Actuarial Valuation Report
for the
Employees' Retirement System
of the City of Baltimore

as of June 30, 2014

Produced by Cheiron

December 2014

CHEIRON Classic Values, Innovative Advice

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December 2, 2014

Board of Trustees
Employees' Retirement System
7 East Redwood Street
12th Floor
Baltimore, Maryland 21202-3470

Dear Members of the Board:

We are pleased to submit the June 30, 2014 actuarial valuation of the Employees' Retirement System of the City of Baltimore (the System). This report contains information on the System's assets, liabilities, and contributions as well as discloses employer contribution levels.

The purpose of this report is to present the annual actuarial valuation of the Employees' Retirement System of the City of Baltimore. This report is for the use of the Employees' Retirement System's Retirement Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.

In preparing our report, we relied on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, 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 #23 *Data Quality*.

To the best of our knowledge, this report and its contents have been prepared in accordance with 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 credentialed actuaries, we 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. We are not attorneys and our firm does not provide any legal services or advice.

This report was prepared solely for the Employees' Retirement System of the City of Baltimore for the purposes described 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

Kenneth Kent, FSA, FCA, MAAA
Principal Consulting Actuary

Anu Patel, FSA, MAAA
Consulting Actuary

FOREWORD

Cheiron is pleased to provide the annual actuarial valuation report of the **Employees' Retirement System of the City of Baltimore** as of June 30, 2014. The purpose of this report is to:

1) **measure and disclose**, as of the valuation date, the financial condition of the System,

2) **report** on past and expected financial trends,

3) **determine** the recommended contributions for FYE 2016, and

4) **provide specific information** and documentation to support the City's funding obligation and information required by the auditors of the System.

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

Section I presents a summary of the valuation and compares this year's results to last year's results.

Section II contains exhibits relating to the valuation of assets.

Section III shows the various measures of liabilities and presents an analysis of the experience gains and losses over the past year and the source of changes to the unfunded actuarial accrued liability.

Section IV develops the City contribution rate determined using actuarial techniques.

Section V includes certain required disclosures for financial statements.

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

The actuarial assumptions reflect our understanding of the likely future experience of the System, and the assumptions as a whole represent an estimate for the future experience of the System. 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 could vary from our results.

SECTION I
SUMMARY

The key results of the June 30, 2014 actuarial valuation are as follows:

- Investments earned 15.73% on a market value basis. The expected rate of return is defined by the definition of *regular interest* in the City Code which is 6.55% for participant liability in pay status and 7.75% for all other liabilities. For comparing the actual return we determined a liability weighted expected return (taking the regular interest times a ratio of the respective present value of benefits over the total present value of benefits of the System) which aggregates these two values resulting in an expected discount rate this year of 7.09%.

- The actuarial asset value return was 7.30%, which produced a net loss of $10.3 million to the Fund this year when measured against the expected asset return of 7.75%.

- The unfunded actuarial liability decreased from $686.0 million on June 30, 2013 to $670.0 million on June 30, 2014. Though there was an asset loss of $10.3 million (based on actuarial assets) and a liability loss of $13.0 million, there was an overall decrease in the unfunded liability due to Plan contributions plus investment income being higher than the annual accruals and benefits being paid out of the Plan. Gains and losses are presented in detail in Section III of this report.

- The System's funded ratio, which is the ratio of actuarial asset value to actuarial liability improved from 68.1% last year to 69.7% this year.

- Council Bill 13-0223 passed in June 2013 introduced employee contributions for Plan C members who are not part of Detention Services or Department of Education. Employee contributions were to begin at 1.0% of compensation on July 1, 2013 and continue to increase by 1.0% each year thereafter until employee contributions reach 5.0% of compensation.

- Since Plan C member contributions were contingent upon increases in pay which were yet to be negotiated at the time the July 1, 2013 valuation was completed and when the City made the contribution for FYE 2014, the City contribution was not offset for Plan C member contributions. To account for member contributions and credits to the City funding requirement, the FYE 2015 contribution of $97,170,796 previously calculated as of the July 1, 2013 valuation was adjusted to account for expected Plan C member contributions of 2% of pay resulting in a net City contribution of $90,489,236. The City contribution is further reduced for payments made in excess of the required contribution after adjusting for member contributions actually received. This results in a net recommended City contribution of $86,857,159 for FYE 2015. However, it is our understanding that the total contribution of $97,170,796 was already paid for in FYE 2015. For valuation purposes we carried forward the difference.

- For FYE 2016, the required contribution after adjusting for expected member contributions is $86,974,700 is further reduced to $77,100,574 after the recognition of accumulated employee contribution credits. After the contribution is made for FYE 2016, there should be no further catchup adjustments for the phase-in of member contributions.

SECTION I
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- The total recommended contribution decreased by 11.2% from $86,857,159 for FYE 2015 to $77,100,574 for FYE 2016 mainly due to the adjustments for expected employee contribution (which are phased in at 1% a year until 5% is reached) and excess contributions with interest. This represents a decrease in cost as a percent of pay from 22.11% to 19.21%. The City's portion of the cost net of Detention Services and Department of Education for FYE 2016 is $61,547,003 compared to $72,202,909 for FYE 2015 which reflects the expected member contribution offsets. It is our understanding the School Board will contribute for Department of Education participants, and the State will contribute for Detention Services participants.

- The funding policy adopted by the Board provides for the unfunded actuarial liability to be amortized over a fixed period of 20 years targeting 100% funding by the fiscal year ending 2032. As of the current valuation, the remaining amortization period is 17 years.

- Council Bill 13-0247 signed in May 2014 made membership changes to the ERS plan. Employees hired or rehired after July 1, 2014 will be covered under a new Class D membership if they elect the "hybrid" plan option at time of employment. New employees will have the option to participate in both the Employees' Retirement System and the new Retirement Savings Plan (RSP) as hybrid members or opt out of the System and participate only in the RSP as non-hybrid members.

- Class D members will receive a benefit of 1.0% of Average Final Compensation time years of service or an enhanced benefit of 1.1% of Average Final Compensation times years of service if the member retires with 20 or more years of service. Additionally, the City will contribute 3% of pay to RSP for hybrid members and 4% of pay for non-hybrid members. Members also have the option to make voluntary deferrals to the City's Deferred Compensation Plan, with the City matching 50% of the first 2% of compensation deferred by the member.

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The tables below provide details on the development of the FYE 2016 contribution results, unfunded actuarial liabilities, and statistics on Plan membership. The total lump sum costs determined as payable at the beginning of the fiscal year reflect the offset of expected member contributions.

Table I-1
Valuation Summary

	2013 Valuation Applies to FYE 2015 Amount	2013 Valuation Applies to FYE 2015 % of Pay	2014 Valuation Applies to FYE 2016 Amount	2014 Valuation Applies to FYE 2016 % of Pay
1 Contributions				
Total Normal Cost	$ 26,483,854	6.74%	$ 26,107,551	6.51%
Expected Employee Contributions FYE 2015/2016	(6,569,848)	-1.67%	(9,724,743)	-2.42%
Employer Normal Cost	$ 19,914,006	5.07%	$ 16,382,808	4.08%
Allocation from 6/30/2000 excess earnings to pay Ordinance 01-189 normal cost	(2,937,892)	-0.75%	(3,055,408)	-0.76%
Amortization of unfunded actuarial liability	66,763,936	16.99%	67,035,323	16.70%
Interest to beginning of next FY	6,749,186	1.72%	6,611,977	1.65%
Plan cost before adjustment	$ 90,489,236	23.03%	$ 86,974,700	21.67%
Excess contribution adjustment with interest[1]	(3,632,077)	-0.92%	(9,874,126)	-2.51%
Total lump sum cost	$ 86,857,159	22.11%	$ 77,100,574	19.21%
Total covered payroll	$ 392,868,271		$ 401,291,783	
2 Unfunded Liabilities				
Actuarial Liability				
Active	$ 836,898,918		$ 845,819,382	
Retirees and dependents	1,270,442,197		1,312,440,514	
Terminated vested	44,651,885		52,060,082	
Total	$ 2,151,993,000		$ 2,210,319,978	
Less: Actuarial value of assets	$ 1,465,943,503		$ 1,540,327,375	
Unfunded actuarial liability	$ 686,049,497		$ 669,992,603	
Funded Ratio	68.1%		69.7%	

[1] Reflects the difference between actual and expected employee contributions for Plan C members and the City's overpayment of lump sum cost. These are estimates and will be adjusted based upon actual contributions received.

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SUMMARY

The following tables summarize changes in plan membership over the past year.

Table I-2
Active Membership Summary

	Active Members			Payroll		%
	2013	2014	% Increase	2013	2014	Increase
Class A	27	21	-22.22%	$ 1,130,438	$ 881,727	-22.00%
Class C	8,977	8,883	-1.05%	391,737,833	400,410,056	2.21%
Total	9,004	8,904	-1.11%	$ 392,868,271	$401,291,783	2.14%
Average				$ 43,633	$ 45,069	3.29%

Table I-3
Inactive Membership Summary

	Number of Retirees			Average Annual Benefit Amount		
	2013	2014	% Increase	2013	2014	% Increase
Receiving Benefits						
Normal Service Retirement	5,567	5,613	0.8%	$ 15,683	$ 16,291	3.9%
Discontinued Service	954	945	-0.9%	19,470	19,888	2.1%
Ordinary Disability	833	814	-2.3%	8,975	9,301	3.6%
Accidental Disability	69	67	-2.9%	20,478	20,968	2.4%
Social Security Equalization	8	10	25.0%	6,439	5,315	-17.5%
Beneficiaries of Above	1,255	1,320	5.2%	7,625	7,609	-0.2%
Ordinary Death	105	107	1.9%	11,437	11,333	-0.9%
Special Death	17	17	0.0%	22,754	22,258	-2.2%
Total	**8,808**	**8,893**	**1.0%**	**$ 14,303**	**$ 14,719**	**2.9%**
Deferred Benefits						
Ternінated Vested	1,042	1043	0.1%	$ 7,671	$ 8,375	9.2%

Historical Trends

It is important to take a step back from these latest results and view them in the context of the System's recent history. Below, we present a series of charts which display key factors in the valuations of the last ten years.

