

SUMMARY OF ASSUMPTIONS USED FOR DPFERS ACTUARIAL VALUATION

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 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, 1998 valuation.

THE PROBABILITIES OF SEPARATION from service (including *death-in-service*) are shown for sample ages. These probabilities were revised for the June 30, 1998 valuation.

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 a 20 year period to produce contribution amounts (principal & 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 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 ELEGIBILITY FOR NORMAL RETIREMENT DUE TO SERVICE PURCHASES was approximated by increasing computed actuarial accrued liabilities by 5%.

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.).



1999-2000 FISCAL YEAR
EMPLOYER CONTRIBUTION RATES
COMPUTED PAYABLE LAST DAY OF FISCAL YEAR

expressed as percents of active member payroll

12

CONTRIBUTIONS FOR	CONTRIBUTIONS EXPRESSED AS PERCENTS OF PAYROLL
Normal Cost	
Age & service allowances	17.18%
Disability allowances	11.29
Duty death allowances	0.50
TOTALS	28.97
Member current contributions:#	3.43
(Future refunds)	(0.62)
Available for monthly benefits	2.81
EMPLOYER NORMAL COST	26.16
Unfunded Actuarial Accrued Liabilities	11.60
(19 year amortization)	
COMPUTED EMPLOYER CONTRIBUTIONS*	14.56%

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.

* Dollar contributions for the fiscal year are, by statute, equal to the contribution rate multiplied by the active member payroll for the same fiscal year.

