

City of Birmingham Retirement and Relief System

Actuarial Valuation and Review as of July 1, 2013





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June 10, 2014

Board of Managers City of Birmingham Retirement and Relief System 710 North 20th Street, GA 100 City Hall Birmingham, Alabama 35203-2216

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2013. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience and establishes the funding requirements for the 2013-2014 fiscal year.

The census information on which our calculations were based was prepared by the City and the financial information was provided by the City's Finance Department. That assistance is gratefully acknowledged. The actuarial calculations were completed under the supervision of Deborah K. Brigham, FCA, ASA, MAAA, Enrolled Actuary. Ms. Brigham meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board of Managers are reasonably related to the experience of and the expectations for the System.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the smoothing of investment gains and losses); and changes in plan provisions or applicable law.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

Leon F. (Rocky) Joyner, Jr., FCA, ASA, MAAA, EA

Deborah K. Brigham, FCA, ASA, MAAA, EA Vice President and Consulting Actuary

Vice President and Actuary

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Purpose

This report has been prepared by Segal Consulting to present a valuation of the City of Birmingham Retirement and Relief System as of July 1, 2013. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- > The benefit provisions of the Pension Plan, as administered by the Board of Managers;
- > The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of July 1, 2013, provided by the City;
- > The assets of the Plan as of June 30, 2013, provided by the City's Finance Department;
- > Economic assumptions regarding future salary increases and investment earnings; and
- > Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

- 1. The recommended contribution for the upcoming year is \$42,424,934, an increase of \$1,391,059 from last year. The contribution as a percentage of payroll increased from 22.62% of pay to 23.23% of pay, based on a 30-year level percent-of-pay amortization of the unfunded actuarial accrued liability.
- 2. The City is expected to continue to contribute 6.50% of pay, and members are expected to contribute 6.50%. City and employee contributions combined are thus 13.00% of payroll, producing an expected deficit of 10.23% when compared to the recommended contribution of 23.23%. It is presumed throughout this report that the employees are responsible for an equal share of the cost of the Plan. However, the City is ultimately responsible for Plan funding. If employee contributions remain at their current level, the City's share is 16.73% of pay.
- 3. The normal cost, for benefits and expenses allocated to the current year, is 12.53% of pay, which is fully covered by the 13.00% statutory contribution rate. However, the unfunded liability is not being amortized by the remaining 0.47% of pay. The unfunded liability will continue to grow unless the contribution rates are increased or there are significant gains from investments or other sources.
- 4. The GASB Schedule of Funding Progress, provided in Exhibit III of Section 4, shows that the funded ratio has decreased from 74.34% as of July 1, 2012 to 73.00% as of July 1, 2013. A decade ago the System was almost 100% funded.



- 5. The investment rate of return on an actuarial basis for the year ended June 30, 2013 was 6.19%. Since the rate of return was less than the assumed rate of 7.00% per year, there was an actuarial investment loss amounting to \$6,943,492. The rate of return on a market basis was 10.52%. As of the valuation date, the smoothed actuarial value of assets is equal to 95.0% of market value. The \$158.0 million market investment loss from the 2008-2009 plan year was recognized over a five-year period in the actuarial value of assets for funding purposes, and it has now been fully reflected.
- 6. The actuarial valuation report as of July 1, 2013 is based on financial information as of June 30, 2013. Changes in the value of assets subsequent to that date are not reflected. Unfavorable asset experience will increase the actuarial cost of the Plan, while favorable experience will decrease the actuarial cost of the Plan.
- 7. The administrative expense assumption was decreased from \$270,000 to \$150,000 for the coming year. There have been no other assumption and no plan changes since the prior valuation.
- 8. Plans producing GASB-compliant reporting information are required to implement GASB Statement 67 for plan years beginning after June 15, 2013. If plan reporting is required, Segal Consulting will work with the City to provide these disclosures at the end of the July 1, 2013 June 30, 2014 plan year. Employers are required to implement GASB Statement 68 for fiscal years beginning after June 15, 2014. Therefore, the City will be required to reflect GASB Statement 68 in its annual financial statements for the fiscal year beginning July 1, 2014 and ending June 30, 2015.



	2013	2012
Contributions for plan year beginning July 1:		
Recommended	\$42,424,934	\$41,033,875
Recommended contribution as a percentage of payroll	23.23%	22.62%
Actual contributions (employer and employee)		26,267,172
Funding elements for plan year beginning July 1:		
Normal cost, including administrative expenses	\$22,878,193	\$22,932,786
Market value of assets	935,111,258*	886,902,991
Actuarial value of assets	888,209,730	878,048,507
Actuarial accrued liability	1,216,684,458	1,181,090,260
Unfunded actuarial accrued liability	328,474,728	303,041,753
GASB 25/27 for plan year beginning July 1:		
Annual required employer contributions (ARC)**	\$21,212,467	\$20,516,938
Actual employer contributions		13,591,846
Percentage of ARC contributed		66.25%
Funded ratio	73.00%	74.34%
Covered payroll	\$182,634,179	\$181,406,586
Demographic data for plan year beginning July 1:		
Number of retired participants and beneficiaries	2,834	2,802
Number of vested former participants***	283	250
Number of active participants	3,901	3,907
Total payroll	\$182,634,179	\$181,406,586
Average payroll	46,817	46,431

^{*} As of June 30, 2013, there was a contribution balance of \$888,918 for active fire and police employees with more than 30 years of service, which was to be transferred from the Supplemental System. Segal Consulting has adjusted the market value of assets to account for this pending transfer.

^{***}Includes future pensioners currently receiving benefits from the Supplemental System.



^{**} The ARC shown presumes that the employees are responsible for an equal share of the cost of the System. If employee contribution rates are not increased, the City is ultimately responsible for the funding of the System.

