

SUMMARY OF ASSUMPTIONS USED FOR DGRS ACTUARIAL VALUATIONS

assumptions adopted by Board of Trustees after consulting with actuary

10

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 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.).

2002-2003 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
Normal Cost	
Age & service allowances	18.14%
Disability allowances	11.66
Duty death allowances	0.52
TOTAL	30.32
Members current contributions:#	3.70
(Future refunds)	(0.60)
Available for monthly benefits	3.10
EMPLOYER NORMAL COST	27.22
Actuarial Accrued Liabilities	
Total (\$ Millions)	\$3,463.20
Funding Value of Assets	3,900.00
Full Funding Credit - dollars	\$(436.80)
(17-year amortization)	(14.24)%
COMPUTED EMPLOYER RATE	
AFTER FFC OFFSET	12.98%

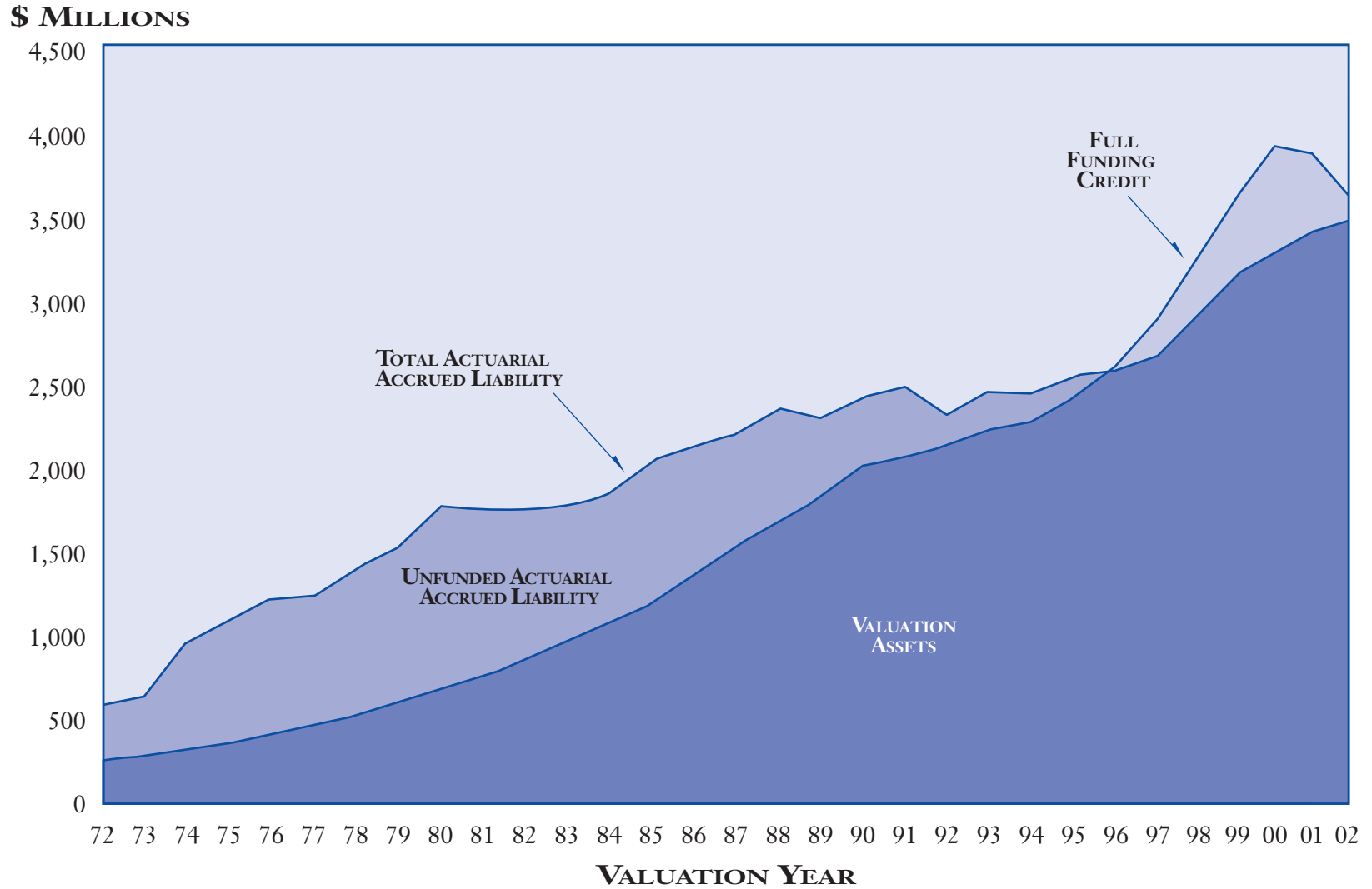
Member statutory contributions of 5% to Annuity Savings Fund are not payable during all periods of covered employment. The rate shown is the equivalent rate if paid during all covered employment.

