MISSOURI DEPARTMENT OF TRANSPORTATION AND HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM (MPERS)

ACTUARIAL VALUATION REPORT

AS OF JUNE 30, 2007

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October 2, 2007

The Retirement Board
Missouri Department of Transportation
and Highway Patrol Employees' Retirement System
P.O. Box 1930
Jefferson City, Missouri 65102-1930

Ladies and Gentlemen:

The results of the regular annual actuarial valuation as of June 30, 2007 of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System, as established by Chapter 104 of the Missouri Revised Statutes, are presented in this report.

The member statistical data required for the valuation together with pertinent data on financial operations was furnished by your Executive Director and his staff. Data was reviewed for reasonableness, but was not audited by the actuary. The actuarial assumptions used in making the valuation are shown in Section E of this report.

Your attention is directed particularly to the summary of the results on pages 2-6.

The actuarial calculations were performed in accordance with accepted actuarial procedures. The calculations were based upon current plan provisions of the Retirement System, the plan provisions of the Missouri State Employees Year 2000 Plan and upon actuarial assumptions that are internally consistent and reasonable based upon the actual experience of the System.

The cooperation of the Executive Director and the staff in furnishing materials requested for this valuation, and the complete and excellent condition of the records, is acknowledged with appreciation.

Respectfully submitted,

Brian B. Murphy, F.S.A.

Kenneth G. Alberts

SUMMARY

This report contains the results of the June 30, 2007 valuation. The table below shows a summary of the data used in the valuation as well as the unfunded actuarial accrued liability for the two experience rated groups. This data was the basis for determining valuation results and recommended employer contribution rates.

	Non-Uniformed				
	Civilian Patrol Employees	**MoDOT Employees**	**Non-Uniformed Total**	**Uniformed Patrol**	**Total**
Participants					
Active Members					
Closed Plan	708	4,183	4,891	800	5,691
Year 2000 Plan	427	2,268	2,695	254	2,949
Total Active Members	1,135	6,451	7,586	1,054	8,640
Total Active Members Prior Year	*1,106*	*6,867*	*7,973*	*1,060*	*9,033*
Retiree -- Regular Pensioners					
Closed Plan	409	3,889	4,298	741	5,039
Year 2000 Plan	270	1,664	1,934	1	1,935
Total Regular Pensioners	679	5,553	6,232	742	6,974
Self Insured Disability Pensioners	7	103	110	2	112
Fully Insured Disability Pensioners	1	52	53	2	55
Terminated Vested Members	205	1,253	1,458	151	1,609
Total	2,027	13,412	15,439	1,951	17,390
Active Member Valuation Payroll	$39,772,873	$259,468,418	$299,241,291	$61,601,130	$360,842,421
Active Mem. Val. Payroll Prior Year	*$35,842,213*	*$258,578,248*	*$294,420,461*	*$54,194,238*	*$348,614,699*
Unfunded Actuarial Accrued Liability	N/A	N/A	$937,436,779	$274,023,626	$1,211,460,405

The June 30, 2007 valuation results are used to determine the contribution rate for the plan year beginning July 1, 2008. A summary of valuation results and recommended contribution rates follows.

The **total contribution rate** for the plan year beginning July 1, 2008 is shown below.

	Employer Contribution Rates Expressed As % of Active Payroll For Total Benefits					
	Non-Uniformed				Uniformed Patrol	
	FY2009					
	Civilian Patrol Employees	MoDOT Employees	Total	FY2008 Total#	FY2009	FY2008#
Normal Cost	11.16%	11.16%	11.16%	11.17%	13.03%	13.12%
Unfunded Liability	18.42%	18.42%	18.42%	18.72%	26.05%	28.37%
Expenses	0.58%	0.58%	0.58%	0.55%	0.58%	0.55%
Disability Insurance	0.57%	0.57%	0.57%	0.60%	0.57%	0.60%
Total	30.73%	30.73%	30.73%	31.04%	40.23%	42.64%
Illustrative $	$12,222,204	$79,734,645	$91,956,849	$91,388,111	$24,782,135	$23,108,423

The dollar contribution amounts shown above are illustrated and based on the June 30, 2007 valuation payroll. Actual dollar contributions should be based on covered payroll for the fiscal year beginning July 1, 2008. The total contribution is based on a closed 28-year amortization period from July 1, 2008 of all UAAL in accordance with Board policy adopted September 28, 2006.

The combined contribution rate is less than the actual benefit payout rate. The difference is intended to be made up by investment return. The ability to contribute less than the benefit payout is one of the advantages of a funded retirement plan.

\# *After the June 30, 2007 report was issued, the disability premium was reduced to 0.57% and the Non-Uniformed rate was reduced to 31.01% and the Uniformed group was reduced to 42.61%.*

SUMMARY
(CONTINUED)

Assumption and Methods: There was a minor change in the select withdrawal rates for the uniformed group to better coordinate with the ultimate withdrawal rates, as recommended by the auditing actuary. This change resulted in a small increase in accrued liabilities (less than 0.1%) and a small decrease in normal cost. Overall this change resulted in a decrease in the compound contribution rate of 0.04% of payroll for the uniformed group.

Experience: Aggregate experience during the year was more favorable than expected resulting in an experience gain of approximately $30 million which is approximately 1.1% of beginning of year accrued liabilities. The primary source of experience gain was the return on investments. System assets earned 18.04% this year (please see page C-2) compared with an assumed rate of 8.25%. This gain was partially offset by losses related to pay increases (pays increased more than projected). The aggregate gain helped improve the funded status of the fund from 55.5% funded last year to 58.2% funded this year.

Contributions are computed to be a level percent of payroll. This means that if all assumptions are met (a rare occurrence) that the computed contribution rate will not change from year to year and computed contribution dollars will increase by the payroll growth assumption from year to year. The illustrative dollar contribution last year was $114,842,548. The payroll growth assumption is 3.75%. Therefore the expected illustrative dollar contribution this year (before actual experience) was $119,149,144. The actual illustrative dollar contribution this year is $116,738,984. This lower result is due to the overall favorable experience that occurred during the year.

Funding Policy: The total contribution is based on normal cost plus a 28-year amortization of unfunded actuarial accrued liabilities from July 1, 2008. This policy was adopted by the Retirement Board on September 28, 2006.

SUMMARY - (CONTINUED)

Rate Reconciliation: The table below shows the computed rate last year and the approximate effect of the changes that occurred during the year.

	Non-Uniform	Uniform
Computed employer contribution rate, prior valuation	31.04%	42.64%
Effects of:		
Change in disability premiums	(0.03%)	(0.03%)
Revised methods and assumptions	0.00%	(0.04%)
'06/'07 recognized investment gain	(1.44%)	(2.17%)
'06/'07 liability experience loss	0.76%	2.70%
Change in administrative expenses	0.03%	0.03%
Misc (demographic, payroll weighting, contribution delay, etc.)	0.37%	(2.90%)
Computed employer contribution rate, current valuation	30.73%	40.23%

Accelerated Amortization Schedule: In accordance with RSMo 105.684 we have computed employer contribution rates under a closed 25-year period, beginning on July 1, 2008 and ends on June 30, 2033.

Non-Uniformed	Uniformed Patrol
31.90%	41.87%

SUMMARY - (CONCLUDED)

Funded Status of Retiree Liability: The chart below indicates the funding status of retiree liabilities on a funding value asset basis and a market value asset basis:

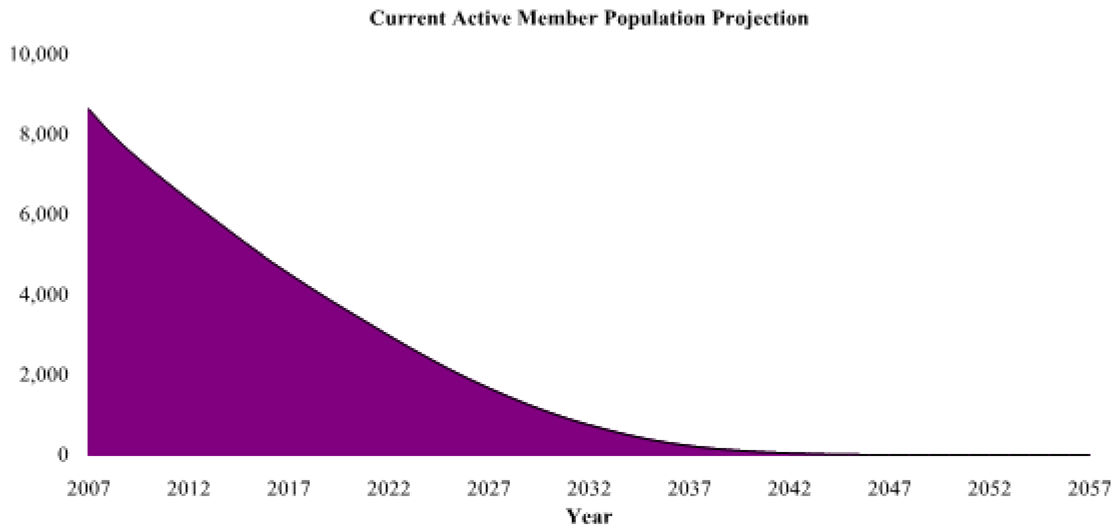
Asset Basis	Non-Uniformed	Uniformed	Total
Funding Value	91.0%	100.0%	93.1%
Market Value	98.5%	100.0%	100.0%

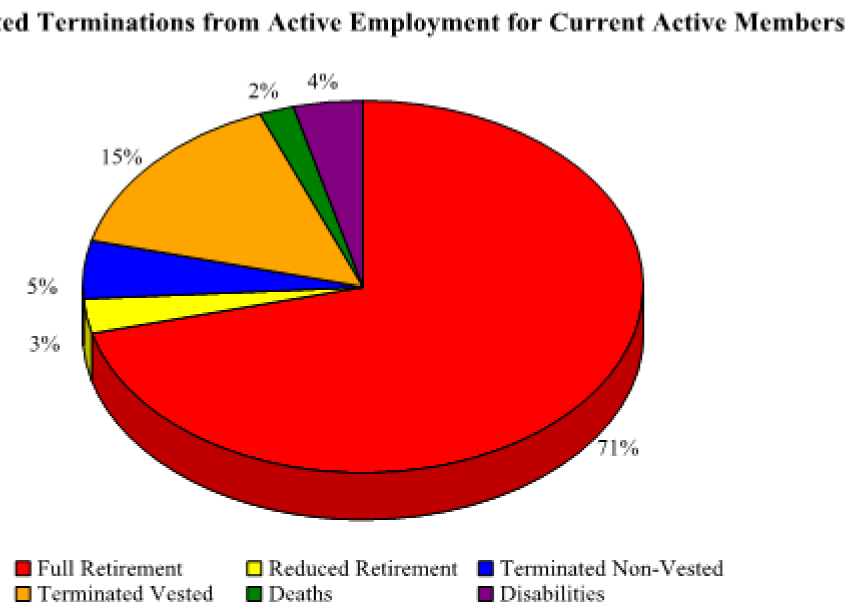
Conclusion: Based upon the results of the June 30, 2007 regular annual actuarial valuation, it is our opinion that the Missouri Department of Transportation and Highway Patrol Employees' Retirement System continues to be financed in accordance with actuarial principles of level percent of payroll financing. This statement is based upon the fact that the employer is contributing to the system based upon actuarially determined rates and presumes a continuation of payment of actuarially determined contributions. We are pleased to report that for a fourth year in a row the funded ratio has increased. (see p.10)

SUMMARY OF KEY VALUATION RESULTS

Actuarial Present Value	June 30, 2007 (1) Actuarial Present Value	June 30, 2007 (2) Portion Covered By Future Normal Cost Contributions	June 30, 2007 (3) Actuarial Accrued Liabilities (1) - (2)	June 30, 2006 Actuarial Accrued Liabilities
Active Members				
Service retirement benefits based on service rendered before and likely to be rendered after valuation date	$ 1,296,708,446	$ 344,699,873	$ 952,008,573	$ 884,197,081
Disability benefits likely to be paid to present active members who become totally and permanently disabled	44,599,250	11,661,561	32,937,689	31,750,543
Survivor benefits likely to be paid to widows and children of present active members who die before retiring	27,766,962	8,747,525	19,019,437	17,763,426
Separation benefits likely to be paid to present active members	51,227,381	22,977,443	28,249,938	26,734,937
Active Member Totals	$ 1,420,302,039	$ 388,086,402	$ 1,032,215,637	$ 960,445,987
Terminated Vested Members			55,036,195	46,104,940
Retired Lives			1,810,015,577	1,733,886,910
Total Actuarial Accrued Liability			$ 2,897,267,409	$ 2,740,437,837
Actuarial Value of Assets			1,685,807,004	1,521,142,953
Unfunded Actuarial Accrued Liability			$ 1,211,460,405	$ 1,219,294,884

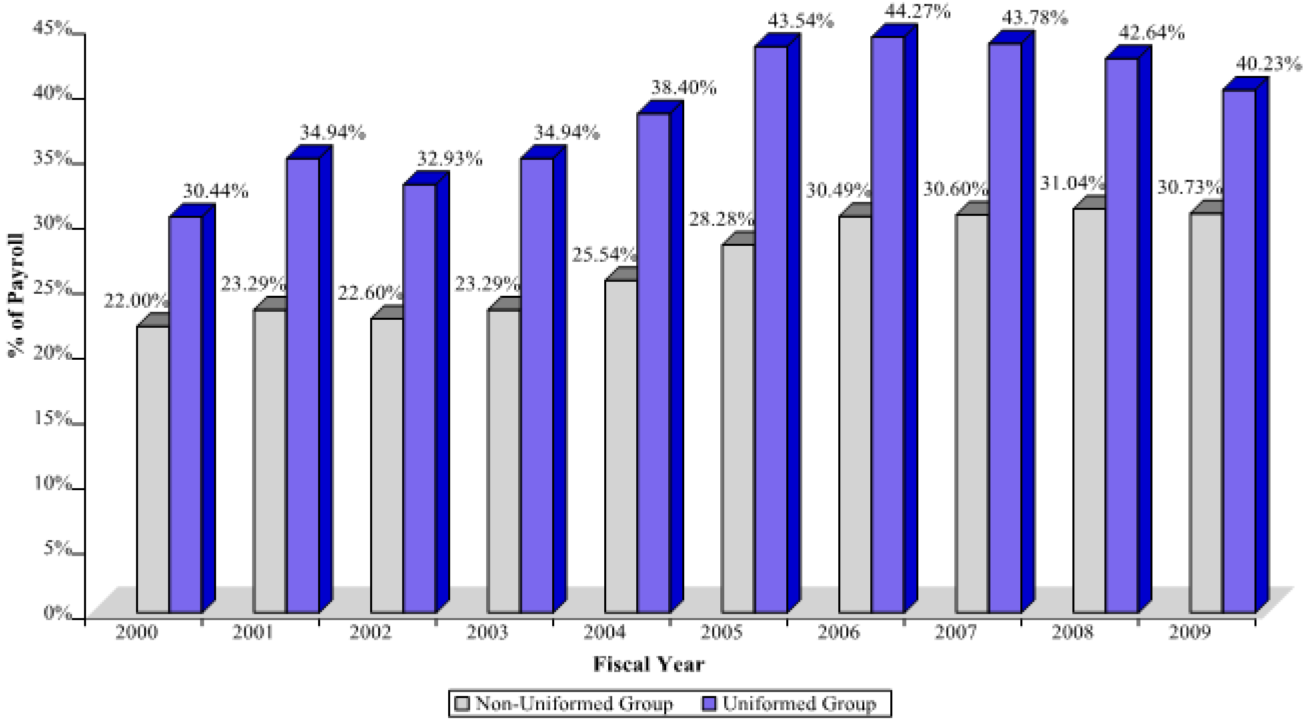
EXPECTED DEVELOPMENT OF PRESENT POPULATION AS OF JUNE 30, 2007