A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, vested terminated participants, retired participants and beneficiaries. This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the participant population has changed over the past ten valuations can be seen in this chart.

CHART 1
Participant Population: 2004 – 2013

Year Ended June 30	Active Participants	Vested Terminated Participants*	Retired Participants and Beneficiaries	Ratio of Non-Actives to Actives
2004	3,915	177	2,158	0.60
2005	3,802	231	2,239	0.65
2006	3,782	204	2,255	0.65
2007	3,760	211	2,352	0.68
2008	3,782	205	2,464	0.71
2009	4,017	211	2,516	0.68
2010	4,073	232	2,555	0.68
2011	3,807	246	2,803	0.80
2012	3,907	250	2,802	0.78
2013	3,901	283	2,834	0.80

^{*}Includes future pensioners currently receiving benefits from the Supplemental System.



Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 3,901 active participants with an average age of 45.0, average years of service of 12.0 years and average payroll of \$46,817. The 3,907 active participants in the prior valuation had an average age of 44.5, average service of 11.7 years and average payroll of \$46,431.

Inactive Participants

In this year's valuation, there were 283 participants with a vested right to a deferred or immediate vested benefit. This includes 264 individuals currently receiving benefits from the Firemen's and Policemen's Supplemental Pension System.

These graphs show a distribution of active participants by age and by years of service.

CHART 2
Distribution of Active Participants by Age as of June 30, 2013

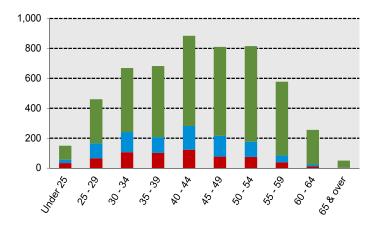
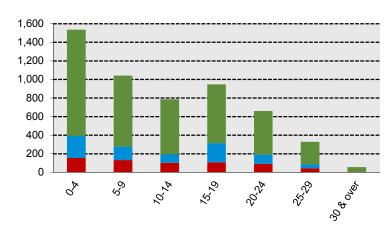


CHART 3
Distribution of Active Participants by Years of Service as of June 30, 2013







Retired Participants and Beneficiaries

As of June 30, 2013, 2,339 retired participants and 495 beneficiaries were receiving total monthly benefits of \$5,599,079. For comparison, in the previous valuation, there were 2,319 retired participants and 483 beneficiaries receiving monthly benefits of \$5,472,131.

These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.



CHART 4

Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of June 30, 2013

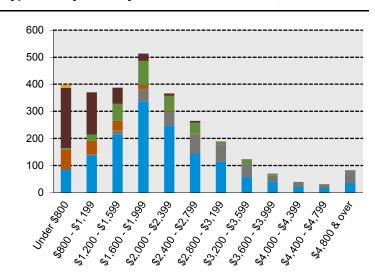
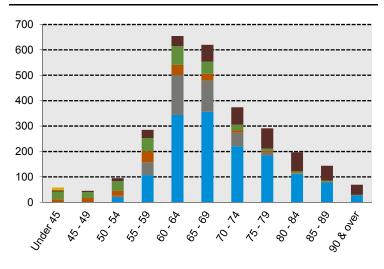


CHART 5 Distribution of Retired Participants and Beneficiaries by Type and by Age as of June 30, 2013



B. FINANCIAL INFORMATION

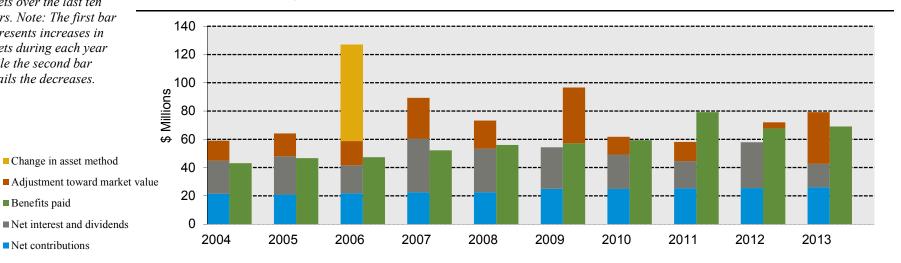
Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D, E and F.

The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

Change in asset method







■ Benefits paid

■ Net contributions

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Managers has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

Determination of Actuarial Value of Assets for Year Ended June 30, 2013

1. Market value of assets, June 30, 2013			\$935,111,258
	Original	Unrecognized	
2. Calculation of unrecognized return	Amount*	Return**	
(a) Year ended June 30, 2013	\$30,483,738	\$24,386,990	
(b) Year ended June 30, 2012	-32,071,454	-19,242,872	
(c) Year ended June 30, 2011	87,006,584	34,802,634	
(d) Year ended June 30, 2010	34,773,881	6,954,776	
(e) Year ended June 30, 2009	-158,009,276	0	
(f) Total unrecognized return			46,901,528
3. Preliminary actuarial value: (1) - (2f)			888,209,730
4. Adjustment to be within 20% corridor			0
5. Final actuarial value of assets as of June 30, 2013: (3) + (4)			\$888,209,730
6. Actuarial value as a percentage of market value: $(5) \div (1)$			95.0%
7. Amount deferred for future recognition: (1) - (5)***			\$46,901,528

^{*}Total return minus expected return on a market value

(a) Amount recognized on June 30, 2014

\$24,038,550

(c) Amount recognized on June 30, 2016

-\$317,543

(b) Amount recognized on June 30, 2015

17,083,774

(d) Amount recognized on June 30, 2017

6,096,748

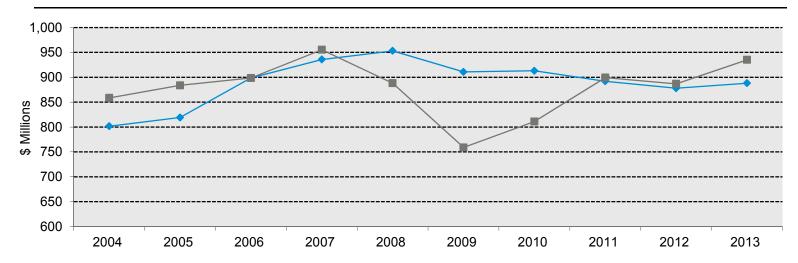
^{**}Recognition at 20% per year over five years

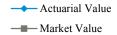
^{***}Deferred return as of June 30, 2013 recognized in each of the next four years

Both the actuarial value and market value of assets are representations of the System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past ten years. The actuarial value was reset to market in the 2006 valuation, upon adoption of a new smoothing method.

