City of Annapolis Police and Fire Retirement Plan

Actuarial Valuation as of July 1, 2013

Produced by Cheiron

November 2013

CHEIRON Classic Values, Innovative Advice

Table of Contents

November 14, 2013

Board of Trustees
City of Annapolis Police and Fire Retirement Plan
Municipal Building
Annapolis, Maryland 21401

Dear Members of the Board:

At your request, we have conducted the annual actuarial valuation of the Police and Fire Retirement Plan (the Plan) as of July 1, 2013. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the foreword. This report contains information on Plan assets, as well as analyses combining asset and liability performance and projections. The report also discloses employer contribution levels, as well as required disclosures under the Governmental Accounting Standards Board Statement No. 25.

In preparing our report, we relied, without audit, on information (some oral and some written) supplied by the City of Annapolis. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

To the best of my knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as a credentialed actuary, I meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. I am not an attorney, and our firm does not provide any legal services or advice.

This valuation was prepared for the Police and Fire Retirement Plan for the purposes described herein and for the use by the plan auditor in completing an audit related to the matters herein. This valuation report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

Sincerely,
Cheiron

Fiona E. Liston

Fiona E. Liston, FSA, EA
Principal Consulting Actuary

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FOREWORD

Cheiron has performed the actuarial valuation of the Police and Fire Retirement Plan as of . The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the Plan;
2) **Indicate trends** in the financial progress of the Plan;
3) Advise on the applicability of the **City contribution rate**; and
4) **Provide specific information** and documentation required by the Governmental Accounting Standards Board (GASB).

An actuarial valuation establishes and analyzes assets and liabilities of the Plan on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the Plan's investment performance as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and disclosing important trends experienced by the Plan in recent years.

Section II contains details on various asset measures, together with pertinent performance measurements.

Section III shows similar information on the Plan liabilities, measured for actuarial, accounting, and governmental reporting purposes.

Section IV develops the employer contribution rate determined using actuarial techniques and compares that to the amount currently being contributed.

Section V includes the required disclosures under GASB Statement No. 25.

The appendices to this report contain a summary of the Plan's membership at the valuation date, a summary of the major provisions of the Plan, and the actuarial methods and assumptions used in this valuation.

In preparing our report, we relied, without audit, on information (some oral and some written) supplied by the City of Annapolis. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The actuarial assumptions reflect our understanding of the likely future experience of the Plan, and the assumptions as a whole represent our best estimate for the future experience of the Plan. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the Plan will vary from our results.

SECTION I
SUMMARY

General Comments

Beginning in at least 1993 and through 2008, the Plan was over 100% funded. Throughout this period, steps were taken to reduce the Plan's overfunding. These steps included making a combined City and member contribution that totaled less than the 25% of payroll, which represented the value of benefits accruing annually, and making various benefit improvements. In the 2008-2009 plan year, the Plan lost a great deal of asset value in the market downturn. Steps have been taken since that time to increase both member and City contributions and to adjust the Plan provisions for those hired after July 1, 2012. The impact of these changes is beginning to emerge with this valuation.

Over the last fiscal year, the assets returned 10.84%, which is above the 7.5% assumption. The asset smoothing method in place includes only a portion of this gain and continues recognizing a portion of the 08-09 loss. The return on this actuarial value of assets (AVA), for valuation purposes, is thus only 6.17%, an asset loss of $1.93 million.

The contribution rate that is calculated in this valuation is based on a rolling 30-year amortization of the $16.6 million unfunded liability. The rate is now 24.91% of payroll, net of the member contributions currently being made.

The City is now ramping up its contribution rate, and there have been further recommendations for changes to the Plan that have not yet been reflected in this valuation report. Until they are reflected, the projections show that the Plan's funded ratio is likely to decline.

This report does not reflect any changes in pension accounting requirements from newly issued GASB Statements Nos. 67 and 68. Statement No. 67 will be effective for the plan year ending June 30, 2014. Statement No. 68 will be effective for the employer's fiscal years beginning after June 15, 2014. All references with respect to GASB in the following sections of this report refer to the current Statements No. 25 and 27.

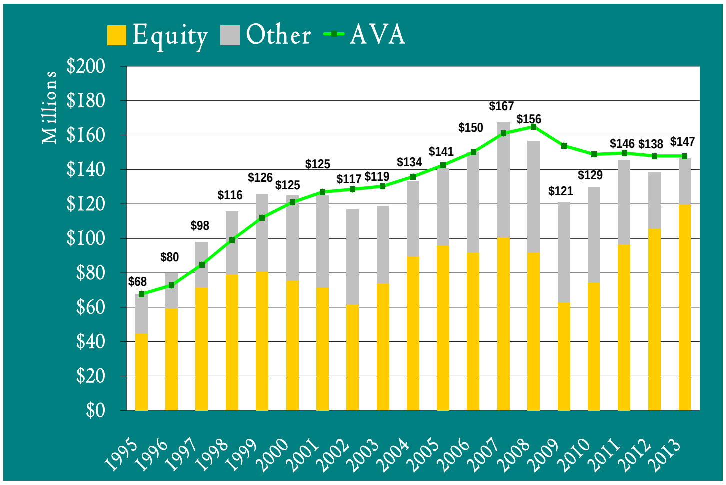
The remainder of this section presents trend information showing the history of where the Plan's funding has been and projections of where it may be headed.

Trends

We believe it is important to take a step back from the latest results and view them in the context of the Plan's recent history. On the next pages, we present a series of charts which display key factors in the last 19 years' valuations. After the historical review, we then present a few projection graphs, showing the possible condition of the Plan over the next 15 years under various scenarios of market returns.

SECTION I
SUMMARY

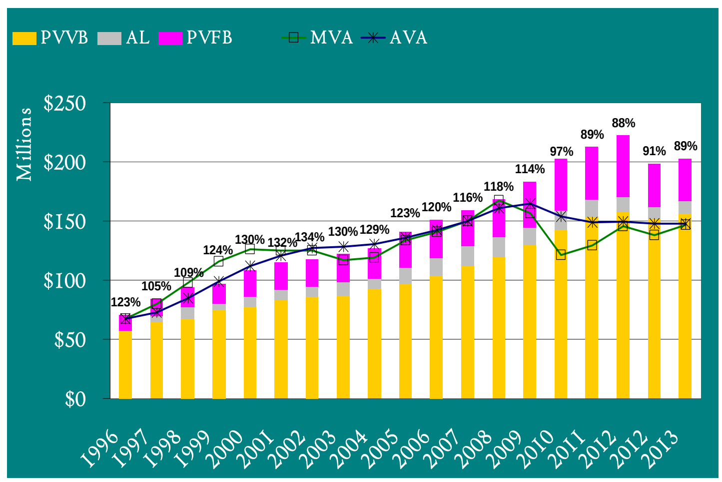
Growth in Assets



Over the period July 1, 1995 to June 30, 2013, the Plan's assets returned approximately 8.3% on a market value basis and 8.0% on an actuarial value basis, compared to a valuation assumption of 7.5%.

