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## Executive Summary

Mercer Human Resource Consulting is pleased to provide the annual actuarial valuation report of the **Fire and Police Employees' Retirement System of the City of Baltimore** as of June 30, 2006. We have identified some of the more significant results and changes from the 2005 valuation as follows:

### Key Results and Changes

- 22.8% increase in City's recommended contribution.
- Investments other than the Paid Up Benefit Fund and Contingency Reserve Fund gained 12.0227%.
- The 10 year phase in of negative balances in the Benefit Improvement, Employer Reserve, and Minimum Stabilization Funds and the routine smoothing of the Actuarial Value of Assets result in an Actuarial Value of Assets that exceeds the Market Value (including accrued contribution) by \$357.5 million. The GASB 25 funded ratio would be 79.3% on a market value basis instead of 92.5% on an Actuarial Value of Assets basis.
- Variable benefit increase of 2.60% assuming that the new funds can be invested at 5.4%.

The 2006 valuation determines the City's recommended contribution for FY 2008. A key result of the valuation is a 22.8% increase in the City's contribution from \$54,092,757 for FY 2007 to \$66,423,208 for FY 2008.

The net investment return during FY 2006 was 12.0227% compared to our long range assumption of 8.25%. We have calculated the variable benefit increase assuming a 5.4% return on investments. The increase will be 2.60% effective January 2007.

In 2005 the Benefit Improvement, Employer Reserve and Minimum Stabilization Funds expired. We have provided results that incorporate these funds into the Actuarial Value of Assets by phasing in the negative balances over 10 valuations, beginning June 30, 2005 in the amount of \$41,280,557 per year. As of June 30, 2006, the unrecognized amount of the negative balances is \$330,244,455.

The 2005 Experience Study recommended an additional assumption change or a change in the variable benefit structure. Neither has occurred. Until one or the other is changed, the system remains subject to the potential for substantial, long term, actuarial losses.

**Results in this version of the July 1, 2006 actuarial valuation report are updated from the version released October 16, 2006, based on updated asset information that was provided to Mercer on November 16, 2006.**

## Executive Summary (continued)

### Assets

The market value of assets increased \$77,837,272 (from \$2,016,050,114 to \$2,093,887,386) during the 2005-2006 fiscal year. The receipts and disbursements of the fund were as follows:

Adjusted fund balance at 7/1/2005		\$2,016,050,114
Contributions		\$64,819,525
Member	\$15,157,898	
Employer	49,661,627	
Investment income		\$176,625,431
Interest, dividends and realized capital gains	\$152,865,508	
Unrealized gains (losses)	34,652,703	
Expenses	(10,892,780)	
Benefit payments and refunds		(\$163,607,684)
Adjusted fund balance at 6/30/2006		\$2,093,887,386

Earnings above or below the valuation interest assumption are identified separately. The excess earnings are calculated by the "asset averaging method" referred to in Article 22(36)(j) of the Baltimore City Code. This method uses one-fifth of any excess earnings for the year to adjust the unfunded actuarial liability in the current year. The other four-fifths of any excess earnings have been used for purposes such as benefit improvements, contribution reductions and changes in actuarial assumptions.

For more details on assets, see Section 1.

## Executive Summary (continued)

### Valuation Summary

The major components of the City's costs, both as a dollar amount and a percentage of payroll, are shown below, together with the corresponding figures from the June 30, 2005 report for comparison:

10 year phase in scenario	2005 Valuation Applies to FY2007		2006 Valuation Applies to FY2008	
	Amount	Percent <sup>1</sup>	Amount	Percent <sup>1</sup>
Normal cost	\$40,843,476	16.79%	\$41,957,997	16.98%
Amortization of unfunded actuarial liability over 20 years	9,126,738	3.75%	19,402,934	7.85%
Interest to 7/1/2006 (2007)	4,122,543	1.69%	5,062,277	2.05%
Total lump sum contribution	\$54,092,757	22.23%	\$66,423,208	26.88%

The above amounts are based on amortizing the unfunded actuarial liability over a rolling 20-year period, as approved by the Trustees in 1992.

The State has employees at BWI airport who participate in the plan. Contributions for the 22 airport employees are billed to the State. The State's cost increased from \$415,698 for FY 2007 to \$544,585 for FY 2008. The combined City and State contribution for FY 2008 is \$66,967,793. This amount is increased for interest if the payment is made after the first day of the 2008 fiscal year.

For more details on the valuation, see Section 2.

<sup>1</sup> Payroll for City Members is \$243,325,874 at 6/30/2005 and \$247,095,446 at 6/30/2006.

## Executive Summary (continued)

### Variable Benefit Calculation

The retirement ordinance provides for an increase in benefits to certain retirees and beneficiaries whenever the investment performance<sup>2</sup> exceeds 7.5%. During FY 2006, the fund gained 12.0227%. As a result, there will be a 2.60% increase in benefits for this group of participants assuming that the new funds can be invested at 5.4%.

Future increases will depend on future investment performance.

For more details on the variable benefit calculation, see Section 4.

### Plan Membership

We have reconciled the plan membership from the previous year to this year.

