State of Minnesota

Summary of 2001 Valuations

A MILLIMAN GLOBAL FIRM

Milliman USA

Consultants and Actuaries

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January 8, 2002

Minnesota Legislative Commission
on Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155-1201

ATTENTION: Mr. Lawrence A. Martin

Commission Members:

We have completed all of the July 1, 2001 Actuarial Valuations pursuant to the terms of our Actuarial Services Contract. This report summarizes the results of these actuarial valuations, with particular emphasis on changes occurring since the prior year's actuarial valuations.

This report covers commentary on the 2001-2002 funding levels, as well as summaries of significant plan changes and actuarial assumptions used. The analysis of purchased service credits, required by Minnesota Statutes Chapter 390, Article 4, is included as Table I-E.

Supplemental information in the Appendices of this year's report include (a) a demonstration by plan of the impact on the sufficiency/(deficiency) measure of the recommended assumptions; (b) a discussion of the impact of the asset valuation method in light of the significant decline in market values; and (c) an expanded commentary on the status of the PERA Basic and Coordinated Plan after the 2001 legislation.

I, Thomas K. Custis, am an actuary for Milliman USA. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

We hope that you will find this summary report informative as a supplement to the more detailed reports for each of the funds.

Respectfully submitted,

Milliman USA

Thomas K. Custis

Thomas K. Custis, F.S.A.
Consulting Actuary

TKC/bh

STATE OF MINNESOTA

SUMMARY OF 2001 ACTUARIAL VALUATIONS

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I. 2001-2002 Funding Levels

(Tables 1-A, 1-B, 1-C and I-D)

As the Commission Actuary, we have determined the actuarial funding requirements in accordance with the requirements of Section 356.215, Minnesota Statutes, for each of the Funds covered by those statutes. Each employer contributes to their respective Fund on the basis of statutory requirements set by statutes for the individual Fund.

In Table I-A, we provide a detailed comparison of the requirements under Section 356.215 and the statutory employer contribution. It is this comparison which allows an analysis of the Fund's ability to meet its long-term commitments. Table I-B provides a three-year history of the sufficiency determination. The pattern of these results gives a more complete picture of emerging concerns as to the adequacy of statutory requirements.

Another measure of funding adequacy is the ratio of plan assets to the present value of accrued benefits. These ratios are summarized for the last three valuations in Table I-C. Since this is more of a termination measure of adequacy, it is generally considered a less important measure for public plans than the sufficiency determination summarized in Tables I-A and I-B. Nonetheless, it does give a somewhat different and useful perspective when viewed in conjunction with other factors. If proper funding progress is made, these numbers should move toward a ratio of slightly over 100%.

Below we comment by plan on our analysis of the actuarial valuations.

PERA

1. The Public Employees plan experienced a modest improvement in the deficiency measure due to the increase in the statutory contributions and due to the extension of the amortization date to July 1, 2031. The deficiency measure based on statutory contributions effective January 1, 2002 and later would show a deficiency of about 0.95% of payroll. Despite these legislative actions, this plan continues to show a substantial deficiency as statutory contribution rates are significantly lower than required contributions. Even after the generally favorable affects of the recommended assumptions, further corrective action by the legislature may be needed to deal with this deficit situation. Additional analysis of PERA General is included in Appendix C.

2. The Police and Fire plan continues to be in a well-funded position. Statutory contributions are substantially below ongoing normal costs. The revised actuarial methods now in place should help to alleviate the possibility of dramatic swings in required contributions over the next several years.

3. The Police and Fire Consolidation Fund was terminated and merged into the PERA Police and Fire Fund effective July 1, 1999. Tables 1-D1 and 1-D2 on pages 9 and 10 summarize the funded status of each account remaining as of June 30, 2001.

4. The Local Government Correctional plan is a new plan that was first effective July 1, 1999. The modest sufficiency is due mainly to decreases in the Normal Cost rate as new employees enter the plan.

MSRS

5. The improvement in the sufficiency measure in the State Employees plan is due to gains from salary increases less than assumed and from the asset smoothing method. The State General Employees plan shows a much smaller contribution sufficiency under the recommended assumptions.

6. All funding ratios improved modestly as did the sufficiency measure in the State Patrol plan. Consideration of modest reductions in statutory contribution rates may be warranted.

7. While the Correctional Employees plan enjoyed generally favorable asset and liability experience, the plan experienced modest deterioration in funding ratios and in the sufficiency measure. In fact, the plan has a slightly higher deficiency in the current valuation and modestly higher yet under the recommended assumptions. New job classifications continue to be allowed to transfer into the Correctional plan (we saw a 2.7% increase in active membership in this plan). In most cases, the assets transferred in from MSRS General were not adequate to fully cover the actuarial accrued liability of these new participants. Furthermore, the sufficiency measure needs to be monitored carefully since the statutory contribution rates are less than ongoing normal costs of the plan.

8. The Legislators plan is funded on a terminal funding basis. This funding basis means that the State (as employer) does not pre-fund for benefits earned while service is being performed. Rather, at the time of retirement of one of these participants, the State must fund that portion of the retirement benefit not covered by member contributions. This funding approach has several disadvantages:

   a. It can lead to substantial fluctuations in year-to-year funding requirements;

   b. Due to lack of investment income, it means ultimate State costs are higher; and

   c. It defers funding obligations from one generation of taxpayers to the next.

   The Elective State Officers plan is handled on a pay-as-you-go basis. This funding basis means there is no accumulated funding (other than Member contributions held by the State's general fund). Actual retirement benefits are paid from the general funds via direct disbursements to the retirees (or beneficiaries). There are no longer any active employees in this plan.

   Not surprisingly, Table I-C continues to show low funding ratios for these plans year-after-year. Since both of these plans have been closed to new members, it is probably not prudent to consider pre-funding at this time.

9. We note modest increases in the funding ratios and in the sufficiency measure for the Judges plan. Continued funding at the current statutory rates has driven the funding ratios higher and has substantially diminished any ongoing concern relating to short-term cash shortages.

TEACHERS

10. The Minnesota TRA fund continues to have a negative unfunded actuarial accrued liability. The modest improvement in the sufficiency measure is due primarily to the asset smoothing method. The recommended assumptions cause the sufficiency to increase.

11. The Duluth Teachers plan showed further improvement in funding ratios and funding status. Favorable asset and liability experience contributed to the improved funded status of the plan. Even after the reduction in State supplemental contributions and the adoption of new assumptions, this plan is expected to continue to show a sufficiency.

12. The St. Paul Teachers plan showed further improvement in funding ratios and funding status. This favorable assessment is contingent, of course, on the current level of State supplemental contributions. The impact of the new assumptions on this plan, however, causes it to show a modest deficiency. This plan will need to be monitored closely in the year ahead.

13. Significant liability losses in the Minneapolis Teachers plan led to deterioration in all funding ratios and an increase in the deficiency percentage. As of July 1, 2001, the fund is severely distressed as the annuitant liability now exceeds the actuarial value of assets. Absent significant State supplemental contributions, this plan would be even more substantially deficient. The deficiency percentage is even larger under the recommended assumptions; for reasons discussed below, it can be expected to grow; legislative attention is needed.

MERF

14. The Minneapolis Employees Retirement Fund had favorable asset experience in the 2000-2001 year which was partially offset by liability losses. The State's portion of the supplemental contribution remains below its statutory maximum at about the same level as last year. Meanwhile required contribution rates for contributing employers increased approximately 1.5% of pay since amortization amounts decreased less than 5% while covered payroll decreased over 14%.

ANALYSIS OF PURCHASED SERVICE CREDITS

Provisions under Minnesota Statutes Chapter 390, Article 4, provide the methodology for determining the amounts required to purchase prior service credits under certain circumstances. Those provisions also require the Commission Actuary to provide an analysis by individual and by plan of the impact on the plan's funded status of the service credits actually purchased during the 12 months preceding the valuation. Accordingly, we included Table I-E for all the funds with actual purchases executed. The methodology used to complete this analysis was to calculate the actuarial accrued liability for each individual using our valuation routine (based on status as of July 1, 2001) first reflecting the additional service and then with service adjusted to remove the added service. Table I-E compares the difference in calculated actuarial accrued liability to the amounts paid for the added service. Since many of the purchases involve fractional years of service (and our valuation routine deals with projected benefits using whole years), the results by individual can look strange. We see some participants with no change in calculated liability and others with increases much greater than the purchase amount. In total, however, the service credits purchase amounts in the 2000-2001 year were less than the increase in liability, thus generating a small aggregate loss to the funded status of the plans in total.

Plans that need close scrutiny by the LCPR are St. Paul Teachers, MSRS correctional, and PERA. Minneapolis Teachers needs immediate attention. We are aware that hearings have already begun on dealing with PERA's funding deficit. Further discussion of our assessment of PERA's funded position is included in Appendix D.

The Minneapolis Teachers funding problem is severe and compounded by several factors that make it likely that their deficiency measurement will worsen even further in the years to come:

- Current statutory rates being less than required mean that the unfunded actuarial liability is expected to increase.
- Since the current amortization requirement is to a fixed date, this increased amount, funded over a shorter period, will create significantly higher amortization requirements.
- For the most part, the Supplemental Contributions of the 1993, 1996 and 1997 legislative packages are fixed amounts; these amounts will provide a decreasing percentage when expressed as a percent of payroll.
- The mechanics of the post-retirement increase calculation have a built-in bias to contribute a loss to the plan. First of all, retirees get full credit (or nearly full credit) for excess earnings even though the plan is only 66% funded. Secondly, the excess is determined on a percentage basis not a dollar basis meaning that more dollars are granted as increases than are actually earned. The combined effect of these two factors is that the funding status of the plan is likely to be adversely impacted unless the fund earnings are exactly the assumed 8.5%.

The combination of all of these factors creates a dim picture indeed for this fund. We urge the LCPR to explore corrective actions as soon as possible.

On a broader perspective, results of this year's valuations confirm that the future funded status of the major public employee retirement plans in the State of Minnesota will be driven primarily by future returns on fund assets. Both changes made last year to the actuarial methods being employed should help to keep required contribution rates from becoming overly volatile. Nonetheless, issues which may arise include:

- What level of plan assets vs. accrued liabilities is truly "excessive"?
- What principles should be established for consideration of decreases in statutory contribution rates?
- What are the statutory mechanisms for dealing with a previously "overfunded" plan which becomes underfunded due to future asset or liability experience?

As Commission Actuary, we stand ready to assist the Commission with these and other issues.

TABLE 1-A: 2001-2002 FUNDING LEVELS (PERCENTAGES)

Fund	Section 356.215 Requirements				Statutory Requirements			Sufficiency/ Deficiency
	Normal Cost	Supple-mental Cost	Expense	Total	Employee	Employer	Total	
Public Employees (Chapter 353)	9.40%	1.97%	0.23%	11.60%	4.94%	5.38%	10.32%	(1.28%)
Police and Fire (Chapter 353)	20.21%	(7.22%)	0.13%	13.12%	6.20%	9.30%	15.50%	2.38%
Local Correctional (Chapter 353E)	14.02%	0.03%	0.16%	14.21%	5.83%	8.75%	14.58%	0.37%
State Employees (Chapter 352)	8.76%	(2.17%)	0.20%	6.79%	4.00%	4.00%	8.00%	1.21%
State Patrol (Chapter 352B)	22.53%	(8.70%)	0.17%	14.00%	8.40%	12.60%	21.00%	7.00%
Correctional (Chapter 352)	14.99%	(1.37%)	0.19%	13.81%	5.69%	7.98%	13.67%	(0.14%)
Legislators (Chapter 3A)	17.86%	41.80%	0.48%	60.14%	9.00%	Terminal Funding	N/A	N/A
Elective State Officers (Chapter 352C)**	0	370	1	371	0	Paygo Funding	N/A	N/A
Judges (Chapter 490)	16.44%	10.14%	0.14%	26.72%	7.45%	20.50%	27.95%	1.23%
Teachers (Chapter 354)	9.09%	(1.70%)	0.46%	7.85%	5.00%	5.00%	10.00%	2.15%
Duluth Teachers (Chapter 354A)	8.66%	(1.96%)	0.79%	7.49%	5.50%	6.70% *	12.20%	4.71%
St. Paul Teachers (Chapter 354A)	9.05%	6.54%	0.22%	15.81%	5.97%	11.10% *	17.07%	1.26%
Minneapolis Teachers (Chapter 354A)	10.25%	14.94%	0.26%	25.45%	5.99%	16.73% *	22.72%	(2.73%)
Minneapolis Employees (Chapter 422A)	17.93%	21.92%	1.93%	41.78%	9.75%	32.02% *	41.77%	(0.01%)

* Includes State contributions of 0.91% for Duluth Teachers, 7.93% for Minneapolis Teachers, 2.13% for St. Paul Teachers, and 9.26% for Minneapolis Employees.