Assets and Liabilities

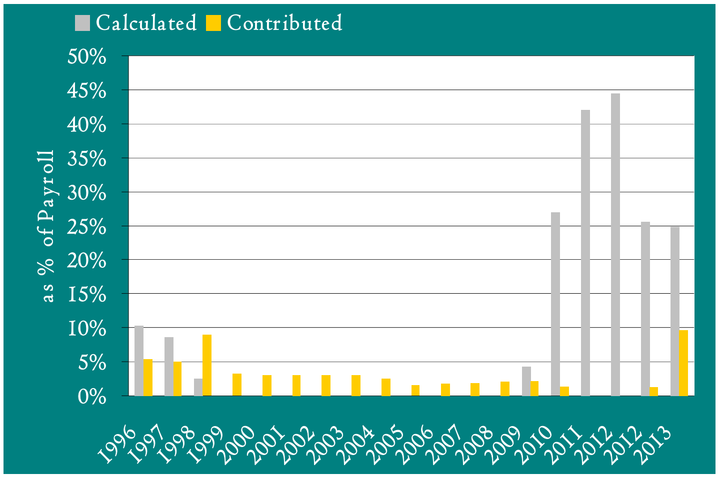
The three colored bars represent the three different measures of liability mentioned in this report. For funding purposes, the target amount is represented by the top of the gray bar. We compare the actuarial value of assets to this measure of liability in developing the funded percent. These are the percentages shown in the graph labels.



The amount represented by the top of the pink bars, the Present Value of Future Benefits (PVFB), is the amount needed to provide all benefits for the current participants and their beneficiaries. If the Plan had assets equal to the PVFB, no contributions would, in theory, be needed for the current members.

SECTION I
SUMMARY

<u>Contribution Rates</u>

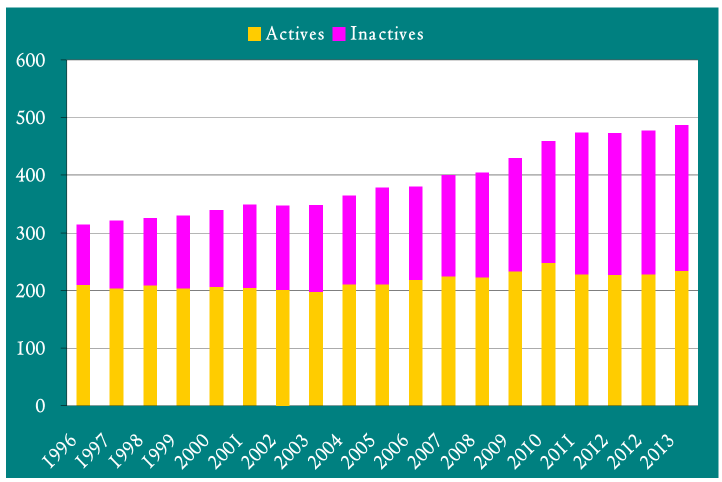


This graph shows the actuarially calculated City contribution rate, denominated as a percent of payroll, as well as the actual City contribution. From 1998 through 2007, the valuation developed a contribution rate of zero. The City continued to make contributions to the Plan in spite of the zero calculated amounts. Now that the surplus has been exhausted, the calculated rate has increased substantially, and steps have been taken on both the plan design and contribution fronts to address this.

<u>Participant Trends</u>

As with many funds in this country, there has been a steady growth in the number of retired members as the Plan has matured.

The chart also shows that the number of actives covered by the Plan has remained fairly constant over the past four years after a period of growth immediately preceding the past four years.

