

FUNDING METHODS

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.).

2008 - 2009 FISCAL YEAR
EMPLOYER CONTRIBUTION RATES
COMPUTED PAYABLE LAST DAY OF FISCAL YEAR

expressed as percents of active member payroll

CONTRIBUTIONS FOR	CONTRIBUTIONS EXPRESSED AS PERCENTS OF PAYROLL <i>for the Fiscal Year Ending June 30, 2009</i>
NORMAL COST	
Age & Service Allowances	25.01%
Disability Allowances	4.53%
Death-in-Service Allowances	0.45%
TOTAL	29.99%
Members Current Contributions:#	3.64%
(Future Refunds)	(0.36)%
Available for Monthly Benefits	3.28%
EMPLOYER NORMAL COST	26.71%
Actuarial Accrued Liabilities	
Total (\$ Millions)	\$3,896.80
Funding Value of Assets	4,307.20
Unfunded Actuarial Accrued Liabilities	
- Dollar (Millions)	\$(410.40)
- Amortization Percent +	N/A
COMPUTED EMPLOYER RATE##	26.71%

Member statutory contributions of 5% to the 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.

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

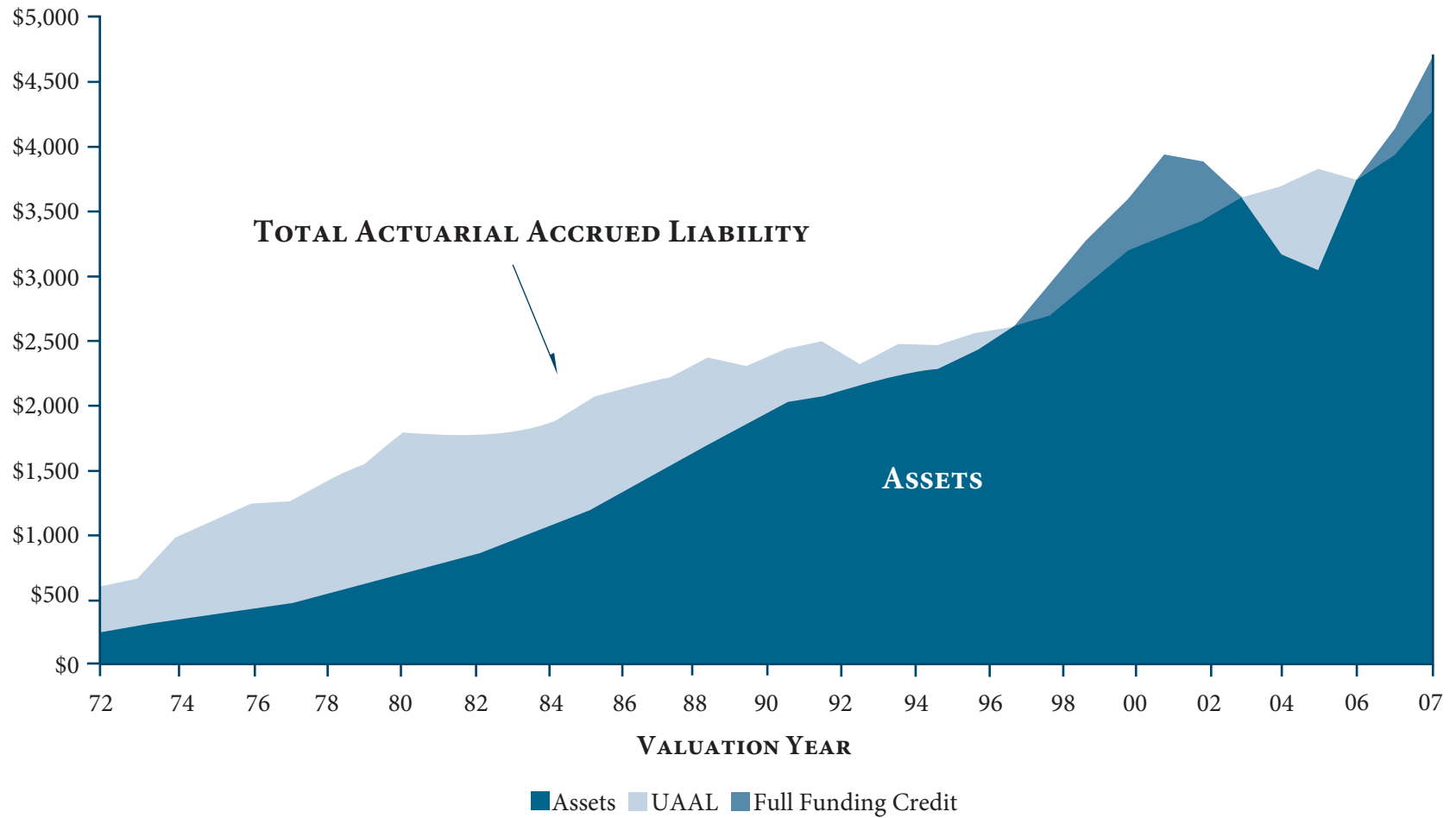
+ Based on the Board of Trustees funding policy to continue full normal cost contributions when valuation assets exceed accrued liabilities.