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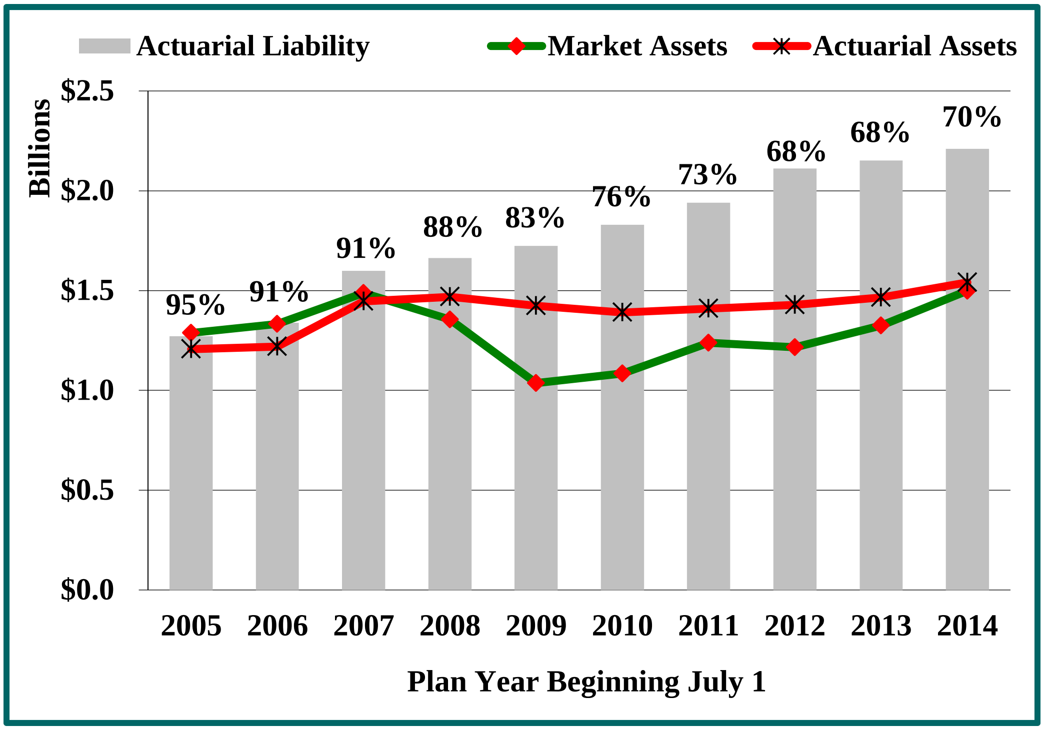
SUMMARY

Assets and Liabilities



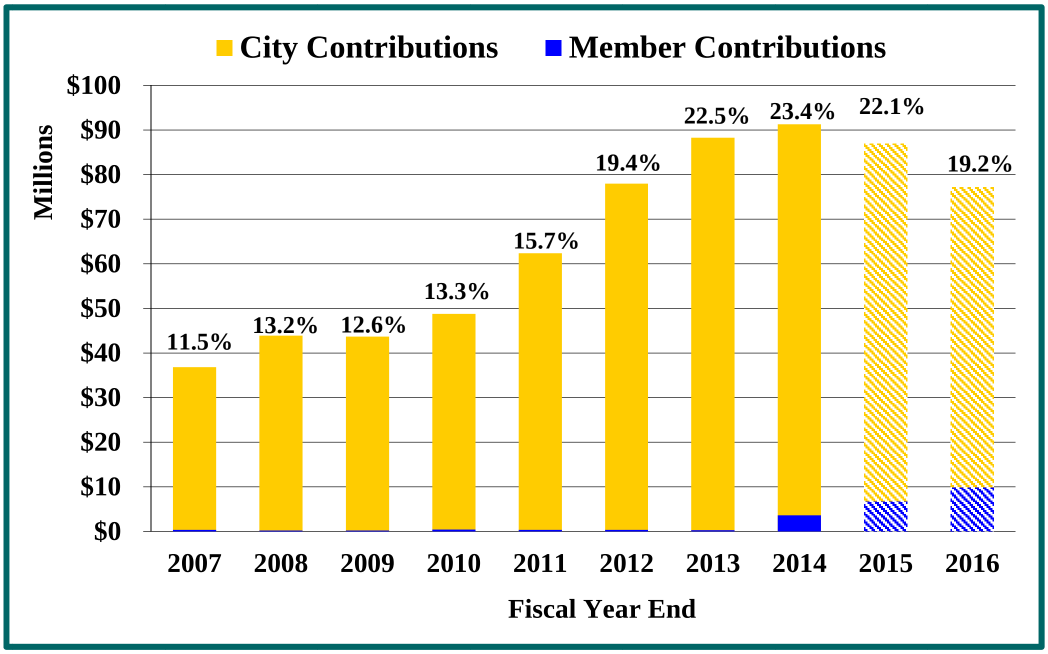
The chart above shows historical trends since 2005 for the market and actuarial value of assets compared to actuarial liability; the actuarial asset value reflects the market value plus one-fifth of the aggregate investment earnings above or below the expected return. We also show the progress of the Retirement System's funding ratios (ratio of actuarial assets over actuarial liabilities) provided along the top of each bar. As you can see, the System had its highest funded percentage during this decade (95%) on July 1, 2005, shortly after the impact of the first market decline in 2000 through 2002 which resulted in the lower funded rates through 2006 as a function of the asset smoothing method deferring recognition of investment losses. Similarly the market decline during the 2008/2009 time period caused a drop in funded ratio with a slow recovery. The deferred investment losses are partially recognized and further offset by investment gains resulting in the actuarial assets being almost equal to the market assets. The increase in liability as of July 1, 2012 was mainly due to the change to the Entry Age Normal Cost funding method.

While the funded ratio has declined significantly over this period, the strong funding policy adopted by the Board to amortize the unfunded liability over a decreasing period (17 years remaining for fiscal year ending June 30, 2016) should ensure improvement in this important measurement.

SECTION I
SUMMARY

Contribution Rates

This graph shows the historical trends for the actuarially calculated contributions (including City and member contributions) and net City contribution rate, shown above each bar, denominated as a percent of payroll. Because there is a one-year lag in the determination of the City contributions, we show the actual contributions made through FYE 2014 and the estimated amounts for FYE 2015 and FYE 2016.



The increasing costs from 2010 to 2014 are a reflection of an increasing unfunded actuarial liability in part due to investment losses. The City contribution rate is net of member contributions. The City contribution rate drops for FYE 2015 and FYE 2016 mainly due to the one–time credit applied for contributions already made by the City in excess of the required amounts due to the member contribution offset. The member contributions for FYE 2014 start at 1% of pay increasing by 1% each year until they will reach 5% of pay in FYE 2018.

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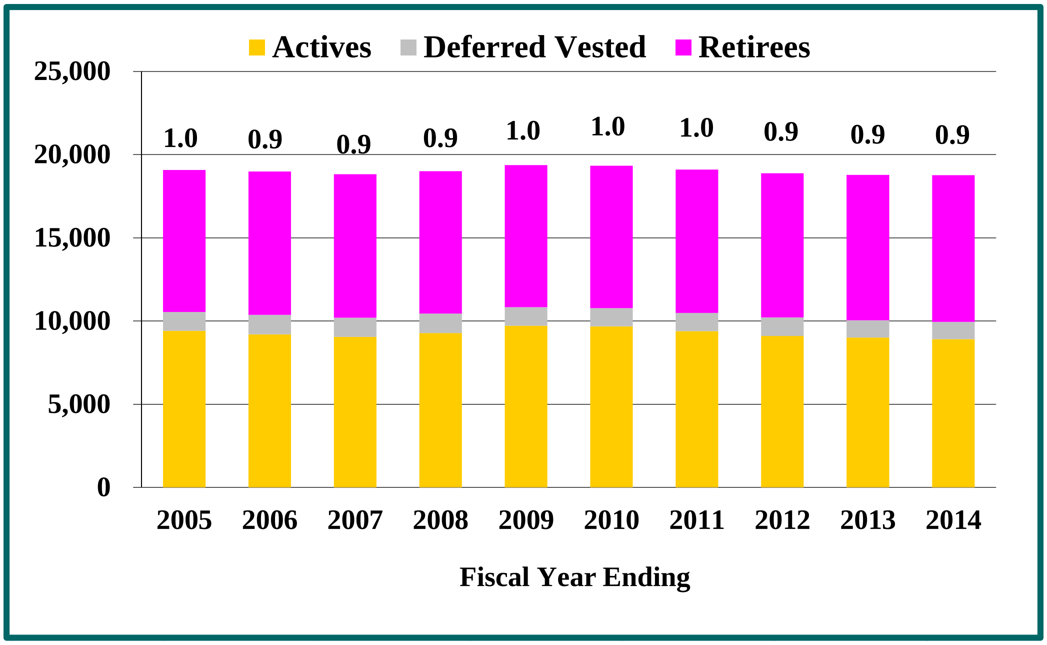
Participant Trends

As with many public employer pension funds in this country, the ratio of active to retired members is at or below one, representing the System's maturity.

