

Houston Police Officers Pension System

Actuarial Valuation Report as of July 1, 2007

December 2007

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Summary of Key Results (\$000)

	July 1, 2007	July 1, 2005
Actuarially Calculated City Contribution Rate		
■ Normal Cost (City Portion)	16.0%	16.5%
■ Amortization of Unfunded Actuarial Accrued Liability (Surplus)	<u>16.1</u>	<u>17.5</u>
■ Actuarially Calculated City Contribution Rate (effective the following July 1)	32.1%	34.0%
Summary of Assets		
■ Market Value	\$ 3,359,666	\$ 2,651,208
■ Actuarial Value	3,004,927	2,508,794
Summary of Liabilities		
■ Actuarial Accrued Liability	\$ 3,857,680	\$ 3,392,974
■ Actuarial Value of Assets	<u>(3,004,927)</u>	<u>(2,508,794)</u>
■ Unfunded Actuarial Accrued Liability (Surplus)	852,753	884,180
Summary of Data		
■ Number of Participants Included in the Valuation		
— Active participants enrolled in DROP	1,933	1,837
— Other active participants	2,946	3,030
— Inactive participants	<u>2,717</u>	<u>2,403</u>
— Total	7,596	7,270
■ Annual Total Direct Pay for Active and DROP Participants Included in the Valuation		
— Active participants enrolled in DROP	\$ 151,046	\$ 137,589
— Other active participants	<u>184,983</u>	<u>183,468</u>
— Total	336,029	321,057
■ Annual Benefits for Inactive Participants	105,481	86,933

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Summary of Assets as of July 1, 2007 (\$000)

Investment Category	Market Value	
	Amount	Percent
■ Cash and Short-Term Investments	\$ 82,522	2.5%
■ Fixed Income Investments	885,284	26.3
■ Equity Securities	1,474,702	43.9
■ Alternative Investments	878,166	26.1
■ Other Investments	132	0.0
■ Other Assets (Liabilities)		
— Miscellaneous receivables	52,860	1.6
— Miscellaneous payables	(13,595)	(0.4)
— Other liabilities	<u>(405)</u>	<u>0.0</u>
— Net	38,860	1.2
■ Total	\$ 3,359,666	100.0%

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

■ Market Value as of July 1, 2005	\$ 2,651,208
■ Contributions and Disbursements	
— City contributions	53,068
— Employee contributions	28,863
— Benefit payments	(130,443)
— Contributions refunds	(700)
— Net	(49,212)
■ Net Investment Return	310,587
■ Administrative and Investment Expenses	(17,478)
■ Market value as of July 1, 2006	\$ 2,895,105
■ Approximate Annual Rate of Return (Net of Expenses)*	11.2%
■ Market Value as of July 1, 2006	\$ 2,895,105
■ Contributions and Disbursements	
— City contributions	58,000
— Employee contributions	29,489
— Benefit payments	(133,351)
— Contributions refunds	(739)
— Net	(46,601)
■ Net Investment Return	527,641
■ Administrative and Investment Expenses	(16,479)
■ Market value as of July 1, 2007	\$ 3,359,666
■ Approximate Annual Rate of Return (Net of Expenses)*	17.8%

*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, 2006	\$ 2,895,105
■ City Contributions	58,000
■ Employee Contributions	29,489
■ Benefit Payments and Contribution Refunds	(134,090)
■ Miscellaneous Contributions and Disbursements	0
■ Expected Interest at 8.5%	244,144
■ Expected Market Value of Assets as of June 30, 2007	\$ 3,092,648
■ Actual Market Value of Assets as of June 30, 2007	3,359,666
■ Actuarial Investment Gain (Loss)	\$ 267,018

Schedule of Actuarial Investment Gains (Losses)

<u>Plan Year Ending</u>	<u>Initial Actuarial Gain (Loss)</u>	<u>Five-Year Amortization</u>	<u>Unrecognized Gain (Loss) as of July 1, 2007*</u>
June 30, 2007	\$ 267,018	\$ 53,404	\$ 213,614
June 30, 2006	69,805	13,961	41,883
June 30, 2005	115,756	23,151	46,303
June 30, 2004	264,695	52,939	52,939
			\$ 354,739

* Deferred for recognition in future years.

Actuarial Value of Assets

■ Market Value as of July 1, 2007	\$ 3,359,666
■ (Gain) Loss to be Recognized in Future Years	(354,739)
■ Actuarial Value as of July 1, 2007	\$ 3,004,927

Unfunded Actuarial Accrued Liability (Surplus) (\$000)

	July 1, 2007	July 1, 2005
■ Actuarial Present Value of Future Benefits		
— Active participants enrolled in DROP	\$ 1,892,217	\$ 1,676,659
— Other active participants	1,080,305	1,143,789
— Vested terminated participants	2,554	2,863
— Retirees and beneficiaries	1,573,346	1,256,380
— Total	\$ 4,548,422	\$ 4,079,691
■ Actuarial Present Value of Future Employee Contributions	(266,481)	(251,611)
■ Actuarial Present Value of Future Normal Costs (City Portion)	(424,261)	(435,106)
■ Actuarial Accrued Liability	\$ 3,857,680	\$ 3,392,974
■ Actuarial Value of Assets	(3,004,927)	(2,508,794)
■ Unfunded Actuarial Accrued Liability (Surplus)	\$ 852,753	\$ 884,180

**Change in Unfunded Actuarial Accrued Liability (Surplus)
From July 1, 2005 to July 1, 2006 (\$000)**

■ Unfunded Actuarial Accrued Liability (Surplus) as of July 1, 2005	\$ 884,180
■ Expected Change Due to Normal Operation	
— Normal Cost (City Portion)	52,974
— City Actuarially Determined Contribution	(100,170)
— Interest ⁽¹⁾	61,085
— Recognition of Prior Asset Losses (Gains)	15,471
— Net Expected Change Due to Normal Operation	\$ 29,360
■ Expected Change Due to City Funding Less than Actuarial Rate	49,063
■ Change Due to Actuarial Experience	
— Actuarial (Gain) Loss From Asset Sources	(13,961)
— Actuarial (Gain) Loss From Liability Sources	3,128
— Net Change due to Actuarial Experience	\$ (10,833)
■ Change in Actuarial Assumptions and Methods	0
■ Unfunded Actuarial Accrued Liability (Surplus) as of July 1, 2006	\$ 951,770

