

City of Houston Municipal Employees Pension System

Actuarial Report as of July 1, 2002

September 2003

Summary of Key Results (\$000)

	July 1, 2002	July 1, 2001
City Contribution Rate		
■ Normal Cost (City Portion)	12.3%	10.0%
■ Amortization of Unfunded Actuarial Accrued Liability	<u>19.5</u>	<u>7.7</u>
■ Preliminary Actuarially Determined City Contribution Rate	31.8%	17.7%
■ Additional Statutory Requirement	<u>0.0</u>	<u>0.0</u>
■ Final Actuarially Determined City Contribution Rate	31.8%	17.7%
Summary of Assets		
■ Market Value	\$ 1,271,691	\$ 1,407,516
■ Actuarial Value	1,519,717	1,490,179
Summary of Liabilities		
■ Actuarial Accrued Liability	\$ 2,515,189	\$ 1,955,806
■ Actuarial Value of Assets	<u>(1,519,717)</u>	<u>(1,490,179)</u>
■ Unfunded Actuarial Accrued Liability (UAAL)	\$ 995,472	\$ 465,627
Summary of Data		
■ Number of Participants Included in the Valuation		
— Active participants	12,527*	12,928
— DROP participants	N/A	281
— Vested terminated participants	1,136	1,226
— Retirees and beneficiaries	<u>5,928</u>	<u>5,457</u>
— Total	19,591	19,892
■ Annual Base Pay Reported for the Prior Year	\$ 399,794	\$ 418,234
■ Expected Covered Payroll (for Amortization of UAAL and Projection of Assets and Liabilities)	\$ 365,000**	\$ 418,234

* Includes 277 DROP participants included in the July 1, 2002 actuarial valuation as active participants.

** Budgeted payroll for fiscal year ending June 30, 2003 reported by the Houston Municipal Employees Pension System.

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Summary of Assets as of July 1, 2002 (\$000)

Investment Category	Market Value	
	Amount	Percent
■ Cash and Cash Equivalents	\$ 2,413	0.2%
■ Fixed Income Investments		
— Government bonds	121,860	9.6
— Corporate bonds	110,302	8.7
— Short-term interest-bearing deposits	<u>46,093</u>	<u>3.6</u>
— Total	\$ 278,255	21.9
■ Equity Investments		
— Capital stock	442,135	34.7
— Commingled funds	<u>212,133</u>	<u>16.7</u>
— Total	\$ 654,268	51.4
■ Other Investments		
— Limited partnerships and real estate investment trust	\$ 353,212	27.8
— Furniture, fixtures and equipment	<u>546</u>	<u>0.0</u>
— Total	353,758	27.8
■ Other Assets (Liabilities)		
— Miscellaneous receivables	44,174	3.5
— Miscellaneous payables	(60,973)	(4.8)
— Written options	<u>(204)</u>	<u>0.0</u>
— Net	\$ (17,003)	(1.3)
■ Total	\$ 1,271,691	100.0%

Change in Assets Since the Prior Valuation (\$000)

■ Market Value as of July 1, 2001	\$ 1,407,516
■ Contributions and Disbursements	
— City contributions	40,758
— Employee contributions	13,476
— Benefit payments	(78,318)
— Contributions refunds	(270)
— Miscellaneous	<u>0</u>
— Net	\$ (24,354)
■ Net Investment Return	
— Interest	17,197
— Dividends	9,552
— Earnings from limited partnerships and real estate investment trust	11,062
— Net (depreciation)/appreciation on investments	(140,619)
— Net proceeds from lending securities	780
— Other income	286
— Investment services expense	(5,995)
— Administrative expenses	<u>(3,734)</u>
— Net	\$ (111,471)
■ Market Value as of June 30, 2002	\$ 1,271,691
■ Approximate Annual Rate of Return (Net of Expenses)*	(8.0)%

* Calculated using a dollar-weighted rate of return assuming all contributions and disbursements are made uniformly throughout the year.

Development of Actuarial Value of Assets (\$000)

Actuarial Investment Gain (Loss) for the Year

■ Market Value of Assets as of July 1, 2001	\$ 1,407,516
■ City Contributions	40,758
■ Employee Contributions	13,476
■ Benefit Payments and Contribution Refunds	(78,588)
■ Miscellaneous Contributions and Disbursements	0
■ Expected Interest at 8.5%	<u>118,625</u>
■ Expected Market Value of Assets as of June 30, 2002	\$ 1,501,787
■ Actual Market Value of Assets as of June 30, 2002	<u>1,271,691</u>
■ Actuarial Investment Gain (Loss)	\$ (230,096)

Schedule of Actuarial Investment Gains (Losses)

Plan Year Ending	Initial Actuarial Gain (Loss)	Five-Year Amortization	Unrecognized Gain (Loss) as of July 1, 2002*
June 30, 2002	\$ (230,096)	\$ (46,019)	\$ (184,077)
June 30, 2001	(193,278)	(38,656)	(115,967)
June 30, 2000	165,524	33,105	66,210
June 30, 1999	(70,960)	(14,192)	<u>(14,192)</u>
			\$ (248,026)

* Deferred for recognition in future years.