** Amounts in thousands of dollars

TABLE 1-B: PATTERN OF SUFFICIENCY/DEFICIENCY: 1999-2001

Fund	Actuarial Requirements			Statutory Requirements			Sufficiency/(Deficiency)		
	1999	2000	2001	1999	2000	2001	1999	2000	2001
Public Employees	9.44%	11.94%	11.60%	10.00%	9.98%	10.32%	0.56%	(1.96)%	(1.28)%
Police and Fire	11.68%	12.68%	13.12%	15.50%	15.50%	15.50%	3.82%	2.82%	2.38%
Local Correctional	15.03%	14.37%	14.21%	14.58%	14.58%	14.58%	(0.45)%	0.21%	0.37%
State Employees	7.67%	7.12%	6.79%	8.00%	8.00%	8.00%	0.33%	0.88%	1.21%
State Patrol	13.21%	15.48%	14.00%	21.00%	21.00%	21.00%	7.79%	5.52%	7.00%
Correctional	13.31%	13.72%	13.81%	13.67%	13.67%	13.67%	0.36%	(0.05)%	(0.14)%
Legislators	52.72%	55.88%	60.14%	T.F.	T.F.	T.F.	N/A	N/A	N/A
Elective State Officers	321*	340*	371*	P.G.	P.G.	P.G.	N/A	N/A	N/A
Judges	26.75%	27.03%	26.72%	28.50%	28.50%	27.95%	1.75%	1.47%	1.23%
Teachers	9.86%	7.92%	7.85%	10.00%	10.00%	10.00%	0.14%	2.08%	2.15%
Duluth Teachers	9.16%	8.51%	7.49%	12.20%	12.21%	12.20%	3.04%	3.70%	4.71%
St. Paul Teachers	18.09%	16.57%	15.81%	17.52%	17.29%	17.07%	(0.57)%	0.72%	1.26%
Minneapolis Teachers	23.88%	25.25%	25.45%	23.79%	23.25%	22.72%	(0.09)%	(2.00)%	(2.73)%
Minneapolis Employees	34.65%	36.85%	41.78%	34.65%	36.84%	41.77%	0.00%	(0.01)%	(0.01)%

* Amount in thousands of dollars

TABLE 1-C: ACCRUED BENEFIT FUNDING RATIOS: 1999-2001

(Dollars in Millions)

Fund	Current Assets			P.V. of Accrued Benefit			A.B. Funding Ratio		
	1999	2000	2001	1999	2000	2001	1999	2000	2001
Public Employees	$8,489	$9,609	$10,527	$8,607	$10,348	$11,305	98.63%	92.86%	93.12%
Police and Fire	$3,680	$4,145	$4,510	$2,878	$3,250	$3,567	127.86%	127.55%	126.43%
Local Correctional	$0	$11	$25	$0	$10	$24	0.00%	107.54%	102.11%
State Employees	$5,969	$6,744	$7,367	$4,951	$5,659	$6,116	120.56%	119.18%	120.45%
State Patrol	$473	$529	$573	$395	$445	$476	119.65%	118.89%	120.32%
Correctional	$335	$387	$431	$277	$326	$363	120.96%	118.83%	118.80%
Legislators	$33	$37	$43	$64	$67	$73	52.35%	55.67%	58.70%
Elective State Officers	$0.2	$0.2	$0.2	$3.4	$3.5	$3.8	5.87%	5.63%	5.32%
Judges	$98	$111	$124	$133	$147	$158	73.25%	75.63%	78.07%
Teachers	$14,011	$15,573	$16,834	$12,534	$14,010	$15,099	111.79%	111.16%	111.49%
Duluth Teachers	$219	$251	$274	$210	$231	$243	104.25%	108.59%	112.38%
St. Paul Teachers	$704	$801	$869	$888	$947	$1,010	79.26%	84.69%	86.08%
Minneapolis Teachers	$939	$1,028	$1,062	$1,343	$1,489	$1,556	69.97%	69.01%	68.23%
Minneapolis Employees	$1,328	$1,416	$1,507	$1,404	$1,491	$1,594	94.53%	95.00%	94.54%

Table 1-D1: Summary of Accounts with Positive Amortizable Bases at June 30, 2001

Account	Net Amortizable Base at June 30, 2000	January 1, 2001 Amortization Payment	Net Amortizable Base at June 30, 2001
Anoka Police	$90,184	$14,149	$83,112
Columbia Heights Police	$361,436	$56,706	$333,091
Crookston Fire	$24,504	$3,845	$22,582
Crookston Police	$202,043	$31,699	$186,198
Duluth Fire	$19,142,395	$3,003,285	$17,641,177
Duluth Police	$5,232,339	$820,911	$4,822,000
Faribault Fire	$1,506,384	$236,339	$1,388,248
Faribault Police	$178,343	$27,980	$164,357
Hibbing Fire	$2,913,554	$457,113	$2,685,062
Hibbing Police	$1,275,947	$200,186	$1,175,882
Mankato Fire	$856,891	$134,439	$789,691
St. Cloud Fire	$2,701,631	$423,864	$2,489,759
St. Paul Fire	$261,119	$40,967	$240,642
South St. Paul Fire	$1,429,038	$224,204	$1,316,968
South St. Paul Police	$677,290	$106,261	$624,175
Winona Fire	$2,738,358	$429,626	$2,523,606
Winona Police	$1,742,999	$273,462	$1,606,307
Total	**$41,334,455**	**$6,485,036**	**$38,092,857**

Table 1-D2: Summary of Accounts with Negative Amortizable Bases at June 30, 2001

Account	Amount Payable at at June 30, 2000	Interest Credited in Fiscal Year Ending June 30, 2001	Amount Paid in Fiscal Year Ending June 30, 2001	Amount Payable at June 30, 2001
Chisholm Fire	188,725	7,559	196,284	-
Chisholm Police	18,785	752	19,537	-
Columbia Heights Fire	676,352	24,027	700,379	-
Mankato Police *	1,296,213	144,026	-	1,440,239
New Ulm Police	2,048,289	31,360	2,079,649	-
Total	**$4,228,364**	**$207,724**	**$2,995,849**	**$1,440,239**

* Residual Asset Amount has been paid after the valuation date.

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Public Employees Retirement Association

	PERA Number	PERA Employer	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
Active Members:	167461	6078-0001	0.333	$4,674	$0	$3,747	$927
	208476	0230-0002	2.083	$39,394	$0	$28,667	$10,727
	212394	1887-0003	2.167	$25,000	$0	$19,580	$5,420
	229610	2162-0003	3.000	$8,870	$0	$10,831	($1,961)
	266628	8413-0001	1.917	$28,414	$0	$24,944	$3,470
	309687	7824-0001	1.000	$8,850	$0	$11,523	($2,673)
	338064	0400-0002	2.000	$19,807	$0	$18,311	$1,496
	366760	2162-0003	3.000	$13,549	$0	$16,959	($3,410)
	367389	7370-0001	1.750	$12,805	$0	$9,259	$3,546
	378596	0308-0002	2.083	$11,390	$0	$11,734	($344)
	414783	0006-0002	2.583	$15,748	$0	$16,920	($1,172)
	470033	0400-0002	3.000	$11,629	$0	$15,500	($3,871)
	479613	6296-0001	3.083	$16,031	$0	$19,359	($3,328)
	482571	7370-0001	3.083	$4,219	$0	$4,074	$145
	498203	3498-0001	3.333	$10,587	$0	$12,131	($1,544)
	527626	6297-0004	4.083	$43,126	$0	$54,669	($11,543)
	556095	6296-0001	1.917	$1,490	$0	$1,021	$469
	556228	0344-0019	2.000	$8,254	$0	$8,834	($580)
Active subtotal:				**$283,837**	**$0**	**$288,063**	**($4,226)**
Deferred Vested Members:	none						
Deferred Vested subtotal:				**$0**	**$0**	**$0**	**$0**
Retired Members:	157960		4.083	$26,554	$0	$26,158	$396
	206027		1.250	$17,678	$0	$24,304	($6,626)
	343742		4.083	$4,426	$48,800	$65,804	($12,578)
	554166		2.000	$5,924	$0	$5,700	$224
Retired subtotal:				**$54,582**	**$48,800**	**$121,966**	**($18,585)**
TOTAL (PERA)				**$338,419**	**$48,800**	**$410,029**	**($22,811)**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Public Employees Police & Fire Fund

	PERA Number	PERA Employer	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
Active Members:	808625	0230-0002	0.333	$7,774	$0	$6,657	$1,117
	812766	9999-0000	4.083	$71,720	$0	$56,043	$15,677
	816869	0181-0002	3.167	$24,669	$0	$23,058	$1,611
Active subtotal:				**$104,163**	**$0**	**$85,758**	**$18,405**
Deferred Vested Members:	none						
Deferred Vested subtotal:				**$0**	**$0**	**$0**	**$0**
Retired Members:	817132		3.000	$18,656	$0	$49,910	($31,254)
Retired subtotal:				**$18,656**	**$0**	**$49,910**	**($31,254)**
TOTAL (PEPF)				**$122,819**	**$0**	**$135,668**	**($12,849)**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

State Employees Retirement Association

	Member Number	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
Active Members:	471-54-1844	1.917	$25,000	$0	$12,259	$12,741
	473-46-9035	1.750	$22,954	$0	$17,029	$5,925
	475-44-6724	3.417	$14,369	$0	$12,280	$2,089
	478-58-4097	1.000	$12,682	$0	$7,316	$5,366
	484-52-4096	4.000	$22,021	$0	$27,721	($5,700)
	502-48-2508	5.083	$11,267	$0	$4,476	$6,791
	504-56-6499	2.000	$10,225	$0	$12,160	($1,935)
	535-46-4778	3.917	$9,060	$0	$15,050	($5,990)
Active subtotal:			**$127,578**	**$0**	**$108,291**	**$19,287**
Deferred Vested Members:	none					
Deferred Vested subtotal:			**$0**	**$0**	**$0**	**$0**
Retired Members:	473-48-7523	3.333	$62,437	$0	$99,124	($36,687)
	474-46-5026	2.417	$42,208	$0	$89,686	($47,478)
	478-50-4502	1.917	$34,446	$0	$82,128	($47,682)
Retired subtotal:			**$139,091**	**$0**	**$270,938**	**($131,847)**
TOTAL (SERA)			**$266,669**	**$0**	**$379,229**	**($112,560)**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Correctional Employees Retirement Fund

	Member Number	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
Active Members:	067-48-8027	1.250	$14,113	$0	$11,471	$2,642
Active subtotal:			**$14,113**	**$0**	**$11,471**	**$2,642**
Deferred Vested Members:	none					
Deferred Vested subtotal:			**$0**	**$0**	**$0**	**$0**
Retired Members:	471-50-5987	1.250	$12,208	$0	$11,402	$806
Retired subtotal:			**$12,208**	**$0**	**$11,402**	**$806**
TOTAL (CERF)			**$26,321**	**$0**	**$22,873**	**$3,448**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

	TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
Active Members:	081631	027-00279	2.000	$38,124	$0	$34,356	$3,768
	089636	072-02365	0.840	$10,122	$0	$6,173	$3,949
	091768	101-00014	0.560	$10,741	$0	($31)	$10,772
	093970	002-00011	0.120	$1,937	$0	$1,146	$791
	094096	002-00011	0.820	$14,274	$0	$10,681	$3,593
	097140	024-00241	3.730	$52,989	$0	$43,931	$9,058
	099415	018-00181	0.290	$5,266	$0	$3,104	$2,162
	099587	062-00621	1.390	$23,454	$0	$24,167	($713)
	100648	004-00031	0.260	$5,596	$0	$2,532	$3,064
	101871	034-00347	0.470	$15,166	$0	$5,080	$10,086
	103361	022-02134	0.140	$2,038	$0	($185)	$2,223
	103392	004-00032	1.600	$24,714	$0	$17,416	$7,298
	104142	005-00047	0.020	$371	$0	$188	$183
	104889	029-00309	0.270	$3,957	$0	$2,500	$1,457
	105295	055-00535	1.530	$30,564	$0	$15,721	$14,843
	105853	018-00181	3.200	$50,679	$0	$36,260	$14,419
	105869	062-00623	0.350	$8,252	$0	$3,894	$4,358
	105953	082-00833	0.560	$9,571	$0	$20,344	($10,773)
	107001	071-00728	3.390	$45,336	$0	$493	$44,843
	107135	001-00001	1.000	$13,330	$0	$70	$13,260
	107896	009-00091	0.240	$7,006	$0	$3,610	$3,396
	108644	086-00882	0.240	$5,841	$0	$3,354	$2,487
	108983	010-00111	0.200	$3,492	$0	$1,695	$1,797
	110313	002-00011	0.840	$13,441	$0	$9,435	$4,006
	111178	019-00196	0.200	$3,482	$0	$2,272	$1,210
	112470	062-00624	0.220	$3,284	$0	$1,710	$1,574
	112986	024-02886	1.120	$13,884	$0	$10,291	$3,593
	113302	082-00834	0.410	$7,551	$0	$3,983	$3,568
	113341	062-00623	0.120	$2,375	$0	$1,215	$1,160
	113558	024-00241	4.000	$62,048	$0	$46,212	$15,836

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
113592	027-00270	0.920	$19,368	$0	$22,433	($3,065)
113836	018-00181	0.880	$16,415	$0	$9,491	$6,924
113868	062-00623	1.040	$21,716	$0	$12,531	$9,185
114757	019-00194	0.140	$2,393	$0	$1,280	$1,113
114823	048-00477	1.000	$15,610	$0	$17,631	($2,021)
114852	018-00181	0.420	$6,779	$0	$4,484	$2,295
115271	069-00706	0.270	$4,361	$0	$1,989	$2,372
115354	002-00011	0.520	$9,888	$0	$7,372	$2,516
115369	008-00081	0.030	$405	$0	$232	$173
115675	082-00833	0.770	$15,479	$0	$19,182	($3,703)
115733	086-00877	0.460	$7,535	$0	$4,181	$3,354
116336	062-00622	1.000	$19,387	$0	$13,904	$5,483
116474	044-00432	0.170	$2,373	$0	$1,342	$1,031
116563	045-02176	0.360	$4,618	$0	$8,230	($3,612)
116600	002-00013	0.280	$5,587	$0	$12,164	($6,577)
116763	005-00047	0.130	$1,911	$0	$1,058	$853
116782	055-00535	0.010	$171	$0	$90	$81
117087	101-00043	0.250	$4,334	$0	$17,604	($13,270)
118154	070-00720	1.510	$28,278	$0	$15,940	$12,338
119274	062-00623	0.850	$15,299	$0	$17,506	($2,207)
119462	069-00706	0.760	$18,149	$0	$8,717	$9,432
120063	082-00833	0.060	$1,031	$0	$541	$490
120228	014-00150	0.290	$5,115	$0	$3,337	$1,778
120765	087-00891	2.500	$29,869	$0	$26,463	$3,406
121378	027-00277	0.860	$15,632	$0	$10,114	$5,518
121980	062-00624	3.910	$61,197	$0	$58,304	$2,893
122066	082-00834	2.460	$43,715	$0	$35,018	$8,697
122440	071-00728	1.000	$31,086	$0	$33,873	($2,787)
122943	062-00623	0.570	$10,828	$0	$7,786	$3,042
123312	018-00181	0.890	$14,891	$0	$8,989	$5,902

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
123342	010-00112	3.790	$59,116	$0	$59,561	($445)
123390	040-00392	0.440	$6,355	$0	$3,569	$2,786
123553	040-00394	0.470	$6,987	$0	$10,799	($3,812)
123799	080-02155	0.200	$6,504	$0	$1,706	$4,798
124075	002-00011	0.230	$5,192	$0	$3,719	$1,473
124748	009-00094	1.000	$17,068	$0	$10,228	$6,840
125515	027-00281	2.000	$31,467	$0	$25,032	$6,435
125565	062-00622	3.030	$47,455	$0	$38,256	$9,199
125776	023-02198	0.290	$4,294	$0	$8,005	($3,711)
127154	063-00630	2.000	$24,906	$0	$21,770	$3,136
129986	070-00720	1.000	$18,586	$0	$21,895	($3,309)
130403	066-00656	0.270	$4,066	$0	$2,077	$1,989
130521	071-00728	0.220	$4,725	$0	$2,394	$2,331
130604	025-00256	0.250	$12,772	$0	$4,222	$8,550
131268	027-00284	2.860	$54,132	$0	$47,878	$6,254
131855	002-00011	0.440	$10,469	$0	$3,601	$6,868
131961	071-00728	0.460	$8,438	$0	$14,529	($6,091)
131993	027-00281	2.000	$17,405	$0	$18,623	($1,218)
132005	082-00834	1.480	$27,819	$0	$30,042	($2,223)
132245	082-00834	1.140	$27,964	$0	$29,755	($1,791)
132331	019-00199	1.650	$5,676	$66,228	$30,469	$41,435
132392	056-00545	3.480	$39,847	$0	$36,332	$3,515
132817	002-00013	0.120	$2,503	$0	$1,177	$1,326
133098	040-00394	0.390	$4,937	$0	$2,755	$2,182
133130	073-00750	1.000	$12,916	$0	$14,706	($1,790)
133174	062-00621	1.000	$17,640	$0	$22,010	($4,370)
133214	011-02174	0.380	$5,211	$0	$9,547	($4,336)
135170	034-00345	0.280	$7,562	$0	$2,438	$5,124
137742	050-00500	0.290	$6,981	$0	$3,335	$3,646
137966	056-00550	0.940	$10,473	$0	$6,618	$3,855