JUNE 30, 1999
ACTUARIAL ACCRUED LIABILITIES

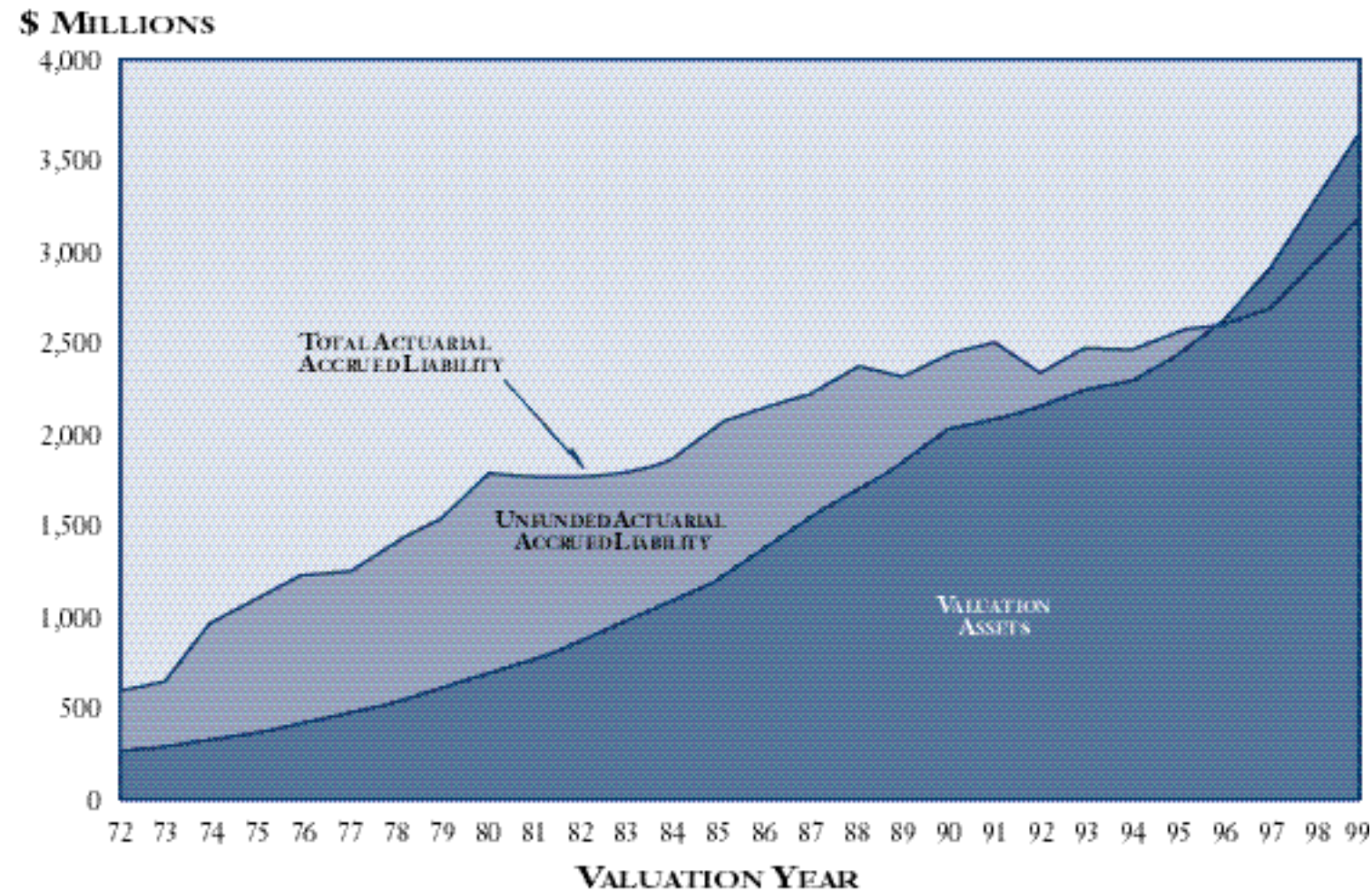
13

PRESENT VALUE, JUNE 30	AMOUNT
ACCRUED PENSION LIABILITIES	
Retirants and beneficiaries	
Future pensions	\$ 2,010,560,026
Mortality reserve	0
Total	2,010,560,026
Inactive members future deferred pensions	6,331,241
Active members	972,975,317
Total accrued pension liabilities	2,989,866,584
Pension fund balances	3,439,579,436
Unfunded accrued pension liabilities	\$ (449,712,852)
ACCRUED ANNUITY LIABILITIES	
Retirants and beneficiaries	
Future annuities	\$ 10,578,573
Contingency reserve	13,517,555
Total	24,096,128
Members annuities & future refunds	204,687,415
Total accrued annuity liabilities	228,783,543
Annuity fund balances	228,783,543
Unfunded accrued annuity liabilities	\$ 0
SYSTEM TOTALS	
Actuarial Accrued Liabilities	\$ 3,218,650,127
Accrued Assets	3,668,362,979
Unfunded Actuarial Accrued Liabilities	\$ (449,712,852)



RETIREMENT SYSTEM TOTALS
ASSETS AND ACCRUED LIABILITIES

14



COMPARATIVE STATEMENT

JUNE 30	ACTIVE PAYROLL		ACTUARIAL ACCRUED LIABILITIES \$ IN MILLIONS				EMPLOYER CONTRIBUTIONS % OF PAYS
	TOTAL	AVERAGE	COMPUTED TOTAL	VALUATION ASSETS	UNFUNDED	UNFUNDED/ ACTIVE PAYS	
1989(a)	208.4	33,179	2,327.9	1,848.9	479.0	2.3	36.52%
1990*	221.5	36,874	2,453.6	2,037.4	416.2	1.9	35.98
1991	213.1	39,182	2,517.2	2,085.5	431.7	2.0	36.19
1992(a)*	205.7	39,095	2,345.9	2,163.8	182.1	0.9	27.83
1993(a)	204.3	38,846	2,493.2	2,256.0	237.2	1.2	28.97
1994	199.7	38,693	2,486.2	2,304.4	181.8	0.9	27.64
1995(a)	209.7	39,692	2,574.2	2,443.0	131.2	0.6	25.90
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	3,218.7	3,668.4	(449.7)	0.0	26.17%#

15

(a) After changes in actuarial assumptions.
 (b) After changes in actuarial assumptions and temporary full funding reduction.
 * Plan amended.
 # Employer normal cost before full funding credit.

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 be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System.

16

**Short-Term Solvency Test
5 YEAR COMPARATIVE STATEMENT**

JUNE 30	ACTUARIAL ACCRUED LIABILITIES				PORTION OF ACCRUED LIABILITIES COVERED BY ASSETS			
	(1) ACTIVE MEMBER CONTR.	(2) RETIRANTS AND BENEF.	(3) PRESENT MEMBERS (EMPLOYER FINANCED PORTION)	VALUATION ASSETS	(1)	(2)	(3)	TOTAL
1995(a)	197	1,783	580	2,443	100	100	80	95
1996	188	1,811	634	2,629	100	100	99	100
1997(a)	187	1,918	715	2,944	100	100	117	104
1998*	\$187	\$1,979	\$811	\$3,326	100	100	143	112
1999	\$205	\$2,035	\$979	\$3,668	100%	100%	146%	114%

(a) After changes in actuarial assumptions and benefit provision changes.
(*) After changes in benefit provisions.

**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)
1992*#	\$2,163,797,445	\$2,345,918,889	\$182,121,444	92.2%	\$205,681,412	88.5%
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	3,218,650,127	(449,712,852)	114.0%	216,049,687	-

* Plan amended.
After changes in actuarial assumptions.