Changes in active membership statistics from last year are as follows:

Plan Statistics	2005	2006	% change
# of active members	4,690	4,627	(1.34%)
Total payroll	\$244,814,891	\$248,558,248	1.53%
Average salary	\$52,199	\$53,719	2.91%
Average age	38.66	38.73	0.18%
Average service	12.48	12.46	(0.16%)

<sup>2</sup> Performance excludes earnings in Paid up Benefit Fund and Contingency Reserve Fund

## **Executive Summary (continued)**

There were 5,716 persons receiving benefits from the plan at June 30, 2006, which is up from 5,578 at June 30, 2005. Average annual benefits have increased to \$26,457. The types of retirement and average benefits appear on the following chart:

<b>Type of Retirement</b>	<b>Number of Retirees</b>			<b>Average Benefit Amount</b>		
	<b>2005</b>	<b>2006</b>	<b>% increase</b>	<b>2005</b>	<b>2006</b>	<b>% increase</b>
Normal Service Retirement	3,286	3,345	2%	\$30,897	\$31,886	3%
Discontinued Service	6	10	67%	24,386	25,486	5%
Non-Line-of-Duty Disability	308	308	0%	16,345	16,923	4%
Line-of-Duty Disability	662	705	6%	27,349	28,784	5%
Beneficiaries of Above	1,077	1,113	3%	11,604	11,992	3%
Non-Line-of-Duty Death	169	165	(2%)	16,817	17,392	3%
Line-of-Duty Death	70	70	0%	36,274	37,056	2%
<b>Total</b>	<b>5,578</b>	<b>5,716</b>	<b>2%</b>	<b>\$25,581</b>	<b>\$26,457</b>	<b>3%</b>

For more details on plan membership, see Section 3.

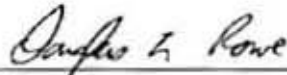

## Actuarial Certification

The valuation is based on employee and financial data which were provided by the Retirement Systems' Office and which are summarized in this report.

All costs, liabilities, and other factors under the Plan were determined in accordance with generally accepted actuarial principles and procedures, using an actuarial cost method which we believe is appropriate. In our opinion, the actuarial assumptions are reasonable and represent our best estimate of the anticipated experience under the Plan. This report fully and fairly discloses the actuarial position of the Plan on an ongoing basis.

There have been no changes to the actuarial assumptions, actuarial methods, or plan provisions since the last valuation of the Plan as of June 30, 2005.

We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate. The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

 _____ <b>Douglas L. Rowe, FSA, MAAA, EA</b>	November 20, 2006 _____ <b>Date</b>
 _____ <b>James Baughman, ASA, EA</b>	November 20, 2006 _____ <b>Date</b>
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The information contained in this document (including any attachments) is not intended by Mercer to be used, and it cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code that may be imposed on the taxpayer.

## Section 1: Assets

### Highlights

- Total fund increased by \$78 million during FY 2006
- Total fund's investments earned \$177 million net of expenses during FY 2006; investment losses in the Paid Up Benefit Fund and Contingency Reserve Fund combined exceeded \$13 million.
- The Fund earned above the weighted average assumed return
- Negative balances in the Benefit Improvement, Employer Reserve, and Minimum Stabilization Funds at June 30, 2005 are being recognized in the Actuarial Value of Assets under a 10-year phase in, beginning June 30, 2005.



## Section 1: Assets *(continued)*

The funds shown on the next page serve the following purpose:

- Annuity Savings Fund (ASF) – contains member contributions for active members
- Annuity Reserve Fund (ARF) – contains retired member contributions
- Pension Accumulation Fund (PAF) – contains City contributions for actives. The Minimum Stabilization Fund (MSF) is a portion of the PAF.
- Pension Reserve Fund (PRF) – contains City contributions for retired members; adjusted annually by transfers to/from PAF so that ARF plus PRF equals the actuarial present value of retiree benefits
- <sup>1</sup>Paid Up Benefit Fund (PuBF) – contains assets to pay for variable benefit increases already granted
- <sup>2</sup>Contingency Reserve Fund (CRF) – safety net for PuBF

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<sup>1</sup> These funds are invested in fixed income investments only. They generally receive a transfer annually based on ARF plus PRF returns in excess of 7.5%. The CRF never exceeds 2.5% of the ARF plus PRF.

**Section 1: Assets (continued)**

**The Assets of the Plan as of June 30, 2006**

Based upon unaudited financial data furnished by the Retirement Systems Office, the change in market value of assets of the six funds during the valuation year ending June 30, 2006 is summarized as follows:

	Annuity Savings Fund	Annuity Reserve Fund	Pension Accumulation Fund	Pension Reserve Fund	Paid Up Benefit Fund*	Contingency Reserve Fund*	Total
Fund Balance on 6/30/2005	\$200,799,034	\$202,531,028	\$316,163,250	\$933,742,551	\$332,741,075	\$30,073,176	\$2,016,050,114
Transfers	\$0	\$4,456,265	(\$154,425,456)	\$112,959,532	\$35,740,601	\$1,269,058	\$0
Adjustments from prior year	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Adjusted Fund Balance on 6/30/2006	\$200,799,034	\$206,987,293	\$161,737,794	\$1,046,702,083	\$368,481,676	\$31,342,234	\$2,016,050,114
Contributions							
Member City and State	\$15,157,898	\$0	\$0	\$0	\$0	\$0	\$15,157,898
	\$0	\$0	\$49,661,627	\$0	\$0	\$0	\$49,661,627
Net Investment Income							
Interest, Dividends, and Realized Capital Gains	\$11,183,739	\$13,780,283	\$48,548,982	\$69,726,816	\$8,502,154	\$1,123,534	\$152,865,508
Unrealized Gains (Losses)	\$0	\$0	\$57,692,063	\$0	(\$22,030,796)	(\$1,008,564)	\$34,652,703
Expenses	\$0	\$0	(\$10,823,116)	\$0	(\$64,353)	(\$5,311)	(\$10,892,780)
<b>Total Investment Income</b>	\$11,183,739	\$13,780,283	\$95,417,929	\$69,726,816	(\$13,592,995)	\$109,659	\$176,625,431
Transfer for Annuitants Awarded and Military Leave	(\$17,468,081)	\$17,468,081	\$0	\$0	\$0	\$0	\$0
Payments of Benefits & Refunds	(\$3,377,329)	(\$19,491,511)	(\$12,615,025)	(\$99,286,545)	(\$28,837,274)	\$0	(\$163,607,684)
Fund Balance on 6/30/2006	\$206,295,261	\$218,744,146	\$294,202,325	\$1,017,142,354	\$326,051,407	\$31,451,893	\$2,093,887,386
Transfers	\$0	\$557,305	(\$138,474,389)	\$94,848,355	\$41,238,318	\$1,830,411	\$0
Adjusted Fund Balance on 6/30/2006	\$206,295,261	\$219,301,451	\$155,727,936	\$1,111,990,709	\$367,289,725	\$33,282,304	\$2,093,887,386

