THE ANNE ARUNDEL COUNTY FIRE 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: *Fire Service Retirement Plan Valuation*

Dear Andrea:

The following report sets forth the actuarial valuation as of January 1, 2009 of the Anne Arundel County Fire 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 $293,116,349. The average investment return for the fund on a market basis for the year ended December 31, 2008 was (29.5%) 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 $390,551,359. 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.

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Actuarial, Benefit and Investment Consultants

The total recommended employer contribution for the fiscal year ending June 30, 2010 increased from $11,185,312 to $14,217,007. This is in addition to employee contributions of 5% of pay for the Fire 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 (29.5%). The difference is a deferred loss. The amount of the deferred gain decreased from $29.7 million to ($97.4) million.

- The number of active members and amount of covered payroll increased materially.

- Salary increases were 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	25.5%
Investment Loss	3.5%
Pay Increases	0.5%
New Entrants/Change in Normal Cost	0.4%
COLA	0.0%
Demographics and Other Changes	(0.8%)
January 1, 2009 valuation	29.1%

The overall funded ratio for the plan decreased from 95.7% to 89.5%.

The ratio of the Actuarial Value of Assets to the Market Value of Assets is relatively high at 133%. 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 $14,217,007 amount would be $20,297,672. 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

Anne Arundel County, Maryland
Fire Service Retirement Plan

TRUST FUND ASSET STATEMENT FOR YEAR ENDED DECEMBER 31, 2007

Original Market Value 1/1/2008	$424,542,389
Audit Adjustment	$ 1
Market Value 1/1/2008	$424,542,390
Receipts:	
Employer Contributions	$ 11,190,446
Employee Contributions	2,016,860
Interest and Dividends	8,924,541
Realized and Unrealized Gain/(Loss)	(132,406,486)
Other	825,440
Total Receipts:	($109,449,199)
Disbursements:	
Benefit Payments	$ 21,062,023
Administrative Expenses	380,372
Investment Expenses	1,636,123
Total Disbursements	$ 23,078,517
Net Increase/(Decrease)	($132,527,716)
Preliminary Ending Value	$292,014,674
Contribution Receivable	$ 1,101,675
Ending Value 12/31/2008	$293,116,349

(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**	**$368,413,752**	**$395,884,441**
2.	Contributions	12,797,543	13,207,306
3.	Benefit Payments	19,587,685	21,062,023
4.	Administrative Expenses	463,040	380,372
5.	Expected 8% Return	29,182,973	31,341,352
6.	**Expected Asset Value** (1. + 2. - 3. - 4. + 5.)	**$390,343,543**	**$418,990,704**
7.	Market Value End of Year	$424,542,389	$292,014,674
8.	Prior Deferred Gain/(Loss)	$ 11,922,762	$ 20,729,074
9.	**Asset Gain/(Loss)** (7. - 8. - 6.)	**$ 22,276,085**	**($147,705,104)**
10.	80% of 2007 Gain/(Loss) of $22,276,085	$ 17,820,868	
11.	60% of 2006 Gain/(Loss) of $19,271,816	11,563,090	
12.	40% of 2005 Gain/(Loss) of ($1,726,516)	(690,606)	
13.	20% of 2004 Gain/(Loss) of $5,251,392	1,050,278	
14.	**Actuarial Value of Assets 1/1/2008**	**$394,798,759**	
15.	Contribution Receivable	$1,085,681	
16.	Audit Adjustment	0	
17.	**Final Actuarial Value of Assets**	**$395,884,441**	
18.	80% of 2008 Gain/(Loss) of ($147,705,104)		($118,164,084)
19.	60% of 2007 Gain/(Loss) of $22,276,085		13,365,651
20.	40% of 2006 Gain/(Loss) of $19,271,816		7,708,726
21.	20% of 2005 Gain/(Loss) of ($1,726,516)		(345,303)
22.	**Actuarial Value of Assets 1/1/2009**		**$389,449,684**
23.	Contribution Receivable		$ 1,101,675
24.	Audit Adjustment		0
25.	**Final Actuarial Value of Assets**		**$390,551,359**
	Rate of Return on Actuarial Value of Assets	9.2%	0.5%

