of 01/01/2008	As of 01/01/2009
Participants		
Active	357	373
Inactive	135	149
Total	492	522
Active Payroll (Rate at January 1st)	$18,122,458	$19,785,653
1. Accrued Liabilities		
Active Participants	$50,061,543	$55,132,561
Participants Receiving Benefits	37,779,888	42,134,312
Participants with Deferred Benefits	954,120	1,218,279
Total	$88,795,551	$98,485,152
2. Actuarial Value of Assets	$74,355,736	$76,525,847
3. Unfunded Actuarial Liability	$14,439,815	$21,959,305
4. County's Normal Cost	$ 2,756,329	$ 2,912,348
5. Amortization Payment	$ 887,340	$ 1,341,532
6. Estimated Expenses	$ 78,000	$ 78,000
7. Total Recommended Contributions as of January 1st	$ 3,721,669	$ 4,331,880
8. Total Recommended Contribution as of December 31st	$ 4,019,403	$ 4,678,430
9. Contributions as a Percentage of Payroll	22.18%	23.65%

UNFUNDED LIABILITY AMORTIZATION SCHEDULE

	Amortization Period			Balances		
Charge	Date Created	Initial Years	Years Left	Initial	Outstanding	2009 Payment
Unfunded Accrued Liability	01/01/2003	30	24	$8,245,799	$ 8,995,488	$585,716
Actuarial Loss	01/01/2005	30	26	$ 780,906	$ 831,777	$ 51,781
Actuarial Loss	01/01/2006	30	27	$1,772,183	$ 1,861,339	$113,538
Plan and Assumption Change	01/01/2006	30	27	$ 744,267	$ 781,712	$ 47,682
Actuarial Loss	01/01/2008	30	29	$3,220,741	$ 3,277,403	$192,623
Assumption Change	01/01/2008	30	29	$1,378,213	$ 1,402,459	$ 82,427
Actuarial Loss	01/01/2009	30	30	$7,322,632	$ 7,322,632	$423,136
Total					$24,472,810	$1,496,903

	Amortization Period			Balances		
Credit	Date Created	Initial Years	Years Left	Initial	Outstanding	2009 Payment
Actuarial Gain and Assumption Change	01/01/2004	30	25	$1,216,481	$ 1,312,266	$ 83,487
Actuarial Gain	01/01/2007	30	28	$1,161,281	$ 1,201,239	$ 71,884
Total					$ 2,513,305	$155,371
Net					$21,959,305	$1,341,532

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 Cost Method. This method divides the cost of funding benefits into two parts: normal cost and actuarial accrued liability. The normal cost is the estimated cost of the benefits that are considered to be accrued in that plan year. The actuarial accrued liability is the estimated cost of all benefits that are considered to have been accrued to the valuation date. The unfunded actuarial accrued liability is the actuarial accrued liability minus plan assets. An actuarial gain or loss is calculated each year based on the change in the unfunded actuarial accrued liability. The total contribution is the normal cost plus (minus) a payment to amortize actuarial losses (gains) that occur. The benefit that is considered to be accrued in a year is the participant's projected benefit divided by his total projected years of service.

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 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:

Attained Age	% Increase at Attained Age
20	6.50%
25	6.50%
30	6.00%
35	5.75%
40	5.25%
45	4.75%
50	4.75%

ASSUMPTIONS AND METHODS
(continued)

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.

Disability:

Sample rates are:

Age	Rate
30	0.144%
35	0.213%
40	0.440%
45	0.735%
50	1.082%
55	0.000%

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

Turnover:

Sample rates are:

	Rate	
Age	Males	Females
20	12.38%	18.75%
25	8.98%	14.06%
30	6.81%	11.25%
35	4.95%	8.44%
40	3.41%	6.19%
45	1.86%	3.94%
50	0.00%	0.00%
55	0.00%	0.00%

Retirement (Category II):

Age/Service	Annual Rate
At 20 years of service	5%
Between 20 years and age 50	2%
50	30%
51 – 59	20%
60	100%

Rate is 100% after age 50 if at least 30 years of actual County service has been accrued.