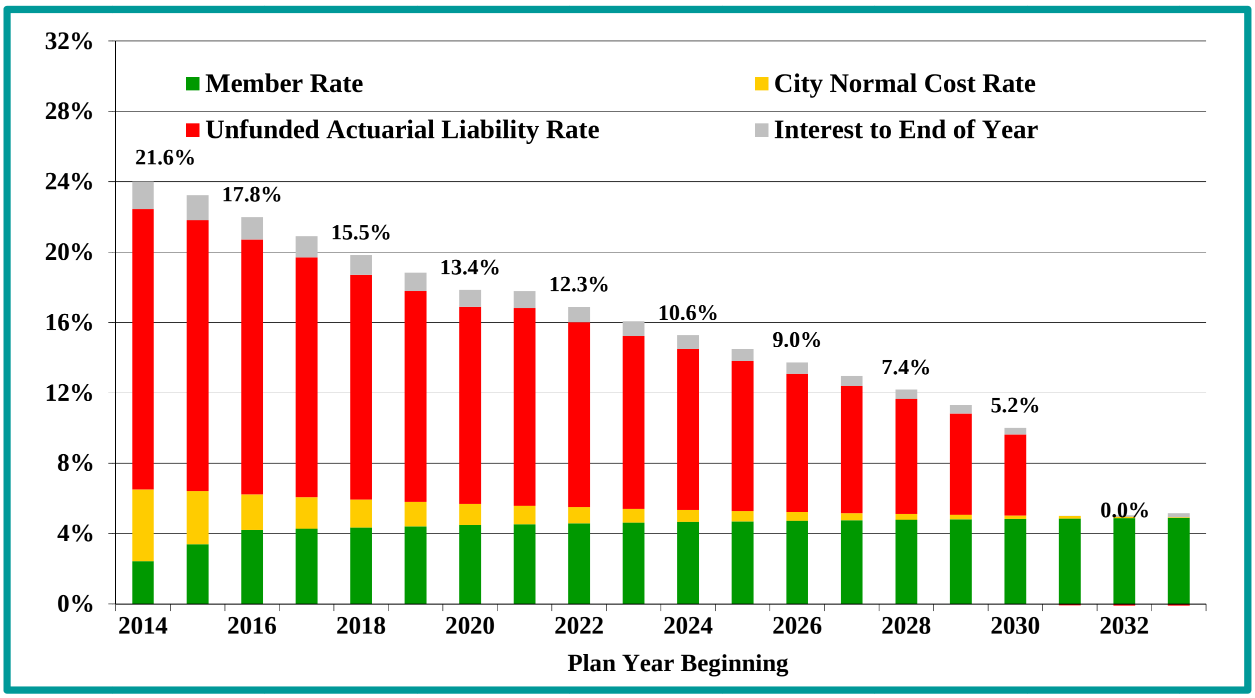
The following chart shows that the number of actives covered by the Plan has remained relatively stable over the nine-year period. The ratio of active to inactive participants as of the current valuation is 0.9. The implications of this ratio of approximately one active for each inactive participant is that the unfunded liabilities, which represent the System overall, is funded as a percent of active participant payroll. Therefore the costs as a percent of payroll will be more volatile for a plan with this ratio of active to inactive participants.



SECTION I
SUMMARY

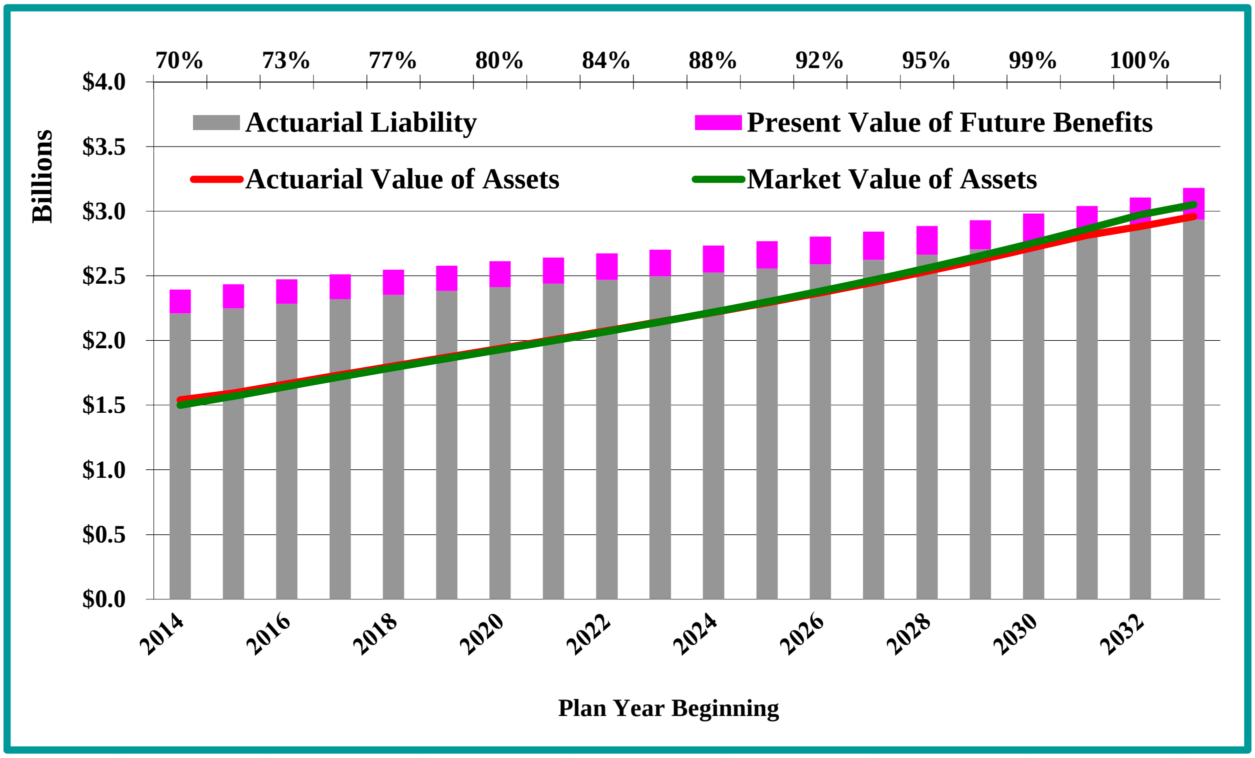
Base Line Projections

The chart on this page shows the expected progress of the System's funding status over the next 20 years measured in terms of the City's contribution rate and the funding ratio assuming the long-term return rate of 7.75%. This projection reflects the changes in plan membership. All new members participate at a lower benefit formula and contribute at 5.0% of pay under Class D membership. The first chart below shows expected member contribution rate, the normal cost rate, unfunded actuarial liability rate and the net City's composite contribution rate (numbers on the top of the bars). The City's total cost as a percent of payroll is projected to decrease steadily over the projection period as a function of the funding policy which pays the unfunded liability over a fixed period resulting in level dollar amortization payments. The cost eventually drops to 0% when the unfunded liability is fully paid off and majority of remaining active members are expected to be covered as Class D members. Class D members 5.0% contribution rate is expected to be greater than their normal cost rate, the cost of the annual benefit accrual. Therefore the City's net cost will trend toward zero as Class C members retire. The increase in cost to fund the UAL in year 2021 is due to the ending of the Ordinance 01-189 normal cost adjustment.



SECTION I
SUMMARY

The next chart compares Assets and Liabilities and shows that if all actuarial assumptions are exactly met, the Plan's funded ratio shown along the top of the graph is projected to improve gradually from the current level of 70% to 100% funding in 17 years, by 2031.

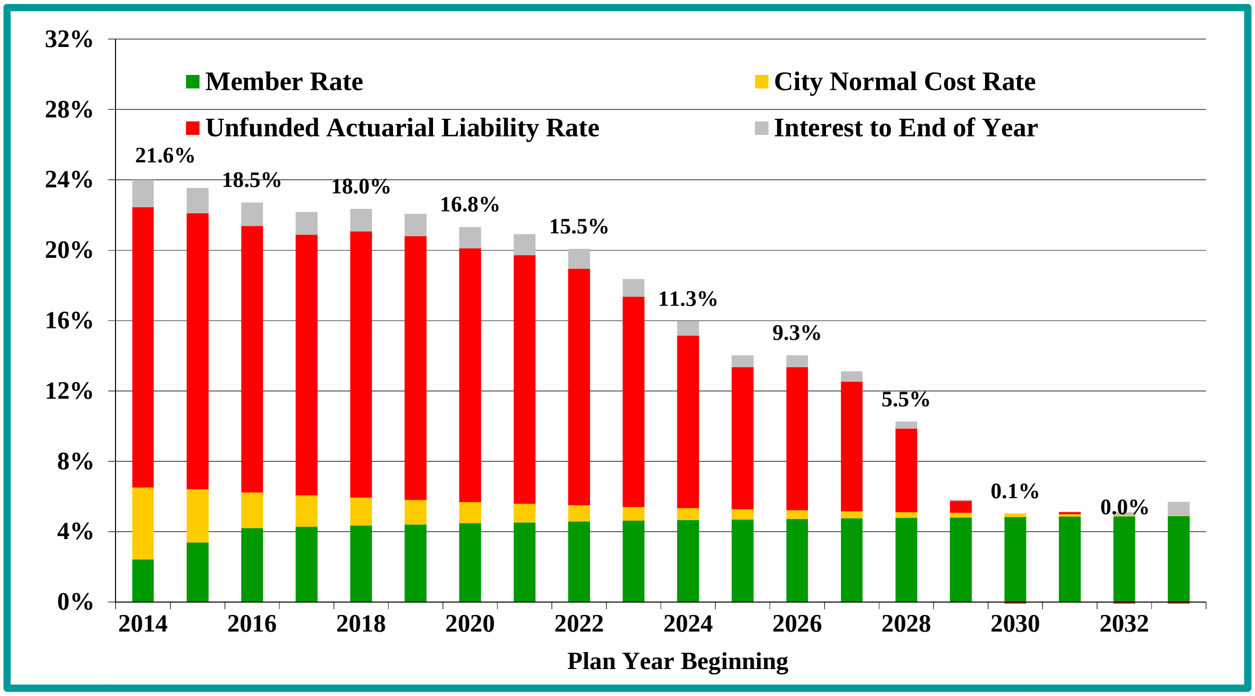


This pattern of funded status improvement is a function of the funding policy to amortize the UAL over a fixed 20-year period from 2011. It is important to also observe that the nature of the asset smoothing is for the market value to always be below the actuarial value of assets until such time that the fund experiences sufficient gains to reverse this relationship. At the end of the amortization period, the market and actuarial values merge as the actuarial value of assets gets closer to market value each year if there are no additional investment gains or losses in excess of the assumed rate projected forward.