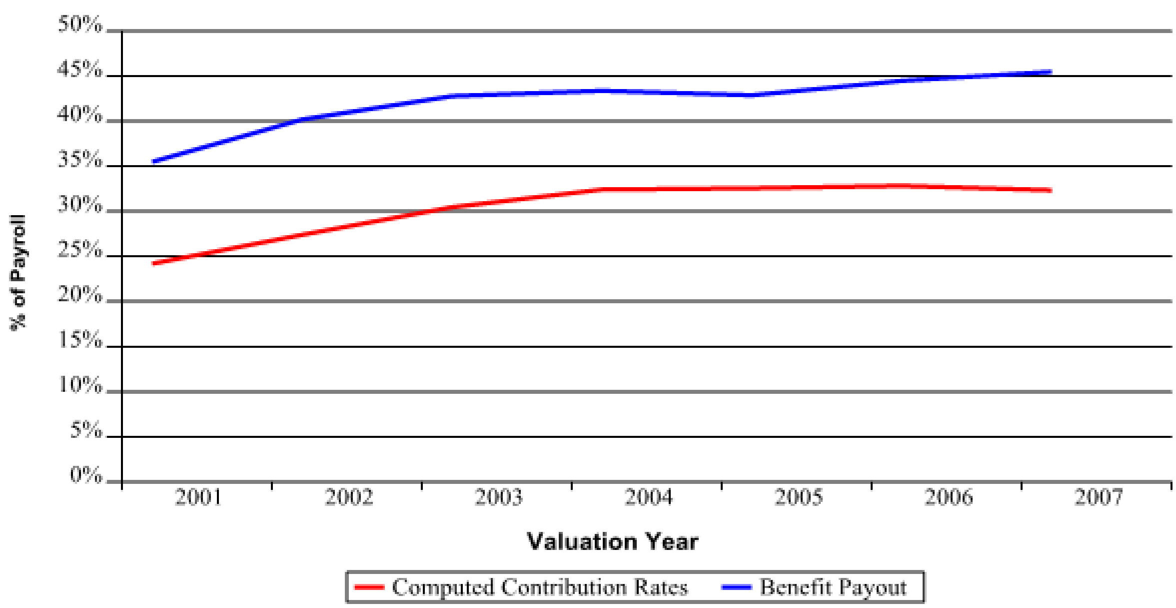


The charts show the expected future development of the present population in simplified terms. The retirement system presently covers 8,640 active members. Eventually, 5% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Of the present population, 89% is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service with a vested benefit and 6% of the present population is expected to become eligible for death-in-service or disability benefits. Within 11 years, over half of the covered membership is expected to consist of new hires.

Computed Contribution Rates

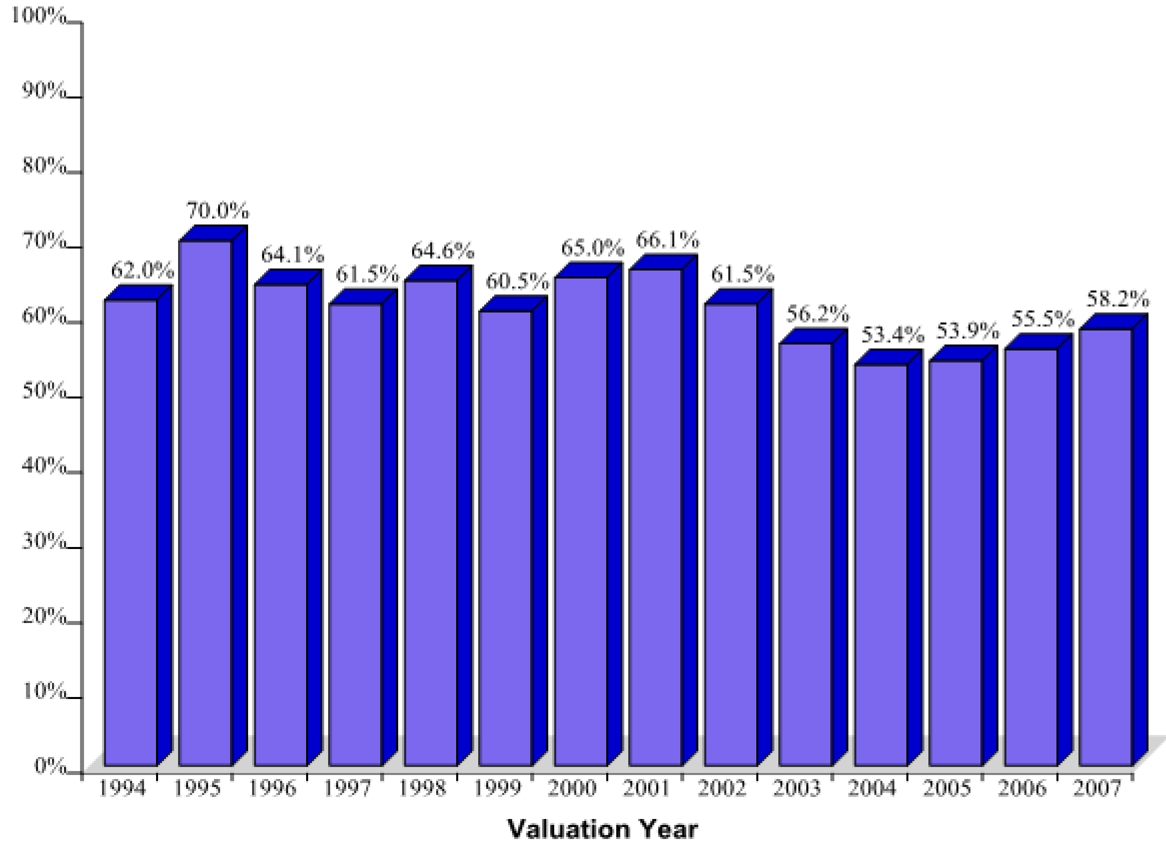


Contribution Rates vs. Benefit Payout



HISTORICAL FUNDED RATIOS

Actuarial Value of Assets as Percents of Accrued Liabilities
(Funded Ratio)



SECTION A

VALUATION RESULTS

Computed Contributions to Support Benefits
For Plan Year Beginning July 1, 2008
Contributions Computed as of June 30, 2007

Contributions for	**Non-Uniformed Employees**	**Uniformed Patrol**	**Total**
Normal Cost			
Age & service benefits	9.75%	12.16%	10.16%
Disability benefits #	0.44%	0.16%	0.39%
Survivor benefits	0.26%	0.25%	0.26%
Separation benefits	0.71%	0.46%	0.67%
Total Normal Cost	11.16%	13.03%	11.48%
Unfunded Actuarial Accrued Liabilities*	18.42%	26.05%	19.72%
Expense Provision	0.58%	0.58%	0.58%
Disability Insurance	0.57%	0.57%	0.57%
Total Contribution Rate	30.73%	40.23%	32.35%
Illustrative Dollar Contribution	$ 91,956,849	$ 24,782,135	$116,738,984
Prior Year			
Total Contribution Rate	31.04%	42.64%	32.84%
Illustrative Dollar Contribution	$ 91,388,111	$ 23,108,423	$114,496,534

 # Includes costs for benefits payable after conversion to normal retirement and/or benefits payable to survivors. Costs for disability benefits payable prior to conversion are shown under Disability Insurance which is outsourced.

** Amortized as a level-percentage of payroll over 28 years from July 1, 2008.*

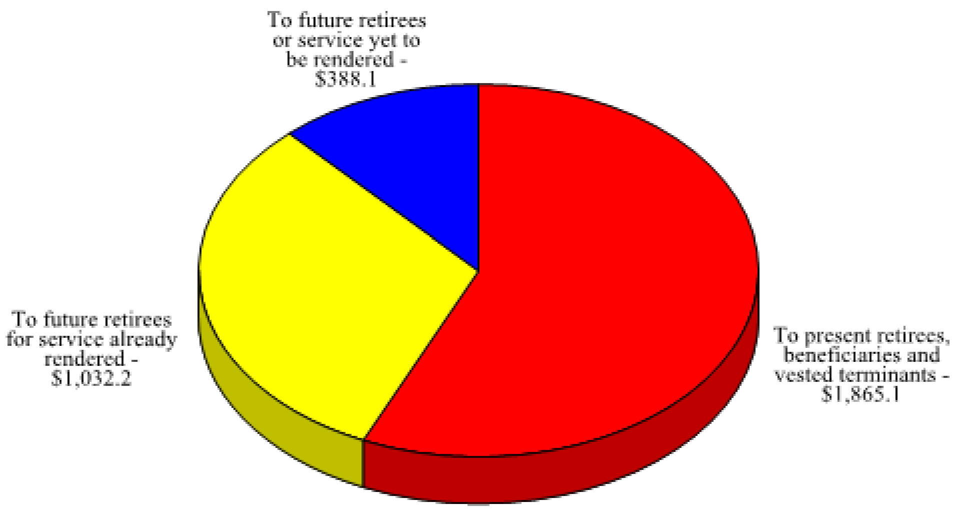
DEVELOPMENT OF LIABILITIES AS OF JUNE 30, 2007

	Non-Uniformed Employees	Uniformed Patrol	Total
Present Value of Future Benefits - Inactives			
Retirees and Survivors	$ 1,379,265,225	$ 399,728,929	$ 1,778,994,154
Disability Pensioners	29,246,952	1,774,471	31,021,424
Vested Terminated Employees	46,564,266	8,471,929	55,036,195
Subtotal PVFB - Inactives	1,455,076,443	409,975,329	1,865,051,772
Present Value of Future Benefits - Actives			
Age & Service benefits	963,910,583	332,797,863	1,296,708,446
Normal and Work Related Disability benefits	40,633,982	3,965,268	44,599,250
Survivor benefits	21,661,911	6,105,051	27,766,962
Separation benefits	42,379,410	8,847,971	51,227,381
Subtotal PVFB - Actives	1,068,585,886	351,716,153	1,420,302,039
Total Present Value of Future Benefits	2,523,662,329	761,691,482	3,285,353,811
Less Present Value of Future Entry Age Normal Costs	305,049,648	83,036,754	388,086,402
Equals Actuarial Accrued Liability	2,218,612,681	678,654,728	2,897,267,409
Less Actuarial Value of Assets	1,281,175,902	404,631,102	1,685,807,004
Equals Unfunded Actuarial Accrued Liabilities	937,436,779	274,023,626	1,211,460,405
28-Year Amortization Payment on UAAL	$ 59,335,087	$ 17,270,382	$ 76,605,469
as a % of Projected Payroll	18.42%	26.05%	19.72%

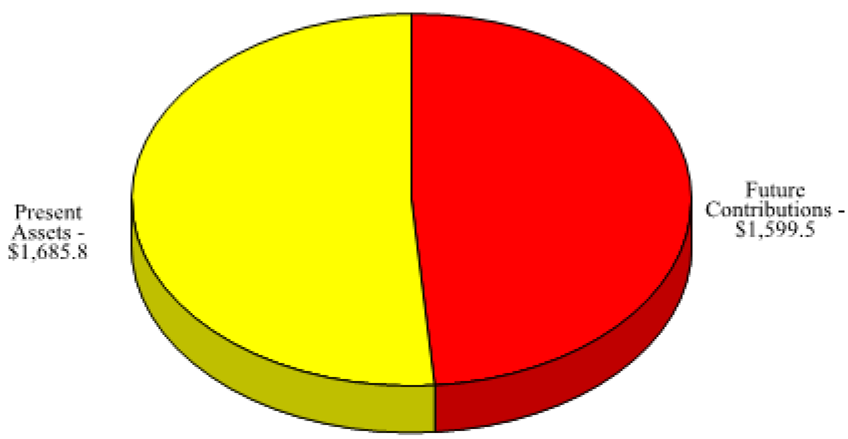
System Resources & Obligations
Sources and Uses of $3,285.4 Million
as of June 30, 2007

($ Millions)

Uses of Funds



Sources of Funds



Financing Unfunded Actuarial Accrued Liabilities (UAL) which were Calculated Using a Wage Inflation Assumption of 3.75% and an Investment Return Assumption of 8.25% Compounded Annually
28-Year Amortization

Fiscal Year Ending June 30	Active Employee Payroll	Unfunded Actuarial Accrued Liability at End of Year	Annual UAAL Contributions During Fiscal Year: Dollars	Annual UAAL Contributions During Fiscal Year: % of Payroll	UAAL at Year End as % of Payroll
2007	$360,842,421	$1,211,460,405			335.7%
2008	374,374,012	1,233,014,625	$75,698,425	20.22%	329.4%
2009	388,413,037	1,254,952,336	76,595,051	19.72%	323.1%
2010	402,978,526	1,275,707,936	79,467,365	19.72%	316.6%
2011	418,090,221	1,295,071,699	82,447,392	19.72%	309.8%
2012	433,768,604	1,312,812,392	85,539,169	19.72%	302.7%
2013	450,034,927	1,328,675,340	88,746,888	19.72%	295.2%
2014	466,911,237	1,342,380,328	92,074,896	19.72%	287.5%
2015	484,420,408	1,353,619,326	95,527,704	19.72%	279.4%
2016	502,586,173	1,362,054,014	99,109,993	19.72%	271.0%
2017	521,433,154	1,367,313,105	102,826,618	19.72%	262.2%
2018	540,986,897	1,368,989,432	106,682,616	19.72%	253.1%
2019	561,273,906	1,366,636,794	110,683,214	19.72%	243.5%
2020	582,321,677	1,359,766,528	114,833,835	19.72%	233.5%
2021	604,158,740	1,347,843,798	119,140,104	19.72%	223.1%
2022	626,814,693	1,330,283,562	123,607,857	19.72%	212.2%
2023	650,320,244	1,306,446,206	128,243,152	19.72%	200.9%
2024	674,707,253	1,275,632,803	133,052,270	19.72%	189.1%
2025	700,008,775	1,237,079,973	138,041,730	19.72%	176.7%
2026	726,259,104	1,189,954,315	143,218,295	19.72%	163.8%
2027	753,493,820	1,133,346,362	148,588,981	19.72%	150.4%
2028	781,749,838	1,066,264,033	154,161,068	19.72%	136.4%
2029	811,065,457	987,625,534	159,942,108	19.72%	121.8%
2030	841,480,412	896,251,661	165,939,937	19.72%	106.5%
2031	873,035,927	790,857,457	172,162,685	19.72%	90.6%
2032	905,774,774	670,043,170	178,618,785	19.72%	74.0%
2033	939,741,328	532,284,453	185,316,990	19.72%	56.6%
2034	974,981,628	375,921,744	192,266,377	19.72%	38.6%
2035	1,011,543,439	199,148,755	199,476,366	19.72%	19.7%
2036	1,049,476,318	0	206,956,730	19.72%	0.0%