CHART 8 Actuarial Value of Assets vs. Market Value of Assets as of June 30, 2004 – 2013







C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is \$6,791,880, including a loss of \$6,943,492 from investments and \$151,612 in gains from all other sources. The net experience variation from individual sources other than investments was 0.0% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience during the past year.

CHART 9 Actuarial Experience for Year Ended June 30, 2013

1.	Net loss from investments*	-\$6,943,492
2.	Net gain from administrative expenses	135,221
3.	Net gain from other experience	<u>16,391</u>
4.	Net experience loss: $(1) + (2) + (3)$	-\$6,791,880

^{*} Details in Chart 10



Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 7.00%. The actual rate of return on an actuarial basis for the 2012-2013 plan year was 6.19%.

Since the actual return for the year was less than the assumed return, the System experienced an actuarial loss during the year ended June 30, 2013 with regard to its investments.

This chart shows the loss due to investment experience.

CHART 10 Actuarial Value Investment Experience for Year Ended June 30, 2013

1. Actual return	\$53,140,970
2. Average value of assets	858,349,456
3. Actual rate of return: $(1) \div (2)$	6.19%
4. Assumed rate of return	7.00%
5. Expected return: (2) x (4)	\$60,084,462
6. Actuarial loss: (1) – (5)	<u>-\$6,943,492</u>



Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages. We have maintained the assumed rate of return of 7.00%. The Trustees have revamped their investment allocations, with targets of 65% equity and 35% fixed income according to information received from Morgan Stanley. Based on this investment policy and current capital market assumptions, 7.00% is a reasonable long-term assumption. Segal will continue to monitor the System's performance.

CHART 11
Investment Return – Actuarial Value vs. Market Value: 2004 - 2013

Year Ended June 30	Net Interest and Dividend Income		Recognition of Capital Appreciation		Change in Asset Method		Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
2004	\$23,403,588	3.02%	\$14,220,308	1.83%			\$37,623,896	4.85%	\$69,023,086	8.61%
2005	27,114,712	3.43	16,148,066	2.04			43,262,778	5.48	50,973,808	6.02
2006	19,901,991	2.46	17,031,771	2.11	\$68,127,085	8.44%	105,060,847	13.01	40,468,583	4.64
2007	38,017,026	4.30	28,826,146	3.25			66,843,172	7.55	86,398,586	9.76
2008	30,863,174	3.35	19,934,937	2.17			50,798,110	5.52	-33,654,898	-3.58
2009	29,426,568	3.14	-39,403,205	-4.20			-9,976,637	-1.06	-96,873,908	-11.09
2010	24,452,410	2.73	12,425,399	1.39			36,877,809	4.12	86,792,989	11.68
2011	19,155,247	2.16	13,654,863	1.54			32,810,110	3.69	142,064,641	18.06
2012	32,400,056	3.71	-4,339,151	-0.49			28,060,905	3.22	29,540,542	3.36
2013	16,556,971	1.93	36,583,999	4.26	<u></u>		53,140,970	6.19	91,188,014	10.52
Total	\$261,291,743		\$115,083,133		\$68,127,085		\$444,501,961		\$465,921,443	
						Five-year	r average return	3.16%		6.09%
						Ten-year	r average return	5.15%		5.48%

Note: Each year's yield is weighted by the average asset value in that year.



Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

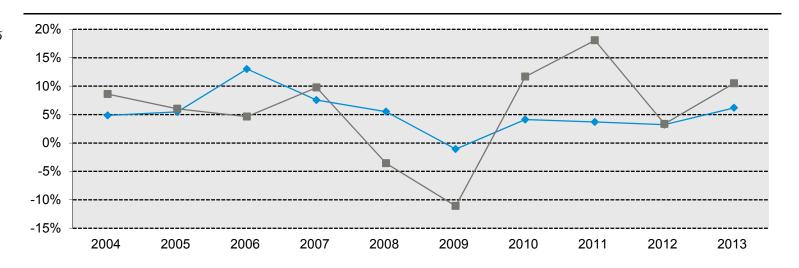
Administrative Expenses

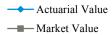
Administrative expenses for the year ended June 30, 2013 totaled \$138,933 compared to the assumption of \$270,000. This resulted in a gain of \$135,221 for the year when adjusted for timing. Because these expenses were quite a bit lower than assumed for two consecutive years, we have changed the assumption from \$270,000 to \$150,000 for the current year.

This chart illustrates how this leveling effect has actually worked over the years 2004 - 2013. The actuarial return for the year ended June 30, 2006 reflects a change in asset method.

CHART 12

Market and Actuarial Rates of Return for Years Ended June 30, 2004 - 2013







Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- > the extent of turnover among the participants,
- > retirement experience (earlier or later than expected),
- > mortality (more or fewer deaths than expected),
- > the number of disability retirements, and
- > salary increases different than assumed.

The net gain from this other experience for the year ended June 30, 2013 amounted to \$16,391, which is 0.0% of the actuarial accrued liability.