Actuarial Value of Assets

■ Market Value as of July 1, 2002	\$ 1,271,691
■ (Gain) Loss to be Recognized in Future Years	<u>248,026</u>
■ Actuarial Value as of July 1, 2002	\$ 1,519,717

Unfunded Actuarial Accrued Liability (\$000)

	July 1, 2002	July 1, 2001
■ Actuarial Present Value of Future Benefits		
— Active participants	\$ 2,069,709	\$ 1,528,322
— DROP participants	N/A*	119,205
— Vested terminated participants	32,979	33,327
— Retirees and beneficiaries	<u>860,589</u>	<u>652,369</u>
— Total	\$ 2,963,277	\$ 2,333,223
■ Actuarial Present Value of Future Employee Contributions	(71,251)	(57,111)
■ Actuarial Present Value of Future Normal Costs (City Portion)	<u>(376,837)</u>	<u>(320,306)</u>
■ Actuarial Accrued Liability	\$ 2,515,189	\$ 1,955,806
■ Actuarial Value of Assets	<u>(1,519,717)</u>	<u>(1,490,179)</u>
■ Unfunded Actuarial Accrued Liability (UAAL)	\$ 995,472	\$ 465,627

* DROP participants are included in the July 1, 2002 actuarial valuation as active participants.

Change in Unfunded Actuarial Accrued Liability Since the Prior Valuation (\$000)

■ Unfunded Actuarial Accrued Liability as of July 1, 2001	\$	465,627
■ Change in Actuarial Assumptions and Methods		268,858
■ Expected Change due to Normal Operation		
— Normal cost (City portion)		42,000
— City actuarially determined contribution		(72,141)
— Interest		38,323
— Recognition of prior asset losses (gains)		<u>18,713</u>
— Net change	\$	26,895
■ Expected Change due to City Funding Less than Actuarial Rate:		32,690
■ Change due to Actuarial Experience		
— Actuarial (gain) loss from asset sources		53,046
— Actuarial (gain) loss from liability sources		<u>148,356</u>
— Net change	\$	201,402
■ Change in Plan Provisions		<u>0</u>
■ Unfunded Actuarial Accrued Liability as of July 1, 2002	\$	995,472

Historical Unfunded Actuarial Accrued Liability (\$000)

Valuation Date	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	AVA as a Percentage of AAL	Unfunded AAL	Covered Payroll	UAAL as a Percentage of Covered Payroll
July 1, 1991	\$ 688,322	\$ 558,144	81%	\$ 130,178	\$ 284,914	46%
July 1, 1992	765,299	608,524	80	156,775	314,686	50
July 1, 1993	840,321	660,637	79	179,684	340,249	53
July 1, 1994	886,699	713,696	80	173,003	366,561	47
July 1, 1995	963,712	770,189	80	193,523	378,511	51
July 1, 1996	1,042,459	857,332	82	185,127	367,610	50
July 1, 1998	1,240,141	1,095,617	88	144,524	397,698	36
July 1, 1999	1,339,933	1,222,240	91	117,693	407,733	29
July 1, 2000	1,509,373	1,376,020	91	133,353	432,604	31
July 1, 2001	1,955,806	1,490,179	76	465,627	418,234	111
July 1, 2002	2,515,189	1,519,717	60	995,472	399,794	249

Historical Solvency Test (\$000)

Actuarial Accrued Liability for:

Valuation Date	Employee Contributions (1)	Retirees, Beneficiaries, Vested Terminated and DROP Participants (2)	Active Participants (City- Financed Portion) (3)	Actuarial Value of Assets	Portion of Actuarial Accrued Liability Covered by Assets		
					(1)	(2)	(3)
July 1, 1991	\$ 32,606	\$ 289,174	\$ 366,542	\$ 558,144	100%	100%	64%
July 1, 1992	32,850	317,849	414,600	608,524	100	100	62
July 1, 1993	32,866	369,561	437,894	660,637	100	100	59
July 1, 1994	32,410	384,100	470,189	713,696	100	100	63
July 1, 1995	31,130	420,830	511,752	770,189	100	100	62
July 1, 1996	45,819	438,486	558,154	857,332	100	100	67
July 1, 1998	34,781	502,335	703,025	1,095,617	100	100	79
July 1, 1999	33,985	599,270	706,678	1,222,240	100	100	83
July 1, 2000	38,292	646,611	824,470	1,376,020	100	100	84
July 1, 2001	36,449	804,901	1,114,456	1,490,179	100	100	58
July 1, 2002	35,888	893,568	1,585,733	1,519,717	100	100	37

Actuarially Determined City Contribution Rate

	July 1, 2002 through June 30, 2003	July 1, 2001 through June 30, 2002
■ City Normal Cost Rate	12.3%	10.0%
■ Rate to Amortize Unfunded Actuarial Accrued Liability Over 40 Years from January 1, 1983	<u>19.5</u>	<u>7.7</u>
■ Actuarially Determined City Contribution Rate	31.8%	17.7%
■ Additional Statutory Requirement	<u>0.0</u>	<u>0.0</u>
■ Actuarially Determined City Contribution Rate plus Additional Statutory Requirement	31.8%	17.7%

Change in Actuarially Determined City Contribution Rate Since the Prior Valuation

■ Actuarially Determined City Contribution Rate as of July 1, 2001	17.7%
■ Change in the Actuarially Determined City Contribution Rate	
— Change in actuarial assumptions and methods	5.7
— Recognition of prior asset losses (gains)	0.3
— Effect of City contribution less than actuarial rate	0.6
— Actuarial (gain) loss from asset sources	0.9
— Actuarial (gain) loss from liability sources	6.6
— Change in plan provisions	<u>0.0</u>
■ Actuarially Determined City Contribution Rate as of July 1, 2002	31.8%

Historical City Contributions as a Percentage of Covered Payroll

Actuarially Calculated City Contribution Rate		Actual City Contribution Rate	
Valuation Date	Rate	Period	Rate
July 1, 1987	5.83%	January 1, 1988 through December 31, 1988	5.15%
July 1, 1988	6.27	January 1, 1989 through December 31, 1989	5.15
July 1, 1989	6.88	January 1, 1990 through December 31, 1990	6.27
July 1, 1990	6.23	January 1, 1991 through December 31, 1991	6.27
July 1, 1991	8.77	January 1, 1992 through June 30, 1993	6.27
July 1, 1992	9.11	July 1, 1993 through June 30, 1994	9.11
July 1, 1993	9.3	July 1, 1994 through June 30, 1995	9.3
July 1, 1994	8.8	July 1, 1995 through June 30, 1996	8.8
July 1, 1995	9.2*	July 1, 1996 through June 30, 1997	9.2
July 1, 1996	9.1	July 1, 1997 through June 30, 1998	9.1
July 1, 1998	9.3	July 1, 1998 through June 30, 1999	9.1
July 1, 1999	9.8*	July 1, 1999 through June 30, 2000	9.3
July 1, 2000	9.5	July 1, 2000 through June 30, 2001	10.0
July 1, 2001	17.7	July 1, 2001 through June 30, 2002	10.0
July 1, 2002	31.8	July 1, 2002 through June 30, 2003	10.0

*Average for the year.