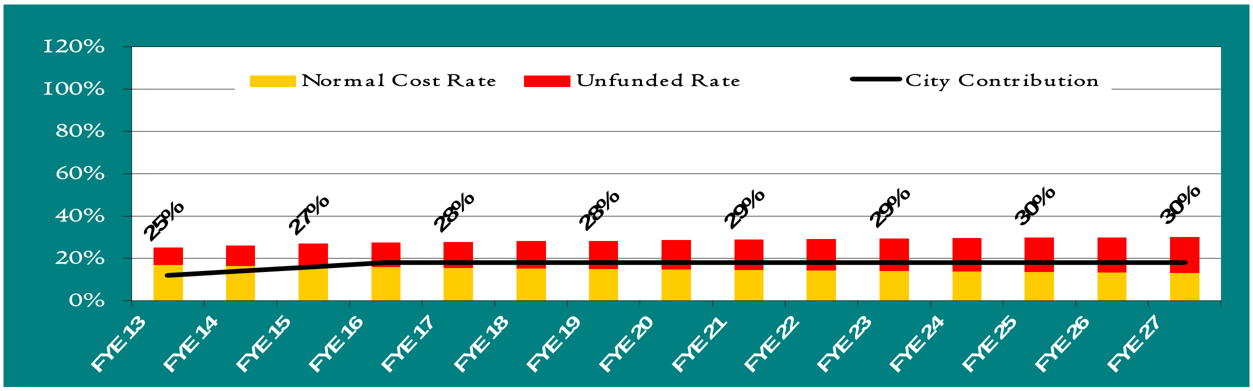


SECTION I
SUMMARY

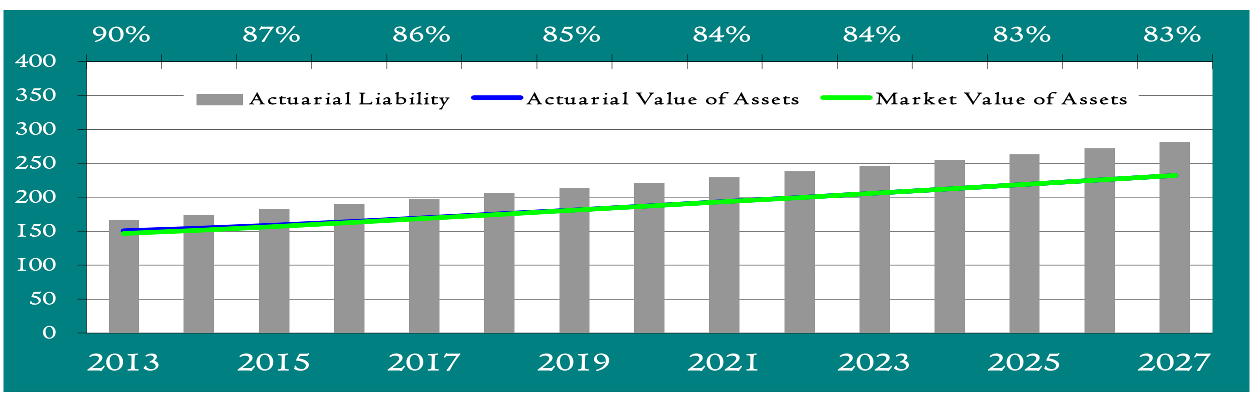
Future Outlook

<u>Base-Line Projections</u>

These two charts show the expected progress of the Plan's funding over the next 15 years assuming the Plan's assets earn exactly 7.5% per year. The charts further assume that the City contributes 12% in fiscal year 2014, increases its contribution percentage 2% per year until it reaches 18% in fiscal year 2018, and continues to contribute at 18% thereafter, and that member contributions increase in accordance with the current bargained rates, including a 6.5% rate for those hired prior to June 30, 2012, phasing up to 8.0% over the next three years, and 8.0% for all future years for those hired after July 1, 2012. The first chart shows that the calculated contribution amount, used for GASB disclosure purposes, calculated using a 30-year amortization of the unfunded liability, and equal to the sum of the yellow normal cost rate and the red unfunded rate, is expected to remain above the City rate.



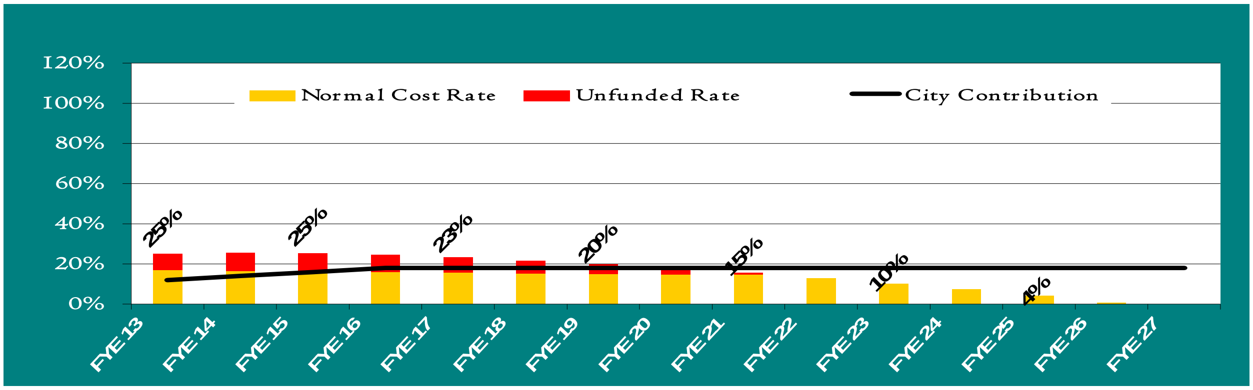
The Assets and Liabilities chart shows the projected funding status over the next 15 years under the same scenario. The funding ratio is expected to drop steadily each year from its current level of 90% down to 83% by 2027. These projections do not include the additional plan changes negotiated after the end of the 2013 valuation year. These changes will be first recognized in the 2014 valuation.



SECTION I
SUMMARY

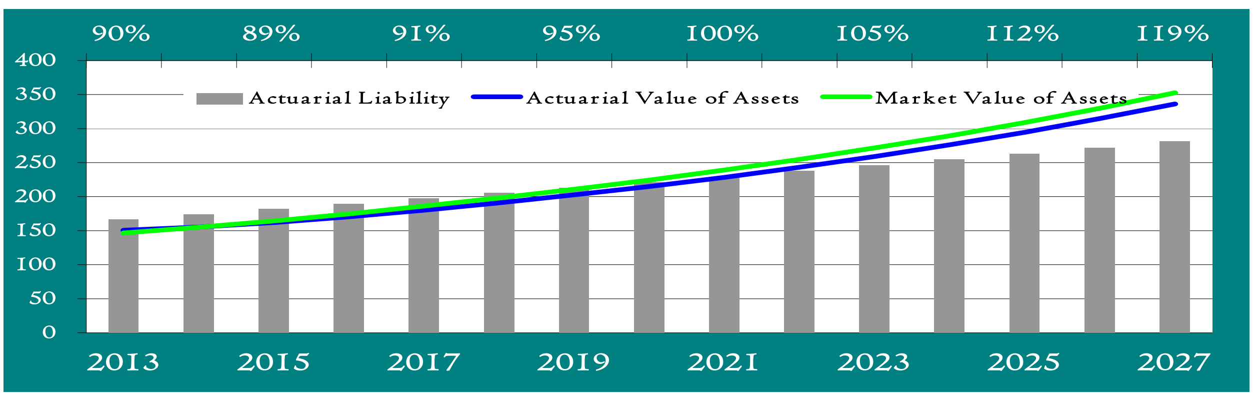
First Alternative Projection

In these charts, we show the anticipated contribution amount and funding status over the next 15 years assuming better than expected returns of 10% per year.



The Plan Funding chart shows that the calculated contribution rate would drop below the GASB rate in a few years and continue down towards zero if the 10% return were to persist.

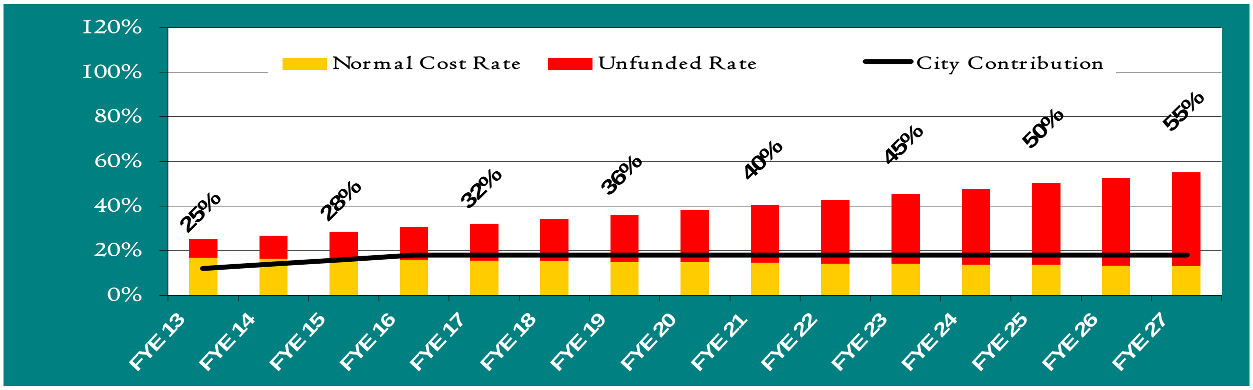
The Assets and Liabilities chart shows that the funded ratio will decline in the short-term, as deferred investment losses are recognized in the actuarial value of assets, and then the current 90% funded ratio will increase to 119% over the 15-year period.