JUNE 30, 2007
ACTUARIAL ACCRUED LIABILITIES

PRESENT VALUE, JUNE 30	AMOUNT
ACCRUED PENSION LIABILITIES	
Retirees and Beneficiaries.....	\$ 2,675,691,208
Inactive Members Future Deferred Pensions	11,013,128
Active Members	<u>935,715,410</u>
Total Accrued Pension Liabilities	3,622,419,746
Pension Fund Balances	<u>4,032,789,275</u>
Unfunded Accrued Pension Liabilities	\$ (410,369,529)
ACCRUED ANNUITY LIABILITIES	
Retirees and Beneficiaries	
Future Annuities	\$ 7,078,040
Reserve for Outstanding Refunds	3,988,666
Contingency Reserve	<u>2,401,932</u>
Total	\$ 13,468,638
Members Annuities and Future Refunds	<u>260,925,845</u>
Total Accrued Annuity Liabilities	274,394,483
Annuity Fund Balances	<u>274,394,483</u>
Unfunded Accrued Annuity Liabilities	\$ 0
SYSTEM TOTALS	
ACTUARIAL ACCRUED LIABILITIES	\$ 3,896,814,229
ACCRUED ASSETS	<u>4,307,183,758</u>
UNFUNDED ACTUARIAL ACCRUED LIABILITIES	\$ (410,369,529)

RETIREMENT SYSTEM TOTALS ASSETS AND ACCRUED LIABILITIES

\$ MILLIONS



COMPARATIVE STATEMENT

JUNE 30	ACTIVE PAYROLL		COMPUTED TOTAL	VALUATION ASSETS	UNFUNDED	UNFUNDED/ ACTIVE PAYS	EMPLOYER CONTRIBUTIONS % OF PAYS
	TOTAL	AVERAGE					
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	25.98
2006+&	228.1	52,908	3,809.0	3,980.3	(171.3)	0.0	25.09
2007**	\$230.2	\$54,647	\$3,896.8	\$4,307.2	(\$410.4)	0.0	26.71%

(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.

& 2006 assets were revised following the 6/30/2006 valuation.

SOLVENCY TESTS

The Police and Fire Retirement System of the City of Detroit 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) RETIREES AND BENEF.	(3) PRESENT MEMBERS (EMPLOYER FINANCED PORTION)		(1)	(2)	(3)	TOTAL
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
2006&	270	2,655	884	3,980	100	100	120	105
2007(a)	\$261	\$2,689	\$947	\$4,307	100%	100%	143%	111%

(a) After changes in actuarial assumptions.

& 2006 assets were revised following the 6/30/2006 valuation.