SECTION I
SUMMARY

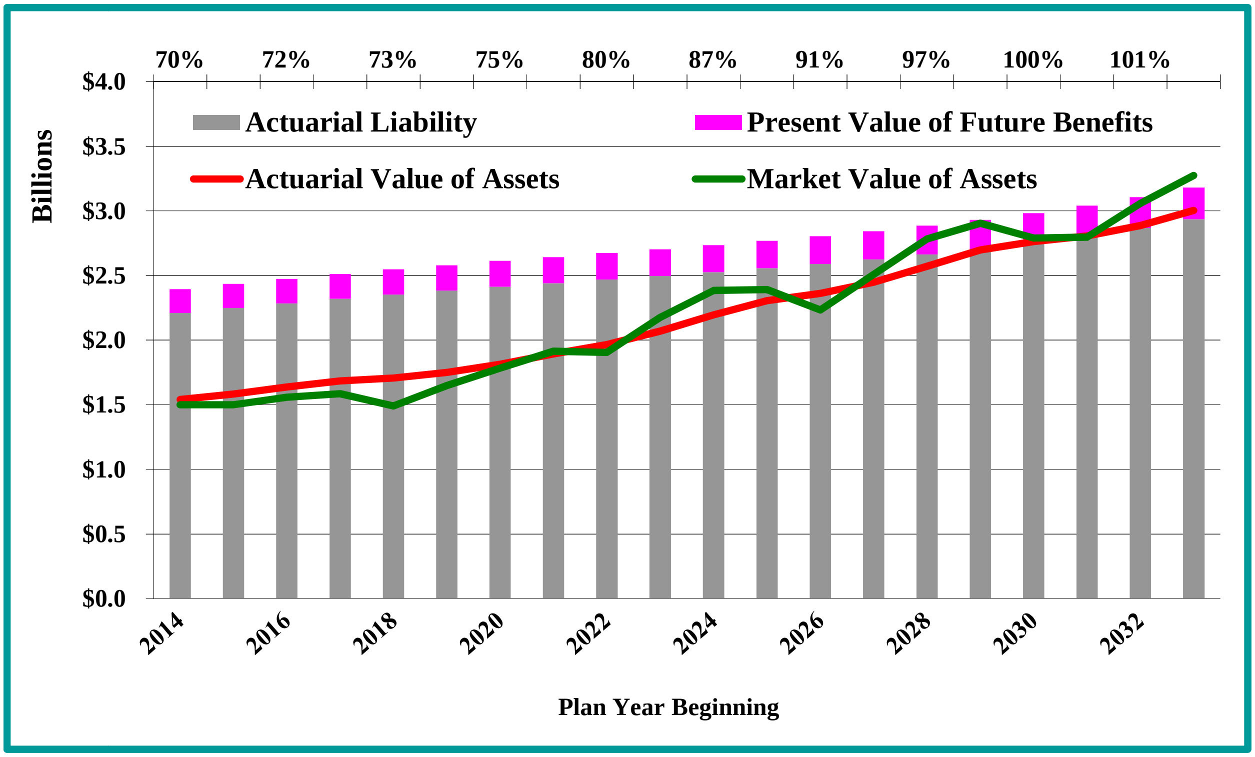
The next two graphs show the same information as above but reflect the fact that the 7.75% investment return is not likely to actually occur each year but represents an average of more volatile returns. They are based on projected returns that while volatile produce the same average 7.75% return based on the following table.

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
3.00%	7.00%	5.00%	-2.50%	15.00%	12.00%	11.00%	3.00%	18.00%	13.00%	3.50%	-3.00%	17.00%
2027	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**
15.00%	8.00%	0.00%	5.50%	15.00%	12.00%	0.00%	6.75%	4.00%	9.00%	6.00%	9.50%	13.00%



This graph above shows the nature of the fixed amortization period and the potential for cost volatility as the fund gets closer to the target date for full funding. It is anticipated that as that date gets closer and based on plan experience additional measures may be considered to address cost volatility.

SECTION I
SUMMARY



This presents a realistic view of the potential volatility of the System and highlights the long-term implications of the funding and funded status risks from market volatility.

SECTION II
ASSETS

The assets below are based on unaudited financial data furnished by the Retirement System's Office. The change in market value of assets during the valuation year ending June 30, 2014 is summarized below.

Table II-1

Assets of the Plan as of June 30, 2014

	Total Market Value
Fund Balance on June 30, 2013	$ 1,324,733,814
Contributions	
Member	$ 3,623,467
Member Purchase Service	0
City/State	$ 94,917,886
Net Investment Income	
Interest, Dividends, and Realized Capital Gains	$ 24,813,117
Unrealized Gains (Losses)	192,951,419
Expenses	(8,117,367)
Total Investment Income	$ 209,647,169
Administrative Expenses	$ (3,711,975)
Payments of Benefit & Refunds	$ (129,973,970)
Fund Balance on June 30, 2014	$ 1,499,236,391

SECTION II
ASSETS

The chart below shows the calculation of investment gains and losses. On a market value basis, the Fund earned a return amounting to total investment income of $205,935,194 during FY 2013-2014. Because the liabilities are valued using different discount rates for actives and inactives, we allocate this return over net actuarial liabilities of active and inactive participants separately. The investment gain on a market basis related to the inactive liabilities using the expected return rate of 6.55% was $120.2 million. The investment gain on a market basis related to the active liabilities using the expected return rate of 7.75% was $104.5 million. Combining these two gains in relation to the portion of funds in each group, results in a net System asset gain over the assumptions on a market value basis of $113.1 million.

Table II-2
Development of Investment Gain / (Loss)

1. Market Value of assets as of June 30, 2013	$	1,324,733,814
2. Market Value of assets as of June 30, 2014	$	1,499,236,391
3. Earnings during June 30, 2013 to June 30, 2014 (including investment expenses)	$	205,935,194
4. Mean Assets [Half of ((1.) + (2.) - (3.))]	$	1,309,017,506
5. Investment return 2013-2014 [(3.) ÷ (4.)]		15.73%
6. Investment gain / (loss)		
a. Relative to 6.55%: [(5.) - 6.55%] x (4.)	$	120,167,807
b. Relative to 7.75%: [(5.) - 7.75%] x (4.)	$	104,459,597
7. Funds as a portion of market value of assets		
a. Retired PVFB/Total PVFB		0.54827
b. (Total PVFB - Retired PVFB)/Total PVFB		0.45173
c. Total: (a) + (b)		1.00000
8. Total investment gain / (loss)		
a. Retired: (6a.) x (7a.)	$	65,884,972
b. Active: (6b.) x (7b.)	$	47,187,039
c. Total Investment Gain / (Loss): (a) + (b)	**$**	**113,072,011**

The investment gains for FYE 2014 are taken together with past experience to determine an actuarial asset value for determining the City's contribution obligations.

SECTION II
ASSETS

The table below shows the development of the unallocated earnings which represent the earnings above and below the valuation interest assumption. The excess earnings are calculated by the "asset averaging method" from Article 22(7) (b) of the Baltimore City Code. This method uses one-fifth of the excess earnings for the year to adjust the unfunded actuarial liability in the current year. The other four-fifths of the excess earnings is used to smooth investment experience, and occasionally has been used for purposes such as benefit improvements, contribution reductions and changes in actuarial assumptions when positive. The unrecognized deferred earnings decreased from a deficit of $66,866,623 to an excess of $36,964,310, a change in net unallocated accumulated earnings of $103,830,933 as of June 30, 2014. This net excess is gradually recognized in the future actuarial value of assets and impacts future contributions to the System. However, future investment gains/(losses) may ameliorate/(exacerbate) this recognition.

Table II-3
Development of Unallocated Earnings

The development of current unallocated excess/(deficit) earnings over the most recent two years is as follows:

	Valuation Date	
	6/30/2013	**6/30/2014**
1. Remaining net excess earnings from prior valuation	$ (146,787,278)	$ (66,866,623)
2. New investment gain/(loss)	63,203,999	113,072,011
3. Current net excess earnings (1) + (2)	$ (83,583,279)	$ 46,205,388
4. One-fifth (credit) charge (3) /(5)	16,716,656	(9,241,078)
5. Net unallocated excess/(deficit) earnings (3) + (4) = (5)	$ (66,866,623)	$ 36,964,310

SECTION II
ASSETS

The table below shows the calculation of the actuarial value of assets. The assets are smoothed using the unallocated earnings calculation. One additional item is included in the actuarial value of assets, which is the Normal Cost Reserve from Plan Change.

Table II-4
Actuarial Value of Assets

The actuarial value of assets used to calculate the unfunded actuarial liability is developed as follows:

1. Assets in the Fund on June 30, 2014			$	1,499,236,391	
2. Net deferred recognition of unallocated excess/(deficit) earnings			$	36,964,310	
3. Normal Cost Reserve from plan change			$	(19,003,790)	*
4. Present value of prior year's contributions not yet paid			$	97,059,084	
5. Preliminary actuarial value of assets on June 30, 2014 (1) - (2) + (3) + (4)			$	1,540,327,375	**
6. Corridor testing:	80% of market value assets	$ 1,199,389,113			
	120% of market value assets	$ 1,799,083,669			
7. Final actuarial value of assets on June 30, 2014			$	1,540,327,375	
8. Ratio of actuarial asset value to adjusted market asset value				98%	

* A reserve from the 6/30/2000 accumulated net excess earnings was established to pay the assumed increase in normal cost due to the Ordinance 01-189 improvements.

** The actuarial value of assets represents 102.7% of the market value which is down from the same measurement least year of 110.7%.

On actuarial asset value, due to the continued gradual recognition of prior year's investment losses, the rate of return is below expectation with an asset rate of return for the year of 7.30% which is compared to the expected investment return of 7.75%. As of June 30, 2014 previous investment losses are partially being recognized and further offset by investment gains which are being deferred for recognition in the future.

SECTION II
ASSETS

The table below shows the schedule of the Normal Cost Reserve from Plan Changes. This schedule was established during the 2001 valuation year as a means of funding a benefit enhancement by reserving the full amount of the cost at a time when the actuarial asset value exceeded the liabilities. The Normal Cost Reserve, which reflects the unamortized balance, is taken out of the actuarial value of assets until valuation year 2020, at which time, the Plan Changes will be fully amortized.

Table II-5
Normal Cost Reserve from Plan Change

June 30,	Additional Normal Cost	Normal Cost Reserve
2001	$ 1,835,000	$ 26,256,000
2002	1,908,400	26,374,680
2003	1,984,736	26,423,582
2004	2,064,125	26,393,954
2005	2,146,690	26,276,215
2006	2,232,558	26,059,887
2007	2,321,860	25,733,515
2008	2,414,734	25,284,587
2009	2,511,323	24,699,441
2010	2,611,776	23,963,167
2011	2,716,247	23,059,502
2012	2,824,896	21,919,857
2013	2,937,892	20,574,820
2014	3,055,408	19,003,790
2015	3,177,624	17,184,382
2016	3,304,729	15,092,282
2017	3,436,918	12,701,088
2018	3,574,395	9,982,143
2019	3,717,371	6,904,348
2020	3,866,066	3,433,968

SECTION III
LIABILITIES AND EXPERIENCE GAINS/(LOSSES)

The table below presents the actuarial liabilities by membership status and employer, and then allocates the assets in proportion to each employer's liabilities, to produce the unfunded actuarial liability by employer. On the following page, this unfunded liability is amortized over the remaining 17 years, and that amount is then added to the Net Normal Cost (cost to cover the upcoming year's expected accruals less member contributions) to produce the recommended employer contributions.

