

## SUMMARY OF ASSUMPTIONS USED FOR DPFERS ACTUARIAL VALUATIONS

*assumptions adopted by board of trustees after consulting with actuary*

### ECONOMIC ASSUMPTIONS

**THE INVESTMENT RETURN RATE** used in the valuation was 7.8% per year, compounded annually (net after administrative expenses). The real rate of return is the portion of total investment return which is more than the inflation rate. Considering other financial assumptions, the 7.8% total investment return rate translates to an assumed real rate of return of 3%.

**PAY INCREASE ASSUMPTIONS** for individual active members have been calculated. Part of the assumption for each age is for a merit and/or seniority increase, and the other 4.8% recognizes inflation.

**TOTAL ACTIVE MEMBER PAYROLL** is assumed to increase 4.8% annually, which is the portion of the individual pay increase assumptions attributable to wage inflation.

### NON-ECONOMIC ASSUMPTIONS

**THE NUMBER OF ACTIVE MEMBERS** is assumed to continue at the present number.

**THE MORTALITY TABLE** used to measure retired life mortality was 90% of the 1983 Group Annuity Mortality Table. This table was first used for the June 30, 1998 valuation.

**THE PROBABILITIES OF AGE/SERVICE RETIREMENT** for members eligible to retire have been calculated. These probabilities were last revised for the June 30, 2003 valuation.

**THE PROBABILITIES OF SEPARATION** from service (including death-in-service) are shown for sample ages. These probabilities were revised for the June 30, 2003 valuation.

**FUNDING METHODS**

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**THE ENTRY AGE ACTUARIAL COST METHOD** was used in determining age and service liabilities and normal cost, vesting liabilities and normal cost, and casualty liabilities and normal cost.

**DIFFERENCES BETWEEN ASSUMED EXPERIENCE AND ACTUAL EXPERIENCE** (“actuarial gains and losses”) become part of actuarial accrued liabilities.

**UNFUNDED ACTUARIAL ACCRUED LIABILITIES, IF ANY**, are amortized over periods of future years to produce contribution amounts (principal and interest) which are level percent of payroll contributions.

**EMPLOYER CONTRIBUTION DOLLARS** were assumed to be paid in a single sum on the last day of the employer fiscal year. (Adopted for the 6/30/79 actuarial valuation.)

**VALUATION ASSETS** recognize investment return above or below the actuarial assumed rate over a three-year period. (Adopted for the 6/30/95 actuarial valuation.)

**THE EFFECT OF CHANGES IN ELIGIBILITY FOR NORMAL RETIREMENT DUE TO SERVICE PURCHASES** was approximated by increasing computed actuarial accrued liabilities by 5%. In addition, active member accrued liabilities were increased by 2% to approximate the effect of incomplete service data.

**THE DATA ABOUT PERSONS NOW COVERED AND ABOUT PRESENT ASSETS** were furnished by the System’s administrative staff. Although examined for general reasonableness, the data was not audited by the actuary.

**The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).**

2007 - 2008 FISCAL YEAR  
**EMPLOYER CONTRIBUTION RATE  
 COMPUTED PAYABLE LAST DAY OF FISCAL YEAR**

*expressed as percents of active member payroll*

<b>CONTRIBUTIONS FOR</b>	<b>CONTRIBUTIONS EXPRESSED AS PERCENTS OF PAYROLL</b> <i>for the Fiscal Year Ending June 30, 2008<sup>+</sup></i>
<b>NORMAL COST</b>	
Age & Service Allowances .....	22.71%
Disability Allowances .....	5.71%
Death-in-Service Allowances .....	0.49%
<b>TOTAL .....</b>	<b>28.91%</b>
Members Current Contributions: <sup>#</sup> .....	4.17%
(Future Refunds) .....	(0.35)%
Available for Monthly Benefits .....	3.82%
<b>EMPLOYER NORMAL COST .....</b>	<b>25.09%</b>
Actuarial Accrued Liabilities	
Total (\$ Millions) .....	\$3,809.00
Funding Value of Assets .....	3,987.50
Unfunded Actuarial Accrued Liabilities	
- Dollars (Millions) .....	(178.50)
- Amortization Percent .....	N/A
<b>COMPUTED EMPLOYER RATE<sup>##</sup> .....</b>	<b>25.09%</b>