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the total payroll for active members to determine the funding rate of 23.23% of payroll.

The recommended contribution is based on a rolling 30-year amortization of the unfunded actuarial accrued liability as a level percent of pay, assuming a payroll growth of 3.00%. Expected contributions for the year are \$23,742,443, or 13.00% of payroll, which leaves a deficit of 10.23% of payroll. A higher contribution will be required to fund this System on an ongoing basis and meet accepted principles and practices. The unfunded actuarial accrued liability is not being amortized by the current contribution levels.

The chart compares this valuation's recommended contribution with the prior valuation.

CHART 13 Recommended Contribution

		Year Beginning July 1					
		2013	3	2012			
		Amount	% of Payroll	Amount	% of Payroll		
1.	Normal cost*	\$22,733,563	12.45%	\$22,672,453	12.50%		
2.	Administrative expenses	<u>144,630</u>	0.08%	260,333	0.14%		
3.	Employer normal cost: $(1) + (2) + (3)$	\$22,878,193	12.53%	\$22,932,786	12.64%		
4.	Actuarial accrued liability	1,216,684,458		1,181,090,260			
5.	Actuarial value of assets	888,209,730		878,048,507			
6.	Unfunded actuarial accrued liability: (4) - (5)	\$328,474,728		\$303,041,753			
7.	Payment on unfunded actuarial accrued liability	18,027,826	9.87%	16,631,977	9.17%		
8.	Total recommended contribution: (3) + (7), adjusted for timing**	<u>\$42,424,934</u>	23.23%	<u>\$41,033,875</u>	<u>22.62%</u>		
9.	Total payroll	\$182,634,179		\$181,406,586			

^{*}Includes net obligations from the Supplemental System of -\$2,064,879 for July 1, 2013 and -\$1,911,715 for July 1, 2012 (-\$2,141,552 and -\$1,982,700 adjusted for timing).

^{**}Recommended contributions are assumed to be paid at the beginning of every month.



The recommended contribution requirements as of July 1, 2013 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.

CHART 14 Reconciliation of Recommended Contribution from July 1, 2012 to July 1, 2013

Recommended Contribution as of July 1, 2012	\$41,033,875
Effect of contributions less than recommended contribution	882,639
Effect of expected change in amortization payment due to payroll growth	517,486
Effect of maintaining a 30-year rolling amortization period	-346,207
Effect of investment loss	402,551
Effect of other gains and losses on accrued liability	-8,790
Effect of change in administrative expense assumption	-120,000
Effect of net other changes	<u>63,380</u>
Total change	<u>\$1,391,059</u>
Recommended Contribution as of July 1, 2013	\$42,424,934



E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of the GASB reporting requirements. Chart 15 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated under the GASB Standards. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

Although the GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 16 shows the funded ratio calculated using both the actuarial value of assets and the market value of assets.

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

These graphs show key GASB factors.

CHART 15
Required Versus Actual Contributions

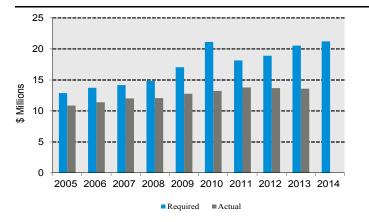
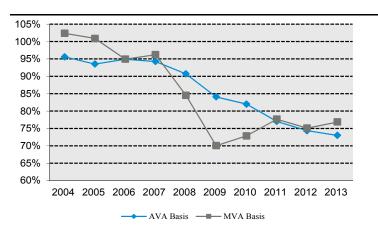


CHART 16 Funded Ratio



^{*} The annual required contributions shown were calculated presuming that the employees would be responsible for an equal share of the cost of the System. However, if employee contribution rates are insufficient to cover half of the cost, as has been the case in recent years, the City is ultimately responsible for the funding of the Plan.



EXHIBIT A

Table of Plan Coverage

	Year End	ed June 30		
Category	2013	2012	Change From Prior Year	
Active participants in valuation:				
Number	3,901	3,907	-0.2%	
Average age	45.0	44.5	N/A	
Average years of service	12.0	11.7	N/A	
Total payroll	\$182,634,179	\$181,406,586	0.7%	
Average payroll	46,817	46,431	0.8%	
Account balances	115,772,255	111,724,219	3.6%	
Total active vested participants	2,770	2,716	2.0%	
Vested terminated participants*	283	250	13.2%	
Retired participants:				
Number in pay status	1,852	1,838	0.8%	
Average age	69.0	68.5	N/A	
Average monthly benefit	\$2,344	\$2,317	1.2%	
Disabled participants:				
Number in pay status	487	481	1.2%	
Average age	60.0	59.6	N/A	
Average monthly benefit	\$1,633	\$1,602	1.9%	
Beneficiaries in pay status:				
Number in pay status	495	483	2.5%	
Average age	73.3	73.1	N/A	
Average monthly benefit	\$934	\$918	1.7%	

^{*}Includes future pensioners currently receiving benefits from the Supplemental System.

