GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

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

ACTUARIAL VALUATION REPORT

AS OF JUNE 30, 2010

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October 29, 2010

The Retirement Board
Missouri Department of Transportation
and Highway Patrol Employees' Retirement System
1913 William Street
Jefferson City, Missouri 65102-1930

Ladies and Gentlemen:

The results of the regular annual actuarial valuation as of June 30, 2010 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 her staff. Member data was reviewed for reasonableness, but was not audited by the actuary. Financial data was received in aggregate and reviewed for reasonableness. Individual investments were not reviewed. Assets are 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.

The signing actuaries are Members of the American Academy of Actuaries (M.A.A.A.) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Brian B. Murphy

Kenneth G. Alberts

Brian B. Murphy, F.S.A., E.A., M.A.A.A.

Kenneth G. Alberts

SUMMARY

This report contains the results of the June 30, 2010 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	582	3,478	4,060	730	4,790
Year 2000 Plan	562	2,730	3,292	375	3,667
Total Active Members	1,144	6,208	7,352	1,105	8,457
Total Active Members Prior Year	*1,122*	*6,579*	*7,701*	*1,083*	*8,784*
Retiree -- Regular Pensioners					
Closed Plan	422	3,749	4,171	781	4,952
Year 2000 Plan	355	2,153	2,508	1	2,509
Total Regular Pensioners	777	5,902	6,679	782	7,461
Self Insured Disability Pensioners	6	67	73	3	76
Fully Insured Disability Pensioners	5	64	69	0	69
Terminated Vested Members	219	1,407	1,626	161	1,787
Total	2,151	13,648	15,799	2,051	17,850
Active Member Valuation Payroll	$41,931,141	$260,802,058	$302,733,199	$67,178,053	$369,911,252
Active Mem. Val. Payroll Prior Year	*$41,561,449*	*$268,487,978*	*$310,049,427*	*$67,602,818*	*$377,652,245*
Unfunded Actuarial Accrued Liability	N/A	N/A	$1,442,749,286	$440,273,066	$1,883,022,352

The June 30, 2010 valuation results are used to determine the contribution rate for the plan year beginning July 1, 2011. A summary of valuation results and recommended contribution rates follows.

The **total contribution rate** for the plan year beginning July 1, 2011 is shown below.

	FY 2012 Employer Contribution Rates Expressed As % of Active Payroll For Total Benefits				
	Non-Uniformed				
	Civilian Patrol Employees	MoDOT Employees	Total	Uniformed Patrol Total	Combined Rate (MPERS Total)
Normal Cost	11.27%	11.27%	11.27%	14.49%	11.87%
Unfunded Liability	33.04%	33.04%	33.04%	43.00%	34.85%
Expenses	0.61%	0.61%	0.61%	0.61%	0.61%
Subtotal	44.92%	44.92%	44.92%	58.10%	47.33%
Disability Insurance	0.53%	0.53%	0.53%	0.53%	0.53%
Total	45.45%	45.45%	45.45%	58.63%	47.86%
Illustrative $	$19,057,704	$118,534,535	$137,592,239	$39,386,492	$176,978,731
Prior Year Illustrative $			$122,345,504	$33,483,676	$155,829,180

Rates are based on Pre-2011 Plans. See *New Tier* comments on page 6.

The dollar contribution amounts shown above are illustrated and based on the June 30, 2010 valuation payroll. Actual dollar contributions should be based on covered payroll for the fiscal year beginning July 1, 2011. The total contribution is based on a 14-year amortization period for unfunded retiree liabilities and a 29-year amortization period for other unfunded liabilities from July 1, 2011 in accordance with Board policy adopted September 17, 2009.

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.

Prior year Illustrative dollars are based on rates of 39.46% for Non-Uniform and 49.53% for Uniform.

Assumptions and Methods: There were no changes in benefits for the June 30, 2010 valuation since at this time there are no people in the 2011 Tier. The assumptions and methods used were those adopted by the Board from the July 1, 2004 through June 30, 2009 experience study. These changes resulted in a change in the computed contribution rate of 1.38% for non-uniform and 3.40% for uniform.

Experience: Although system assets recognized a 13.3% rate of return on a market basis, the fund recognized a (1.5%) rate of return on an actuarial basis after accounting for the smoothing of this year's gain and the prior two years' losses (please see page C-2). Liability gains were mostly due to pay increases that were less than assumed. Aggregate experience during the year was therefore less favorable than expected resulting in an experience loss of approximately $118 million which is approximately 3.80% of beginning of year accrued liabilities. The primary source of experience loss was due to recognizing prior years' investment losses. As measured by the Actuarial Value of Assets, the funded status of the fund decreased from 47.3% funded last year to 42.2% funded this year. However, as measured by the market value of assets, the funded ratio actually improved slightly.

The aggregate loss was made up of a $139 million investment loss and a $21 million liability gain (measured against the 2009 assumptions). Currently the asset smoothing method spreads gains and losses over a 3 year period with a 20% market corridor.

Funding Policy:

Permanent Policy: The total contribution will be based on normal cost plus a 25-year amortization of unfunded actuarial accrued liabilities. The amortization period is a closed 25-year period starting July 1, 2011.

Temporary Accelerated Policy: The total contribution is based on normal cost plus a 14-year amortization period for unfunded retiree liabilities and a 29-year amortization period for other unfunded liabilities. Both amortization periods are closed periods starting July 1, 2011.

This temporary accelerated policy was adopted by the Retirement Board on September 17, 2009 and will remain in effect until such time as the retiree liability becomes 100% funded or the permanent policy produces a higher contribution rate.

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	39.46%	49.53%
Effects of:		
Change in disability premiums	0.00%	0.00%
Change in assumptions	1.38%	3.40%
09/10 recognized investment loss (gain)	2.36%	3.26%
09/10 liability experience loss (gain)	(0.34%)	(0.56%)
Change in administrative expenses	(0.08%)	(0.08%)
Change due to payroll increase less than expected	2.56%	2.33%
Misc (demographic, payroll weighting, contribution delay, etc.)	0.11%	0.75%
Computed employer contribution rate, current valuation	45.45%	58.63%

Accelerated Amortization Schedule: In accordance with RSMo 105.684 an accelerated amortization schedule was prepared and presented to the Board. On September 17, 2009, the Board adopted that accelerated schedule as a temporary funding policy, until such time as the retiree liability becomes 100% funded or the permanent policy produces a higher contribution rate.

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:

	June 30, 2010			June 30, 2009
Asset Basis	**Non-Uniformed**	**Uniformed**	**Total**	**Total**
Funding Value	65.5%	74.9%	67.6%	75.6%
Market Value	62.3%	71.2%	64.4%	63.0%

New Tier: Legislation passed in the summer of 2010 effectively closed the Y2K Plan benefits to new hires and opened a new tier know as the 2011 Tier. All new hires after January 1, 2011 will enter the 2011 Tier. The new Tier includes the following:

- 4% employee contribution rate;
- 10-year vesting;
- later retirement eligibility;
- no DROP eligibility.

We estimate that the employer Normal Cost for the new tier will be lower than the pre 2011 plans by approximately 6.24% (non-uniform) of payroll and 4.48% of payroll (uniform) based on the fiscal notes. These estimates will be refined as members are actually hired into this tier.

Recommendation: The combination of a low funding ratio and the market downturn in FY 2009 has resulted in MPERS retiree liabilities being less than 100% funded. Given that the FY 2009 losses will continue to have upward pressure on the contribution rates and downward pressure on the funded status over the next year, we have made the following recommendations to the Board:

- Consider not lowering the employer contribution rate for post January 1, 2011 hires, until those members are accounted for in a valuation.

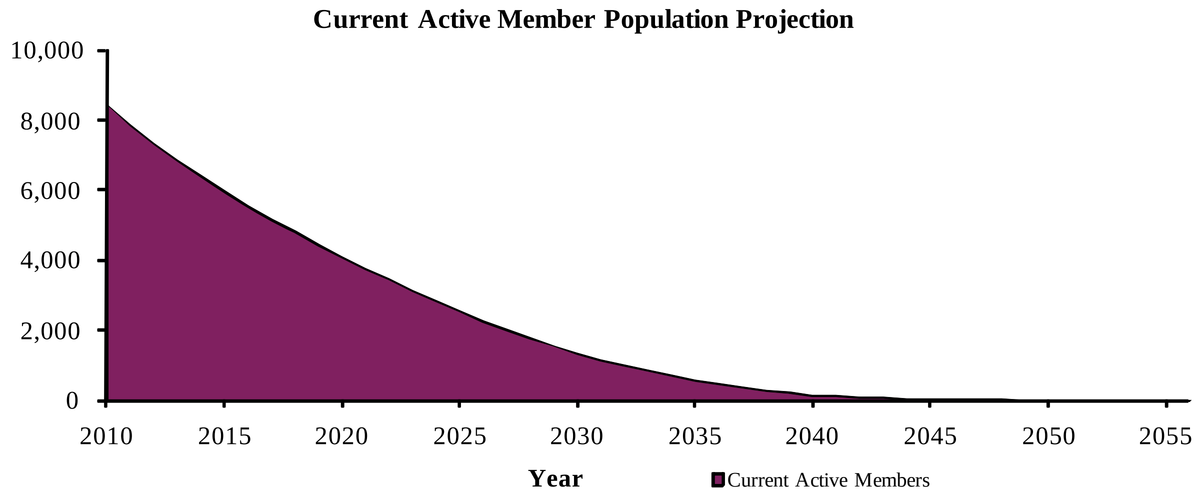
This recommendation was adopted by the Board at the September 2010 meeting.

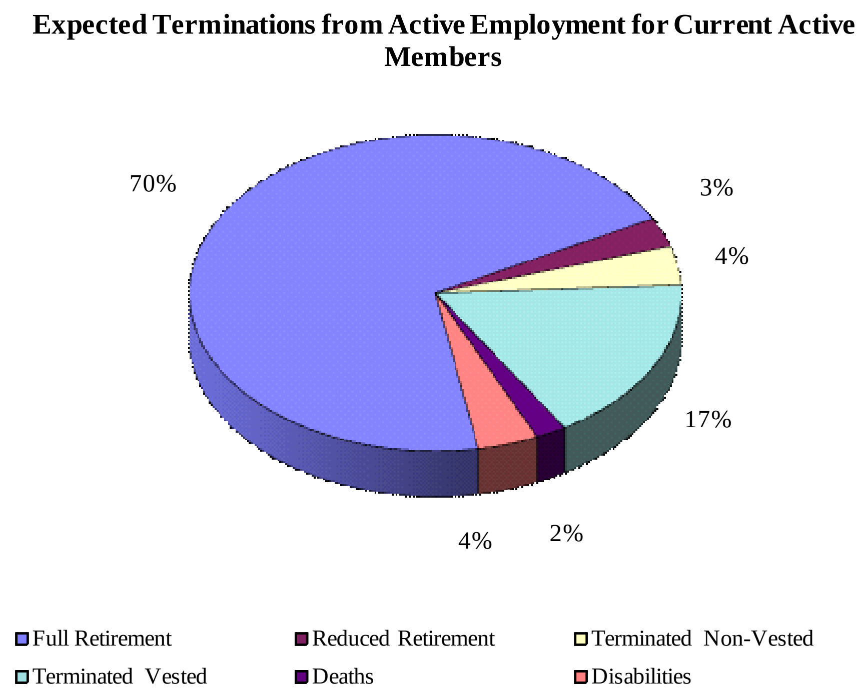
Conclusion: Based upon the results of the June 30, 2010 regular annual actuarial valuation, it is our opinion that the Missouri Department of Transportation and Highway Patrol Employees' Retirement System continues to be financed in accordance with actuarial principles of level percent of payroll financing. 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. In addition, we commend the 2009 Board in its decision to more aggressively address the unfunded retiree liability issue.