Table III-1
Liability By Employee Group

	As of June 30, 2014			
	Dept. of Education	Detention Services	All Others	Total
Number of Participants				
Active	1,749	6	7,149	8,904
Service retired				6,568
Disabled				881
Terminated vested				1,043
Dependents				1,444
Total Participants				18,840
Annual compensation of active participants	$ 77,286,762	$ 328,917	$ 323,676,104	$ 401,291,783
Average Age	49.43	58.33	50.00	49.89
Average Service	12.04	30.40	14.26	13.83
Development of Unfunded Actuarial Liability				
Actuarial Liability				
Active	$ 119,652,560	$ 1,644,699	$ 724,522,123	$ 845,819,382
Retirees and dependents				1,312,440,514
Terminated vested				52,060,082
Total liabilities				$ 2,210,319,978
Actuarial value of assets				
Active	$ 24,873,069	$ 341,896	$ 150,611,814	$ 175,826,779
Retirees and dependents				1,312,440,514
Terminated vested				52,060,082
Total assets				1,540,327,375
Unfunded actuarial liability *	$ 94,779,491	$ 1,302,803	$ 573,910,309	$ 669,992,603

* Unfunded actuarial liability was allocated in proportion to each employee group actuarial active liability.

SECTION III
LIABILITIES AND EXPERIENCE GAINS/(LOSSES)

The table below presents the change in actuarial liabilities, actuarial assets and unfunded liability during the plan year. In general, the unfunded actuarial liability (UAL) of any retirement system is expected to change at each subsequent valuation for a variety of reasons. In each valuation, we report on those elements of change in the UAL which are of particular significance, potentially affecting the long-term financial outlook of the System. Below we present key changes in liabilities and assets since the last valuation.

Table III-2
Development of 2014 Experience (Gain)/Loss

	Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability
1. Value as of June 30, 2013	$ 2,151,993,000	$ 1,465,943,503	$ 686,049,497
a.) Actives at 7.75%	$ 836,898,918		
b.) Inactives and TV at 6.55%	$ 1,315,094,082		
2. Additions			
a.) Normal Cost	$ 26,483,854		$ 26,483,854
b.) Actual Employer Contributions		$ 94,917,886	$ (94,917,886)
c.) Actual Member Contributions		$ 3,623,467	$ (3,623,467)
3. Decreases			
a.) Benefit Payments	$ (129,973,970)	$ (129,973,970)	$ 0
4. Expected Interest			
a.) On 1 for one year	$ 150,998,329	$ 113,610,621	$ 37,387,708
b.) On 2a for one year	$ 2,052,499	$ 0	$ 2,052,499
c.) On 2b for one year*	$ 0	$ 7,356,136	$ (7,356,136)
d.) On 2c for 1/2 year	$ 0	$ 137,789	$ (137,789)
e.) On 3a for 1/2 year	$ (4,189,138)	$ (4,942,517)	$ 753,379
5. Expected Value June 30, 2014: (sum 1-4)	$ 2,197,364,574	$ 1,550,672,915	$ 646,691,659
6. Change in methods/assumptions	$ 0	$ 0	$ 0
7. Change in benefits**	$ (1,001,048)	$ 0	$ (1,001,048)
8. Expected value after changes: (sum 5-7)	$ 2,196,363,526	$ 1,550,672,915	$ 645,690,611
9. Actual Value as of June 30, 2014	$ 2,210,319,978	$ 1,540,327,375	$ 669,992,603
10. Actuarial (Gain)/Loss: (8 -9)	$ 13,956,452	$ 10,345,540	$ 24,301,992
11. Total (Gain)/Loss: (6 + 7 + 10)	$ 12,955,404	$ 10,345,540	$ 23,300,944

* Assumes contributions made at year end.

** Reflects plan change due to member contributions for Plan C members.

SECTION III
LIABILITIES AND EXPERIENCE GAINS/(LOSSES)

Table III-3
Development of 2014 Experience Gain/(Loss)

1. Unfunded Actuarial Liability at June 30, 2013	$	686,049,497
2. Additions (normal cost and contribution)		(72,057,499)
3. Interest accrued*		32,699,661
4. Expected Unfunded Actuarial Liability at June 30, 2014 (1) + (2) + (3)	$	646,691,659
5. Actual Unfunded Actuarial Liability at June 30, 2014	$	669,992,603
6. Total Gain/(Loss) at June 30, 2014 (4) - (5)	$	(23,300,944)

* Interest rate depends on active versus inactive.

Table III-4
Elements of Actuarial Assets - Gain/(Loss)

1. Change in unallocated earnings - Gain/(Loss)	$	(103,830,933)
2. Change in Normal Cost Reserve - Gain/(Loss)		1,571,030
3. Asset Return - Gain/(Loss)		91,914,363
4. Total Actuarial Assets - Gain/(Loss) (1) + 2) + (3)	$	(10,345,540)

Table III-5
Elements of Actuarial Liability - Gain/(Loss)

1. Age and Service Retirements - Gain/(Loss)	$	963,930
2. Disability Retirements - Gain/(Loss)		(4,668,904)
3. Death in Service Benefits - Gain/(Loss)		(3,591,175)
4. Withdrawal from Employment - Gain/(Loss)		(7,667,343)
5. Pay Increases - Gain/(Loss)		5,589,217
6. Death after Retirement - Gain/(Loss)		3,717,110
7. New Entrants - Gain/(Loss)		(8,231,690)
8. Assumption Changes - Gain/(Loss)		0
9. Plan Changes - Gain/(Loss)		1,001,048
10. Other - Gain/(Loss)		(67,597)
11. Total Actuarial Liability - Gain/(Loss) (sum (1) to (10))	$	(12,955,404)

SECTION IV
CONTRIBUTIONS

This table presents the components that make up the costs by employer including the normal cost reflective of the value of the benefits earned during the year, employee contributions for members under Class A and Class C membership, the proportional shares of the amortization cost to pay off the unfunded actuarial liability and the special credit normal cost defined in Ordinance 01-189, all brought forward with interest for the one year delay in funding to the next fiscal year beginning. Because the City paid contributions prior to adjusting for Class C member contributions, there is a one-time offsetting credit for City contributions that were paid in excess of the required amounts, which is identified below. Under the current funding policy, the unfunded actuarial liability is amortized over a fixed period of 20 years starting from fiscal year beginning 2011. As of the current valuation, the remaining amortization period is 17 years.

Table IV-1
Contribution Summary

	As of June 30, 2014				
	Dept. of Education	Detention Services	All Others	Total	% of Pay
Total Normal Cost	$ 5,249,216	$ 17,669	$ 20,840,666	$ 26,107,551	6.51%
Expected Employee Contributions	(7,524)	0	(9,717,219)	(9,724,743)	-2.42%
Net Normal Cost	$ 5,241,692	$ 17,669	$ 11,123,447	$ 16,382,808	4.08%
17-year amortization of Unfunded Actuarial Liability	$ 9,483,051	$ 130,350	$ 57,421,922	$ 67,035,323	16.70%
Allocation from 6/30/2000 excess earnings to pay Ordinance 01-189 normal cost	$ (432,229)	$ (5,941)	$ (2,617,238)	$ (3,055,408)	-0.76%
Net plan cost at 7/1/2014	$ 14,292,514	$ 142,078	$ 65,928,131	$ 80,362,723	20.03%
Interest to 7/1/2015	1,107,967	11,011	5,492,998	6,611,976	1.65%
Plan cost before adjustment	15,400,481	153,089	71,421,129	$ 86,974,699	21.67%
Estimated excess contribution adjustment with interest	$ 0	$ 0	$ (9,874,126)	$ (9,874,126)	-2.46%
Net plan cost at 7/1/2015	$ 15,400,481	$ 153,089	$ 61,547,003	$ 77,100,573	19.21%

SECTION V
FINANCIAL STATEMENT INFORMATION

Prior to the current plan year, Statement No. 25 of the Governmental Accounting Standards Board (GASB) established standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information. While GASB No. 25 is no longer applicable for this System, the requirements of GASB Statement No. 27 remain in effect for the employer(s) who contribute(s) to the System for one more year. For contributing employers with June 30 fiscal years, GASB No. 68 will replace GASB No. 27 effective for the fiscal year ending June 30, 2015.

GASB No. 25 was replaced by GASB No. 67 effective June 30, 2014 for plan disclosures. We have prepared the following exhibits:

- Table V-1: Change in Net Pension Liability
- Table V-2: Sensitivity of Net Pension Liability to Changes in Discount Rate
- Table V-3: Schedule of Changes in Net Pension Liability and Related Ratios, and
- Table V-4: Schedule of Employer Contributions

Under the current discount rate assumption and in accordance with the funding policy the assets are projected to be sufficient to make all projected benefits payments for the current active population.

SECTION V
FINANCIAL STATEMENT INFORMATION

Table V-1 below shows the changes in the Total Pension Liability (TPL), the Plan Fiduciary Net Position (FNP) (i.e., market value of Plan assets), and the Net Pension Liability (NPL=TPL – FNP) during the Measurement Year.

Table V - 1
Change in Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	**Plan Fiduciary Net Position (b)**	**Net Pension Liability (a) - (b)**
Balances at 6/30/2013	$ 2,151,993,000	$ 1,324,733,814	$ 827,259,186
Changes for the year:			
Service cost	26,483,854		26,483,854
Interest	148,861,690		148,861,690
Changes of benefits	(1,001,048)		(1,001,048)
Changes of assumptions	0		0
Differences between expected and actual experience	13,956,452		13,956,452
Contributions - employer		94,917,886	(94,917,886)
Contributions - member		3,623,467	(3,623,467)
Net investment income		209,647,169	(209,647,169)
Benefit payments	(129,973,970)	(129,973,970)	0
Administrative expense		(3,711,975)	3,711,975
Net changes	58,326,978	174,502,577	(116,175,599)
Balances at 6/30/2014	$ 2,210,319,978	$ 1,499,236,391	$ 711,083,587

There were no changes in assumptions during the year.

Total contributions and investment income exceeded the service cost, interest cost, and administrative expenses, resulting in a decrease in the Net Pension Liability (NPL) of approximately $116 million. The NPL remaining as of June 30, 2014 is approximately $711 million.