<sup>#</sup> Member statutory contributions of 5% to Annuity Savings Fund are not payable during all periods of covered employment. The rate shown is the equivalent rate if paid during all covered employment.

<sup>##</sup> Accrued employer contributions were assumed to be charged with interest at 7.8% from the date accrued to the actual date paid.

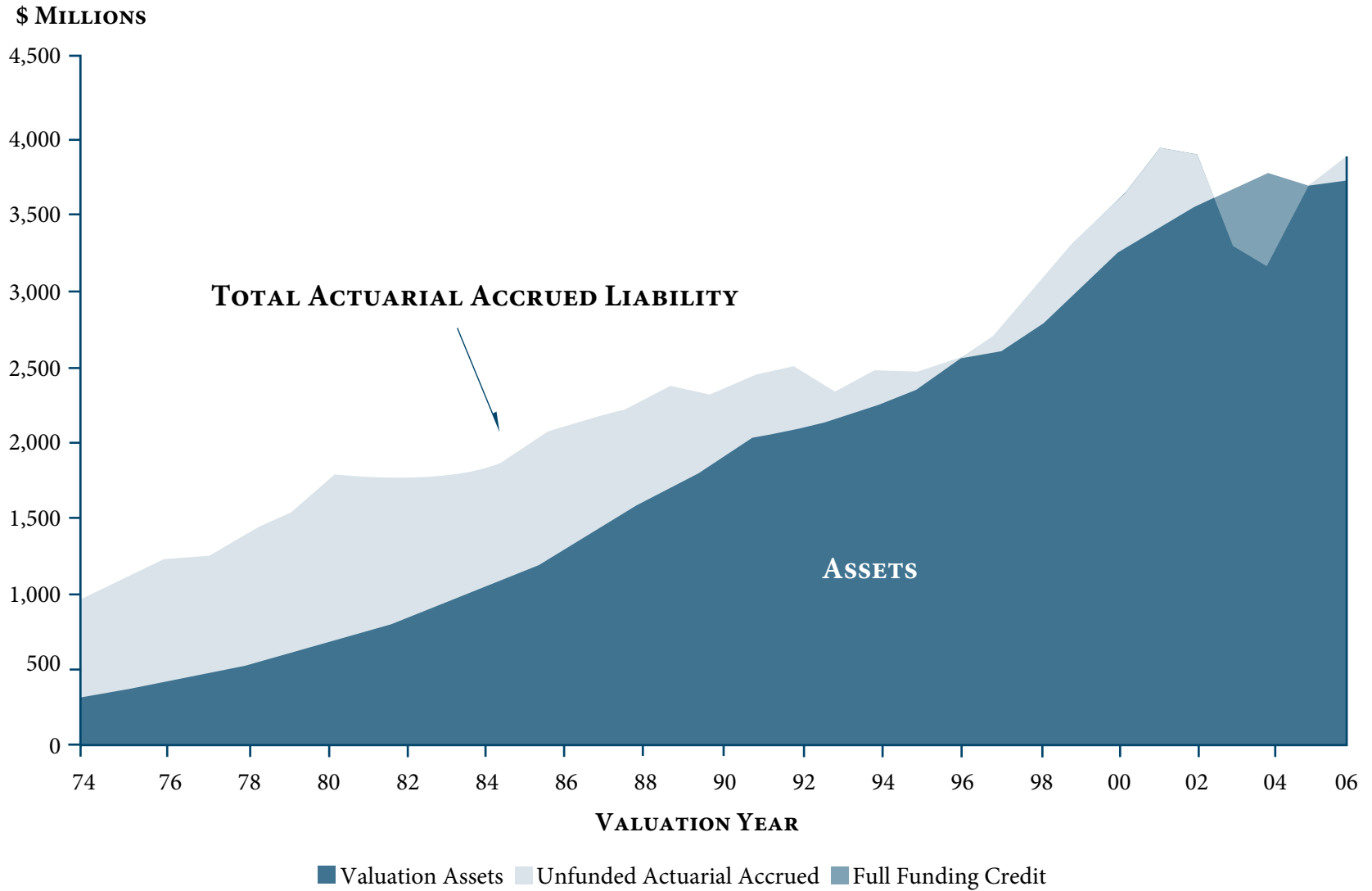
<sup>+</sup> Based on the Board of Trustees funding policy to continue full normal cost contributions when valuation assets exceed accrued liabilities.