\* Excluded from valuation

**Section 1: Assets** *(continued)*

**Development of Investment Gain (Loss)**

1. Mean assets (see Section 4)	\$1,581,250,762
2. Investment return (see Section 4)	12.0227%
3. Investment gain (loss)	
a. Relative to 6.80%: $[(2) - 6.80\%] \times (1)$	\$82,583,984
b. Relative to 8.25%: $[(2) - 8.25\%] \times (1)$	\$59,655,847
4. Funds as a portion of market value of assets (excluding PuBF and CRF) at the beginning of the year	
a. $(ARF + PRF)/MVA$	0.775689
b. $(ASF + PAF)/MVA$	0.224311
c. Total: (a) + (b)	1.000000
5. Gain (Loss) allocation (beginning of the year)	
a. ARF and PRF: (3a) x (4a)	\$64,059,488
b. ASF and PAF: (3b) x (4b)	\$13,381,463
c. Total: (a) + (b)	\$77,440,951

## Section 1: Assets (continued)

### Development of Unallocated Earnings

Ordinance 97-164 set up two funds – the Employer Reserve Fund (ERF) and the Benefit Improvement Fund (BIF) – which are credited with unallocated earnings, beginning with the \$50 million excess earnings from the June 30, 1996 valuation. As of June 30, 1997, a minimum stabilization fund (MSF) was established within each Fund. Ordinance 00-49 provided for increases in the minimum stabilization funds annually from 2000 through 2003. All of these funds expired as of June 30, 2005. The actuarial value of assets recognizes the negative balances as of June 30, 2005 in 10 equal amounts beginning with the June 30, 2005 valuation.

Date of Valuation	6/30/2005	6/30/2006
Investment gain (loss)	\$71,329,204	\$77,440,951
Unallocated earnings for prior year	N/A	(33,024,446)
Variable benefit funds	(37,009,659)	(43,068,729)
Allocation for Experience Study	(34,319,545)	0
Allocation for 10% of the BIF, ERF & MSF	(41,280,557)	(41,280,557)
Balance for unallocated earnings calculation	\$(41,280,557)	\$(39,932,781)
One-fifth (credit) charge	8,256,111	7,986,556
Unallocated earnings for date of valuation	\$(33,024,446)	\$(31,946,225)

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

Actuarial Value of Assets	6/30/2006
Assets in the Fund: 6/30/2006	\$2,093,887,386
Paid-up benefit fund	(367,289,725)
Contingency reserve fund	(33,282,304)
Remaining BIF, ERF & MSF Balance 6/30/2006	330,244,455
Unallocated excess earnings for 2006	31,946,225
Reserve for future costs under Ordinance 98-319	(4,699,975)
Transfer from CRF for contribution reduction	0
Present value of prior year's contribution not yet paid	54,092,757
Actuarial value of assets on 6/30/2006	\$2,104,898,819

## **Section 2: Valuation Summary**

<b>Highlights</b>
<ul style="list-style-type: none"><li>• City contribution increased 22.8% from \$54.1 million in FY 2007 to \$66.4 million in FY 2008.</li><li>• Total (City plus State) unfunded liability increased from \$104.4 million at 6/30/2005 to \$204.5 million.</li><li>• Total (City plus State) Net Normal Cost increased from \$41.1 million in FY 2007 to \$42.3 million in FY 2008.</li></ul>

## Section 2: Valuation Summary (continued)

### Valuation Summary

	As of June 30, 2006		
	<u>Airport</u> <u>Members</u>	<u>City</u> <u>Members</u>	<u>Total</u>
<b>Number of Participants</b>			
Active	22	4,605	4,627
Service retired	N/A	N/A	3,355
Disabled	N/A	N/A	1,013
Beneficiaries	N/A	N/A	1,348
Total participants	N/A	N/A	10,343
Annual compensation of active participants	\$1,462,802	\$ 247,095,446	\$ 248,558,248
<b>Development of Normal Cost and Actuarial Liability</b>			
<b>Actuarial liability</b>			
Actives	\$9,675,087	\$ 968,390,637	\$ 978,065,724
Service retired	N/A	N/A	1,003,369,543
Disabled	N/A	N/A	207,168,223
Beneficiaries	N/A	N/A	120,754,394
Total	N/A	N/A	\$ 2,309,357,884
Less: actuarial value of assets	N/A	N/A	2,104,898,918
Unfunded actuarial liability	\$2,022,522	\$ 202,436,543	\$ 204,459,065
Net (of expected member contributions) normal cost	\$ 309,228	\$ 41,957,997	\$ 42,267,225
<b>Development of contribution payable for the fiscal year beginning July 1, 2006</b>			
Net normal cost	\$ 309,228	\$ 41,957,997	\$ 42,267,225
Twenty-year amortization of Unfunded Actuarial Liability	\$ 193,853	\$ 19,402,934	\$ 19,596,787
Net plan cost at 7/1/2006	\$ 503,081	\$ 61,360,931	\$ 61,864,012
Interest to 7/1/2007	41,504	5,062,277	5,103,781
Net plan cost at 7/1/2007	\$ 544,585	\$ 66,423,208	\$ 66,967,793

### Section 3: Plan Membership

Highlights
<ul style="list-style-type: none"><li>• Active membership decreased 1.3% from 4,690 to 4,627</li><li>• Active payroll increased 1.5% from \$245 million to \$249 million</li><li>• Average salary increased 2.9% from \$52,199 to \$53,719</li><li>• Inactive participants increased from 119% to 124% of active membership</li></ul>

## **Section 3: Plan Membership** *(continued)*

### **Plan Membership**

This section contains tables which summarize the data used in the valuation. The data as of June 30, 2006, which was supplied by the Retirement System office, has been reviewed by Mercer to ensure as high a degree of accuracy as possible. This data would customarily not be verified by a plan's actuary. We have reviewed the member data for internal consistency and reasonableness and have no reason to doubt its substantive accuracy.