GASB No. 25
Schedule of Funding Progress*
June 30, 2007

Year Ending June 30	Actuarial Asset Value	Entry Age Accrued Liability	Unfunded Accrued Liability (UAAL)	Funded Ratio	Estimated Covered Payroll		UAAL as a Percentage of Covered Payroll
1991	$ 560,976,822	$ 841,195,967	$ 280,219,145	66.69%	$ 220,856,988	**	126.88%
1992	622,018,133	904,097,721	282,079,588	68.80%	220,919,382		127.68%
1993	688,963,225	1,000,704,491	311,741,266	68.85%	228,032,159		136.71%
1994	746,946,221	1,204,313,635	457,367,414	62.02%	236,748,214		193.19%
1995	931,031,253	1,330,909,279	499,878,026	69.95%	243,561,510		205.24%
1996	916,553,828	1,429,910,844	513,357,016	64.10%	254,712,739		201.54%
1997	1,015,906,708	1,651,811,690	635,904,982	61.50%	271,070,643		234.59%
1998	1,126,961,804	1,744,052,411	617,090,607	64.62%	278,690,426		221.43%
1999 +	1,242,744,403	2,052,700,427	809,956,023	60.54%	288,068,083	**	281.17%
2000 #	1,422,796,011	2,188,826,322	766,030,311	65.00%	301,421,805	**	254.14%
2001	1,520,800,409	2,301,402,527	780,602,118	66.08%	323,400,023	**	241.37%
2002	1,450,507,432	2,358,452,163	907,944,731	61.50%	308,654,239	**	294.16%
2003	1,363,952,522	2,418,145,741	1,054,193,219	56.20%	319,345,949	**	330.11%
2004	1,331,588,207	2,492,918,976	1,161,330,769	53.41%	316,224,468	**	367.25%
2005 #	1,417,348,982	2,627,409,025	1,210,060,043	53.94%	334,030,151	**	362.26%
2006	1,521,142,953	2,740,437,837	1,219,294,884	55.51%	341,227,890	**	357.33%
2007 #	1,685,807,004	2,897,267,409	1,211,460,405	58.19%	370,598,675	**	326.89%

* *Prior to 2003 this schedule was not required for the LTD Plan because it used the aggregate funding method. Therefore the assets and liabilities were excluded prior to 2003. In 2003 the LTD Plan was merged into the base plan. Assets and liabilities for existing LTD members are included beginning in 2003.*

** *Values are estimated from contribution rate and amount.*

\+ *Introduction of Year 2000 Plan; Change in Actuary.*

\# *New assumptions adopted.*

GASB No. 25
Schedule of Employer Contributions*
Non-Uniformed Group
June 30, 2007

Fiscal Year Ending June 30,		Estimated Covered Payroll		Actual Employer Contributions	Actual Employer Contribution %	Annual Required Contribution (ARC) %		Annual Pension Cost	Percentage of APC Contributed
1992		$ 190,312,781		$ 37,929,337	19.93%	19.93%		$ 37,929,337	100.00%
1993		197,027,356		41,454,556	21.04%	21.04%		41,454,556	100.00%
1994		204,032,785		40,949,380	20.07%	20.07%		40,949,380	100.00%
1995		208,329,222		56,144,725	26.95%	26.95%		56,144,725	100.00%
1996		215,155,118		56,842,321	26.42%	26.42%		56,842,321	100.00%
1997		228,828,537		59,838,662	26.15%	26.15%		59,838,662	100.00%
1998		234,703,387		61,140,232	26.05%	26.05%		61,140,232	100.00%
1999	+	244,185,511	**	54,990,577	22.52%	22.52%		54,990,577	100.00%
2000	#	257,124,568	**	56,567,405	22.00%	22.00%		56,567,405	100.00%
2001		273,311,348	**	63,654,213	23.29%	23.29%		63,654,213	100.00%
2002		260,972,727	**	60,780,548	23.29%	23.29%	@	60,780,548	100.00%
2003		271,173,431	**	63,156,292	23.29%	23.29%	@	63,156,292	100.00%
2004		269,890,983	**	68,932,856	25.54%	25.54%		68,932,856	100.00%
2005		283,070,661	**	80,052,383	28.28%	28.28%		80,052,383	100.00%
2006		286,784,251	**	87,440,518	30.49%	30.49%		87,440,518	100.00%
2007	#	307,092,663	**	93,970,355	30.60%	30.60%		93,970,355	100.00%

* *Prior to 2003 this schedule was not required for the LTD Plan because it used the aggregate funding method. Therefore the assets and liabilities were excluded prior to 2003. In 2003 the LTD Plan was merged into the base plan. Assets and liabilities for existing LTD members are included beginning in 2003.*

** *Values are estimated from contribution rate and amount.*

\+ *Introduction of Year 2000 Plan; Change in Actuary.*

\# *New assumptions adopted.*

@ *The ARC is the rate adopted by the Retirement Board. This rate exceeded the actuarially calculated rate.*

\## *Includes non-uniformed employees of MoDOT, Patrol, and MPERS.*

This information is presented in draft form for review by the Plan's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the Plan's financial statements.

GASB No. 25
Schedule of Employer Contributions*
Uniformed Patrol Group
June 30, 2007

Fiscal Year Ending June 30,		Estimated Covered Payroll			Actual Employer Contributions	Actual Employer Contribution %	Annual Required Contribution (ARC) %			Annual Pension Cost	Percentage of APC Contributed
1992	$	30,606,601		$	11,101,014	36.27%	36.27%		$	11,101,014	100.00%
1993		31,004,803			9,868,829	31.83%	31.83%			9,868,829	100.00%
1994		32,715,429			9,739,383	29.77%	29.77%			9,739,383	100.00%
1995		35,232,287			14,462,854	41.05%	41.05%			14,462,854	100.00%
1996		39,557,621			15,743,114	39.80%	39.80%			15,743,114	100.00%
1997		42,242,106			16,546,233	39.17%	39.17%			16,546,233	100.00%
1998		43,987,039			16,600,708	37.74%	37.74%			16,600,708	100.00%
1999 +		43,882,573	**		13,901,999	31.68%	31.68%			13,901,999	100.00%
2000 #		44,297,237	**		13,484,079	30.44%	30.44%			13,484,079	100.00%
2001		50,088,675	**		17,500,983	34.94%	34.94%			17,500,983	100.00%
2002		47,681,512	**		16,659,920	34.94%	34.94%	@		16,659,920	100.00%
2003		48,172,519	**		16,831,478	34.94%	34.94%	@		16,831,478	100.00%
2004		46,333,484	**		17,792,058	38.40%	38.40%			17,792,058	100.00%
2005		50,959,490	**		22,187,762	43.54%	43.54%			22,187,762	100.00%
2006		54,443,639	**		24,102,199	44.27%	44.27%			24,102,199	100.00%
2007 #		63,506,012	**		27,802,932	43.78%	43.78%			27,802,932	100.00%

* *Prior to 2003 this schedule was not required for the LTD Plan because it used the aggregate funding method. Therefore the assets and liabilities were excluded prior to 2003. In 2003 the LTD Plan was merged into the base plan. Assets and liabilities for existing LTD members are included beginning in 2003.*

** *Values are estimated from contribution rate and amount.*

\+ *Introduction of Year 2000 Plan; Change in Actuary.*

\# *New assumptions adopted.*

@ *The ARC is the rate adopted by the Retirement Board. This rate exceeded the actuarially calculated rate.*

This information is presented in draft form for review by the Plan’s auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the Plan’s financial statements.

Development of Gain/(Loss)
July 1, 2006 to June 30, 2007

	UAAL =	AAL -	Assets
Beginning of Year Values (at July 1)	$ 1,219,294,884	$ 2,740,437,837	$ 1,521,142,953
Normal Cost	45,753,500	45,753,500	0
Contributions	(121,773,287)	0	121,773,287
Disbursements	0	(178,070,071)	(178,070,071)
Interest	97,456,012	220,628,063	123,172,051
Net Change in LTD Assets	0	0	0
Expected Value Before Any Changes	1,240,731,109	2,828,749,329	1,588,018,220
Effect of Changes in Assumptions & Methods	493,591	493,591	0
Expected Value After Changes	1,241,224,700	2,829,242,920	1,588,018,220
End of Year Values (at June 30)	1,211,460,405	2,897,267,409	1,685,807,004
Aggregate Gain/(Loss) for Year	$ 29,764,295	$ (68,024,489)	$ 97,788,784

DEVELOPMENT OF GAIN/(LOSS)
JULY 1, 2006 TO JUNE 30, 2007

	Total	Non-Uniform	Uniform
Beginning of Year UAAL (at July 1)	$ 1,219,294,884	$ 952,752,165	$ 266,542,719
Normal Cost	45,753,500	37,724,462	8,029,038
Contributions	(121,773,287)	(93,970,355)	(27,802,932)
Interest	97,456,012	76,281,911	21,174,101
Net Change in LTD Assets	0	0	0
Expected Value Before Any Changes	1,240,731,109	972,788,183	267,942,926
Effect of Changes in Assumptions & Methods	493,591	0	493,591
Expected Value After Changes	1,241,224,700	972,788,183	268,436,517
End of Year UAAL (at June 30)	1,211,460,405	937,436,779	274,023,626

Aggregate Gain/(Loss) for Year	$ 29,764,295	$ 35,351,404	$ (5,587,109)
Gain/(Loss) as a % of Beginning of Year Liabilities	1.09%	1.67%	(0.89)%)

Asset Gain/(Loss) for Year	$ 97,788,784	$ 74,605,275	$ 23,183,509
Liability Gain/(Loss) for Year	(68,024,489)	(39,253,871)	(28,770,618)
Aggregate Gain/(Loss) for Year	$ 29,764,295	$ 35,351,404	$ (5,587,109)

SECTION B

SUMMARY OF BENEFITS

Missouri Department of Transportation and Highway Patrol Employees' Retirement System Summary of Benefit Provisions Evaluated as of June 30, 2007

Closed Plan

Participation

Participants include:
All MPERS active members, vested terminated members, disability recipients, retirees and survivors who first became members prior to July 1, 2000 and who do not elect to transfer to the Year 2000 Plan.

Normal Retirement Eligibility (unreduced benefit)

All Employees: The earlier of attaining:
1. Age 65 with at least 4 years of creditable service.
2. Age 60 with at least 15 years of creditable service.
3. Age 48 with age plus creditable service equal to 80 or more.

Uniformed Patrol Employees Only: The earlier of attaining:
1. Age 55 with at least 4 years of creditable service.
2. Mandatory retirement at age 60 with 5 or more years of creditable service.

Final Average Pay Used for Benefit Determination

Final Average Pay is the average annual pay of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining average pay). Employees retiring from active service will receive 1/12 of a year of creditable service for every 168 hours of unused sick leave (usable only for benefit computation, not eligibility).

Year 2000 Plan

Participation

Participants include:
1. All new employees who first become members on or after July 1, 2000.
2. MPERS active members and vested former members who elect to transfer to the Year 2000 Plan at retirement.
3. MPERS retirees who elected to transfer to the Year 2000 Plan during the election window from July 1, 2000 through July 1, 2001, and their survivors.
4. MPERS members who left state employment prior to becoming vested (not eligible for a future retirement benefit) and return to work in a benefit eligible position on or after July 1, 2000.

Normal Retirement Eligibility (unreduced benefit)

All Employees: The earlier of attaining:
1. Age 62 with at least 5 years of creditable service.
2. Age 48 with age plus creditable service equal to 80 or more.

Uniformed Patrol Employees Only:
1. Age 60 with at least 5 years of creditable service.

Final Average Pay Used for Benefit Determination

Final Average Pay is the average annual pay of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining average pay). All members will receive 1/12 of a year of creditable service for every 168 hours of unused sick leave (usable only for benefit computation, not eligibility).

SUMMARY OF BENEFIT PROVISIONS EVALUATED AS OF JUNE 30, 2007 (CONTINUED)

Closed Plan

Normal Retirement Benefit Amount

Non-Uniformed Employees:
Life Benefit: 1.6% of final average pay times years of creditable service.

Uniformed Patrol Employees:
Life Benefit: 2.1333% of final average pay times years of creditable service.

Special Benefit: $90 per month payable until age 65. Offset by any amount earned from gainful employment. This benefit does not apply to uniformed members hired on or after January 1, 1995.

Early Retirement (reduced benefit)

Eligibility: Non-Uniformed Employees
Age 55 with at least 10 years of creditable service.

Amount:
Normal retirement amount reduced by 0.6% for each month that retirement precedes eligibility for normal retirement.

Uniformed Patrol members are not eligible for early retirement.

Vested Deferred Benefits

Eligibility: All Employees
Fully vested in accrued pension with 5 years of creditable service. The benefit will commence at the age the individual is eligible for early or normal retirement, considering years of creditable service.

Minimum Base Benefit

Receive a monthly base benefit of no less than $15 for each full year of creditable service. Must be eligible to receive a normal or early retirement benefit the first of the month immediately following the date you leave state employment. Not required to immediately start drawing a benefit.

Year 2000 Plan

Normal Retirement Benefit Amount

All Employees:
Life Benefit: 1.7% of final average pay times years of creditable service.

Temporary Benefit: If member retires between ages 48 and 62 with age plus creditable service equal to 80 or more, a temporary benefit is payable in the amount of 0.8% of final average pay times years of creditable service until attainment of the minimum age at which reduced social security benefits are payable or death, whichever occurs first. Uniformed Patrol members are eligible for the temporary benefit when they reach mandatory retirement age (currently age 60) and have five years of creditable service.

Early Retirement (reduced benefit)

Eligibility: All Employees
Age 57 with at least 5 years of creditable service.

Amount:
Normal retirement amount reduced by 0.5% for each month that retirement precedes eligibility for normal retirement.

Vested Deferred Benefits

Eligibility: All Employees
Fully vested in accrued pension with 5 years of creditable service. The benefit will commence at the age the individual is eligible for early or normal retirement considering years of creditable service.

Minimum Base Benefit

Same.

Summary of Benefit Provisions Evaluated as of June 30, 2007 (Continued)

Closed Plan

Death Prior to Retirement

A death benefit is payable to the surviving spouse or eligible children of the member who dies after earning 3 years of creditable service. The survivor annuity shall be the total monthly payment equal to twenty-five percent of the deceased member's accrued annuity calculated as if the member was of normal retirement age as of the date of death.

The spouse of the member who dies after accruing 5 years of creditable service may elect to receive an annuity as if the employee had retired on the date of death and elected a joint and 100% survivor annuity.

If no eligible spouse survives or upon the death of the spouse, 80% of the member's accrued annuity will be paid to eligible children until age 21.

If the death is duty-related, there is no service requirement and the minimum annuity is 50% of the final average pay (FAP) to the surviving spouse or eligible children.

Death After Retirement

The benefit payable is 50% of the benefit the retired member was receiving on the date of death (the normal form of payment), or the benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement.

A member who is not married at retirement but marries thereafter may designate a spouse as beneficiary within one year of the marriage. Additionally, a member may designate a new spouse as beneficiary in the event of the death of the spouse the member was married to at the date of retirement.

For period certain annuities, beneficiaries may be changed at any time.

Year 2000 Plan

Death Prior to Retirement

The spouse of the member who dies after accruing 5 years of creditable service may elect to receive an annuity as if the employee had retired on the date of death and elected a joint and 100% survivor annuity.

If no eligible spouse survives or upon the death of the spouse, 80% of the member's accrued annuity will be paid to eligible children until age 21.

If the death is duty related, there is no service requirement and the minimum annuity is 50% of the final average pay (FAP) to the surviving spouse or eligible children.

Death After Retirement

The benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement.

A member who is not married at retirement but marries thereafter may designate a spouse as beneficiary. Additionally, a member may designate a new spouse as beneficiary in the event of the death of the spouse the member was married to at the date of retirement. The election must be completed within one year of the date of marriage.

For period certain annuities, beneficiaries may be changed at any time.