EXHIBIT B
Participants in Active Service as of June 30, 2013
By Age, Years of Service, and Average Payroll

	Years of Service										
Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over	
Under 25	94	92	1	1							
	33,817	34,022	25,730	23,046							
25 - 29	295	230	64	1							
	36,316	35,885	37,899	34,008							
30 - 34	428	216	178	33	1						
	40,158	36,457	43,262	46,918	64,189						
35 - 39	475	151	155	125	44						
	42,934	37,448	40,016	49,898	52,257						
40 - 44	602	128	115	125	195	39					
	48,799	38,233	42,115	52,216	56,183	55,316					
45 - 49	595	113	88	106	146	125	16	1			
	49,807	38,754	42,020	48,679	54,957	58,541	60,147	94,848			
50 - 54	640	91	68	83	134	167	89	7	1		
	50,959	41,576	39,160	48,253	52,533	54,152	62,980	57,625	70,803		
55 - 59	493	64	61	77	81	95	96	18	1		
	49,071	42,128	39,443	47,168	49,831	49,386	58,297	60,162	50,357		
60 - 64	231	44	23	38	27	37	37	20	3	2	
	55,412	49,922	50,718	51,131	48,009	50,522	64,748	65,340	167,703	61,443	
65 - 69	36	10	10	3	3	3	2	2	2	1	
	53,721	43,029	49,329	58,379	47,930	49,622	59,696	80,434	105,987	50,357	
70 & over	12	4	2	1	1	3	1				
	50,731	38,745	39,791	64,189	61,090	72,675	30,909				
Total	3,901	1,143	765	593	632	469	241	48	7	3	
	\$46,817	\$38,012	\$41,443	\$49,492	\$53,670	\$54,256	\$61,037	\$63,517	\$119,463	\$57,748	

EXHIBIT C
Reconciliation of Participant Data

	Active Participants	Vested Former Participants	Fire and Police Retirees	Disableds	Retired Participants	Beneficiaries	Total
Number as of July 1, 2012	3,907	23	227	481	1,838	483	6,959
New participants	240	N/A	0	N/A	N/A	N/A	240
Terminations with vested rights	0	0	0	0	0	0	0
Retirements	-100	-3	50	N/A	53	N/A	0
New disabilities	-16	0	0	16	N/A	N/A	0
Return to work	5	0	0	0	0	N/A	5
Deceased	-10	-1	0	-11	-56	-28	-106
New beneficiaries	0	0	0	0	0	44	44
Lump sum payoffs	-125	0	0	0	0	0	-125
Certain period expired	N/A	N/A	0	0	0	-3	-3
Data adjustments	0	0	0	1	4	-1	4
Retirees transferring from Supplemental System	<u>0</u>	<u>0</u>	<u>-13</u>	<u>0</u>	<u>13</u>	<u>0</u>	<u>0</u>
Number as of July 1, 2013	3,901	19	264	487	1,852	495	7,018



EXHIBIT D
Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended J	une 30, 2013	Year Ended June 30, 2012		
Net assets at actuarial value at the beginning of the year		\$878,048,507		\$892,096,375	
Contribution income:					
Employer contributions	\$13,591,846		\$13,676,554		
Employee contributions	11,786,408		12,027,821		
F&P contributions to be transferred to R&R*	888,918		0		
Less administrative expenses	<u>-138,933</u>		<u>-145,619</u>		
Net contribution income		26,128,239		25,558,756	
Other income		2,000		12,000	
Investment income:					
Interest and dividends	\$19,709,739		\$35,621,548		
Recognition of capital appreciation	36,583,999		-4,339,151		
Less investment fees	<u>-3,152,768</u>		<u>-3,221,492</u>		
Net investment income		53,140,970		28,060,905	
Total income available for benefits		\$79,271,209		\$53,631,661	
Less benefit payments:					
Benefits	-\$66,536,834		-\$65,684,712		
Refunds	-1,607,208		-1,415,318		
DROP payments	-966,294		-580,599		
Pension reimbursements	350		1,100		
Net benefit payments		-\$69,109,986		-\$67,679,529	
Change in reserve for future benefits		\$10,161,223		-\$14,047,868	
Net assets at actuarial value at the end of the year		\$888,209,730		\$878,048,507	

^{*} As of June 30, 2013, there was a contribution balance of \$888,918 in the Fire and Police Supplemental System for active fire and police employees with more than 30 years of service, which was to be transferred to the Retirement and Relief Plan. Segal Consulting has adjusted the market value of assets to account for this pending transfer.

Note: A portion of the Retirement and Relief System's assets is allocated to the Health Department. The above summary excludes the Health Department portion.



EXHIBIT E
Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended J	une 30, 2013	Year Ended June 30, 2012		
Net assets at market value at the beginning of the year		\$886,902,991		\$899,471,222	
Contribution income:					
Employer contributions	\$13,591,846		\$13,676,554		
Employee contributions	11,786,408		12,027,821		
F&P contributions to be transferred to R&R*	888,918		0		
Less administrative expenses	<u>-138,933</u>		<u>-145,619</u>		
Net contribution income		26,128,239		25,558,756	
Other income		2,000		12,000	
Investment income:					
Interest and dividends	\$19,709,739		\$35,621,548		
Asset appreciation	74,631,043		-2,859,514		
Less investment and administrative fees	-3,152,768		<u>-3,221,492</u>		
Net investment income		91,188,014		29,540,542	
Total income available for benefits		\$117,318,253		\$55,111,298	
Less benefit payments:					
Benefits	-\$66,536,834		-\$65,684,712		
Refunds	-1,607,208		-1,415,318		
DROP payments	-966,294		-580,599		
Pension reimbursements	350		1,100		
Net benefit payments		-\$69,109,986		-\$67,679,529	
Change in reserve for future benefits		\$48,208,267		-\$12,568,231	
Net assets at market value at the end of the year		\$935,111,258		\$886,902,991	

^{*} As of June 30, 2013, there was a contribution balance of \$888,918 in the Fire and Police Supplemental System for active fire and police employees with more than 30 years of service, which was to be transferred to the Retirement and Relief Plan. Segal Consulting has adjusted the market value of assets to account for this pending transfer.

Note: A portion of the Retirement and Relief System's assets is allocated to the Health Department. The above summary excludes the Health Department portion.