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
137994	062-00622	0.650	$12,428	$0	$18,222	($5,794)
138022	027-00279	0.340	$5,961	$0	$3,022	$2,939
138718	007-02071	0.270	$3,587	$0	$6,954	($3,367)
138894	002-00011	0.370	$5,761	$0	$2,943	$2,818
139198	010-00111	2.130	$62,617	$0	$62,249	$368
139424	069-00704	1.110	$14,044	$0	$15,404	($1,360)
139425	027-00270	0.500	$11,886	$0	$12,581	($695)
139434	069-02142	0.480	$6,177	$0	$2,925	$3,252
140180	002-00011	2.000	$30,119	$0	$30,714	($595)
140202	086-00877	0.220	$3,197	$0	$8,663	($5,466)
140750	030-00911	1.550	$19,941	$0	$15,525	$4,416
140765	101-00011	0.990	$18,204	$0	$5,864	$12,340
143352	056-00544	0.180	$2,496	$0	$1,293	$1,203
144573	073-00741	1.580	$23,958	$0	$14,006	$9,952
144863	079-00810	0.480	$7,156	$0	$11,562	($4,406)
145100	010-00111	0.980	$10,751	$0	$7,831	$2,920
145448	009-00094	0.650	$11,010	$0	$6,526	$4,484
145658	060-00593	0.140	$1,691	$0	$839	$852
145842	062-00622	0.330	$6,044	$0	$2,966	$3,078
146521	015-00162	2.630	$37,464	$0	$30,423	$7,041
146769	036-00362	0.100	$1,231	$0	$628	$603
147880	019-00200	2.200	$38,915	$0	$33,792	$5,123
148377	019-00196	3.340	$65,716	$0	$58,698	$7,018
149035	044-00432	0.360	$6,237	$0	$3,022	$3,215
149697	027-00287	3.420	$83,173	$0	$60,140	$23,033
150105	082-00916	1.500	$29,196	$0	$30,939	($1,743)
150350	027-00270	0.170	$3,256	$0	$1,662	$1,594
150710	062-00623	4.350	$59,129	$0	$43,501	$15,628
153486	027-00280	0.550	$8,139	$0	$7,275	$864
156804	094-09458	1.250	$15,776	$0	$15,694	$82

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
157444	004-00031	0.530	$6,633	$0	$3,195	$3,438
159957	101-00026	0.100	$1,479	$0	$753	$726
161630	013-00138	0.710	$10,444	$0	$7,958	$2,486
162092	031-00318	1.950	$32,615	$0	$1,671	$30,944
162552	055-00535	0.190	$2,086	$0	$902	$1,184
163533	019-00196	0.110	$1,497	$0	$679	$818
166305	060-00595	0.420	$4,647	$0	$1,845	$2,802
166525	056-00550	2.000	$19,705	$0	$17,714	$1,991
168816	071-00727	5.690	$129,503	$0	$92,245	$37,258
169114	101-00013	1.960	$39,004	$0	$26,517	$12,487
171855	050-00492	1.070	$13,163	$0	$7,330	$5,833
172395	063-00630	3.000	$29,391	$0	$25,881	$3,510
172900	018-00181	0.180	$2,398	$0	$1,060	$1,338
175481	101-00014	1.000	$9,614	$0	$12,410	($2,796)
175866	062-00621	3.000	$45,764	$0	$26,774	$18,990
176714	101-00013	2.580	$50,954	$0	$38,914	$12,040
177148	069-00695	0.830	$10,368	$0	$6,937	$3,431
179978	101-00045	1.000	$15,337	$0	$10,743	$4,594
180063	082-00831	2.000	$26,809	$0	$22,300	$4,509
183699	009-00094	2.690	$36,075	$0	$33,487	$2,588
184236	019-00192	5.000	$27,272	$0	$29,406	($2,134)
184722	070-00719	0.930	$13,727	$0	$9,185	$4,542
188041	027-00279	1.820	$19,956	$0	$15,871	$4,085
188191	013-00138	2.000	$26,291	$0	$19,348	$6,943
192003	101-00014	2.000	$27,186	$0	$19,602	$7,584
202595	019-00917	10.000	$131,300	$0	$61,010	$70,290
206299	101-00014	5.000	$47,000	$0	$50,055	($3,055)
210284	027-00281	3.000	$24,643	$0	$23,255	$1,388
210344	062-00622	2.020	$27,168	$0	$20,741	$6,427
218876	055-00535	1.000	$5,369	$0	$4,042	$1,327

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

	TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
	223621	034-00347	2.040	$8,212	$0	$3,732	$4,480
	226371	027-00287	2.000	$14,175	$0	$16,141	($1,966)
	228943	096-00003	8.380	$38,419	$0	$54,417	($15,998)
	229201	027-00284	7.000	$44,874	$0	$54,604	($9,730)
	234383	086-00882	2.110	$8,732	$0	$18,349	($9,617)
	234544	062-00622	2.340	$10,133	$0	$7,617	$2,516
	234573	073-00748	1.090	$5,216	$0	$2,072	$3,144
	239666	044-00432	3.000	$14,605	$0	$16,661	($2,056)
	242715	062-00622	0.660	$2,474	$0	$6	$2,468
	243678	010-00112	3.160	$13,649	$0	$22,811	($9,162)
	248279	027-00276	7.000	$39,857	$0	$48,031	($8,174)
	252774	019-00196	1.000	$4,127	$0	$4,003	$124
	257886	070-00720	0.980	$3,047	$0	$2,485	$562
	262749	094-09455	2.250	$3,927	$0	$4,177	($250)
	263941	035-02171	3.000	$9,556	$0	$8,618	$938
	269668	059-02689	2.000	$5,532	$0	$4,416	$1,116
Active subtotal:				**$3,100,964**	**$66,228**	**$2,556,284**	**$610,908**
Deferred Vested Members:	137910	002-00011	3.520	$62,942	$0	$94,168	($31,226)
	207435	027-00270	0.900	$2,686	$0	$0	$2,686
Deferred Vested subtotal:				**$65,628**	**$0**	**$94,168**	**($28,540)**
Retired Members:	090023	101-00049	1.890	$27,019	$0	$41,990	($14,971)
	092202	027-00276	0.030	$742	$0	$52,467	($51,725)
	093676	082-00833	0.400	$12,517	$0	$49,120	($36,603)
	094287	004-00031	0.290	$3,596	$0	$3,517	$79
	098560	052-00508	0.710	$12,710	$0	$91,633	($78,923)
	103979	032-00330	2.910	$35,803	$0	($62,745)	$98,548
	105918	062-00621	0.710	$12,033	$0	$53,867	($41,834)
	106587	011-00115	0.320	$5,659	$0	($33,653)	$39,312
	107079	025-00252	0.010	$193	$0	$29,085	($28,892)

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Teachers Retirement Plan

	TRA Number	TRA Employer Unit	Service Purchased	Employee Payment	Employer Payment	Change in Accrued Liability	Gain/(Loss) to Plan
	110338	034-00347	0.480	$13,672	$0	$42,215	($28,543)
	112748	073-00739	0.050	$703	$0	($172,181)	$172,884
	113669	027-00273	0.040	$933	$0	$57,513	($56,580)
	114008	062-00622	1.700	$35,178	$0	$62,673	($27,495)
	115016	069-00701	0.680	$17,881	$0	$4,519	$13,362
	115378	004-00031	0.270	$9,757	$0	$19,227	($9,470)
	116057	019-00191	0.370	$13,835	$0	$40,129	($26,294)
	116653	086-02687	0.370	$9,236	$0	$25,328	($16,092)
	119027	071-00728	1.000	$15,041	$0	($76,676)	$91,717
	119552	060-00595	0.140	$6,903	$0	$28,213	($21,310)
	122442	022-02134	0.460	$6,636	$0	($120,229)	$126,865
	126673	014-00152	1.380	$29,241	$0	$58,324	($29,083)
	130362	027-00273	2.100	$52,966	$0	$51,582	$1,384
	130524	101-00021	1.470	$24,981	$0	$69,316	($44,335)
	132929	056-00548	0.190	$2,841	$0	$1,331	$1,510
	135637	002-00011	0.870	$22,157	$0	$61,628	($39,471)
	135815	030-00911	0.090	$1,482	$0	$21,679	($20,197)
	136317	002-00011	1.000	$17,238	$0	$26,250	($9,012)
	138603	004-00031	0.670	$16,451	$0	$6,266	$10,185
	139325	027-00278	1.000	$21,531	$0	$47,473	($25,942)
	139765	055-00535	0.270	$7,287	$0	$14,238	($6,951)
	146820	004-00031	0.380	$6,250	$0	$2,577	$3,673
	147497	101-00028	0.080	$1,437	$0	$894	$543
	161374	101-00015	4.000	$67,994	$0	$43,454	$24,540
	182131	101-00013	4.000	$63,650	$0	$44,942	$18,708
Retired subtotal:				**$575,553**	**$0**	**$585,966**	**($10,414)**
TOTAL (TRA)				**$3,742,145**	**$66,228**	**$3,236,418**	**$571,954**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Duluth Teachers Retirement Plan

	Employee Number	Employer Unit	Amount of Service Purchased	Employee Purchase Payment	Employer Purchase Payment	Change in Actuarial Accrued Liability	Gain/(Loss) to Plan
Active Members:	6342	Duluth	6.92000	$47,301	$0	$60,981	($13,680)
	9589	Duluth	3.48000	$14,136	$0	$12,372	$1,764
Active subtotal:				**$61,437**	**$0**	**$73,353**	**($11,916)**
Deferred Vested Members:	None						
Deferred Vested subtotal:				**$0**	**$0**	**$0**	**$0**
Retired Members:	5537	Duluth	2.00000	$37,694	$0	$66,017	($28,323)
Retired subtotal:				**$37,694**	**$0**	**$66,017**	**($28,323)**
TOTAL (DTRA)				**$99,131**	**$0**	**$139,370**	**($40,239)**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

St. Paul Teachers Retirement Plan

	Employee Number	Employer Unit	Amount of Service Purchased	Employee Purchase Payment	Employer Purchase Payment	Change in Actuarial Accrued Liability	Gain/(Loss) to Plan
Active Members:	152970	St. Paul	0.15000	$2,925	$0	$10,515	($7,590)
	167559	St. Paul	1.40500	$17,495	$0	$17,521	($26)
	178097	St. Paul	0.70667	$10,573	$0	$14,954	($4,381)
	193096	St. Paul	0.10000	$1,460	$0	$442	$1,018
	370057	St. Paul	0.20000	$493	$0	$219	$274
	422371	St. Paul	0.10000	$289	$0	$84	$205
	443734	St. Paul	2.00000	$5,574	$0	$5,753	($179)
Active subtotal:				**$38,809**	**$0**	**$49,488**	**($10,679)**
Deferred Vested Members:	None						
Deferred Vested subtotal:				**$0**	**$0**	**$0**	**$0**
Retired Members:	3155	St. Paul	1.65000	$22,197	$0	$63,402	($41,205)
Retired subtotal:				**$22,197**	**$0**	**$63,402**	**($41,205)**
TOTAL (SPTRA)				**$61,006**	**$0**	**$112,890**	**($51,884)**

TABLE 1-E: ANALYSIS OF SERVICE CREDIT PURCHASES MADE IN PERIOD ENDING JUNE 30, 2001

Minneapolis Teachers' Retirement Fund Association

	Employee Number	Employer Unit	Amount of Service Purchased	Employee Purchase Payment	Employer Purchase Payment	Change in Actuarial Accrued Liability	Gain/(Loss) to Plan
Active Members:	14829	Minneapolis	1.00000	$45,815	$0	$29,462	$16,353
Active subtotal:				**$45,815**	**$0**	**$29,462**	**$16,353**
Deferred Vested Members:	16350	Minneapolis	2.00000	$36,611	$0	$36,611	$0
Deferred Vested subtotal:				**$36,611**	**$0**	**$36,611**	**$0**
Retired Members:	None						
Retired subtotal:				**$0**	**$0**	**$0**	**$0**
TOTAL (MTRFA)				**$82,426**	**$0**	**$66,073**	**$16,353**

II. Plan Provisions

This section of our summary presents a brief summary of those changes made to the statutes since last year's report that had an impact on the actuarial funding of a plan. This section is not designed to provide a comprehensive summary of all changes that were made. For a more detailed description of the plan provisions, please refer to the individual report for each Fund.

For the July 1, 2001 Actuarial Valuation, we highlight the following:

Public Employees (Chapter 353):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1973 retirees will be paid as monthly installments to the retirees.
- Effective January 1, 2002, the employee and employer regular contribution rate increases from 8.75 percent of pay to 9.10 percent for Basic members, and from 4.75 percent of pay to 5.10 percent for Coordinated members
- The full funding date has been extended from June 30, 2024 to June 30, 2031.

Police and Fire (Chapter 353):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1973 retirees will be paid as monthly installments to the retirees.

Local Government Correctional Service (Chapter 353E): None

State Employees (Chapter 352):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1973 retirees will be paid as monthly installments to the retirees.

State Patrol (Chapter 352B):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1973 retirees will be paid as monthly installments to the retirees.

Correctional Employees (Chapter 352): None

Legislators (Chapter 3A): None

Elective State Officers (Chapter 352C): None

Judges (Chapter 490): None

Teachers Retirement Association (Chapter 354):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1974 retirees will be paid as monthly installments to the retirees.

Duluth Teachers (Chapter 354A):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1971 retirees will be paid as monthly installments to the retirees.
- The requirement that the amortization contribution requirement must be determined using an amortization target date of June 30, 2020 has been removed.

St. Paul Teachers (Chapter 354A):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1974 retirees will be paid as monthly installments to the retirees.

Minneapolis Teachers (Chapter 354A):

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1974 retirees will be paid as monthly installments to the retirees.

Minneapolis Employees (Chapter 422A):

- The State has discontinued its annual appropriation to the Plan for the payment of additional lump sum benefits to pre-1973 retirees. Effective January 1, 2002, these annual lump sum benefits will be paid as monthly installments to the retirees.

III. ACTUARIAL ASSUMPTIONS AND METHODS
(Tables III-A, III-B and III-C)

In projecting costs to be incurred by a pension plan in future years, it is necessary to provide actuarial assumptions relating to the future events which trigger those costs. To provide for all **significant** events, a wide range of assumptions must be utilized. These assumptions may be classified into three different categories.

