



**STATE OF MINNESOTA  
SUMMARY OF 1995  
ACTUARIAL VALUATIONS**

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January 19, 1996

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, 1995 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 1995-96 funding levels, as well as summaries of significant plan changes and actuarial assumptions used. This year we have added appendices A through E to provide more information on the proposed assumption changes. Comparable exhibits for the Minneapolis Plan are under development and should be ready for distribution by the time of our formal presentation.

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,

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

TKC/bh

# **STATE OF MINNESOTA**

## **SUMMARY OF 1995 ACTUARIAL VALUATIONS**

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# **STATE OF MINNESOTA**

## **SUMMARY OF 1995 ACTUARIAL VALUATIONS**

### **I. 1995-96 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 showed a modest deficiency for 1994. This deficiency decreased in 1995 mainly due to gains with respect to assets. Funding ratios have remained level for current accruals of benefits and projected benefit funding. Total active membership increased by about 5.3%. While improved, the deficiency is still at a level which suggests close monitoring.
2. The Police and Fire plan continues to be in a well-funded position. Both the sufficiency numbers and the funding ratios support this conclusion. The sufficiency is somewhat diminished under the alternative assumptions as demonstrated in Appendix A.

3. The Police and Fire Consolidation plan requires substantial contribution levels. Since the statutes require full current funding, no deficiency is noted; however, the required rate is almost 30% of payroll with this valuation. Significant actuarial gains have contributed to an increase in the funding ratio and a decrease in the total required contribution as a percent of payroll. Both the Accrued Benefit and Accrued Liability ratios are now over 90%. An issue of concern is the ability of each individual consolidation account to transfer the required reserve for new retirees to MPRIF. In Table I-D, we present a brief analysis of each consolidation plan's ability to make the required transfer of MPRIF reserves out of existing assets. Appendix E includes exhibits for each account which demonstrate the cost effect of the proposed changes in the PERA Police and Fire assumptions as well as the change in early retirement benefits under the program.

### MSRS

4. The State General Employees plan shows a modest contribution sufficiency. The funding ratios improved significantly from the prior year. The plan experienced investment and other data-related gains which increased the contribution sufficiency. A change in salary data used for this valuation contributed significantly to this gain.
5. The State Patrol plan shows a contribution sufficiency which is higher than last year primarily due to gains related to salary data and investments. General accrued benefit funding ratios are slightly higher than last year. Plan benefits were increased to a 2.65% multiplier with a corresponding increase in the member contribution rate.
6. The State Correctional Employees plan shows a small contribution sufficiency. This improvement over last year is due mainly to investment and other data-related gains. Under the proposed alternative assumptions, the plans show a modest deficiency.
7. The Legislators plan is funded on a terminal funding basis. This 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 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).

Not surprisingly, Table I-C continues to show low funding ratios for these plans year-after-year. We recommend consideration of moving to a pre-funded basis similar to that adopted for the Judges plan.

8. The Judges plan actuarial funding requirement decreased due to actuarial gains related to investment return, salaries and other data. While the funding ratios continue to improve, precautions should still be taken against short-term cash shortages.

### **TEACHERS**

9. The Teachers Retirement Association plan showed a contribution sufficiency for 1995, up from a small deficiency in 1994. This is the result of actuarial gains during the year from salaries and investment return. The accrued benefit funding ratios showed an increase over the prior year, primarily due to these gains.
10. The Duluth Teachers plan has a contribution deficiency of 1.94% this year compared to a deficiency of 0.07% of payroll last year. This plan experienced actuarial gains in the prior year. This plan had significant benefit improvements which account for the large contribution deficiency. We expect the deficiency to be significantly reduced by a change in actuarial assumptions expected to be adopted with the July 1, 1996 valuation. Appendix C provides more detail on this.
11. The St. Paul Teachers plan contribution deficiency has continued to improve since the last valuation. Most of this improvement is attributable to investment gains and increased contributions. The deficiency is smaller still when the proposed new assumptions are used. See Appendix D.
12. The Minneapolis Teachers plan showed a small increase in the contribution deficiency from last year. This was primarily due to a small decrease in contributions as a percent of pay (including fixed \$500,000,000 school, city and matching state contributions) along with a small increase in required funding. ***This deficiency remains a serious problem requiring further corrective action.*** Accrued funding ratios have remained level and are still very low.

**MERF**

13. The Minneapolis Employees Retirement Fund is a closed plan with no new active employees. The Statutory Funding requirements are structured to assure full funding of actuarial accrued liability by the year 2020. We note that the funding requirement as a percent of pay decreased from the prior valuation due primarily to significant actuarial gains from investment return and salary increases. Accrued funding ratios were marginally higher from the prior valuation.