**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)
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	(\$622,107,920)	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	\$3,631,971,448	(\$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@&	\$3,757,884,417	\$3,780,447,414	\$22,562,997	99.4%	\$250,491,872	9.0%
2006&	\$3,980,254,576	\$3,808,952,741	(\$171,301,835)	104.5%	\$228,140,160	-
2007*	\$4,307,183,758	\$3,896,814,229	(\$410,369,529)	110.5%	\$230,173,964	-

* Plan amended.

After changes in actuarial assumptions.

@ After POC Transfer.

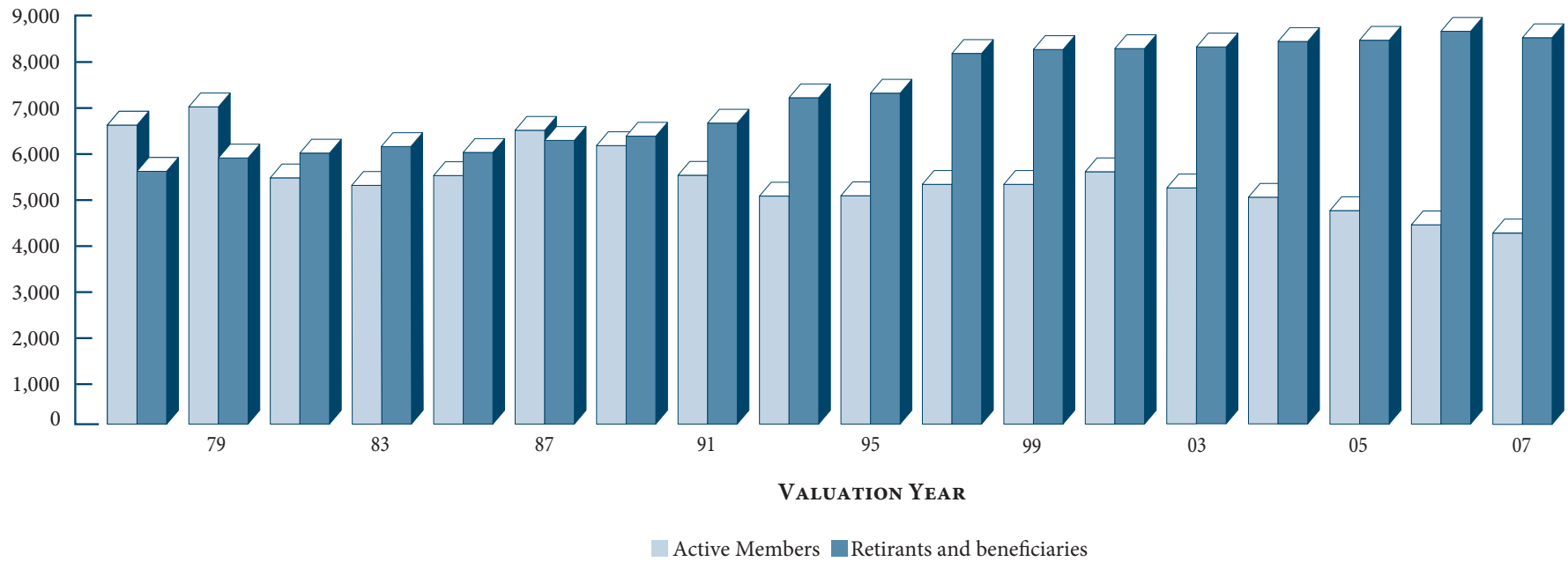
& 2005 and 2006 assets were revised following the 6/30/2006 valuation.