JUNE 30, 2002
ACTUARIAL ACCRUED LIABILITIES

PRESENT VALUE, JUNE 30	AMOUNT
ACCRUED PENSION LIABILITIES	
Retirees and beneficiaries	\$ 2,284,727,011
Inactive members future deferred pensions	4,696,627
Active members	829,231,401
Total accrued pension liabilities	<u>3,118,655,039</u>
Pension fund balances	<u>3,230,314,985</u>
Unfunded accrued pension liabilities	\$ (111,659,946)
(Full funding credit)	
ACCRUED ANNUITY LIABILITIES	
Retirees and beneficiaries	
Future annuities	\$ 9,114,275
Contingency reserve	<u>5,039,588</u>
Total	\$ 14,153,863
Members annuities and future refunds	<u>390,637,733</u>
Total accrued annuity liabilities	404,791,596
Annuity fund balances	<u>404,791,596</u>
Unfunded accrued annuity liabilities	\$ 0
SYSTEM TOTALS	
Actuarial Accrued Liabilities	\$3,523,446,635
Accrued Assets	<u>3,635,106,581</u>
Unfunded Actuarial Accrued Liabilities ...	\$ (111,659,946)
(Full funding credit)	

**RETIREMENT SYSTEM TOTALS
ASSETS AND ACCRUED LIABILITIES**

14



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					
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	3,724.1	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	\$248.7	\$46,203	\$3,523.4	\$3,635.1	\$(111.7)	0.0	27.68%#

(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.

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) RETIREES AND BENEF.	(3) PRESENT MEMBERS (EMPLOYER FINANCED PORTION)		(1)	(2)	(3)	TOTAL
1998*	\$187	\$1,979	\$811	\$3,326	100%	100%	143%	112%
1999	205	2,035	1,034	3,668	100	100	138	112
2000*	283	2,192	867	3,964	100	100	172	119
2001	365	2,255	843	3,900	100	100	152	113
2002	\$391	\$2,299	\$834	\$3,635	100%	100%	113%	103%

* 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	3,274,050,127	(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	\$3,523,446,635	\$(111,659,946)	103.2%	\$248,663,133	–

* Plan amended.

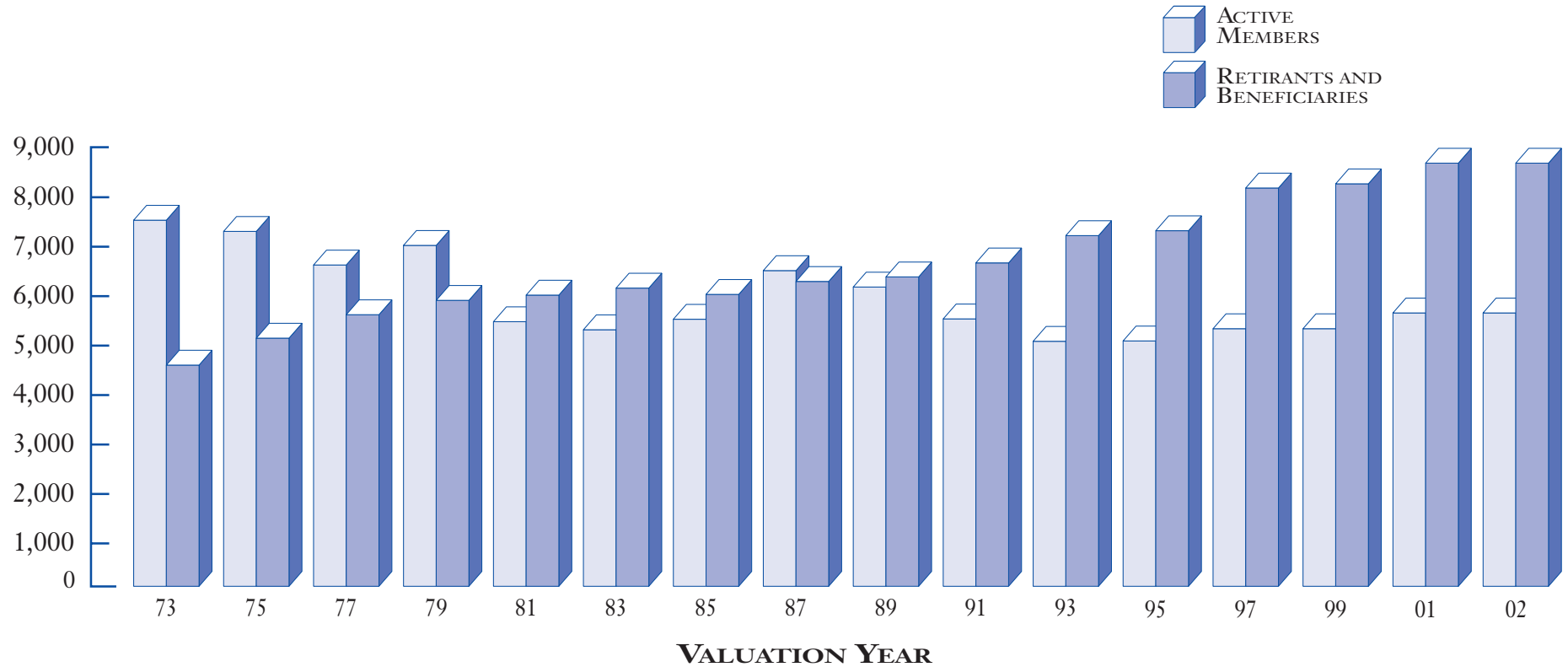
After changes in actuarial assumptions.