JUNE 30, 2006

**ACTUARIAL ACCRUED LIABILITIES**

PRESENT VALUE, JUNE 30	AMOUNT
<b>ACCRUED PENSION LIABILITIES</b>	
Retirees and Beneficiaries.....	\$ 2,645,716,711
Inactive Members Future Deferred Pensions .....	5,429,887
Active Members .....	878,273,885
Total Accrued Pension Liabilities .....	3,529,420,483
Pension Fund Balances .....	3,707,928,450
Unfunded Accrued Pension Liabilities .....	\$ (178,507,967)
<b>ACCRUED ANNUITY LIABILITIES</b>	
Retirees and Beneficiaries	
Future Annuities .....	\$ 7,613,007
Contingency Reserve .....	2,006,749
Total .....	\$ 9,619,756
Members Annuities and Future Refunds .....	269,912,502
Total Accrued Annuity Liabilities .....	279,532,258
Annuity Fund Balances .....	279,532,258
Unfunded Accrued Annuity Liabilities .....	\$ 0
<b>SYSTEM TOTALS</b>	
<b>ACTUARIAL ACCRUED LIABILITIES</b> .....	<b>\$ 3,808,952,741</b>
<b>ACCRUED ASSETS</b> .....	<b>3,987,460,708</b>
<b>UNFUNDED ACTUARIAL ACCRUED LIABILITIES</b> .....	<b>\$ (178,507,967)</b>

**RETIREMENT SYSTEM TOTALS**  
**ASSETS AND ACCRUED LIABILITIES**



COMPARATIVE STATEMENT

ACTUARIAL ACCRUED LIABILITIES  
\$ IN MILLIONS

JUNE 30	ACTIVE PAYROLL		COMPUTED TOTAL	VALUATION ASSETS	UNFUNDED	UNFUNDED/ ACTIVE PAYS	EMPLOYER CONTRIBUTIONS % OF PAYS
	TOTAL	AVERAGE					
1996	\$212.7	\$39,965	\$2,633.4	\$2,628.6	\$4.8	0.0	21.81%
1997(b)	217.6	40,145	2,724.1	2,944.2	(220.1)	0.0	7.32
1998*#	217.5	40,772	2,976.8	3,325.9	(349.1)	0.0	26.16
1999@#	216.0	40,542	3,724.1	3,668.4	(394.3)	0.0	26.17
2000*#	237.7	43,376	3,342.1	3,964.2	(622.1)	0.0	27.25
2001#	253.3	45,353	3,463.2	3,900.0	(436.8)	0.0	27.22
2002(a)#	248.7	46,203	3,632.0	3,635.1	(3.1)	0.0	23.39
2003	248.7	47,305	3,721.6	3,205.5	(516.1)	2.1	43.89
2004	258.7	51,126	3,857.5	3,074.5	783.0	3.0	54.36
2005	250.5	52,197	3,780.4	3,757.9	22.5	0.1	25.52
<b>2006+</b>	<b>\$228.1</b>	<b>\$52,908</b>	<b>\$3,809.0</b>	<b>\$3,987.5</b>	<b>(\$178.5)</b>	<b>0.0</b>	<b>25.09%</b>

(a) After changes in actuarial assumptions.