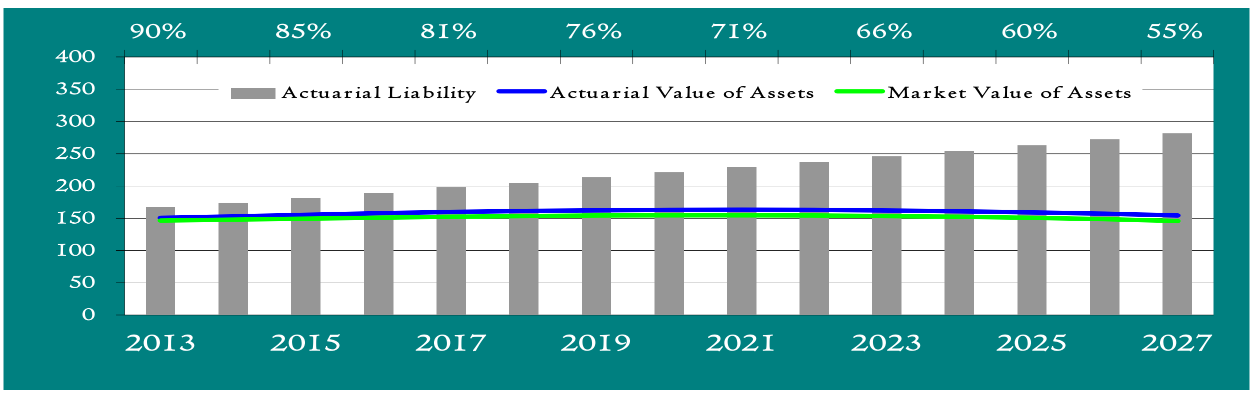
SECTION I
SUMMARY

Second Alternative Projection

While investment returns in excess of the assumed 7.5% can lead to funding improvement, here we show the impact of the Plan earning 2.5% less than the assumption. If the assets return only 5% per year, the planned City contributions become even more inadequate.



The Assets and Liabilities chart shows that the funded status of the Plan would deteriorate from its current level of 90% down to 55% in this scenario.



SECTION I
SUMMARY

Table I-1
Summary of Principal Results

	July 1, 2012	July 1, 2013	Change
Participant Counts			
Active Members	228	234	2.6%
Inactive Members	29	32	10.3%
Terminated Vested Members	2	2	0.0%
Retired Members	138	144	4.3%
Disabled Members	49	46	(6.1%)
Beneficiaries	25	29	16.0%
TOTAL	471	487	3.4%
Annual Salary of Active Members	$ 15,949,484	$ 16,269,356	2.0%
Annual Benefits in Pay Status			
Total Benefits	$ 8,609,318	$ 9,000,145	4.5%
Less Annuitized Amts	582,617	556,353	(4.5%)
Net Payable from Plan Assets	$ 8,026,701	$ 8,443,792	5.2%
Assets & Liabilities			
Total Actuarial Accrued Liability	$ 162,137,819	$ 167,028,135	3.0%
Actuarial Value of Assets	147,876,672	150,460,512	1.7%
Unfunded Actuarial Liability (Surplus)	$ 14,261,147	$ 16,567,623	16.2%
Funded Ratio	91%	90%	
Contribution Results as % of Payroll			
Employer Normal Cost	18.57%	16.89%	
Amort of Unfunded Actuarial Liability	7.04%	8.02%	
Total Cost	25.61%	24.91%	

SECTION II
ASSETS

Pension plan assets play a key role in the financial operation of the Plan and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, negotiated contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on the Plan assets including:

- **Disclosure** of the Plan assets at and ;
- Statement of the **changes** in market values during the year;
- Development of the **actuarial value of assets**;
- An assessment of **investment performance**; and
- A ten-year **projection** of contributions and benefit payments.

Disclosure

The market value of assets represents a "snap-shot" or "cash-out" value. This provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not suitable for long range planning.

The actuarial value, or "carrying value", is a smoothed market value. The actuarial value measures the Plan's ongoing ability to meet its obligations.

The current method employed by the Plan sets the actuarial value to be the expected adjusted market value plus one-third of the difference between the expected adjusted market value and the actual market value. The expected adjusted market value is the previous year's actuarial asset value adjusted with contributions, benefit payments, and interest at 7.5%, the assumed investment return.

Table II - 1
Assets at Market Value

	July 1, 2012	July 1, 2013
Stralem & Co	8,768,891	10,154,304
Edgar LoMax	12,631,397	14,988,099
Allegis Realty	6,274,683	6,820,676
Lazard Stock	23,816,667	15,984,676
Administrative Account	2,006,463	3,308,573
Cooke & Bieler	12,726,810	9,327,505
Loomis Sayles	6,207,725	7,959,927
Alternatives Gresham	41,605,359	45,403,006
Mutual Funds	24,271,090	32,662,701
Total Assets	**$ 138,309,085**	**$ 146,609,467**

SECTION II
ASSETS

Changes in Market Value

The components of asset change are as follows:

- Contributions
- Benefit payments
- Expenses
- Dividends and interest income
- Investment income (realized and unrealized)

The specific changes during the plan year ending are presented below.

Table II-2
Changes in Market Values

Value of Assets - July 1, 2012	$ 138,309,085
Receipts	
Member Contributions	$ 959,472
Employer Contributions	1,570,000
Dividends, Interest and Gains (net of investment expense)	14,843,143
Total Receipts	$ 17,372,615
Disbursements	
Benefit Payments	$ (8,872,978)
Administrative Expenses	(199,255)
Total Disbursements	$ (9,072,233)
Net Change	$ 8,300,382
Value of Assets at July 1, 2013	$ 146,609,467
Return on Market Value of Assets	10.84%

SECTION II
ASSETS

Actuarial Value of Assets

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term volatility in the market value of assets. For the Plan, the actuarial value has been calculated by adding one-third of the deviation of market value from expected adjusted market value to the expected adjusted market value. The following table illustrates the calculation of the actuarial value of assets for the valuation.