Note: Since January 1, 1983, the actual City contribution rate has been based on results of actuarial valuations prepared at least every three years.

Projection of Estimated Assets and Liabilities (\$000)

Year Beginning July 1	Annual Covered Payroll	Actuarially Determined Rate ⁽¹⁾	City Contribution Rate	City Contribution	Employee Contributions	Benefit Payments	Net Cash Flow	Market Value of Assets at Beginning of Year	Unfunded Actuarial Liability at Beginning of Year
2002	\$365,000	17.7%	10.0%	\$36,500	\$8,178	\$95,856	\$(51,178)	\$1,271,691	\$995,472
2003	375,000	31.8	14.7	55,125	8,402	103,266	(39,739)	1,326,475	1,175,680
2004	391,875	35.5	35.5	139,116	8,780	113,865	34,031	1,397,832	1,333,305
2005	409,509	38.3	38.3	156,842	9,175	127,018	38,999	1,552,094	1,447,724
2006	427,937	40.5	40.5	173,315	9,588	142,535	40,368	1,724,644	1,509,810
2007	447,194	41.7	41.7	186,480	10,019	151,494	45,005	1,913,287	1,512,446
2008	467,318	41.8	41.8	195,339	10,470	167,966	37,843	2,122,796	1,504,059
2009	488,348	41.8	41.8	204,129	10,941	186,026	29,044	2,342,652	1,488,311
2010	510,323	41.8	41.8	213,315	11,433	202,567	22,181	2,572,031	1,464,762
2011	533,288	41.7	41.7	222,381	11,948	226,120	8,209	2,813,758	1,432,460

⁽¹⁾ Based on actuarially determined rate from the prior year's valuation.

The projection is based on the economic and demographic assumptions summarized in Section VI, including an 8.5% investment return beginning as of July 1, 2002. The total covered payroll is assumed to be \$365 million for fiscal year 2003 and \$375 million for fiscal year 2004, increasing by 4.5% per year thereafter. As actual economic (such as the actual investment return from July 1, 2002 through June 30, 2003) and demographic experience vary, the results will change.

The projection assumes the Assumptions and Methods and the Plan Provisions as summarized in Section VI do not change throughout the projection period.

This projection is incomplete without the accompanying report.

Summary of Active Participants as of July 1, 2002

Contributory Plan

Age Last Birthday	-----Completed Years of Service-----								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	
15-19	Number	21							21
	Tot Earnings	428,833							428,833
	Avg Earnings	20,421							20,421
20-24	Number	273	2						275
	Tot Earnings	5,804,489	38,641						5,843,130
	Avg Earnings	21,262	19,320						21,248
25-29	Number	412	33						445
	Tot Earnings	9,843,906	896,184						10,740,090
	Avg Earnings	23,893	27,157						24,135
30-34	Number	394	105	42	2				543
	Tot Earnings	10,410,365	3,080,063	1,274,027	58,214				14,822,669
	Avg Earnings	26,422	29,334	30,334	29,107				27,296
35-39	Number	383	154	119	62	13			731
	Tot Earnings	10,099,134	4,902,965	4,135,079	2,035,317	398,225			21,570,721
	Avg Earnings	26,368	31,837	34,749	32,828	30,633			29,509
40-44	Number	374	191	178	153	251	18		1,165
	Tot Earnings	10,189,646	6,769,518	6,767,524	5,487,350	8,370,446	688,170		38,272,654
	Avg Earnings	27,245	35,443	38,020	35,865	33,348	38,232		32,852
45-49	Number	293	153	180	135	332	123	2	1,218
	Tot Earnings	8,579,875	5,519,785	7,013,863	5,427,577	12,130,069	4,635,825	111,665	43,418,658
	Avg Earnings	29,283	36,077	38,966	40,204	36,536	37,690	55,832	35,648
50-54	Number	223	165	134	150	203	149	59	1,084
	Tot Earnings	7,222,349	5,922,422	5,763,670	6,238,761	7,518,372	5,975,515	2,261,695	40,937,074
	Avg Earnings	32,387	35,893	43,012	41,592	37,036	40,104	38,334	37,765
55-59	Number	153	123	101	114	140	85	41	769
	Tot Earnings	4,937,168	4,895,823	4,012,241	4,839,273	5,564,146	3,261,673	1,600,546	29,616,366
	Avg Earnings	32,269	39,803	39,725	42,450	39,744	38,373	39,036	38,513
60-64	Number	71	61	51	49	57	19	27	345
	Tot Earnings	2,406,392	2,166,219	2,320,193	2,148,020	2,225,517	744,858	1,024,111	13,456,078
	Avg Earnings	33,893	35,512	45,494	43,837	39,044	39,203	37,930	39,003
Over 64	Number	17	23	32	6	17	16	4	123
	Tot Earnings	568,146	680,197	1,396,246	292,195	616,432	622,369	145,397	4,606,594
	Avg Earnings	33,420	29,574	43,633	48,699	36,261	38,898	36,349	37,452
Total	Number	2,614	1,010	837	671	1,013	410	133	6,719
	Tot Earnings	70,490,303	34,871,818	32,682,843	26,526,707	36,823,206	15,928,409	5,143,413	1,246,169
	Avg Earnings	26,966	34,527	39,048	39,533	36,351	38,850	38,672	40,199

Average Age = 45.0

Average Service = 11.0

Summary of Active Participants as of July 1, 2002 (cont.)