(b) After changes in actuarial assumptions and temporary full funding credit.

\* Plan amended.

# Employer normal cost before full funding credit.

@ After \$55.4 million reserve for 1998-99 13th check and ASF distributions.

+ Based on the Board of Trustees funding policy to continue full normal cost contributions when valuation assets exceed accrued liabilities.

In an inflationary economy the value of dollars is decreasing. This environment results in employee pays increasing in dollar amounts, retirement benefits increasing in dollar amounts, and then, unfunded accrued liabilities increasing in dollar amounts, all at a time when the actual substance of these items may be decreasing. Looking at just the dollar amounts of unfunded accrued liabilities can be misleading. Unfunded accrued liabilities dollars divided by active employee payroll provides an index which helps understanding. **The smaller the ratio of unfunded liabilities to active member payroll, the stronger the system.** Observation of this relative index over a period of years will give an indication of whether the system is becoming financially stronger or weaker.

## SOLVENCY TESTS

The PFRS funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due – the ultimate test of financial soundness. Testing for level contribution rates is the **long-term solvency test**.

A **short-term solvency test** is one means of checking a system's progress under its funding program. In a short-term solvency test, the plan's present assets (cash and investments) are compared with:

- 1) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives;
- 3) The liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent-of-payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will often be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System.

### SHORT-TERM SOLVENCY TEST 5-YEAR COMPARATIVE STATEMENT (\$ MILLIONS)

JUNE 30	ACTUARIAL ACCRUED LIABILITIES			ASSETS	PORTION OF ACCRUED LIABILITIES COVERED BY ASSETS			
	(1) ACTIVE MEMBER CONTR.	(2) RETIREEES AND BENEF.	(3) PRESENT MEMBERS (EMPLOYER FINANCED PORTION)		(1)	(2)	(3)	TOTAL
2002(a)	\$391	\$2,299	\$942	\$3,635	100%	100%	100%	100%
2003	341	2,400	980	3,206	100	100	47	86
2004	303	2,516	1,038	3,075	100	100	25	80
2005	279	2,543	958	3,758	100	100	98	99
<b>2006</b>	<b>\$270</b>	<b>\$2,655</b>	<b>\$884</b>	<b>\$3,987</b>	<b>100%</b>	<b>100%</b>	<b>120%</b>	<b>105%</b>

(a) After changes in actuarial assumptions.

**GASB STATEMENT 25 REQUIRED  
SUPPLEMENTARY INFORMATION**

**SCHEDULE OF FUNDING PROGRESS**

ACTUARIAL VALUATION DATE	ACTUARIAL VALUE OF ASSETS (a)	ACTUARIAL ACCRUED LIABILITY (AAL) -ENTRY AGE (b)	UNFUNDED AAL (UAAL) (b-a)	FUNDED RATIO (a/b)	COVERED PAYROLL (c)	UAAL AS A % OF COVERED PAYROLL ((b-a)/c)
1993#	\$2,255,955,423	\$2,493,225,379	\$237,269,956	90.5%	\$204,289,195	116.1%
1994	\$2,304,360,431	\$2,486,218,878	\$181,858,447	92.7%	\$199,734,550	91.1%
1995#	\$2,443,016,319	\$2,574,189,310	\$131,172,991	94.9%	\$209,733,734	62.5%
1996	\$2,628,627,790	\$2,633,394,644	\$4,766,854	99.8%	\$212,656,401	2.2%
1997#	\$2,944,208,105	\$2,820,330,323	(\$123,877,782)	104.4%	\$217,585,229	-
1998#*	\$3,325,929,721	\$2,976,770,662	(\$349,159,059)	111.7%	\$217,479,443	-
1999	\$3,668,362,979	\$3,274,050,127	(\$394,312,852)	112.0%	\$216,049,687	-
2000*	\$3,964,231,470	\$3,342,123,550	(\$662,107,920)	118.6%	\$237,741,560	-
2001	\$3,900,020,703	\$3,463,248,393	(\$436,772,310)	112.6%	\$253,297,027	-
2002#	\$3,635,106,581	\$3,631,971,488	(\$3,135,133)	100.1%	\$248,663,133	-
2003	\$3,205,516,657	\$3,721,593,210	\$516,076,553	86.1%	\$248,681,461	207.5%
2004	\$3,074,516,589	\$3,857,493,282	\$782,976,693	79.7%	\$258,699,581	302.7%
2005@	\$3,757,894,011	\$3,780,447,414	\$22,553,403	99.4%	\$250,491,872	9.0%
2006	\$3,987,460,708	\$3,808,952,741	(\$178,507,967)	104.7%	\$228,140,160	-