A reconciliation chart is included on page 16, which traces the active membership through the year, showing the exits and entrances by category. The members are grouped by age and service in a chart on page 17.

The retired member data are displayed in charts on pages 18, 19 and 20.



### Section 3: Plan Membership (continued)

#### Reconciliation of Active F&P Members

<b>A.</b>	<b>Active members as of June 30, 2005</b>	<b>4,690</b>
<b>B.</b>	Exits:	
	1. Terminations: Non-vested	115
	2. Transfers Out	2
	3. Leaves: Other	0
	4. Prior Incorrect Inclusions	0
	5. Deaths: Ordinary with no Survivor	3
	Accidental with Survivor	0
	Ordinary with Survivor	2
	6. Retirements: Service	149
	7. Disablements: Ordinary	12
	Special	60
	Special - 100%	0
	8. Other Exits Hired and Terminated During Year	<u>20</u>
	9. Subtotal (all exits):	363
	10. Military Leaves:	24
	11. Pending Disablement:	16
<b>C.</b>	<b>Remaining Active (A - B.9)</b>	<b>4,327</b>
<b>D.</b>	Entrances:	
	1. New Entrants	293
	2. Prior Omissions	1
	3. Transfers In	0
	4. Restorations: Pending	0
	Leave	0
	Retirement	0
	Disability-Ordinary	1
	Disability-Special	0
	Other Termination	<u>5</u>
	5. Subtotal (all entrances):	300
<b>E.</b>	<b>Active Members as of June 30, 2006 (C + D.5)<sup>4</sup></b>	<b>4,627</b>

<sup>4</sup> Includes 24 participants on military leave and 16 participants pending disablement.

### Section 3: Plan Membership (continued)

#### Average Earnings for Active Service Groups by Age Groups

Age Group	Service Group									TOTAL
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19										
20-24	180 37,056	1 46,853								181 37110
25-29	379 39,504	194 50,847								573 43,344
30-34	222 40,629	353 51,965	189 55,697	5 69,220						769 49,722
35-39	126 40,509	248 51,856	473 56,078	222 59,966	9 64,549					1,078 54,163
40-44	78 43,545	87 51,856	190 54,780	313 58,803	192 62,666	7 71,476				867 56,809
45-49	22 45,184	33 52,525	65 54,390	111 56,890	185 61,828	142 67,593				558 60,240
50-54	10 44,567	11 50,786	24 53,772	55 55,783	57 60,181	142 63,103	77 69,194	1 71,361		377 61,414
55-59	2 63,738	4 51,637	5 53,189	8 56,977	28 62,801	47 62,261	59 68,422	27 72,770		180 65,234
60-64			1 55,364	3 57,413	2 60,517	7 66,460	6 66,670	12 56,909	4 64,535	35 61,569
65-69			1 55,649					2 71,361	3 61,514	6 63,819
70-74							1 9,544	1 9,761	1 61,514	3 26,940
75+										
<b>TOTAL</b>	1,019 39,970	931 51,697	948 55,551	717 58,682	473 62,073	345 65,074	143 68,352	43 66,780	8 63,025	4,627 53,719

Total Earnings: \$248,558,248

Average Age: 38.73

Average Service: 12.46

### Section 3: Plan Membership *(continued)*

#### Reconciliation of Retired Fire and Police Members and their Beneficiaries

	<u>Retired</u>		<u>Disabled</u>		<u>Total</u>
	<u>Primary</u>	<u>Beneficiary</u>	<u>Primary</u>	<u>Beneficiary</u>	
<b>A. Members as of June 30, 2005</b>	<b>3,292</b>	<b>888</b>	<b>970</b>	<b>428</b>	<b>5,578</b>
<b>B. Exits:</b>					
1. Beneficiary Payments Ceased	0	0	0	0	0
2. Returned to Active Membership	1	0	0	0	1
3. Prior Incorrect Inclusion	1	0	0	0	1
4. Deaths:					
Primary with no Survivor	33	0	15	0	48
Beneficiary	0	37	0	15	52
Primary with Survivor	<u>52</u>	<u>0</u>	<u>17</u>	<u>0</u>	<u>69</u>
5. Subtotal (all exits)	87	37	32	15	171
<b>C. Remaining Members (A - B.5)</b>	<b>3,205</b>	<b>851</b>	<b>938</b>	<b>413</b>	<b>5,407</b>
Adjustments	(1)	(1)	1	1	0
<b>Adjusted Remaining Members</b>	<b>3,204</b>	<b>850</b>	<b>939</b>	<b>414</b>	<b>5,407</b>
<b>D. Entrances:</b>					
1. New Entrants: Primary	149	0	72	0	221
2. Active Death: Beneficiary	0	2	0	0	2
3. Beneficiary Assumes Payments	0	52	0	17	69
4. Prior Omissions	2	0	2	0	4
5. Ex-Spouse Receiving Payments	<u>0</u>	<u>10</u>	<u>0</u>	<u>3</u>	<u>13</u>
6. Subtotal (all entrances):	151	64	74	20	309
<b>E. Members as of June 30, 2006 (C + D.6)</b>	<b>3,355</b>	<b>914</b>	<b>1,013</b>	<b>434</b>	<b>5,716</b>