⁽¹⁾ Excludes interest on the unrecognized investment gains and losses

Change in Unfunded Actuarial Accrued Liability (Surplus) From July 1, 2006 to July 1, 2007 (\$000)

■ Unfunded Actuarial Accrued Liability (Surplus) as of July 1, 2006	\$ 951,770
■ Expected Change Due to Normal Operation	
— Normal Cost (City Portion)	53,314
— City Actuarially Determined Contribution	(111,207)
— Interest ⁽¹⁾	60,323
— Recognition of Prior Asset Losses (Gains)	(72,605)
— Net Expected Change Due to Normal Operation	\$ (70,175)
■ Expected Change Due to City Funding Less than Actuarial Rate	55,422
■ Change Due to Actuarial Experience	
— Actuarial (Gain) Loss From Asset Sources	(53,404)
— Actuarial (Gain) Loss From Liability Sources	(30,860)
— Net Change Due to Actuarial Experience	\$ (84,264)
■ Change in Actuarial Assumptions and Methods	0
■ Unfunded Actuarial Accrued Liability (Surplus) as of July 1, 2007	\$ 852,753

⁽¹⁾ Excludes interest on the unrecognized investment gains and losses

Historical Unfunded Actuarial Accrued Liability (Surplus) (\$000)

Valuation Date	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	AVA as a Percentage of AAL	Unfunded AAL (Surplus)	Covered Payroll	UAAAL (Surplus) as a Percentage of Covered Payroll
July 1, 1984	\$ 507,883	\$ 230,143	45%	\$ 277,740	\$ 111,489	249%
July 1, 1986	454,067	420,487	93	33,580	125,963*	27
July 1, 1987	488,387	505,483	104	(17,096)	126,960	(13)
July 1, 1988	524,894	516,177	98	8,717	121,667	7
July 1, 1989	581,681	585,358	101	(3,677)	122,803	(3)
July 1, 1990	663,278	676,684	102	(13,406)	126,665**	(11)
July 1, 1992	853,975	774,785	91	79,190	143,020	55
July 1, 1993	936,674	857,535	92	79,139	159,321	50
July 1, 1994	984,495	947,456	96	37,039	162,143	23
July 1, 1995	1,000,423	1,038,256	104	(37,833)	174,761	(22)
July 1, 1996	1,199,748	1,168,056	97	31,692	182,251	17
July 1, 1997	1,258,217	1,329,570	106	(71,353)	187,134	(38)
July 1, 1998	1,549,341	1,518,081	98	31,260	196,364	16
July 1, 1999	1,773,829	1,746,312	98	27,517	246,569***	11
July 1, 2000	1,966,404	2,013,491	102	(47,087)	250,691	(19)
July 1, 2001	2,306,427	2,226,307	97	80,120	264,226	30
July 1, 2002	2,593,730	2,337,157	90	256,573	286,150	90
July 1, 2003	2,874,738	2,394,411	83	480,327	300,405	160
July 1, 2004	3,339,224	2,466,070	74	873,154	329,840	265
July 1, 2005	3,392,974	2,508,794	74	884,180	321,057	275
July 1, 2006	3,633,145	2,681,375	74	951,770	327,080	291
July 1, 2007	3,857,680	3,004,927	78	852,753	336,029	254

* Reflects the July 5, 1986 pay decrease

** Reflects the November 1, 1990 pay increase

*** Definition of covered payroll changed from base pay to total direct pay less overtime



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Historical Solvency Test (\$000)

Actuarial Accrued Liability for:

Valuation Date	Actuarial Accrued Liability for:			Active Participants (City-Financed Portion)	Actuarial Value of Assets	Portion of Actuarial Accrued Liability Covered by Assets	
	Employee Contributions (1)	Retirees, Beneficiaries, and Vested Deferrals (2)	Active Participants (3)			(1)	(2)
July 1, 1989	\$ 82,919	\$ 222,585	\$ 276,177	\$ 585,358	100%	100%	100%
July 1, 1990	87,430	261,114	314,734	676,684	100	100	100
July 1, 1991	98,099	338,914	416,962	774,785	100	100	81
July 1, 1992	105,464	372,674	458,536	857,535	100	100	83
July 1, 1993	114,279	401,989	468,227	947,456	100	100	92
July 1, 1994	123,471	416,053	460,899	1,038,256	100	100	100
July 1, 1995	91,687	764,518	343,543	1,168,056	100	100	91
July 1, 1996	95,615	812,498	350,104	1,329,570	100	100	100
July 1, 1998	99,298	1,017,723	432,320	1,518,081	100	100	93
July 1, 1999	107,008	1,157,882	508,939	1,746,312	100	100	95
July 1, 2000	111,099	1,324,079	531,225	2,013,491	100	100	100
July 1, 2001	138,248	707,152	1,461,027*	2,226,307	100	100	95
July 1, 2002	145,255	718,779	1,729,696	2,337,157	100	100	85
July 1, 2003	153,634	838,090	1,883,014	2,394,411	100	100	74
July 1, 2004	153,088	995,841	2,190,295	2,466,070	100	100	60
July 1, 2005	249,804	1,259,243	1,883,927	2,508,794	100	100	53
July 1, 2006	262,514	1,421,330	1,949,301	2,681,375	100	100	51
July 1, 2007	275,990	1,575,900	2,005,790	3,004,927	100	100	57

* Beginning July 1, 2001 the Actuarial Accrued Liability for DROP Participants was included in the Active liability.