SECTION V
FINANCIAL STATEMENT INFORMATION

Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. Table V-2 below shows the sensitivity of the NPL to the discount rate. The discount rate assumption is 7.75% compounded annually until retirement except employee accumulations and 6.55% compounded annually after retirement in accordance with the City Code definition of regular interest.

Table V - 2
Sensitivity of Net Pension Liability to Changes in Discount Rate

	1% Decrease	Discount Rate	1% Increase
Discount Rate - Active Participants	**6.75%**	**7.75%**	**8.75%**
Discount Rate - Inactive Participants	**5.55%**	**6.55%**	**7.55%**
Total Pension Liability	$ 2,455,895,350	$ 2,210,319,978	$ 2,002,737,422
Plan Fiduciary Net Position	1,499,236,391	1,499,236,391	1,499,236,391
Net Pension Liability	$ 956,658,959	$ 711,083,587	$ 503,501,031
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	61.0%	67.8%	74.9%

A 1% decrease in the discount rate increases the TPL by approximately 11% and increases the NPL by approximately 35%. A 1% increase in the discount rate decreases the TPL by approximately 9% and decreases the NPL by approximately 29%.

SECTION V
FINANCIAL STATEMENT INFORMATION

The schedules of Required Supplementary Information generally start with one year of information as of the implementation of GASB 67, but eventually will need to build up to ten years of information. Table V-3 below shows the changes in NPL and related ratios required by GASB.

Table V - 3
Schedule of Changes in Net Pension Liability and Related Ratios

		FYE 2014
Total Pension Liability		
Service cost (MOY)	$	26,483,854
Interest (includes interest on service cost)		148,861,690
Changes of benefit terms		(1,001,048)
Differences between expected and actual experience		13,956,452
Changes of assumptions		0
Benefit payments, including refunds of member contributions		(129,973,970)
Net change in total pension liability		**58,326,978**
Total pension liability - beginning		**2,151,993,000**
Total pension liability - ending	**$**	**2,210,319,978**
Plan fiduciary net position		
Contributions - employer	$	94,917,886
Contributions - member		3,623,467
Net investment income		209,647,169
Benefit payments, including refunds of member contributions		(129,973,970)
Administrative expense		(3,711,975)
Net change in plan fiduciary net position	$	174,502,577
Plan fiduciary net position - beginning		**1,324,733,814**
Plan fiduciary net position - ending	**$**	**1,499,236,391**
Net pension liability - ending	**$**	**711,083,587**
Plan fiduciary net position as a percentage of the total pension liability		67.83%
Covered employee payroll	$	401,291,783
Net pension liability as a percentage of covered employee payroll		177.20%

SECTION V
FINANCIAL STATEMENT INFORMATION

If an Actuarially Determined Contribution is calculated, the following schedule (Table V-4) is required. An Actuarially Determined Contribution is a contribution amount determined in accordance with Actuarial Standards of Practice.

Table V - 4
Schedule of Employer Contributions
Last 10 Fiscal Years
Dollar Amounts in Thousands

		2014
Actuarially Determined Contribution	$	91,286
Contributions in Relation to the Actuarially Determined Contribution	$	94,918
Contribution Deficiency/(Excess)	$	(3,632)
Covered-Employee Payroll	$	401,292
Contributions as a Percentage of Covered-Employee Payroll		23.65%

Notes to Schedule

Valuation Date	July 1, 2012
Timing	Actuarially determined contribution rates are calculated based on the actuarial valuation two years prior to the beginning of the plan year

Key Methods and Assumptions Used to Determine Contribution Rates:

Actuarial cost method	Entry Age Normal
Asset valuation method	Market Value
Amortization method	Level percent of pay closed period with 19 years remaining as of July 1, 2012
Discount rate	7.75% until retirement; 6.55% after retirement
Investment return	7.75% which is net of all expenses. While this is the same rate used for funding purposes which includes administrative expenses, for consistency in measurement we have used the same rate for the expected future asset return.
Social Security Wage Base	3.00%
Inflation	2.75%
Salary increases	Age based salary scale
Mortality	Sex distinct 1994 Uninsured Pensioners Generational Mortality with adjustments and improvements using Scale AA

A complete description of the methods and assumptions used to determine contribution rates for the year ending June 30, 2014 can be found in the July 1, 2012 actuarial valuation report

APPENDIX A
PLAN MEMBERSHIP

The data for this valuation was provided electronically in Excel by the Retirement System Office. Cheiron did not audit any of the data, however the data was reviewed to ensure that it complies with generally accepted actuarial standards. The data for active and inactive participants is as of June 30, 2014. Where data elements were missing, dates of hire, dates of birth, and benefit accrual level assumptions were made to fill-in the blanks. The assumed values are included in Appendix B.

The following pages contain a summary of the data provided.

- Reconciliation of participants as of June 30, 2014
- Age/service and age/salary/service distribution for active members as of June 30, 2014
- Counts and average benefit amount by age for retirees, beneficiaries and disabled members as of June 30, 2014

APPENDIX A
PLAN MEMBERSHIP

PARTICIPANT RECONCILIATION FROM JUNE 30, 2013 TO JUNE 30, 2014

	Actives	Term. Vested	Disabled	Retired	Survivor	Total
1. June 30, 2013 valuation	**9,004**	**1,042**	**885**	**6,546**	**1,377**	**18,854**
2. Additions						
a. New entrants / pickups	531					531
b. Returned to work	157					157
c. Transferred						
Total	**688**					**688**
3. Reductions						
a. Terminated - not vested	(370)					(370)
b. Non-Participating						
c. Lump sum						
d. Deaths without beneficiary	(6)	(20)	(51)	(166)	(102)	(345)
Total	**(376)**	**(20)**	**(51)**	**(166)**	**(102)**	**(715)**
4. Changes in status						
a. Terminated - vested	(96)	96				
b. Returned to work	14	(9)	(1)	(4)		
c. Retired	(304)	(69)		373		
d. Disabled	(26)	(3)	29			
e. Died with beneficiary				(169)	169	
f. Data corrections		6	19	(12)		13
Total	**(412)**	**21**	**47**	**188**	**169**	**13**
5. June 30, 2014 valuation	**8,904**	**1,043**	**881**	**6,568**	**1,444**	**18,840**

APPENDIX A
PLAN MEMBERSHIP

AGE/SERVICE DISTRIBUTION OF ACTIVE PARTICIPANTS
ACTIVE PARTICIPANTS AS OF JUNE 30, 2014

	COMPLETED YEARS OF CREDITED SERVICE									
AGE	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	Total
Under 25	46	1	0	0	0	0	0	0	0	47
25-29	233	119	4	0	0	0	0	0	0	356
30-34	353	265	62	0	0	0	0	0	0	680
35-39	255	318	159	40	1	0	0	0	0	773
40-44	241	284	222	142	41	5	0	0	0	935
45-49	201	332	216	182	96	111	0	0	0	1,138
50-54	176	334	267	211	129	288	78	2	0	1,485
55-59	130	262	252	237	163	302	236	69	2	1,653
60-64	82	184	151	156	71	195	151	122	47	1,159
65-69	35	74	64	68	33	62	42	51	42	471
70 & Up	14	42	33	18	16	29	20	13	22	207
Total	1,766	2,215	1,430	1,054	550	992	527	257	113	**8,904**

Average Age = 49.89 Average Service = 13.83

APPENDIX A
PLAN MEMBERSHIP

AGE/SERVICE DISTRIBUTION OF ACTIVE PARTICIPANTS
ACTIVE PARTICIPANTS AS OF JUNE 30, 2014

	AVERAGE EARNINGS									
AGE	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	Total
Under 25	$ 31,205	$ 29,245	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 31,163
25-29	40,050	32,345	35,484	0	0	0	0	0	0	37,423
30-34	46,431	41,393	37,435	0	0	0	0	0	0	43,647
35-39	50,171	45,301	47,500	42,497	34,174	0	0	0	0	47,200
40-44	47,008	41,734	46,267	47,674	51,177	46,576	0	0	0	45,512
45-49	46,668	41,488	42,237	45,107	50,970	49,440	0	0	0	44,699
50-54	48,200	40,959	39,058	43,685	47,545	50,292	51,905	47,779	0	44,829
55-59	46,921	39,993	38,997	40,762	44,187	48,698	53,152	58,668	50,870	45,172
60-64	53,360	39,945	45,970	43,122	46,192	49,439	54,326	54,982	54,948	48,151
65-69	48,489	41,244	39,203	43,747	49,803	51,658	53,149	53,976	50,281	47,083
70 & Up	26,201	27,367	32,494	39,020	38,764	44,752	44,087	44,232	46,716	37,166
Total	$ 46,253	$ 40,898	$ 42,090	$ 43,607	$ 47,099	$ 49,448	$ 52,960	$ 55,172	$ 51,539	$ 45,069

Total Earnings = $ 401,291,783 Average Earnings = $ 45,069

APPENDIX A
PLAN MEMBERSHIP

Schedule of Benefit Recipients by Attained Age and Type of Retirement - ERS June 30, 2014 - Primary Members

	TYPE OF RETIREMENT					
AGE	NR	ER	DS	ODis	ADis	Total
Under 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	3	0	3
35-39	0	0	0	5	0	5
40-44	0	0	0	11	1	12
45-49	1	0	7	40	1	49
50-54	28	0	39	87	5	159
55-59	166	160	125	177	9	637
60-64	447	351	187	181	7	1,173
65-69	762	429	192	128	9	1,520
70-74	699	335	138	82	7	1,261
75-79	539	322	110	52	11	1,034
80-84	386	260	79	24	8	757
85 & Up	531	207	68	24	9	839
Total	3,559	2,064	945	814	67	**7,449**
Average Annual Benefit	$ 21,678	$ 6,947	$ 19,888	$ 9,301	$ 20,968	$ 16,011

NR - Service Retirement
ER - Early Retirement
DS - Discontinued Service
ODis - Ordinary Disability
ADis - Accidental Disability

APPENDIX A
PLAN MEMBERSHIP

Schedule of Benefit Recipients by Attained Age and Type of Retirement - ERS
June 30, 2014 - Beneficiaries

	TYPE OF RETIREMENT							
AGE	NR	ER	DS	ODis	ADis	ODth	ADth	Total
Under 20	3	2	1	6	0	2	0	14
20-24	1	0	0	4	0	0	0	5
25-29	0	0	0	1	0	0	0	1
30-34	1	0	0	0	0	0	0	1
35-39	0	0	1	0	0	0	0	1
40-44	0	0	0	1	0	0	0	1
45-49	2	1	2	3	1	1	0	10
50-54	9	7	0	13	0	3	0	32
55-59	28	11	6	15	1	14	0	75
60-64	61	17	8	46	0	10	0	142
65-69	71	30	16	27	3	15	0	162
70-74	81	40	19	38	1	18	3	200
75-79	111	55	13	37	2	9	3	230
80-84	135	56	21	19	6	15	1	253
85 & Up	204	47	5	29	2	20	10	317
Total	707	266	92	239	16	107	17	**1,444**
Average Annual Benefit	$ 9,537	$ 3,881	$ 9,635	$ 5,094	$ 10,373	$ 11,333	$ 22,258	$ 8,058

NR - Service Retirement
ER - Early Retirement
DS - Discontinued Service
ODis - Ordinary Disability
ADis - Accidental Disability
ODth - Ordinary Death
ADth - Accidental Death

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Entry Age Normal Method

Liabilities and contributions shown in this report are computed using the Entry Age Normal method of funding. Under this method, the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each member's date of hire and assumed retirement.