SUMMARY OF KEY VALUATION RESULTS

Actuarial Present Value	June 30, 2010 (1) Actuarial Present Value	June 30, 2010 (2) Portion Covered By Future Normal Cost Contributions	June 30, 2010 (3) Actuarial Accrued Liabilities (1) - (2)	June 30, 2009 Actuarial Accrued Liabilities
Active Members				
Service retirement benefits based on service rendered before and likely to be rendered after valuation date	$ 1,429,472,167	$341,496,156	$ 1,087,976,011	$ 1,028,154,892
Disability benefits likely to be paid to present active members who become totally and permanently disabled	60,988,418	18,952,151	42,036,267	35,995,337
Survivor benefits likely to be paid to widows and children of present active members who die before retiring	25,329,405	7,674,194	17,655,211	19,888,193
Separation benefits likely to be paid to present active members	45,994,904	22,483,323	23,511,581	28,861,267
Active Member Totals	$ 1,561,784,894	$390,605,824	$ 1,171,179,070	$ 1,112,899,689
Terminated Vested Members			53,332,069	53,039,681
Retired Lives			2,034,355,786	1,947,454,275
Total Actuarial Accrued Liability			$ 3,258,866,925	$ 3,113,393,645
Actuarial Value of Assets			1,375,844,573	1,471,496,660
Unfunded Actuarial Accrued Liability			$ 1,883,022,352	$ 1,641,896,985

EXPECTED DEVELOPMENT OF PRESENT POPULATION AS OF JUNE 30, 2010

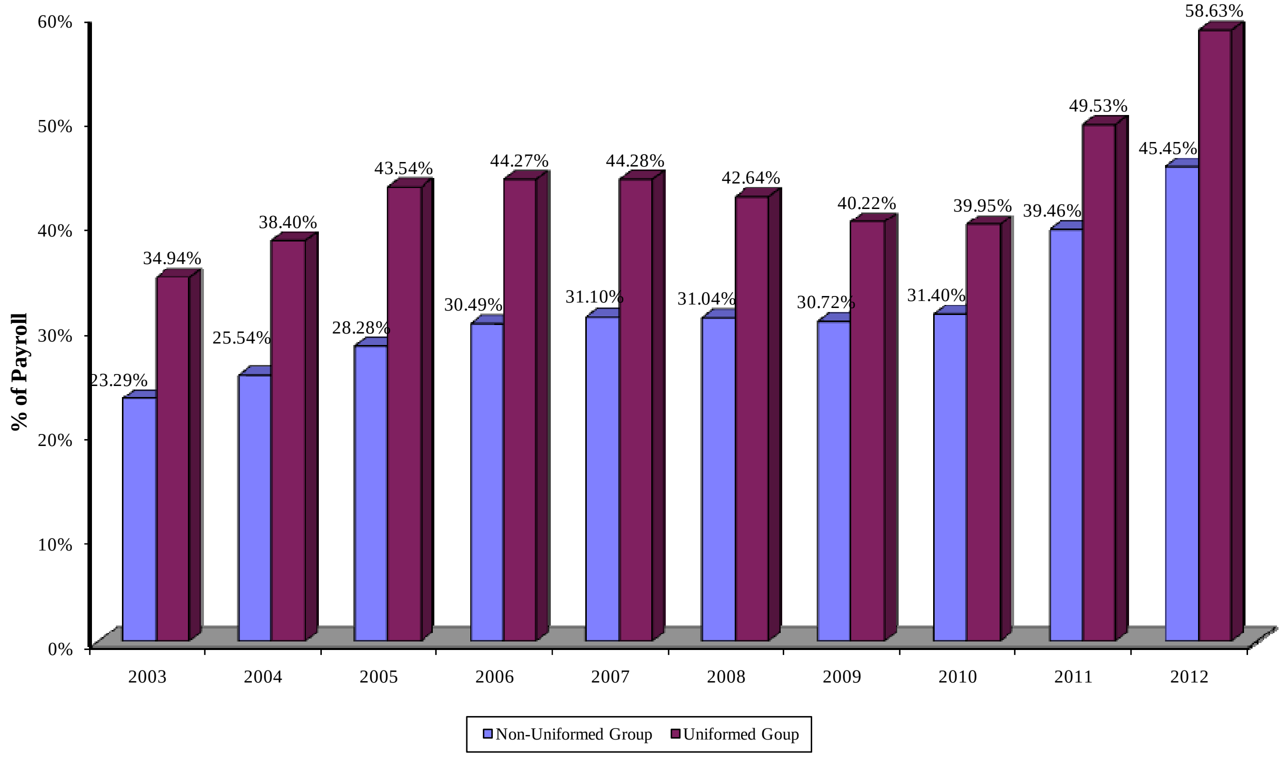




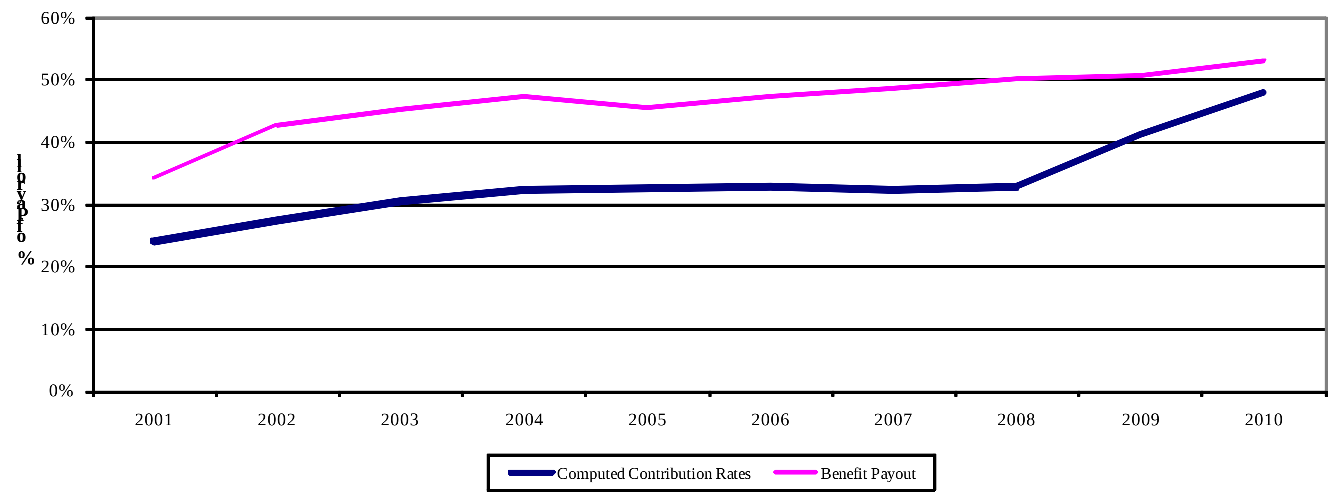
The charts above show the expected future development of the present population in simplified terms. The retirement system presently covers 8,457 active members. Eventually, 4% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Of the present population, 90% 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.

HISTORICAL CONTRIBUTION RATES AND BENEFIT PAYOUTS

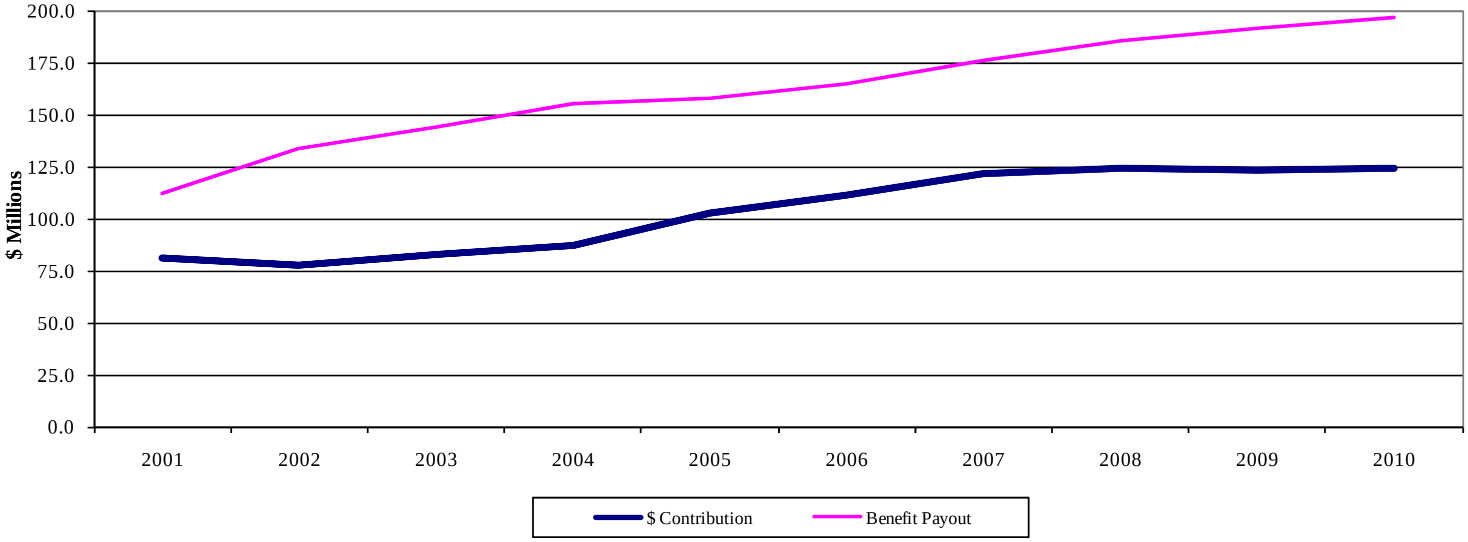
Computed Contribution Rates



Contribution Rates vs. Benefit Payout

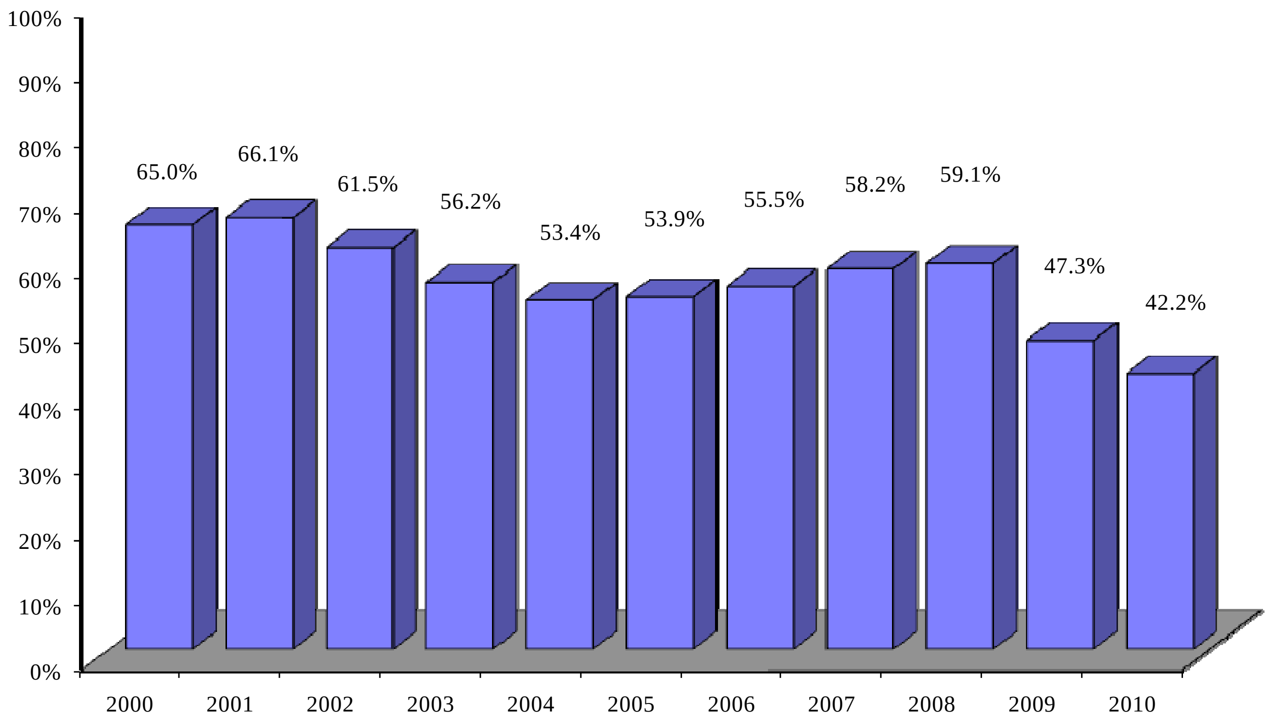


Contribution Dollars vs. Benefit Payout Dollars
(in millions)