Participant Schedules

PARTICIPANT SUMMARY

	Active Non-Drop Participants	Active DROP	Inactive Participants: With Deferred Benefits	Inactive Participants: Receiving Benefits	Total
Participants as of January 1, 2008	709	61	0	364	1,134
Retired	(6)	(30)	0	36	0
DROP	(5)	5	0	0	0
Terminated	(14)	0	0	0	(14)
Disabled	0	0	0	0	0
Deceased/Payments Ceased	0	0	0	(4)	(4)
Payment to Beneficiary	0	0	0	1	1
QDRO Put in Pay	0	0	0	5	5
Rehired	8	0	0	0	8
Transfers	2	0	0	0	2
New Hires	116	0	0	0	116
Data Adjustment	(1)	0	0	3	2
Net Change	100	(25)	0	41	116
Participants as of January 1, 2009	809	36	0	405	1,250

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	55	64	0	0	0	0	0	0	0	0	119
	36,303	41,026	0	0	0	0	0	0	0	0	38,843
25-29	35	80	12	3	0	0	0	0	0	0	130
	36,073	42,217	50,773	54,156	0	0	0	0	0	0	41,628
30-34	15	68	25	10	0	0	0	0	0	0	118
	36,554	43,356	52,478	60,179	0	0	0	0	0	0	45,850
35-39	8	44	20	42	33	0	0	0	0	0	147
	36,073	43,815	52,029	64,983	78,272	0	0	0	0	0	58,294
40-44	3	23	9	22	50	32	0	0	0	0	139
	37,275	45,052	54,322	65,276	78,017	82,549	0	0	0	0	69,176
45-49	0	4	2	8	27	43	10	0	0	0	94
	0	42,828	52,798	64,401	78,287	79,689	82,734	0	0	0	76,168
50-54	0	1	0	3	3	20	7	13	0	0	47
	0	41,363	0	64,299	79,923	81,521	92,478	95,288	0	0	84,905
55-59	0	0	1	1	3	3	2	3	2	0	15
	0	0	56,260	62,019	78,588	74,132	87,878	87,163	92,655	0	79,933
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	116	284	69	89	116	98	19	16	2	0	809
	36,275	42,704	52,356	64,042	78,216	80,827	86,865	93,765	92,655	0	56,834

Average Age: 36.13

Average Service: 9.54

Average Salary: $56,834

Actuarial Costs

ACTUARIAL COSTS

	As of 01/01/2008	As of 01/01/2009
Participants		
Active excluding DROP	709	809
Active DROP	61	36
Retirees and Beneficiaries	364	405
Total	1,134	1,250
Active Payroll (Rate at January 1st)	$ 43,941,526	$ 48,824,352
1. Actuarial Liability		
Active Participants	$214,342,868	$213,581,912
Participants Receiving Benefits	199,472,219	222,938,946
Total	$413,815,087	$436,520,858
2. Actuarial Value of Assets	$395,884,441	$390,551,359
3. Unfunded Actuarial Liability (1-2)	$ 17,930,646	$ 45,969,499
4. County's Normal Cost	$ 8,815,826	$ 9,991,997
5. Amortization Payment	$ 1,104,944	$ 2,749,898
6. Estimated Expenses	$ 436,000	$ 422,000
7. Total Recommended Contributions as of January 1st (4 + 5 + 6)	$ 10,356,770	$ 13,163,895
8. Total Recommended Contribution as of December 31st (7 x 1.08)	$ 11,185,312	$ 14,217,007
9. Contribution as a % of total payroll	25.45%	29.12%