The ***first category*** involves the economic assumptions. These assumptions include assumed investment return, salary increases, social security increases and cost-of-living increases on plan benefits. These assumptions are characterized as economic because they generally tend to be affected by interrelated factors that also affect economic growth.

The ***second category*** relates to assumptions which affect the expected working lifetime (and retired lifetime) of a member. These assumptions include mortality rates, disability rates and rates of separation due to other causes. Within a particular group classification (such as teachers or policemen), year-to-year mortality and disability rates may be reasonably represented by standard published tables. Separation due to other causes may vary considerably and should be reviewed and monitored on an individual group basis. In particular, where a subsidized benefit exists (such as for early retirement), extra care must be provided with respect to the rate of separation which is assumed to occur (such as the rate of early retirement).

The ***third category*** relates to miscellaneous assumptions which are needed to accommodate special plan provisions which are not adequately covered in the first two categories. These would include (but are not limited to) items such as assumed family composition, plan expenses, election to specific benefit forms, etc. These assumptions need to be monitored so that they remain consistent with the plan provisions which are in effect.

In Tables III-A, III-B and III-C, we have prepared a summary of some of the assumptions being used by each plan in all three categories. For a comprehensive review of all assumptions being used for a particular plan, please refer to the July 1, 2001 Actuarial Valuation for that Fund.

In our opinion the assumptions used for July 1, 2001 valuations are reasonable and well within the mainstream of current actuarial practice. Experience during the 1992-96 period has been analyzed for the three large statewide plans and the approved changes in the assumptions for these plans have been included in the July 1, 2000 actuarial valuations.

ACTUARIAL METHODS

Asset Valuation Method

Effective with the July 1, 2000 actuarial valuation, Minnesota Statutes require that the asset value used for actuarial purposes spread differences between actual return (measured on a market-value basis) and expected return on non-MPRIF (non-RBF assets for MERF) assets over five years, in a manner similar to that already being used within the MPRIF. The previous method required under Minnesota Statutes recognized one third of the unrealized gains and losses. An Asset Valuation Method requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year. The intent of the change to the current method is to employ a more effective asset smoothing technique which is market-value based and which eliminates artificial bias related to manager style. The effective date of this requirement is July 1, 2000 with full transition to be accomplished as of July 1, 2003.

The calculation of the Actuarial Value of Assets for each fund is determined as:

> Market Value of Assets at June 30, 2001, *less*
>
> 80% of the current year Unrecognized Asset Return at July 1, 2001 (the difference between actual net return on Market Value of Assets between 06/30/2000 and 06/30/2001 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2000 Actuarial Valuation); *less*
>
> 60% of the current year Unrecognized Asset Return at July 1, 2000 (the difference between actual net return on Market Value of Assets between 06/30/99 and 06/30/2000 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 1999 Actuarial Valuation); *less*
>
> 30% of the Unrecognized Asset Return at July 1, 1999 (the difference between Market Value of Assets on 06/30/99 and the Actuarial Value of Assets used in the July 1, 1999 Actuarial Valuation).

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in the actuarial valuations. Minnesota Statutes refer to this value as "Current Assets."

Payment on the Unfunded Actuarial Accrued Liability

Effective with the July 1, 2000 actuarial valuations, if the Current assets exceed the Actuarial Accrued Liability for any fund, the surplus amount shall be amortized over 30 years as a level percentage of payroll. Prior to July 1, 2000, some of the funds did not amortize the surplus amount, while others amortized to a fixed amortization date.

TABLE III-A: JULY 1, 2000 ACTUARIAL ASSUMPTIONS - CATEGORY 1

(Highlighted box indicates change from prior year.)

Fund	Interest Rates Pre-retire/Post-retire	Salary Increase %/ Data Used	Social Security	COLA on Benefits
Public Employees (Chapter 353)	8.5%/6.0%	(2)/Prior Year Salary Increased	N/A	2.5% Implied by 6.0% Interest Rate
Police and Fire (Chapter 353)	8.5%/6.0%	(1)/ Prior Year Salary Increased	N/A	2.5% Implied by 6.0% Interest Rate
Local Government Correctional Service (Chapter 353E)	8.5%/6.0%	(1)/Prior Year Salary Increased	N/A	2.5% Implied by 6.0% Interest Rate
State Employees (Chapter 352)	8.5%/6.0%	(2)/Prior Year Salary Increased	N/A	2.5% Implied by 6.0% Interest Rate
State Patrol (Chapter 352B)	8.5%/6.0%	(1)/Prior Year Salary Increased	N/A	2.5% Implied by 6.0% Interest Rate
Correctional (Chapter 352)	8.5%/6.0%	(1)/Prior Year Salary Increased	Current Law and 6.0% Salary Scale	2.5% Implied by 6.0% Interest Rate
Legislators (Chapter 3A)	8.5%/5.0%	Statutory salary, Then 5.0%	N/A	3.5% Implied by 5.0% Interest Rate
Elective State Officers (Chapter 352C)	8.5%/5.0%	Statutory Salary, Then 5.0%	N/A	3.5% Implied by 5.0% Interest Rate
Judges (Chapter 490)	8.5%/6.0%	Statutory Salary, Then 5.0%	N/A	2.5% Implied by 6.0% Interest Rate
Teachers (Chapter 354)	8.5%/6.0%	(2)/Prior Year Salary Increased	N/A	2.5% Implied by 6.0% Interest Rate
Duluth Teachers (Chapter 354A)	8.5%/6.5%	(1)/Reported Salary Increased	N/A	2% Implied by 6.5% Interest Rate
St. Paul Teachers (Chapter 354A)	8.5%/8.5%	(1)/Reported Salary Increased	N/A	2% Per Annum
Minneapolis Teachers (Chapter 354A)	8.5%/8.5%	(1)/Reported Salary Increased	N/A	2% Per Annum
Minneapolis Employees (Chapter 422A)	6.0%/5.0%	4.0%/Reported Pay Increased 1.0198%	N/A	1.0% Implied by 5.0% Interest Rate

(1) *Graded rates using a 5.0% base increase plus a merit scale.*

(2) *Select and ultimate rates using a 5.0% base increase plus a merit scale plus a 10-year select period.*

TABLE III-B: JULY 1, 2000 ACTUARIAL ASSUMPTIONS - CATEGORY 2

(Highlighted box indicates change from prior year.)

Fund	Mortality Table (male rates shown)	Disability Table (male rates shown)	Retirement Age (Coordinated)	Other Separation (male rates shown)
Public Employees (Chapter 353)	1983 GAM Male set back 8 years	Graded: .05% @ 35 .49% @ 55	Graded from age 55 and separate graded rates for Rule of 90	Select and ultimate graded
Police and Fire (Chapter 353)	1983 GAM Male set back 5 years	Graded: .19% @ 35 1.35% @ 55	Graded from age 50	Graded: 1.83% @ 35 .11% @ 55
Local Government Correctional Service (Chapter 353E)	1983 GAM Male set back 1 year	Graded: .11% @ 35 .88% @ 55	Graded from age 50	Graded: 6.00% @ 35 1.40% @ 55
State Employees (Chapter 352)	1983 GAM Male set back 5 years	Graded: .05% @ 35 .35% @ 55	Graded from age 55 and separate graded rates for Rule of 90	Select and ultimate graded
State Patrol (Chapter 352B)	1983 GAM Male set back 1 year	Graded: .11% @ 35 .88% @ 55	Graded from age 50	Graded: 0.70% @ 35 0.00% @ 55
Correctional (Chapter 352)	1983 GAM Male set back 1 year	Graded: .11% @ 35 .88% @ 55	Graded from age 50	Graded: 6.00% @ 35 1.40% @ 55
Legislators (Chapter 3A)	1983 GAM Male set back 4 years	None	Age 62	Varies based upon service; 0% @ 9 years
Elective State Officers (Chapter 352C)	1983 GAM Male set back 4 years	None	Age 62	Varies based upon service; 0% @ 9 years
Judges (Chapter 490)	1983 GAM Male set back 4 years	Graded: .02% @ 35 .34% @ 55	Graded from age 62	None
Teachers (Chapter 354)	1983 GAM Male set back 10 years	Graded: .01% @ 35 .10% @ 55	Graded from age 55 and separate graded rates for Rule of 90	Select and ultimate graded
Duluth Teachers (Chapter 354A)	1983 GAM Male set back 4 years	Graded: .06% @ 35 .36% @ 55	Graded from age 55 40% under Rule of 90	Graded: 4.91% @ 35 .13% @ 55
St. Paul Teachers (Chapter 354A)	1983 GAM Male set back 5 years	Graded: .06% @ 35 .36% @ 55	Graded from age 55	Graded: 4.50% @ 35 0.50% @ 55
Minneapolis Teachers (Chapter 354A)	1983 GAM Male set back 6 years	Graded: .05% @ 35 .36% @ 55	Graded from age 55	Graded: 4.50% @ 35 0.50% @ 55
Minneapolis Employees (Chapter 422A)	1986 Projected Exp. Table set back 1 year	Graded: .30% @ 35 1.60% @ 55	Age 61	Graded: 1.50% @ 35 1.00% @ 55

TABLE III-C: JULY 1, 2000 ACTUARIAL ASSUMPTIONS - CATEGORY 3

(Highlighted box indicates change from prior year.)

Fund	Family Composition (Male/Female)	Expenses (Admin. Only)	Bounceback Annuity Election (Male/Female)	Other
Public Employees (Chapter 353)	85%/65% married; no children	Prior year as % of payroll	30%/15% for 50% J&S 45%/15% for 100% J&S	2.5% load on withdrawal and retirement decrements for Combined Service Annuities
Police and Fire (Chapter 353)	85%/65% married; no children	Prior year as % of payroll	40%/15% for 50% J&S 45%/15% for 100% J&S	None
Local Government Correctional Service (Chapter 353E)	85%/85% married;	Prior year as % of payroll	25%/5% for 50% J&S 25%/5% for 100% J&S	None
State Employees (Chapter 352)	85%/85% married	Prior year as % of payroll	25%/10% for 50% J&S 45%/10% for 100% J&S	1% load on withdrawal and retirement decrements for Combined Service Annuities
State Patrol (Chapter 352B)	100%/100% married; two children	Prior year as % of payroll	25%/ 5% for 50% J&S 25%/ 5% for 100% J&S	None
Correctional (Chapter 352)	85%/85% married	Prior year as % of payroll	25%/ 5% for 50% J&S 25%/ 5% for 100% J&S	None
Legislators (Chapter 3A)	85%/85% married; two children	Prior year as % of payroll	None	$4,800 per diem income
Elective State Officers (Chapter 352C)	85%/85% married; two children	Prior year as % of payroll	None	No refunds after 8 years
Judges (Chapter 490)	Actual data	Prior year as % of payroll	None	No refunds
Teachers (Chapter 354)	85%/65% married; no children	Prior year as % of payroll	15%/20% for 50% J&S 15%/10% for 75% J&S 50%/30% for 100% J&S	1% load on withdrawal and retirement decrements for Combined Service Annuities
Duluth Teachers (Chapter 354A)	80%/80% married	Prior year as % of payroll	30%/30% for 50% J&S 55%/20% for 100% J&S	None
St. Paul Teachers (Chapter 354A)	85%/60% married; two children	Prior year as % of payroll	15%/10% for 50% J&S 50%/10% for 100% J&S	Benefit increase = (5 yr. return - 8.50%) x (1 - contribution deficiency)
Minneapolis Teachers (Chapter 354A)	80%/60% married	Prior year as % of payroll	15%/15% for 50% J&S 20%/ 5% for 75% J&S 40%/10% for 100% J&S	Benefit increase = (5 yr. return - 8.50%) x (1 - contribution deficiency)
Minneapolis Employees (Chapter 422A)	67%/67% married	Prior year increased by 4% as % of payroll	None	Investment expense amortized to a required date

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SUFFICIENCY/(DEFICIENCY) UNDER RECOMMENDED ASSUMPTIONS

A detailed experience study for the period ending June 30, 2000 was completed for each of the three statewide plans and for each of the three first-class city teacher plans. Based on the results of those studies, we had developed a detailed set of recommended assumptions for each of these funds. At the request of the fund administrators, we completed a study of the Combined Service Annuity Provisions on February 23, 2001. In this study, we developed the recommended load factors to be applied to the total liability for Members and for former Members as shown in the table below:

	Recommended Load Factors	
Fund	**Active Members**	**Former Members**
PERA General	0.8%	60%
PERA Police & Fire	-	30
PERA Local Correctional	-	30
MSRS General	1.2	40
MSRS State Patrol	-	30
MSRS Correctional	-	30
MSRS Legislators	-	30
MSRS Elected Officials	-	30
MSRS Judges	-	30
TRA	1.4	4
Duluth Teachers	10.0	10
St. Paul Teachers	7.0	30
Minneapolis Teachers	4.0	30
MERF	0.2	30

A summary of the recommended assumptions for each of the six funds for which an experience study was completed is shown on the following pages along with the Sufficiency/(Deficiency) measures for all of the funds.

SUMMARY OF RECOMMENDED ASSUMPTIONS

Assumption	Current	Recommended
Salary increases	Ten year select and ultimate table. During the select period, 0.2% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.75% at age 20 down to 5.0% at age 70	Ten year select and ultimate table. During the select period, 0.3% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.4% at age 20 down to 5.00% at age 70
Male Pre-Retirement Mortality	1983 GAM (Male - 8)	1983 GAM (Male - 8)
Female Pre-Retirement Mortality	1983 GAM (Female - 7)	1983 GAM (Female - 7)
Male Post-Retirement Mortality	1983 GAM (Male)	1983 GAM (Male - 1)
Female Post-Retirement Mortality	1983 GAM (Female - 1)	1983 GAM (Female - 1)
Male Post-Disability Mortality	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later
Female Post-Disability Mortality	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later
Retirement Age	Graded rates beginning at age 55. A different set of rates applies if the Member is eligible for the Rule of 90.	Graded rates beginning at age 55. A different set of rates applies if the Member is eligible for the Rule of 90.
Separation Decrement	Select and ultimate table.	Select and ultimate table. Rates are generally higher than current rates.
Disability Decrement	Rates which are both age-related and gender-related.	No change.
Combined Service Annuity Load Factor	2.5% load on liabilities for active and deferred vested participants.	0.8% load on liabilities for active Members and 60% load on liabilities for former Members.
Payroll Growth Assumption	6.0%; except 5.0% for purposes of GASB-25 calculations.	6.0%; except 5.0% for purposes of GASB-25 calculations.