Noncontributory Plan

Age Last Birthday	-----Completed Years of Service-----								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	
15-19	Number								
	Tot Earnings								
	Avg Earnings								
20-24	53	13							66
	1,107,819	307,751							1,415,571
	20,902	23,673							21,448
25-29	157	148	2						307
	3,529,462	3,720,849	57,216						7,307,527
	22,481	25,141	28,608						23,803
30-34	179	371	154	1					705
	4,621,858	10,003,759	4,051,094	43,708					18,720,420
	25,820	26,964	26,306	43,708					26,554
35-39	154	347	338	87	18				944
	4,000,612	10,079,471	9,790,577	2,466,266	550,475				26,887,400
	25,978	29,047	28,966	28,348	30,582				28,482
40-44	139	318	308	172	125				1,062
	3,859,612	9,435,194	9,841,246	5,243,768	3,923,870				32,303,692
	27,767	29,670	31,952	30,487	31,391				30,418
45-49	127	315	265	168	132	35			1,042
	3,750,780	9,634,296	9,017,232	5,582,001	4,333,015	1,271,920			33,589,244
	29,534	30,585	34,027	33,226	32,826	36,341			32,235
50-54	67	253	215	154	80	36	10		815
	2,037,378	8,144,952	7,154,306	5,428,073	2,716,931	1,227,058	324,845		27,033,542
	30,409	32,193	33,276	35,247	33,962	34,085	32,484		33,170
55-59	45	165	160	103	50	26	8	2	559
	1,363,979	5,299,209	5,181,696	3,737,149	1,804,367	967,650	221,191	57,598	18,632,840
	30,311	32,116	32,386	36,283	36,087	37,217	27,649	28,799	33,332
60-64	13	65	68	41	17	4	4		212
	372,001	2,039,472	2,240,180	1,295,116	724,762	144,578	132,915		6,949,023
	28,615	31,376	32,944	31,588	42,633	36,144	33,229		32,778
Over 64	4	28	27	19	10	6	2		96
	138,850	855,051	851,607	741,848	362,939	183,418	108,078		3,241,792
	34,713	30,538	31,541	39,045	36,294	30,570	54,039		33,769
Total	938	2,023	1,537	745	432	107	24	2	5,808
	24,782,352	59,520,004	48,185,155	24,537,928	14,416,360	3,794,624	787,029	57,598	176,081,051
	26,420	29,422	31,350	32,937	33,371	35,464	32,793	28,799	30,317

Average Age = 44.4 Average Service = 11.1

Summary of Active Participants as of July 1, 2002 (cont.)

Total

Age Last Birthday	-----Completed Years of Service-----								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	
15-19	Number	21							21
	Tot Earnings	428,833							428,833
	Avg Earnings	20,421							20,421
20-24	Number	326	15						341
	Tot Earnings	6,912,309	346,392						7,258,701
	Avg Earnings	21,203	23,093						21,287
25-29	Number	569	181	2					752
	Tot Earnings	13,373,368	4,617,033	57,216					18,047,617
	Avg Earnings	23,503	25,508	28,608					23,999
30-34	Number	573	476	196	3				1,248
	Tot Earnings	15,032,224	13,083,822	5,325,121	101,922				33,543,089
	Avg Earnings	26,234	27,487	27,169	33,974				26,877
35-39	Number	537	501	457	149	31			1,675
	Tot Earnings	14,099,746	14,982,437	13,925,655	4,501,583	948,700			48,458,121
	Avg Earnings	26,257	29,905	30,472	30,212	30,603			28,930
40-44	Number	513	509	486	325	376	18		2,227
	Tot Earnings	14,049,258	16,204,712	16,608,770	10,731,118	12,294,316	688,170		70,576,346
	Avg Earnings	27,386	31,836	34,174	33,019	32,698	38,232		31,691
45-49	Number	420	468	445	303	464	158	2	2,260
	Tot Earnings	12,330,654	15,154,081	16,031,095	11,009,578	16,463,084	5,907,745	111,665	77,007,902
	Avg Earnings	29,359	32,381	36,025	36,335	35,481	37,391	55,832	34,074
50-54	Number	290	418	349	304	283	185	69	1,899
	Tot Earnings	9,259,726	14,067,375	12,917,976	11,666,834	10,235,302	7,202,572	2,586,539	67,970,616
	Avg Earnings	31,930	33,654	37,014	38,378	36,167	38,933	37,486	35,793
55-59	Number	198	288	261	217	190	111	49	1,328
	Tot Earnings	6,301,147	10,195,031	9,193,937	8,576,422	7,368,513	4,229,323	1,821,737	48,249,206
	Avg Earnings	31,824	35,399	35,226	39,523	38,782	38,102	37,178	36,332
60-64	Number	84	126	119	90	74	23	31	557
	Tot Earnings	2,778,393	4,205,691	4,560,374	3,443,135	2,950,279	889,435	1,157,026	20,405,101
	Avg Earnings	33,076	33,378	38,322	38,257	39,869	38,671	37,323	36,634
Over 64	Number	21	51	59	25	27	22	6	219
	Tot Earnings	706,996	1,535,249	2,247,853	1,034,042	979,371	805,787	253,475	7,848,386
	Avg Earnings	33,666	30,103	38,099	41,362	36,273	36,627	42,246	35,837
Total	Number	3,552	3,033	2,374	1,416	1,445	517	157	12,527
	Tot Earnings	95,272,655	94,391,822	80,867,997	51,064,635	51,239,565	19,723,033	5,930,442	399,793,917
	Avg Earnings	26,822	31,122	34,064	36,063	35,460	38,149	37,774	31,915