Actuarially Calculated City Contribution Rate

	July 1, 2007 through June 30, 2008	July 1, 2005 through June 30, 2006
■ City Normal Cost Rate	16.0%	16.5%
■ Rate to Amortize Unfunded Actuarial Accrued Liability (Surplus) Over 30 Years	<u>16.1</u>	<u>17.5</u>
■ Actuarially Calculated City Contribution Rate	32.1%	34.0%

Change in Actuarially Calculated City Contribution Rate Since the Prior Valuation

■ Actuarially Calculated City Contribution Rate as of July 1, 2005	34.0%
■ Change in Actuarially Calculated City Contribution Rate	
— Normal operation	(0.1)
— Effect of City contribution less than actuarial rate	0.9
— Actuarial (gain) loss from asset sources	(0.3)
— Actuarial (gain) loss from liability sources ⁽¹⁾	0.2
— Decrease in total earnings	<u>0.0</u>
■ Actuarially Calculated City Contribution Rate as of July 1, 2006	34.7%
■ Actuarially Calculated City Contribution Rate as of July 1, 2006	34.7%
■ Change in Actuarially Calculated City Contribution Rate	
— Normal operation	(1.9)
— Effect of City contribution less than actuarial rate	1.0
— Actuarial (gain) loss from asset sources	(1.0)
— Actuarial (gain) loss from liability sources ⁽¹⁾	(0.7)
— Decrease in total earnings	<u>0.0</u>
■ Actuarially Calculated City Contribution Rate as of July 1, 2007	32.1%

⁽¹⁾ Includes decrease due to new entrants coming in under the new benefit formula.

Historical City Contribution as a Percentage of Covered Payroll

Actuarially Calculated City Contribution Rate		Actual City Contribution Rate	
Valuation Date	Rate	Period	Rate
July 1, 1990	14.2%	July 1, 1991 through June 30, 1993	14.3%
July 1, 1992	19.0	July 1, 1993 through June 30, 1994	19.0
July 1, 1993	18.0	July 1, 1994 through June 30, 1995	18.0
July 1, 1994	18.0	July 1, 1995 through June 30, 1996	18.0
July 1, 1995	17.4	July 1, 1996 through June 30, 1997	16.2
July 1, 1996	16.2	July 1, 1997 through June 30, 1998	16.2
July 1, 1997	16.8 ⁽¹⁾	July 1, 1998 through June 30, 1999	15.2
July 1, 1998	16.2	July 1, 1999 through June 30, 2000	12.4
July 1, 1999 ⁽²⁾	16.3	July 1, 2000 through June 30, 2001	12.2
July 1, 2000	11.3	July 1, 2001 through June 30, 2002	12.4
July 1, 2001	20.5	July 1, 2002 through June 30, 2003	12.1
July 1, 2002	24.4	July 1, 2003 through June 30, 2004	12.2
July 1, 2003	28.5	July 1, 2004 through June 30, 2005	11.3
July 1, 2004	31.2 ⁽¹⁾	July 1, 2005 through June 30, 2006	16.5
July 1, 2005	34.0	July 1, 2006 through June 30, 2007	17.7
July 1, 2007	32.1	July 1, 2008 through June 30, 2009	N/A

⁽¹⁾ Average for the year

⁽²⁾ For the period July 1, 1999 through July 1, 2000 the City Contribution rates are shown as a percentage of total direct pay less overtime rather than

Projection of Estimated Assets and Liabilities (\$000)

Year Beginning July 1	Annual Covered Payroll	Estimated City Contributions		Estimated Employee Contributions		Benefit Payments	Net Cash Flow	Market Value of Assets at End of Year	Unfunded Actuarial Liability (Surplus) at End of Year	Funded Percentage
		Amount	Percent	Amount	Percent					
2007	\$336,029	\$114,250	34.0 %	\$63,000	18.7 %	\$241,094	(\$147,629)	\$3,491,462	\$742,128	82 %
2008	347,790	111,641	32.1	68,000	19.6	244,993	(145,309)	3,636,877	682,816	84
2009	359,963	105,109	29.2	73,000	20.3	258,485	(152,548)	3,787,112	644,890	85
2010	372,561	102,082	27.4	78,000	20.9	274,091	(161,853)	3,940,426	618,998	86
2011	385,601	100,256	26.0	83,000	21.5	293,934	(175,304)	4,092,759	644,361	86
2012	399,097	99,375	24.9	93,000	23.3	314,342	(184,306)	4,248,664	662,206	87
2013	413,065	102,027	24.7	102,027	24.7	329,632	(189,107)	4,412,821	672,886	87
2014	427,523	103,888	24.3	107,027	25.0	341,626	(194,583)	4,585,226	679,963	87
2015	442,486	105,312	23.8	112,027	25.3	347,309	(193,688)	4,773,219	683,107	87
2016	457,973	106,250	23.2	117,027	25.6	355,829	(195,523)	4,975,279	681,907	88
2017	474,002	107,124	22.6	122,027	25.7	349,586	(182,576)	5,208,000	676,010	89
2018	490,592	107,440	21.9	127,027	25.9	359,078	(185,297)	5,457,668	664,981	89
2019	507,763	107,646	21.2	132,027	26.0	373,319	(192,699)	5,720,848	648,348	90
2020	525,535	107,735	20.5	137,027	26.1	393,243	(205,659)	5,992,899	625,539	91
2021	543,928	107,154	19.7	142,027	26.1	416,829	(222,258)	6,270,783	596,039	91
2022	562,966	105,838	18.8	147,027	26.1	441,610	(239,975)	6,553,834	559,172	92
2023	582,670	104,298	17.9	152,027	26.1	463,204	(254,425)	6,845,892	514,318	93
2024	603,063	102,521	17.0	157,027	26.0	483,063	(267,056)	7,149,618	460,743	94
2025	624,170	99,867	16.0	162,027	26.0	495,639	(272,256)	7,473,745	397,579	95
2026	646,016	96,256	14.9	167,027	25.9	502,668	(271,879)	7,825,815	324,010	96

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, 2007. The total covered payroll is assumed to increase by 3.5% per year. As actual economic (such as the actual investment return from July 1, 2007 through June 30, 2008) 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. It also assumes that new entrants receive the separate plan provisions detailed in Section VI. New entrants are assumed to linearly enter the plan over a 28 year period. The expected normal cost as a percentage of payroll for new entrants is 7.0%.