\* Plan amended.

# After changes in actuarial assumptions.

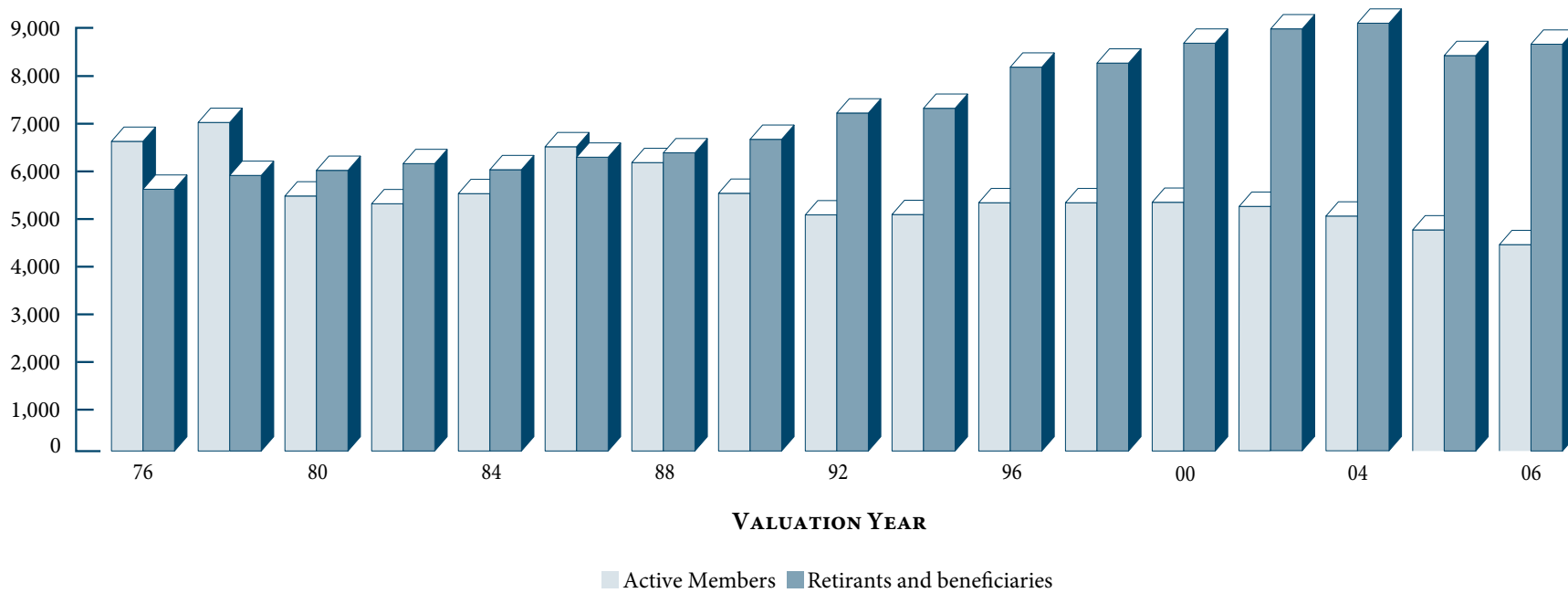
@ After POC Transfer.