SUMMARY OF BENEFIT PROVISIONS EVALUATED AS OF JUNE 30, 2007 (CONTINUED)

Closed Plan	Year 2000 Plan
Pop-Up Provision Benefits to members who choose a reduced survivor form of payment and whose spouse precedes the member in death, will "pop-up" or revert to the amount the member would have received had he/she not elected a reduced survivor option.	**Pop-Up Provision** Same.
$5,000 Death Benefit MPERS provides a $5,000 death benefit for a designated beneficiary(ies) of members who retire from service or elect normal or work-related disability benefits after September 28, 1985. Members who die while on terminated vested status or long-term disability status do not qualify for this benefit. Long-term disability recipients who retire on or after September 28, 1985 are eligible to receive this benefit.	**$5,000 Death Benefit** MPERS provides a $5,000 death benefit for a designated beneficiary(ies) of members who retire from service or elect work-related disability benefits. Members who die while on terminated vested status or long-term disability status do not qualify for this benefit. Long-term disability recipients who retire on or after September 28, 1985 are eligible to receive this benefit.
Purchase of Service **Military:** Prior to retirement, qualifying members may purchase up to a maximum of 4 years military service that includes active service, and/or active and inactive duty training from which they were honorably discharged. All months the member is eligible for must be purchased. This service credit ***can*** be used to satisfy the vesting requirement. Periods of military service cannot coincide with employment in a state agency.	**Purchase of Service** **Military:** Prior to retirement, qualifying members may purchase up to a maximum of 4 years military service that includes active service from which they were honorably discharged. All months the member is eligible for must be purchased. This service credit ***cannot*** be used to satisfy the vesting requirement. Periods of military service cannot coincide with employment in a state agency.
Police Service: Prior to retirement, uniformed patrol members only, may purchase up to a maximum of 4 years police service. Members must purchase all months of service they are eligible for.	**Police Service:** Not available.
Portability: Section 105.691 allows vested members to acquire (purchase/transfer) service credit for any non-federal, full-time public sector employment within Missouri. Service may be purchased/transferred by using the member's own money and/or using the value of the retirement benefit in the prior retirement plan if that plan has an agreement with MPERS. Any non-federal public employment **not covered** by a retirement plan must be purchased.	**Portability:** Same as Closed Plan Section 105.691. In addition, Section 104.1090 provides that in-state vested service with another retirement system may be granted after 10 years of state service if the other retirement plan agrees to transfer assets equal to the accrued liability to MPERS. Service may be purchased/transferred by using the member's own money and/or using the value of the retirement benefit in the prior retirement plan if that plan has an agreement with MPERS. Any non-federal public employment **not covered** by a retirement plan must be purchased.

Summary of Benefit Provisions Evaluated as of June 30, 2007 (Continued)

Closed Plan	Year 2000 Plan

Closed Plan

Public Employment Prior Service (Subsidized purchase):

Section 104.040.6 allows, prior to retirement, uniformed patrol members only, may purchase up to a maximum of 4 years full-time "public employment". Public employment refers to employment with a city, county, municipality, public school, or other political subdivision. Federal and out-of-state employment is not eligible. Members must purchase all months of service they are eligible for up to 4 years.

Disability

Benefits that may be payable during the period of disability (whether Normal, Work-related, or LTD) are administered through a separate program and were not considered for purposes of the valuation.

Normal retirement benefits become payable at the time a disabled member becomes eligible for normal retirement, and are computed based on: i) the service that would have accrued to the member if active employment had continued; and ii) the member's rate of pay at the time of disability.

Post-Retirement Benefit Adjustments

For active and inactive employees hired prior to August 28, 1997 and current retirees, the benefits of pensioners and their beneficiaries are increased annually by 80% of the increase in the Consumer Price Index (subject to a maximum increase of 5% and a minimum of 4%). These increases are made until the total of the increases reaches 65% of initial benefit at which time the increases will have the minimum removed.

For employees hired on or after August 28, 1997 the annual percentage increase is equal to the lesser of:

i) 80% of the CPI-U increase, or
ii) 5%.

Member Contributions

None

Year 2000 Plan

Public Employment Prior Service (Subsidized purchase):

Not available.

Disability

Same.

Post-Retirement Benefit Adjustments

Benefits are increased to retired members (including survivors) annually in accordance with the following:

Annual benefit percentage increase equal to the lesser of:

i) 80% of the CPI-U increase, or
ii) 5%.

Member Contributions

None

The Closed Plan & Year 2000 Plan
BackDROP Option

Legislation effective January 1, 2002 provides a Deferred Retirement Option Provision (BackDROP) to members of MPERS. It is available in both the Closed Plan and the Year 2000 Plan.

To be eligible to participate in the BackDROP, a member must have been eligible to retire under normal age and/or service conditions for at least two years. A retroactive starting date is established for BackDROP purposes which is the later of: 1) the member's normal retirement date, or 2) five years prior to the annuity starting date under the retirement plan selected by the member.

The BackDROP period for the accumulation of the BackDROP account is from the retroactive starting date to the annuity starting date. This results in a BackDROP period of one to five years depending upon the individual situation.

A theoretical BackDROP account is accumulated that includes 90% of the value of the benefit payments that would have been paid during the BackDROP period had the member retired at the retroactive starting date. These payments include applicable post-retirement benefit increases. These payments do not include any reduction for spouse options during the BackDROP period. The member may choose the BackDROP period in twelve-month increments or their maximum period, not to exceed 60 months.

The member is paid the resulting lump sum value of the BackDROP account as of the annuity starting date or as three equal annual installments beginning at the annuity starting date.

The annuity benefit payable from the actual retirement date is computed with years of service and final average pay as of the retroactive starting date for the BackDROP. Post-retirement benefit increases that occurred during the BackDROP period are applied in the calculation of the monthly annuity.

SAMPLE BENEFIT COMPUTATION FOR CLOSED PLAN MEMBERS RETIRING JULY 1, 2007 NON-UNIFORMED EMPLOYEE

	Data	Description
A.	$40,000	Final Average Pay
B.	20	Years of Creditable Service
C.	60	Age of Retiree
D.	50%	Automatic percentage to continue to spouse after retirant's death

Sample Computation Steps

E. Retirement Benefit Formula: 0.016 x 20 x $40,000 = $12,800

Benefit payable to:

F.	Retiree while spouse is alive (E)	$ 12,800
G.	Spouse after retiree's death (D x E)	$ 6,400
H.	Retiree after spouse's death	$ 12,800

Year Ended June 30	Annual Amount Payable if Price Inflation is 3.25% and Post-Retirement Increases are 2.6%
2008	$12,800
2009	13,133
2010	13,474
2011	13,825
2012	14,184
2013	14,553
2014	14,931
2015	15,319
2016	15,718
2017	16,126

Sample Benefit Computation for Closed Plan Members
Retiring July 1, 2007
Uniformed Patrol

	Data	Description
A.	$40,000	Final Average Pay
B.	20	Years of Creditable Service
C.	60	Age of Retiree
D.	50%	Automatic percentage to continue to spouse after retirant's death

Sample Computation Steps

E. Retirement Benefit Formula: 0.021333 x 20 x $40,000 = $17,066

Benefit payable to:

F.	Retiree while spouse is alive (E)	$ 17,066
G.	Spouse after retiree's death (D x E)	$ 8,533
H.	Retiree after spouse's death	$ 17,066

Amounts shown below do not include the $1,080 annual supplementary benefit payable to age 65.

Year Ended June 30	Annual Amount Payable if Price Inflation is 3.25% and Post-Retirement Increases are 2.6%
2008	$17,066
2009	17,510
2010	17,965
2011	18,432
2012	18,912
2013	19,403
2014	19,908
2015	20,426
2016	20,957
2017	21,501

Sample Benefit Computation for Year 2000 Plan Members Retiring July 1, 2007

	Data	Description
A.	$40,000	Final Average Pay
B.	20	Years of Creditable Service
C.	60	Age of Retiree
D.	0%	Automatic percentage to continue to spouse after retirant's death

E1. Retirement Benefit Formula: 0.017 x 20 x $40,000 = $13,600
E2. Supplemental Benefit Formula: .008 x 20 x $40,000 = $6,400

Benefit payable to:

F1.	Retiree prior to age 62 (E1+E2)	$ 20,000
F2.	Retiree after age 62 (E1)	$ 13,600
G.	Spouse after retiree's death (D x E)	$ 0

Year Ended June 30	Annual Amount Payable if Price Inflation is 3.25% and Post-Retirement Increases are 2.6%
2008	$20,000
2009	20,520
2010	14,316
2011	14,689
2012	15,071
2013	15,462
2014	15,864
2015	16,277
2016	16,700
2017	17,134

SECTION C

FINANCIAL INFORMATION

SUMMARY OF FUND OPERATIONS

	2007	2006
Market Value of Fund (Beginning of Fiscal Year)	$ 1,598,136,375	$ 1,441,054,574
Post Valuation Audit Adjustment	(216,305)	0
Contributions		
Employer	121,243,361	111,271,679
Transfer from MOSERS	102,672	0
Service Purchase (Employee)	427,254	271,038
Total Contributions	$ 121,773,287	$ 111,542,717
Investment Return		
Interest	$ 12,366,494	$ 9,998,328
Dividends	13,439,676	11,570,031
Realized Capital Gains	179,492,019	241,281,087
Realized Capital Losses	(71,468,586)	(78,658,101)
Miscellaneous Income	0	5,212
Securities Lending Income	468,095	710,139
Other	5,950,971	4,533,446
Total Investment Return	$ 140,248,669	$ 189,440,142
Other Income (Rental Income and Misc)	31,580	41,542
Increase (Decrease) in Unrealized Appreciation	160,813,279	35,229,468
Benefit Payments		
Retirement Payments	$ 160,062,302	$ 152,533,614
Retirement Payments – BackDROP	13,177,432	9,721,059
Death Benefits	530,000	455,000
Long-Term Disability Payments	288,908	386,026
Insured Disability Program	1,905,122	1,796,075
Refund and Final Settlement	6,715	105,409
Total Benefit Payments	$ 175,970,479	$ 164,997,183
Expenses		
Investment	$ 17,512,525	$ 12,247,291
Actuarial	71,613	122,240
Other	2,027,979	1,805,354
Total Expenses	$ 19,612,117	$ 14,174,885
Market Value of Fund (End of Fiscal Year)	$ 1,825,204,289	$ 1,598,136,375

MISSOURI MPERS
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

	Valuation Date of June 30	2004	2005	2006	2007	2008	2009
A.	**Actuarial value at beginning of year #**	$ 1,364,305,996	$ 1,353,436,505	$ 1,417,476,479	$ 1,521,142,953		
B.	**Market value at end of year**	1,353,136,400	1,441,054,574	1,598,136,375	1,825,204,289		
C.	**Market value at beginning of year**	1,241,550,328	1,353,436,505	1,441,054,574	1,598,136,375		
D.	**Cash flow**						
	D1. Contributions	87,567,578	102,604,826	111,542,717	121,773,287		
	D2. Benefit Payments	(155,139,923)	(157,742,337)	(164,997,183)	(175,970,479)		
	D3. Administrative Expenses	(1,639,133)	(1,916,592)	(1,927,594)	(2,099,592)		
	D4. Non-Investment Net Cash Flow	(69,211,478)	(57,054,103)	(55,382,060)	(56,296,784)		
E.	**Investment income**						
	E1. Market total (B - C - D4)	180,797,550	144,672,172	212,463,861	283,364,698		
	E2. Assumed Rate of Return	8.25%	8.25%	8.25%	8.25%		
	E3. Amount for Immediate Recognition (A+.5xD4)xE2	109,700,271	109,305,030	114,657,300	123,172,051		
	E4. Amount for Phased-In Recognition	71,097,279	35,367,142	97,806,561	160,192,647		
F.	**Phased in recognition of investment income**						
	F1. Current Year (33 1/3% of E4)	23,699,093	11,789,047	32,602,187	53,397,549		
	F2. First Prior Year	(26,178,654)	0	11,789,047	32,602,187	$ 53,397,549	
	F3. Second Prior Year	(70,486,689)	0	0	11,789,048	$ 32,602,187	$ 53,397,549
	F4. Total Phase-ins (F1 + F2 + F3)	(72,966,250)	11,789,047	44,391,234	97,788,784	85,999,736	53,397,549
	F5. Phase-In of Initial (BOY) difference between MVA and AVA	0	0	0	0		
G.	**Actuarial value at end of year (A + D4 + E3 + F4)**	1,331,828,539	1,417,476,479	1,521,142,953	1,685,807,004		
	Less LTD Assets	240,332	127,497	0	0	0	0
H.	**Preliminary Plan AVA**	1,331,588,207	1,417,348,982	1,521,142,953	1,685,807,004		
I.	**Corridor (Maximum of 120% of Market Value)**		1,729,265,489	1,917,763,650	2,190,245,147		
J.	**Corridor (Minimum of 80% of Market Value)**		1,152,843,659	1,278,509,100	1,460,163,431		
K.	**Final Plan AVA after corridor adjustment, if any**	1,331,588,207	1,417,348,982	1,521,142,953	1,685,807,004		
	Difference between market and actuarial values	21,307,861	23,578,095	76,993,422	139,397,285		
	Market Rate of Return	14.98%	10.92%	15.03%	18.04%		
	Ratio of Funding Value to Market Value	98.41%	98.35%	95.18%	92.36%		

Actuarial value reset to market value as of the beginning of year for June 30, 2005, valuation also includes a post 6/30/2004 valuation audit adjustment.