HISTORICAL FUNDED RATIOS

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



SECTION A

VALUATION RESULTS

Computed Contributions to Support Benefits
For Fiscal Year 2012
Contributions Computed as of June 30, 2010

Contributions for	Non-Uniformed Employees	Uniformed Patrol	Total
Normal Cost			
Age & service benefits	9.64%	13.44%	10.34%
Disability benefits #	0.67%	0.33%	0.61%
Survivor benefits	0.23%	0.26%	0.24%
Separation benefits	0.73%	0.46%	0.68%
Total Normal Cost	11.27%	14.49%	11.87%
Unfunded Actuarial Accrued Liabilities*	33.04%	43.00%	34.85%
Expense Provision	0.61%	0.61%	0.61%
Subtotal	44.92%	58.10%	47.33%
Disability Insurance	0.53%	0.53%	0.53%
Total Contribution Rate	45.45%	58.63%	47.86%
Illustrative Dollar Contribution	$ 137,592,239	$ 39,386,492	$ 176,978,731
Prior Year			
Total Contribution Rate##	39.46%	49.53%	41.27%
Illustrative Dollar Contribution	$ 122,345,504	$ 33,483,676	$ 155,829,180

\# *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 a 14-year amortization period for unfunded retiree liabilities and a 29-year amortization period for other unfunded liabilities from July 1, 2011.*

\## *After post-valuation change in disability premium.*

DEVELOPMENT OF LIABILITIES AS OF JUNE 30, 2010

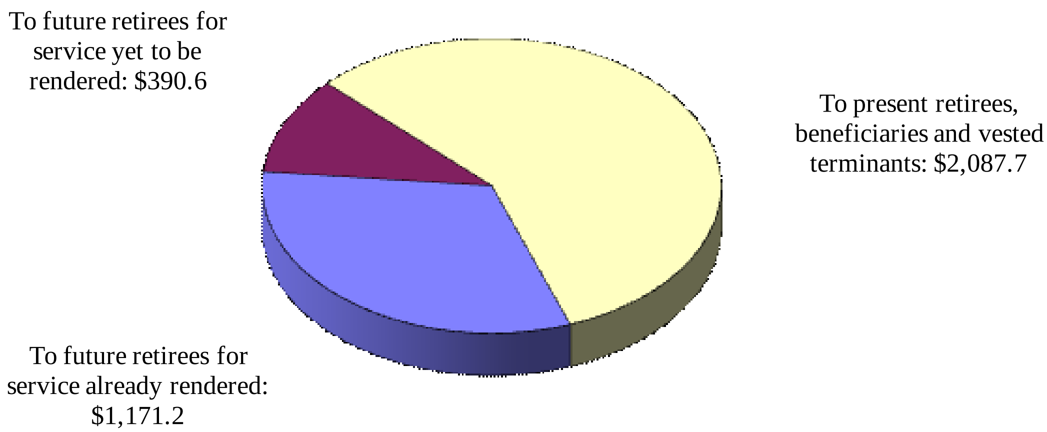
	Non-Uniformed Employees	Uniformed Patrol	Total
Present Value of Future Benefits - Inactives			
Retirees and Survivors	$ 1,547,953,922	$ 460,532,974	$ 2,008,486,896
Disability Pensioners	24,323,823	1,545,067	25,868,890
Vested Terminated Employees	43,533,682	9,798,387	53,332,069
Subtotal PVFB - Inactives	1,615,811,427	471,876,428	2,087,687,855
Present Value of Future Benefits - Actives			
Age & Service benefits	1,035,543,433	393,928,734	1,429,472,167
Normal and Work Related Disability benefits	51,259,262	9,729,156	60,988,418
Survivor benefits	18,679,802	6,649,603	25,329,405
Separation benefits	36,898,592	9,096,312	45,994,904
Subtotal PVFB - Actives	1,142,381,089	419,403,805	1,561,784,894
Total Present Value of Future Benefits	2,758,192,516	891,280,233	3,649,472,749
Less Present Value of Future Entry Age Normal Costs	285,498,929	105,106,895	390,605,824
Equals Actuarial Accrued Liability	2,472,693,587	786,173,338	3,258,866,925
Less Actuarial Value of Assets	1,029,944,301	345,900,272	1,375,844,573
Equals Unfunded Actuarial Accrued Liability	1,442,749,286	440,273,066	1,883,022,352
Amortization Payment on UAAL*	$ 107,668,095	$ 31,093,022	$ 138,761,117
as a % of Projected Payroll	33.04%	43.00%	34.85%

**Amortized as a level-percentage of payroll over a 14-year amortization period for unfunded retiree liabilities and a 29-year amortization period for other unfunded liabilities from July 1, 2011.*

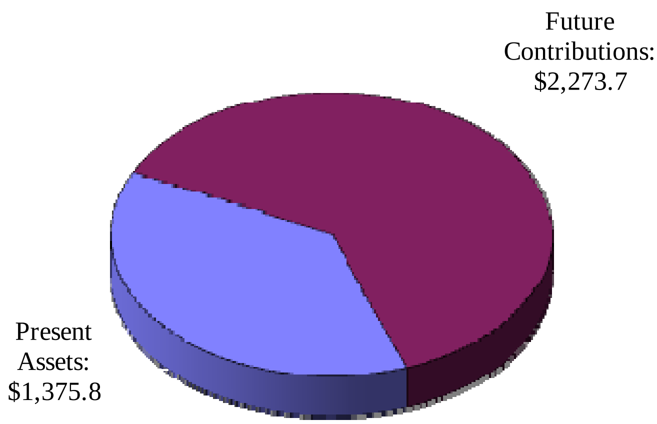
SYSTEM RESOURCES & OBLIGATIONS
SOURCES AND USES OF $3,649.5 MILLION
AS OF JUNE 30, 2010

($ Millions)

Uses of Funds



Sources of Funds



FINANCING UNFUNDED ACTUARIAL ACCRUED LIABILITIES (UAAL) WHICH WERE CALCULATED USING A WAGE INFLATION ASSUMPTION OF 3.75% AND AN INVESTMENT RETURN ASSUMPTION OF 8.25% COMPOUNDED ANNUALLY 14/29 YEAR AMORTIZATION*

Fiscal Year Ending June 30	Active Employee Payroll	Unfunded Actuarial Accrued Liability at End of Year	Annual UAAL Contributions During Fiscal Year		UAAL at Year End as % of Payroll
			Dollars	% of Payroll	
2010	$ 369,911,252	$ 1,883,022,352			
2011	383,782,924	1,924,820,904	$ 109,109,485	28.43%	501.5%
2012	398,174,784	1,939,206,324	138,763,912	34.85%	487.0%
2013	413,106,338	1,949,363,079	143,967,559	34.85%	471.9%
2014	428,597,826	1,954,739,226	149,366,342	34.85%	456.1%
2015	444,670,244	1,954,729,668	154,967,580	34.85%	439.6%
2016	461,345,378	1,948,671,489	160,778,864	34.85%	422.4%
2017	478,645,830	1,935,838,883	166,808,072	34.85%	404.4%
2018	496,595,049	1,915,437,662	173,063,375	34.85%	385.7%
2019	515,217,363	1,886,599,293	179,553,251	34.85%	366.2%
2020	534,538,014	1,848,374,435	186,286,498	34.85%	345.8%
2021	554,583,190	1,799,725,927	193,272,242	34.85%	324.5%
2022	575,380,060	1,739,521,190	200,519,951	34.85%	302.3%
2023	596,956,812	1,666,523,982	208,039,449	34.85%	279.2%
2024	619,342,692	1,579,385,466	215,840,928	34.85%	255.0%
2025	642,568,043	1,565,537,069	138,509,655	21.56%	243.6%
2026	666,664,345	1,545,140,641	143,703,767	21.56%	231.8%
2027	691,664,258	1,517,453,261	149,092,658	21.56%	219.4%
2028	717,601,668	1,481,663,116	154,683,633	21.56%	206.5%
2029	744,511,731	1,436,883,533	160,484,269	21.56%	193.0%
2030	772,430,921	1,382,146,505	166,502,429	21.56%	178.9%
2031	801,397,081	1,316,395,674	172,746,271	21.56%	164.3%
2032	831,449,472	1,238,478,728	179,224,256	21.56%	149.0%
2033	862,628,827	1,147,139,149	185,945,166	21.56%	133.0%
2034	894,977,408	1,041,007,278	192,918,109	21.56%	116.3%
2035	928,539,061	918,590,621	200,152,538	21.56%	98.9%
2036	963,359,276	778,263,348	207,658,259	21.56%	80.8%
2037	999,485,249	618,254,913	215,445,443	21.56%	61.9%
2038	1,036,965,946	436,637,714	223,524,647	21.56%	42.1%
2039	1,075,852,169	231,313,724	231,906,822	21.56%	21.5%
2040	1,116,196,625	0	240,603,328	21.56%	0.0%

* *Amortized as a level-percentage of payroll over a 14-year amortization period for unfunded retiree liabilities and a 29-year amortization period for other unfunded liabilities from July 1, 2011.*

GASB No. 25
Schedule of Funding Progress*
June 30, 2010

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
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	56.40%	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%	365,012,472	**	331.90%
2008	1,783,902,280	3,019,633,781	1,235,731,501	59.08%	375,600,448	**	329.00%
2009	1,471,496,660	3,113,393,645	1,641,896,985	47.26%	379,590,273	**	432.54%
2010#	1,375,844,573	3,258,866,925	1,883,022,352	42.22%	378,063,006	**	498.07%

* *Prior to 2003 this schedule was not required for the LTD Plan because it used the aggregate funding method. Therefore the LTD Plan 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, 2010

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
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#	302,223,556	**	93,991,526	31.10%	31.10%@	93,991,526	100.00%
2008	307,243,438	**	95,368,363	31.04%	31.04%	95,368,363	100.00%
2009	311,718,239	**	95,759,843	30.72%	30.72%	95,759,843	100.00%
2010#	310,637,016	**	97,540,023	31.40%	31.40%	97,540,023	100.00%

* *Prior to 2003 this schedule was not required for the LTD Plan because it used the aggregate funding method. Therefore the LTD Plan 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 System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the System's financial statements.

GASB No. 25
Schedule of Employer Contributions*
Uniformed Patrol Group
June 30, 2010

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
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#	62,788,916	**	27,802,932	44.28%	44.28%@	27,802,932	100.00%
2008	68,357,010	**	29,147,429	42.64%	42.64%	29,147,429	100.00%
2009	67,872,034	**	27,298,132	40.22%	40.22%	27,298,132	100.00%
2010#	67,425,990	**	26,936,683	39.95%	39.95%	26,936,683	100.00%

* *Prior to 2003 this schedule was not required for the LTD Plan because it used the aggregate funding method. Therefore the LTD Plan 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 System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the System's financial statements.