This projection is incomplete without the accompanying report.



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Summary of Active Participant Data as of July 1, 2007

Age Last Birthday	Completed Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	
15-19								
	Number							
	Tot Earnings							
20-24	Number	97						97
	Tot Earnings	3,591,054						3,591,054
	Avg Earnings	37,021						37,021
25-29	Number	253	71					324
	Tot Earnings	10,945,750	4,074,386					15,020,136
	Avg Earnings	43,264	57,386					46,358
30-34	Number	166	298	85				549
	Tot Earnings	7,803,098	18,175,781	5,847,870				31,826,749
	Avg Earnings	47,007	60,993	68,798				57,972
35-39	Number	99	231	624	103			1,057
	Tot Earnings	4,724,509	14,280,002	43,929,715	7,614,100			70,548,326
	Avg Earnings	47,722	61,818	70,400	73,923			66,744
40-44	Number	21	74	367	234	317		1,021
	Tot Earnings	888,809	4,547,872	25,515,957	17,591,104	24,147,800		73,283,220
	Avg Earnings	42,324	61,458	69,526	75,176	76,176		71,776
45-49	Number	4	4	100	63	575		962
	Tot Earnings	224,231	236,377	6,760,649	4,563,380	44,359,539		73,391,100
	Avg Earnings	56,058	59,094	67,606	72,435	77,147		76,290
50-54	Number		1	12	26	190		578
	Tot Earnings		59,457	762,414	1,936,415	14,640,014		45,577,306
	Avg Earnings		59,457	63,535	74,478	77,053		78,853
55-59	Number			1	5	77		243
	Tot Earnings			67,628	352,333	5,809,735		19,093,298
	Avg Earnings			67,628	70,467	75,451		78,573
60-64	Number					4		44
	Tot Earnings					322,929		3,408,105
	Avg Earnings					80,732		77,457
Over 64	Number					1		4
	Tot Earnings					70,063		289,813
	Avg Earnings					70,063		72,453
Total	Number	640	679	1,189	431	1,164	205	4,879
	Tot Earnings	28,177,452	41,373,874	82,884,233	32,057,332	89,350,080	42,136,111	336,029,107
	Avg Earnings	44,027	60,934	69,709	74,379	76,761	81,452	68,873

Average Age = 42.1 Average Service 15.9



Historical Active Participant Data

Valuation Date	Number of Participants	Average Age	Annual Covered Payroll (\$000)	Average Annual Covered Payroll	Percentage Increase in Average Covered Payroll
January 1, 1980	3,029	N/A	\$ 58,169	\$ 19,204	10.4%
January 1, 1982	3,243	N/A	89,529	27,607	43.8
July 1, 1984	3,997	N/A	111,489	27,893	1.0
July 1, 1986	4,526	33.5	125,963 ⁽¹⁾	27,831	(0.2)
July 1, 1987	4,494	34.4	126,960	28,251	1.5
July 1, 1988	4,239	35.0	121,667	28,702	1.6
July 1, 1989	4,105	35.7	122,803	29,915	4.2
July 1, 1990	4,073	36.2	126,665 ⁽²⁾	31,099	4.0
July 1, 1992	4,120	36.8	143,020	34,714	11.6
July 1, 1993	4,498	36.7	159,321	35,420	2.0
July 1, 1994	4,705	36.8	162,143	34,462	(2.7)
July 1, 1995	4,921	36.9	174,761	35,513	3.0
July 1, 1996 ⁽³⁾	4,395	35.1	150,903	34,335	(3.3)
July 1, 1997	4,282	35.5	149,631	34,944	1.8
July 1, 1998	4,247	35.9	153,479	36,138	3.4
July 1, 1999	4,253	36.3	187,967 ⁽⁴⁾	44,196 ⁽⁴⁾	22.3 ⁽⁴⁾
July 1, 2000	4,137	36.7	179,415	43,368	(1.9)
July 1, 2001 ⁽⁵⁾	5,325	40.2	264,226 ⁽⁶⁾	49,620 ⁽⁶⁾	14.4 ⁽⁶⁾
July 1, 2002	5,352	40.7	286,150	53,466	7.8
July 1, 2003	5,387	41.3	300,405	55,765	4.3
July 1, 2004	5,225	41.7	329,840	63,127	13.2
July 1, 2005	4,867	42.0	321,057 ⁽⁷⁾	65,966 ⁽⁷⁾	4.5 ⁽⁷⁾
July 1, 2006	4,785	42.3	327,080	68,355	3.6
July 1, 2007	4,879	42.1	336,029	68,873	0.8

(1) Reflects the July 5, 1986 pay decrease.

(2) Reflects the November 1, 1990 pay increase.

(3) For the July 1, 1996 to July 1, 2000 valuations, includes those participants currently accruing benefits (i.e. excludes current DROP participants).

(4) Definition of covered payroll changed from base pay to total direct pay less overtime.

(5) Beginning July 1, 2001, includes active participants eligible for DROP.

(6) Beginning July 1, 2001, the definition of total direct pay changed from the average of the last 26 pay periods to the highest bi-weekly pay period.

(7) Beginning October 9, 2004, pensionable pay is the total of the last 26 pay periods, excluding CMEPP and SOSPP.



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Summary of Inactive Participants as of July 1, 2007

	Number	Annual Benefits (\$000)	Average Annual Benefit
■ Retirees	2,070	\$ 84,062	\$ 40,610
■ Beneficiaries	516	17,082	33,105
■ Disabled Participants	113	3,919	34,681
■ Deferred Vesteds	<u>18</u>	<u>418</u>	<u>23,222</u>
■ Total	2,717	\$ 105,481	\$ 38,823

In addition to annual benefits, there is \$192,252,788 in PROP account balances and \$1,945,068 in QDRO DROP account balances.