EXHIBIT F
Summary Statement of Plan Assets

	Year Ended J	une 30, 2013	Year Ended June 30, 2012		
Cash equivalents		\$16,340,739		\$18,520,313	
Accounts receivable:					
Employee contributions	\$60,083		\$0		
Employee loans	11,538,984		11,096,825		
Accrued interest and dividends	4,276,762		10,597,527		
F&P contributions to be transferred to R&R	888,918		0		
Total accounts receivable		16,764,747		21,694,352	
Investments:					
Corporate stock	\$554,422,815		\$504,091,093		
Domestic corporate bonds	195,602,276		169,662,849		
U.S. government obligations	153,524,137		173,755,714		
Total investments at market value		903,549,228		847,509,656	
Total assets		\$936,654,714		\$887,724,321	
Less accounts payable		-\$1,543,456		-\$821,330	
Net assets at market value		<u>\$935,111,258</u>		\$886,902,991	
Net assets at actuarial value		\$888,209,730		\$878,048,507	



EXHIBIT G

Development of the Fund Through June 30, 2013

Year Ended June 30	Employer Contributions	Employee Contributions	Other Income	Net Investment Return*	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2004	\$11,347,715	\$10,373,268	\$24,000	\$37,623,896	\$292,000	\$43,111,069	\$801,612,266
2005	10,881,632	10,210,996	79,000	43,262,778	211,000	46,668,936	819,166,736
2006	11,398,732	10,522,586	36,000	105,060,847**	160,000	47,353,888	898,671,013
2007	12,006,508	10,707,106	16,000	66,843,172	180,000	52,242,705	935,821,094
2008	12,061,584	10,604,722	1,000	50,798,110	183,375	56,023,465	953,079,670
2009	12,770,110	12,433,019	11,000	-9,976,637	245,261	57,302,709	910,769,192
2010	13,224,808	11,896,839	17,000	36,877,809	263,250	59,444,574	913,077,824
2011	13,772,490	11,881,396	8,000	32,810,110	273,817	79,179,627	892,096,375
2012	13,676,554	12,027,821	12,000	28,060,904	145,619	67,679,529	878,048,507
2013	13,591,846	11,786,408	890,918***	53,140,970	138,933	69,109,986	888,209,730

^{*} Net of investment fees

^{**} Includes effect of change in asset method

^{***}Includes \$888,918 due to be transferred from the Fire and Police Supplemental System

EXHIBIT H Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2013

Unfunded actuarial accrued liability at beginning of year	\$303,041,753
2. Normal cost at beginning of year	22,932,786
3. Total contributions	-26,267,172
4. Interest	
(a) For whole year on $(1) + (2)$	\$22,818,218
(b) Monthly on (3)	<u>-842,737</u>
(c) Total interest	<u>21,975,481</u>
5. Expected unfunded actuarial accrued liability	\$321,682,848
6. Change due to net experience loss	<u>6,791,880</u>
7. Unfunded actuarial accrued liability at end of year	<u>\$328,474,728</u>



EXHIBIT I
Comparative Summary of Principal Valuation Results

	Year Ended June 30, 2013	Year Ended June 30, 2012
Participant data		
Active members	3,901	3,907
Total annual payroll	\$182,634,179	\$181,406,586
Retired members and beneficiaries	2,834	2,802
Total annualized benefit	\$67,188,941	\$65,665,572
Terminated vested members	19	23
Total annualized benefit	\$253,677	\$312,761
Future pensioners currently receiving benefits from Supplemental System	264	227
Total annualized benefit	\$10,607,058	\$8,882,095
Actuarial value of assets	\$888,209,730	\$878,048,507
Actuarial accrued liability:		
Active members	\$489,133,640	<u>\$476,311,523</u>
Terminated vested members	2,282,342	2,758,863
Retired members and beneficiaries	636,099,487	628,917,148
Future pensioners currently receiving benefits from Supplemental System	89,168,989	<u>73,102,726</u>
Total	\$1,216,684,458	\$1,181,090,260
Unfunded actuarial accrued liability	\$328,474,728	\$303,041,753



EXHIBIT J

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:

The estimates on which the cost of the Plan is calculated including:

- (a) <u>Investment return</u> the rate of investment yield that the Plan will earn over the long-term future;
- (b) <u>Mortality rates</u> the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) <u>Retirement rates</u> the rate or probability of retirement at a given age;
- (d) <u>Turnover rates</u> the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal Cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

Actuarial Accrued Liability For Actives:

The value of all projected benefit payments for current members less the portion that will be paid by future normal costs.

Actuarial Accrued Liability For Pensioners:

The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded Actuarial Accrued Liability:

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.



Amortization of the Unfunded

Actuarial Accrued Liability: Payments made over a period of years equal in value to the Plan's unfunded actuarial

accrued liability.

Investment Return: The rate of earnings of the Plan from its investments, including interest, dividends and

capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one

year to the next.



Th	e valuation was made with respect to the following data supplied to us:		
1.	Retired participants as of the valuation date (including 495 beneficiaries in pay status)		2,834
2.	Participants inactive during year ended June 30, 2013 with vested rights (including 264 future pensioners currently receiving benefits from the Supplemental System)		283
3.	Participants active during the year ended June 30, 2013		3,90
	Fully vested	2,770	
	Not vested	1,131	
Th	e actuarial factors as of the valuation date are as follows:		
1.	Normal cost, including administrative expenses		\$22,878,193
2.	Actuarial accrued liability		1,216,684,458
	Retired participants and beneficiaries	\$636,099,487	
	Inactive participants with vested rights*	91,451,331	
	Active participants	489,133,640	
3.	Actuarial value of assets (\$935,111,258 at market value as reported by the City)		888,209,730
4.	Unfunded actuarial accrued liability		\$328,474,728
Th	e determination of the recommended contribution is as follows:		
1.	Normal cost		\$22,733,563
2.	Administrative expenses		144,630
3.	Total normal cost: $(1) + (2)$		\$22,878,193
4.	Payment on unfunded actuarial accrued liability		18,027,826
5.	Total recommended contribution: $(3) + (4)$, adjusted for timing		<u>\$42,424,934</u>
6.	Total payroll		\$182,634,179
7.	Total recommended contribution as a percentage of projected payroll: $(5) \div (6)$		23.23%

^{*} Includes liability for deferred benefits from the Retirement and Relief System payable to pensioners currently receiving benefits from the Supplemental System.