ALLOCATION OF ASSETS BETWEEN GROUPS

The division between the Uniformed Patrol and Non-Uniformed Employee groups is in proportion to their market value of assets, as shown below:

	June 30	
	2007	2006
1. Other Income	$ 31,580	$ 41,542
2. Investment Income		
a) Uniformed Patrol	33,506,544	44,702,631
b) Non-Uniformed Employees	106,865,166	144,858,854
c) Total	140,371,710	189,561,485
3. Other Income Split		
a) Uniformed Patrol		
(2a) / (2c) x (1)	7,538	9,796
b) Non-Uniformed Employees		
(2b) / (2c) x (1)	24,042	31,746
c) Total	31,580	41,542
4. Funding Value of Assets	1,685,807,004	1,521,142,953
5. Market Value of Assets		
a) Uniformed Patrol	438,089,587	379,031,285
b) Non-Uniformed Employees	1,387,114,702	1,218,998,584
c) Total	1,825,204,289	1,598,029,869
6. Funding Value of Assets Split		
a) Uniformed Patrol		
(5a) / (5c) x (4)	404,631,102	360,794,684
b) Non-Uniformed Employees		
(5b) / (5c) x (4)	1,281,175,902	1,160,348,269
Total Assets Allocated	$ 1,685,807,004	$ 1,521,142,953

SECTION D

SUMMARY OF MEMBER DATA

Civilian Patrol Closed Active Members
as of June 30, 2007
by Attained Age and Years of Service

Attained Age	Count by Complete Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals No.	Totals Valuation Payroll
Under 20									
20-24									
25-29		8	3					11	$ 312,298
30-34		22	21					43	1,621,442
35-39		25	38	14	1			78	2,864,029
40-44		27	46	31	26	4		134	5,043,812
45-49		18	28	33	40	29	4	152	5,812,197
50		1	7	5	7	12		32	1,381,114
51		2	6	2	10	7	7	34	1,384,451
52		3	10	4	7	3	5	32	1,290,994
53		3	3	1	6	4	3	20	857,855
54		4	6	4	7	5	6	32	1,272,420
55		3	4	6	3	4	4	24	975,181
56		2	6	5	3	3	4	23	801,026
57		1	2	2	4	2	2	13	459,348
58		4	7	2	3	2	4	22	821,509
59		1	3	8	6	4	2	24	889,306
60		1	4	2	1	1	2	11	382,446
61		3	2	2	1			8	216,715
62			3	2	2			7	194,464
63		1	1		1			3	116,699
64				1				1	24,985
65			1					1	53,253
66									
67				1				1	31,973
68									
69							1	1	30,118
70									
Over 70				1				1	28,574
Totals	**0**	**129**	**201**	**126**	**128**	**80**	**44**	**708**	**$ 26,866,209**

Average Age: 47.6 years
Average Service: 17.4 years
Average Pay: $37,947

Civilian Patrol Year 2000 Active Members
as of June 30, 2007
by Attained Age and Years of Service

Attained Age	Count by Complete 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	41							41	$ 1,172,978
25-29	76	19						95	3,514,819
30-34	35	26						61	1,932,872
35-39	48	12						60	1,680,385
40-44	27	14						41	1,138,099
45-49	32	15						47	1,268,827
50	4	2						6	155,665
51	5							5	118,203
52	6	2						8	219,718
53	4	3						7	205,470
54	4	2						6	165,592
55	3	2						5	144,344
56	4							4	86,233
57	2	4						6	171,654
58	6	2						8	264,469
59	2	2						4	95,858
60	3	4						7	171,752
61	2	2						4	111,849
62	3							3	69,690
63	4	1						5	124,856
64									
65	2	1						3	70,245
66									
67									
68									
69									
70									
Over 70		1						1	23,086
Totals	**313**	**114**	**0**	**0**	**0**	**0**	**0**	**427**	**$ 12,906,664**

Average Age: 38.5 years
Average Service: 3.3 years
Average Pay: $30,226

MoDOT Closed Active Members
as of June 30, 2007
by Attained Age and Years of Service

Attained Age	Count by Complete 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									
25-29		78	2					80	$ 2,745,155
30-34		199	138	2				339	13,758,322
35-39		155	319	121	6			601	25,569,916
40-44		139	198	244	191	8		780	33,777,272
45-49		131	184	185	306	192	20	1,018	44,920,125
50		17	30	36	36	47	15	181	7,881,084
51		11	29	32	40	34	24	170	7,729,708
52		13	33	25	29	21	20	141	6,118,192
53		11	27	23	34	21	28	144	6,277,228
54		15	21	29	34	11	22	132	5,720,265
55		11	23	18	28	13	14	107	4,629,335
56		14	14	15	33	12	15	103	4,617,471
57		10	15	19	21	8	11	84	3,546,922
58		9	14	17	14	4	13	71	3,150,664
59		5	16	13	10	7	14	65	2,776,691
60		10	10	16	7	2	13	58	2,382,255
61		6	8	9	5	2	9	39	1,690,151
62		5	2	4	3	2	1	17	725,499
63		1	2	3	7		4	17	778,233
64		2	1	2	2	1	2	10	393,675
65		5	1			1	2	9	361,139
66			1				1	2	91,175
67			2					2	101,578
68				2	1		1	4	196,481
69				1			2	3	114,234
70				2				2	70,813
Over 70		1	1			1	1	4	169,445
Totals	**0**	**848**	**1,091**	**818**	**807**	**387**	**232**	**4,183**	**$ 180,293,028**

Average Age: 46.2 years
Average Service: 17.1 years
Average Pay: $43,101

MoDOT Year 2000 Active Members
as of June 30, 2007
by Attained Age and Years of Service

Attained Age	Count by Complete 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	8							8	$ 192,491
20-24	229	4						233	7,961,606
25-29	358	118						476	17,459,195
30-34	252	118						370	13,337,481
35-39	203	93						296	10,338,022
40-44	206	89						295	9,585,887
45-49	183	76						259	8,761,777
50	34	11						45	1,478,397
51	21	11						32	1,234,271
52	19	10						29	1,055,185
53	30	10						40	1,211,741
54	28	8						36	1,242,362
55	20	8						28	806,061
56	16	3						19	916,722
57	12	6						18	543,340
58	14	2						16	577,673
59	10	5						15	542,670
60	14	4						18	609,372
61	10	1						11	348,362
62	3	3						6	204,295
63	6	2						8	383,103
64	3	2						5	173,182
65	1	1						2	123,056
66		1						1	28,232
67									
68									
69	1							1	29,728
70									
Over 70		1						1	31,179
Totals	**1,681**	**587**	**0**	**0**	**0**	**0**	**0**	**2,268**	**$ 79,175,390**

Average Age: 37.5 years
Average Service: 3.3 years
Average Pay: $34,910

Uniformed Patrol Closed Active Members as of June 30, 2007 by Attained Age and Years of Service

Attained Age	Count by Complete 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									
25-29		9						9	$ 442,269
30-34		63	53					116	6,149,971
35-39		38	168	32				238	14,058,352
40-44		9	54	90	24			177	11,647,936
45-49		2	13	32	59	18	2	126	8,734,220
50			1	3	7	11	4	26	1,854,102
51				2	3	14	6	25	1,776,248
52					5	6	5	16	1,124,504
53					2	4	16	22	1,639,033
54					1		13	14	1,076,154
55					2	2	9	13	995,799
56					1	2	4	7	525,034
57						1	6	7	547,313
58							4	4	304,243
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
Over 70									
Totals	**0**	**121**	**289**	**159**	**104**	**58**	**69**	**800**	**$ 50,875,178**

Average Age: 42.0 years
Average Service: 16.9 years
Average Pay: $63,594

UNIFORMED PATROL YEAR 2000 ACTIVE MEMBERS
AS OF JUNE 30, 2007
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Count by Complete 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	43							43	$ 1,584,226
25-29	90	23						113	4,826,521
30-34	43	30						73	3,179,607
35-39	9	8						17	766,541
40-44	4	2						6	276,054
45-49	1							1	47,000
50									
51									
52		1						1	46,003
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
Over 70									
Totals	**190**	**64**	**0**	**0**	**0**	**0**	**0**	**254**	**$ 10,725,952**

Average Age: 29.4 years
Average Service: 3.7 years
Average Pay: $42,228

GROWTH OF ACTIVE MEMBER PAYROLL

Actuarial Valuation for June 30,	Number	Covered Payroll	Average Pay	% Change in Average Pay from Prior Year
1989	8,181	$194,452,400	$23,769	(0.5)%
1990	8,256	211,414,753	25,607	7.7%
1991	8,308	220,856,988	26,584	3.8%
1992	8,591	228,503,592	26,598	0.1%
1993	8,658	236,236,082	27,285	2.6%
1994	8,849	242,864,780	27,445	0.6%
1995	8,904	250,529,253	28,137	2.5%
1996	9,023	264,196,115	29,280	4.1%
1997	8,997	280,209,116	31,145	6.4%
1998	8,871	284,889,796	32,115	3.1%
1999	9,140	298,673,247	32,678	1.8%
2000	9,171	312,532,009	34,078	4.3%
2001	9,087	327,049,257	35,991	5.6%
2002	8,695	312,747,492	35,969	(0.1)%
2003	8,892	318,744,192	35,846	(0.3)%
2004	9,002	328,210,887	36,460	1.7%
2005	9,193	345,695,867	37,604	3.1%
2006	9,033	348,614,699	38,593	2.6%
2007	8,640	360,842,421	41,764	8.2%
			Ten-Year Average	3.0%

COUNT AND TOTAL MONTHLY BENEFITS OF CIVILIAN PATROL CLOSED RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2007 BY ATTAINED AGE

Age	Number	Monthly Benefit Amount
Less than 20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	$ 1,258
50-54	5	5,267
55-59	13	12,658
60-64	31	34,219
65-69	86	152,655
70-74	110	163,246
75-79	86	116,448
80-84	44	50,363
85-89	27	26,138
90 & Over	6	6,745
TOTAL	**409**	**$ 568,997**

Count and Total Monthly Benefits of Civilian Patrol Year 2000 Retired (Non-Disabled) Members and Survivors as of June 30, 2007 by Attained Age

Age	Number	Monthly Benefit Amount
Less than 20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	$ 2,546
50-54	32	77,147
55-59	86	207,403
60-64	98	179,052
65-69	34	37,708
70-74	2	643
75-79	5	3,780
80-84	8	14,610
85-89	2	1,450
90 & Over	2	2,032
TOTAL	**270**	**$ 526,371**

Count and Total Monthly Benefits of MoDOT Closed Retired (Non-Disabled) Members and Survivors as of June 30, 2007 by Attained Age

Age	Number	Monthly Benefit Amount
Less than 20	14	$ 4,636
20-24	1	140
25-29		
30-34	3	1,235
35-39	5	3,527
40-44	16	12,599
45-49	26	19,316
50-54	39	42,442
55-59	100	89,986
60-64	283	388,099
65-69	759	1,455,112
70-74	903	1,751,642
75-79	749	1,345,724
80-84	521	714,697
85-89	323	276,915
90 & Over	147	77,231
TOTAL	**3,889**	**$ 6,183,301**

Count and Total Monthly Benefits of MoDOT Year 2000 Retired (Non-Disabled) Members and Survivors as of June 30, 2007 by Attained Age

Age	Number	Monthly Benefit Amount
Less than 20	9	$ 4,199
20-24		
25-29		
30-34	1	2,123
35-39		
40-44		
45-49	5	9,609
50-54	171	421,863
55-59	501	1,289,690
60-64	584	1,170,001
65-69	205	299,342
70-74	30	40,473
75-79	45	76,746
80-84	53	68,456
85-89	43	52,095
90 & Over	17	19,727
TOTAL	**1,664**	**$ 3,454,324**

COUNT AND TOTAL MONTHLY BENEFITS OF UNIFORMED PATROL CLOSED RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2007 BY ATTAINED AGE

Age	Number	Monthly Benefit Amount
Less than 20	1	$ 2,021
20-24		
25-29		
30-34	3	5,509
35-39		
40-44	1	2,042
45-49	7	11,777
50-54	31	99,979
55-59	121	409,452
60-64	178	718,991
65-69	130	541,360
70-74	90	383,447
75-79	77	330,177
80-84	50	138,567
85-89	32	77,273
90 & Over	20	25,261
TOTAL	**741**	**$ 2,745,856**

COUNT AND TOTAL MONTHLY BENEFITS OF UNIFORMED PATROL YEAR 2000 RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2007 BY ATTAINED AGE

Age	Number	Monthly Benefit Amount
Less than 20		
20-24		
25-29		
30-34	1	$ 1,457
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89		
90 & Over		
TOTAL	**1**	**$ 1,457**

GROWTH OF PENSION POPULATION BY YEAR

Year	Retired Employees	Survivors	Total	% Increase	Annual Benefits	Active Payroll	Benefits as a % of Payroll
1977	1,573	130	1,703	14.1%			
1978	1,658	145	1,803	5.9%			
1979	1,730	174	1,904	5.6%			
1980	1,797	186	1,983	4.1%			
1981	1,860	204	2,064	4.1%			
1982	1,957	225	2,182	5.7%			
1983	2,061	244	2,305	5.6%			
1984	2,107	261	2,368	2.7%			
1985	2,164	280	2,444	3.2%			
1986	2,227	312	2,539	3.9%			
1987	2,369	341	2,710	6.7%			
1988	2,440	380	2,820	4.1%			
1989	2,610	441	3,051	8.2%			
1990	2,669	543	3,212	5.3%			
1991	2,814	632	3,446	7.3%			
1992	2,908	699	3,607	4.7%			
1993	3,047	1,269	4,316	19.7%			
1994	3,156	1,307	4,463	3.4%			
1995	3,419	1,365	4,784	7.2%			
1996	3,536	1,405	4,941	3.3%			
1997	3,646	1,486	5,132	3.9%			
1998	3,781	1,549	5,330	3.9%	$80,686,152	$284,889,796	28.3%
1999	3,924	1,600	5,524	3.6%	91,512,311	298,673,247	30.6%
2000	4,236	1,621	5,857	6.0%	100,794,676	312,532,009	32.3%
2001	4,482	1,663	6,145	4.9%	115,998,915	327,049,257	35.5%
2002	4,623	1,716	6,339	3.2%	125,623,460	312,747,492	40.2%
2003	4,845	1,751	6,596	4.1%	136,320,125	318,744,192	42.8%
2004	4,996	1,735	6,731	2.0%	142,359,307	328,210,887	43.4%
2005	5,068	1,761	6,829	1.5%	148,340,170	345,695,867	42.9%
2006	5,164	1,790	6,954	1.8%	155,230,301	348,614,699	44.5%
2007	5,336	1,805	7,141	2.7%	164,048,455	360,842,421	45.5%

GROWTH OF PENSION POPULATION BY YEAR

SELF INSURED DISABLED RETIRED MEMBERS AS OF JUNE 30, 2007

Age	Number	Monthly Benefit Amount
Less than 20		
20-24		
25-29		
30-34	2	$ 2,999
35-39	3	3,146
40-44	9	3,833
45-49	25	19,546
50-54	20	20,447
55-59	24	19,388
60-64	13	11,035
65-69	4	3,774
70-74	4	4,593
75-79	2	720
80-84	3	1,982
85-89	2	500
90 & Over	1	572
TOTAL	**112**	**$ 92,535**

These members became disabled prior to outsourcing disability claims. Liabilities for these members include benefits payable during and after the period of disability.

FULLY INSURED DISABLED RETIRED MEMBERS AS OF JUNE 30, 2007

Age	Number	Monthly Benefit Amount
Less than 20		
20-24		
25-29		
30-34	3	$ 8,382
35-39	4	9,824
40-44	6	11,202
45-49	18	34,547
50-54	14	25,178
55-59	8	7,682
60-64	2	1,091
65-69		
70-74		
75-79		
80-84		
85-89		
90 & Over		
TOTAL	**55**	**$ 97,906**

These members became disabled after disability claims became outsourced. Liabilities for these members during the period of disability are an obligation of the insurance company and not included in this valuation. Liabilities for these members after the period of disability are included in the valuation.

SECTION E

ASSUMPTIONS USED IN THE VALUATION

APPENDIX
SUMMARY OF VALUATION METHOD AND ASSUMPTIONS
JUNE 30, 2007

The actuarial assumptions used in the valuation are shown in this Appendix of the report unless stated otherwise. The assumptions were established for the June 30, 2005 actuarial valuation, following a five-year actuarial investigation. They were adopted by the Board after obtaining the advice of the Actuary and other professionals.

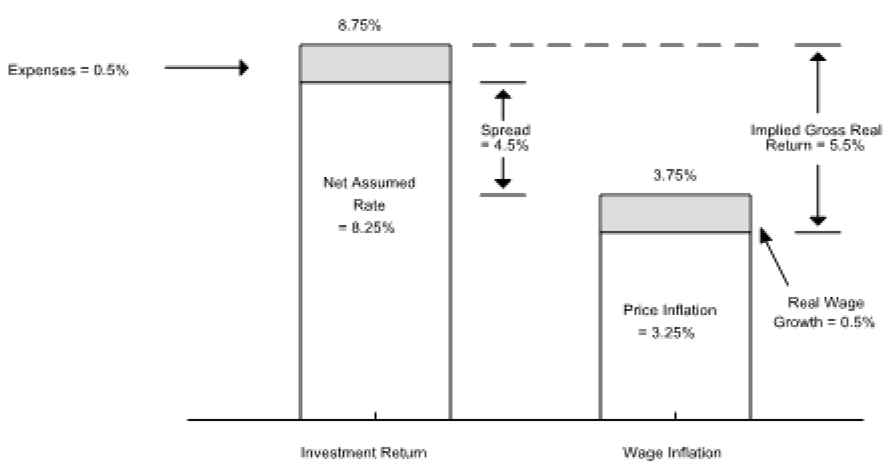
Economic Assumptions

The investment return rate used in making the valuations was 8.25% per year, compounded annually (net after investment expenses). The ***wage inflation rate*** was assumed to be 3.75%. The real rate of return over wage growth is defined to be the portion of total investment return, which is more than the rate of wage inflation. The 8.25% investment return rate and 3.75% wage inflation rate translates to an assumed real rate of return over wage growth net of expenses of 4.5%. Based upon other assumptions, the net real rate of return over price inflation is 5%.