DEVELOPMENT OF GAIN/(LOSS)
JULY 1, 2009 TO JUNE 30, 2010

	UAAL =	AAL -	Assets
Beginning of Year Values (at July 1)	$1,641,896,985	$3,113,393,645	$1,471,496,660
Normal Cost	50,271,428	50,271,428	0
Contributions	(124,476,706)	0	124,476,706
Disbursements	0	(199,134,828)	(199,134,828)
Interest	132,395,534	250,714,361	118,318,827
Expected Value Before Any Changes	1,700,087,241	3,215,244,606	1,515,157,365
Effect of Changes in Assumptions & Methods	64,761,506	64,761,506	0
Expected Value After Changes	1,764,848,747	3,280,006,112	1,515,157,365
End of Year Values (at June 30)	1,883,022,352	3,258,866,925	1,375,844,573
Gain/(Loss) for Year	$ (118,173,605)	$ 21,139,187	$ (139,312,792)

DEVELOPMENT OF GAIN/(LOSS)
JULY 1, 2009 TO JUNE 30, 2010

	Total	Non-Uniform	Uniform
Beginning of Year UAAL (at July 1)	$ 1,641,896,985	$ 1,260,133,816	$ 381,763,169
Normal Cost	50,271,428	40,241,703	10,029,725
Contributions	(124,476,706)	(97,540,023)	(26,936,683)
Interest	132,395,534	101,597,484	30,798,050
Net Change in LTD Assets	0	0	0
Expected Value Before Any Changes	1,700,087,241	1,304,432,980	395,654,261
Effect of Changes in Assumptions & Methods	64,761,506	48,450,384	16,311,122
Expected Value After Changes	1,764,848,747	1,352,883,364	411,965,383
End of Year UAAL (at June 30)	1,883,022,352	1,442,749,286	440,273,066

Aggregate Gain/(Loss) for Year	$ (118,173,605)	$ (89,865,922)	$ (28,307,683)
Gain/(Loss) as a % of Beginning of Year Liabilities	(3.80)%	(3.80)%	(3.79)%

Asset Gain/(Loss) for Year	$ (139,312,792)	$ (105,087,942)	$ (34,224,850)
Liability Gain/(Loss) for Year	21,139,187	15,222,020	5,917,167
Aggregate Gain/(Loss) for Year	$ (118,173,605)	$ (89,865,922)	$ (28,307,683)

SECTION B

SUMMARY OF BENEFITS

MISSOURI DEPARTMENT OF TRANSPORTATION AND HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM SUMMARY OF BENEFIT PROVISIONS EVALUATED AS OF JUNE 30, 2010

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 active employees who first became members on or after July 1, 2000 but prior to January 1, 2011.
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 but prior to January 1, 2011.

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, 2010 (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, 2010 (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, 2010 (CONTINUED)

Closed Plan	**Year 2000 Plan**
Pop-Up Provision	**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.	Same.
$5,000 Death 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 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.	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	**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.	**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.

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.

SUMMARY OF BENEFIT PROVISIONS EVALUATED AS OF JUNE 30, 2010

Year 2011 Plan

Participation

Participants include:

1. All new employees who first become members on or after January 1, 2011.
2. 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 January 1, 2011.

Normal Retirement Eligibility (unreduced benefit)

Non-Uniformed Employees: The earlier of attaining:

1. Age 67 with at least 10 years of creditable service.
2. Age 55 with age plus creditable service equal to 90 or more.

Uniformed Patrol Employees Only: The earlier of attaining:

1. Age 55 with at least 10 years of creditable service.
2. Mandatory retirement at age 60.

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).

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 90 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 55) and have ten years of creditable service.

Early Retirement (reduced benefit)

Non-Uniformed Employees:

Eligibility:

Age 62 with at least 10 years of creditable service.

Amount:

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

Year 2011 Plan

Vested Deferred Benefits

Eligibility: All Employees
Fully vested in accrued pension with 10 years of creditable service. The benefit will commence at age 67 for non-uniformed individuals and at age 55 for uniformed individuals.

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.

Death Prior to Retirement

The spouse of the member who dies after accruing 10 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.

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.

$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 do not qualify for this benefit.

Year 2011 Plan

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: Not available.

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.

Public Employment Prior Service (Subsidized purchase):

Not available.

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

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

4% contributions with interest credited to the account annually at 4%. The state of Missouri employer shall pick up and pay the contributions. A deduction shall be made from each member’s compensation equal to the amount of the member’s contributions picked up by the employer.

SAMPLE BENEFIT COMPUTATION FOR CLOSED PLAN MEMBERS
RETIRING JULY 1, 2010
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%
2011	$12,800
2012	13,133
2013	13,474
2014	13,825
2015	14,184
2016	14,553
2017	14,931
2018	15,319
2019	15,718
2020	16,126

SAMPLE BENEFIT COMPUTATION FOR CLOSED PLAN MEMBERS
RETIRING JULY 1, 2010
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%
2011	$17,066
2012	17,510
2013	17,965
2014	18,432
2015	18,912
2016	19,403
2017	19,908
2018	20,426
2019	20,957
2020	21,501

SAMPLE BENEFIT COMPUTATION FOR YEAR 2000 PLAN MEMBERS RETIRING JULY 1, 2010

	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%
2011	$20,000
2012	20,520
2013	14,316
2014	14,689
2015	15,071
2016	15,462
2017	15,864
2018	16,277
2019	16,700
2020	17,134

SECTION C

FINANCIAL INFORMATION

SUMMARY OF FUND OPERATIONS

	2010	2009
Market Value of Fund (Beginning of Fiscal Year)	$1,226,247,217	$1,717,754,176
Post Valuation Audit Adjustment	(5,113,357)	920,874
Contributions		
Employer	124,052,534	122,613,975
Transfer from MOSERS	0	0
Service Purchase (Employee)	424,172	444,000
Total Contributions	$ 124,476,706	$ 123,057,975
Investment Return		
Interest	$ 12,652,126	$ 10,686,015
Dividends	2,984,078	3,600,161
Real Estate	4,248,139	6,446,870
Realized Capital Gains	182,791,424	486,995,198
Realized Capital Losses	(168,651,368)	(603,382,106)
Miscellaneous Income	0	101,773
Securities Lending Income	(21,879)	392,802
Other	263,524	381,647
Total Investment Return	$ 34,266,044	$ (94,777,640)
Other Income (Rental Income and Misc)	33,145	33,709
Increase (Decrease) in Unrealized Appreciation	144,993,737	(311,110,094)
Benefit Payments		
Retirement Payments	$ 183,931,207	$ 176,468,321
Retirement Payments - BackDROP	10,358,181	12,859,452
Death Benefits	535,000	660,000
Long-Term Disability Payments	137,624	179,239
Insured Disability Program	1,759,262	1,847,673
Service Transfer Payments - Employer	0	0
Total Benefit Payments	$ 196,721,274	$ 192,014,685
Expenses		
Investment	$ 16,265,710	$ 15,013,875
Other	2,413,554	2,603,223
Total Expenses	$ 18,679,264	$ 17,617,098
Market Value of Fund (End of Fiscal Year)	$1,309,502,954	$1,226,247,217

MISSOURI MPERS
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

Valuation Date of June 30	2006	2007	2008	2009	2010	2011	2012
A. Actuarial value at beginning of year	$1,417,476,479	$1,521,142,953	$1,685,807,004	$1,783,902,280	$1,471,496,660		
B. Market value at end of year	1,598,136,375	1,825,204,289	1,717,754,176	1,226,247,217	1,309,502,954		
C. Market value at beginning of year	1,441,054,574	1,598,136,375	1,825,204,289	1,717,754,176	1,226,247,217		
D. Cash flow							
D1. Contributions	111,542,717	121,773,287	124,515,792	123,057,975	124,476,706		
D2. Benefit Payments	(164,997,183)	(175,970,479)	(185,801,362)	(192,014,685)	(196,721,274)		
D3. Administrative Expenses	(1,927,594)	(2,099,592)	(3,262,533)	(2,603,223)	(2,413,554)		
D4. Non-Investment Net Cash Flow	(55,382,060)	(56,296,784)	(64,548,103)	(71,559,933)	(74,658,122)		
E. Investment income							
E1. Market total (B - C - D4)	212,463,861	283,364,698	(42,902,010)	(419,947,026)	157,913,859		
E2. Assumed Rate of Return	8.25%	8.25%	8.25%	8.25%	8.25%		
E3. Amount for Immediate Recognition (A+.5xD4)xE2	114,657,300	123,172,051	136,416,469	144,220,091	118,318,827		
E4. Amount for Phased-In Recognition	97,806,561	160,192,647	(179,318,479)	(564,167,117)	39,595,032		
F. Phased in recognition of investment income							
F1. Current Year (33 1/3% of E4)	32,602,187	53,397,549	(59,772,826)	(188,055,706)	13,198,344		
F2. First Prior Year	11,789,047	32,602,187	53,397,549	(59,772,826)	(92,738,309)	$13,198,344	
F3. Second Prior Year	0	11,789,048	32,602,187	53,397,549	(59,772,827)	(92,738,308)	$13,198,345
F4. Total Recognized Investment Gain (F1 + F2 + F3)	44,391,234	97,788,784	26,226,910	(194,430,983)	(139,312,792)	(79,539,964)	13,198,345
F5. Phase-In of Initial (BOY) difference between MVA and AVA	0	0	0	0	0		
G. Actuarial value at end of year (A + D4 + E3 + F4)	1,521,142,953	1,685,807,004	1,783,902,280	1,662,131,455	1,375,844,573		
Less LTD Assets	0	0	0	0	0		
H. Preliminary Plan AVA	1,521,142,953	1,685,807,004	1,783,902,280	1,662,131,455	1,375,844,573		
I. Corridor (Maximum of 120% of Market Value)	1,917,763,650	2,190,245,147	2,061,305,011	1,471,496,660	1,571,403,545		
J. Corridor (Minimum of 80% of Market Value)	1,278,509,100	1,460,163,431	1,374,203,341	980,997,774	1,047,602,363		
K. Additional Investment Gain/(Loss) recognized due to corridor	0	0	0	(190,634,795)	0		
L. Final Plan AVA after corridor adjustment, if any	1,521,142,953	1,685,807,004	1,783,902,280	1,471,496,660	1,375,844,573		
Difference between market and actuarial values	76,993,422	139,397,285	(66,148,104)	(245,249,443)	(66,341,619)		
Market Rate of Return	15.03%	18.04%	(2.39)%	(24.97)%	13.28%		
Ratio of Funding Value to Market Value	95.18%	92.36%	103.85%	120.00%	105.07%		
Funding Value Rate of Return	11.44%	14.80%	9.84%	(3.04)%	(1.46)%		

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:

Allocation of Other Income	June 30 2010	June 30 2009
1. Other Income	$ 33,145	$ 33,709
2. Investment Income		
a) Uniformed Patrol	8,552,868	(23,278,041)
b) Non-Uniformed Employees	25,713,176	(71,499,599)
c) Total	34,266,044	(94,777,640)
3. Other Income Split		
a) Uniformed Patrol		
(2a) / (2c) x (1)	8,273	8,279
b) Non-Uniformed Employees		
(2b) / (2c) x (1)	24,872	25,430
c) Total	33,145	33,709

Allocation of Funding Value of Assets	June 30 2010	June 30 2009
1. Funding Value of Assets	1,375,844,573	1,471,496,660
2. Market Value of Assets		
a) Uniformed Patrol	329,221,365	303,684,410
b) Non-Uniformed Employees	980,281,589	922,562,807
c) Total	1,309,502,954	1,226,247,217
3. Funding Value of Assets Split		
a) Uniformed Patrol		
(2a) / (2c) x (1)	345,900,272	364,421,292
b) Non-Uniformed Employees		
(2b) / (2c) x (1)	1,029,944,301	1,107,075,368
4. Total Assets Allocated	1,375,844,573	1,471,496,660

SECTION D

SUMMARY OF MEMBER DATA

CIVILIAN PATROL CLOSED ACTIVE MEMBERS
AS OF JUNE 30, 2010
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									
30-34			23	2				25	$ 939,559
35-39			30	12				42	1,683,686
40-44			40	29	18	2		89	3,705,273
45-49			27	40	26	28	1	122	5,176,402
50-54			30	18	37	31	26	142	6,040,162
55-59			28	18	24	19	16	105	4,510,257
60			3	3	3		1	10	361,123
61			2	3	5		1	11	381,035
62			4	4	3	4	2	17	648,575
63			2		5	1		8	309,228
64			3	2	1			6	190,254
65			2					2	51,804
66					1			1	20,786
67			1					1	30,675
68									
69									
70									
Over 70					1			1	32,075
Totals	**0**	**0**	**195**	**131**	**124**	**85**	**47**	**582**	**$24,080,894**