**Section 3: Plan Membership** *(continued)*

**Schedule of Benefit Recipients by Attained Age and Type of Retirement  
F&P  
June 30, 2006 - PRIMARY MEMBERS**

AGE	Total	Type of Retirement <sup>5</sup>				
		NR	DS	ODis	SD	S100
0-24	0	0	0	0	0	0
25-29	6	0	0	0	6	0
30-34	24	0	0	5	19	0
35-39	62	3	0	11	48	0
40-44	136	35	7	22	71	1
45-49	255	192	1	15	46	1
50-54	427	354	1	17	55	0
55-59	782	688	1	23	70	0
60-64	719	603	0	40	76	0
65-69	584	462	0	43	77	2
70-74	534	397	0	48	88	1
75-79	445	314	0	49	81	1
80-84	271	201	0	27	43	0
85 and up	<u>123</u>	<u>96</u>	<u>0</u>	<u>8</u>	<u>19</u>	<u>0</u>
<b>Totals</b>	<b>4,368</b>	<b>3,345</b>	<b>10</b>	<b>308</b>	<b>699</b>	<b>6</b>
<b>Average Annual Benefit</b>	<b>\$30,316</b>	<b>\$31,886</b>	<b>\$25,486</b>	<b>\$16,923</b>	<b>\$28,608</b>	<b>\$49,341</b>

<sup>5</sup> Type of Retirement

- NR Normal Retirement for age and service
- DS Discontinued Service
- ODis Non-Line-of-Duty Disability
- SD Line-of-Duty Disability
- S100 Line-of-Duty Disability 100% of Compensation

**Section 3: Plan Membership** (continued)

**Schedule of Benefit Recipients by Attained Age and Type of Retirement  
F&P  
June 30, 2006 - BENEFICIARIES**

AGE	Total	Type of Retirement								\$100
		NR	DS	ODis	SD	ODR <sup>6</sup>	OD <sup>7</sup>	OD <sup>8</sup>	SDth <sup>9</sup>	
0-19 <sup>10</sup>	25	3	0	3	5	0	0	11	3	0
20-24	6	1	0	0	0	0	2	1	2	0
25-29	0	0	0	0	0	0	0	0	0	0
30-34	1	0	0	0	0	0	0	0	1	0
35-39	4	0	0	0	0	0	0	2	2	0
40-44	18	7	0	2	3	1	1	1	3	0
45-49	33	20	0	2	5	3	1	0	2	0
50-54	69	41	0	10	4	8	2	0	4	0
55-59	109	62	1	6	6	10	10	3	11	0
60-64	119	63	0	13	14	8	12	0	9	0
65-69	158	82	0	22	28	13	7	0	6	0
70-74	200	89	0	43	42	16	6	0	4	0
75-79	236	96	0	46	61	18	4	0	11	0
80-84	212	118	0	31	40	10	3	1	8	1
85 and up	158	96	0	24	23	10	1	0	4	0
<b>Totals</b>	<b>1,348</b>	<b>678</b>	<b>1</b>	<b>202</b>	<b>231</b>	<b>97</b>	<b>49</b>	<b>19</b>	<b>70</b>	<b>1</b>
<b>Average Annual Benefit</b>	<b>\$13,954</b>	<b>\$12,774</b>	<b>\$11,076</b>	<b>\$9,575</b>	<b>\$11,784</b>	<b>\$20,860</b>	<b>\$10,426</b>	<b>\$17,654</b>	<b>\$37,056</b>	<b>\$18,821</b>

<sup>6</sup> Non-Line-of-Duty Death member eligible for Service Retirement

<sup>7</sup> Non-Line-of-Duty Death prior to 7/1/91.

<sup>8</sup> Non-Line-of-Duty Death with 25% of compensation.

<sup>9</sup> Line-of-Duty Death

<sup>10</sup> Beneficiaries in this age group are children of deceased members.

## Section 4: Variable Benefit Calculation

### Highlights

- Increase of 2.60% in January 2007 assuming that the new funds can be invested at 5.4% or 2.95% if funds can be invested at 6.8%.
- Members and beneficiaries retired before July 1, 2004 are eligible. For members who retire from DROP, date of DROP participation is used to measure length of time retired.

Abbreviations used in the following table:

MV = Market Value  
PuBF = Paid-up Benefit Fund  
CRF = Contingency Reserve Fund  
ARF = Annuity Reserve Fund  
PRF = Pension Reserve Fund

## Section 4: Variable Benefit Calculation (continued)

### Variable Benefit Calculation

1.	MV of assets as of 6/30/2005 after transfers and before adjustment (excluding PuBF and CRF)	\$1,616,226,204
2.	MV of assets as of 6/30/2006 before transfers (excluding PuBF and CRF)	\$1,736,384,086
3.	Earnings during 7/1/2005 to 6/30/2006 (excluding PuBF and CRF) (includes expenses and adjustment from prior year)	\$190,108,767
4.	Mean Assets Half of [(1) + (2) - (3)]	\$1,581,250,762
5.	Investment return 2005-2006	12.0227%
6.	Earnings between 7.5% and 10% (Excess of (5) over 7.5%, but not more than 2.5%) divided by (5) times (3)	\$39,531,213
7.	One half of earnings above 10% Half of [(5) less 10%] divided by (5) times (3)	\$15,991,957
8.	Retired Life Reserve on 6/30/2005 (ARF) \$206,987,293 (PRF) \$1,046,702,083	\$1,253,689,376
9.	MV of assets as of 6/30/2005 (excluding PuBF and CRF)	\$1,616,226,204
10.	Assets available for Variable Benefit Funds ((6) plus (7)) times ((8) divided by (9))	\$43,068,729
11.	Retired Life Reserve on 6/30/2006 (ARF) \$219,301,451 (PRF) \$1,111,990,709	\$1,331,292,160
12.	Amount to transfer to the Contingency Reserve Fund on 6/30/2006 (2.5% of (11)) less current assets in CRF \$31,451,893	\$1,830,411
13.	Amount available for Paid up Benefit Fund (10) less [the greater of (12) and \$0]	\$41,238,318
14a.	Cost to provide each additional 1% (6.8% Purchase Assumption)	\$13,987,431
14b.	Cost to provide each additional 1% (5.4% Purchase Assumption)	\$15,837,356
15a.	Compound Increase (13) + (14a) x 1% (assuming that the new funds can be invested at 6.8% or that surplus is available in the Paid Up Benefit Fund and will be used)	2.95%
15b.	Compound Increase (13) + (14b) x 1% (assuming that the new funds can be invested at 5.4% or that surplus is available in the Paid Up Benefit Fund and will be used)	2.60%

## **Section 5: Actuarial Basis**

<b>Highlights</b>
<ul style="list-style-type: none"><li>• For the 2006 valuation, it was assumed that the variable benefit could be invested at either 6.8% or 5.4% (6.8% or 5.0% for the 2005 valuation). The change reflects changes in the bond market.</li></ul>



## Section 5: Actuarial Basis (continued)

### Projected Unit Credit Method

Liabilities and contributions shown in this report are computed using the Projected Unit Credit method of funding.