STATE EMPLOYEES RETIREMENT FUND

SUMMARY OF RECOMMENDED ASSUMPTIONS

Assumption	Current	Recommended
Salary increases	Ten year select and ultimate table. During the select period, 0.2% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.75% at age 20 down to 5.0% at age 70	Ten year select and ultimate table. During the select period, 0.3% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.75% at age 20 down to 5.25% at age 70
Male Pre-Retirement Mortality	1983 GAM (Male - 5)	1983 GAM (Male - 5)
Female Pre-Retirement Mortality	1983 GAM (Female - 2)	1983 GAM (Female - 2)
Male Post-Retirement Mortality	1983 GAM (Male - 1)	1983 GAM (Male - 2)
Female Post-Retirement Mortality	1983 GAM (Female - 1)	1983 GAM (Female - 1)
Male Post-Disability Mortality	1965 RRB to age 54, graded mortality rates between 1965 RRB and the Combined Annuity Table between ages 55 and 64, the Combined Annuity Table for ages 65 and later	1965 RRB to age 54, graded mortality rates between 1965 RRB and the Combined Annuity Table between ages 55 and 64, the Combined Annuity Table for ages 65 and later
Female Post-Disability Mortality	1965 RRB to age 54, graded mortality rates between 1965 RRB and the Combined Annuity Table between ages 55 and 64, the Combined Annuity Table for ages 65 and later	1965 RRB to age 54, graded mortality rates between 1965 RRB and the Combined Annuity Table between ages 55 and 64, the Combined Annuity Table for ages 65 and later
Retirement Age	Graded rates beginning at age 55. A different set of rates applies if the Member is eligible for the Rule of 90.	Graded rates beginning at age 55. A different set of rates applies if the Member is eligible for the Rule of 90. Recommended rates are higher than current rates.
Separation Decrement	Select and ultimate rates based on gender.	Select and ultimate rates based on gender rates are generally higher than current rates.
Disability Decrement	Age-related and gender-related rates.	Age-related and gender-related rates. Recommended rates are modestly higher than current rates.
Form of Annuity Selected - Male	25% elect 50% J&S option 45% elect 100% J&S option	20% elect 50% J&S option 50% elect 100% J&S option
Form of Annuity Selected - Female	10% elect 50% J&S option 10% elect 100% J&S option	10% elect 50% J&S option 15% elect 100% J&S option
Combined Service Annuity Load Factor	1.0% load on liabilities for active and deferred vested participants.	1.2% load on liabilities for active Members and 40% load on liabilities for former Members.

TEACHERS RETIREMENT ASSOCIATION FUND

SUMMARY OF RECOMMENDED ASSUMPTIONS

Assumption	Current	Recommended
Salary Increases	Merit table that ranges from 8.0% at age 20 down to 5.0% at age 70.	Ten year select and ultimate table. During the select period, 0.3% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.0% at ages 20 to 38 down to 5.0% at ages 47 to 57.
Male Pre-Retirement Mortality	1983 GAM (Male - 10)	1983 GAM (Male - 12)
Female Pre-Retirement Mortality	1983 GAM (Female - 8)	1983 GAM (Female - 10)
Male Post-Retirement Mortality	1983 GAM (Male - 5)	1983 GAM (Male - 6)
Female Post-Retirement Mortality	1983 GAM (Female - 4)	1983 GAM (Female - 3)
Male Post-Disability Mortality	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later.	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later.
Female Post-Disability Mortality	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later.	1965 RRB to age 54, graded mortality rates between 1965 RRB and Post-Retirement Mortality table between ages 55 and 64, Post-Retirement Mortality table for ages 65 and later.
Retirement Age	Graded rates beginning at age 55. A different set of rates applies if the Member is eligible for the Rule of 90.	Graded rates beginning at age 55. A different set of rates applies if the Member is eligible for the Rule of 90.
Separation Decrement	Select and ultimate table. Rates during the select period are based on gender.	Select and ultimate table. Rates during the select period are based on gender. Ultimate rates are gender based and generally higher than current rates.
Disability Decrement	Rates which are both age-related and gender-related.	Rates which are both age-related and gender-related. Recommended rates are higher than current rates especially for females.
Form of Annuity Selected - Male	15% elect 50% J&S option 15% elect 75% J&S option 50% elect 100% J&S option	15% elect 50% J&S option 25% elect 75% J&S option 55% elect 100% J&S option
Form of Annuity Selected - Female	20% elect 50% J&S option 10% elect 75% J&S option 30% elect 100% J&S option	20% elect 50% J&S option 10% elect 75% J&S option 30% elect 100% J&S option
Combined Service Annuity Load Factor Load Factor	1.0% load on liabilities for active and deferred vested participants.	1.4% load on liabilities for active Members and 4% load on liabilities for former Members.

DULUTH TEACHERS RETIREMENT FUND ASSOCIATION

SUMMARY OF RECOMMENDED ASSUMPTIONS

Assumption	Current	Recommended
Salary Increases	Merit table that ranges from 8.00% at age 20 down to 5.25% at age 70.	Ten year select and ultimate table. During the select period, 0.3% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.9% at age 20 down to 5.0% at age 50 and over.
Male Pre-Retirement Mortality	1983 GAM (Male – 4)	1983 GAM (Male – 10)
Female Pre-Retirement Mortality	1983 GAM (Female – 3)	1983 GAM (Female – 7)
Male Post-Retirement Mortality	1983 GAM (Male – 2)	1983 GAM (Male – 2)
Female Post-Retirement Mortality	1983 GAM (Female – 1)	1983 GAM (Female)
Male Post-Disability Mortality	1977 RRB	1977 RRB
Female Post-Disability Mortality	1977 RRB	1977 RRB
Retirement Age	Graded rates. Different sets of rates apply to Old and New Members. 40% of Members assumed to retire each year they are eligible for Rule of 90.	No change.
Separation Decrement	Graded rates.	Select and ultimate table. Ultimate rates are generally lower than current rates.
Disability Decrement	Graded rates.	Graded rates. Recommended rates are lower than current rates.
Form of Annuity Selected - Male	80% married 30% elect 50% J&S option 55% elect 100% J&S option	80% married 35% elect 50% J&S option 55% elect 100% J&S option
Form of Annuity Selected – Female	80% married 30% elect 50% J&S option 20% elect 100% J&S option	80% married 25% elect 50% J&S option 25% elect 100% J&S option
Combined Service Annuity Load Factor Load Factor	None assumed.	10.0% load on liabilities for active Members and 10% load on liabilities for former Members.

SUMMARY OF RECOMMENDED ASSUMPTIONS

Assumption	Current	Recommended
Salary Increases	Merit table that ranges from 7.25% at age 20 down to 5.25% at age 70.	Ten year select and ultimate table. During the select period, 0.3% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.9% at age 20 down to 5.0% at age 60 and over.
Male Pre-Retirement Mortality	1983 GAM (Male – 5)	1983 GAM (Male – 7)
Female Pre-Retirement Mortality	1983 GAM (Female – 3)	1983 GAM (Female – 5)
Male Post-Retirement Mortality	1983 GAM (Male – 3)	1983 GAM (Male – 3)
Female Post-Retirement Mortality	1983 GAM (Female – 1)	1983 GAM (Female - 1)
Male Post-Disability Mortality	1977 RRB	1977 RRB
Female Post-Disability Mortality	1977 RRB	1977 RRB
Retirement Age	Graded rates. Different sets of rates apply to Basic and Coordinated Members.	No change.
Separation Decrement	Graded rates.	Select and ultimate table. Ultimate rates are generally lower than current rates.
Disability Decrement	Graded rates.	Graded rates. Recommended rates are lower than current rates.
Form of Annuity Selected - Male	85% married 15% elect 50% J&S option 50% elect 100% J&S option	85% married 10% elect 50% J&S option 45% elect 100% J&S option
Form of Annuity Selected – Female	60% married 10% elect 50% J&S option 10% elect 100% J&S option	60% married 10% elect 50% J&S option 10% elect 100% J&S option
Combined Service Annuity Load Factor Load Factor	None assumed.	7.0% load on liabilities for active Members and 30% load on liabilities for former Members.

Minneapolis Teachers Retirement Fund Association

Summary of Recommended Assumptions

Assumption	Current	Recommended
Salary Increases	Merit table that ranges from 7.5% at age 20 down to 5.0% at age 70.	Ten year select and ultimate table. During the select period, 0.4% x (10 - T) where T is completed years of service is added to the ultimate rate. Ultimate table ranges from 6.5% at ages 20 to 45 down to 5.0% at age 60 and over.
Male Pre-Retirement Mortality	1983 GAM (Male – 6)	1983 GAM (Male - 12)
Female Pre-Retirement Mortality	1983 GAM (Female – 4)	1983 GAM (Female - 10)
Male Post-Retirement Mortality	1983 GAM (Male – 4)	1983 GAM (Male – 4)
Female Post-Retirement Mortality	1983 GAM (Female – 2)	1983 GAM (Female - 1)
Male Post-Disability Mortality	1977 RRB	1977 RRB
Female Post-Disability Mortality	1977 RRB	1977 RRB
Retirement Age	Graded rates. Different sets of rates apply to Basic and Coordinated Members.	Graded rates. Different sets of rates apply to Basic and Coordinated Members. Revised rates are generally higher before age 60 and lower thereafter.
Separation Decrement	Graded rates.	Select and ultimate table. Ultimate rates are generally higher than current rates.
Disability Decrement	Graded rates.	Graded rates. Recommended rates are higher than current rates.
Form of Annuity Selected - Male	80% married 15% elect 50% J&S option 20% elect 75% J&S option 40% elect 100% J&S option	80% married 15% elect 50% J&S option 20% elect 75% J&S option 40% elect 100% J&S option
Form of Annuity Selected – Female	60% married 15% elect 50% J&S option 5% elect 75% J&S option 10% elect 100% J&S option	60% married 15% elect 50% J&S option 5% elect 75% J&S option 15% elect 100% J&S option
Combined Service Annuity Load Factor Load Factor	None assumed.	4.0% load on liabilities for active Members and 30% load on liabilities for former Members.

	PERA General 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	15,815,784	15,327,126
(2) Present Value of Future Normal Costs	3,710,447	2,938,249
(3) Actuarial Accrued Liability [(1) - (2)]	12,105,337	12,388,877
(4) Assets	10,527,270	10,527,270
(5) UAAL [(3) - (4)]	1,578,067	1,861,607
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	80,141,504	80,325,211
(8) Payroll	3,835,448	3,844,240
(9) Raw NC	360,850	331,254
(10) Supplemental Contribution Rate [(5) / (7)]	1.97%	2.32%
(11) Normal Cost	9.40%	8.62%
(12) Administration Expenses	0.23%	0.23%
(13) Total Requirements [(10) + (11) + (12)]	11.60%	11.17%
(14) Statutory Contributions *	10.32%	10.32%
(15) Sufficiency/(Deficiency) [(14) - (13)]	-1.28%	-0.85%

* Calculated based on statutory rates in effect for FY 2001-2002. Results based solely as of January 1, 2002 and later would show a deficiency of about 0.95% and 0.52% of payroll for the "Original Valuation" and for the "Recommended New Assumptions", respectively.

	PERA Police and Fire 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	4,979,963	4,996,294
(2) Present Value of Future Normal Costs	1,267,603	1,267,603
(3) Actuarial Accrued Liability [(1) - (2)]	3,712,360	3,728,691
(4) Assets	4,510,134	4,510,134
(5) UAAL [(3) - (4)]	(797,774)	(781,443)
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	11,052,220	11,052,220
(8) Payroll	528,942	528,942
(9) Raw NC	106,905	106,905
(10) Supplemental Contribution Rate [(5) / (7)]	(7.22%)	(7.07%)
(11) Normal Cost	20.21%	20.21%
(12) Administration Expenses	0.13%	0.13%
(13) Total Requirements [(10) + (11) + (12)]	13.12%	13.27%
(14) Statutory Contributions	15.50%	15.50%
(15) Sufficiency/(Deficiency) [(14) - (13)]	2.38%	2.23%

	PERA Local Correctional 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	141,538	141,696
(2) Present Value of Future Normal Costs	116,085	116,085
(3) Actuarial Accrued Liability [(1) - (2)]	25,453	25,611
(4) Assets	25,014	25,014
(5) UAAL [(3) - (4)]	439	597
(6) Amortization Period (in Years)	19	21
(7) PV Future Payrolls	1,493,057	1,615,110
(8) Payroll	100,460	100,460
(9) Raw NC	14,093	14,093
(10) Supplemental Contribution Rate [(5) / (7)]	0.03%	0.04%
(11) Normal Cost	14.02%	14.02%
(12) Administration Expenses	0.16%	0.16%
(13) Total Requirements [(10) + (11) + (12)]	14.21%	14.22%
(14) Statutory Contributions	14.58%	14.58%
(15) Sufficiency/(Deficiency) [(14) - (13)]	0.37%	0.36%

	State Employees 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	8,173,098	8,445,269
(2) Present Value of Future Normal Costs	1,599,905	1,563,350
(3) Actuarial Accrued Liability [(1) - (2)]	6,573,193	6,881,919
(4) Assets	7,366,673	7,366,673
(5) UAAL [(3) - (4)]	(793,480)	(484,754)
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	36,549,596	36,870,730
(8) Payroll	1,967,814	1,985,103
(9) Raw NC	172,402	178,817
(10) Supplemental Contribution Rate [(5) / (7)]	(2.17%)	(1.31%)
(11) Normal Cost	8.76%	9.01%
(12) Administration Expenses	0.20%	0.20%
(13) Total Requirements [(10) + (11) + (12)]	6.79%	7.90%
(14) Statutory Contributions	8.00%	8.00%
(15) Sufficiency/(Deficiency) [(14) - (13)]	1.21%	0.10%

	State Patrol 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	611,884	613,038
(2) Present Value of Future Normal Costs	122,401	122,401
(3) Actuarial Accrued Liability [(1) - (2)]	489,483	490,637
(4) Assets	572,815	572,815
(5) UAAL [(3) - (4)]	(83,332)	(82,178)
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	957,913	957,913
(8) Payroll	51,574	51,574
(9) Raw NC	11,620	11,620
(10) Supplemental Contribution Rate [(5) / (7)]	(8.70%)	(8.58%)
(11) Normal Cost	22.53%	22.53%
(12) Administration Expenses	0.17%	0.17%
(13) Total Requirements [(10) + (11) + (12)]	14.00%	14.12%
(14) Statutory Contributions	21.00%	21.00%
(15) Sufficiency/(Deficiency) [(14) - (13)]	7.00%	6.88%

	Correctional 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	533,641	539,154
(2) Present Value of Future Normal Costs	135,008	135,008
(3) Actuarial Accrued Liability [(1) - (2)]	398,633	404,146
(4) Assets	431,134	431,134
(5) UAAL [(3) - (4)]	(32,501)	(26,988)
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	2,374,370	2,374,370
(8) Payroll	127,835	127,835
(9) Raw NC	19,161	19,161
(10) Supplemental Contribution Rate [(5) / (7)]	(1.37%)	(1.14%)
(11) Normal Cost	14.99%	14.99%
(12) Administration Expenses	0.19%	0.19%
(13) Total Requirements [(10) + (11) + (12)]	13.81%	14.04%
(14) Statutory Contributions	13.67%	13.67%
(15) Sufficiency/(Deficiency) [(14) - (13)]	-0.14%	-0.37%