A description of the calculation follows:

The normal cost is based upon the normal cost rate determined by taking the value, as of entry age into the plan, of each member's projected future benefits. This value is then divided by the value, also at entry age, of each member's expected future salary producing a normal cost rate that should remain relatively constant over a participant's career. The normal cost rate is multiplied by current salary to determine each member's normal cost. Finally, the normal cost is reduced by the member contribution to produce the employer normal cost.

The actuarial liability is the difference between the present value of future benefits and the present value of future normal cost. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions and Methods

Method of Funding: The Entry Age Normal Funding Method was approved by the Board of Trustees effective date of 7/1/2012.

The current unfunded actuarial liability is amortized as a level dollar figure over 20 years. The 20-year period decreases each year from 2011 until 2031, at which time the unfunded liability will be fully paid.

Asset Valuation: The actuarial value of assets is equal to the market value, adjusted for 20% of the five year aggregate investment surpluses and deficits. This calculation is done in the following steps:

1. The investment gain or loss for the current year is calculated; this equals the actual investment earnings during the year minus the expected earnings. Expected earnings are calculated using a weighted average of the pre- and post-retirement interest rate assumptions multiplied by the mean market value of assets during the year.

2. The current net excess earnings are computed by adding the investment gain or loss for the current year to the remaining excess earnings for the prior valuation. One-fifth of the excess earnings are recognized in the actuarial value as of the current valuation and four-fifths are deferred to future years.

3. The net assets are then adjusted to account for the Normal Cost Reserve held for the plan changes made during 2001.

4. The present value of the prior year's City contributions is added to the net assets to account for the one-year lag between required contributions and when the contributions are actually received.

5. The actuarial value of assets will not be greater than 120% nor less than 80% of the market value of assets as of the valuation date.

Discount Rate: A liability weighted discount rate is expected on the basis that a 7.75% rate is applied in measuring active participant liabilities, and a 6.55% rate is applied for measuring non-active participant liabilities. The weighted discount rate this year is 7.09%.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Investment Return: The investment return assumption is 7.75% net of all expenses.

Social Security Wage Base: 3.00% per year compounded annually (effective 6/30/2011)

Inflation: 2.75% (effective 6/30/2011)

Salary Increases: Salary increases are assumed to vary with age. Sample rates are as follows:

Age	Salary
20	6.70%
25	6.35
30	5.78
35	5.20
40	4.68
45	4.23
50	4.00
55	4.00
60	4.00
65	4.00
69	4.00

Cost-of-Living Adjustment Assumption: 1.5% for inactives in pay status under age 65 and 2.0% over age 65.

Percent Married: Males 90%, females 80%.

Spouse Age: A husband is assumed to be 4 years older than his wife.

Remarriage Rates: None.

Expenses: Administration and investment expenses are assumed to be paid out of investment earnings. It is assumed that the Fund will have sufficient earnings to pay these expenses and meet the interest assumption.

Job Elimination Benefit: A liability load of 1.75% is applied to active retirement benefits to account for the value of this benefit.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Withdrawal:

Service	Rate
0	14.50%
1	14.25
2	10.50
3	8.25
4	7.00
5	6.75
6	6.25
7	5.75
8	5.75
9	5.00
10	4.75
11	4.75
12	4.75
13	4.25
14	4.25
15+	4.25

Disability:

The Line-of-Duty disability rates for Classes A and B were effective 6/30/1999; Class C disability rates and Non-Line-Of-Duty rates are effective 6/30/2002.

Age	Non-Line-of-Duty Disability	Line-of-Duty Disability (Classes A&B)	Line-of-Duty Disability (Class C)
25	0.00050	0.00004	0.00008
30	0.00059	0.00004	0.00008
35	0.00115	0.00008	0.00016
40	0.00236	0.00008	0.00016
45	0.00425	0.00012	0.00024
50	0.00675	0.00020	0.00039
55	0.01043	0.00024	0.00047
60	0.00579	0.00027	0.00055
65	0.00130	0.00038	0.00076
69	0.00078	0.00039	0.00078

Workers compensation offset is included in the above rates.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Pre-Retirement Mortality:

1. Non-line-of-Duty - 1994 Uninsured Pensioners Generational Mortality table (Male + 4, Female + 1) with generational projections using 50% of the AA scale projected 10 years.

2. Line-of-Duty - 0.005% at all ages (effective 6/30/1999).

Age	Non-Line-of-Duty Death* Male	Non-Line-of-Duty Death* Female	Line-of-Duty Death*
25	0.000797	0.000295	0.00005
30	0.000890	0.000381	0.00005
35	0.001048	0.000520	0.00005
40	0.001506	0.000766	0.00005
45	0.002343	0.001025	0.00005
50	0.003908	0.001548	0.00005
55	0.006929	0.002647	0.00005
60	0.012840	0.005341	0.00005
65	0.021779	0.010165	0.00005
69	0.031273	0.014398	0.00005

* Rates for individuals who are the age shown as of June 30, 2014.

Post-Retirement Mortality:

1. Retirees and Beneficiaries:
   Males and Females - 1994 Uninsured Pensioners Generational Mortality table (Male + 4, Female + 1) projected using 50% of the AA scale projected to 2016.

2. Disabled members:
   Sample rates (rates first effective 6/30/2002).

	Retirees and Beneficiaries*		Disabled Members	
Age	Male	Female	Male	Female
55	0.00693	0.00265	0.05392	0.02529
60	0.01284	0.00534	0.06435	0.03138
65	0.02178	0.01017	0.07679	0.04088
70	0.03396	0.01568	0.09558	0.05568
75	0.05599	0.02616	0.12298	0.07841
80	0.09165	0.04563	0.16115	0.11274

* Rates for individuals who are the age shown as of June 30, 2014

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Service Retirement: Early Retirement prior to the later of age 60 and eligibility for Normal Retirement (earlier of age 65 with 5 years of service and 30 years of service).

	Rates of Retirement		
Age	**Less than 30 yos**	**30 yos**	**More than 30 yos**
45–54	0.00	0.20	0.10
55-56	0.06	0.20	0.10
57	0.06	0.20	0.10
58	0.06	0.20	0.10
59	0.06	0.20	0.10
60	0.07	0.20	0.15
61	0.10	0.20	0.20
62	0.17	0.20	0.40
63-64	0.15	0.20	0.20
65	0.20	0.20	0.35
66	0.20	0.20	0.25
67	0.17	0.20	0.25
68	0.17	0.20	0.20
69	0.20	0.20	0.20
70	1.00	1.00	1.00

Normal Retirement is assumed on or after the later of age 60 and eligibility for Normal Retirement (earlier of age 65 with 5 years of service and 30 years of service).

Terminated vested participants are assumed to retire at age 65.

Joint and Survivor Forms of Payment: The 40% Joint & Survivor form of payment is assumed for all benefits. All benefits with Joint & Survivor Forms of Payment for retirees had their survivor benefits increased by 4% to account for children's benefits.

Data Assumptions: The data provided for this valuation had several participants missing salaries. We assumed the average salary by service for these participants.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Highlights

The following plan provisions were changed since the 2013 actuarial valuation:

1. Employees hired or rehired on or after July 1, 2014 will be classified under new Class D membership. New employees will have the option to participate in both the Employees' Retirement System and the new Retirement Savings Plan (RSP) as hybrid members or opt out of the System and participate only in the RSP as non-hybrid members.

2. Class D members will receive a benefit of 1.0% of Average Final Compensation time years of service or an enhanced benefit of 1.1% of Average Final Compensation times years of service if the member retires with 20 or more years of service. Additionally, the City will contribute 3% of pay to RSP for hybrid members and 4% of pay for non-hybrid members. Members also have the option to make voluntary deferrals to the City's Deferred Compensation Plan, with the City matching 50% of the first 2% of compensation deferred by the member.

Effective Date

The System was effective January 1, 1926 and has been periodically amended.

Eligibility

Any regular and permanent officer, agent, or employee of the City with the exception of those required to join the Maryland State or any other Retirement System shall become a Class C member of the Employees' Retirement System upon completion of one year of service. The Board of Estimates may authorize prospective membership for any class of part-time employees. There are four classes of members as follows:

1. Class A – Members who were hired before July 1, 1979, and entered membership on or after January 1, 1954, or who elected, prior to April 1, 1954, to contribute at the higher Class A rate. Any Class B member may elect to become a Class A member by bringing his accumulated contributions and interest up to what they would be if he had elected Class membership on January 1, 1954.

2. Class B – Members as of January 1, 1954 who did not elect Class A membership – there are no remaining active Class B participants as of June 30, 2011.

3. Class C – Members who were hired on or after July 1, 1979, or any other members who may have elected to transfer during various open transfer periods.

4. Class D – Members who were hired or rehired on or after July 1, 2014. Class D Members will have the option to participate in both the Employees' Retirement System and the new

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Retirement Savings Plan (RSP) as hybrid members or opt out of the System and participate only in the RSP as non-hybrid members.