The objective under this method is to fund each participant's benefits under the Plan as they would accrue, taking into consideration future salary increases. The total pension, to which each participant is expected to become entitled, is broken down into units, each associated with a year of past or future credited service. When this method is introduced, there will be an initial liability for benefits credited for service prior to that date, and to the extent that the liability is not covered by assets of the Plan, there is an unfunded liability to be funded over a chosen period in accordance with an amortization schedule.

A description of the calculation follows:

An individual's **accrued benefit** for valuation purposes related to a particular separation date is the accrued benefit described under the Plan but determined using the projected salary that would be used in the calculation of the benefit on the expected separation date.

The **benefit** deemed to accrue for an individual during a plan year is the prorated portion of the projected benefit attributable to one year of service. The projected benefit is calculated at the various anticipated separation dates.

An individual's **accrued liability** is the present value of the accrued benefit for valuation purposes at the beginning of the plan year, and the normal cost is the present value of the benefit deemed to accrue in the plan year. If multidecrements are used, the accrued liability and the normal cost for an individual are the sum of the component accrued liabilities and normal costs associated with the various anticipated separation dates. Such accrued liabilities and normal costs reflect the accrued benefits as modified to obtain the benefits payable on those dates and the probability of the individual separating on those dates.

The Plan's **normal cost** is the sum of the individual normal costs, and the Plan's **accrued (actuarial) liability** is the sum of the accrued liabilities for all participants under the Plan.

## Section 5: Actuarial Basis *(continued)*

### Actuarial Assumptions and Methods

- Method of funding:** Effective June 30, 1988, the Projected Unit Credit Funding Method is used. The current Unfunded Actuarial Liability is amortized over 20 years. This 20-year period is restarted each year. (Effective 7/1/1992)
- Asset valuation:** The actuarial value of assets is equal to the market value, adjusted for investment surpluses and deficits over a five-year period. 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. Market value for this purpose excludes the PuBF and CRF.
  - 2) The amount allocated to the variable benefit fund is deducted from this total.
  - 3) Of this difference, 20% is used in the current actuarial value of assets. Beginning again at June 30, 2007, the remaining 80% will be held in reserve.
- The actuarial value of assets is the market value (excluding the PuBF and CRF) less cumulative unallocated earnings less the balance in the Minimum Stabilization Fund. Any contribution receivable for the upcoming fiscal year (as determined in the prior year's valuation) is added to the result.
- Investment return:** 8.25% compounded annually until retirement. 6.80% compounded annually after retirement. (Effective 6/30/1995)

## Section 5: Actuarial Basis *(continued)*

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

Age	Annual Rate of Salary Increase
20	0.0850
25	0.0725
30	0.0650
35	0.0550
40	0.0475
45	0.0475
50	0.0450
55	0.0450
60	0.0400
64	0.0400

(effective 6/30/2005)

**Post-retirement mortality:** Retirees and beneficiaries:  
Male and Females - 1994 Uninsured Pensioners Generational Mortality table increased by a 5-year projection (effective 6/30/2005).

Disabled Members:  
Male and Females – GAM 1983 (M&F) set forward 4 years and reduced by 10% (effective 6/30/2005).

Sample rates are shown on the next page.

**Section 5: Actuarial Basis** *(continued)*

Age	Retirees and Beneficiaries			
	Male*	Female*	Disabled Members	
			Male	Female
55	0.005137	0.002547	0.007168	0.003267
60	0.009148	0.004870	0.011857	0.005459
65	0.016536	0.009474	0.021219	0.009337
70	0.027106	0.015062	0.034532	0.018033
75	0.042333	0.025189	0.057392	0.032959
80	0.069432	0.043568	0.090670	0.054555

*\*Rates for individuals who are the age shown as of 6/30/2006.*

- Percent married:** Males 75%, Females 75%
- Spouse age:** A husband is assumed to be 4 years older than his wife.
- Remarriage rates:** None
- Children:** All benefits with Joint & Survivor Forms of Payments for retirees had their survivor benefits increased by 4% to account for children's benefits.
- Benefit loads:** Benefits to certain types of beneficiaries receiving Line-of-Duty death benefits were increased by 3.0% to allow for contingent beneficiaries.
- Benefits to certain types of members receiving Line-of-Duty disability benefits were increased by 1.5% to allow for possible conversion to Line-of-Duty death benefits.
- Expenses:** All expenses are paid from the fund. It is assumed that fund earnings will be sufficient to pay these expenses and meet the interest assumption.

## Section 5: Actuarial Basis (continued)

### Actuarial Assumptions and Methods

Mortality and Morbidity Rates for Active Members: Sample rates of all decrements applicable to active participants are as follows:

Age	Withdrawal <sup>11</sup> and Early Retirement	Non-Line-of-Duty Disability	Line-of-Duty Disability	Non-Line-of-Duty Death	Line-of-Duty Death <sup>12</sup>
20	0.070083	0.000228	0.000691	0.000283	0.000076
25	0.054430	0.000232	0.000910	0.000287	0.000119
30	0.031211	0.000594	0.001433	0.000389	0.000164
35	0.018943	0.001914	0.002816	0.000591	0.000253
40	0.010828	0.001840	0.003990	0.000893	0.000385
45	0.003026	0.002651	0.004515	0.002060	0.000433
50	0.037573	0.002800	0.004600	0.003185	0.000372
55	0.048033	0.001446	0.004664	0.004404	0.000300
60	0.084338	0.001162	0.006208	0.006011	0.000159
64	0.100843	0.000812	0.006353	0.006414	0.000062

The above rates were effective 6/30/2005.