	Legislators 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	80,729	83,241
(2) Present Value of Future Normal Costs	5,657	5,657
(3) Actuarial Accrued Liability [(1) - (2)]	75,072	77,584
(4) Assets	42,608	42,608
(5) UAAL [(3) - (4)]	32,464	34,976
(6) Amortization Period (in Years)	19	20
(7) PV Future Payrolls	77,671	80,569
(8) Payroll	5,646	5,646
(9) Raw NC	1,008	1,008
(10) Supplemental Contribution Rate [(5) / (7)]	41.80%	43.41%
(11) Normal Cost	17.86%	17.86%
(12) Administration Expenses	0.48%	0.48%
(13) Total Requirements [(10) + (11) + (12)]	60.14%	61.75%
(14) Statutory Contributions	9.00%	9.00%
(15) Sufficiency/(Deficiency) [(14) - (13)]	-51.14%	-52.75%

	Elected State Officers 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	3,775	3,962
(2) Present Value of Future Normal Costs	0	0
(3) Actuarial Accrued Liability [(1) - (2)]	3,775	3,962
(4) Assets	201	201
(5) UAAL [(3) - (4)]	3,574	3,761
(6) Amortization Period (in Years)	19	19
(7) PV Future Payrolls	0	0
(8) Payroll	0	0
(9) Raw NC	0	0
(10) Supplemental Contribution Rate [(5) / (7)]	370	390
(11) Normal Cost	0	0
(12) Administration Expenses	1	1
(13) Total Requirements [(10) + (11) + (12)]	371	391
(14) Statutory Contributions	0	0
(15) Sufficiency/(Deficiency) [(14) - (13)]	(371)	(391)

	Judges 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	208,685	208,910
(2) Present Value of Future Normal Costs	43,441	43,441
(3) Actuarial Accrued Liability [(1) - (2)]	165,244	165,469
(4) Assets	123,589	123,589
(5) UAAL [(3) - (4)]	41,655	41,880
(6) Amortization Period (in Years)	19	19
(7) PV Future Payrolls	410,940	410,940
(8) Payroll	29,874	29,874
(9) Raw NC	4,913	4,913
(10) Supplemental Contribution Rate [(5) / (7)]	10.14%	10.19%
(11) Normal Cost	16.44%	16.44%
(12) Administration Expenses	0.14%	0.14%
(13) Total Requirements [(10) + (11) + (12)]	26.72%	26.77%
(14) Statutory Contributions	27.95%	27.95%
(15) Sufficiency/(Deficiency) [(14) - (13)]	1.23%	1.18%

	TRA 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	18,450,268	18,102,709
(2) Present Value of Future Normal Costs	2,546,284	2,278,189
(3) Actuarial Accrued Liability [(1) - (2)]	15,903,984	15,824,520
(4) Assets	16,834,024	16,834,024
(5) UAAL [(3) - (4)]	(930,040)	(1,009,504)
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	54,568,855	54,645,189
(8) Payroll	2,937,962	2,942,072
(9) Raw NC	267,166	255,336
(10) Supplemental Contribution Rate [(5) / (7)]	(1.70%)	(1.85%)
(11) Normal Cost	9.09%	8.68%
(12) Administration Expenses	0.46%	0.46%
(13) Total Requirements [(10) + (11) + (12)]	7.85%	7.29%
(14) Statutory Contributions	10.00%	10.00%
(15) Sufficiency/(Deficiency) [(14) - (13)]	2.15%	2.71%

	DTRFA 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	293,544	315,651
(2) Present Value of Future Normal Costs	39,289	43,113
(3) Actuarial Accrued Liability [(1) - (2)]	254,255	272,538
(4) Assets	273,618	273,618
(5) UAAL [(3) - (4)]	(19,363)	(1,080)
(6) Amortization Period (in Years)	30	30
(7) PV Future Payrolls	990,111	1,013,133
(8) Payroll	53,307	54,547
(9) Raw NC	4,609	4,940
(10) Supplemental Contribution Rate [(5) / (7)]	(1.96%)	(0.11%)
(11) Normal Cost	8.66%	9.06%
(12) Administration Expenses	0.79%	0.79%
(13) Total Requirements [(10) + (11) + (12)]	7.49%	9.74%
(14) Statutory Contributions *	11.29%	11.29%
(15) Sufficiency/(Deficiency) [(14) - (13)]	3.80%	1.55%

* Adjusted to remove future State Contributions.

	SPTRFA 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	1,226,096	1,290,655
(2) Present Value of Future Normal Costs	165,165	196,974
(3) Actuarial Accrued Liability [(1) - (2)]	1,060,931	1,093,681
(4) Assets	869,045	869,045
(5) UAAL [(3) - (4)]	191,886	224,636
(6) Amortization Period (in Years)	19	20
(7) PV Future Payrolls	2,932,070	3,064,336
(8) Payroll	214,755	214,755
(9) Raw NC	19,447	21,951
(10) Supplemental Contribution Rate [(5) / (7)]	6.54%	7.33%
(11) Normal Cost	9.05%	10.22%
(12) Administration Expenses	0.22%	0.22%
(13) Total Requirements [(10) + (11) + (12)]	15.81%	17.77%
(14) Statutory Contributions	17.07%	17.07%
(15) Sufficiency/(Deficiency) [(14) - (13)]	1.26%	-0.70%

	MTRFA 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	1,859,209	1,901,161
(2) Present Value of Future Normal Costs	248,845	277,668
(3) Actuarial Accrued Liability [(1) - (2)]	1,610,364	1,623,493
(4) Assets	1,061,983	1,061,983
(5) UAAL [(3) - (4)]	548,381	561,510
(6) Amortization Period (in Years)	19	19
(7) PV Future Payrolls	3,671,680	3,750,690
(8) Payroll	267,977	272,664
(9) Raw NC	27,493	30,167
(10) Supplemental Contribution Rate [(5) / (7)]	14.94%	14.97%
(11) Normal Cost	10.25%	11.06%
(12) Administration Expenses	0.26%	0.26%
(13) Total Requirements [(10) + (11) + (12)]	25.45%	26.29%
(14) Statutory Contributions	22.72%	22.72%
(15) Sufficiency/(Deficiency) [(14) - (13)]	-2.73%	-3.57%

	MERF 7/1/2001 Results from	
	Original Valuation	Recommended New Assumptions
(1) Present Value of Benefits	1,671,758	1,676,293
(2) Present Value of Future Normal Costs	55,786	55,897
(3) Actuarial Accrued Liability [(1) - (2)]	1,615,972	1,620,396
(4) Assets	1,507,159	1,507,159
(5) UAAL [(3) - (4)]	108,813	113,237
(6) Amortization Period (in Years)	19	19
(7) Payroll	48,688	48,688
(8) Raw NC	8,730	8,748
(9) Supplemental Contribution Rate		
1. Supplemental Contribution Amortization *	19.95%	20.76%
2. Supplemental Contribution Amortization **	1.97%	1.97%
(10) Normal Cost	17.93%	17.96%
(11) Administration Expenses	1.50%	1.50%
(12) Contribution Amortization for 1992 Investment Expenses	0.43%	0.43%
(13) Total Requirements [(9.1) + (9.2) + (10) + (11) + (12)]	41.78%	42.62%
(14) Statutory Contributions		
1. Employee Contributions	9.75%	9.75%
2. Employer Contributions	20.79%	20.83%
3. Employer Contributions **	1.97%	1.97%
4. State Contributions	9.26%	10.07%
5. Total	41.77%	42.62%
(15) Sufficiency/(Deficiency) [(14.5) - (13)]	-0.01%	0.00%

*Increases under 1998 and 1999 legislation ***are not*** included in this line item.

Increases under 1998 and 1999 legislation ***are* included in this line item.

Discussion of Asset Valuation Method

The asset valuation method now in use produces a value at July 1, 2001 greater than market value for most of the plans. On the basis of actuarial value of assets, most plans show favorable asset experience between July 1, 2000 and June 30, 2001. It is not surprising that questions have surfaced such as: *How can plans have asset gains when plan assets (measured on market value) lost money? Is this result reasonable? Is it cause for concern? Does it distort our measures of funded status?*

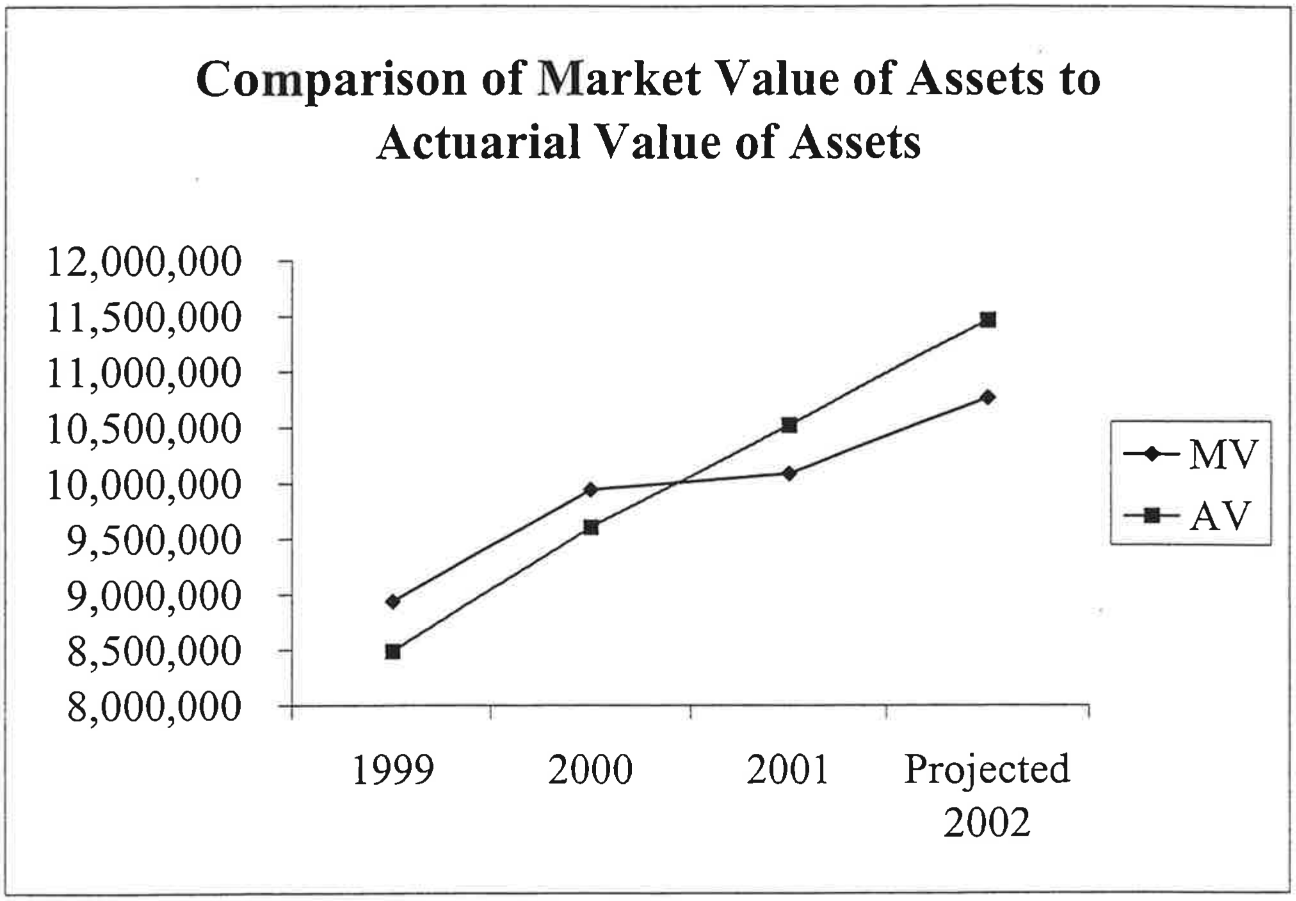
If we step back away from the initial shock, we shouldn't be too surprised by these results. In fact they are evidence that the asset valuation method is working as it is intended.

First of all, the smoothing method only recognizes one-fifth of the current year deviation from expected. Accordingly, we would only expect to see a 3% loss even though the deviation was close to 15% for most plans. Furthermore, this 3% loss is offset by the current year recognition of previous gains that had been spread forward. In this case, these gain pieces exceeded the loss recognition. And we are left with greater losses spread forward than gains; therefore, the current value of assets exceeds current market value. *Is this reasonable?* We believe that it is.

Is there cause for concern? If one believes that 8.5% remains a valid long-term investment return assumption, one should not be concerned with this situation. Markets should be expected to recover, and the asset valuation method is simply doing its job by smoothing out the extreme volatility of market value. If the experience of the last 18 months causes doubt about the ability of the fund to earn 8.5% in the future, then we have a different issue. Clearly if this assumption is overly optimistic, there may be real cause for concern.

Does the fact that current asset value exceeds market value distort our measures of funded status? This question is more of a timing issue. If we were to focus on a plan termination snapshot, it would be more appropriate to simply use market value. However, if the focus is on the long-term funding progress of the plans, then an asset smoothing method actually makes more sense than market value, once again predicated on the funds' ability to earn 8.5% over the long haul.