Average Age = 44.7 Average Service = 11.0

Historical Active Participant Data

Valuation Data	Number of Participants	Average Age	Annual Payroll (\$000)	Average Annual Salary	Annual Percentage Increase in Average Salary
January 1, 1982	12,338	N/A	\$ 207,100	\$ 16,906	15.1%
July 1, 1984	12,407	N/A	227,000	18,429	3.5
July 1, 1986	11,459	N/A	234,300	20,342	5.1
July 1, 1987	12,149	N/A	239,500	19,832	(2.5)
July 1, 1988	11,344	N/A	227,900	19,934	0.5
July 1, 1989	11,356	N/A	235,400	20,771	4.2
July 1, 1990	12,037	40.0	258,556	21,480	3.4
July 1, 1991	12,488	40.3	284,914	22,815	6.2
July 1, 1992	12,913	40.5	314,686	24,370	6.8
July 1, 1993	13,112	40.9	340,249	25,949	6.5
July 1, 1994	14,027	40.9	366,561	26,133	0.7
July 1, 1995	14,364	41.3	378,511	26,351	0.8
July 1, 1996	14,067	41.8	367,610	26,133	(0.8)
July 1, 1998*	13,764	42.8	394,919*	28,692*	9.8
July 1, 1999*	13,286	42.9	396,617*	29,852*	4.0
July 1, 2000*	13,126	43.7	421,591*	32,119*	7.6
July 1, 2001*	12,928	43.9	413,021*	31,948*	(0.5)
July 1, 2002	12,527	44.7	399,794	31,915	(0.1)

* Excludes DROP participants.

Summary of Inactive Participants as of July 1, 2002

	Number	Annual Benefits (\$000)	Average Annual Benefit
■ Retirees	4,002	59,746	14,929
■ Beneficiaries	1,422	8,872	6,239
■ Disabled Participants	504	3,638	7,217
■ Deferred Vesteds	<u>1,136</u>	<u>5,947</u>	5,235
■ Total	7,064	\$ 78,203	\$ 11,071

Retirees, Beneficiaries and Disabled Participants Added to and Removed from Rolls

Period Ended	Added to Rolls		Removed from Rolls		Rolls at the End of the Year		Average Annual Benefit
	Number	Annual Benefits (\$000)	Number	Annual Benefits (\$000)	Number	Annual Benefits (\$000)	
June 30, 1993	473	\$ 3,714	309	\$ 1,534	4,189	\$ 32,419	\$ 7,739
June 30, 1994	306	2,474	227	1,593	4,268	33,971	7,959
June 30, 1995	393	3,044	220	1,307	4,441	36,482	8,215
June 30, 1996	416	3,119	239	1,438	4,618	38,815	8,405
June 30, 1998	693	5,840	441	3,212	4,870	43,394	8,910
June 30, 1999	432	2,131	303	1,515	4,999	46,732	9,348
June 30, 2000	360	3,412	255	1,380	5,104	49,970	9,755
June 30, 2001	652	8,937	299	1,030	5,457	57,877	10,606
June 30, 2002	777	15,061	306	2,476	5,928	72,256	12,189

Summary of Actuarial Methods and Assumptions

The following methods and assumptions were adopted for the July 1, 2002 actuarial valuation.

Actuarial Methods

Actuarial Value of Assets

Gains and losses in the Market Value of Assets, based on the difference between the actual rate of return and the assumed rate of return are recognized in the Actuarial Value of Assets over five years.

Actuarial Cost Method

Entry Age Method with liabilities allocated from date of entry to age 70. The Unfunded Actuarial Accrued Liability, including the effects of actuarial gains and losses, is amortized as a level percentage of payroll ending December 31, 2022. The contribution is increased for interest for one-half of a year to reflect timing of payments.

Economic Assumptions

- Investment Return 8.5% per year, net of expenses
- Individual Pay Increase Rate 4.5% per year
- Payroll Growth Rate 4.5% per year
- General Inflation Rate 4.0% per year

Demographic Assumptions

- Retirement Rate

<i>Age</i>	<i>Rate</i>
<55	5%
56-59	5
60	10
61	10
62	25
63	10
64	10
65	40
66-69	10
70+	100

- DROP Participation 100% of eligible members assumed to elect DROP
- DROP Entry Date Earliest date the member is eligible to participate in the DROP
- DROP Interest Credit 8.5% per year

Summary of Actuarial Methods and Assumptions (cont.)

- Mortality Rates
 - Active participants and nondisabled retirees 1994 Group Annuity Mortality Table (see table below for sample rates).
 - Disabled retirees 1987 Commissioners Group Disabled Mortality Table (see table below for sample rates).
- Disability Rates Graduated rates (see table below for sample rates).
- Percentage of Service-Connected Deaths and Disabilities 10%
- Termination Rates Graduated rates (see table below for sample rates).
- Rehire Rates Each year 2% of the nonvested terminations are assumed to be rehired in the future.
- Group Membership Members are assumed to remain in their current membership groups for future and past service.
- Form of Payment 100% joint and survivor annuity.
- Marital Status at Benefit Eligibility
 - Percentage married 60%. (No beneficiaries other than the spouse assumed).
 - Age difference Husbands assumed to be three years older than wives.
- Reported Pay Pay reported by the City for the 12 months prior to the valuation date
- Valuation Pay Reported Pay projected with one year of assumed pay increases.

Summary of Actuarial Methods and Assumptions (cont.)