**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
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
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

RETIREMENT SYSTEM TOTALS
ACTIVE AND RETIRED MEMBERS



COMPARATIVE STATEMENT OF ACTIVE MEMBERS & VALUATION PAYROLL

JUNE 30	NO. MEMBERS		TOTAL MEMBERS					AVERAGE PAY	
	1969 PLAN	PRE-1969	NO.	% CHANGE	RATIO OF ACTIVE TO RETIRED	ANNUAL PAYROLL	\$	CHANGE	
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	5,284	+2	0.7	209,733,734	39,692	+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	
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%	

ACTIVE MEMBERS AS OF JUNE 30, 2002

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
20-24	250	5						255	8,787,396
25-29	461	219						680	26,639,687
30-34	355	412	36	2				805	34,254,935
35-39	133	185	97	187	0			602	27,653,388
40-44	51	70	50	291	7	0		469	22,586,258
45-49	12	26	28	251	139	42	3	501	25,281,375
50-54	3	6	8	97	111	136	113	474	24,947,135
55-59	2		3	14	36	42	116	213	11,311,407
60	1			0	8	2	9	20	1,026,765
61					1	4	4	9	472,169
62						0	6	6	342,270
63						2	7	9	471,255
64							3	3	173,476
66							1	1	82,500
67							3	3	165,123
TOTALS	1,268	923	222	842	302	228	265	4,050	\$184,195,139

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	48							48	\$ 1,630,792
25-29	101	16	0					117	4,303,106
30-34	98	82	59	1				240	10,188,280
35-39	27	61	114	51	1			254	11,905,252
40-44	18	24	69	68	10	1		190	9,059,426
45-49	2	3	18	53	79	8	0	163	8,577,229
50-54			3	10	40	111	32	196	11,127,976
55-59			2	3	10	34	73	122	7,546,192
60						1	1	2	129,741
TOTALS	294	186	265	186	140	155	106	1,332	\$64,467,994

**TOTAL ACTIVE MEMBERS
AS OF JUNE 30, 2002**

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									
20-24	298	5						303	10,418,188
25-29	562	235						797	30,942,793
30-34	453	494	95	3				1,045	44,443,215
35-39	160	246	211	238	1			856	39,558,640
40-44	69	94	119	359	17	1		659	31,645,684
45-49	14	29	46	304	218	50	3	664	33,858,604
50-54	3	6	11	107	151	247	145	670	36,075,111
55-59	2		5	17	46	76	189	335	18,857,599
60	1				8	3	10	22	1,156,506
61					1	4	4	9	472,169
62							6	6	342,270
63						2	7	9	471,255
64							3	3	173,476
65									
66							1	1	82,500
67							3	3	165,123
TOTALS	1,562	1,109	487	1,028	442	383	371	5,382	\$248,663,133

GROUP AVERAGES:

	POLICE	FIRE	TOTAL
Age:	38.3 years	40.7 years	38.9 years
Service:	11.9 years	14.9 years	12.6 years
Annual Pay:	\$45,480	\$48,399	\$46,203

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.

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

Overall experience was less favorable than assumed during the year ended June 30, 2002. The primary source of the experience loss was investment return that was less than assumed. Investment return was (1.7)% on a funding value basis. On a market value basis, there was a \$584 million loss. Under the asset valuation method, gains and losses are spread over a 3 year period. As a result of this year's market value loss and a similar loss last year, the funding value of assets now exceeds the market value by \$646 million. If the unrecognized losses are not offset by future market gains (i.e., returns in excess of 7.8%), the funded status will decline over the next 2 years, and the computed employer contribution rate will increase.

ANNUITY RESERVE FUND

The contingency reserve in the Annuity Reserve Fund is \$5.0 million and the ratio of the ARF balance to computed liabilities is over 150%.

CONTRIBUTION RECEIVABLE

Financial information submitted for the year indicated employer contributions of \$2,044,430 were unpaid as of June 30, 2002.

BENEFIT CHANGES

This valuation reflects changes in benefits for Police and Fire Command groups who retire on or after 7/1/98. Pensions for these members will increase annually by 2.25% of the current amount.

In addition, all members now have longevity payments added to average final compensation.

OVERALL FINANCIAL CONDITION

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