Table II -3
Development of Actuarial Value of Assets

1.	Value of Assets at Beginning of Year	$ 147,876,672
2.	Contributions	2,529,472
3.	Benefit Payments	(8,872,978)
4.	Expected Investment Return (at 7.5%)	10,852,869
5.	Expected Value of Assets at End of Year: (1) + (2) + (3) + (4)	$ 152,386,035
6.	Market Value of Assets at End of Year	$ 146,609,467
7.	Recognized Gain (Loss) [33.3% of [(6) - (5)]	(1,925,523)
8.	Actuarial Value of Assets: (5) + (7)	$ 150,460,512
	Calculation of Asset Gain/(Loss) on Actuarial Value of Assets	
1.	Expected Actuarial Value of Assets as of July 1, 2013 (assuming a 7.5% investment return)	$ 152,386,035
2.	Actual Actuarial Value of Assets	150,460,512
3.	Asset Gain/(Loss) During Plan Year as of July 1, 2013 [(2) - (1)]	$ (1,925,523)

Investment Performance

The market value of assets gained 10.84% during the fiscal year ending in 2013, which is more than the assumed 7.5%.

The return on the actuarial value of assets was only 6.17%. Under the smoothing method, only 33 ⅓% of investment returns that differ from the assumed 7.5% is recognized. The remaining 66 ⅔% is left to be recognized in future years.

If the Plan experiences many years of good investment performance, the actuarial asset value will be less than the actual market value. This is a result of "storing" the gains. Conversely, in years of poor investment performance, such as the years ended June 30, 2001, June 30, 2002, and June 30, 2009, the actuarial value of assets may exceed the market value. Future years' returns will need to exceed the assumed 7.5% to offset the deferred losses.

SECTION II
ASSETS

Projection of Contributions and Benefits

The following table shows a ten-year projection of the Plan's expected benefit payments and contributions. Benefits are projected in accordance with the actuarial assumptions used in the valuation. The projection of benefits does not include an allowance for members hired after . We do not feel that this understates the projected benefits over the ten-year period because most of these new members would not be eligible for benefits.

Contributions are projected taking into account expected new entrants and include both employer and member contributions. Over the ten-year period shown, the benefit payments are expected to exceed contributions. This indicates that this is a very mature fund. The projected shortfall will have to be paid from current assets and future investment earnings. The Trustees should take these cash flow needs into account when planning future investments.

Table II-4
Projection of Plan's Benefit Payments

Year Beginning July 1,	Expected Benefit Payments[1]	Expected Contributions[2]
2013	$ 8,918,000	$ 3,066,000
2014	9,394,000	3,603,000
2015	9,961,000	4,163,000
2016	10,560,000	4,749,000
2017	11,219,000	4,916,000
2018	11,856,000	5,089,000
2019	12,441,000	5,268,000
2020	12,983,000	5,453,000
2021	13,562,000	5,644,000
2022	14,159,000	5,843,000

[1] The payment stream reflects only the Plan-paid portion of expected benefits and not the portion annuitized in 1992.

[2] Contributions include City contributions at 10% plus 2% per year until it reaches 18% in FY 17
Total covered payroll is assumed to increase 3.5% per year.

SECTION III
LIABILITIES

In this section, we present detailed information on Plan liabilities including:

- **Disclosure** of the Plan liabilities at and , and
- Statement of **changes** in these liabilities during the year.

Disclosure

This report discloses three types of liabilities. Each liability has a specific purpose depending on the nature of the liability and the people ultimately using the liability.

- **Total Future Obligation:** Used for analyzing the financial outlook of the Plan, this represents the amount of money needed today to fully pay off all future benefits and expenses of the Plan, assuming participants continue to accrue benefits.

- **Actuarial Liability:** Used for funding calculations and Governmental Accounting Standards Board (GASB) disclosures, this liability is calculated taking the Total Obligations above and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** funding method.

- **Accrued Benefit Liability:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the Plan, assuming no future accruals of benefits. These liabilities are also required by the Financial Accounting Standards Board (Topic No. 960) and used to assess whether the Plan can meet its current benefit commitments.

The table on the next page discloses each of these liabilities as well as the respective **net surplus** or **unfunded liability**. Both the total future obligation and the accrued liability use the market value of assets to calculate the net surplus or unfunded liability. The actuarial liability uses the actuarial value of assets to calculate the net surplus or unfunded liability.

SECTION III
LIABILITIES

Table III - 1
Liabilities/Net (Surplus) Unfunded

	July 1, 2012	**July 1, 2013**
Total Future Obligation		
Active Participant Benefits	$ 88,212,876	$ 87,574,492
Retiree and Inactive Benefits	109,982,627	115,249,984
Total Future Obligation	**$ 198,195,503**	**$ 202,824,476**
Market Value of Assets	138,309,085	146,609,467
Future Member Contributions	8,824,734	9,620,521
Future City Contributions (at 8.5% in 12; 10% in 13)	12,632,494	15,532,952
Total Resources	**$ 159,766,313**	**$ 171,762,940**
Net (Surplus) Unfunded	**$ 38,429,190**	**$ 31,061,536**
Actuarial Liability		
Total Future Obligation	$ 198,195,503	$ 202,824,476
Less: Present Value of Future Employer Normal Costs Under Entry Age Method	$ 27,232,950	$ 26,175,820
Less: Present Value of Future Member Contributions	8,824,734	9,620,521
Actuarial Liability	**$ 162,137,819**	**$ 167,028,135**
Less: Actuarial Value of Assets	147,876,672	150,460,512
Net (Surplus) Unfunded	**$ 14,261,147**	**$ 16,567,623**
Accrued Benefit Liability		
Total Future Obligation	$ 198,195,503	$ 202,824,476
Less: Present Value of Future Benefit Accruals	46,389,427	46,715,672
Accrued Benefit Liability	**$ 151,806,076**	**$ 156,108,804**
Less: Market Value of Assets	138,309,085	146,609,467
Net (Surplus) Unfunded	**$ 13,496,991**	**$ 9,499,337**

SECTION III
LIABILITIES

Changes in Liabilities

Each of the liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- Benefits accrued since last valuation
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- New hires since the last valuation
- Plan amendments increasing benefits
- A change in actuarial or investment assumptions
- A change in the actuarial funding method
- Unfunded liabilities will change because of all the above, and also due to changes in the Plan assets resulting from:
  - Employer contributions different than expected
  - Investment earnings different than expected
  - A change in the method used to measure the Plan assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the Plan. Below we present key changes in liabilities since the last valuation.