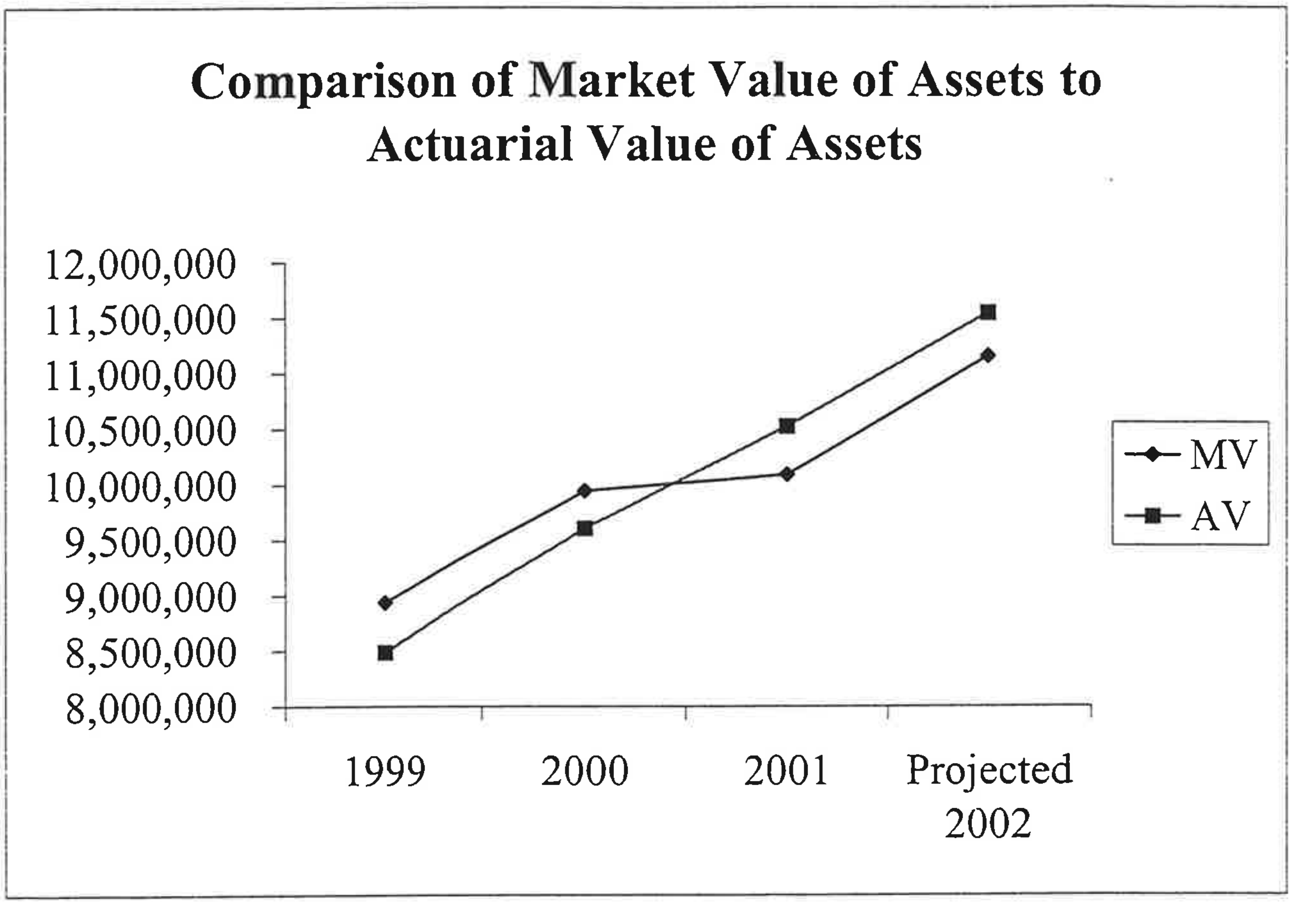
The graphs on the following pages are designed to provide a picture of how the smoothing method actually works. The results are presented for PERA, but the graphs would look pretty much the same no matter which plan was shown.



Plan: PERA General

Projected 2002 values assumes actual market value return is 0.00%

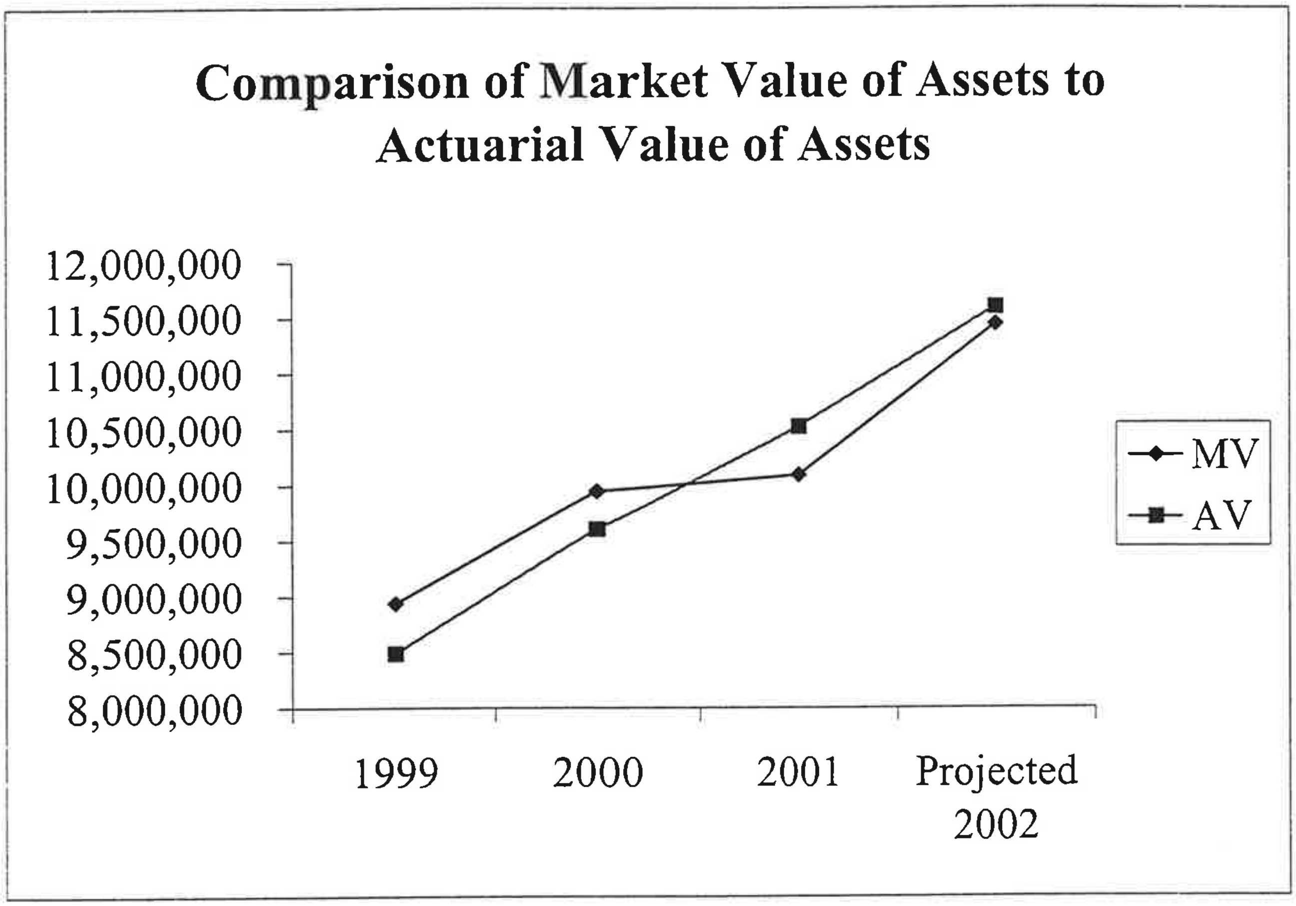
Year	Market Value	Actuarial Value	Cumulative Unrecognized Asset Return	Current Year Unrecognized Asset Return
1999	8,937,524	8,489,177	448,347	448,347
2000	9,947,357	9,609,367	337,990	86,227
2001	10,091,260	10,527,270	(436,010)	(777,813)
Projected 2002	10,769,279	11,462,646	(693,367)	(382,506)



Plan: PERA General

Projected 2002 values assumes actual market value return is 8.50%

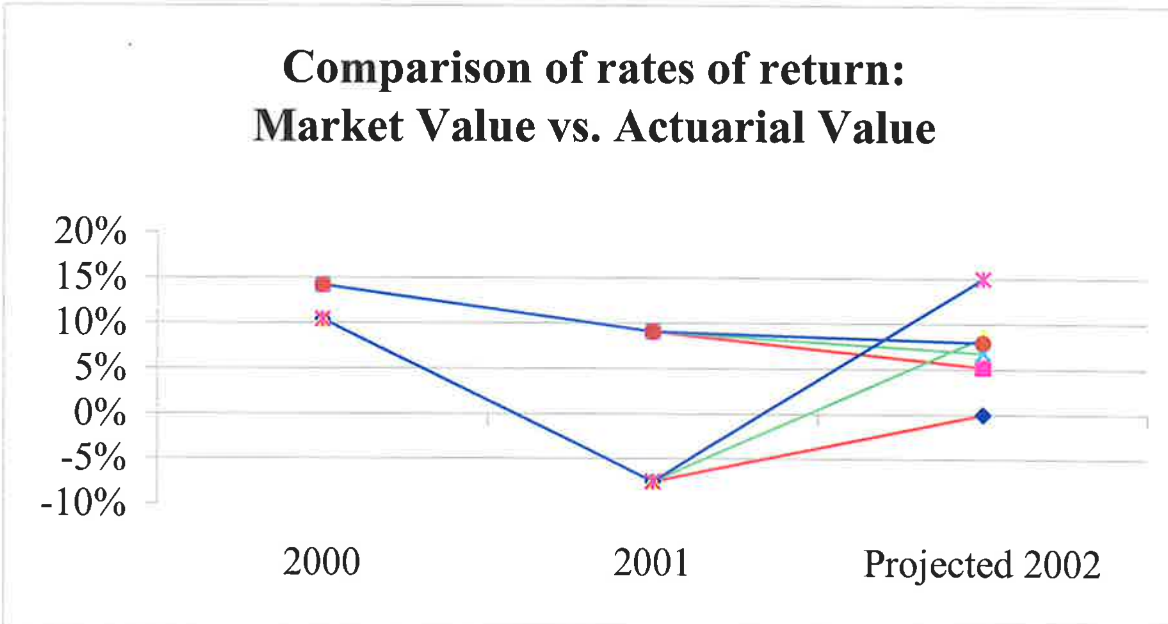
Year	Market Value	Actuarial Value	Cumulative Unrecognized Asset Return	Current Year Unrecognized Asset Return
1999	8,937,524	8,489,177	448,347	448,347
2000	9,947,357	9,609,367	337,990	86,227
2001	10,091,260	10,527,270	(436,010)	(777,813)
Projected 2002	11,151,785	11,539,147	(387,362)	0



Plan: PERA General

Projected 2002 values assumes actual market value return is 15.00%

Year	Market Value	Actuarial Value	Cumulative Unrecognized Asset Return	Current Year Unrecognized Asset Return
1999	8,937,524	8,489,177	448,347	448,347
2000	9,947,357	9,609,367	337,990	86,227
2001	10,091,260	10,527,270	(436,010)	(777,813)
Projected 2002	11,444,290	11,597,648	(153,358)	292,505



Plan: PERA General
Summary of rates of return:

FYE	Market Value	Actuarial Value
2000	10.38%	14.17%
2001	-7.47%	9.05%
Low Projected 2002	0.00%	5.21%
Med Projected 2002	8.50%	6.76%
High Projected 2002	15.00%	7.95%

Analysis of PERA General Contribution Rates

This discussion is intended to satisfy the requirements of Laws 2001, First Special Session, Chapter 10, Article 11, Section 21.

Many dynamics are in play here. Ultimately all plan benefits and expenses must be paid for through contributions to the plan and investment earnings on assets held by the plan. We measure funding status and/or progress in order to achieve generational equity. Part of generational equity is to arrive at a relatively stable and predictable level of costs. The actuarial function is one that primarily affects contribution timing.

In his memo dated December 6, 2001, Mr. Ed Burek has provided extensive information on the history of PERA funding. In this analytical commentary, our focus will be on the change in PERA funding status from July 1, 1999 up to estimated projections at June 30, 2002.

The official valuation as of July 1, 1999 showed that PERA had a sufficiency of 0.57% of payroll. However at that time we had developed (but not yet adopted) recommended assumptions that would show the plan with a substantial deficiency. Accordingly, it was not a surprise when the July 1, 2000 valuation showed a 1.96% deficiency.

While the recommended assumptions included many changes, the change with the largest impact was the change in the assumed rates of Member separation. The 1992-1996 experience study had validated a phenomenon that we had noticed in the 1988-1992 study but which did not result in an assumption change at that time. Accordingly, we gave a relatively high degree of credibility to the 1992-1996 experience when developing our recommended assumptions. Last spring we completed the 1996-2000 experience study. During that period, rates of separation were considerably higher than what was expected by the assumptions. While not as high as the rates which had been used prior to July 1, 2000, actual experience over these four years was high enough for us to conclude that the rates currently in use are understating reasonable expectations. Accordingly, we have developed a new set of recommended assumptions for use in the July 1, 2002 valuation. Based on these assumptions, the measure of plan deficiency is reduced but not eliminated.

PERA Funding Deficiency Measured as of July 1, 2001

	Valuation Basis	Reflecting Increased Statutory Contributions for Full Year
Official Valuation Assumptions	1.28%	0.95%
Using Recommended Assumptions	0.85	0.52

It may be helpful to look ahead at the likely funding status as of June 30, 2002. While we cannot predict what the aggregate level of gain or loss on liabilities may be, it is not unreasonable nor distortive to assume that these will be zero. We can anticipate what might happen on the asset side and we can reflect the impact on the measure of funding sufficiency of the fact that 2001-2002 contributions are less than required and that the amortization period will be one year shorter next year. Based on the three asset scenarios discussed in Appendix B, the projected funding deficiency as of July 1, 2002 would be as follows:

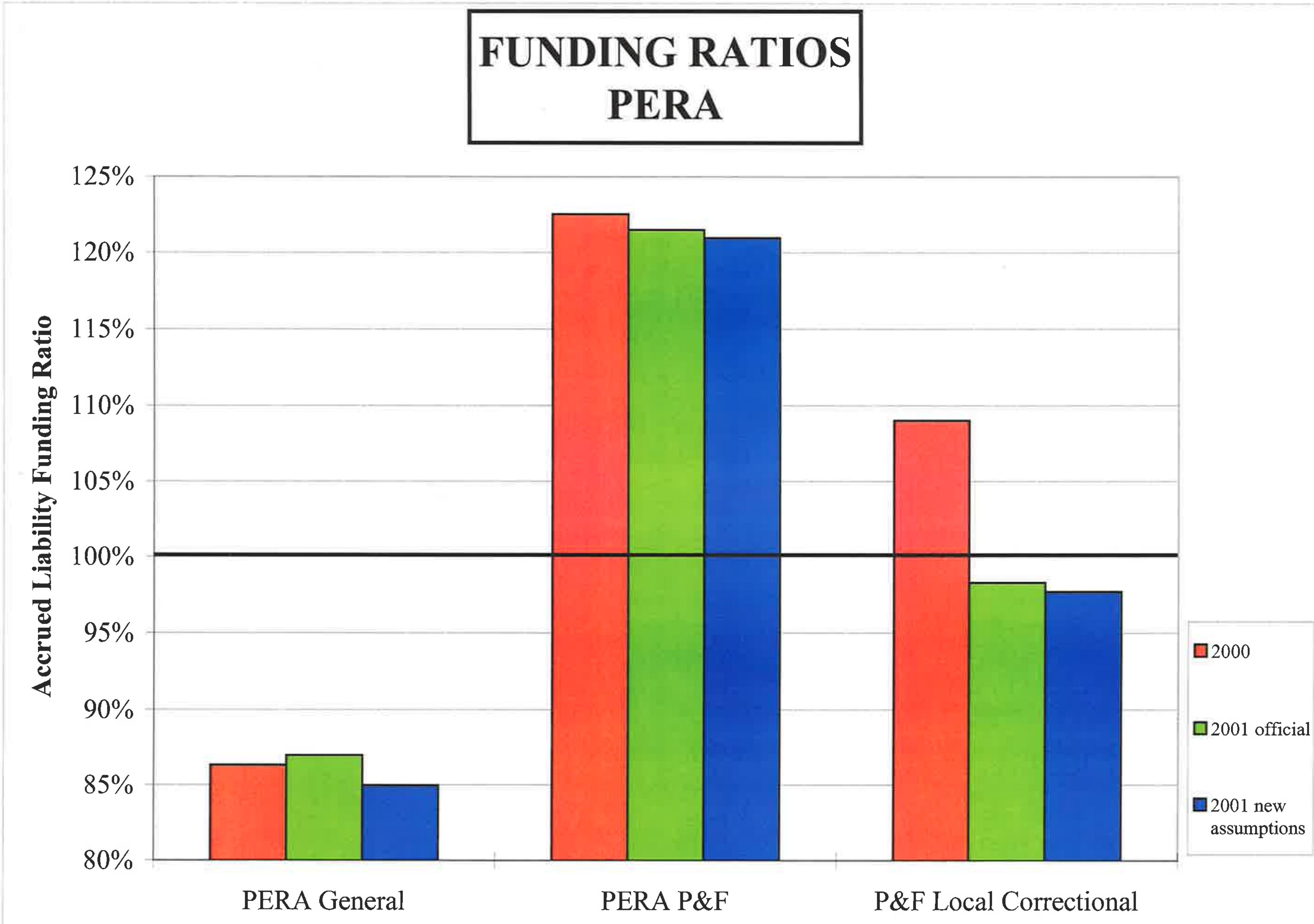
Assuming July 1, 2001-June 30, 2002 Market Value Return of	Projected PERA Funding Deficiency @ July 1, 2003
15.0%	0.60%
8.5	0.67
0.0	0.76

These results reflect the position of current assets relative to market value. Accordingly, absent significant and unexpected liability gains, it is clear that PERA is not likely to "grow" out of its current deficit status. In fact, our projections show that it is highly probable that the July 1, 2002 valuation will develop a deficiency in excess of 0.70% of pay.