Pay increase assumptions for merit and seniority for individual active members are shown on page E-3. Part of the total assumed pay increase at each age is for merit and/or seniority, and the other 3.75% recognizes wage inflation. ***The active member payroll*** is assumed to increase 3.75% annually.

The price inflation rate is assumed to be 3.25% annually. This is the inflation rate upon which the post-retirement increases are based. The difference between wage and price inflation of 0.5% is attributable to overall productivity increases and macro economic factors.

The number of active members is assumed to continue at the present number.



Non-Economic Assumptions

The mortality tables, for post-retirement mortality, used in evaluating allowances to be paid to non-disabled pensioners were the 1971 Group Annuity Mortality Tables projected to the year 2000 set back 1 year for males and 7 years for females. Pre-retirement mortality used was 50% of the 71GAM2000 tables set back 1 year for males and 7 years for females. Disabled pension mortality was based on PBGC Disabled Mortality tables. Related values are shown on page E-4.

The probabilities of age and service retirement are shown on page E-6.

The probabilities of withdrawal from service are shown on pages E-8 and E-9. ***The probabilities of disability*** are shown on page E-7.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost. The normal cost was calculated as if everyone were in the Year 2000 Plan.

> Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.
> Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest) which are level percents of payroll contributions.

Employer contributions were assumed to be ***paid in equal installments*** throughout the employer fiscal year.

Present assets (cash & investments) were used with a market value adjustment. Assets may be used in the valuation prior to the final audit. The exact method is shown on page C-2.

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. Data was furnished as of May 31 and assumed to be statistically equivalent to June 30.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.) who has experience performing public plan valuations.

AGE BASED SALARY SCALE

Age	Salary Increase Assumptions for an Individual Member					
	Non-Uniformed			Uniformed		
	Merit & Seniority	Base (Economic)	Increase Next Year	Merit & Seniority	Base (Economic)	Increase Next Year
20	8.00%	3.75%	11.75%	6.00%	3.75%	9.75%
21	8.00%	3.75%	11.75%	6.00%	3.75%	9.75%
22	8.00%	3.75%	11.75%	6.00%	3.75%	9.75%
23	7.30%	3.75%	11.05%	5.80%	3.75%	9.55%
24	6.52%	3.75%	10.27%	5.60%	3.75%	9.35%
25	5.66%	3.75%	9.41%	5.40%	3.75%	9.15%
26	4.72%	3.75%	8.47%	5.20%	3.75%	8.95%
27	4.50%	3.75%	8.25%	5.00%	3.75%	8.75%
28	4.10%	3.75%	7.85%	4.50%	3.75%	8.25%
29	3.70%	3.75%	7.45%	4.00%	3.75%	7.75%
30	3.30%	3.75%	7.05%	3.50%	3.75%	7.25%
31	2.90%	3.75%	6.65%	3.00%	3.75%	6.75%
32	2.50%	3.75%	6.25%	2.50%	3.75%	6.25%
33	2.35%	3.75%	6.10%	2.25%	3.75%	6.00%
34	2.20%	3.75%	5.95%	2.00%	3.75%	5.75%
35	2.05%	3.75%	5.80%	1.75%	3.75%	5.50%
36	1.90%	3.75%	5.65%	1.50%	3.75%	5.25%
37	1.75%	3.75%	5.50%	1.25%	3.75%	5.00%
38	1.65%	3.75%	5.40%	1.20%	3.75%	4.95%
39	1.55%	3.75%	5.30%	1.15%	3.75%	4.90%
40	1.45%	3.75%	5.20%	1.10%	3.75%	4.85%
41	1.35%	3.75%	5.10%	1.05%	3.75%	4.80%
42	1.25%	3.75%	5.00%	1.00%	3.75%	4.75%
43	1.15%	3.75%	4.90%	0.88%	3.75%	4.63%
44	1.05%	3.75%	4.80%	0.76%	3.75%	4.51%
45	0.95%	3.75%	4.70%	0.64%	3.75%	4.39%
46	0.85%	3.75%	4.60%	0.52%	3.75%	4.27%
47	0.75%	3.75%	4.50%	0.40%	3.75%	4.15%
48	0.70%	3.75%	4.45%	0.39%	3.75%	4.14%
49	0.65%	3.75%	4.40%	0.38%	3.75%	4.13%
50	0.60%	3.75%	4.35%	0.37%	3.75%	4.12%
51	0.55%	3.75%	4.30%	0.36%	3.75%	4.11%
52	0.50%	3.75%	4.25%	0.35%	3.75%	4.10%
53	0.46%	3.75%	4.21%	0.33%	3.75%	4.08%
54	0.42%	3.75%	4.17%	0.31%	3.75%	4.06%
55	0.38%	3.75%	4.13%	0.29%	3.75%	4.04%
56	0.34%	3.75%	4.09%	0.27%	3.75%	4.02%
57	0.30%	3.75%	4.05%	0.25%	3.75%	4.00%
58	0.30%	3.75%	4.05%	0.00%	3.75%	3.75%
59	0.30%	3.75%	4.05%	0.00%	3.75%	3.75%
60	0.30%	3.75%	4.05%	0.00%	3.75%	3.75%

POST-RETIREMENT MORTALITY

Age	Regular Male	Regular Female	Disabled Male	Disabled Female	Age	Regular Male	Regular Female	Disabled Male	Disabled Female
21	0.00042	0.00035	0.04830	0.02630	61	0.01086	0.00646	0.06240	0.03390
22	0.00043	0.00036	0.04830	0.02630	62	0.01195	0.00705	0.06430	0.03470
23	0.00045	0.00037	0.04830	0.02630	63	0.01313	0.00767	0.06570	0.03550
24	0.00047	0.00038	0.04830	0.02630	64	0.01441	0.00831	0.06680	0.03620
25	0.00049	0.00039	0.04830	0.02630	65	0.01593	0.00901	0.06780	0.03700
26	0.00051	0.00040	0.04610	0.02570	66	0.01770	0.00987	0.06870	0.03780
27	0.00054	0.00042	0.04360	0.02530	67	0.01974	0.01086	0.06970	0.03860
28	0.00057	0.00043	0.04110	0.02470	68	0.02204	0.01195	0.07090	0.03940
29	0.00060	0.00045	0.03880	0.02420	69	0.02451	0.01313	0.07230	0.04020
30	0.00063	0.00047	0.03620	0.02370	70	0.02740	0.01441	0.07390	0.04110
31	0.00067	0.00049	0.03390	0.02320	71	0.03068	0.01593	0.07570	0.04210
32	0.00071	0.00051	0.03200	0.02270	72	0.03419	0.01770	0.07760	0.04330
33	0.00076	0.00054	0.03020	0.02220	73	0.03768	0.01974	0.07960	0.04470
34	0.00081	0.00057	0.02880	0.02180	74	0.04106	0.02204	0.08180	0.04650
35	0.00087	0.00060	0.02780	0.02140	75	0.04455	0.02451	0.08420	0.04920
36	0.00093	0.00063	0.02720	0.02120	76	0.04837	0.02740	0.08690	0.05290
37	0.00100	0.00067	0.02710	0.02100	77	0.05286	0.03068	0.09080	0.05780
38	0.00107	0.00071	0.02730	0.02080	78	0.05835	0.03419	0.09620	0.06310
39	0.00116	0.00076	0.02760	0.02080	79	0.06463	0.03768	0.10430	0.06860
40	0.00125	0.00081	0.02820	0.02090	80	0.07136	0.04106	0.11280	0.07460
41	0.00135	0.00087	0.02880	0.02100	81	0.07875	0.04455	0.12210	0.08130
42	0.00148	0.00093	0.02970	0.02130	82	0.08647	0.04837	0.13220	0.08850
43	0.00166	0.00100	0.03050	0.02160	83	0.09449	0.05286	0.14320	0.09620
44	0.00187	0.00107	0.03140	0.02190	84	0.10293	0.05835	0.15510	0.10430
45	0.00213	0.00116	0.03220	0.02240	85	0.11166	0.06463	0.16810	0.11280
46	0.00242	0.00125	0.03300	0.02290	86	0.12064	0.07136	0.18250	0.12210
47	0.00275	0.00135	0.03400	0.02350	87	0.12994	0.07875	0.19800	0.13220
48	0.00311	0.00148	0.03530	0.02420	88	0.13951	0.08647	0.21500	0.14320
49	0.00350	0.00166	0.03670	0.02490	89	0.14955	0.09449	0.23300	0.15510
50	0.00392	0.00187	0.03830	0.02570	90	0.16012	0.10293	0.25250	0.16820
51	0.00437	0.00213	0.04010	0.02640	91	0.17131	0.11166	0.27390	0.18250
52	0.00486	0.00242	0.04200	0.02720	92	0.18291	0.12064	0.29720	0.19800
53	0.00536	0.00275	0.04390	0.02810	93	0.19478	0.12994	0.32260	0.21500
54	0.00590	0.00311	0.04600	0.02880	94	0.20690	0.13951	0.34950	0.23300
55	0.00646	0.00350	0.04820	0.02950	95	0.22134	0.14955	0.37890	0.25250
56	0.00705	0.00392	0.05060	0.03010	96	0.23700	0.16012	0.41090	0.27390
57	0.00767	0.00437	0.05310	0.03070	97	0.25325	0.17131	0.44580	0.29720
58	0.00831	0.00486	0.05550	0.03150	98	0.27090	0.18291	0.48380	0.32260
59	0.00901	0.00536	0.05810	0.03230	99	0.29016	0.19478	0.52430	0.34950
60	0.00987	0.00590	0.06030	0.03310	100	0.30913	0.20690	0.56840	0.37890

Pre-Retirement mortality is 50% of the regular post-retirement mortality values.

Joint Life Retirement Values
(8.25% Interest)

Sample Attained Ages	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	$136.25	$138.71	29.17	34.67
55	130.87	133.76	24.82	30.06
60	123.96	127.37	20.70	25.67
65	115.20	119.22	16.82	21.50
70	104.65	109.02	13.32	17.57
75	92.87	96.93	10.36	13.99
80	79.94	83.93	7.83	10.91

The present values shown above are for illustrative purposes only and include a 50% survivor benefit but do not include the value of future post-retirement increases. Males are assumed to be 3 years older than their spouses.

Age	Non-Uniformed				Uniformed	
	Male		Female		Male	Female
	Normal	Early	Normal	Early	Normal	
50	0.1800		0.1800		0.5000	0.5000
51	0.1800		0.1800		0.2500	0.2500
52	0.1800		0.1800		0.2000	0.2000
53	0.1800		0.1800		0.2000	0.2000
54	0.1800		0.1800		0.2000	0.2000
55	0.1800	0.0400	0.1800	0.0400	0.2500	0.2500
56	0.1800	0.0400	0.1800	0.0400	0.3000	0.3000
57	0.1800	0.0400	0.1800	0.0400	0.3500	0.3500
58	0.1800	0.0400	0.1800	0.0400	0.3500	0.3500
59	0.1800	0.0400	0.2000	0.0400	0.3500	0.3500
60	0.1800	0.0400	0.2000	0.0400	1.0000	1.0000
61	0.1800	0.0400	0.2000	0.0400	1.0000	1.0000
62	0.5000	0.3500	0.2500	0.4000	1.0000	1.0000
63	0.4000	0.0400	0.2000	0.3000	1.0000	1.0000
64	0.3000	0.0400	0.2000	0.3000	1.0000	1.0000
65	0.4500		0.4000		1.0000	1.0000
66	0.4000		0.4000		1.0000	1.0000
67	0.3500		0.4000		1.0000	1.0000
68	0.3500		0.4000		1.0000	1.0000
69	0.3500		0.4000		1.0000	1.0000
70	1.0000		1.0000		1.0000	1.0000

Rates of Disability

Age	Non-Uniformed Male	Non-Uniformed Female	Uniformed Male	Uniformed Female	Age	Non-Uniformed Male	Non-Uniformed Female	Uniformed Male	Uniformed Female
21	0.0001	0.0005	0.0002	0.0002	51	0.0042	0.0050	0.0017	0.0017
22	0.0001	0.0005	0.0002	0.0002	52	0.0048	0.0058	0.0019	0.0019
23	0.0001	0.0005	0.0002	0.0002	53	0.0054	0.0069	0.0022	0.0022
24	0.0001	0.0005	0.0002	0.0002	54	0.0060	0.0082	0.0025	0.0025
25	0.0001	0.0006	0.0003	0.0003	55	0.0066	0.0054	0.0000	0.0000
26	0.0001	0.0006	0.0003	0.0003	56	0.0066	0.0067	0.0000	0.0000
27	0.0001	0.0006	0.0003	0.0003	57	0.0066	0.0083	0.0000	0.0000
28	0.0001	0.0006	0.0003	0.0003	58	0.0066	0.0099	0.0000	0.0000
29	0.0001	0.0007	0.0003	0.0003	59	0.0066	0.0115	0.0000	0.0000
30	0.0001	0.0007	0.0003	0.0003	60	0.0000	0.0000	0.0000	0.0000
31	0.0002	0.0008	0.0003	0.0003	61	0.0000	0.0000	0.0000	0.0000
32	0.0003	0.0008	0.0004	0.0004	62	0.0000	0.0000	0.0000	0.0000
33	0.0004	0.0009	0.0004	0.0004	63	0.0000	0.0000	0.0000	0.0000
34	0.0005	0.0010	0.0004	0.0004	64	0.0000	0.0000	0.0000	0.0000
35	0.0006	0.0010	0.0004	0.0004	65	0.0000	0.0000	0.0000	0.0000
36	0.0007	0.0011	0.0005	0.0005	66	0.0000	0.0000	0.0000	0.0000
37	0.0007	0.0012	0.0005	0.0005	67	0.0000	0.0000	0.0000	0.0000
38	0.0008	0.0013	0.0005	0.0005	68	0.0000	0.0000	0.0000	0.0000
39	0.0008	0.0015	0.0005	0.0005	69	0.0000	0.0000	0.0000	0.0000
40	0.0009	0.0016	0.0006	0.0006	70	0.0000	0.0000	0.0000	0.0000
41	0.0011	0.0018	0.0006	0.0006	71	0.0000	0.0000	0.0000	0.0000
42	0.0014	0.0020	0.0007	0.0007	72	0.0000	0.0000	0.0000	0.0000
43	0.0016	0.0023	0.0008	0.0008	73	0.0000	0.0000	0.0000	0.0000
44	0.0019	0.0026	0.0008	0.0008	74	0.0000	0.0000	0.0000	0.0000
45	0.0021	0.0029	0.0009	0.0009	75	0.0000	0.0000	0.0000	0.0000
46	0.0024	0.0032	0.0010	0.0010	76	0.0000	0.0000	0.0000	0.0000
47	0.0027	0.0035	0.0011	0.0011	77	0.0000	0.0000	0.0000	0.0000
48	0.0030	0.0038	0.0013	0.0013	78	0.0000	0.0000	0.0000	0.0000
49	0.0033	0.0041	0.0014	0.0014	79	0.0000	0.0000	0.0000	0.0000
50	0.0036	0.0045	0.0015	0.0015	80	0.0000	0.0000	0.0000	0.0000

RATES OF SEPARATION FROM ACTIVE EMPLOYMENT
LESS THAN 5 YEARS OF SERVICE

	Non-Uniformed		Uniformed	
Service	**Male**	**Female**	**Male**	**Female**
0-1	0.2500	0.1800	0.0800	0.0800
1-2	0.1200	0.1100	0.0600	0.0600
2-3	0.0700	0.0900	0.0450	0.0450
3-4	0.0600	0.0700	0.0400	0.0400
4-5	0.0500	0.0600	0.0400	0.0400

This assumption was first used in the June 30, 2007 valuation.