Average Age: 49.5 years
Average Service: 19.4 years
Average Pay: $41,376

CIVILIAN PATROL YEAR 2000 ACTIVE MEMBERS
AS OF JUNE 30, 2010
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	30							30	$ 803,857
25-29	79	26						105	3,448,643
30-34	53	48						101	3,446,447
35-39	38	34						72	2,306,275
40-44	32	31						63	2,052,894
45-49	29	31						60	1,884,681
50-54	30	23						53	1,625,095
55-59	17	19						36	1,056,311
60	2	5						7	207,433
61	4	4						8	233,613
62	1	5						6	179,136
63	1	5						6	170,344
64	5	1						6	174,777
65		1						1	41,712
66	1	2						3	95,598
67		1						1	24,576
68	2	1						3	74,232
69									
70									
Over 70		1						1	24,623
Totals	**324**	**238**	**0**	**0**	**0**	**0**	**0**	**562**	**$17,850,247**

Average Age: 39.7 years
Average Service: 4.5 years
Average Pay: $31,762

MoDOT Closed Active Members
as of June 30, 2010
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			4					4	$ 152,303
30-34			157	1				158	6,493,255
35-39			259	118	2			379	17,723,548
40-44			213	284	92	7		596	28,056,993
45-49			209	179	241	186	8	823	39,918,543
50-54			155	168	189	203	136	851	40,923,819
55-59			97	118	100	77	67	459	21,195,295
60			16	18	10	10	10	64	2,994,294
61			14	6	12	3	7	42	1,967,666
62			9	11	8	1	5	34	1,610,657
63			5	11	6	2	1	25	1,089,562
64			5	4	3	1	3	16	695,232
65			1	2	2	2	1	8	346,526
66					1	1		2	81,417
67			2					2	66,847
68			2	1				3	100,481
69			3				1	4	204,626
70									
Over 70				3		1	4	8	409,941
Totals	**0**	**0**	**1,151**	**924**	**666**	**494**	**243**	**3,478**	**$164,031,005**

Average Age: 47.8 years
Average Service: 19.0 years
Average Pay: $47,162

MoDOT Year 2000 Active Members
as of June 30, 2010
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	120	2						122	$ 3,905,194
25-29	321	133						454	16,081,606
30-34	214	304						518	19,820,808
35-39	188	229						417	15,023,840
40-44	180	193						373	12,778,038
45-49	148	192						340	11,629,399
50-54	113	146						259	8,929,175
55-59	70	103						173	5,885,204
60	10	6						16	521,718
61	6	8						14	478,377
62	5	8						13	529,342
63	3	4						7	271,852
64	1	7						8	289,796
65	5	1						6	254,295
66	1	4						5	197,793
67	2							2	86,222
68	1	1						2	55,909
69									
70									
Over 70		1						1	32,485
Totals	**1,388**	**1,342**	**0**	**0**	**0**	**0**	**0**	**2,730**	**$96,771,053**

Average Age: 39.0 years
Average Service: 4.9 years
Average Pay: $35,447

UNIFORMED PATROL CLOSED ACTIVE MEMBERS AS OF JUNE 30, 2010 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									
30-34			27					27	$ 1,485,080
35-39			128	35				163	9,833,763
40-44			78	125	24			227	15,241,192
45-49			19	41	83	16		159	11,663,136
50-54			5	6	39	30	21	101	7,777,051
55-59					7	7	39	53	4,281,146
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
Over 70									
Totals	**0**	**0**	**257**	**207**	**153**	**53**	**60**	**730**	**$50,281,368**

Average Age: 44.2 years
Average Service: 18.9 years
Average Pay: $68,879

UNIFORMED PATROL YEAR 2000 ACTIVE MEMBERS AS OF JUNE 30, 2010 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	50							50	$ 1,940,910
25-29	87	25						112	4,907,449
30-34	21	102						123	5,888,724
35-39	19	49						68	3,132,384
40-44	4	12						16	753,065
45-49	1	3						4	177,411
50-54		1						1	46,063
55-59		1						1	50,679
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
Over 70									
Totals	**182**	**193**	**0**	**0**	**0**	**0**	**0**	**375**	**$16,896,685**

Average Age: 30.7 years
Average Service: 5.0 years
Average Pay: $45,058

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 %
2008	8,599	369,424,653	42,961	2.9 %
2009	8,784	377,652,245	42,993	0.1 %
2010	8,457	369,911,252	43,740	1.7 %
			Ten-Year Average:	2.6 %

COUNT AND TOTAL MONTHLY BENEFITS OF CIVILIAN PATROL CLOSED RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2010 BY ATTAINED AGE

Age	Number	Monthly Amount
Less than 20	1	$ 272
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	2	1,046
50-54	3	2,359
55-59	14	17,906
60-64	35	42,052
65-69	64	99,960
70-74	96	162,152
75-79	98	168,697
80-84	68	91,515
85-89	29	27,206
90 & Over	12	12,915
TOTAL	**422**	**$ 626,080**

COUNT AND TOTAL MONTHLY BENEFITS OF CIVILIAN PATROL YEAR 2000 RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2010 BY ATTAINED AGE

Age	Number	Monthly Amount
Less than 20		$
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54	24	65,243
55-59	99	240,594
60-64	112	215,715
65-69	96	138,300
70-74	10	5,535
75-79	2	2,596
80-84	5	7,262
85-89	6	9,582
90 & Over	1	285
TOTAL	**355**	**$ 685,113**

COUNT AND TOTAL MONTHLY BENEFITS OF MODOT CLOSED RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2010 BY ATTAINED AGE

Age	Number	Monthly Amount
Less than 20	10	$ 2,330
20-24	3	579
25-29		
30-34		
35-39	4	1,459
40-44	13	9,577
45-49	19	18,213
50-54	43	39,359
55-59	89	88,866
60-64	246	291,460
65-69	492	838,635
70-74	879	1,957,920
75-79	802	1,644,478
80-84	616	1,088,982
85-89	349	423,327
90 & Over	184	122,177
TOTAL	**3,749**	**$ 6,527,361**

COUNT AND TOTAL MONTHLY BENEFITS OF MODOT YEAR 2000 RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2010 BY ATTAINED AGE

Age	Number	Monthly Amount
Less than 20	6	$ 3,519
20-24	1	510
25-29		
30-34		
35-39	1	1,078
40-44		
45-49	5	11,155
50-54	196	518,411
55-59	494	1,224,850
60-64	748	1,513,192
65-69	483	806,764
70-74	74	92,889
75-79	32	46,838
80-84	47	89,944
85-89	42	49,583
90 & Over	24	33,013
TOTAL	**2,153**	**$ 4,391,746**

COUNT AND TOTAL MONTHLY BENEFITS OF UNIFORMED PATROL CLOSED RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2010 BY ATTAINED AGE

Age	Number	Monthly Amount
Less than 20	1	$ 2,274
20-24		
25-29	1	988
30-34		
35-39	5	10,320
40-44		
45-49	5	8,540
50-54	29	112,695
55-59	108	387,178
60-64	162	670,037
65-69	150	686,628
70-74	121	544,278
75-79	82	373,856
80-84	65	270,351
85-89	34	87,318
90 & Over	18	36,428
TOTAL	**781**	**$ 3,190,889**

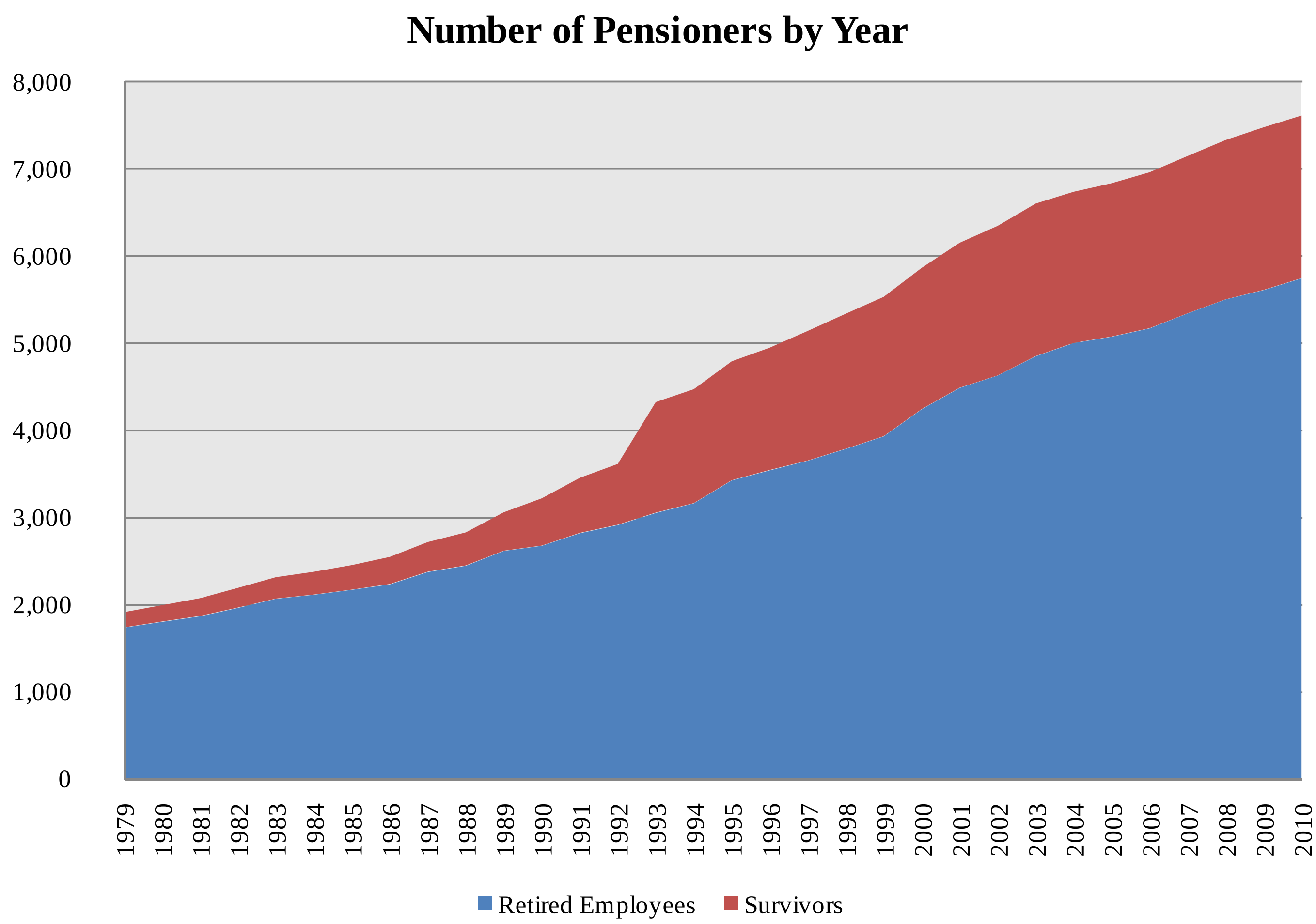
COUNT AND TOTAL MONTHLY BENEFITS OF UNIFORMED PATROL YEAR 2000 RETIRED (NON-DISABLED) MEMBERS AND SURVIVORS AS OF JUNE 30, 2010 BY ATTAINED AGE

Age	Number	Monthly Amount
Less than 20		
20-24		
25-29		
30-34	1	$ 1,536
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**	**$ 1,536**

GROWTH OF PENSION POPULATION BY YEAR

Year	Retired Employees	Survivors	Total	% Increase	Annual Benefits	Active Payroll	Benefits as a % of Payroll
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%
2008	5,496	1,829	7,325	2.6%	172,112,941	369,424,653	46.6%
2009	5,604	1,866	7,470	2.0%	179,850,466	377,652,245	47.6%
2010	5,739	1,867	7,606	1.8%	187,267,535	369,911,252	50.6%

GROWTH OF PENSION POPULATION BY YEAR



SELF INSURED DISABLED RETIRED MEMBERS
AS OF JUNE 30, 2010

Age	Number	Monthly Amount
Less than 20		
20-24		
25-29		
30-34	1	$ 429
35-39	2	4,999
40-44	6	4,603
45-49	16	9,499
50-54	14	19,037
55-59	17	18,224
60-64	10	10,123
65-69	4	4,367
70-74	4	5,490
75-79	1	101
80-84	1	602
85-89		
90 & Over		
TOTAL	**76**	**$ 77,474**

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, 2010

Age	Number	Monthly Amount
Less than 20		
20-24		
25-29	1	$ 1,328
30-34	1	2,257
35-39	6	13,475
40-44	9	16,652
45-49	14	24,253
50-54	17	24,422
55-59	16	19,736
60-64	5	3,308
65-69		
70-74		
75-79		
80-84		
85-89		
90 & Over		
TOTAL	**69**	**$ 105,429**

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

SUMMARY OF VALUATION METHOD AND ASSUMPTIONS
JUNE 30, 2010

The actuarial assumptions used in the valuation are shown in this Section of the report unless stated otherwise. The assumptions were established for the June 30, 2010 actuarial valuation, following a five-year actuarial investigation. They were adopted by the Board after obtaining the advice of the Actuary and other professionals.