EXHIBIT II

Supplementary Information Required by the GASB – Schedule of Employer Contributions

Plan Year Ended June 30	Annual Required Contributions*	Actual Contributions	Percentage Contributed
2008	\$14,818,900	\$12,061,584	81.4%
2009	17,050,689	12,770,110	74.9%
2010	21,118,910	13,224,808	62.6%
2011	18,147,790	13,772,490	75.9%
2012	18,904,668	13,676,554	72.3%
2013	20,516,938	13,591,846	66.2%
2014	21,212,467		

^{*} The annual required contributions shown were calculated presuming that the employees would be responsible for an equal share of the cost of the System. However, if employee contribution rates are insufficient to cover half of the cost, as has been the case in recent years, the City is ultimately responsible for the funding of the Plan. Assuming that the employee contribution rate for the year ending June 30, 2014 remains at 6.50% of pay, the annual required contribution for the City is \$30,553,712.



EXHIBIT III

Supplementary Information Required by the GASB – Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
7/1/2008	\$953,079,670	\$1,050,785,799	\$97,706,129	90.70%	\$174,113,556	56.12%
7/1/2009	910,769,192	1,083,256,135	172,486,943	84.08%	186,523,480	92.47%
7/1/2010	913,077,824	1,113,441,433	200,363,609	82.01%	193,229,880	103.69%
7/1/2011	892,096,375	1,158,070,396	265,974,021	77.03%	177,977,161	149.44%
7/1/2012	878,048,507	1,181,090,260	303,041,753	74.34%	181,406,586	167.05%
7/1/2013	888,209,730	1,216,684,458	328,474,728	73.00%	182,634,179	179.85%



EXHIBIT IV

Supplementary Information Required by the GASB

Valuation date	July 1, 2013				
Actuarial cost method	Entry Age Normal Cost Method				
Amortization method	Level percent of payroll, assuming 3.00% per year increase				
Remaining amortization period	Rolling 30 years				
Asset valuation method	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.				
Actuarial assumptions:					
Investment rate of return	7.00%				
Projected salary increases:					
Inflation	3.00%				
Merit, longevity, etc.	Varies from 0.00% to 4.50% for General Employees Varies from 0.50% to 6.50% for Public Safety				
Plan membership:					
Retired participants and beneficiaries receiving benefits	2,834				
Terminated participants entitled to, but not yet receiving benefits*	283				
Active participants	<u>3,901</u>				
Total	7,018				

^{*} Includes 264 future pensioners currently receiving benefits from the Supplemental System.



EXHIBIT V

Development of the Net Pension Obligation (NPO) and the Annual Pension Cost Pursuant to GASB 27

Plan Year Ended June 30	Employer Annual Required Contribution (a)	Employer Amount Contributed* (b)	Interest on NPO (h) x 7.00% (c)	ARC Adjustment (h) / (e) (d)	Amortization Factor (e)	Pension Cost (a) + (c) – (d) (f)	Change in NPO (f) – (b) (g)	NPO Balance NPO + (g) (h)
2008	\$14,818,900	\$12,061,584	-\$702,264	-\$755,580	13.2777	\$14,872,216	\$2,810,632	-\$7,221,717
2009	17,050,689	12,770,110	-505,520	-543,899	13.2777	17,089,068	4,318,958	-2,902,759
2010	21,118,910	13,224,808	-203,193	-218,620	13.2777	21,134,337	7,909,529	5,006,770
2011	18,147,791	13,772,490	350,474	274,789	18.2204	18,223,476	4,450,986	9,457,756
2012	18,904,668	13,676,554	662,043	519,075	18.2204	19,047,636	5,371,082	14,828,838
2013	20,516,938	13,591,846	1,038,019	813,859	18.2204	20,741,098	7,149,252	21,978,090

^{*}Amortization was changed from level dollar to level percent-of-pay effective July 1, 2010.



EXHIBIT VI

Actuarial Assumptions and Actuarial Cost Method

Mortality Rates:

Healthy: RP-2000 Combined Healthy Mortality Table, set forward two years for both males and females

Disabled: RP-2000 Disabled Retiree Mortality Table, multiplied by 70%

Based on a five-year review of mortality experience for the 2005-2010 period, these mortality tables were determined to contain a margin of 8% to anticipate future mortality improvement. The mortality assumptions will be assessed again at the time of the next five-year review, and further adjustment or expected improvements in life expectancy will be made if warranted.

Termination Rates Before Retirement:

				Rate (%)							
	Mor	tality	Disability			ulity Disability			١	Withdrawal	
Age	Male	Female	General	Fire	Police	General*	Fire**	Police***			
20	0.04	0.02	0.08	0.12	0.06	4.89	3.79	6.65			
25	0.04	0.02	0.11	0.17	0.09	4.76	2.69	4.73			
30	0.06	0.04	0.14	0.22	0.11	4.56	2.07	3.63			
35	0.09	0.06	0.19	0.29	0.15	4.23	1.59	2.80			
40	0.12	0.09	0.29	0.44	0.22	3.77	1.20	2.11			
45	0.17	0.13	0.47	0.72	0.36	3.18	0.82	1.43			
50	0.27	0.20	0.79	1.21	0.61	2.23	0.40	0.70			
55	0.47	0.35	1.31	2.02	1.01	0.85	0.00	0.00			
60	0.88	0.67	2.12	3.25	1.63	0.08	0.00	0.00			

D-4- (0/)



^{*} Withdrawal rates shown for General Employees are multiplied by 2.50 during the first five years of employment.