Missing Data Assumptions*

■ Current Age:		
— Active participants	Contributory Plan – 44.9	Noncontributory Plan – 43.1
— Retirees and spouses	65	
— Deferred vested participants	40	
■ Service for Active Participants	Contributory Plan – 12.3	Noncontributory Plan – 9.3
■ Pay	Contributory Plan - \$35,789	Noncontributory Plan - \$32,850

Sample Rates Per 100 Participants

Age	<u>Nondisabled Mortality</u>		<u>Disabled Mortality (Ultimate)</u>	<u>Termination</u>		<u>Disability</u>
	Male	Female	All	First 3 Years	After 3 Years	All
20	0.05	0.03	2.82	36.20	21.20	0.05
25	0.07	0.03	2.82	30.80	15.80	0.05
30	0.08	0.04	2.82	26.60	11.60	0.05
35	0.09	0.05	2.82	23.40	8.40	0.06
40	0.11	0.07	2.82	21.20	6.20	0.09
45	0.16	0.10	2.82	19.20	4.20	0.18
50	0.26	0.14	2.82	17.60	2.60	0.40
55	0.44	0.23	2.82	0.00	0.00	0.85
60	0.80	0.44	3.14	0.00	0.00	1.74

*Pension System staff members were not included in the valuation.

Changes in Methods and Assumptions Since the Prior Valuation

The actuarial methods and assumptions used in this valuation are the same as those used in the prior valuation except the assumed DROP participation rate was changed from 50% to 100% and the assumed DROP Entry Date was changed from five years prior to the assumed retirement date to the earliest date the member is eligible to participate in the DROP.

Summary of Plan Provisions

■ Covered Members

Any person who is a participant of Group A, under the original act.

Persons who become employees of the City of Houston after September 1, 1981, and elected officials of the City of Houston who assumed office after September 1, 1981, participate in Group B, but may make an irrevocable election to participate in Group A instead.

Persons who become employees of the City and persons who are elected as City officials after September 1, 1999 become members of Group A. Certain persons who are or become Director of a City Department, Chief Financial Executive, or Executive Director of the Pension System on or after September 1, 1999 may participate in Group C.

■ Monthly Final Average Salary (FAS)

The sum of the seventy-eight highest biweekly salaries paid to a member during his period of credited service, divided by thirty-six. Salary includes base pay, longevity pay, and any shift differential pay.

■ Credited Service

All services and work performed by an employee, including prior service. For members of Group A and Group C, all services and work performed after September 1, 1943 must have been accompanied by corresponding contributions to the Pension System by the employee or legally authorized repayments must have been made.

Credited service for participants in Group C means the number of eligible service after the executive official's effective date of participation in Group C. A Group C member receives two times the number of actual Credited Service in Group C solely for the purpose of fulfilling the eligibility requirements in Group C.

Summary of Plan Provisions (cont.)

■ Normal Retirement

— Eligibility

Prior to August 1, 2000:

The earliest of:

- age 50 and 25 years of Credited Service
- age 55 and 20 years of Credited Service
- age 60 and 10 years of Credited Service
- age 62 and 5 years of Credited Service
- age 65 (Group C only)

On or after August 1, 2000:

The earliest of:

- age 62 and 5 years of Credited Service
- 5 years of Credited Service and age plus years of Credited Service equal 70 or more
- age 65 (Group C only)

— Benefit

Prior to August 1, 2000:

Group A: 2.25% of FAS for each of the first 20 years of Credited Service, plus 2.75% of FAS for each year of Credited Service over 20, to a maximum of 80% of FAS. Minimum monthly benefit is greater of \$8 times years of Credited Service or \$100.

Group B: 1.50% of FAS for each of first 10 years of Credited Service, plus 1.75% of FAS for each year of Credited Service over 10 through 20, plus 2.00% of FAS for each year of Credited Service over 20, to a maximum of 80% of FAS.

Summary of Plan Provisions (cont.)

On or after August 1, 2000 and prior to May 11, 2001:

Group A: 2.50% of FAS for each of the first 20 years of Credited Service plus 3.25% of FAS for each year of Credited Service greater than 20 years. Maximum benefit is 80% of FAS. Minimum monthly benefit is greater of \$8 times years of Credited Service or \$100.

Group B: 1.75% of FAS for each of the first 10 years of Credited Service plus 2.00% of FAS for each year of Credited Service from 10 through 20, and 2.50% of FAS for each year of Credited Service over 20. Maximum benefit is 80% of FAS for all future retirees.

Group C: Double the rate for Group A

On or after May 11, 2001:

Group A: 3.25% of FAS for each of the first 10 years of Credited Service plus 3.50% for Credited Service greater than 10 years but less than 20 years plus 4.25% for FAS for each year of Credited Service greater than 20 years (excludes current DROP participants). Maximum benefit is 90% of FAS for all future retirees. Minimum monthly benefit is greater of \$8 times years of Credited Service or \$100.

Group B: 1.75% of FAS for each of the first 10 years of Credited Service plus 2.00% of FAS for each year of Credited Service from 10 through 20, and 2.75% of FAS for each year of Credited Service over 20. Maximum benefit is 90% of FAS for all future retirees.

Group C: Double the rate for Group A

- Vested Pension
 - Eligibility

5 years of Credited Service. Immediate for Group C.

Summary of Plan Provisions (cont.)

