THE ANNE ARUNDEL COUNTY
FIRE SERVICE
RETIREMENT PLAN

ACTUARIAL VALUATION
AS OF
JANUARY 1, 2008

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

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BOLTON PARTNERS, INC.

April 10, 2008

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, 2008 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, 2007 was $425,628,071. The average investment return for the fund on a market basis for the year ended December 31, 2007 was 10.9% and 9.2% 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, 2007, the actuarial value of assets was $395,884,441. Details of the development of the actuarial value of assets are set forth later in this report.

ASSUMPTION CHANGES

The following assumptions were changed pursuant to the recently completed Experience Study:

- The retirement rates were lowered at 20 years of service and rates were added for 31 through 34 years of service.
- Changed termination rates with some ages being higher and some ages being lower.
- Increased disability rates.
- Adopting the RP-2000 Blue Collar Mortality Table projected to 2008 (by male scale AA).
- Increased salary scale assumption below ages 25.

PRINCIPAL RESULTS

The principal purpose of the valuation is to set forth the County's contributions for the fiscal year ending June 30, 2009. 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 fiscal year ending June 30, 2009 decreased slightly from $11,194,123 to $11,185,312. This is in addition to employee contributions of 5% of pay for the Fire Department. The decrease can be broken down to the following material factors:

- On an actuarial basis the investment return was 9.2% and generated a large investment gain. On a market value basis the return was 10.9%. The difference is a deferred gain. The amount of the deferred gain increased from $22.3 million to $29.7 million.

- The normal cost rate dropped due in part to the retirement of several DROP members.

- Salary increases were slightly above the assumption.

- Actuarial assumptions were changed.

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, 2007 valuation	25.7%
Investment Gain	(0.9%)
Pay Increases	0.6%
New Entrants/Change in Normal Cost	(1.5%)
COLA	(0.2%)
Prudential Retiree Issue	0.3%
Assumption Changes	1.0%
Demographics and Other Changes	0.5%
January 1, 2008 valuation	25.5%

The overall funded ratio for the plan decreased from 96.0% to 95.7%.

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/mlg

Trust Fund Asset Statement

TRUST FUND ASSET STATEMENT FOR YEAR ENDED DECEMBER 31, 2007

Original Market Value 1/1/2007	$390,760,984
Audit Adjustment	$ 3,654
Market Value 1/1/2007	$390,764,638
Receipts:	
Employer Contributions	$ 10,920,850
Employee Contributions	1,876,693
Interest and Dividends	14,372,237
Realized and Unrealized Gain/(Loss)	27,805,342
Other	465,949
Total Receipts:	$ 55,441,071
Disbursements:	
Benefit Payments	$ 19,587,685
Administrative Expenses	463,040
Investment Expenses	1,612,595
Total Disbursements	$ 21,663,320
Net Increase/(Decrease)	$ 33,777,751
Preliminary Ending Value	$424,542,389
Contribution Receivable	$ 1,085,681
Ending Value 12/31/2007	$425,628,071

Development of Actuarial Value of Assets

ACTUARIAL VALUE OF ASSETS

		2006	2007
1.	**Actuarial Value of Assets Beginning of Year**	**$340,274,675**	**$368,413,752**
2.	Contributions	12,164,194	12,797,543
3.	Benefit Payments	15,574,345	19,587,685
4.	Administrative Expenses	408,613	463,040
5.	Expected 8% Return	27,069,223	29,182,973
6.	**Expected Asset Value** (1. + 2. - 3. - 4. + 5.)	**$363,525,134**	**$390,343,543**
7.	Market Value End of Year	$390,760,984	$424,542,389
8.	Prior Deferred Gain/(Loss)	$ 7,964,034	$ 11,922,762
9.	**Asset Gain/(Loss)** (7. - 8. - 6.)	**$ 19,271,816**	**$ 22,276,085**
10.	80% of 2006 Gain/(Loss) of $19,271,816	$ 15,417,452	
11.	60% of 2005 Gain/(Loss) of $(1,726,516)	(1,035,910)	
12.	40% of 2004 Gain/(Loss) of $5,251,392	2,100,557	
13.	20% of 2003 Gain/(Loss) of $34,496,934	6,899,387	
14.	**Actuarial Value of Assets 1/1/2007** (7. – 10. – 11. – 12. – 13.)	**$367,379,498**	
15.	Contribution Receivable	$ 1,034,254	
16.	**Final Actuarial Value of Assets 1/1/2007** (14. + 15.)	**$368,413,752**	
17.	80% of 2007 Gain/(Loss) of $22,276,085		$ 17,820,868
18.	60% of 2006 Gain/(Loss) of $19,271,816		11,563,090
19.	40% of 2005 Gain/(Loss) of $(1,726,516)		(690,606)
20.	20% of 2004 Gain/(Loss) of $5,251,392		1,050,278
21.	**Actuarial Value of Assets 1/1/2008** (7. – 17. – 18. – 19. – 20.)		**$394,798,759**
22.	Contribution Receivable		$ 1,085,681
23.	**Final Actuarial Value of Assets 1/1/2008** (21. + 22.)		**$395,884,441**
	Rate of Return on Actuarial Value of Assets *(net of investment expenses)*	**9.1%**	**9.2%**