<sup>11</sup> Withdrawal decrements are reduced to zero when participant is eligible to retire.

<sup>12</sup> Benefit loaded 1/2% for post-disability line-of-duty death benefit.

## Section 5: Actuarial Basis (continued)

### Fire and Police Retirement Rates

The retirement rates are assumed to be affected by whether a member participates in the DROP. Members that do not join DROP are assumed to have retirement rates that vary by service until age 50. After age 50 they are assumed to vary solely by age.

Members that join DROP are assumed to have retirement rates that vary solely by service from the time they join and leave the DROP. Key points of DROP service include 3 years (maximum time under DROP) and 4.5 years (time to restore Average Final Compensation). We have assumed that 90% of members will elect the DROP. Retirement rates for members are as follows and reflect possibilities of retirement with and without DROP rates:

Non-Drop Rates Until Age 50 (with 90% reduction)		Non-DROP Rates After Age 50 (with 90% reduction)		Full DROP Rates	
Years of Service	Non-DROP Retirement Rate	Age	Non-DROP Retirement Rate	Years after electing DROP	DROP Retirement Rate
20	4.00%	50	1.27%	1	4.00%
21	0.76%	51	0.93%	2	3.00%
22	0.76%	52	0.93%	3	10.00%
23	0.97%	53	0.94%	4	4.00%
24	1.13%	54	1.17%	5	35.00%
25 or later	1.13%	55	1.46%	6	18.00%
		56	1.38%	7+	40.00%
		57	1.38%		
		58	1.38%		
		59	1.39%		
		60	2.12%		
		61	1.72%		
		62	2.55%		
		63	2.55%		
		64	3.23%		
		65	100%		

After we know a member has elected the DROP, only DROP rates will be used. If a member has more than 20 years of service and has not elected the DROP, only non-DROP rates without the 90% reduction will be used.

The above rates were effective 6/30/2005.

## Section 6: Summary of Plan Provisions

Highlights
<ul style="list-style-type: none"><li>• There were no changes in plan provisions from the 2005 valuation.</li></ul>

## Section 6: Summary of Plan Provisions (continued)

### 1. Effective Date

The System was effective July 1, 1962 and has periodically been amended. The most recent amendment was contained in Ordinance 03-576.

### 2. Eligibility

Any officer or employee of the Police Department or the Fire Department and certain Department of Aviation employees shall become a member as a condition of employment. Any officer or employee for whom the City makes contributions to Social Security shall be excluded.

### 3. Member Contributions

Members contribute at the rate of 6% of regular compensation for their entire period of service. Contributions are treated as made by the employer and are made to the system pre-tax according to Section 414(b)(2) of the Internal Revenue Code. Members of the ERS who transferred to this System after July 1, 1967 and did not make up the contributions which would have been made from July 1, 1962 are to have their retirement allowance reduced by the actuarial equivalent of the deficient contributions with interest. Interest is credited on contributions at a rate of 5.5% per annum. Members' contributions have been reduced in several recent years by a specific ordinance for each year. For purposes of calculating benefits that depend on the amount of member contributions (e.g., DROP accounts), members are deemed to have contributed the full amount.

### 4. Compensation

Earnable compensation is all usual compensation including lodging, subsistence, etc. When compensation is not paid in money, the Board of Trustees shall fix the value of that part of compensation. This definition excludes overtime.

Average Final Compensation is the average annual compensation during any eighteen consecutive month period of service during which earnable compensation was highest or, if less than eighteen months, the average during total service.



## Section 6: Summary of Plan Provisions (continued)

### 5. Military Service Credit

- A. **Military Service Prior to Employment:** A maximum of three years of service credit is granted provided the member has acquired 10 years of service and attained age 50, or has acquired 20 years of service regardless of age.
- B. **Military Service Within Employment:** Upon retirement or death, any member who, because of military duty, had a break in employment shall receive credit for the period of absence as provided by the Veterans Reemployment Rights Act.

### 6. Retirement Allowance Eligibility

- A. **Service Retirement:** Age 50 or 20 years of service.  
Membership commencing on or after July 1, 2003: Age 50 with 10 years of service as a contribution member, or 20 years of service with 10 years of service as a contribution member.
- B. **Non-Line-of-Duty Disability Retirement:** Five years of service and certified by a member of the Panel of Hearing Examiners 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:** No service or age constraints apply. The benefit is awarded when a participant becomes totally and permanently incapacitated for duty as the result of an injury while in performance of duty and certified by a Hearing Examiner as incapacitated for the performance of duty where such incapacity is likely to be permanent. Should such disability further result in extensive brain damage causing total incapacity or in the loss of or the loss of use of both hands or both arms or both feet or both legs or both eyes or any two thereof, an additional pension will be payable.

### 7. Termination of Employment

- A. Eligible for a Termination Retirement Allowance payable immediately upon completion of 15 years of service if removed from a position without fault. Presently, this benefit is not reflected in the valuation.
- B. Eligible for a refund of accumulated contributions if not eligible for any other benefits.

## Section 6: Summary of Plan Provisions (continued)

### 8. Retirement Allowances

#### A. Service Retirement:

The retirement allowance shall be the sum of:

- (1) An annuity of the actuarial equivalent of a member's accumulated contributions.
- (2) A pension, which together with the annuity in (1), equals 2.5% of Average Final Compensation times the first 20 years of service, plus 2.0% of Average Final Compensation times service in excess of 20 years.