UNFUNDED LIABILITY AMORTIZATION SCHEDULE

Charges	Amortization Period: Date Created	Initial Years	Years Left	Balances: Initial	Outstanding	2009 Payment
Unfunded Accrued Liability	01/01/2004	30	25	$15,137,045	$16,328,909	$ 1,038,856
Actuarial Loss	01/01/2006	30	27	$ 1,910,765	$ 2,006,893	$ 122,417
Actuarial Loss	01/01/2008	30	29	$ 2,970,298	$ 3,022,553	$ 177,645
Actuarial Loss	01/01/2009	30	30	$27,797,740	$27,797,740	$ 1,606,282
Credits						
Actuarial Gain	01/01/2005	30	26	$ 2,021,367	$ 2,153,043	$ 134,035
Actuarial Gain	01/01/2007	30	28	$ 471,511	$ 487,734	$ 29,187
Assumption Change	01/01/2008	30	29	$ 536,383	$ 545,819	$ 32,080
Net Total					$45,969,499	$2,749,898

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 over a period of years. Amortization payments increase 3.5% (costs are also 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.
Salary Increases:	The following graded schedule is used:

Attained Age	% Increase at Attained Age
20	7.0%
25	6.5%
30	6.0%
35	5.5%
40	5.0%
45	4.5%
50	4.5%

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.

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	5.1750%
25	4.0140%
30	2.6172%
35	1.7154%
40	1.1408%
45	0.6344%
50	0.0000%

Retirement[1]:

Sample Rates

	Service						
Age	20	22	24	27	30	32	34
40	7.50%	10.00%	18.33%	10%	50%	50%	100%
45	7.50%	10.00%	18.33%	10%	50%	50%	100%
50	18.00%	20.00%	58.33%	50%	50%	50%	100%
55	50.00%	50.00%	50.00%	50%	50%	50%	100%
59	100.00%	100.00%	100.00%	100%	100%	100%	100%

[1] Reflected "20 and out" provision

ASSUMPTIONS AND METHODS
(continued)

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%

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.

Other Methods and Assumptions: Administrative Expenses are $422,000 for FY2010 and $436,000 for FY2009 (average of actual expenses for the two years preceding the valuation date).

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.

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.

ASSUMPTIONS AND METHODS
(continued)

We suggest monitoring this form of payment to see if this reasonably models the combination of single retirees and future remarriages.

CIGNA Benefits: Our calculations reflect that some benefits have already been purchased.

Plan Provisions

PLAN PROVISIONS

Normal Retirement: 20 years of service[2] 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 pay rate.

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 annual basic pay.

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)

[2] Effective 7/1/2002

PLAN PROVISIONS
(continued)

Termination Prior to Retirement:	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 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.

SUMMARY OF MAJOR LEGISLATIVE CHANGES
(continued)

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).
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.
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.

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)
01/01/1997	$149,030,187	$33,562,970	$182,593,157	81.6%	$22,760,946	113.1%
01/01/1998	$166,272,032	$28,978,353	$195,250,385	85.2%	$24,008,491	123.1%
01/01/1999	$185,328,626	$29,363,810	$214,692,436	86.3%	$24,874,704	113.1%
01/01/2000	$207,721,341	$29,712,456	$237,433,797	87.5%	$25,551,279	108.9%
01/01/2001	$225,133,219	$39,498,937	$264,632,156	85.1%	$27,373,670	144.3%
01/01/2002	$241,162,428	$39,924,293	$281,086,721	85.8%	$30,548,866	130.7%
01/01/2003	$256,190,269	$40,287,968	$296,478,237	86.4%	$32,000,686	125.9%
01/01/2004	$286,763,188	$15,137,045	$301,900,234	95.0%	$31,463,220	48.1%
01/01/2005	$313,478,279	$13,381,977	$326,860,256	95.9%	$34,871,614	38.4%
01/01/2006	$340,274,675	$15,511,721	$355,786,396	95.6%	$38,592,322	40.2%
01/01/2007	$368,413,752	$15,280,517	$383,694,268	96.0%	$43,527,351	35.1%
01/01/2008[1]	$395,884,441	$18,467,029	$414,351,470	95.5%	$43,941,526	42.0%
01/01/2008[2]	$395,884,441	$17,930,646	$413,815,087	95.7%	$43,941,526	40.8%
01/01/2009	$390,551,359	$45,969,499	$436,520,858	89.5%	$48,824,352	94.2%

Schedules of County's Contributions

Year Ended December 31	*Annual Required Contribution*	*Actual Contribution*	*Percentage Contributed*
2008	$11,189,718	$11,189,712[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