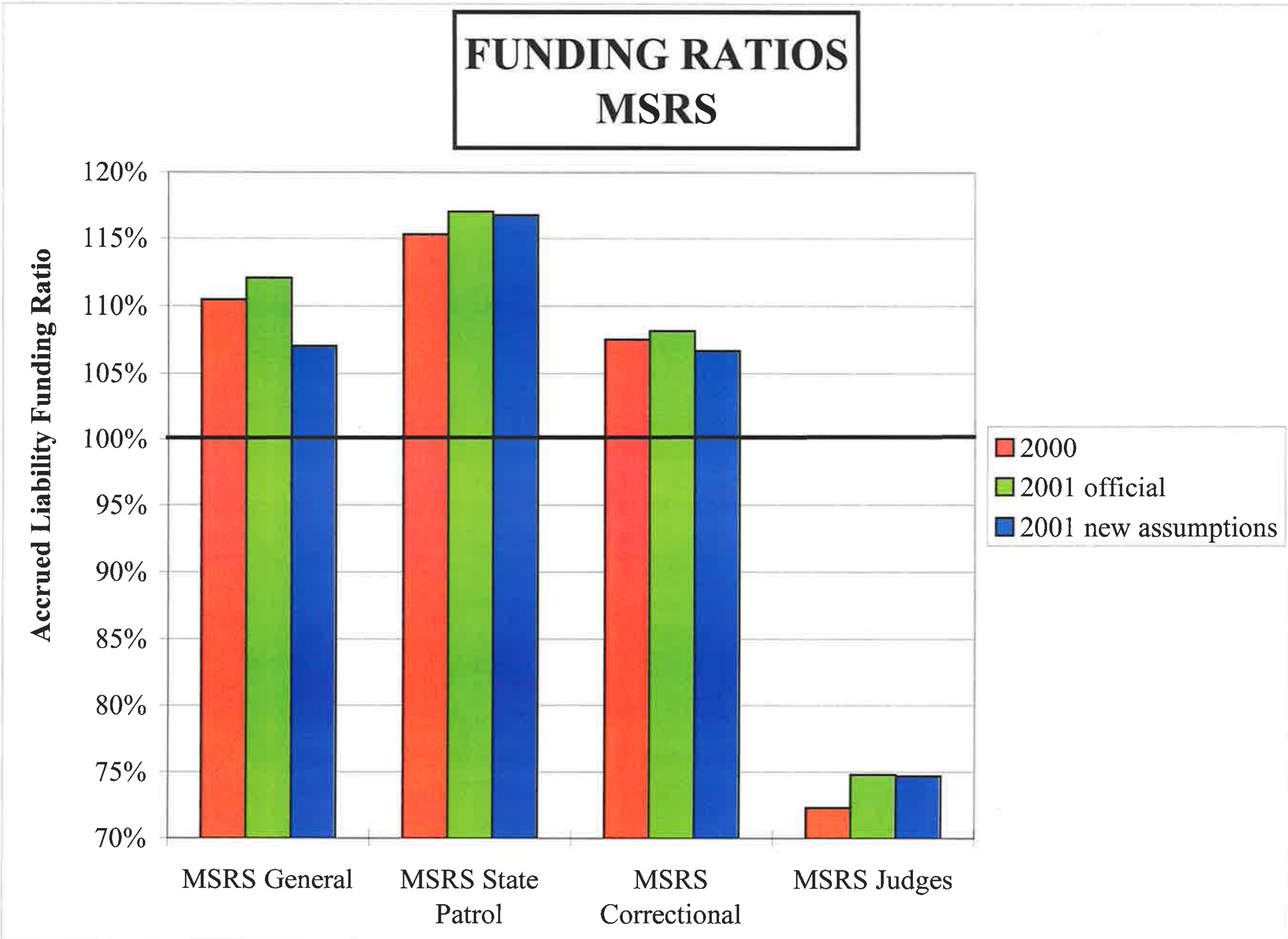
Concluding Opinion

Based upon the entirety of the actuarial work that we have completed on the PERA general plan over the last several years, including this brief projection analysis based on our newest recommended assumptions, we conclude that the current statutory rates are not adequate to support the current program of benefits. A deficiency in excess of 0.7% of payroll is substantial and warrants consideration of legislative action to bring the plan back to actuarial balance.

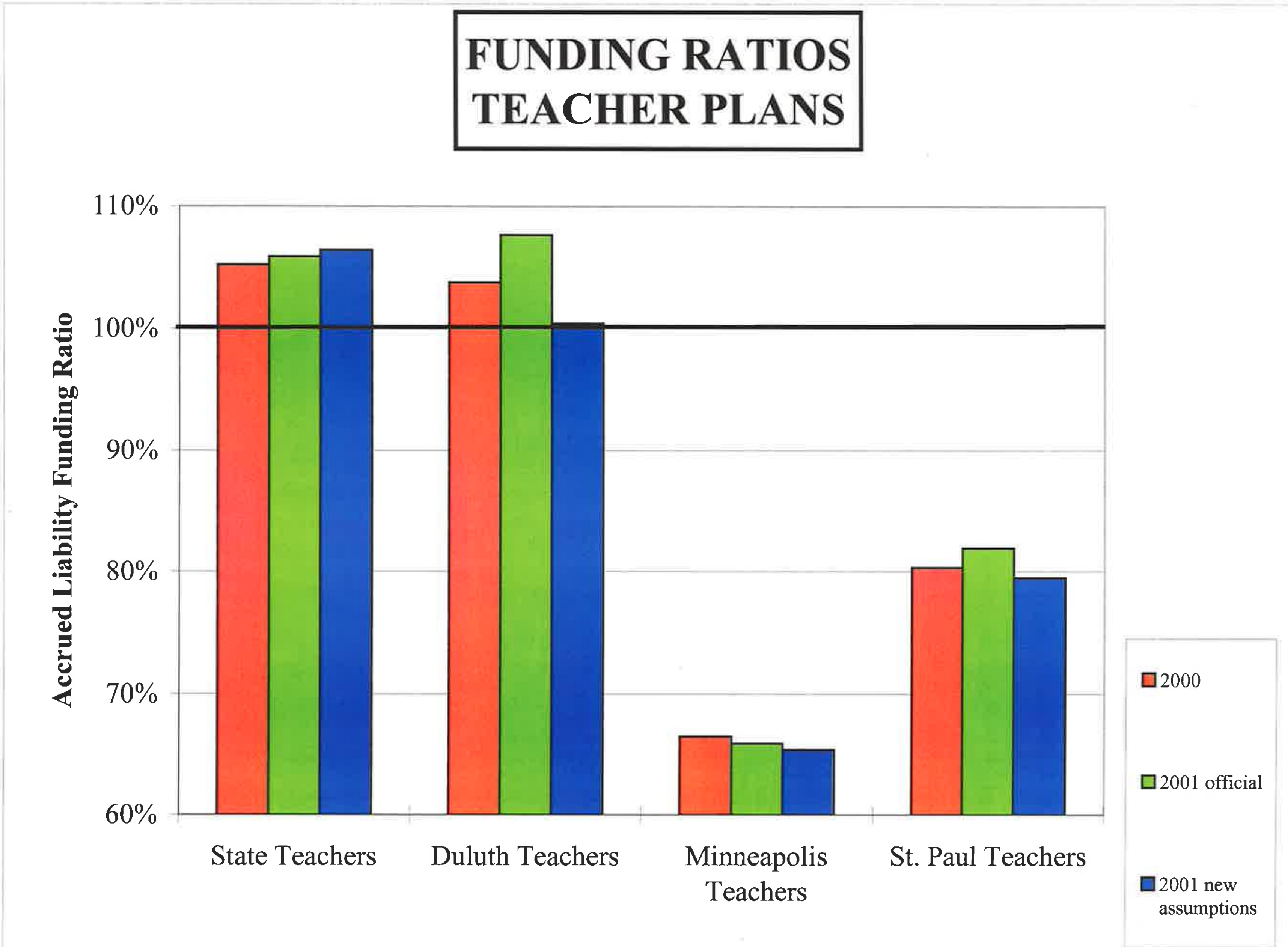
SUMMARY CHARTS OF ACCRUED LIABILITY FUNDING RATIOS

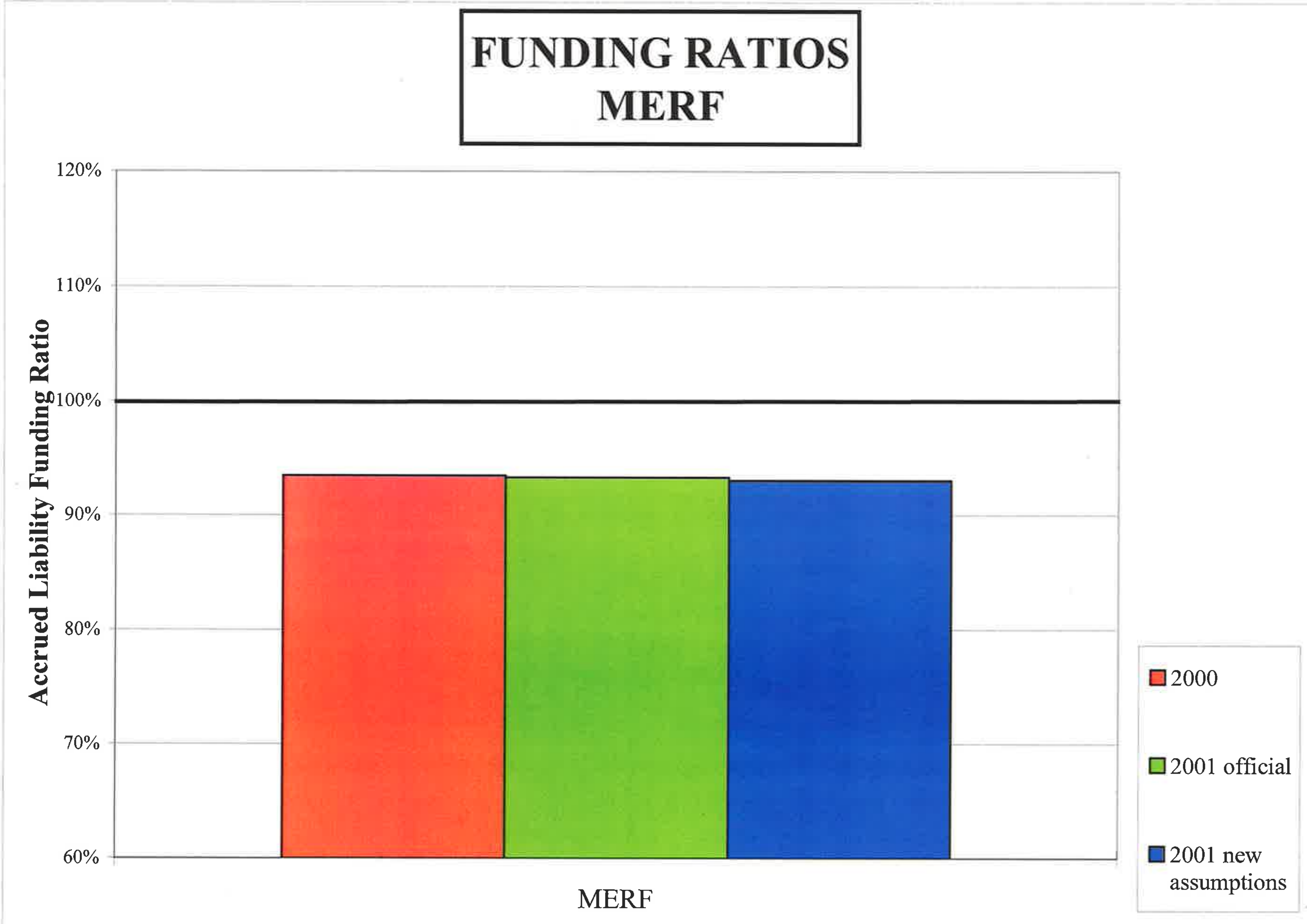


FUNDING RATIOS
PERA
Accrued Liability Funding Ratio
125%
120%
115%
110%
105%
100%
95%
90%
85%
80%
PERA General
PERA P&F
P&F Local Correctional
2000
2001 official
2001 new assumptions



FUNDING RATIOS
MSRS
Accrued Liability Funding Ratio
120%
115%
110%
105%
100%
95%
90%
85%
80%
75%
70%
MSRS General
MSRS State Patrol
MSRS Correctional
MSRS Judges
2000
2001 official
2001 new assumptions


FUNDING RATIOS
TEACHER PLANS
Accrued Liability Funding Ratio
110%
100%
90%
80%
70%
60%
State Teachers
Duluth Teachers
Minneapolis Teachers
St. Paul Teachers
2000
2001 official
2001 new assumptions


FUNDING RATIOS
MERF
Accrued Liability Funding Ratio
120%
110%
100%
90%
80%
70%
60%
MERF
2000
2001 official
2001 new assumptions