- Benefit
 - Group A and Group C: Either the accrued normal retirement benefit with payments beginning at the normal retirement eligibility date or a refund of contributions, if any, without interest.
 - Group B: Accrued normal retirement benefit payable at the normal retirement eligibility date.
 - If the actuarial present value of a pension is less than \$10,000, a terminated participant who is not eligible to begin receiving a pension may request an early lump sum distribution of the pension. Such early lump sum distribution is irrevocable. Credited Service associated therewith can be reinstated after reemployment and pursuant to rules of the plan.
- Withdrawal Benefit
 - If a nonvested member withdraws from service with less than 5 years, a refund of the member's contributions is made without interest, upon request.
- Service-Connected Disability Retirement
 - Eligibility
 - Any age or Credited Service.
 - Benefit
 - Group A: Accrued normal retirement benefit, but not less than 20% of final monthly salary at time of disability plus 1% of final monthly salary per year of Credited Service, to a maximum of 40% of final monthly salary.
 - Group B: Accrued normal retirement benefit, but not less than 20% of final monthly salary at time of disability.
 - Group C: Double Group A benefit
- Nonservice-Connected Disability Retirement
 - Eligibility
 - 5 years of Credited Service.
 - Benefit
 - Accrued normal retirement benefit payable immediately.

Summary of Plan Provisions (cont.)

■ Preretirement Survivor Benefits

— Service-connected

– Eligibility

Any age or Credited Service.

– Benefit

Prior to September 1, 1999:

If there is a surviving spouse, 80% of FAS payable to the spouse plus 10% of FAS to each qualifying dependent to a maximum of 20% for all dependents. If there is no surviving spouse, dependent benefits are doubled.

On or after September 1, 1999:

If there is a surviving spouse, 100% of FAS payable to the spouse. 10% of FAS is payable to each qualifying dependent to a maximum of 20% for all dependents. Surviving spouses benefit will be reduced by the amount of dependent benefits. If no surviving spouse, dependent benefits are 50% of the amount a surviving spouse would have received for each dependent to a maximum of 100% for all dependents in the aggregate.

— Nonservice-connected

– Eligibility

5 years of Credited Service.

– Benefit

Prior to September 1, 1999:

If there is a surviving spouse, 50% of accrued normal retirement benefit payable to the spouse plus 10% of accrued normal retirement benefit to each qualifying dependent to a maximum of 20% for all dependents. If there is no surviving spouse, dependent benefits are doubled.

Summary of Plan Provisions (cont.)

On or after September 1, 1999 and prior to August 1, 2001:

If there is a surviving spouse, 85% of accrued normal retirement benefit payable to the spouse plus 10% of accrued normal retirement benefit to each qualifying dependent to a maximum of 20% for all dependents in the aggregate. The surviving spouses benefit will be reduced by the excess, if any, over 100% of the accrued normal retirement benefit. If there is no surviving spouse, dependent benefits are 50% of the benefit a surviving spouse would have received for each dependent subject to 100% of a surviving spouse's benefit for all dependents in the aggregate.

On or after August 1, 2001:

If there is a surviving spouse, 100% of accrued normal retirement benefit payable to the spouse and 10% of accrued normal retirement benefit to each qualifying dependent to a maximum of 20% for all dependents in the aggregate. The surviving spouse's benefit will be reduced by dependent benefits, if any. If there is no surviving spouse, each dependent will receive 50% of the benefit of a surviving spouse would have received subject to a maximum of 100% of a surviving spouse's benefit for all dependents in the aggregate.

■ Postretirement Survivor Benefits

Prior to September 1, 1999:

If there is a surviving spouse, 75% of the retirement benefit the deceased retiree was receiving at the time of death payable to the spouse plus 10% of that retirement benefit payable to each qualifying dependent to a maximum of 20% for all dependents. If there is no surviving spouse, dependent benefits are double.

Summary of Plan Provisions (cont.)

On or after September 1, 1999 and prior to August 1, 2001:

If there is a surviving spouse, 85% of the retirement benefit the deceased retiree was receiving at the time of death payable to the spouse plus 10% of that retirement benefit payable to each qualifying dependent to a maximum of 20% for all dependents. If there is no surviving spouse, dependent benefits are 50% of the benefit a surviving spouse would have received for each dependent subject to 100% of a surviving spouse's benefit for all dependents in the aggregate.

On or after August 1, 2001:

If there is a surviving spouse, 100% of the retirement benefit if the deceased retiree was receiving at the time of death payable to the spouse and 10% of that retirement benefit payable to each qualifying dependent to a maximum of 20% for all dependents. The surviving spouse's benefit will be reduced by dependent benefits, if any. If there is no surviving spouse, each dependent will receive 50% of the benefit a surviving spouse would have received subject to 100% of a surviving spouse's benefit for all dependents in the aggregate.

■ Benefit Adjustments

Prior to May 11, 2001:

Each year, effective February 1, monthly benefits will be increased 3.5%, not compounded, for all retirees and survivors whose benefit was effective on or before January 1 of the current year.

On or after May 11, 2001:

Each year, effective February 1, monthly benefits will be increased 4.0%, not compounded, for all retirees and survivors whose benefit was effective on or before January 1 of the current year.

Summary of Plan Provisions (cont.)

■ Contribution Rates

— Members

4% of salary only for the Group A and Group C members. None for the Group B members.

— City

Beginning in 1993, the rate required to fund the Retirement Fund on an actuarial reserve basis. However, effective September 1, 1999, the minimum contribution rate is equal to the greater of 10% and twice the contribution rate of a Group A members is required to make by statute.

■ Deferred Retirement Option Program (DROP)

— Eligibility

Participants who are eligible to retire but who have not retired and who remain in service with the City may participate in the DROP.

— Monthly DROP Credit

Accrued normal retirement benefit as of the effective date of DROP participation. The Monthly DROP Credit is credited to a notional account (DROP Account) on the last business day each month.