**COMPARATIVE STATEMENTS OF  
ANNUAL RETIREMENT ALLOWANCES**

*being paid to retirants and beneficiaries*

JUNE 30	NO. RETIRED		% OF CURRENT ALLOWANCES			CURRENT ALLOWANCES	
	PRE-1969	TOTAL	ANNUITIES	PENSIONS	ESCALATORS	TOTAL	AVERAGE
1996	5,049	7,469	0.8%	62.6%	36.6%	\$143,536,485	\$19,218
1997	5,012	7,743	0.8	63.3	35.9	150,843,744	19,481
1998	4,719	7,750	0.7	65.8	33.5	154,226,437	19,900
1999	4,573	7,883	0.7	68.4	30.9	158,523,816	20,110
2000	4,498	8,079	0.6	70.0	29.4	164,279,376	20,334
2001	4,394	8,166	0.6	67.4	32.0	180,239,652	22,072
2002	4,229	8,179	0.5	68.4	31.1	185,658,396	22,699
2003	4,104	8,277	0.5	69.8	29.7	191,634,636	23,153
2004	3,961	8,328	0.4	68.5	31.1	203,083,524	24,386
2005	3,791	8,376	0.4	69.5	30.1	211,114,020	25,205
<b>2006</b>	<b>3,666</b>	<b>8,550</b>	<b>0.4%</b>	<b>70.9%</b>	<b>28.7%</b>	<b>\$222,357,372</b>	<b>\$26,007</b>

**RETIREMENT SYSTEM TOTALS**  
ACTIVE AND RETIRED MEMBERS



**RETIREMENT SYSTEM TOTALS**  
**ACTIVE AND RETIRED MEMBERS**

JUNE 30	NO. MEMBERS		TOTAL MEMBERS					AVERAGE PAY	
	1969 PLAN	PRE-1969	No.	% CHANGE	RATIO OF ACTIVE TO RETIRED	ANNUAL PAYROLL	\$	CHANGE	
1996	4,889	432	5,321	+ 1%	0.7	\$212,656,401	\$39,965	+ 0.7%	
1997	5,049	371	5,420	+ 2	0.7	217,585,229	40,145	+ 0.5	
1998	5,018	316	5,334	- 2	0.7	217,479,443	40,772	+ 1.6	
1999	5,099	230	5,329	0	0.7	216,049,687	40,542	- 0.6	
2000	5,291	190	5,481	+ 3	0.7	237,741,560	43,376	+ 7.0	
2001	5,453	132	5,585	+ 2	0.7	253,297,027	45,353	+ 4.6	
2002	5,290	92	5,382	-4	0.7	248,663,133	46,203	+ 1.9	
2003	5,181	76	5,257	- 2	0.6	248,681,461	47,305	+ 2.4	
2004	5,007	53	5,060	-4	0.6	258,699,581	51,126	+ 8.1	
2005	4,768	31	4,799	-5	0.6	250,491,872	52,197	+ 2.1	
<b>2006</b>	<b>4,298</b>	<b>14</b>	<b>4,312</b>	<b>-10%</b>	<b>0.5</b>	<b>\$228,140,160</b>	<b>\$52,908</b>	<b>+ 1.4%</b>	