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, 2007	718	93	0	332	1,143
Retired	(4)	(33)	0	37	0
DROP	(5)	5	0	0	0
Terminated	(33)	0	0	0	(33)
Disabled	(1)	(3)	0	4	0
Deceased/Payments Ceased	0	(1)	0	(8)	(9)
Payment to Beneficiary	0	0	0	1	1
QDRO Put in Pay	0	0	0	0	0
Rehired	0	0	0	0	0
Transfers	0	0	0	0	0
New Hires	33	0	0	0	33
Data Adjustment	1	0	0	(2)	(1)
Net Change	(9)	(32)	0	32	(9)
Participants as of January 1, 2008	709	61	0	364	1,134

Service - Age Distribution

AGE, SERVICE AND AVERAGE SALARY DISTRIBUTION

Age as of 1/1/2008	Under 1	01-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40 +	Total
Under 25	13 35,023	68 38,595	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	81 38,022
25-29	13 35,023	78 39,893	20 47,740	0 0	0 0	0 0	0 0	0 0	0 0	0 0	111 40,737
30-34	7 35,023	58 40,498	29 49,907	11 59,824	0 0	0 0	0 0	0 0	0 0	0 0	105 44,756
35-39	0 0	40 40,825	27 51,037	42 65,721	30 72,691	1 76,285	0 0	0 0	0 0	0 0	140 57,345
40-44	0 0	13 40,823	11 50,339	24 63,109	46 73,950	37 75,713	0 0	0 0	0 0	0 0	131 67,192
45-49	0 0	6 42,457	2 50,781	6 61,721	22 72,323	42 73,328	8 73,334	0 0	0 0	0 0	86 69,584
50-54	0 0	1 36,425	1 54,622	2 61,869	7 73,737	14 73,777	10 83,826	10 88,797	0 0	0 0	45 77,557
55-59	0 0	0 0	2 54,682	0 0	1 60,222	2 72,706	2 80,813	2 70,856	1 97,782	0 0	10 71,612
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	33 35,023	264 39,924	92 49,993	85 63,847	106 73,112	96 74,331	20 79,328	12 85,807	1 97,782	0 0	709 55,461

Average Age: 36.75

Average Service: 10.22

Average Salary: $55,461

Actuarial Costs

ACTUARIAL COSTS

	As of 01/01/2007	As of 01/01/2008
Participants		
Active excluding DROP	718	709
Active DROP	93	61
Retirees and Beneficiaries	332	364
Total	1,143	1,134
Active Payroll (Rate at January 1st)	$ 43,527,351	$ 43,941,526
1. Actuarial Liability		
Active Participants	$220,448,477	$214,342,868
Participants Receiving Benefits	163,245,791	199,472,219
Total	$383,694,268	$413,815,087
2. Actuarial Value of Assets	$368,413,752	$395,884,441
3. Unfunded Actuarial Liability (1-2)	$ 15,280,517	$ 17,930,646
4. County's Normal Cost	$ 8,989,237	$ 8,815,826
5. Amortization Payment	$ 931,692	$ 1,104,944
6. Estimated Expenses	$ 444,000	$ 436,000
7. Total Recommended Contributions as of January 1st (4 + 5 + 6)	$ 10,364,929	$ 10,356,770
8. Total Recommended Contribution as of December 31st (7 x 1.08)	$ 11,194,123	$ 11,185,312
9. Contribution as a % of total payroll	25.72%	25.45%

UNFUNDED LIABILITY AMORTIZATION SCHEDULE

	Amortization Period			Balances		
Charges	Date Created	Initial Years	Years Left	Initial	Outstanding	2007 Payment
Unfunded Accrued Liability	01/01/2004	30	26	$15,137,045	$16,123,086	$ 1,003,726
Actuarial Loss	01/01/2006	30	28	$ 1,910,765	$ 1,976,511	$ 118,277
Actuarial Loss	01/01/2008	30	30	$ 2,970,298	$ 2,970,298	$ 171,638
Credits						
Actuarial Gain	01/01/2005	30	27	$ 2,021,367	$ 2,123,060	$ 129,502
Actuarial Gain	01/01/2007	30	29	$ 471,511	$ 479,806	$ 28,200
Assumption Change	01/01/2008	30	30	$ 536,383	$ 536,383	$ 30,995
Net Total					$17,930,646	$1,104,944

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 $436,000 for FY2009 and $444,000 for FY2008 (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: Since cost of living adjustments are effective as of July 1, retiree liabilities of the plan determined as of January 1 for benefits accrued before Bill 88-96 were increased by 1.75% to account for mid-year increase. Liabilities for benefits accrued after Bill 88-96 were increased by 1.05% to account for the mid-year increase.

ASSUMPTIONS AND METHODS
(continued)

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 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%

Schedules of County's Contributions

Year Ended December 31	*Annual Required Contribution*	*Actual Contribution*	*Percentage Contributed*
2007	$10,959,893	$10,959,888[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 26 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