Table III - 2

	Total Future Obligation	Actuarial Liability	Accrued Benefit Liability
Liability at July 1, 2012	$ 198,195,503	$ 162,137,819	$ 151,806,076
Liability at July 1, 2013	202,824,476	167,028,135	156,108,804
Liability Increase (Decrease)	4,628,973	4,890,316	4,302,728
Changes Due to:			
Actuarial (Gain)/Loss	NC	(2,079,091)	NC
Assumption Change	0	0	0
Benefits Accumulated and Other Sources	4,628,973	6,969,407	4,302,728

NC = Not Calculated

SECTION III
LIABILITIES

Table III - 3 Plan Liabilities	
1. Present Value of Benefits	
a. Active Members	$ 87,574,492
b. Retired Members	114,863,260
c. Terminated Vested Members	292,499
d. Inactive Members	94,225
Total	**$ 202,824,476**
2. Present Value of Future Employer Normal Costs	26,175,820
3. Present Value of Future Member Contributions	9,620,521
4. Actuarial Accrued Liability [(1) - (2) - (3)]	$ 167,028,135
5. Actuarial Value of Assets	150,460,512
6. Unfunded Actuarial Liability [(4) - (5)]	$ 16,567,623

SECTION IV
CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level of contribution is needed to properly maintain the funding status of the Plan. The goal of the actuarial process is to create a funding mechanism designed to produce a pattern of contributions that are both stable and predictable.

For this Fund, the funding mechanism is the **Entry Age Normal funding method**. Under this method, there are two components to the total contribution: (i) **a normal cost**, and (ii) **an amortization payment**. A normal cost is determined for each active member and then this normal cost represents the cost to fund that portion of the total future obligations which has been allocated to the current year based upon the actuarial cost method.

The amortization payment, on the other hand, is not calculated for individual participants, but calculated on the Plan as a whole. It represents an annual installment to fund the **unfunded actuarial liability (UAL)** for the Plan. The UAL represents the amount of additional funds that would have been accumulated by the valuation date, had all prior normal costs been made, and all actuarial assumptions been realized. Since the 2012 valuation, we have used an open 30-year period over which to amortize this UAL with annual installments.

In Appendix B, we describe this technical topic more fully.

The table below presents and compares the Plan's actuarially determined contribution for this valuation and the prior one.

Table IV - 1
Actuarially Determined Contribution

	July 1, 2012	July 1, 2013
Entry Age Normal Cost	18.57%	16.89%
Unfunded Actuarial Liability	7.04%	8.02%
Actuarially Determined Contribution	25.61%	24.91%

On the following page, we show a detailed calculation of the City's Contribution Rate.

SECTION IV
CONTRIBUTIONS

Table IV - 2
Calculation of City Contribution Rate

		July 1, 2012	July 1, 2013
1.	**Present Value of Benefits**	$ 198,195,503	$ 202,824,476
2.	**Future Contributions**	36,057,684	35,796,341
3.	**Actuarial Accrued Liability (1) - (2)**	$ 162,137,819	$ 167,028,135
4.	**Actuarial Assets**	147,876,672	150,460,512
5.	**Unfunded Liability**	$ 14,261,147	$ 16,567,623
6.	**Employer Contributions in Dollars**		
	a. Normal Cost	$ 2,962,365	$ 2,747,244
	b. Unfunded Actuarial Liability	1,123,264	1,304,931
	c. Total Contribution, Not Less Than Zero	$ 4,085,629	$ 4,052,175
7.	**Projected Payroll**	$ 15,949,484	$ 16,269,356
8.	**Employer Contribution as Percentage of Payroll**		
	a. Normal Cost	18.57%	16.89%
	b. Unfunded Actuarial Liability	7.04%	8.02%
	c. Total Contribution, Not Less Than Zero	25.61%	24.91%

SECTION V
ACCOUNTING STATEMENT INFORMATION

Two types of liabilities are disclosed for accounting purposes.

ASC Topic 960 of the Financial Accounting Standards Board (FASB) requires the Plan to disclose certain information regarding its funded status.

Statement No. 25 of the Governmental Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The Topic No. 960 disclosures provide a quasi “snap-shot” view of how the Plan’s assets compare to its liability as of the valuation date. The liability is determined as if contributions stopped and the accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the Plan were to terminate. The Topic No. 960 liability is compared to the market value of assets to determine the funding ratio.

The GASB-25 actuarial accrued liability is the same as the actuarial liability amount calculated for funding purposes. The GASB-25 liability is compared to the actuarial value of assets to determine the funding ratio.

Both the present value of accrued benefits (Topic No. 960) and the actuarial accrued liability (GASB-25) are determined assuming that the Plan is ongoing and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.5% per annum.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V - 1
Accounting Statement Information - FASB Topic 960 Basis
Accumulated Plan Benefits

		July 1, 2012	July 1, 2013
1.	Present Value of Benefits Accrued to Date		
	a. Members Currently Receiving Payments	$ 109,645,871	$ 114,863,260
	b. Terminated Vested Members	296,924	292,499
	c. Inactive Members	39,832	94,225
	d. Active Members	41,823,449	40,858,820
2.	Total Present Value of Accrued Benefits [1(a) + 1(b) + 1(c) + 1(d)]	$ 151,806,076	$ 156,108,804
3.	Assets at Market Value	138,309,085	146,609,467
4.	Unfunded Value of Benefits	$ 13,496,991	$ 9,499,337
5.	Ratio of Assets to Value of Benefits (3) / (2)	91.1%	93.9%

Table V - 2
Statement of Changes in Accumulated Plan Benefits
July 1, 2012 - July 1, 2013

	Accumulated Benefit
Actuarial Present Value of Accumulated Plan Benefits at July 1, 2012	**$ 151,806,076**
Increase (Decrease) Due to:	
Benefits Accumulated and Gains and Losses	2,122,987
Change in Assumptions	0
Interest Due to the Decrease in the Discount Period	11,052,719
Benefits Paid	(8,872,978)
Net Change	4,302,728
Actuarial Present Value of Accumulated Plan Benefits at July 1, 2013	**$ 156,108,804**

APPENDIX A
MEMBERSHIP DATA AND PROFILE

The Personnel Office of the City of Annapolis provided the actuary with all necessary membership data. Information on all participants was gathered as of .

In this Appendix, we present a review of the current membership statistics. The table on page 20 summarizes the active membership count and payroll by status. The table on page 21 summarizes the inactive membership by status. The table on page 22 shows the active membership distributions by age, salary, and service.

Table A - 1
Active Member Statistics

	7/1/2012	7/1/2013
Old Plan		
Currently Eligible to Retire	-	-
Not Currently Eligible to Retire	-	-
Average Pay	$ -	$ -
Average Age	-	-
Average Service	-	-
Old Plan Revised		
Currently Eligible to Retire	1	1
Not Currently Eligible to Retire	-	-
Average Pay	$ 91,572	$ 91,572
Average Age	62	63
Average Service	40	41
New Plan Revised		
Currently Eligible to Retire*	2	1
Not Currently Eligible to Retire	225	232
Average Pay	$ 69,859	$ 69,433
Average Age	38	38
Average Service	10	10
Total Plan		
Currently Eligible to Retire	3	2
Not Currently Eligible to Retire	225	232
Average Pay	$ 69,954	$ 69,527
Average Age	38	38
Average Service	10	10

* Only shows those eligible for normal (unreduced) retirement.