# ACTUARIAL & STATISTICAL SECTION

## ACTIVE MEMBERS AS OF JUNE 30, 2006

by attained age & years of service

ATTAINED AGE	POLICE MEMBERS YEARS OF SERVICE TO VALUATION DATE							TOTALS	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	VALUATION PAYROLL
Under 20.....									
20-24.....	35	3						38	\$1,415,318
25-29.....	80	254	2					336	15,547,224
30-34.....	42	437	138					617	30,013,211
35-39.....	32	337	254	58	2			683	34,698,729
40-44.....	8	131	116	180	117			552	29,460,892
45-49.....	9	45	39	105	198	6	1	403	22,390,368
50-54.....	4	6	13	59	190	42	29	343	19,708,814
55-59.....	1	4	4	14	58	26	72	179	10,386,340
60.....					2	1	7	10	596,584
61.....		1		1	2	1	6	11	577,115
62.....					2		3	5	279,147
63.....					1		5	6	335,454
64.....					1		3	4	201,595
65.....							3	3	176,891
66.....							1	1	47,763
67.....							5	5	271,399
71.....							1	1	47,763
<b>TOTALS .....</b>	<b>211</b>	<b>1,218</b>	<b>566</b>	<b>417</b>	<b>573</b>	<b>76</b>	<b>136</b>	<b>3,197</b>	<b>\$166,154,607</b>

ATTAINED AGE	FIRE MEMBERS YEARS OF SERVICE TO VALUATION DATE							TOTALS	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	VALUATION PAYROLL
Under 20.....									
20-24.....	2							2	\$88,126
25-29.....	28	53						81	3,690,716
30-34.....	24	109	20	1				154	7,323,292
35-39.....	10	78	82	64	3			237	12,082,240
40-44.....	7	28	43	122	31			231	12,703,752
45-49.....	1	7	20	61	56	20		165	9,714,035
50-54.....		2	3	25	30	51	15	126	8,017,264
55-59.....				1	10	25	81	117	8,197,328
60.....							2	2	168,800
<b>TOTALS .....</b>	<b>72</b>	<b>277</b>	<b>168</b>	<b>274</b>	<b>130</b>	<b>96</b>	<b>98</b>	<b>1,115</b>	<b>\$61,985,553</b>

**TOTAL ACTIVE MEMBERS**  
AS OF JUNE 30, 2006

by attained age & years of service

ATTAINED AGE	YEARS OF SERVICE TO VALUATION DATE							TOTALS	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	PAYROLL
UNDER 20.....									
20-24 .....	37	3						40	\$1,503,444
25-29 .....	108	307	2					417	19,237,940
30-34 .....	66	546	158	1				771	37,336,503
35-39 .....	42	415	336	122	5			920	46,780,969
40-44 .....	15	159	159	302	148			783	42,164,644
45-49 .....	10	52	59	166	254	26	1	568	32,104,403
50-54 .....	4	8	16	84	220	93	44	469	27,726,078
55-59 .....	1	4	4	15	68	51	153	296	18,583,668
60 .....					2	1	9	12	765,384
61 .....		1		1	2	1	6	11	577,115
62 .....					2		3	5	279,147
63 .....					1		5	6	335,454
64 .....					1		3	4	201,595
65 .....							3	3	176,891
66 .....							1	1	47,763
67 .....							5	5	271,399
68 .....									
69 .....									
70 .....									
71 .....							1	1	47,763
<b>TOTALS .....</b>	<b>283</b>	<b>1,495</b>	<b>734</b>	<b>691</b>	<b>703</b>	<b>172</b>	<b>234</b>	<b>4,312</b>	<b>\$228,140,160</b>

**GROUP AVERAGES:**

	POLICE	FIRE	TOTAL
Age: .....	40.0 years	41.9 years	40.5 years
Service: .....	13.4 years	16.0 years	14.1 years
Annual Pay: .....	\$51,972	\$55,592	\$52,908

ACTUARIAL COMMENTS

REVISED ASSUMPTIONS AND FUNDING METHODS

Each year as of June 30, the actuarial liabilities of DPFRS are valued. In order to perform the valuation, assumptions must be made regarding the future experience of the System with regard to the following risk areas:

1. Rates of *withdrawal* of active members.
2. Rates of *disability* among active members.
3. Patterns of *salary increases* to active members.
4. Rates of *retirement* among active members.
5. Rates of *mortality* among active members, retirants and beneficiaries.
6. Long-term rates of *investment return* to be generated by system assets.