Rates of Separation from Active Employment
More Than 5 Years of Service

Age	Non-Uniformed		Uniformed	
	Male	Female	Male	Female
25	0.0470	0.0625	0.0450	0.0450
26	0.0470	0.0609	0.0450	0.0450
27	0.0470	0.0593	0.0450	0.0450
28	0.0426	0.0580	0.0426	0.0426
29	0.0402	0.0568	0.0402	0.0402
30	0.0378	0.0555	0.0378	0.0378
31	0.0354	0.0543	0.0354	0.0354
32	0.0340	0.0530	0.0330	0.0330
33	0.0322	0.0514	0.0294	0.0294
34	0.0304	0.0498	0.0258	0.0258
35	0.0286	0.0482	0.0222	0.0222
36	0.0268	0.0466	0.0186	0.0186
37	0.0250	0.0450	0.0150	0.0150
38	0.0232	0.0426	0.0140	0.0140
39	0.0214	0.0402	0.0130	0.0130
40	0.0196	0.0378	0.0120	0.0120
41	0.0178	0.0354	0.0110	0.0110
42	0.0160	0.0330	0.0100	0.0100
43	0.0150	0.0324	0.0094	0.0094
44	0.0140	0.0318	0.0088	0.0088
45	0.0130	0.0312	0.0082	0.0082
46	0.0120	0.0306	0.0076	0.0076
47	0.0110	0.0300	0.0070	0.0070
48	0.0106	0.0300	0.0062	0.0062
49	0.0102	0.0300	0.0054	0.0054
50	0.0098	0.0300	0.0046	0.0046
51	0.0094	0.0300	0.0038	0.0038
52	0.0090	0.0300	0.0030	0.0030
53	0.0082	0.0250	0.0026	0.0026
54	0.0074	0.0200	0.0022	0.0022
55	0.0066	0.0150	0.0018	0.0018
56	0.0058	0.0100	0.0014	0.0014
57	0.0050	0.0050	0.0010	0.0010
58	0.0040	0.0050	0.0010	0.0010
59	0.0030	0.0050	0.0010	0.0010
60	0.0021	0.0050	0.0010	0.0010

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Administrative Expenses:	0.58% of payroll, based upon actual results from previous year.
Disability Expenses:	0.57% of payroll included in contribution. Retirement system pays premium directly to an outside insurance company or TPA.
Marriage Assumption:	90% of participants are assumed to be married for purposes of death-in-service benefits. Applies to disabled members entitled to future retirement benefits also.
Pay Increase Timing:	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Normal Form of Benefit:	The assumed normal form of benefit is a 50% joint & survivor benefit for married members in the Closed Plan and a straight life benefit for all other members.
Optional Benefit Factors:	Optional Benefit Factors are in accordance with tables adopted by the Board. The Normal Cost and Actuarial Accrued Liability for the normal, early, and vesting decrements were increased by 1.5% for Uniformed Year 2000 Plan members and 1.0% for Non-Uniformed Year 2000 Plan members to account for subsidized option factors codified in the Statute.
Other:	Disability and turnover decrements do not operate during retirement eligibility.
Miscellaneous Loading:	The calculated normal and early retirement benefits were increased by 4.3% for Uniformed and 2.6% for Non-Uniformed to account for the inclusion of unused sick leave in the calculation of Average Pay. Post disability benefit liabilities were loaded by 150% to account for potential survivor benefits payable by the retirement system during the period of disability.

METHOD OF FINANCING FUTURE BENEFITS FOR PRESENT ACTIVE MEMBERS

The valuation was prepared in accordance with Section 104.1066 of the Missouri Revised Statutes, which requires the use of the entry-age normal actuarial cost method for determining normal cost and level percent-of-payroll financing of unfunded actuarial accrued liabilities. Details of the application of these methods are described below.

Normal cost and the allocation of present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

(i) the annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement.

(ii) for the purposes of determining the normal cost, the benefits of the Year 2000 Plan were used. This creates a normal cost that is a constant percentage of the member's year-by-year projected covered pay even as members transition from the current plan benefits to the Year 2000 Plan benefits.

The ***Value of Future Benefits*** was calculated using the benefits assumed to be payable in the future to current active, terminated vested and retired members. It was assumed that current active and retired Uniformed Patrol members hired prior to July 1, 2000 would elect to retain the benefits under the current plan. Computed costs were increased in accordance with the loads described on page E-10.

Method of Financing Future Benefits for Present Active Members (Concluded)

The ***Present Value of Future Normal Costs*** was defined as the average normal cost rate multiplied by the present value of future payroll for the group.

The ***Actuarial Accrued Liabilities*** were defined as the difference between the present value of future benefits and the present value of future normal costs.

Actuarial Accrued Liabilities, less pension assets as of June 30, 2007, resulted in ***Unfunded Actuarial Accrued Liabilities*** which were amortized as a level percent of payroll over a closed period of 28 years from July 1, 2008, in accordance with the adopted Board policy. This is consistent with GASB amortization period requirements.

GLOSSARY

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial value of assets. Also referred to as funding value of assets, smoothed market value of assets, or valuation assets.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased in over a closed 3-year period. This treatment helps remove the timing of investment activities from the valuation process. During periods when investment performance exceeds the assumed rate, valuation assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, valuation assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, valuation assets will become equal to market value.

Actuary. A person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation A.S.A. and ultimately to Fellowship with the designation F.S.A.

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Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost". Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going concern" basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and actuarial value of assets. Sometimes referred to as "unfunded accrued liability."

The existence of unfunded actuarial accrued liabilities is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liabilities do not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liabilities and the trend in their amount (after due allowance for devaluation of the dollar).

Valuation Payroll. Active member payroll that is intended to reflect the annual salary considered as covered compensation for Retirement System benefits.

SECTION F

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES OF THE RETIREMENT SYSTEM

Promises Made, and To Be Paid For. As each year is completed, the Retirement System in effect hands an "IOU" to each member then acquiring a year of service credit -- the "IOU" says: "The Missouri Department of Transportation and Highway Patrol Employees' Retirement System owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The objective of level percent-of-payroll financing is that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this objective, ***the employer contribution rate will remain approximately level from year to year*** --- and will not have to be increased for future generations of taxpayers. However, "Level percent-of-payroll" does NOT mean "Fixed percent-of-payroll". The level percent of payroll is an estimate that may change from one year to the next.

(There are systems which have a design for deferring contributions to future taxpayers, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time.)

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. ***Invested assets are a by-product and not the objective.*** Investment income becomes the 3rd contributor for benefits to employees, and is interlocked with the contribution amounts required from employees and employer.

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Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

> ***Normal Cost*** (the value assigned to service being rendered this year)
>
> . . . plus . . .
>
> ***Interest on Unfunded Actuarial Accrued Liabilities*** (the difference between liabilities for service already rendered and the accrued assets of the Retirement System).

Computing Contributions To Support System Benefits From a given schedule of benefits and from the employee data and asset data furnished by the system, the actuary determines the contribution rates to support the benefits, by means of ***an actuarial valuation.***

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases and the assumed age or ages at actual retirement.

In an actuarial valuation the actuary must assume what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience Once actual experience has occurred and has been observed, it will not coincide exactly with assumed experience, regardless of the skill of the actuary and the many calculations made. Most retirement systems cope with such differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is ***continuing adjustments to the financial position.***

THE ACTUARIAL VALUATION PROCESS

The ***actuarial valuation*** is the mathematical process by which the contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

A. ***Covered people data*** furnished by plan administrator, including:

Retired lives now receiving benefits

Former employees with vested benefits not yet payable

Active employees

B. + ***Asset data*** (cash & investments), furnished by the plan administrator

C. + ***Benefit provisions*** which specify eligibility and amounts of pensions

D. + ***Assumptions concerning future experience in various risk areas,*** which are established by the Retirement Board after consulting with the actuary

E. + ***The funding method*** for employer contributions (the long-term, planned pattern for employer contributions)

F. + ***Mathematically combining the assumptions, the funding method, and the data***

G. = Determination of:

Plan Financial Position and/or

New Employer Contribution Rate

MEANING OF "UNFUNDED ACCRUED LIABILITIES"

"Actuarial accrued liabilities" are the portion of the present value of plan promises to pay benefits in the future that are not covered by future normal cost contributions. A liability has been established ("accrued") because the service has been rendered but the resulting monthly cash benefit may not be payable until years in the future. Actuarial accrued liabilities are the result of complex mathematical calculations, which are made by the plan's actuary.

If "actuarial accrued liabilities" exceed the plan's accrued assets (cash & investments), the difference is ***"unfunded actuarial accrued liabilities."*** This is the usual condition. If the plan's assets equaled the plan's "actuarial accrued liabilities," then the plan would be termed "fully funded." This is an unusual condition.

Each time a plan adds a new benefit, which applies to service already rendered, an "actuarial accrued liability" is created, which is also an "unfunded actuarial accrued liability" because the plan can't print instant cash to cover the value of the new benefit promises. Payment for such unfunded actuarial accrued liabilities is spread over a period of years, commonly in the 20-50 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual plan experience is less favorable than assumed plan experience, the difference is added to unfunded actuarial accrued liabilities. In plans where benefits are directly related to an employee's pay near time of retirement, unfunded actuarial accrued liabilities rose dramatically during the 1970's. Unexpected rates of pay increase created additional actuarial accrued liabilities, which could not be matched by reasonable investment results. More recent experience has generally been more favorable with some reductions in unfunded actuarial accrued liabilities.

The existence of unfunded actuarial accrued liabilities is not bad, but the changes from year to year in the amount of unfunded actuarial accrued liabilities are important, --- "bad" or "good" or somewhere in between.

Even though unfunded actuarial accrued liabilities don't constitute a bill payable immediately, it is important that policy-makers prevent the amount from becoming unreasonably high and ***it is vital for plans to have a sound method for making payments toward them*** so that they are controlled.

SECTION G

SUPPLEMENTAL INFORMATION FOR COMPREHENSIVE ANNUAL FINANCIAL REPORTING

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October 2, 2007

The Retirement Board
Missouri Department of Transportation
and Highway Patrol Employees' Retirement System
P.O. Box 1930
Jefferson City, Missouri 65102-1930

Dear Board Members:

The basic financial objective of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is to establish and receive contributions which;

(1) when expressed in terms of percents of active member payroll, will remain approximately level from generation to generation of Missouri citizens, and which

(2) when combined with present assets and future investment returns, will be sufficient to meet the present and future financial obligations of MPERS.

In order to measure progress toward this fundamental objective, MPERS has annual actuarial valuations performed. The valuations (i) measure present financial position, and (ii) establish contribution rates that provide for the current cost and level percent-of-payroll amortization of unfunded actuarial liabilities over a reasonable period. An actuarial valuation was performed based upon benefit conditions, data and assumptions as of June 30, 2007. This valuation indicates that contribution rates for the period beginning July 1, 2008 that are at least equal to the calculated contributions rates will meet the Board's financial objective. The calculated contribution rates are 30.73% of payroll for the 7,586 Non-Uniformed employees and 40.23% of payroll for the 1,054 Uniformed patrol employees.

The actuarial valuations are based upon financial and participant data (which is prepared by retirement system staff) assumptions regarding future rates of investment return and inflation, and rates of retirement, turnover, death, and disability among MPERS' members and their beneficiaries. We review the data for internal and year-to-year consistency as well as general reasonableness prior to its use in the actuarial valuations. It is also summarized and tabulated for the purpose of analyzing trends. The assumptions were adopted by the Board of Trustees and were based upon actual experience of MPERS during the period July 1, 1999 to June 30, 2004. Assets were valued using a three-year smoothing method. The assumptions and methods utilized in this valuation, in our opinion, meet the parameters established by the Governmental Accounting Standards Board Statement No. 25.

The current benefit structure is outlined in the introductory section. We provided the information used in the supporting schedules in the actuarial section and the Schedules of Funding Progress in the financial section, as well as the employer contribution rates shown in the Schedule of Employer Contributions in the financial section.

Based upon the valuation results, it is our opinion that the Missouri Department of Transportation and Highway Patrol Employees' Retirement System continues to operate in accordance with actuarial principles of level percent-of-payroll financing. However, a material decline in the funded status for any reason would lead to a need for increased contributions.

Respectfully submitted,

Brian B. Murphy, F.S.A. Kenneth G. Alberts

SOLVENCY TEST

The MPERS 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 in ***the*** long term test.

A solvency test is one means of checking a system's progress under its funding program. In a solvency test for a non-contributory plan, the plan's present assets (cash and investments) are compared with: 1) The liabilities for future benefits to present retired lives and 2) The liabilities for service already rendered by members. In a system that has been following the discipline of level percent of payroll financing, the liabilities for future benefits to present retired lives (liability 1) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by members (liability 2) will be partially covered by the remainder of present assets. The larger the funded portion of liability 2, the stronger the condition of the system.

The schedule below illustrates the history of liability 2 of the System. Progress on solvency has been negatively impacted by the 2000-2002 investment market.

Val. Date June 30	(1) Retirees and Benef.	(2) Active and Inactive Members	Present Valuation Assets	Portion of Present Values Covered by Present Assets		
				(1)	(2)	Total
	---------	--------$ Millions--------	---------			
1999	1,132	921	1,243	100%	12%	61%
2000	1,238	951	1,423	100%	19%	65%
2001	1,375	926	1,521	100%	16%	66%
2002 #	1,470	888	1,451	99%	0%	62%
2003	1,555	863	1,364	88%	0%	56%
2004	1,626	867	1,332	82%	0%	53%
2005 #	1,669	958	1,417	85%	0%	54%
2006	1,734	1,007	1,521	88%	0%	56%
2007 #	1,810	1,087	1,686	93%	0%	58%

\# *New Assumptions adopted.*

DERIVATION OF EXPERIENCE GAIN (LOSS)

Actual experience will never coincide exactly with assumed experience (except by coincidence). Gains and losses may offset each other over a period of years, but sizeable year-to-year variations from assumed experience are common. Detail on the derivation of the experience gain (loss) is shown below.

	$ Millions
UAAL Beginning of Year (at July 1)	$ 1,219,294,884
Normal Cost	45,753,500
Contributions	(121,773,287)
Interest	97,456,012
Net Change in LTD Assets	0
Expected UAAL Before Any Changes	1,240,731,109
Effect of Changes in Assumptions & Methods	493,591
Expected UAAL After Changes	1,241,224,700
End of Year UAAL (at June 30)	1,211,460,405

Gain/(Loss) for Year	$ 29,764,295
Gain/(Loss) as a percent of actuarial accrued liabilities at start of year ($2,740.4 million)	1.1%

Valuation Date June 30	**Experience Gain (Loss) as % of Beginning Accrued Liability**
1999	(7.7)%
2000	(0.1)%
2001	(9.3)%
2002	(4.5)%
2003	(5.2)%
2004	(2.9)%
2005	(1.5)%
2006	1.4%
2007	1.1%

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date:	June 30, 2007
Actuarial Cost Method:	Entry Age
Amortized Method:	Level percent of payroll
Remaining Amortization Period:	28 years from July 1, 2008
Asset Valuation Method:	3-year smoothing
Actuarial Assumptions:	
Investment Rate of Return:	8.25%
Projected Salary Increase:	3.75% to 11.75%
Cost-of-Living Adjustments:	2.6% Compound
Includes Wage Inflation at:	3.75%

An actuarial valuation is based upon an actuarial cost method, an asset valuation method, and actuarial assumptions. These methods and assumptions are chosen by the Board of Trustees after consultation with the Actuary and other advisors.