Inactive Participants Added to and Removed from Rolls

Period Ended	Added to Rolls		Removed from Rolls		Rolls at the End of the Year		Percentage Increase in Annual Benefits	Average Annual Benefit
	Number	Annual Benefits (\$000)	Number	Annual Benefits (\$000)	Number	Annual Benefits (\$000)		
December 31, 1981	81	1,191	17	184	666	6,499	20.6	9,759
December 31, 1982	104	1,106	24	240	746	7,842	20.7	10,513
December 31, 1983	82	967	35	362	793	8,931	13.9	11,262
June 30, 1984	53	779	18	150	855	4,760	6.6	11,095
June 30, 1985	83	1,141	42	259	896	10,166	6.8	11,346
June 30, 1986	44	530	37	431	903	10,939	7.6	12,114
June 30, 1987	42	585	36	421	909	11,321	3.5	12,455
June 30, 1988	138	2,668	25	243	1,022	14,069	24.3	13,766
June 30, 1989	89	1,349	46	502	1,065	16,127	14.6	15,142
June 30, 1990	105	1,811	29	457	1,141	18,029	11.8	15,801
June 30, 1992	222	4,662	75	1,127	1,288	22,999	27.6	17,857
June 30, 1993	105	2,012	16	205	1,377	25,474	10.8	18,500
June 30, 1994	106	2,172	64	953	1,419	27,286	7.1	19,229
June 30, 1995	107	2,425	48	847	1,478	29,464	8.0	19,935
June 30, 1996*	893	19,109	36	602	2,335	48,624	65.0	20,824
June 30, 1997	182	3,481	29	618	2,488	52,772	8.5	21,211
June 30, 1998	159	3,483	28	589	2,619	63,957	21.2	24,420
June 30, 1999	150	3,770	46	1,001	2,723	70,432	10.1	25,866
June 30, 2000	233	6,421	36	857	2,920	76,401	8.5	26,165
June 30, 2001**	131	3,755	1,250	33,892	1,801	54,006	(29.3)	29,987
June 30, 2002	104	2,809	46	1,113	1,859	55,013	1.9	29,593
June 30, 2003	106	2,967	47	1,109	1,918	61,531	11.8	32,081
June 30, 2004	220	9,172	33	1,014	2,105	70,307	14.3	33,400
June 30, 2005	353	15,962	55	1,776	2,403	86,933	23.6	36,177
June 30, 2006	254	10,195	66	2,197	2,549	96,812	11.4	37,980
June 30, 2007	175	8,056	49	1,809	2,717	105,481	9.0	38,823

* From June 30, 1996 through June 30, 2001 includes DROP participants.
** Beginning July 1, 2001 excludes active participants eligible for DROP.



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Summary of Actuarial Methods and Assumptions

Actuarial Methods

Actuarial Value of Assets	Gains and losses in the market value of assets, based on the difference between the actual and the assumed rate of return, are recognized over five years.
Actuarial Cost Method	Entry Age Normal Method with liabilities allocated from date of entry to assumed retirement age. The Unfunded Actuarial Accrued Liability (Surplus), including effects of actuarial gains and losses, is amortized as a level percentage of pay over 30 years. 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
Payroll Growth Rate/Inflation	3.50% per year
Individual Merit Increase Rate	

<u>Service</u>	<u>Increase</u>
1	7.00%
2	0.25
3	0.25
4	5.00
5	9.50
6	8.50
7	0.75
8	0.50
9	7.75
10	1.00
11	9.00
12	0.75
13	1.25
14	1.50
15	0.50
16	5.50
17	0.75
18 and over	0.00

Individual Pay Increase Rate	Merit plus 3%
DROP Crediting Rate	Five year average returns using actual return through June 30, 2005 and estimated 8.5% returns thereafter, with a maximum 5-year average of 7.0%.

Summary of Actuarial Methods and Assumptions (continued)

Demographic Assumptions

Entry Age

Date sworn.

DROP Participation Rates

100% of eligible active participants are assumed to elect the DROP. Participants are assumed to elect the maximum duration for the back DROP, up to 20 years.

Retirement Rates

▶ Participants as of
October 9, 2004

Age	Service						
	20-21	22-23	24-25	26-27	28-29	30-39	40 and over
40-54	5%	5%	5%	10%	20%	20%	100%
55-59	5	10	10	30	30	40	100
60-64	10	10	25	50	50	50	100
65 and over	100	100	100	100	100	100	100

▶ New Participants after
October 9, 2004

Age	Service						
	20-21	22-23	24-25	24-27	28-29	30-37.5	37.5 and over
55-59	5%	10%	10%	30%	30%	40%	100%
60-64	10	10	25	50	50	50	100
65 and over	100	100	100	100	100	100	100

Mortality Rates

▶ Active participants and non-disabled 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 Deaths and Disabilities in the Line of Duty

100%.

Termination Rates and Terminated Vested Pension Benefit Election

Graduated rates (see table below for sample rates). 50% of members eligible to receive a terminated vested pension are assumed to elect the pension at age 60 instead of a refund of contributions.

Marital Status at Benefit Eligibility

▶ Percentage married

90%. (No beneficiaries other than the spouse assumed).

▶ Age difference

Husbands assumed to be three years older than wives.

Summary of Actuarial Methods and Assumptions (continued)

Valuation Earnings

Pay excluding CMEPP and SOSIP in the last 26 pay periods preceding the valuation date annualized and increased for one year of assumed pay increases, or \$30,000 if larger. Grandfathered CMEPP and SOSIP amounts were added back in on a prorated basis for determining transition earnings through 2007.