#### DROP Benefits

Members with more than 20 years of service can elect to participate in DROP. A member's DROP participation period can be for one, two or three years. During that time the member will accrue no additional service. A member who continues employment at the end of his/her DROP participation period shall begin to earn additional service credit.

If a member retires during his/her DROP participation period or immediately at the end of this period, he/she shall be entitled to a Basic DROP Retirement Benefit. This shall equal:

- (1) The retirement benefit that would have been paid had the member retired at the time he/she began his/her DROP participation, plus
- (2) A lump sum equal to the member's DROP account. This equals the accumulation of the annuity payments the member would have received had he/she retired at the time his/her DROP participation began receiving benefits, plus the member contributions paid during his/her DROP participation period, plus interest at 8.25%.

## Section 6: Summary of Plan Provisions *(continued)*

If a member retires later than the end of the 3 year DROP period but less than 18 months after the conclusion of his/her DROP participation period, he/she is entitled to an Intermediate DROP Retirement Benefit. This shall equal:

- (1) The retirement benefit that would have been paid had the member retired at the time he/she began his/her DROP participation, plus
- (2) Benefit accrual of 2% plus an extra 1.5% per year (not to exceed 18 months) for service after the DROP participation period.
- (3) A lump sum equal to the DROP account. No additions (other than interest) are added after the conclusion of the DROP participation period.

If a member retires more than 18 months after the conclusion of his/her DROP participation period, he/she is entitled to a Full DROP Retirement Benefit. This shall equal:

- (1) The retirement benefit based on current average final compensation and all service excluding service while a participant in DROP.
  - (2) Benefit accrual includes an extra 1.5% per year (not to exceed four years) for service after the DROP participation period.
  - (3) A lump sum equal to the DROP account. No additions (other than interest) are added after the conclusion of the DROP participation period.
- B. Non-Line-of-Duty Disability Retirement: A member shall receive an annuity of the actuarial equivalent of a member's accumulated contributions plus a pension which, together with the annuity, shall equal 2.5% of his/her Average Final Compensation times service up to 20 years, plus 2.0% of his/her Average Final Compensation times service in excess of 20 years, but in no event less than 25% of Average Final Compensation.

NOTE: This allowance is offset by workers' compensation, if the member entered the system after July 1, 1970.

## Section 6: Summary of Plan Provisions *(continued)*

- C. 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. An additional pension is paid for certain disabilities so that the retirement allowance is equal to 100% of compensation at the time of retirement.

Note: The same offsets apply as in Non-Line-of-Duty Disability.

- D. Termination Retirement Allowance: Determined the same as if the member had retired on a Non-Line-of-Duty Disability Allowance.

### 9. Optional Methods of Receiving Benefit Payments

These options are available for Service, Non-Line-of-Duty Disability and Line-of-Duty Disability Retirement. The option and/or beneficiary may be changed within 30 days after retirement.

- A. Joint and 50% to unmarried spouse or dependent children until the last marries, dies or attains age 18 (age 22 if a full-time student) (this is known as the maximum service allowance)
- B. Cash refund to designated beneficiary with refund 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

## Section 6: Summary of Plan Provisions *(continued)*

### 10. Non-Line-of-Duty Death Benefits

Upon the non-duty related death of a member in service, benefits are payable as follows:

- A. The member's accumulated contributions shall be payable to the member's designated beneficiary or estate.
- B. If a member had one or more years of service, 50% of the greater of his/her current annual compensation or Average Final Compensation will be payable as a lump-sum.
- C. In lieu of the A and B above, if the member had at least two years of continuous service, the benefit is an annual sum equal to 25% of the member's regular gross compensation, plus 1.5% of regular gross compensation times years of service in excess of 2 years, up to a maximum benefit of 50% of regular gross compensation. The death benefit shall be payable to:
  - (1) the widow(er), if the beneficiary so elects, during widowhood only, or
  - (2) if no eligible widow(er), the child or children until the last marries, dies or attains age 18 (age 22 if a full-time student).
- D. If the member was eligible for a service retirement or, if retired on account of service or non-line-of-duty disability and dies within 30 days of retirement, and the member's designated beneficiary is the member's spouse with whom the member had been living for at least one year or the member's surviving parent(s), such beneficiary may elect, in lieu of (A) and (B) above, an allowance equal to the amount that would have been paid under the Joint and 100% Contingent Option.

These benefits are offset by workers' compensation, if the member entered the system after July 1, 1970. If no beneficiary and if intestate without heirs, then the benefit shall remain part of the System.

## Section 6: Summary of Plan Provisions *(continued)*

### 11. Line-of-Duty Death Benefits

If a member's death arose out of and in the performance of duty as certified by a Hearing Examiner, or if the member dies within five years as a result of the last injury which resulted in a Line-of-Duty Disability Retirement, a refund of accumulated contributions shall be paid, plus a pension of 100% of current compensation (not less than \$15,000) shall be payable to:

- A. the surviving spouse, or
- B. if no eligible spouse or if the spouse dies, any children, equally, until age 18 (or age 22 if full-time student(s)), or
- C. if no eligible spouse or children, any dependent father or dependent mother for their lifetime.

This benefit is offset by workers' compensation, if the member entered the system after July 1, 1970. If no beneficiary and if intestate without heirs, then the benefit shall remain part of the System.

### 12. Post-Retirement Benefit Increase (Variable Benefits)

Post-retirement benefit increases are automatically provided to certain retirees and beneficiaries when investment performance, as determined each June 30, exceeds 7.5%. Only retirees and beneficiaries, who have been receiving periodic benefit payments for two or more years as of the June 30 determination date, are eligible for the increase. For a member who retires during or at the end of the DROP participation period, the member's DROP participation period shall count toward the eligibility requirement for post-retirement benefit increases. Earnings on the Pension and Annuity Reserve Funds between 7.5% and 10% and one-half of the earnings above 10% are available for the variable benefit funds. For further details see the City code.