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We believe the Commission should attempt to focus legislative consideration on the following priorities:

- ◆ Continue to assess the underfunding problems of the MTRFA plan. Even considering the special additional contributions, this plan still needs additional corrective action.
- ◆ Closely monitor the funding status of the Public Employees' plan. While not yet at a critical stage, any legislative action which may put additional pressure on this fund could be very damaging.
- ◆ Consider initiating prefunding in the Legislators and Elective State Officers plans.

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

**TABLE 1-A: 1995-96 FUNDING LEVELS (PERCENTAGES)**

Fund	Section 356.215 Requirements				Statutory Requirements			Sufficiency/ (Deficiency)
	Normal Cost	Supplemental Cost	Expense	Total	Employee	Employer	Total	
Public Employees (Chapter 353)	6.68%	2.76%	0.17%	9.61%	4.31%	4.60%	8.91%	(0.70)%
Police and Fire (Chapter 353)	19.49	(3.12)	0.12	16.49	7.60	11.40	19.00	2.51
Police and Fire Consolidation	20.67	9.07*	0.00	29.74	7.60	22.14	29.74	0.00
State Employees (Chapter 352)	6.69	1.25	0.11	8.05	4.07	4.20	8.27	.22
State Patrol (Chapter 352B)	21.21	0.00	0.13	21.34	8.92	14.88	23.80	2.46
Correctional (Chapter 352)	10.96	0.00	0.15	11.11	4.90	6.27	11.17	0.06
Legislators (Chapter 3A)	20.25	20.91	0.38	41.54	9.00	Terminal Funding	N/A	N/A
Elective State Officers (Chapter 352C)	13.93	29.43	0.22	43.58	9.00	Pay-as-you-go funding	N/A	N/A
Judges (Chapter 490)	17.15	10.04	0.13	27.32	6.36	22.00	28.36	1.04
Teachers (Chapter 354)	10.59	3.55	0.16	14.30	6.51	8.15	14.66	0.36
Duluth Teachers (Chapter 354A)	9.17	3.32	0.74	13.23	5.50	5.79	11.29	(1.94)
St. Paul Teachers (Chapter 354A)	11.15	6.55	0.26	17.96	5.90	9.97**	15.87	(2.09)
Minneapolis Teachers (Chapter 354A)	12.12	12.72	0.34	25.18	6.16	12.84**	19.00	(6.18)
Minneapolis Employees (Chapter 422A)	18.54	24.28	1.66	44.48	9.75	34.73**	44.48	0.00

\* Equal to the total statutory requirement less the normal cost.

\*\* Includes State contributions of 0.34% for St. Paul Teachers, 12.53% for Minneapolis Employees, and total special contributions of 3.04% for Minneapolis Teachers.



**TABLE 1-B: PATTERN OF SUFFICIENCY/(DEFICIENCY): 1993-1995**

Fund	Actuarial Requirements			Statutory Requirements			Sufficiency/(Deficiency)		
	1993	1994	1995	1993	1994	1995	1993	1994	1995
Public Employees	9.58% <sup>(2)</sup>	9.76% <sup>(2)</sup>	9.61	9.04%	8.90%	8.91%	(0.54)%	(0.86)%	(0.70)%
Police & Fire	17.45 <sup>(1),(2)</sup>	17.28	16.49	19.50 <sup>(3)</sup>	19.00 <sup>(3)</sup>	19.00	2.05	1.72	2.51
Police & Fire Consolidation	43.82	33.63	29.74	43.82	33.63	29.74	0.00	0.00	0.00
State Employees	8.93 <sup>(1),(2)</sup>	9.15 <sup>(2)</sup>	8.05 <sup>(2)</sup>	8.27 <sup>(3)</sup>	8.27	8.27	(0.66)	(0.88)	0.22
State Patrol	21.94 <sup>(2)</sup>	21.79 <sup>(1)</sup>	21.34 <sup>(2)</sup>	23.38	23.38	23.80	1.44	1.59	2.46
Correctional	10.97 <sup>(2)</sup>	11.30	11.11 <sup>(2)</sup>	11.17	11.17	11.17	0.20	(0.13)	0.06
Legislators	31.12 <sup>(2)</sup>	38.34	41.54	T.F.	T.F.	T.F.	N/A	N/A	N/A
Elective State Officers	38.64 <sup>(2)</sup>	42.00	43.58	P.A.Y.G.	P.A.Y.G.	P.A.Y.G.	N/A	N/A	N/A
Judges	26.29 <sup>(2)</sup>	28.27	27.32	28.36	28.36	28.36	2.07	0.09	1.04
Teachers	12.75 <sup>(2)</sup>	14.73 <sup>(2)</sup>	14.30	12.68	14.66	14.66	(0.07)	(0.07)	0.36
Duluth Teachers	10.21 <sup>(2)</sup>	10.36	13.23 <sup>(1)</sup>	10.29	10.29	11.29	0.08	(0.07)	(1.94)
St. Paul Teachers	18.68 <sup>(2)</sup>	18.63	17.96	15.37 <sup>(3)</sup>	15.45	15.87	(3.31)	(3.18)	(2.09)
Minneapolis Teachers	25.83 <sup>(2)</sup>	25.03	25.18	15.29	19.16	19.00	(10.54) <sup>(4)</sup>	(5.87)	(6.18)
Minneapolis Employees	44.37 <sup>(2)</sup>	46.21	44.48	44.37	46.21	44.48	0.00	0.00	0.00