APPENDIX A
MEMBERSHIP DATA AND PROFILE

Table A - 2
Inactive Member Statistics

	7/1/2012	7/1/2013
Service Retirement		
Count	138	144
Total Annual Benefit	$ 6,537,551	$ 6,894,370
Annuitized Annual Benefit	309,512	309,512
Net Payable from Plan Assets	$ 6,228,039	$ 6,584,858
Average Age	62	62
Disabilities		
Count	49	46
Total Annual Benefit	$ 1,631,765	$ 1,553,582
Annuitized Annual Benefit	188,426	170,011
Net Payable from Plan Assets	$ 1,443,339	$ 1,383,571
Average Age	64	64
Beneficiaries		
Count	25	29
Total Annual Benefit	$ 440,002	$ 552,193
Annuitized Annual Benefit	84,679	76,830
Net Payable from Plan Assets	$ 355,323	$ 475,363
Average Age	68	67
Total Plan		
Count	212	219
Total Annual Benefit	$ 8,609,318	$ 9,000,145
Annuitized Annual Benefit	582,617	556,353
Net Payable from Plan Assets	$ 8,026,701	$ 8,443,792
Average Age	63	63
Terminated Vested		
Count	2	2
Average Age	51	52
Inactives		
Count	29	32
Return of Member Contributions	$ 39,832	$ 94,225

APPENDIX A
MEMBERSHIP DATA AND PROFILE

COUNTS BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	3	4	1	0	0	0	0	0	0	0	8
25 to 29	9	14	13	0	0	0	0	0	0	0	36
30 to 34	5	17	23	5	1	0	0	0	0	0	51
35 to 39	2	6	13	16	6	0	0	0	0	0	43
41 to 44	3	2	11	7	13	6	1	0	0	0	43
45 to 49	1	7	2	3	6	5	5	0	0	0	29
50 to 54	1	5	0	1	4	4	2	0	0	0	17
55 to 59	0	1	1	0	0	3	0	0	1	0	6
60 to 64	0	0	0	0	0	0	0	0	0	1	1
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	24	56	64	32	30	18	8	0	1	1	234

AVERAGE SALARY BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	44,644	54,758	59,818	0	0	0	0	0	0	0	51,598
25 to 29	44,391	56,703	65,027	0	0	0	0	0	0	0	56,631
30 to 34	44,058	56,470	66,409	78,427	76,973	0	0	0	0	0	62,291
35 to 39	51,002	53,875	65,901	78,158	85,109	0	0	0	0	0	70,771
41 to 44	48,731	62,251	64,243	73,108	88,776	100,110	105,826	0	0	0	77,900
45 to 49	46,071	68,337	62,367	73,874	82,343	86,813	96,890	0	0	0	78,737
50 to 54	42,003	68,792	0	71,604	86,287	81,690	109,985	0	0	0	79,379
55 to 59	0	113,762	64,302	0	0	84,732	0	0	91,572	0	87,305
60 to 64	0	0	0	0	0	0	0	0	0	91,572	91,572
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	45,417	59,941	65,391	76,489	86,031	89,760	101,281	0	91,572	91,572	69,527

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

A. Long-Term Assumptions Used to Determine Plan Costs and Liabilities

1. Demographic Assumptions

a. Mortality:

RP-2000 Group Annuity Mortality Table projected from 2011 to 2016 using Scale AA in order to comply with ASOP 35, for healthy males and females.

Annual Deaths Per 10,000 Members		
Age	**Male**	**Female**
20	3	2
25	4	2
30	4	3
35	8	4
40	10	7
45	14	10
50	20	15
55	33	26
60	62	49
65	119	95
70	206	163
75	353	270
80	612	443
85	1,069	752
90	1,798	1,297
95	2,648	1,926
100	3,428	2,363
105	3,979	2,931

100% of active deaths are assumed to be service-connected.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

RP-2000 Group Annuity Mortality Table projected from 2011 to 2016 using Scale AA in order to comply with ASOP 35 set forward five years.

Annual Deaths Per 10,000 Members		
Age	**Male**	**Female**
20	4	2
25	4	3
30	8	4
35	10	7
40	14	10
45	20	15
50	33	26
55	62	49
60	119	95
65	206	163
70	353	270
75	612	443
80	1,069	752
85	1,798	1,297
90	2,648	1,926
95	3,428	2,363
100	3,979	2,931
105	4,000	3,646

b. Termination of Employment (Prior to Normal Retirement Eligibility):

Annual Terminations Per 1,000 Members	
Years of Service	**Terminations**
1	100
2	50
3	30
4	30
5	30
6	30
7	30
8 - 24	10
25 or more	0

It is assumed that members who terminate before normal or early retirement age elect to receive a refund of contributions instead of vested benefits.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

c. Disability:

Annual Disabilities Per 10,000 Members	
Age	**Male and Female**
20	13
25	20
30	28
35	35
40	43
45	50
50	50
55	50
60	50

100% of disabilities are assumed to be service-connected.

d. Retirement:

Annual Retirements per 100 Police Members		
Years of Service	**Hired before 7/1/2012**	**Hired on or after 7/1/2012**
20	35	0
21	30	0
22	15	0
23	15	0
24	15	0
25	50	50
26	15	15
27	75	75
28	15	15
29	15	15
30	15	15
31	15	15
32	15	15
33	15	15
34	15	15
35	100	100

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Annual Retirement per 100 Fire Members

Years of Service	Hired before 7/1/2012	Hired on or after 7/1/2012
20	15	0
21	15	0
22	15	0
23	15	0
24	15	0
25	33	33
26	15	15
27	15	15
28	25	25
29	25	25
30	50	50
31	30	30
32	30	30
33	30	30
34	30	30
35	100	100

e. Family Composition:

For purposes of valuing the pre-retirement death benefit, an assumption concerning how many employees are married is needed. The assumption used in this valuation is that 100% of employees are married at death while active and that the female spouse is one year younger than the male spouse.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

2. Economic Assumptions

Investment Return:

7.5% compounded per annum, after investment expenses.

Cost-of-Living Benefit Increases:

3.5% compounded per annum in Old Plan, 3.0% for Old Plan – Revised, and 2.5% for New Plan (based on assumed CPI increase of 3.5%).

Across-the-Board Increase in City Salaries:

3.5% compounded per annum.