Assumptions should be carefully chosen and continually monitored. An unrealistic set of assumptions can lead to:

- *Understated costs resulting in either an inability to pay*

*benefits when due, or sharp increases in required contributions at some point in the future;*

- *Overstated costs resulting in either benefit levels that are kept below the level that could be supported by the computed rate, or an unnecessarily large burden on the current generation of members, employers and taxpayers.*

A single set of assumptions will not be suitable indefinitely. Things change, and our understanding of things (whether or not they are changing) also changes.

In recognition of this, the City Charter provides that assumptions used to value the liabilities of the Policemen and Firemen Retirement System should be studied in depth every five years. The package of assumptions is then adjusted to reflect basic experience trends – but not random year-to-year fluctuations. Actuarial assumptions were revised following the 1997-2002 experience study. A summary of the experience study results follows:

**RATES OF WITHDRAWALS** from service were varied but higher than current rates. The recommended revised withdrawal assumptions recognize a portion of the observed rates. Full credibility is generally not given to a 5-year experience period because it is not known that recent trends will persist indefinitely.

**PAY INCREASE RATES (MERIT AND SENIORITY PORTION)** were found to be higher than assumed rates, especially for members with fewer than 5-years of service. As with other decrement changes, the recommended rates partially reflect observed experience.

**RETIREMENT EXPERIENCE** indicated many more retirements than expected for Police members. Retirement experience for Fire members indicated fewer retirements than expected. Each group's results indicated that service is being purchased to allow for earlier retirements. Recommended rates reflect these trends. This change puts upward pressure on contribution rates.

**POST-RETIREMENT MORTALITY RATES** observed in the study were only slightly greater than the present assumed rates. Consequently, it is recommended that mortality rates remain unchanged since they already include a margin for future longevity improvement.

**PRE-RETIREMENT MORTALITY** experience was inconclusive. Recommended rates are the same as current rates and are approximately 90% of post-retirement mortality rates.

**NON-DUTY DISABILITY** rates were found to be lower than expected for both the Police and Fire group. Recommended rates partially reflect the observed lower rates of non-duty disability over the past 5 years.

**DUTY DISABILITY** rates were found to be much lower than previously assumed for Police and higher for the Fire group. Recommended rates partially reflect the observed patterns of duty disability over the past 5 years.

## ACTUARIAL COMMENTS CON'T

**VALUATION METHOD.** The method used to measure the cost of disability and death-in-service benefits was changed from a 5-year terminal funding method to the entry age normal cost method. The previous method is a carry-over from the original city charter. This change puts all portions of the rate setting process on a consistent basis.

### EXPERIENCE DURING THE PAST YEAR

Investment experience for the year ended June 30, 2006 was more favorable than expected with a market return of 10.1%. Because of the favorable market return this year, the market value of assets now exceeds the funding value by \$55 million. If market return averages 7.8% or more in future years, the excess of \$55 million will ultimately be recognized and further increase the System's funded status.

### ANNUITY RESERVE FUND

The contingency reserve in the Annuity Reserve Fund is \$2.0 million and the ratio of the ARF balance to computed liabilities is 126%. The Board approved a transfer of \$12 million from the Annuity Reserve Fund to the Pension Accumulation Fund in 2001 and \$5 million in 2005. If the size of the contingency reserve continues to increase, we will recommend another transfer in a future valuation.

### CONTRIBUTION RECEIVABLE

Financial information submitted for the year indicated employer contributions of \$57,807,332 were unpaid as of June 30, 2006.

### OVERALL FINANCIAL CONDITION

The Retirement System continues in sound actuarial condition in accordance with the principles of level percent-of-payroll financing.