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
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
2006	3,666	8,550	0.4	70.9	28.7	222,357,372	26,007
2007	3,501	8,498	0.3%	70.6%	29.1%	\$227,671,788	\$26,791

RETIREMENT SYSTEM TOTALS
ACTIVE AND RETIRED MEMBERS



RETIREMENT SYSTEM TOTALS
ACTIVE AND RETIRED MEMBERS

JUNE 30	NO. MEMBERS				TOTAL MEMBERS			
	1969 PLAN	PRE-1969	No.	% CHANGE	RATIO OF ACTIVE TO RETIRED	ANNUAL PAYROLL	AVERAGE PAY	
							\$	CHANGE
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
2006	4,298	14	4,312	-10	0.5	228,140,160	52,908	+ 1.4
2007	4,204	8	4,212	- 2%	0.5	\$230,173,964	\$54,647	+ 3.3%

ACTUARIAL & STATISTICAL SECTION

ACTIVE MEMBERS AS OF JUNE 30, 2007

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	33							33	\$1,283,489
25-29	68	184	5					257	12,319,128
30-34	38	336	184					558	28,307,813
35-39	13	299	365	32	1			710	37,436,889
40-44	10	114	162	87	168			541	29,919,541
45-49	6	42	55	44	256	3		406	23,137,066
50-54	4	8	23	27	195	65	16	338	19,885,204
55-59	2	3	4	5	68	49	58	189	11,209,542
60				2	1	3	10	16	961,874
61					1	2	4	7	413,991
62		1		1		1	4	7	404,678
63					2		2	4	214,595
64							4	4	228,470
65							3	3	164,372
66							2	2	134,824
68							3	3	164,415
72							1	1	50,180
TOTALS	174	987	798	198	692	123	107	3,079	\$166,236,071

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	4							4	\$142,401
25-29	37	48						85	3,877,408
30-34	31	98	16					145	7,123,254
35-39	13	89	74	56	1			233	12,080,883
40-44	2	27	54	106	47	1		237	13,428,535
45-49	1	14	21	61	62	8	1	168	9,844,390
50-54		2	3	17	49	62	5	138	8,803,747
55-59				2	8	28	80	118	8,281,207
60					1	2	2	5	356,068
TOTALS	88	278	168	242	168	101	88	1,133	\$63,937,893

TOTAL ACTIVE MEMBERS
AS OF JUNE 30, 2007

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							37	\$1,425,890
25-29	105	232	5					342	16,196,536
30-34	69	434	200					703	35,431,067
35-39	26	388	439	88	2			943	49,517,772
40-44	12	141	216	193	215	1		778	43,348,076
45-49	7	56	76	105	318	11	1	574	32,981,456
50-54	4	10	26	44	244	127	21	476	28,688,951
55-59	2	3	4	7	76	77	138	307	19,490,749
60				2	2	5	12	21	1,317,942
61					1	2	4	7	413,991
62		1		1		1	4	7	404,678
63					2		2	4	214,595
64							4	4	228,470
65							3	3	164,372
66							2	2	134,824
68							3	3	164,415
72							1	1	50,180
TOTALS	262	1,265	966	440	860	224	195	4,212	\$230,173,964

GROUP AVERAGES:

	POLICE	FIRE	TOTAL
Age:	40.5 years	42.1 years	40.9 years
Service:	13.9 years	16.1 years	14.5 years
Annual Pay:	\$53,990	\$56,432	\$54,647

ACTUARIAL COMMENTS

REVISED ASSUMPTIONS AND FUNDING METHODS

Each year as of June 30, the actuarial liabilities of DPFERS 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, 2007 was more favorable than expected with a market rate of return of 16.26%. Because of the favorable market return this year, the market value of assets now exceeds the funding value by \$174 million. If market returns average 7.8% or more in future years, the excess of \$174 million will ultimately be recognized and further increase the System's funded status.

ANNUITY RESERVE FUND

The Annuity Reserve Fund is currently \$6.4 million higher than the accrued liabilities for Retirees and Beneficiaries. This \$6.4 million excess is comprised of an outstanding refund reserve of \$4 million and a contingency reserve of \$2.4 million. The ratio of the ARF balance to computed liabilities is 122%. 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 \$57,423,365 were unpaid as of June 30, 2007.

OVERALL FINANCIAL CONDITION

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