(1) Substantive benefit change implemented.

(2) Assumption or methodology change implemented.

(3) Change in Statutory Rate implemented.

(4) Does not reflect special State, City, School Board contributions; based on maximum legislated special contributions, this deficiency would be (6.80)%.

**TABLE 1-C: ACCRUED BENEFIT FUNDING RATIOS: 1993-1995**

*(Dollars in Millions)*

Fund	Current Assets			P.V. of Accrued Benefit			A.B. Funding Ratio		
	1993	1994	1995	1993	1994	1995	1993	1994	1995
Public Employees	\$4,374	\$4,747	\$5,138	\$5,164	\$5,626 <sup>(2)</sup>	\$5,994	84.71%	84.38%	85.72%
Police & Fire	1,118	1,235	1,386	932 <sup>(1)</sup>	1,021	1,113	119.95 <sup>(1)</sup>	120.96	124.49
Police & Fire Consolidation	357	637	675	433	704	723	82.41	90.43	93.44
State Employees	2,906	3,158	3,462	3,057	3,376 <sup>(2)</sup>	3,339 <sup>(2)</sup>	95.02	93.54	103.68
State Patrol	244	263	285	247	264	272 <sup>(2)</sup>	98.68	99.34	104.82
Correctional	136	148	165	116	131	134 <sup>(2)</sup>	117.30	112.70	123.52
Legislators	17	19	21	35	43	48	49.06	43.22	44.09
Elective State Officers	0.3	0.4	0.4	2.5	2.7	2.8	12.64	13.28	13.50
Judges	44	50	57	87	95	99	50.50	53.15	57.50
Teachers	7,046	7,612	8,348	7,608	8,464 <sup>(2)</sup>	9,050	92.62	89.94	92.25
Duluth Teachers	131	134	143	125	129	162 <sup>(1)</sup>	105.04	103.56	88.44
St. Paul Teachers	393	407	446	539	564	600 <sup>(1),(2)</sup>	72.91	72.16	74.23
Minneapolis Teachers	502	514	555	836	874	964	60.02	58.81	59.23
Minneapolis Employees	889	909	965	1,135	1,170	1,195	78.30	77.72	80.77

~~(1) Substantive benefit change implemented.~~

~~(2) Assumption or methodology change implemented.~~

**TABLE I-D: PERA CONSOLIDATION ACCOUNTS  
SUFFICIENCY FOR MPRIF TRANSFERS**

Consolidation Account	# Eligible to Retire Now	Add'l # Eligible Within 5 years	Current Assets	MPRIF Reserve	Comment Code
Albert Lea Fire	11	1	\$11,429,788	\$ 4,020,093	A
Albert Lea Police	2	5	9,169,763	3,977,455	A
Anoka Police	2	0	2,707,016	1,825,774	B
Austin Police	2	6	10,000,591	6,427,573	B
Bloomington Police	19	13	42,873,046	13,715,078	A
Buhl Police	0	0	1,030,527	858,951	A
Chisholm Fire	2	0	1,765,091	1,316,232	D
Chisholm Police	1	0	1,142,084	974,495	D
Columbia Heights Fire	1	0	1,794,350	929,928	A
Columbia Heights Police	3	1	3,524,540	2,293,588	C
Crookston Fire	3	3	1,241,109	291,436	C
Crystal Police	4	2	8,504,628	3,079,474	A
Duluth Fire	36	33	29,904,418	24,474,356	B*
Duluth Police	19	23	37,917,228	23,038,770	B*
Faribault Fire	3	3	4,653,943	3,166,656	C
Fridley Police	2	5	7,720,329	3,878,028	A
Hibbing Fire	4	8	5,731,340	4,512,667	D
Hibbing Police	5	4	4,969,893	3,280,372	C