^{**} Withdrawal rates shown for Firefighters are multiplied by 1.75 during the first five years of employment.

^{***} Withdrawal rates shown for Police Officers are multiplied by 1.70 during the first five years of employment.

Retirement Rates:

Fire and Police employees are assumed to retire in accordance with the following rates. Benefits are payable from the Firemen's and Policemen's Supplemental Pension System until the participant reaches their Normal Retirement Age under the Retirement and Relief System.

Fire		Police	
Years of Service*	Rate	Years of Service*	Rate
20	10%	20	45%
21-25	5	21	20
26	25	22-25	5
27-28	8	26	15
29	60	27	20
30	10	28	15
31-32	0	29	50
33	40	30	30
34	20	31-32	0
35	100	33	45
		34	25
		35	100

^{*} Retirement is assumed to occur no later than age 65

General employees are assumed to retire, after meeting the service requirements, in accordance with the following rates:

Rate**
0%
15
8
15
20
40
20
40
25
100

^{**} General Employee rates are decreased to 0% at 30 years and decreased by 75% when employee has 31-32 years of service. The rate is increased to 150% of the rate shown when employee reaches 33 years of service.



Retirement Age for Inactive

Vested Participants:

60

Unknown Data for Participants: Same a

Same as those exhibited by Participants with similar known characteristics. If not

specified, Participants are assumed to be male.

Percent Married: 80%

Age of Spouse: Females three years younger than males

On the Job Disability:

General 50% Fire and Police 100%

On the Job Death:

General 5% Fire and Police 15%

Net Investment Return:

7.00%

Salary Scale:

<u>Age</u>	General	Fire and Police
20	7.50	9.50
25	6.75	7.60
30	6.00	6.20
35	5.50	5.10
40	5.00	4.50
45	4.50	4.00
50	4.00	4.00
55	3.50	4.00
60	3.00	4.00

Includes allowance for inflation of 3.00% per year.



SECTION 4: Reporting Information for the City of Birmingham Retirement and Relief System

Interest on DROP Accounts:	5.00%
Administrative Expenses:	\$150,000, payable monthly, equivalent to \$144,630 at the beginning of the year.
Actuarial Value of Assets:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant would have commenced employment if the plan had always been in existence. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by service, with Normal Cost determined as if the current benefit accrual rate had always been in effect. Actuarial Liability is allocated by salary.
Change in Assumptions:	The only change in actuarial assumptions since the last valuation was a decrease in the administrative expense assumption from \$270,000 to \$150,000 per year.



EXHIBIT VII

Summary of Plan Provisions

This exhibit summarizes the major provisions of the **System** included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year: July 1 through June 30

Plan Status: Ongoing

Normal Pension:

Eligibility A participant may retire at (a) age 60 if he has completed 5 years of credited service,

or (b) any age if he has completed 30 years of credited service.

Amount: 2.50% of final average salary for each year of credited service. This amount cannot

be greater than 75.0% of the final average salary nor less than \$400 per month.

Service credit used to determine the benefit amount may be increased by credit

granted for unused sick leave (on a percent of possible total basis).

Final average salary is defined as the highest average compensation over any

36-month period of the employee's last ten years of participation.

Early Retirement Pension:

Eligibility A City participant may retire at age 55 if he has completed 25 years of credited

service.

Amount 1.85% of final average salary for each year of credited service.



Disability:			
Ordinary			
Service Requirement	5 years credited service.		
Amount	2.00% of final average salary at disability for each year of credited service, payable immediately. This amount cannot be greater than 60% of final average salary nor let than \$400.		
Extraordinary			
Service Requirement	None		
Amount	70% of final monthly salary at disability, offset by the maximum Worker's Compensation benefit, payable immediately.		
Termination:	To a participant terminating before becoming eligible for a vested deferred pension from the plan, a lump sum of his or her own contributions without interest is payable.		
	Participants terminating after 5 years of actual service who leave their contributions in the System Fund have a non-forfeitable right to a monthly pension beginning at age 60. The form and amount of the pension are the same as the normal pension.		
Death Benefits:	If a participant dies prior to his or her attainment of eligibility for retirement, a lump sum of his or her own contributions without interest is payable to his or her beneficiary.		
	If an active participant who is eligible to retire or a retired participant dies, 60% of the accrued pension benefit is payable to the surviving spouse, if any, during his or her remaining lifetime. If an active participant (other than a participant of the Firemen and Policemen Supplemental System) who is not eligible to retire, but who has completed 5 years of service dies, a portion of 60% of the accrued pension benefit is payable to the spouse during her remaining lifetime. This portion is defined as follows:		



Number of

	Years of Service	Entitled Benefit	
	5	50%	
	6	60	
	7	70	
	8	80	
	9	90	
	10 or more	100	
have att years or is payal service	tained age 60 or (b) the factorial service. In lieu of the ble to the surviving speconnected; the maximum and the surviving speconnected; the maximum and the surviving specific services are surviving specifically and the surviving specific services are surviving specific services.	he date the deceased ne above, for all part pouse and 10% is part mum for spouse and	ate that the deceased participant would diparticipant would have completed 20 ticipants, an annuity of 60% of salary may be to a minor child if death is a children is 75% and the maximum for use benefit is \$320 per month.
service will be and the	may elect up to a 36- calculated using serv	month Back-DROF ice and final average a lump sum equal	at least age 63 with 23 years of P. The employee's monthly benefit the salary as of the Back-DROP date I to the number of months dropped with interest.
All qua particip		he Retirement and F	Relief System are required to
	of compensation of compensation		

There have been no changes in plan provisions since the last valuation.

Portion of



Changes in Plan Provisions:

Back-DROP:

Participation:

Contributions: *Employees*

City