The actuarial cost method is called the Entry Age Actuarial Cost Method. This method is consistent with the Board's level percent of payroll funding objective. With this method, the level percent of payroll is determined that will fund a member's retirement benefit over the member's entire working lifetime, from date of hire (Entry Age) to date of exit from the active member population. Differences in the past between assumed and actual experience become part of unfunded actuarial accrued liabilities and are amortized with level percent of payroll contributions. This cost method was first used in the ***June 30, 1999*** valuation.

The asset valuation method is a three year smoothed market value method in which assumed investment return is recognized immediately each year and differences between actual and assumed investment return are phased in over a closed three year period. This asset valuation method is intended to give recognition to the long term accuracy of market values while filtering out and dampening short term market swings. This method was first used in the ***June 30, 1999*** valuation.

The actuarial assumptions used in producing the valuation fall into two broad classes: economic assumptions, and demographic assumptions. Economic assumptions refer to long term rates of investment return, wage growth, covered population growth, and inflation. Demographic assumptions refer to retirement rates, turnover rates, disability rates, merit and seniority pay increases, and mortality rates. The current assumptions are based upon a 1999-2004 study of experience of the MPERS. The assumptions are reviewed from time to time to keep them reasonably current with expected experience.

Economic Assumptions

The investment return rate used in making the valuation was 8.25% per year, compounded annually (net after administrative expenses). This rate of return is not the assumed real rate of return. The real rate of return over wage inflation is defined to be the portion of investment return which is more than the wage inflation rate. Considering wage inflation recognition of 3.75%, the 8.25% rate translates to an assumed real rate of return over wage inflation of 4.5%. This rate was first used for the ***June 30, 2005*** valuation.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS (CONTINUED)

Pay increase assumptions for individual active members are shown on Tables IV and V. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.75% recognizes wage inflation. These rates were first used for the **June 30, 2005** valuation.

Price Inflation is assumed to be 3.75%. This results in a 2.6% annual COLA assumption. It is assumed that the 2.6% COLA will always be paid.

The Active Member Group size is assumed to remain constant at its present level.

Total active member payroll is assumed to increase 3.75% a year, which is the portion of the individual pay increase assumptions attributable to wage inflation. This rate was first used for the **June 30, 2005** valuation.

Non Economic Assumptions

The mortality table used to measure retired life mortality was the 1971 Group Annuity Mortality Tables projected to the year 2000 set back 1 year for males and 7 years for females. Related values are shown on Table I. This table was first used for the June 30, 2000 valuation. Disabled pension mortality was based on PBGC Disabled Mortality tables.

The probabilities of retirement for members eligible to retire are shown on Tables II and III. The rates for full retirement were first used in the **June 30, 2005** valuation. The rates for reduced retirement were first used in the **June 30, 2005** valuation.

The probabilities of withdrawal from service, death in service and disability are shown for sample ages on Tables III and IV. The death-in-service and disability rates were first used in the **June 30, 2005** valuation. The withdrawal rates for Uniform members were first used in the **June 30, 2007** valuation. The withdrawal rates for Non-uniform members were first used in the **June 30, 2005** valuation.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary. Data was furnished as of May 31 and assumed to be statistically equivalent to June 30.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

TABLE I
JOINT LIFE RETIREMENT VALUES
(8.25% INTEREST)

Sample Attained Ages	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	$136.25	$138.71	29.17	34.67
55	130.87	133.76	24.82	30.06
60	123.96	127.37	20.70	25.67
65	115.20	119.22	16.82	21.50
70	104.65	109.02	13.32	17.57
75	92.87	96.93	10.36	13.99
80	79.94	83.93	7.83	10.91

The present values shown above are for illustrative purposes only and include a 50% survivor benefit but do not include the value of future post-retirement increases. Males are assumed to be 3 years older than their spouses.

Table II
Rates of Retirement

	Non-Uniformed				Uniformed	
	Male		Female		Male	Female
Age	Normal	Early	Normal	Early	Normal	
50	0.1800		0.1800		0.5000	0.5000
51	0.1800		0.1800		0.2500	0.2500
52	0.1800		0.1800		0.2000	0.2000
53	0.1800		0.1800		0.2000	0.2000
54	0.1800		0.1800		0.2000	0.2000
55	0.1800	0.0400	0.1800	0.0400	0.2500	0.2500
56	0.1800	0.0400	0.1800	0.0400	0.3000	0.3000
57	0.1800	0.0400	0.1800	0.0400	0.3500	0.3500
58	0.1800	0.0400	0.1800	0.0400	0.3500	0.3500
59	0.1800	0.0400	0.2000	0.0400	0.3500	0.3500
60	0.1800	0.0400	0.2000	0.0400	1.0000	1.0000
61	0.1800	0.0400	0.2000	0.0400	1.0000	1.0000
62	0.5000	0.3500	0.2500	0.4000	1.0000	1.0000
63	0.4000	0.0400	0.2000	0.3000	1.0000	1.0000
64	0.3000	0.0400	0.2000	0.3000	1.0000	1.0000
65	0.4500		0.4000		1.0000	1.0000
66	0.4000		0.4000		1.0000	1.0000
67	0.3500		0.4000		1.0000	1.0000
68	0.3500		0.4000		1.0000	1.0000
69	0.3500		0.4000		1.0000	1.0000
70	1.0000		1.0000		1.0000	1.0000

TABLE III
RATES OF DISABILITY

Age	Non-Uniformed		Uniformed		Age	Non-Uniformed		Uniformed	
	Male	Female	Male	Female		Male	Female	Male	Female
21	0.0001	0.0005	0.0002	0.0002	51	0.0042	0.0050	0.0017	0.0017
22	0.0001	0.0005	0.0002	0.0002	52	0.0048	0.0058	0.0019	0.0019
23	0.0001	0.0005	0.0002	0.0002	53	0.0054	0.0069	0.0022	0.0022
24	0.0001	0.0005	0.0002	0.0002	54	0.0060	0.0082	0.0025	0.0025
25	0.0001	0.0006	0.0003	0.0003	55	0.0066	0.0054	0.0000	0.0000
26	0.0001	0.0006	0.0003	0.0003	56	0.0066	0.0067	0.0000	0.0000
27	0.0001	0.0006	0.0003	0.0003	57	0.0066	0.0083	0.0000	0.0000
28	0.0001	0.0006	0.0003	0.0003	58	0.0066	0.0099	0.0000	0.0000
29	0.0001	0.0007	0.0003	0.0003	59	0.0066	0.0115	0.0000	0.0000
30	0.0001	0.0007	0.0003	0.0003	60	0.0000	0.0000	0.0000	0.0000
31	0.0002	0.0008	0.0003	0.0003	61	0.0000	0.0000	0.0000	0.0000
32	0.0003	0.0008	0.0004	0.0004	62	0.0000	0.0000	0.0000	0.0000
33	0.0004	0.0009	0.0004	0.0004	63	0.0000	0.0000	0.0000	0.0000
34	0.0005	0.0010	0.0004	0.0004	64	0.0000	0.0000	0.0000	0.0000
35	0.0006	0.0010	0.0004	0.0004	65	0.0000	0.0000	0.0000	0.0000
36	0.0007	0.0011	0.0005	0.0005	66	0.0000	0.0000	0.0000	0.0000
37	0.0007	0.0012	0.0005	0.0005	67	0.0000	0.0000	0.0000	0.0000
38	0.0008	0.0013	0.0005	0.0005	68	0.0000	0.0000	0.0000	0.0000
39	0.0008	0.0015	0.0005	0.0005	69	0.0000	0.0000	0.0000	0.0000
40	0.0009	0.0016	0.0006	0.0006	70	0.0000	0.0000	0.0000	0.0000
41	0.0011	0.0018	0.0006	0.0006	71	0.0000	0.0000	0.0000	0.0000
42	0.0014	0.0020	0.0007	0.0007	72	0.0000	0.0000	0.0000	0.0000
43	0.0016	0.0023	0.0008	0.0008	73	0.0000	0.0000	0.0000	0.0000
44	0.0019	0.0026	0.0008	0.0008	74	0.0000	0.0000	0.0000	0.0000
45	0.0021	0.0029	0.0009	0.0009	75	0.0000	0.0000	0.0000	0.0000
46	0.0024	0.0032	0.0010	0.0010	76	0.0000	0.0000	0.0000	0.0000
47	0.0027	0.0035	0.0011	0.0011	77	0.0000	0.0000	0.0000	0.0000
48	0.0030	0.0038	0.0013	0.0013	78	0.0000	0.0000	0.0000	0.0000
49	0.0033	0.0041	0.0014	0.0014	79	0.0000	0.0000	0.0000	0.0000
50	0.0036	0.0045	0.0015	0.0015	80	0.0000	0.0000	0.0000	0.0000

TABLE IV
RATES OF SEPARATION FROM ACTIVE EMPLOYMENT
LESS THAN 5 YEARS OF SERVICE

	Non-Uniformed		Uniformed	
Service	Male	Female	Male	Female
0-1	0.2500	0.1800	0.0800	0.0800
1-2	0.1200	0.1100	0.0600	0.0600
2-3	0.0700	0.0900	0.0450	0.0450
3-4	0.0600	0.0700	0.0400	0.0400
4-5	0.0500	0.0600	0.0400	0.0400

TABLE V
RATES OF SEPARATION FROM ACTIVE EMPLOYMENT
MORE THAN 5 YEARS OF SERVICE

	Non-Uniformed		Uniformed	
Age	Male	Female	Male	Female
25	0.0470	0.0625	0.0450	0.0450
26	0.0470	0.0609	0.0450	0.0450
27	0.0470	0.0593	0.0450	0.0450
28	0.0426	0.0580	0.0426	0.0426
29	0.0402	0.0568	0.0402	0.0402
30	0.0378	0.0555	0.0378	0.0378
31	0.0354	0.0543	0.0354	0.0354
32	0.0340	0.0530	0.0330	0.0330
33	0.0322	0.0514	0.0294	0.0294
34	0.0304	0.0498	0.0258	0.0258
35	0.0286	0.0482	0.0222	0.0222
36	0.0268	0.0466	0.0186	0.0186
37	0.0250	0.0450	0.0150	0.0150
38	0.0232	0.0426	0.0140	0.0140
39	0.0214	0.0402	0.0130	0.0130
40	0.0196	0.0378	0.0120	0.0120
41	0.0178	0.0354	0.0110	0.0110
42	0.0160	0.0330	0.0100	0.0100
43	0.0150	0.0324	0.0094	0.0094
44	0.0140	0.0318	0.0088	0.0088
45	0.0130	0.0312	0.0082	0.0082
46	0.0120	0.0306	0.0076	0.0076
47	0.0110	0.0300	0.0070	0.0070
48	0.0106	0.0300	0.0062	0.0062
49	0.0102	0.0300	0.0054	0.0054
50	0.0098	0.0300	0.0046	0.0046
51	0.0094	0.0300	0.0038	0.0038
52	0.0090	0.0300	0.0030	0.0030
53	0.0082	0.0250	0.0026	0.0026
54	0.0074	0.0200	0.0022	0.0022
55	0.0066	0.0150	0.0018	0.0018
56	0.0058	0.0100	0.0014	0.0014
57	0.0050	0.0050	0.0010	0.0010
58	0.0040	0.0050	0.0010	0.0010
59	0.0030	0.0050	0.0010	0.0010
60	0.0021	0.0050	0.0010	0.0010

TABLE VI
AGE BASED SALARY SCALE

Age	Salary Increase Assumptions for an Individual Member					
	Non-Uniformed			Uniformed		
	Merit & Seniority	Base (Economic)	Increase Next Year	Merit & Seniority	Base (Economic)	Increase Next Year
20	8.00%	3.75%	11.75%	6.00%	3.75%	9.75%
21	8.00%	3.75%	11.75%	6.00%	3.75%	9.75%
22	8.00%	3.75%	11.75%	6.00%	3.75%	9.75%
23	7.30%	3.75%	11.05%	5.80%	3.75%	9.55%
24	6.52%	3.75%	10.27%	5.60%	3.75%	9.35%
25	5.66%	3.75%	9.41%	5.40%	3.75%	9.15%
26	4.72%	3.75%	8.47%	5.20%	3.75%	8.95%
27	4.50%	3.75%	8.25%	5.00%	3.75%	8.75%
28	4.10%	3.75%	7.85%	4.50%	3.75%	8.25%
29	3.70%	3.75%	7.45%	4.00%	3.75%	7.75%
30	3.30%	3.75%	7.05%	3.50%	3.75%	7.25%
31	2.90%	3.75%	6.65%	3.00%	3.75%	6.75%
32	2.50%	3.75%	6.25%	2.50%	3.75%	6.25%
33	2.35%	3.75%	6.10%	2.25%	3.75%	6.00%
34	2.20%	3.75%	5.95%	2.00%	3.75%	5.75%
35	2.05%	3.75%	5.80%	1.75%	3.75%	5.50%
36	1.90%	3.75%	5.65%	1.50%	3.75%	5.25%
37	1.75%	3.75%	5.50%	1.25%	3.75%	5.00%
38	1.65%	3.75%	5.40%	1.20%	3.75%	4.95%
39	1.55%	3.75%	5.30%	1.15%	3.75%	4.90%
40	1.45%	3.75%	5.20%	1.10%	3.75%	4.85%
41	1.35%	3.75%	5.10%	1.05%	3.75%	4.80%
42	1.25%	3.75%	5.00%	1.00%	3.75%	4.75%
43	1.15%	3.75%	4.90%	0.88%	3.75%	4.63%
44	1.05%	3.75%	4.80%	0.76%	3.75%	4.51%
45	0.95%	3.75%	4.70%	0.64%	3.75%	4.39%
46	0.85%	3.75%	4.60%	0.52%	3.75%	4.27%
47	0.75%	3.75%	4.50%	0.40%	3.75%	4.15%
48	0.70%	3.75%	4.45%	0.39%	3.75%	4.14%
49	0.65%	3.75%	4.40%	0.38%	3.75%	4.13%
50	0.60%	3.75%	4.35%	0.37%	3.75%	4.12%
51	0.55%	3.75%	4.30%	0.36%	3.75%	4.11%
52	0.50%	3.75%	4.25%	0.35%	3.75%	4.10%
53	0.46%	3.75%	4.21%	0.33%	3.75%	4.08%
54	0.42%	3.75%	4.17%	0.31%	3.75%	4.06%
55	0.38%	3.75%	4.13%	0.29%	3.75%	4.04%
56	0.34%	3.75%	4.09%	0.27%	3.75%	4.02%
57	0.30%	3.75%	4.05%	0.25%	3.75%	4.00%
58	0.30%	3.75%	4.05%	0.00%	3.75%	3.75%
59	0.30%	3.75%	4.05%	0.00%	3.75%	3.75%
60	0.30%	3.75%	4.05%	0.00%	3.75%	3.75%