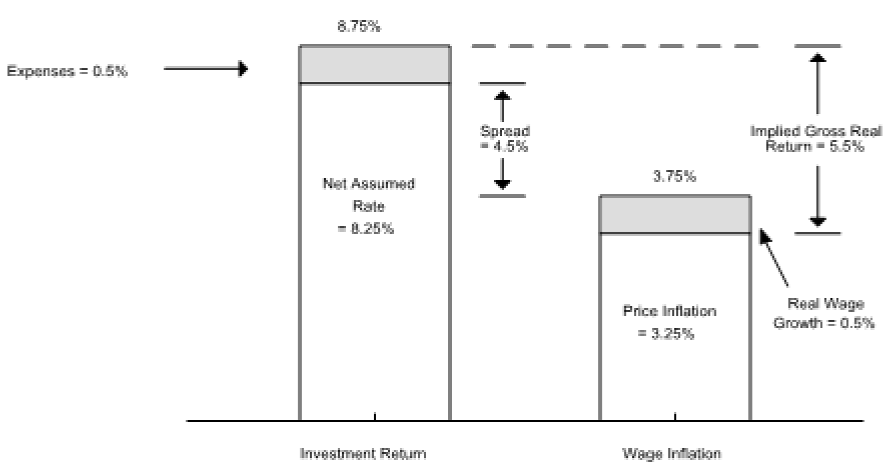
Economic Assumptions

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 pages E-3 and E-4. 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 1994 Group Annuity Mortality Tables projected to the year 2002 set forward 2 years for males and set back 3 years for females. Pre-retirement mortality used was 70% for males and 50% for females of the post-retirement tables set forward 2 years for males and set back 3 years for females. Disabled pension mortality was based on PBGC Disabled Mortality tables. Related values are shown on page E-5.

The probabilities of age and service retirement are shown on page E-7. Upon retirement, members are assumed to pick the BackDROP period that when combined with the remaining annuity produces the highest liability.

The probabilities of withdrawal from service are shown on pages E-9 and E-10. ***The probabilities of disability*** are shown on page E-8.

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%	8.50%	3.75%	12.25%
21	8.00%	3.75%	11.75%	8.50%	3.75%	12.25%
22	8.00%	3.75%	11.75%	8.50%	3.75%	12.25%
23	7.30%	3.75%	11.05%	7.80%	3.75%	11.55%
24	6.52%	3.75%	10.27%	7.02%	3.75%	10.77%
25	5.66%	3.75%	9.41%	6.16%	3.75%	9.91%
26	4.72%	3.75%	8.47%	5.22%	3.75%	8.97%
27	4.50%	3.75%	8.25%	5.00%	3.75%	8.75%
28	4.10%	3.75%	7.85%	4.60%	3.75%	8.35%
29	3.70%	3.75%	7.45%	4.20%	3.75%	7.95%
30	3.30%	3.75%	7.05%	3.80%	3.75%	7.55%
31	2.90%	3.75%	6.65%	3.40%	3.75%	7.15%
32	2.50%	3.75%	6.25%	3.00%	3.75%	6.75%
33	2.35%	3.75%	6.10%	2.85%	3.75%	6.60%
34	2.20%	3.75%	5.95%	2.70%	3.75%	6.45%
35	2.05%	3.75%	5.80%	2.55%	3.75%	6.30%
36	1.90%	3.75%	5.65%	2.40%	3.75%	6.15%
37	1.75%	3.75%	5.50%	2.25%	3.75%	6.00%
38	1.65%	3.75%	5.40%	2.15%	3.75%	5.90%
39	1.55%	3.75%	5.30%	2.05%	3.75%	5.80%
40	1.45%	3.75%	5.20%	1.95%	3.75%	5.70%
41	1.35%	3.75%	5.10%	1.85%	3.75%	5.60%
42	1.25%	3.75%	5.00%	1.75%	3.75%	5.50%
43	1.15%	3.75%	4.90%	1.65%	3.75%	5.40%
44	1.05%	3.75%	4.80%	1.55%	3.75%	5.30%
45	0.95%	3.75%	4.70%	1.45%	3.75%	5.20%
46	0.85%	3.75%	4.60%	1.35%	3.75%	5.10%
47	0.75%	3.75%	4.50%	1.25%	3.75%	5.00%
48	0.70%	3.75%	4.45%	1.20%	3.75%	4.95%
49	0.65%	3.75%	4.40%	1.15%	3.75%	4.90%
50	0.60%	3.75%	4.35%	1.10%	3.75%	4.85%
51	0.55%	3.75%	4.30%	1.05%	3.75%	4.80%
52	0.50%	3.75%	4.25%	1.00%	3.75%	4.75%
53	0.46%	3.75%	4.21%	0.96%	3.75%	4.71%
54	0.42%	3.75%	4.17%	0.92%	3.75%	4.67%
55	0.38%	3.75%	4.13%	0.88%	3.75%	4.63%
56	0.34%	3.75%	4.09%	0.84%	3.75%	4.59%
57	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
58	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
59	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
60	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
Ref.	161			161 +.50%		

Non-Uniformed

% Merit Increases in Salaries Next Year	
Service Index	**Rate**
1	11.0%
2	10.5%
3	5.0%
4	4.5%
Ref	339

POST-RETIREMENT MORTALITY

Age	Regular		Disabled		Age	Regular		Disabled	
	Male	Female	Male	Female		Male	Female	Male	Female
21	0.00042	0.00034	0.04589	0.02630	61	0.00896	0.00471	0.05928	0.03390
22	0.00044	0.00036	0.04589	0.02630	62	0.01015	0.00534	0.06109	0.03470
23	0.00047	0.00037	0.04589	0.02630	63	0.01144	0.00606	0.06242	0.03550
24	0.00050	0.00038	0.04589	0.02630	64	0.01287	0.00691	0.06346	0.03620
25	0.00052	0.00040	0.04589	0.02630	65	0.01429	0.00785	0.06441	0.03700
26	0.00054	0.00042	0.04380	0.02570	66	0.01561	0.00896	0.06527	0.03780
27	0.00056	0.00044	0.04142	0.02530	67	0.01700	0.01015	0.06622	0.03860
28	0.00059	0.00047	0.03904	0.02470	68	0.01840	0.01144	0.06736	0.03940
29	0.00061	0.00050	0.03686	0.02420	69	0.02002	0.01287	0.06869	0.04020
30	0.00063	0.00052	0.03439	0.02370	70	0.02203	0.01429	0.07020	0.04110
31	0.00065	0.00054	0.03221	0.02320	71	0.02419	0.01561	0.07191	0.04210
32	0.00066	0.00056	0.03040	0.02270	72	0.02658	0.01700	0.07372	0.04330
33	0.00068	0.00059	0.02869	0.02220	73	0.02931	0.01840	0.07562	0.04470
34	0.00069	0.00061	0.02736	0.02180	74	0.03239	0.02002	0.07771	0.04650
35	0.00073	0.00063	0.02641	0.02140	75	0.03629	0.02203	0.07999	0.04920
36	0.00077	0.00065	0.02584	0.02120	76	0.04064	0.02419	0.08256	0.05290
37	0.00082	0.00066	0.02575	0.02100	77	0.04546	0.02658	0.08626	0.05780
38	0.00088	0.00068	0.02594	0.02080	78	0.05080	0.02931	0.09139	0.06310
39	0.00094	0.00069	0.02622	0.02080	79	0.05666	0.03239	0.09908	0.06860
40	0.00101	0.00073	0.02679	0.02090	80	0.06306	0.03629	0.10716	0.07460
41	0.00108	0.00077	0.02736	0.02100	81	0.06948	0.04064	0.11600	0.08130
42	0.00115	0.00082	0.02821	0.02130	82	0.07654	0.04546	0.12559	0.08850
43	0.00122	0.00088	0.02898	0.02160	83	0.08413	0.05080	0.13604	0.09620
44	0.00131	0.00094	0.02983	0.02190	84	0.09269	0.05666	0.14735	0.10430
45	0.00142	0.00101	0.03059	0.02240	85	0.10301	0.06306	0.15969	0.11280
46	0.00155	0.00108	0.03135	0.02290	86	0.11443	0.06948	0.17338	0.12210
47	0.00170	0.00115	0.03230	0.02350	87	0.12693	0.07654	0.18810	0.13220
48	0.00187	0.00122	0.03354	0.02420	88	0.14065	0.08413	0.20425	0.14320
49	0.00206	0.00131	0.03486	0.02490	89	0.15466	0.09269	0.22135	0.15510
50	0.00230	0.00142	0.03639	0.02570	90	0.17019	0.10301	0.23987	0.16820
51	0.00257	0.00155	0.03810	0.02640	91	0.18663	0.11443	0.26021	0.18250
52	0.00285	0.00170	0.03990	0.02720	92	0.20352	0.12693	0.28234	0.19800
53	0.00320	0.00187	0.04171	0.02810	93	0.22212	0.14065	0.30647	0.21500
54	0.00361	0.00206	0.04370	0.02880	94	0.24023	0.15466	0.33203	0.23300
55	0.00412	0.00230	0.04579	0.02950	95	0.25938	0.17019	0.35995	0.25250
56	0.00471	0.00257	0.04807	0.03010	96	0.27894	0.18663	0.39035	0.27390
57	0.00534	0.00285	0.05045	0.03070	97	0.29761	0.20352	0.42351	0.29720
58	0.00606	0.00320	0.05273	0.03150	98	0.31663	0.22212	0.45961	0.32260
59	0.00691	0.00361	0.05520	0.03230	99	0.33876	0.24023	0.49808	0.34950
60	0.00785	0.00412	0.05729	0.03310	100	0.35883	0.25938	0.53998	0.37890
Ref	#303sb-2x1	#303sb3x1	#250sb0x0.95	#251sb0x1		#303sb-2x1	#303sb3x1	#250sb0x0.95	#251sb0x1

Pre-Retirement mortality is 70% of the regular post-retirement mortality values for males and 50% of the regular post-retirement mortality values for females.

JOINT LIFE RETIREMENT VALUES
(8.25% INTEREST)

Sample Attained	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
Ages	Men	Women	Men	Women
50	$139.96	$136.07	30.74	35.46
55	135.25	130.02	26.15	30.74
60	128.88	122.23	21.80	26.15
65	120.71	112.78	17.81	21.80
70	110.83	101.31	14.17	17.81
75	98.83	87.62	10.86	14.17
80	84.68	72.85	8.04	10.86
Ref:	#303sb-2x1	#303sb3x1		

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.