COMMENT CODE:

- A - **Currently well-funded**; special assessment for MPRIF transfer unlikely for foreseeable future.
- B - **Significant** special assessment for MPRIF transfer within five years is possible but not highly probable.
- C - **Chance** of special assessment this year is small, but chance of special assessment within five years is significant.
- D - **Significant** chance that special assessment for MPRIF transfer may be needed **this year**.

\*Combined rating for both police and fire (fire alone would be D; police alone would be A).

**TABLE I-D: PERA CONSOLIDATION ACCOUNTS  
SUFFICIENCY FOR MPRIF TRANSFERS**

<b>Consolidation Account</b>	<b># Eligible to Retire Now</b>	<b>Add'l # Eligible Within 5 years</b>	<b>Current Assets</b>	<b>MPRIF Reserve</b>	<b>Comment Code</b>
Mankato Fire	3	0	\$ 6,988,353	\$ 7,066,970	D
New Ulm Police	4	0	4,347,876	1,916,663	B
Red Wing Fire	5	0	6,153,816	2,263,115	A
Red Wing Police	3	3	8,291,563	251,042	A
Richfield Police	4	7	12,662,049	4,065,299	A
Rochester Fire	20	10	25,662,065	2,259,384	A
Rochester Police	21	10	26,905,328	9,489,828	A
St. Cloud Fire	10	6	10,037,299	6,644,751	B
St. Louis Park Fire	3	7	10,546,545	1,125,253	A
St. Louis Park Police	10	9	18,725,182	7,173,409	A
St. Paul Fire	69	91	144,954,248	88,926,759	A
St. Paul Police	108	115	177,059,390	90,151,639	A
South St. Paul Fire	3	3	5,412,539	3,918,945	C
West St. Paul Fire	5	3	7,034,325	2,427,301	A
West St. Paul Police	4	2	7,057,718	2,645,937	A
Winona Fire	1	3	9,379,249	8,469,497	C
Winona Police	8	5	8,034,445	5,755,952	B

COMMENT CODE:

- A - **Currently well-funded**; special assessment for MPRIF transfer unlikely for foreseeable future.
- B - **Significant** special assessment for MPRIF transfer within five years is possible but not highly probable.
- C - **Chance** of special assessment this year is small, but chance of special assessment within five years is significant.
- D - **Significant** chance that special assessment for MPRIF transfer may be needed **this year**.

## II. PLAN PROVISIONS

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

For the July 1, 1995 Actuarial Valuation, we highlight the following:

***Public Employees (Chapter 353):*** None.

***Police and Fire (Chapter 353):*** The early retirement reduction factor was changed from actuarial equivalent to 2.4% for each year that retirement precedes age 55, effective as of July 1, 1996. While this change did not directly impact funding this year, it will have an impact if the new recommended set of assumptions is adopted. Appendix A shows the cost results after reflecting the new benefits and new assumptions.

***Police and Fire Consolidation:*** Added no new accounts.

The increase in the benefit accrual factor from 2.5% to 2.65% implemented in 1993 is not to be effective until each respective municipality approves the increase. All new accounts, including those listed above, come in at 2.65%. As of July 1, 1995, the following municipalities had not taken formal additional action to approve the change in the benefit accrual factor and our valuation reflects continuation of the 2.5% multiplier for these municipalities:

- Chisholm Fire
- Chisholm Police
- Crookston Fire
- Mankato Fire
- Winona Fire
- Winona Police

***State Employees (Chapter 352):*** This year's valuation was based upon actual salary from the prior year as provided. Prior valuations had been based upon a projected annualized salary as provided. We estimate that this change resulted in a gain in the valuation results.

***State Patrol (Chapter 352B):*** the member contribution rate was increased from 8.50% to 8.92% of salary. The benefit multiplier for retirement and disability benefits was increased from 2.50% to 2.65% of average salary. Also, the valuation incorporated the same change as described for the State Employee above.

***Correctional Employees (Chapter 352):*** The valuation incorporated the same change as described for the State Employees above.