Additional Salary Increases:

Salary Merit Scale Police	
Years of Service	**Percent Increase**
0	4.5%
1	4.5
2	3.5
3	3.5
4	2.5
5	2.5
6	1.5
7	1.5
8	1.5
9	1.5
10+	0.5

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Salary Merit Scale
Fire

Years of Service	Percent Increase
0	6.5%
1	6.5
2	5.0
3	4.0
4	2.5
5	1.5
6+	0.5

Administrative Expenses:

None explicitly assumed.

3. Changes Since Last Valuation

None.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The funding method used for this valuation is the "Entry Age Normal funding method." Under this method, the employer contribution has two components: the normal cost and the payment toward the unfunded actuarial liability.

The normal cost rate is determined for each active participant at entry age as a level percent of pay cost which, along with the member contributions, will pay for projected benefits at retirement for that participant. This rate is determined by taking the value, as of age at entry into the Plan, of the member's projected future benefits, reducing it by the value of future member contributions, and dividing it by the value, also as of the member's entry age, of his expected future salary.

The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and funds accumulated as of the same date is referred to as the unfunded actuarial liability. The actuarial liability includes projections of future member pay increases and future service credits and should not be confused with the Accrued Benefits Liability.

The unfunded portion of the actuarial liability is being amortized over a closed 30-year period, as a level dollar amortization.

2. Actuarial Value of Assets

The Plan uses a method based on the principle that the difference between actual and expected investment returns should be subject to partial recognition to smooth out fluctuations in the total return achieved by the Plan from year-to-year.

Under this method, the actuarial value of the assets is one-third of the market value plus two-thirds of the expected value, where the expected value is last year's actuarial value and subsequent cashflows into and out of the Plan, accumulated with interest at the valuation rate. This is equivalent to smoothing the difference between the experienced return and the assumed return.

3. Changes Since Last Valuation

None.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

1. Membership

The Plan covers employees of the Police and Fire Departments of the City of Annapolis. Employees are eligible from their date of hire.

There are three sub-plans. Membership in these is based in part on hire date and in part on voluntary election.

2. Member Contributions

Police hired before June 30, 2012:	6.5% of yearly earnings
Fire hired before June 30, 2012:	6.5% of yearly earnings
Police hired after June 30, 2012:	8.0% of yearly earnings
Fire hired after June 30, 2012:	8.0% of yearly earnings

Interest is credited at the rate of 5% per year to employee contributions.

3. Credited Service

All service as a member is credited. In addition, credit is allowed at the rate of one month for 22 days of accrued unused sick leave, to a maximum of 20 months.

4. Average Final Compensation

Compensation includes salary for regular scheduled hours only. Average final compensation is yearly earnings for the Old and Old Revised Plans, and the average over the high 36 consecutive months out of the prior 120 consecutive months (or shorter period of total service) for the New Revised Plan.

For EMT's compensation on or after July 1, 2004, pay differentials shall be phased-in over a three-year period as follows:

EMT-B: 0.66% July 1, 2004 to June 30, 2005; 1.33% July 1, 2005 to June 30, 2006; 2% July 1, 2006 to June 30, 2007.

EMT-I: 3.33% July 1, 2004 to June 30, 2005; 6.66% July 1, 2005 to June 30, 2006; 10% July 1, 2006 to June 30, 2007.

EMT-P: 5% July 1, 2004 to June 30, 2005; 10% July 1, 2005 to June 30, 2006; 15% July 1, 2006 to June 30, 2007.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

5. Normal Retirement

Eligibility

All Three Plans: 20 years of service if hired before July 1, 2012.

New Plan Revised for those hired on or after July, 1 2012: 25 year of service

Benefit

Old Plan: 2% of yearly earnings for each year of service; maximum is 60% of yearly earnings.

Old Plan Revised: 2.25% of yearly earnings for each year of service; maximum is 70% of yearly earnings.

New Plan Revised: 2.25% of average final compensation for each year of service; maximum is 70% of average final compensation.

All Three Plans: The benefit payable at 20 years of service is 50% of average final compensation with additional service valued at 2.25% from 20 to 24 years, and 2.5% for service more than 24 years up to the maximum.

6. Service-Connected Disability

Eligibility

No age or service requirement.

Benefit

66-2/3% of compensation as of the date of disability.

7. Ordinary Disability

Eligibility

Ten years of service.

Benefit

An amount determined under the normal retirement benefit formula, based on average final compensation and credited service as of disability date.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

8. Service-Connected Death

Eligibility

No age or service requirement.

Benefit

Old Plan and Old Plan Revised:	Spouse receives a benefit of 50% of member's current salary until death or remarriage.
New Plan Revised:	Spouse receives 50% of member's accrued benefit determined using salary and service earned to the member's date of death. Minimum benefit is 30% of member's current salary (40% if two or more dependent children are left).

9. Ordinary Death

Eligibility

Ten years of service.

Benefit

Old Plan and Old Plan Revised:	Spouse receives 1% of compensation as of date of death for each year of service to a maximum of 30 years.
New Plan Revised:	Spouse receives 50% of member's accrued benefit determined using salary and service earned to the member's date of death.

10. Vesting

Eligibility

Ten years of service, only applies to New Plan Revised.

Benefit

Normal retirement benefit based on average final compensation and service at date of termination. Benefit is payable in full at age 55.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

A member may withdraw his contributions at termination, in which case no deferred vested benefit is payable.

11. Withdrawal

Eligibility

Not eligible for other benefits.

Benefit

Member contributions with interest.

12. Form of Payment

The normal form of payment is a life annuity with a guarantee that at least the amount of member contributions will be paid to the retiree or beneficiaries.

A member who is entitled to a normal or early retirement benefit may elect an actuarially equivalent Joint and Survivor benefit.

Members of the Old Plan and the Old Plan Revised receive a 50% Joint and Survivor benefit as their normal form of payment.

Members may also elect to have a Level Income Option which is designed to provide for a level payment over the member's lifetime from a combination of the Plan and Social Security.

13. Cost-of-Living Adjustment

Old Plan:	Retired and disabled members receive annual increases equal to the same percentage as any increase in the pay scale for members of the same rank and years of service who are on active duty. Spouses receiving benefits will receive the same increase, subject to a cap of 3% per year.
Old Plan Revised:	Same provisions as Old Plan but service and disabled retirees' increase is capped at 4% per year.
New Plan Revised:	Each October 1, benefits are increased by the lesser of 3% or the increase in the cost-of-living index. The increase is applied only to benefits in pay status the preceding July 1.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Cost-of-living adjustments do not apply to deferred vested benefits prior to benefit commencement.

14. Changes Since Last Valuation

Employees hired on or after July 1, 2012 will have to complete 25 years of service to be eligible for retirement.