ASSUMPTIONS AND METHODS
(continued)

Retirement (Category I):

	Sample Service Rates				
Age	20	22	24	27	30
40	25%	10%	10%	10%	10%
45	25%	10%	10%	10%	10%
50	50%	50%	50%	50%	100%
55	100%	100%	100%	100%	100%

Disability Leave: Service credit for benefit formula purposes is increased by 1.75% to account for disability leave which is converted to service credit at retirement.

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

In addition, it is assumed that participants with 30 or more years of service will have credit for 1 year of combined Disability Leave and military service

Marriage: It is assumed that 85% of employees who die are married and males are four years older than their spouses.

Death: 100% of deaths are assumed to be non-duty-related.

Other Methods and Assumptions: Administrative Expenses are $78,000 for FY2010 and $78,000 for FY2009 (average of actual expenses for the two years preceding the valuation date).

Plan Provisions

PLAN PROVISIONS

Normal Retirement Age:	Category I Participants: 20 years of service, or age 50 with 5 years. Category II Participants: Age 50 with 5 years of service.
Normal Form of Benefit:	Monthly life annuity with payments guaranteed for 5 years.
Cost of Living Increase (simple, for benefits accrued as of 1/31/97):	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 current CPI from CPI for prior year, or b. Benefit increased by 4% of original benefit.
Cost of Living Increase (compound, for benefits accrued after 1/31/97):	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. Benefit increased by 2.5%.
Employee Contributions:	5% of compensation.
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 consecutive years of the last 5 years of annual basic pays.
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)

Early Retirement:	Reduced benefits are available the first of any month coincident with or next following the completion of 20 years of continuous service.
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 Benefit:	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 4.25% interest, and a lump sum equal to 50% of annual pay.

Summary of Legislative Changes

SUMMARY OF MAJOR LEGISLATIVE CHANGES

County Council Bill No. 34-92: Effective 6/1/92 through 8/31/92.

Participants over 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.

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.

County Council Bill No. 94-93: Effective 11/19/93.

All current and future employees shall be 100% vested after 5 years of Credited Service.

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. 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 70% cap. Elimination of Tier 2 benefits. Changed early retirement factors. Added a death benefit.

County Council Bill No. 32-04: Effective 7/1/2004.

Allows retirement after 20 years of service for "Category I" participants. Changes vesting for new hires from 5 years to 20 years. Provides for employees contributions to be made on a pre-tax ("pick up") basis.

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	\$18,096,275	\$4,104,819	\$22,201,094	81.5%	\$8,632,870	47.5%
01/01/1999	\$21,543,373	\$4,152,095	\$25,695,468	83.8%	\$9,570,569	43.4%
01/01/2000	\$27,204,448	\$5,473,313	\$32,677,761	83.3%	\$11,893,991	46.0%
01/01/2001	\$31,116,751	\$5,661,165	\$36,777,916	84.6%	\$12,302,830	46.0%
01/01/2002	\$34,742,230	\$5,711,531	\$40,453,761	85.9%	\$13,565,333	42.1%
01/01/2003	\$38,889,689	\$8,245,799	\$47,135,488	82.5%	\$14,690,339	56.1%
01/01/2004	\$45,710,154	\$7,174,384	\$52,884,538	86.4%	\$15,396,301	46.6%
01/01/2005	\$52,200,204	\$8,072,549	\$60,272,753	86.6%	\$15,355,590	52.6%
01/01/2006	\$58,379,332	\$10,713,394	\$69,092,726	84.5%	\$16,794,068	63.8%
01/01/2007	\$66,233,757	\$9,712,479	\$75,946,236	87.2%	\$17,367,873	55.9%
01/01/2008[1]	\$74,355,736	\$13,061,602	\$87,417,338	85.1%	\$18,122,458	72.1%
01/01/2008[2]	\$74,355,736	\$14,439,815	\$88,795,551	83.7%	\$18,122,458	79.7%
01/01/2009	\$76,525,847	\$21,959,305	\$98,485,152	77.7%	\$19,785,653	111.0%

Schedules of County's Contributions

Year Ended December 31	*Annual Required Contribution*	*Annual Contribution*	*Percentage Contributed*
2008	\$3,788,260	\$3,788,256[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 24 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