DROP balance and annuity

The DROP balance and annuity were calculated based on current valuation earnings projected to the back-DROP date. For members participating in the DROP as of July 1, 2007, the actual amounts were compared to the estimate, and the greater value was used. No comparison was made if the actual DROP entry date was more than a year from the estimated date.

Sample Rates

Sample Rates per 100 Participants

Age	Non-disabled Mortality		Disabled Mortality (Ultimate)	Termination	Disability	
	Male	Female	All	All	Male	Female
20	0.05	0.03	2.82	4.44	0.08	0.10
25	0.07	0.03	2.82	3.99	0.08	0.10
30	0.08	0.04	2.82	3.02	0.08	0.12
35	0.09	0.05	2.82	1.92	0.10	0.16
40	0.11	0.07	2.82	0.92	0.14	0.22
45	0.16	0.10	2.82	0.21	0.21	0.30
50	0.26	0.14	2.82	0.00	0.37	0.54
55	0.44	0.23	2.82	0.00	0.79	1.08
60	0.80	0.44	3.14	0.00	2.15	2.86
65	1.45	0.86	3.98	0.00	0.00	0.00

Changes in Methods and Assumptions Since the Prior Valuation

There were no changes in methods and assumptions since the prior valuation.

Summary of Plan Provisions

Covered Members

All police officers sworn before September 1, 1975 are covered under Plan 1, except those who elected by December 31, 1981 to participate in Plan 3.

All police officers sworn on or after September 1, 1975, but before September 1, 1981 are covered under Plan 2, except those who elected by December 31, 1981 to participate in Plan 3 and those from Police Cadet Classes 70 and 71 who elected to transfer to Plan 1.

All other police officers are covered by Plan 3, except those from Police Cadet Classes 70 and 71 who elected to pay additional contributions and transfer to Plan 1.

Final Compensation

Prior to November 28, 1998

Monthly base salary paid to the participant in his/her last month of service. For any participant from a position held for less than 3 years, final compensation is the average monthly base salary for the 3 years prior to retirement.

After November 28, 1998 but prior to July 1, 2001

Monthly total direct pay less overtime paid to the participant in his/her last month of service. For any participant from a position held for less than 3 years, final compensation is the average monthly base pay for the 3 years prior to retirement plus the other current components of total direct pay.

After July 1, 2001 but prior to October 9, 2004

Highest biweekly pay period (excluding overtime) during the last 26 pay periods annualized. Amounts not paid on a biweekly basis are deducted from period paid. Annual amounts are divided by 26 and added to the highest pay period, including motorcycle allowances.

After October 9, 2004

Average of the last three years of compensation (excluding exempt time, overtime and strategic officer staffing pay). This average will be phased in beginning with the pay period ending after October 9, 2004 until the new definition is fully phased in after 78 pay periods.

Service Retirement

Eligibility

- ▶ Sworn prior to October 9, 2004 20 years of service.
- ▶ Sworn on or after October 9, 2004 Age 55 with 10 years of service

Summary of Plan Provisions (continued)

Benefit

- ▶ Prior to November 1, 1955 \$75 per month plus \$2 per month for each year of service in excess of 25 years.
- ▶ After November 1, 1955 but prior to January 13, 1968 30% of final compensation plus 1% of final compensation for each year of service in excess of 20 years.
- ▶ After January 13, 1968 but prior to July 1, 1986
Plans 1 and 2: 30% of final compensation plus 2% of final compensation for each year of service in excess of 20 years.
Plan 3: 2% of final compensation for each year of service up to 40 years, reduced 0.42% for each month benefit commencement precedes age 55.
- ▶ After July 1, 1986 but prior to July 1, 1988 2% of final compensation for each year of service up to 40 years.
- ▶ After July 1, 1988 but prior to September 1, 1997 45% of final compensation plus 2% of final compensation for each year of service in excess of 20 years; maximum 80% of final compensation. Benefit based on prior formula is payable until July 1, 1991 and recomputed benefit is payable thereafter.
- ▶ After September 1, 1997 but prior to July 1, 2001 50% of final compensation plus 2% of final compensation for each year of service in excess of 20 years; maximum 80% of final compensation.
- ▶ After July 1, 2001 but prior to October 9, 2004 55% of final compensation plus 2% of final compensation for service in excess of 20 years.

The Pension System recomputed the benefit of each person who retired before July 1, 2001. The retiree's benefit was increased by the result of multiplying the difference between 55% and the percentage used at the time of retirement in computing the retiree's benefit for the first 20 years of service by the base salary of the retiree at the time of retirement. Retroactive cost-of-living increases were not applied to the increased benefit. This recomputed benefit is effective for all payments on or after July 1, 2001.

Summary of Plan Provisions (continued)

- After October 9, 2004
- Participants sworn prior to October 9, 2004 will receive the highest of the following alternatives using Final Average Compensation effective after October 9, 2004, from October 9, 2004 through October 7, 2007:
- 1) 2.25% of Final Average Compensation for each of the first 20 years of service plus 2% of Final Average Compensation for each year of service in excess of 20 years, with a maximum of 80% of Final Average Compensation.
 - 2) Benefit participant would have received had participant retired or entered the DROP immediately before October 9, 2004
 - 3) Benefit calculated using a sliding average of the pay received for the pay periods elapsed since October 9, 2004.

New participants after October 9, 2004:

2.25% of Final Average Compensation for each of the first 20 years of service plus 2% of Final Average Compensation for each year of service in excess of 20 years, with a maximum of 80% of Final Average Compensation.

Additional Benefits

An extra monthly benefit of \$150.00 is payable for life. Effective November 28, 1998, a \$5,000 lump sum is payable upon retirement for members sworn prior to October 9, 2004.

Terminated Vested Pension Benefit

Eligibility

More than 10 but less than 20 years of service. Termination on or after November 28, 1998.

Benefit

2.75% of final compensation times years of service. This benefit commences at age 60 or at termination of service if later.

Deferred Retirement Option Plan (DROP)

Eligibility

20 years of service and sworn in prior to October 9, 2004.