— Other DROP Credits

A participant's biweekly employee contributions, if any, are credited to the DROP Account on the day they are paid to the Pension System by the City. In addition, interest is credited to the DROP Account at the beginning of each day based on the DROP Account balance at the end of the previous day. The annual interest rate effective beginning January 1 each year is the arithmetical average of the System's annual investment return percentage for the then most recent 5 fiscal years. Minimum interest rate is the investment yield assumption for actuarial purposes adopted by the Pension Board as of interest calculation date. The interest rate for interest accrued after a DROP participant's City employment is terminated, if applicable, is reduced 3/4%.

Summary of Plan Provisions (cont.)

— Monthly DROP Credit Adjustments

Prior to May 11, 2001:

The Monthly DROP Credit for participants who entered the DROP effective on or before January 1 of the then current year will be increased effective February 1 each year 3.5%, not compounded.

On or after May 11, 2001:

The Monthly DROP Credit for participants who entered the DROP effective on or before January 1 of the then current year will be increased effective February 1 each year 4.0%, not compounded.

— DROP Account Balance (DROP Benefit)

The sum of a participant's Monthly DROP Credits, employee contributions paid after DROP participation began, Monthly DROP Credit Adjustments, and applicable interest.

— DROP Benefit Pay-out

A terminated DROP participant may elect to:

1. Receive the entire DROP Account Balance in lump sum.
2. Receive the DROP Account Balance in periodic payments as approved by the Pension Board.
3. Receive a portion of the DROP Account Balance in lump sum and the remainder in periodic payments as approved by the Pension Board.
4. Defer election of a payout option until a future date.

— Post DROP Retirement Benefit (Final Pension)

The Final Pension is the accrued benefit percentage as of the effective date of DROP participation times the FAS as of termination from active service. The initial monthly retirement pension is equal to the Final Pension plus the Monthly DROP Credit Adjustments the participant received while in DROP.

Summary of Plan Provisions (cont.)

— Post DROP Retirement Benefit Adjustments

Prior to May 11, 2001:

Each year, effective February 1, retired former DROP participants' monthly retirement pension will be increased 3.5% of their Final Pension, not compounded, for all such former DROP participants and their survivors whose monthly retirement pension was effective on or before January 1 of the then current year.

On or after May 11, 2001:

Each year, effective February 1, retired former DROP participants' monthly retirement pension will be increased 4.0% of their Final Pension, not compounded, for all such former DROP participants and their survivors whose monthly retirement pension was effective on or before January 1 of the then current year.

■ Back DROP

Effective September 1, 1999, a participant who is eligible to enter the DROP but has not yet elected to do so, has the option to elect into the DROP at any time between the participant's DROP entry date, no earlier than October 1, 1997, or the actual retirement date. A DROP participant who entered the DROP prior to September 1, 1999 may make a one-time irrevocable election before termination of employment, to revoke the DROP election.

■ Post-termination Survivor Benefits

Same as postretirement survivor benefits in effect at the date of termination.

Participants of the Noncontributory Plan whose employment terminated prior to September 1, 1997 may elect to receive a life annuity, 50% joint and survivor annuity, 100% joint and survivor annuity, or a 10-year guaranteed annuity.

Changes in Plan Provisions Since Prior Year

Plan provisions have not changed since the prior year.

Plan Provisions Effective After July 1, 2002

No future plan changes have been recognized.

Actuarial Certification

This report describes the results of an actuarial valuation of the Houston Municipal Employees Pension System. The Houston Municipal Employees Pension System retained Towers Perrin to perform this actuarial valuation for the purposes of determining the funding status and employer contributions for the plan year July 1, 2002 through June 30, 2003.

The consulting actuary is a member of the Society of Actuaries and other professional actuarial organizations and meets their "General Qualification Standard for Prescribed Statements of Actuarial Opinions" relating to pension plans.

In preparing the actuarial results, we have relied upon information provided by the Board of Trustees regarding plan provisions, plan participants, plan assets, and other matters. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed this information for reasonableness but have not audited it. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. Historical information for years prior to 1986 was prepared by the prior actuaries and was not subjected to our actuarial review.

The actuarial methods and assumptions used in this valuation were selected by the Board of Trustees. The Board has sole authority to determine the actuarial assumptions. In our opinion, the actuarial assumptions used are appropriate for purposes of this valuation and, in the aggregate, are reasonably related to the experience of the Fund as of the valuation date.

Towers Perrin understands that an experience study of the System is contemplated prior to completion of the July 1, 2003 actuarial valuation. An experience study will examine actual experience in relation to all of the actuarial assumptions for the purpose of assisting the Board in re-evaluating the reasonableness of the assumptions. In particular, a study will examine the experience of members changing Service Group elections from Group B to Group A and retroactively changing service elections to Group A through a purchase election. Currently, members are assumed to remain in their current Group election. In the event an experience study and reasonable expectations indicate that future service election changes are to be expected, we will recommend changes to the actuarial assumptions and, as appropriate, to the actuarially determined City contribution rate.

The funding determination portion of this actuarial valuation has been conducted in accordance with principles of practice prescribed by the Actuarial Standards Board and the requirements of the Texas Government Code. Section 802.101 of the Texas Government Code requires the use of actuarial "assumptions and methods that are reasonable in the aggregate, considering the experience of the program and reasonable expectations, and that, in combination, offer the actuary's best estimate of anticipated experience under the program."

The results shown in this report are reasonable actuarial results. However, a different set of results could also be considered reasonable actuarial results, since the Actuarial Standards of Practice describe a "best-estimate range" for each assumption, rather than a single best-estimate value. Thus, reasonable results differing from those presented in this report could have been developed by selecting different points within the best-estimate ranges for various assumptions.

The information contained in this report was prepared for the internal use of the Houston Municipal Employees Pension System and its auditors in connection with our actuarial valuation of the pension plan. It is not intended nor necessarily suitable for other purposes and may not be relied on by third parties.

Towers Perrin



Adam S. Berk, A.S.A., C.F.A., E. A., M.A.A.A.

September, 2003