17

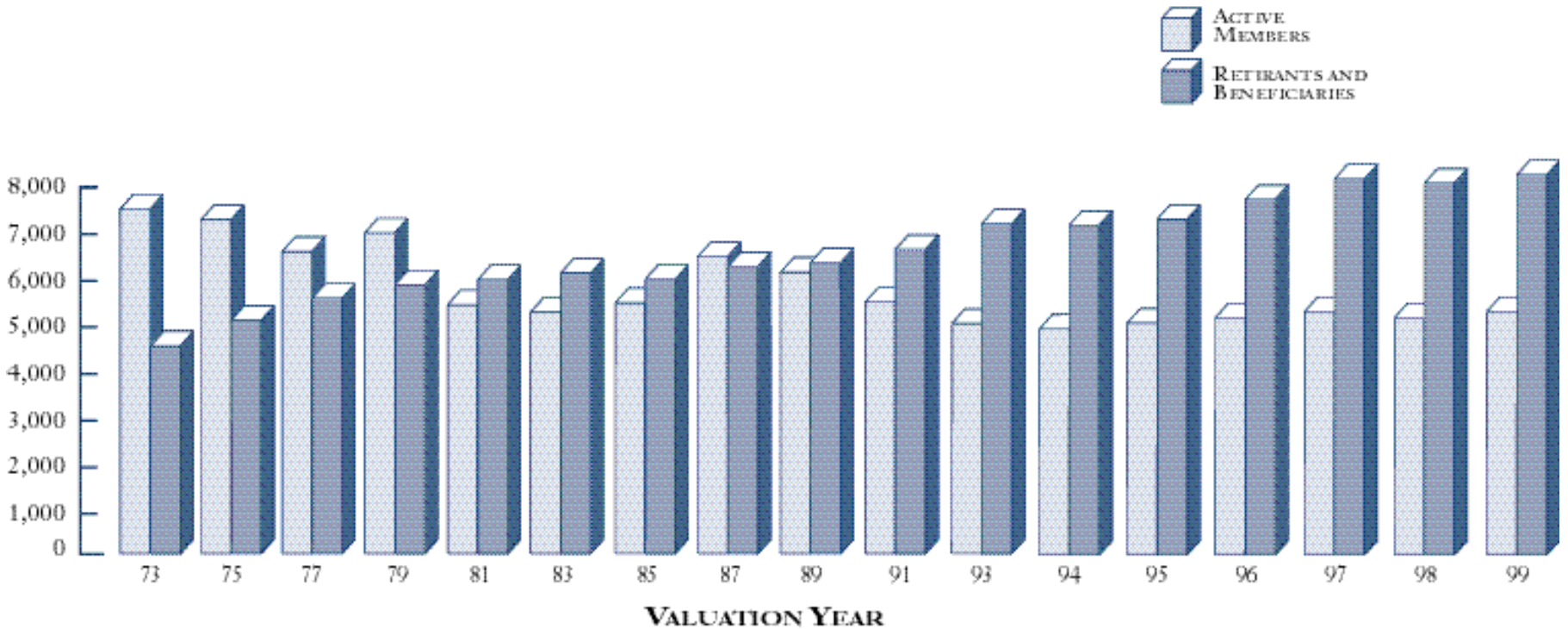


COMPARATIVE STATEMENTS OF ANNUAL RETIREMENT ALLOWANCES

being paid retirants and beneficiaries

JUNE 30	NO. RETIRED		% OF CURRENT RETIREMENT PAYROLL			CURRENT RETIREMENT PAYROLL	
	PRE-1969	TOTAL	ANNUITIES	PENSIONS	ESCALATORS	TOTAL	AVERAGE
1989	5,415	6,496	1.3	55.7	43.0	103,122,696	15,875
1990	5,412	6,660	1.1	54.3	44.6	114,650,196	17,215
1991	5,361	6,754	1.1	54.3	44.6	121,715,028	18,021
1992	5,342	6,899	1.0	57.0	42.0	124,835,208	18,095
1993	5,349	7,091	1.0	59.5	39.5	129,027,970	18,196
1994	5,249	7,169	0.9	61.7	37.4	131,595,379	18,356
1995	5,161	7,311	0.9	61.3	37.8	138,959,417	19,007
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

RETIREMENT SYSTEM TOTALS ACTIVE AND RETIRED MEMBERS



COMPARATIVE STATEMENT OF ACTIVE MEMBERS & VALUATION PAYROLL

20

JUNE 30	NO. MEMBERS		TOTAL MEMBERS				AVERAGE PAY	
	1969 PLAN	PRE-1969	No.	% CHANGE	RATIO OF ACTIVE TO RETIRED	ANNUAL PAYROLL	\$	CHANGE
1989	4,942	1,338	6,280	+ 1	1.0	208,361,567	33,179	+ 0.2
1990	4,834	1,174	6,008	- 4	0.9	221,538,387	36,874	+11.1
1991	4,372	1,066	5,438	- 9	0.8	213,072,553	39,182	+ 6.3
1992	4,411	850	5,261	- 3	0.8	205,681,412	39,095	- 0.2
1993	4,534	725	5,259	0	0.7	204,289,195	38,846	- 0.6
1994	4,578	584	5,162	-2	0.7	199,734,550	38,693	- 0.4
1995	4,779	505	5,264	+ 2	0.7	209,733,734	38,692	+ 2.6
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%