Benefit

- After September 1, 1995 but prior to September 1, 1997
- Eligible participants may elect to participate in the DROP until they leave active service. The member's retirement pension will be calculated based on service and earnings at the time the DROP is elected.

Summary of Plan Provisions (continued)

A notional account will be maintained for each DROP participant. This account will be credited with the following amounts while the member is participant of the DROP:

- The member's monthly retirement pension, including applicable cost-of-living adjustments,
- The member's contribution to the Pension System, and
- Investment earnings/losses at the rate of the Pension System's earnings/losses averaged over a five-year period. Effective July 1, 2001, this rate is subject to a minimum of 0%.

A benefit equal to the DROP account balance is paid at the time the member leaves active service. The payment is made as a single lump sum.

If a DROP participant suffers an on-duty disability resulting in the inability to perform his/her usual and customary duties as a police officer or dies in the line of duty, he (or his survivors) are allowed to revoke the DROP election and to receive the more generous on-duty disability or death benefits.

- ▶ After September 1, 1997 but prior to December 1, 1998 The Pension System recomputed the benefit of each person who entered the DROP before September 1, 1997. The benefit was increased in the same manner as the retiree's benefit.
- ▶ After December 1, 1998 but prior to July 1, 2001 The Pension System recomputed the benefit of each person who entered the DROP before December 1, 1998. The benefit was recalculated based on Total Direct Pay less overtime upon entry to the DROP. This recomputed benefit is effective for all payments on or after December 1, 1998.
- ▶ After July 1, 2001 but prior to October 9, 2004 The Pension System recomputed the benefit of each person who entered the DROP before July 1, 2001. The member's benefit was increased by the result of multiplying the difference between 55% and the percentage used at the time of DROP entry in computing the member's benefit for the first 20 years of service by the base salary of the member at the time of DROP entry. Retroactive cost-of-living increases were applied to the increased benefit. The account balance for each participant was recomputed as if this new benefit had been effective since DROP entry.
- ▶ After October 9, 2004 A minimum of 3.00% interest will be credited to existing DROP accounts with a maximum of 7.00%. If the actuary certifies that past service costs are fully funded, the credit may be as high as 10.00%.

Summary of Plan Provisions (continued)

Benefit Recalculation	Effective July 1, 2001, monthly benefit at retirement will be recalculated to be the greater of (i) current monthly benefit, or (ii) monthly benefit based on service at DROP entry and Final Compensation at retirement date.
Back DROP Option	Effective on July 1, 2001, a back DROP option is available for all eligible participants. The DROP account is recalculated under the option based on what the account balance would have been had the participant elected the DROP earlier than he/she actually did. The initial DROP entry date cannot be backdated prior to September 1, 1995 or prior to 20 years of credited service, and must be on the first of the month selected.

Postretirement Option Plan (PROP)

Eligibility	Retired from DROP and sworn in prior to October 9, 2004.
Benefit	
▶ After November 28, 1998 but prior to July 1, 2001	A retired member is allowed to leave all or a portion of their DROP account in the System. These accounts are credited every calendar year with the 30-year Treasury bond rate as of June of the preceding year.
▶ After July 1, 2001	The interest rate earned on PROP accounts will be the same as the interest rate credited to DROP accounts, including a minimum credited rate of 0%.

Partial Lump Sum Optional Payment (PLOP)

Eligibility	Participant on or after October 9, 2004.
Benefit	
▶ After October 9, 2004	Up to 20% of the actuarial value of the accrued pension at retirement.

Disability Retirement

Eligibility	Effective July 1, 2001, participant partially or totally disabled is eligible for Disability Retirement as defined below: <ul style="list-style-type: none">— Total: Disability is defined as “unable to perform his/her usual and customary duties as a police officer”.— Partial: Disability is an impairment which renders the participant unable to work as a police officer and which is expected to last 12 months.
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Summary of Plan Provisions (continued)

Benefit

- ▶ Duty-connected
Total: The service retirement benefit accrued to date of disability (or 20 years, if greater).
Partial: 35% of final compensation is payable for life or as long as he remains incapacitated.
- ▶ Not duty-connected
Total or partial: The disability benefit is 2.75% of final compensation times years of service up to 20, minimum 27.5% of final compensation.

Additional Benefits

For participants before October 9, 2004, an education allowance equal to 100% of final compensation less disability benefit is payable for up to four years for off-duty or duty-related disability.

Proportionate members injured while on-duty as a municipal worker will receive immediate off-duty benefit upon Board approval.

Survivor Benefits

Eligibility

Surviving spouses and dependent children and parents of participants, including surviving spouses of retired or disabled participants who were not married at the time of retirement or disability, provided the spouse was married to the participant for at least 5 years at the time of death.

Benefit

- ▶ Prior to September 1, 1997
If duty-connected: monthly lifetime benefit equal to 100% of final compensation at date of death.
If not duty-connected: monthly lifetime benefit equal to 100% of the service retirement benefit the participant had accrued at the time of death.
Spouse's benefit upon death after retirement: monthly lifetime benefit equal to actual benefit payable at time of death.
Dependent children's benefit if no surviving spouse: the benefit that would have been payable to the spouse is divided equally among the dependent children.
If there is a surviving spouse, the dependent children of Plan 1 and Plan 2 participants receive \$25 per month. Dependent children include unmarried children who are under age 18, and for Plan 3, full-time students under age 22, or permanently disabled children.

Summary of Plan Provisions (continued)

- Dependent parent's income if no surviving spouse or children, but there is a dependent parent: the benefit that would have been payable to the spouse will be paid to the dependent parent.
- ▶ After September 1, 1997 but prior to July 1, 2001 The Pension System recomputed the benefit of each survivor whose original benefit was computed prior to September 1, 1997. The benefit was increased in the same manner as the retiree's benefit.
 - ▶ After July 1, 2001 The Pension System recomputed the benefit of each survivor whose original benefit was computed prior to July 1, 2001. The benefit was increased in the same manner as the retiree's benefit.
- Additional Benefits
- Effective December 1, 1998, a \$5,000 lump sum is paid upon the death of an active member who was sworn in prior to October 9, 2004.
- Effective July 1, 2001, an extra monthly benefit of \$150.00 is payable for life. Children receiving equivalent of the spouse's benefit do not receive this additional benefit.