	Non-Uniformed				Uniformed	
	Male		Female		Male	Female
Age	Normal	Early	Normal	Early	Normal	
50	0.3000		0.3000		0.4000	0.4000
51	0.2500		0.1800		0.2000	0.2000
52	0.2500		0.1800		0.1500	0.1500
53	0.2000		0.1800		0.1500	0.1500
54	0.2000		0.2500		0.1500	0.1500
55	0.2000	0.0300	0.3000	0.0300	0.2500	0.2500
56	0.3000	0.0300	0.3000	0.0300	0.2500	0.2500
57	0.2500	0.0400	0.3000	0.0300	0.3000	0.3000
58	0.2000	0.0400	0.3000	0.0300	0.3500	0.3500
59	0.2500	0.0500	0.3000	0.0300	0.5000	0.5000
60	0.2000	0.1000	0.2000	0.0500	1.0000	1.0000
61	0.1500	0.0400	0.2000	0.0600	1.0000	1.0000
62	0.5000	0.4000	0.3500	0.4000	1.0000	1.0000
63	0.4000	0.4000	0.2500	0.3000	1.0000	1.0000
64	0.3000	0.4000	0.2500	0.3000	1.0000	1.0000
65	0.4000		0.4000		1.0000	1.0000
66	0.4500		0.4000		1.0000	1.0000
67	0.2500		0.4000		1.0000	1.0000
68	0.2500		0.4000		1.0000	1.0000
69	0.2500		0.4000		1.0000	1.0000
70	0.5000		0.5000		1.0000	1.0000
71	0.5000		0.5000		1.0000	1.0000
72	1.0000		1.0000		1.0000	1.0000
Ref	1822	1824	1823	1825	1826	1826

RATES OF DISABILITY

Age	Non-Uniformed		Uniformed		Age	Non-Uniformed		Uniformed	
	Male	Female	Male	Female		Male	Female	Male	Female
21	0.0002	0.0003	0.0000	0.0000	51	0.0043	0.0045	0.0022	0.0022
22	0.0002	0.0003	0.0000	0.0000	52	0.0044	0.0048	0.0024	0.0024
23	0.0002	0.0003	0.0000	0.0000	53	0.0047	0.0053	0.0028	0.0028
24	0.0002	0.0005	0.0000	0.0000	54	0.0050	0.0059	0.0031	0.0031
25	0.0002	0.0005	0.0001	0.0001	55	0.0054	0.0066	0.0035	0.0035
26	0.0002	0.0005	0.0001	0.0001	56	0.0059	0.0070	0.0039	0.0039
27	0.0003	0.0006	0.0001	0.0001	57	0.0064	0.0077	0.0043	0.0043
28	0.0003	0.0008	0.0002	0.0002	58	0.0073	0.0082	0.0048	0.0048
29	0.0003	0.0010	0.0002	0.0002	59	0.0083	0.0085	0.0052	0.0052
30	0.0003	0.0010	0.0002	0.0002	60	0.0100	0.0090	0.0058	0.0058
31	0.0004	0.0011	0.0002	0.0002	61	0.0129	0.0091	0.0063	0.0063
32	0.0004	0.0013	0.0002	0.0002	62	0.0000	0.0094	0.0070	0.0070
33	0.0005	0.0014	0.0002	0.0002	63	0.0000	0.0098	0.0077	0.0077
34	0.0005	0.0014	0.0002	0.0002	64	0.0000	0.0101	0.0077	0.0077
35	0.0006	0.0014	0.0002	0.0002	65	0.0000	0.0000	0.0000	0.0000
36	0.0006	0.0016	0.0002	0.0002	66	0.0000	0.0000	0.0000	0.0000
37	0.0006	0.0016	0.0003	0.0003	67	0.0000	0.0000	0.0000	0.0000
38	0.0007	0.0018	0.0003	0.0003	68	0.0000	0.0000	0.0000	0.0000
39	0.0008	0.0018	0.0004	0.0004	69	0.0000	0.0000	0.0000	0.0000
40	0.0010	0.0019	0.0005	0.0005	70	0.0000	0.0000	0.0000	0.0000
41	0.0013	0.0022	0.0006	0.0006	71	0.0000	0.0000	0.0000	0.0000
42	0.0015	0.0024	0.0006	0.0006	72	0.0000	0.0000	0.0000	0.0000
43	0.0016	0.0027	0.0007	0.0007	73	0.0000	0.0000	0.0000	0.0000
44	0.0019	0.0029	0.0008	0.0008	74	0.0000	0.0000	0.0000	0.0000
45	0.0023	0.0032	0.0009	0.0009	75	0.0000	0.0000	0.0000	0.0000
46	0.0028	0.0035	0.0011	0.0011	76	0.0000	0.0000	0.0000	0.0000
47	0.0033	0.0037	0.0012	0.0012	77	0.0000	0.0000	0.0000	0.0000
48	0.0037	0.0038	0.0014	0.0014	78	0.0000	0.0000	0.0000	0.0000
49	0.0040	0.0040	0.0016	0.0016	79	0.0000	0.0000	0.0000	0.0000
50	0.0042	0.0042	0.0019	0.0019	80	0.0000	0.0000	0.0000	0.0000
Ref	#188x1.1	#503x1.6	#19x0.75	#19x0.75		#188x1.1	#503x1.6	#19x0.75	#19x0.75

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

	Non-Uniformed		Uniformed	
Service	**Male**	**Female**	**Male**	**Female**
0-1	0.3000	0.1900	0.1400	0.1400
1-2	0.1600	0.1300	0.0650	0.0650
2-3	0.0800	0.0900	0.0350	0.0350
3-4	0.0650	0.0800	0.0300	0.0300
4-5	0.0500	0.0500	0.0300	0.0300
Ref	631	632	633	633

This assumption was first used in the June 30, 2010 valuation.

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

	Non-Uniformed		Uniformed	
Age	**Male**	**Female**	**Male**	**Female**
25	0.0493	0.0510	0.0314	0.0314
26	0.0493	0.0510	0.0308	0.0308
27	0.0493	0.0510	0.0302	0.0302
28	0.0475	0.0510	0.0297	0.0297
29	0.0457	0.0510	0.0286	0.0286
30	0.0439	0.0510	0.0275	0.0275
31	0.0422	0.0510	0.0264	0.0264
32	0.0404	0.0510	0.0248	0.0248
33	0.0387	0.0493	0.0237	0.0237
34	0.0370	0.0476	0.0220	0.0220
35	0.0353	0.0459	0.0209	0.0209
36	0.0337	0.0442	0.0193	0.0193
37	0.0321	0.0425	0.0181	0.0181
38	0.0305	0.0408	0.0165	0.0165
39	0.0290	0.0391	0.0154	0.0154
40	0.0275	0.0374	0.0143	0.0143
41	0.0260	0.0357	0.0132	0.0132
42	0.0246	0.0340	0.0121	0.0121
43	0.0232	0.0323	0.0110	0.0110
44	0.0219	0.0306	0.0099	0.0099
45	0.0206	0.0289	0.0088	0.0088
46	0.0194	0.0272	0.0077	0.0077
47	0.0182	0.0255	0.0066	0.0066
48	0.0171	0.0238	0.0055	0.0055
49	0.0161	0.0221	0.0049	0.0049
50	0.0151	0.0204	0.0044	0.0044
51	0.0142	0.0187	0.0039	0.0039
52	0.0133	0.0170	0.0033	0.0033
53	0.0125	0.0153	0.0027	0.0027
54	0.0117	0.0136	0.0022	0.0022
55	0.0110	0.0119	0.0017	0.0017
56	0.0105	0.0102	0.0011	0.0011
57	0.0100	0.0085	0.0011	0.0011
58	0.0095	0.0068	0.0011	0.0011
59	0.0092	0.0051	0.0011	0.0011
60	0.0089	0.0034	0.0011	0.0011
Ref	#63x0.6	#684x0.85	#387x0.55	#387x0.55

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Administrative Expenses:	0.61% of payroll, based upon actual results from previous year.
Disability Expenses:	0.53% 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.
Active Member Data:	Actual census date of data was May 31. Data was assumed to be statistically equivalent to June 30.
Other:	Disability and turnover decrements do not operate during retirement eligibility.
Miscellaneous Loading:	The calculated normal and early retirement benefits were increased by 3.0% 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-11.

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, 2010, resulted in ***Unfunded Actuarial Accrued Liabilities*** which were amortized using the following funding policy.

Permanent Policy: The total contribution will be based on normal cost plus a 25-year amortization of unfunded actuarial accrued liabilities. The amortization period is a closed 25-year period starting July 1, 2011.

Temporary Accelerated Policy: The total contribution is based on normal cost plus a 14-year amortization period for unfunded retiree liabilities and a 29-year amortization period for other unfunded liabilities. Both amortization periods are closed periods starting July 1, 2011.

This temporary accelerated policy was adopted by the Retirement Board on September 17, 2009 and will remain in effect until such time as the retiree liability becomes 100% funded or the permanent policy produces a higher contribution rate.

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.

(Concluded on Next Page)

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

GRS

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October 29, 2010

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, 2010. This valuation indicates that contribution rates for the period beginning July 1, 2011 that are at least equal to the calculated contributions rates will meet the Board's financial objective. The calculated contribution rates are 45.45% of payroll for the 7,352 Non-Uniformed employees and 58.63% of payroll for the 1,105 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, 2004 to June 30, 2009. The funding policy was adopted by the Board at the September 17, 2009 Board meeting and was designed to better address the unfunded retiree liability. 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.

The signing actuaries are Members of the American Academy of Actuaries (M.A.A.A.) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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. It is important to the well-being of the system that it continues to receive contributions at the actuarially determined levels. It is also important to continue to monitor both the total funded status and the funded status of the retiree liabilities to ensure that the funding policy is consistent with the expected life span of the respective unfunded obligation.

Respectfully submitted,

Brian B. Murphy, F.S.A., E.A., M.A.A.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.***

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.

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%
2008	1,873	1,147	1,784	95%	0%	59%
2009	1,947	1,166	1,471	76%	0%	47%
2010#	2,034	1,225	1,376	68%	0%	42%

\# *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)	$ 1,641,896,985
Normal Cost	50,271,428
Contributions	(124,476,706)
Interest	132,395,534
Net Change in LTD Assets	-
Expected UAAL Before Any Changes	1,700,087,241
Effect of Changes in Assumptions & Methods	64,761,506
Expected UAAL After Changes	1,764,848,747
End of Year UAAL (at June 30)	$ 1,883,022,352
Gain/(Loss) for Year	$ (118,173,605)
Gain/(Loss) as a percent of actuarial accrued liabilities at start of year ($3,113.4 million)	(3.8)%

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 %
2008	(0.2)%
2009	(12.6)%
2010	**(3.8)%**

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date:	June 30, 2010
Actuarial Cost Method:	Entry Age
Amortized Method:	Closed, level percent of payroll
Remaining Amortization Period:	22-years#
Asset Valuation Method:	3-year smoothing
Actuarial Assumptions:	
Investment Rate of Return:	8.25%
Projected Salary Increase:	3.75% to 12.25%
Cost-of-Living Adjustments:	2.6% Compound
Includes Wage Inflation at:	3.75%

 # single equivalent period.

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 2004-2009 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 (CONCLUDED)

Pay increase assumptions for individual active members are shown on Tables VI and VII. 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, 2010** valuation.

Price Inflation is assumed to be 3.25%. 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 1994 Group Annuity Mortality Tables projected to the year 2002 set forward 2 years for males and set back 3 years for females. Related values are shown on Table I. This table was first used for the **June 30, 2010** valuation. Disabled pension mortality was based on PBGC Disabled Mortality tables.