ACTIVE MEMBERS AS OF JUNE 30, 1999

by attained age & years of service

ATTAINED AGE	POLICE YEARS OF SERVICE TO VALUATION DATE							No.	VALUATION PAYROLL
	0-4	5-9	10-14	15-19	20-24	25-29	30+		
Under 20	5							5	125,000
20-24	284	1						285	7,784,915
25-29	646	76						722	22,512,523
30-34	311	181	102					594	21,443,499
35-39	109	84	309	7				509	20,493,994
40-44	28	29	273	120	28	5		483	20,744,318
45-49	5	8	130	188	138	199	3	671	30,659,331
50-54		4	13	74	84	302	67	544	25,662,699
55-59	1		2	18	11	61	74	167	7,988,642
60						5	15	20	1,006,415
61							1	3	201,128
62								4	168,138
63						1	2	3	165,665
64							5	5	239,556
65							2	2	91,415
79							1	1	40,810
TOTALS	1,389	383	829	407	261	574	176	4,019	\$159,328,048

21

ATTAINED AGE	FIRE YEARS OF SERVICE TO VALUATION DATE							No.	VALUATION PAYROLL
	0-4	5-9	10-14	15-19	20-24	25-29	30+		
Under 20	1							1	25,000
20-24	20							20	\$546,426
25-29	92	27	1					120	3,968,644
30-34	63	105	77	1				246	9,517,679
35-39	23	55	108	17	1			204	8,232,766
40-44	6	18	75	49	30	1		179	7,707,459
45-49		7	23	29	91	76		226	10,482,343
50-54			5	10	38	105	36	194	9,717,265
55-59		1	1	2	10	37	64	115	6,232,370
60						2	3	5	291,687
TOTALS	205	213	290	108	170	221	103	1,310	\$56,721,639



**TOTAL ACTIVE MEMBERS
AS OF JUNE 30, 1999**
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.	VALUATION PAYROLL
UNDER 20	6							6	150,000
20-24	304	1						305	8,331,341
25-29	738	103	1					842	26,481,167
30-34	374	286	179	1				840	30,961,178
35-39	132	139	417	24	1			713	28,726,760
40-44	34	47	348	169	58	6		662	28,451,777
45-49	5	15	153	217	229	275	3	897	41,141,674
50-54		4	18	84	122	407	103	738	35,379,964
55-59	1	1	3	20	21	98	138	282	14,221,012
60						7	18	25	1,298,102
61						1	3	4	201,128
62							4	4	168,138
63							1	2	165,665
64								5	239,556
65							2	2	91,415
79							1	1	40,810
TOTALS	1,594	596	1,119	515	431	795	279	5,329	\$216,049,687

GROUP AVERAGES:

	POLICE	FIRE	TOTAL
Age:	38.8 years	41.4 years	39.4 years
Service:	12.7 years	15.9 years	13.5 years
Annual Pay:	\$39,644	\$43,299	\$40,542

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 the assets of the System.

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 1992-1997 experience study and were used for the June 30, 1998 actuarial valuation. A summary of the 1992-1997 experience study findings follows:

RATES OF WITHDRAWALS from service without entitlement to an immediate benefit (other than a separation benefit) increased for members withdrawing after age 30 and decreased somewhat at ages earlier than 30. The revised withdrawal assumptions recognize the 1992-1997 observed rates.

PAY INCREASE RATES (MERIT AND LONGEVITY PORTION) were found to be consistent with assumed rates. Therefore, current pay increase assumptions will be continued for the ensuing 5 year period.

RETIREMENT EXPERIENCE indicated more retirements than assumed at ages under 50 and fewer retirements than assumed between ages 50 and 60 and more retirements than expected over age 60. Revised rates substantially reflect the 1992-97 observed rates.

POST-RETIREMENT MORTALITY RATES observed in the study were lower than the present assumed rates. Consequently, mortality rates were revised to reflect longevity improvement.

PRE-RETIREMENT MORTALITY experience was inconclusive. Rates were revised to be consistent with post-retirement mortality rates.

ACTUARIAL COMMENTS CON'T

24

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

During the year ended June 30, 1999, overall Retirement System experience was more favorable than assumed. The favorable experience was primarily attributable to greater investment income than assumed.

CONTRIBUTION RECEIVABLE

Financial information submitted for the year indicated employer contributions of \$709,799 were unpaid as of June 30, 1999.

OVERALL FINANCIAL CONDITION

The Retirement System continues to be in excellent actuarial condition in accordance with the principles of level percent-of-payroll financing. Continuation of this condition is subject to continued receipt of recommended contribution amounts.