Benefit Adjustments

Cost-of-Living

- ▶ Prior to October 9, 2004 Monthly benefits for participants receiving payments are increased each April 1 by 2/3 of the increase in the Consumer Price Index for All Urban Consumers (CPI-U) for the preceding calendar year. Effective September 1, 1997 this increase is subject to a minimum of 3.0% per year compounded and a maximum increase of 8.0% per year compounded.
- ▶ After October 9, 2004 Monthly benefits for participants receiving payments are increased each April 1 by 80% of the increase in the Consumer Price Index for All Urban Consumers (CPI-U) for the preceding year, with a minimum of 2.4% and a maximum of 8%.

13th Benefit Check

Effective November 28, 1998, a 13th benefit check is paid to current retirees and DROP members when:

- The assets on the fund equal or exceed the liabilities after the 13th benefit check is paid.
- The return on investments for the preceding fiscal year exceeds 9.25%.
- The payment of the benefit will not cause the City of Houston's contribution to the System to increase.
- Effective October 9, 2004, the funded ratio of the plan must be at least 120% for the 13th check to be paid out.

Summary of Plan Provisions (continued)

Service Adjustments

Effective November 28, 1998, participants with previous service with the City in non-classified positions may use that service to satisfy the service requirement of 20 years for retirement purposes only.

Effective July 1, 2001, participants who have service credit in more than one City of Houston Pension Plan may use their combined service to qualify for DROP participation.

Effective July 1, 2001, participants involuntarily transferred to the System from the Houston Municipal Employees System will receive service under this plan for years worked while serving as a City Marshall, Airport Police or Park Police.

Contributions

Employee Contributions

- ▶ Prior to December 1, 1998 Each participant contributes 8.75% of base salary.
- ▶ After December 1, 1998 but before October 9, 2004 Each participant contributes 8.75% of average total direct pay less overtime.
- ▶ After October 9, 2004
 - Members sworn in prior to October 9, 2004 Each participant contributes 9.00% of pay. The additional 0.25% will be credited to the Plan's general fund.
 - Others Each participant contributes 10.25% of pay, which will be credited to the Plan's general fund.

Refunds

Refunds of contributions are made if

- (i) The participant dies before 10 years of service and the death is not duty-connected,
- (ii) The participant dies with no eligible survivor,
- (iii) A Plan 1 or 2 participant leaves service before eligibility for retirement after completing 5 years of service, or
- (iv) A Plan 3 participant leaves service with less than 20 years of service.

Contributions are refunded without interest.

Summary of Plan Provisions (continued)

Employer Contribution

The city will follow the following contribution schedule:

Fiscal Year Ending (June 30)	City Contribution Amount
2001	\$ 30,645,000
2002	32,645,000
2003	34,645,000
2004	36,645,000
2005	36,645,000
2006	16% of total compensation, with a minimum of \$53,000,000
2007-2012	\$5,000,000 above the prior year's payment

Beginning in Fiscal Year 2013 and continuing until the plan's funded ratio is 100%, payments will increase each year by \$5,000,000 or, if the scheduled payment is less than the actuarial rate, \$10,000,000. In addition, once the plan's funded ratio is 100%, the city will pay the actuarially required rate, but not less than 16% of covered pay.

Additionally, beginning in Fiscal Year 2013 and once the funded ratio reaches 75%, if the funded ratio drops below 75%, the City will pay additional amounts in the following fiscal year to return the plan to 75% funded. Once the fund ratio reaches 80%, the City will contribute additional amounts to return the plan to 80% funded.

Changes in Plan Provisions from Since the Prior Valuation

There were no changes to the plan provisions from the prior valuation.

Actuarial Certification, Reliances and Distribution

This report describes the results of an actuarial valuation of the Houston Police Officers Pension System. The Houston Police Officers Pension System retained Towers Perrin to perform this actuarial valuation for the purposes of determining the funding status for the plan year July 1, 2007 through June 30, 2008.

The consulting actuaries are members of the Society of Actuaries and other professional actuarial organizations and meet 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.

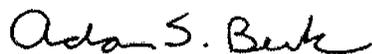
The actuarial methods and assumptions used in this valuation were selected by the Board of Trustees. The Board has sole authority to determine the actuarial assumptions. In our opinion, the actuarial assumptions used (i) are appropriate for purposes of the valuation, (ii) in the aggregate, are reasonably related to the experience of the Fund and to reasonable expectations as of the valuation date, and (iii) meet the parameters established by Governmental Accounting Standard Board Statement No.25.

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.

It should be noted that other than the City agreement to maintain a funded status floor as specified under the 2004 Meet and Confer (see City Contribution Schedule on page 28), the City funding schedule could potentially not be sufficient to cover all future benefit payments of the Houston Police Officers Pension System. Moreover, it is possible that the Houston Police Officers Pension System will fall below the funded status floor as actual experience differs from assumed and/or assumptions change. Towers Perrin has not been provided detailed provisions on how the funded status floor will be maintained if the funded status declines below specified levels.

The information contained in this report was prepared for the internal use of the Houston Police Officers Pension System and its auditors in connection with our actuarial valuation of the pension plan. It is neither intended nor necessarily suitable for other purposes. The Houston Police Officers Pension System may also distribute this actuarial valuation report to the appropriate authorities who have the legal right to require the Houston Police Officers Pension System to provide them with this report, in which case, the Houston Police Officers Pension System will use best efforts to notify Towers Perrin in advance of this distribution. Further distribution to, or use by, other parties of all or part of this report is expressly prohibited without Towers Perrin's prior written consent.



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Towers Perrin
December, 2007