Member Contributions

Class C members (except participants of Detention Services and Department of Education) begin making contributions at 1.0% of compensation starting July 1, 2013 increasing 1.0% each year until they reach 5.0% of compensation. Plan A and Plan B members currently contribute at the rate of 4% of earnable compensation and contributions are not required upon attaining age 60 and completing 35 years of service. Class D members will make contributions at 5.0% of pay from date of participation. Interest is credited on contributions at a rate of 5.25% per annum for Plan A and B members and 3.00% for Plan C and Plan D members.

Compensation

Earnable compensation is the annual salary authorized for the member, not including overtime, differential pay, environmental pay, hazardous duty pay, pay for conversion of leave or other fringe benefits, or any like additional payment. Average Final Compensation is the average of the member's annual earnable compensation on January 1 for the three successive years of service when the member's earnable compensation is the highest or, if the member is in service on January 1 for less than three successive years, than the average during total service.

Covered Compensation

The covered compensation (for Class C only) is the average of the FICA wage base for the 35 year period ending with the calendar year which ends immediately prior to the earlier of: (1) January 1, employment; or (2) January 1, of the calendar year in which the member attains age 65.

Military Service Credit

A. Military Service Prior to Employment:
   1. Classes A and B
      A maximum of 3 years service credit is granted provided the member has acquired 10 years of service and has reached the age of 60 or has acquired 20 years of service, regardless of age.

   2. Classes C and D
      A maximum of 3 years service credit is granted provided the member has acquired 10 years of service and has reached the age of 62 or has acquired 20 years of service, regardless of age.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

B. Military Service Within Employment:
   1. Classes A and B
      Upon retirement or death, any member who, because of military duty, had a break in employment shall receive service credit for the period of absence as provided by the Veterans' Reemployment Rights Act.

Retirement Eligibility

A. Service Retirement:
   1. Classes A and B – Age 60 with 5 years of service or 30 years of membership service.

   2. Classes C and D – Age 65 with 5 years of service or 30 years of service, regardless of age. Early retirement allowed at age 55 with 5 years of service payable at age 65 or reduced for payment before 65.

B. Non-Line-of-Duty Disability Retirement:
   Five years of membership service and determined by a hearing examiner to be mentally or physically incapacitated for the performance of duty and that incapacity is likely to be permanent.

C. Line-of-Duty Disability Retirement:
   Totally and permanently incapacitated for duty as the result of an accident while in performance of duty and certified by a hearing examiner as mentally or physically incapacitated for the performance of duty and that such incapacity is likely to be permanent.

D. Dismemberment Disability Retirement:
   1. Class C – Loss of any 2 or more of hands, feet, sight of eye(s) as a direct result of bodily injury from an accident while in actual performance of duty as determined by a hearing examiner.

Termination of Employment

1. Classes A and B
   a. Eligible for Termination Retirement Allowance, deferred to age 60, upon completion of (1) 15 years of membership service, or (2) 5 years of service, if removed from a position without fault.
   b. Eligible for a Termination Retirement Allowance, payable immediately, upon completing 20 years of service, if removed from a position without fault.
   c. Eligible for a refund of accumulated contributions if not eligible for any other benefits.

2. Classes C and D
   a. Eligible for a Termination Retirement Allowance, deferred to age 65, upon completion of (1) 10 years of service, or (2) 5 years of service, if removed from a position without fault.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

b. Eligible for an immediate benefit if removed without fault after 20 years of service.

Retirement Allowances

A. Service Retirement:
   1. Classes A and B
      The sum of:
      a. An annuity of the actuarial equivalent of a member's accumulated contributions; and
      b. A pension, which together with the annuity shall equal 1.935% (Class A) or 1.785% (Class B) of Average Final Compensation times years of service.

   2. Class C
      A pension of (1) 1.60% of Average Final Compensation, times years of service up to 30 years, plus (2) 0.25% of Average Final Compensation in excess of Covered Compensation, times years of service up to 30 years, plus (3) 1.85% of Average Final Compensation, times years of service in excess of 30 years.

   3. Class D
      A pension of 1.00% of Average Final Compensation, times years of service. If the member retires at or after age 62 with at least 20 years of service the member receives an enhanced benefit of 1.10% of Average Final Compensation times years of service.

B. Early Retirement:
   1. Classes C and D
      If a member is age 55 with 5 years of service, the member may retire at any time, with a benefit reduced for early commencement. The reduction factor is 1/180 for each of the first 60 months prior to age 65 and 1/360 for each additional month preceding age 65. If the member has 30 years of service at retirement, then there is no reduction factor applied to the benefit.

C. Non-Line-of-Duty Disability Retirement:
   1. Classes A and B
      A benefit equal to the service retirement benefit if age 60; otherwise, an annuity of the actuarial equivalent of a member's accumulated contributions plus a pension which, together with the annuity, shall equal 1.90% (Class A) or 1.75% (Class B) of Average Final Compensation times years of service.

      The member will receive the benefit as calculated above, if the benefit exceeds 25% of the member's Average Final Compensation. Otherwise, the member shall receive 25% of the member's Average Final Compensation.

      This benefit is offset by:

APPENDIX C
SUMMARY OF PLAN PROVISIONS

a. Worker's compensation (excluding amounts paid to third parties);
b. Earnings in excess of base amount (current earnable compensation in same job grade and step adjusted for longevity) with a $1.00 reduction for each $2.00 of the first $5,000 of excess and a $2.00 reduction for each $5.00 of additional excess earnings.

2. Classes C and D

The ordinary disability pension shall be equal to the greater of:

a. The member's accrued service retirement benefit; or
b. 15% of the member's average final compensation.

This benefit is offset by:

a. Worker's compensation (excluding amounts paid to third parties);
b. Unemployment compensation.

D. Line-of-Duty Disability Retirement:

An annuity of the actuarial equivalent of a member's accumulated contributions, plus a pension equal to 66-2/3% of Average Final Compensation.

This benefit is offset by:

Same offsets are applied as for non-line of duty disability.

E. Dismemberment Disability Retirement:

1. Classes C and D

A pension, equal to 100% of Average Final Compensation. Same offsets as for Class C Line-of-Duty Disability benefits.

F. Termination Retirement Allowance (Deferred Payment):

Determined the same as for Service Retirement, but based on membership service and Average Final Compensation at the time of termination.

G. Termination Retirement Allowance (Immediate Payment):

Determined the same as if the member had retired with a non-line-of-duty retirement allowance.

Option Methods of Receiving Benefit Payments

A. Maximum Service Retirement:

Joint & Survivor form of payment to unmarried spouse or dependent children until the last marries, dies or attains age 18 (age 22 if a full-time student). The percent continued to the spouse is 40%.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

B. Cash refund to retiree's beneficiary based on present value of allowance at retirement less payments made.

C. Joint and 100% to Contingent Beneficiary

D. Joint and 50% to Contingent Beneficiary

E. Some other periodic benefit subject to the approval of the Board of Trustees

These options are available for service, termination, non-line-of-duty disability and line-of-duty disability retirement. Any option and / or beneficiary may be changed by the retired member within 30 days after retirement.

Non-Line-of-Duty-Death Benefits

1. Class A and B
   - The member's accumulated contributions will be returned; plus, if one or more years of membership service, 50% of the greater of Average Final Compensation or current annual earnable compensation, or
   - If (1) eligible for service retirement, or (2) would have become eligible for service retirement within 90 days, or (3) if retired on account of service, non-line-of-duty disability, or line-of-duty disability and dies within 30 days of retirement, or (4) entitled to a deferred allowance at age 60; and the member's designated beneficiary is his spouse with whom he has been living for at least 5 years or his partner(s), such beneficiary may elect, in lieu of paragraph (1) above, an allowance equal to the greater of 40% of the participant's accrued benefit or the amount that would have been paid under the Joint and 100% Contingent Option.

   This benefit is offset by worker's compensation (excluding amounts paid to third parties). If no beneficiary and if intestate without heirs, then contributions shall remain part of the System.

2. Classes C and D
   - If (1) eligible for service retirement, or (2) would have become eligible for service retirement within 90 days, or (3) if retired on account of service, ordinary disability, or accidental disability and dies within 30 days of retirement, or (4) entitled to a deferred allowance at age 65, or (5) has 20 years of service and dies anytime between effective retirement date at age 65 and no later than 30 days following the attainment of age 65; and the member's designated beneficiary shall receive an allowance equal to the greater of 40% of the participant's accrued benefit or the amount that would have been paid under the Joint and 100% Contingent Option, or

APPENDIX C
SUMMARY OF PLAN PROVISIONS

- If (1) not eligible under paragraph (1) above, and (2) if one or more years of service, 50% of the greater of Average Final Compensation or current annual earnable compensation, shall be paid as a lump sum.

Line-of-Duty Death Benefits

If a member's death was the result of injuries in the line of duty, a refund of contributions shall be payable, if applicable. In addition, an annual pension of 100% of current earnable compensation (not less than $10,000 on June 30, 1994) shall be payable to:

A. The spouse, provided there is no voluntary separation agreement renouncing rights of inheritance during her widowhood;
B. If no eligible spouse, or if the spouse dies or remarries, the child or children equally until age 18 (age 22 if full-time student(s));
C. If no eligible spouse or child surviving, then to the deceased's father and / or mother equally, or to the survivor;
D. For Classes A and B, any member who retires and dies within 30 days after the effective date of line-of-duty disability retirement shall receive the above benefits if death is the result of injuries in the line of duty.

This benefit is offset by worker's compensation (excluding amounts paid to third parties). If no beneficiary and if intestate without heirs, then contributions shall remain part of the System.

Post-Retirement Benefit Increases

Annual post-retirement benefit increases of a fixed 1.5% for participants in pay status under age 65 and 2.0% for participants in pay status age 65 and over.

APPENDIX D
GASB 67 GLOSSARY OF TERMS

1. **Actuarially Determined Contribution:**
A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. **Actuarial Valuation Date:**
The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. **Entry Age Actuarial Cost Method:**
The actuarial cost method required for GASB 67 and 68 calculations. Under this method, the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

4. **Measurement Date:**
The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

5. **Net Pension Liability:**
The liability of employers and non-employers contributing entities to employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position.

6. **Plan Fiduciary Net Position:**
The fair or market value of assets.

7. **Reporting Date:**
The last day of the plan or employer's fiscal year.

8. **Service Cost:**
The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 67 and 68. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

9. **Total Pension Liability:**
The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67 and 68. The Total Pension Liability is the actuarial liability calculated under the entry age actuarial cost method.