The probabilities of retirement for members eligible to retire are shown on Table II. The rates for full retirement were first used in the **June 30, 2010** valuation. The rates for reduced retirement were first used in the **June 30, 2010** valuation. Upon retirement, members are assumed to pick the BackDROP period that when combined with the remaining annuity produces the highest liability.

The probabilities of disability for members eligible to retire are shown on Table III. The rates for disability were first used in the **June 30, 2010** valuation.

The probabilities of withdrawal from service, death in service and disability are shown for sample ages on Tables IV and V. The death-in-service and disability rates were first used in the **June 30, 2010** valuation. The withdrawal rates were first used in the **June 30, 2010** 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	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
Ages	Men	Women	Men	Women
50	$139.96	$136.07	30.74	35.46
55	135.25	130.02	26.15	30.74
60	128.88	122.23	21.80	26.15
65	120.71	112.78	17.81	21.80
70	110.83	101.31	14.17	17.81
75	98.83	87.62	10.86	14.17
80	84.68	72.85	8.04	10.86
Ref:	#303sb-2x1	#303sb3x1		

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	0.3000		0.3000		0.4000	0.4000
51	0.2500		0.1800		0.2000	0.2000
52	0.2500		0.1800		0.1500	0.1500
53	0.2000		0.1800		0.1500	0.1500
54	0.2000		0.2500		0.1500	0.1500
55	0.2000	0.0300	0.3000	0.0300	0.2500	0.2500
56	0.3000	0.0300	0.3000	0.0300	0.2500	0.2500
57	0.2500	0.0400	0.3000	0.0300	0.3000	0.3000
58	0.2000	0.0400	0.3000	0.0300	0.3500	0.3500
59	0.2500	0.0500	0.3000	0.0300	0.5000	0.5000
60	0.2000	0.1000	0.2000	0.0500	1.0000	1.0000
61	0.1500	0.0400	0.2000	0.0600	1.0000	1.0000
62	0.5000	0.4000	0.3500	0.4000	1.0000	1.0000
63	0.4000	0.4000	0.2500	0.3000	1.0000	1.0000
64	0.3000	0.4000	0.2500	0.3000	1.0000	1.0000
65	0.4000		0.4000		1.0000	1.0000
66	0.4500		0.4000		1.0000	1.0000
67	0.2500		0.4000		1.0000	1.0000
68	0.2500		0.4000		1.0000	1.0000
69	0.2500		0.4000		1.0000	1.0000
70	0.5000		0.5000		1.0000	1.0000
71	0.5000		0.5000		1.0000	1.0000
72	1.0000		1.0000		1.0000	1.0000
Ref	1822	1824	1823	1825	1826	1826

TABLE III
RATES OF DISABILITY

Age	Non-Uniformed		Uniformed		Age	Non-Uniformed		Uniformed	
	Male	Female	Male	Female		Male	Female	Male	Female
21	0.0002	0.0003	0.0000	0.0000	51	0.0043	0.0045	0.0022	0.0022
22	0.0002	0.0003	0.0000	0.0000	52	0.0044	0.0048	0.0024	0.0024
23	0.0002	0.0003	0.0000	0.0000	53	0.0047	0.0053	0.0028	0.0028
24	0.0002	0.0005	0.0000	0.0000	54	0.0050	0.0059	0.0031	0.0031
25	0.0002	0.0005	0.0001	0.0001	55	0.0054	0.0066	0.0035	0.0035
26	0.0002	0.0005	0.0001	0.0001	56	0.0059	0.0070	0.0039	0.0039
27	0.0003	0.0006	0.0001	0.0001	57	0.0064	0.0077	0.0043	0.0043
28	0.0003	0.0008	0.0002	0.0002	58	0.0073	0.0082	0.0048	0.0048
29	0.0003	0.0010	0.0002	0.0002	59	0.0083	0.0085	0.0052	0.0052
30	0.0003	0.0010	0.0002	0.0002	60	0.0100	0.0090	0.0058	0.0058
31	0.0004	0.0011	0.0002	0.0002	61	0.0129	0.0091	0.0063	0.0063
32	0.0004	0.0013	0.0002	0.0002	62	0.0000	0.0094	0.0070	0.0070
33	0.0005	0.0014	0.0002	0.0002	63	0.0000	0.0098	0.0077	0.0077
34	0.0005	0.0014	0.0002	0.0002	64	0.0000	0.0101	0.0077	0.0077
35	0.0006	0.0014	0.0002	0.0002	65	0.0000	0.0000	0.0000	0.0000
36	0.0006	0.0016	0.0002	0.0002	66	0.0000	0.0000	0.0000	0.0000
37	0.0006	0.0016	0.0003	0.0003	67	0.0000	0.0000	0.0000	0.0000
38	0.0007	0.0018	0.0003	0.0003	68	0.0000	0.0000	0.0000	0.0000
39	0.0008	0.0018	0.0004	0.0004	69	0.0000	0.0000	0.0000	0.0000
40	0.0010	0.0019	0.0005	0.0005	70	0.0000	0.0000	0.0000	0.0000
41	0.0013	0.0022	0.0006	0.0006	71	0.0000	0.0000	0.0000	0.0000
42	0.0015	0.0024	0.0006	0.0006	72	0.0000	0.0000	0.0000	0.0000
43	0.0016	0.0027	0.0007	0.0007	73	0.0000	0.0000	0.0000	0.0000
44	0.0019	0.0029	0.0008	0.0008	74	0.0000	0.0000	0.0000	0.0000
45	0.0023	0.0032	0.0009	0.0009	75	0.0000	0.0000	0.0000	0.0000
46	0.0028	0.0035	0.0011	0.0011	76	0.0000	0.0000	0.0000	0.0000
47	0.0033	0.0037	0.0012	0.0012	77	0.0000	0.0000	0.0000	0.0000
48	0.0037	0.0038	0.0014	0.0014	78	0.0000	0.0000	0.0000	0.0000
49	0.0040	0.0040	0.0016	0.0016	79	0.0000	0.0000	0.0000	0.0000
50	0.0042	0.0042	0.0019	0.0019	80	0.0000	0.0000	0.0000	0.0000
Ref	#188x1.1	#503x1.6	#19x0.75	#19x0.75		#188x1.1	#503x1.6	#19x0.75	#19x0.75

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

	Non-Uniformed		Uniformed	
Service	Male	Female	Male	Female
0-1	0.3000	0.1900	0.1400	0.1400
1-2	0.1600	0.1300	0.0650	0.0650
2-3	0.0800	0.0900	0.0350	0.0350
3-4	0.0650	0.0800	0.0300	0.0300
4-5	0.0500	0.0500	0.0300	0.0300
Ref	631	632	633	633

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

	Non-Uniformed		Uniformed	
Age	Male	Female	Male	Female
25	0.0493	0.0510	0.0314	0.0314
26	0.0493	0.0510	0.0308	0.0308
27	0.0493	0.0510	0.0302	0.0302
28	0.0475	0.0510	0.0297	0.0297
29	0.0457	0.0510	0.0286	0.0286
30	0.0439	0.0510	0.0275	0.0275
31	0.0422	0.0510	0.0264	0.0264
32	0.0404	0.0510	0.0248	0.0248
33	0.0387	0.0493	0.0237	0.0237
34	0.0370	0.0476	0.0220	0.0220
35	0.0353	0.0459	0.0209	0.0209
36	0.0337	0.0442	0.0193	0.0193
37	0.0321	0.0425	0.0181	0.0181
38	0.0305	0.0408	0.0165	0.0165
39	0.0290	0.0391	0.0154	0.0154
40	0.0275	0.0374	0.0143	0.0143
41	0.0260	0.0357	0.0132	0.0132
42	0.0246	0.0340	0.0121	0.0121
43	0.0232	0.0323	0.0110	0.0110
44	0.0219	0.0306	0.0099	0.0099
45	0.0206	0.0289	0.0088	0.0088
46	0.0194	0.0272	0.0077	0.0077
47	0.0182	0.0255	0.0066	0.0066
48	0.0171	0.0238	0.0055	0.0055
49	0.0161	0.0221	0.0049	0.0049
50	0.0151	0.0204	0.0044	0.0044
51	0.0142	0.0187	0.0039	0.0039
52	0.0133	0.0170	0.0033	0.0033
53	0.0125	0.0153	0.0027	0.0027
54	0.0117	0.0136	0.0022	0.0022
55	0.0110	0.0119	0.0017	0.0017
56	0.0105	0.0102	0.0011	0.0011
57	0.0100	0.0085	0.0011	0.0011
58	0.0095	0.0068	0.0011	0.0011
59	0.0092	0.0051	0.0011	0.0011
60	0.0089	0.0034	0.0011	0.0011
Ref	#63x0.6	#684x0.85	#387x0.55	#387x0.55

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%	8.50%	3.75%	12.25%
21	8.00%	3.75%	11.75%	8.50%	3.75%	12.25%
22	8.00%	3.75%	11.75%	8.50%	3.75%	12.25%
23	7.30%	3.75%	11.05%	7.80%	3.75%	11.55%
24	6.52%	3.75%	10.27%	7.02%	3.75%	10.77%
25	5.66%	3.75%	9.41%	6.16%	3.75%	9.91%
26	4.72%	3.75%	8.47%	5.22%	3.75%	8.97%
27	4.50%	3.75%	8.25%	5.00%	3.75%	8.75%
28	4.10%	3.75%	7.85%	4.60%	3.75%	8.35%
29	3.70%	3.75%	7.45%	4.20%	3.75%	7.95%
30	3.30%	3.75%	7.05%	3.80%	3.75%	7.55%
31	2.90%	3.75%	6.65%	3.40%	3.75%	7.15%
32	2.50%	3.75%	6.25%	3.00%	3.75%	6.75%
33	2.35%	3.75%	6.10%	2.85%	3.75%	6.60%
34	2.20%	3.75%	5.95%	2.70%	3.75%	6.45%
35	2.05%	3.75%	5.80%	2.55%	3.75%	6.30%
36	1.90%	3.75%	5.65%	2.40%	3.75%	6.15%
37	1.75%	3.75%	5.50%	2.25%	3.75%	6.00%
38	1.65%	3.75%	5.40%	2.15%	3.75%	5.90%
39	1.55%	3.75%	5.30%	2.05%	3.75%	5.80%
40	1.45%	3.75%	5.20%	1.95%	3.75%	5.70%
41	1.35%	3.75%	5.10%	1.85%	3.75%	5.60%
42	1.25%	3.75%	5.00%	1.75%	3.75%	5.50%
43	1.15%	3.75%	4.90%	1.65%	3.75%	5.40%
44	1.05%	3.75%	4.80%	1.55%	3.75%	5.30%
45	0.95%	3.75%	4.70%	1.45%	3.75%	5.20%
46	0.85%	3.75%	4.60%	1.35%	3.75%	5.10%
47	0.75%	3.75%	4.50%	1.25%	3.75%	5.00%
48	0.70%	3.75%	4.45%	1.20%	3.75%	4.95%
49	0.65%	3.75%	4.40%	1.15%	3.75%	4.90%
50	0.60%	3.75%	4.35%	1.10%	3.75%	4.85%
51	0.55%	3.75%	4.30%	1.05%	3.75%	4.80%
52	0.50%	3.75%	4.25%	1.00%	3.75%	4.75%
53	0.46%	3.75%	4.21%	0.96%	3.75%	4.71%
54	0.42%	3.75%	4.17%	0.92%	3.75%	4.67%
55	0.38%	3.75%	4.13%	0.88%	3.75%	4.63%
56	0.34%	3.75%	4.09%	0.84%	3.75%	4.59%
57	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
58	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
59	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
60	0.30%	3.75%	4.05%	0.80%	3.75%	4.55%
Ref.	161			161 +.50%		

TABLE VII
SERVICE BASED SALARY SCALE

Non-Uniformed

% Merit Increases in Salaries Next Year	
Service Index	**Rate**
1	11.0%
2	10.5%
3	5.0%
4	4.5%
Ref	339