***Legislators (Chapter 3A):*** None.

***Elective State Officers (Chapter 352C):*** None.

***Judges (Chapter 490):*** None.

***Teachers Retirement Association (Chapter 354):*** None.

***Duluth Teachers (Chapter 354A):*** Benefit accrual rates were increased by .13%; member contribution rates were increased by 1% of payroll and the lump sum post-retirement payment was replaced with an annual cost-of-living adjustment.

***St. Paul Teachers (Chapter 354A):*** None.

***Minneapolis Teachers (Chapter 354A):*** Effective July 1, 1995, the post-retirement benefit increase will equal two percent plus an additional amount calculated as the product of one minus the rate of contribution sufficiency for the fund and the excess of the five-year time-weighted total rate of return over the assumed preretirement interest rate.

***Minneapolis Employees (Chapter 422A):*** None.

### III. ACTUARIAL ASSUMPTIONS (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 which 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, 1995 Actuarial Valuation for that Fund.

In our opinion the assumptions used for July 1, 1995 valuations are reasonable and well within the mainstream of current actuarial practice. Experience studies and assumption reviews have been completed for most of the other plans which fall under the jurisdiction of the LCPR. A complete set of recommendations have been made and the resulting cost implications are provided in the Appendices to this report.

**TABLE III-A: JULY 1, 1995 ACTUARIAL ASSUMPTIONS - CATEGORY 1**  
*(Highlighted box indicates change from prior year.)*

<b>Fund</b>	<b>Interest Rates Pre-retire/Post-retire</b>	<b>Salary Increase %/ Data Used</b>	<b>Social Security</b>	<b>COLA on Benefits</b>
Public Employees (Chapter 353)	8.5%/5.0%	*/Prior Year Salary Increased	N/A	3.5% Implied by 5.0% Interest Rate
Police and Fire (Chapter 353)	8.5%/5.0%	6.5% Prior Year Salary Increased	N/A	3.5% Implied by 5.0% Interest Rate
Police and Fire Consolidation	8.5%/5.0% (PERA) 8.5% (Local)	6.5%/Prior Year Salary increased	N/A	3.5% Implied (PERA) 6.5% Explicit (Local)
State Employees (Chapter 352)	8.5%/5.0%	*/Prior Year Salary Increased	N/A	3.5% Implied by 5.0% Interest Rate
State Patrol (Chapter 352B)	8.5%/5.0%	6.5%/Prior Year Salary Increased	N/A	3.5% Implied by 5.0% Interest Rate
Correctional (Chapter 352)	8.5%/5.0%	6.5%/Prior Year Salary Increased	Current Law and 6.5% Salary Scale	3.5% Implied by 5.0% Interest Rate
Legislators (Chapter 3A)	8.5%/5.0%	Statutory salary, then 6.5%	N/A	3.5% Implied by 5.0% Interest Rate
Elective State Officers (Chapter 352C)	8.5%/5.0%	Statutory Salary, then 6.5%	N/A	3.5% Implied by 5.0% Interest Rate
Judges (Chapter 490)	8.5%/5.0%	Statutory Salary, then 6.5%	N/A	3.5% Implied by 5.0% Interest Rate
Teachers (Chapter 354)	8.5%/5.0%	*/Prior Year Salary Increased	N/A	3.5% Implied by 5.0% Interest Rate
Duluth Teachers (Chapter 354A)	8.5%/8.5%	6.5%/Reported Salary Increased	N/A	2% Implied by 6.5% Interest Rate
St. Paul Teachers (Chapter 354A)	8.5%/8.5%	6.5%/Reported Salary Increased	N/A	Bonus of 1% Charged to Interest Rate
Minneapolis Teachers (Chapter 354A)	8.5%/8.5%	6.5%/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	3.5% Implied by 5.0% Interest Rate

\*Graded rates using a 5.0% base increase plus a merit scale.



**TABLE III-B: JULY 1, 1995 ACTUARIAL ASSUMPTIONS - CATEGORY 2**  
*(Highlighted box indicates change from prior year.)*

<b>Fund</b>	<b>Mortality Table (male rates shown)</b>	<b>Disability Table (male rates shown)</b>	<b>Retirement Age (Coordinated)</b>	<b>Other Separation (male rates shown)</b>
Public Employees (Chapter 353)	1983 GAM* Male set back 5 years	Graded: .12% @ 35 .58% @ 55	Age 64 and 50% of Rule of 90 (first year only)	Graded: 7.19% @ 35 1.95% @ 55
Police and Fire (Chapter 353)	1971 GAM projected to 1984 by Scale D*	Graded: .19% @ 35 1.35 @ 55	Age 60	Graded: 1.83% @ 35 .11% @ 55
Police and Fire Consolidation	1971 GAM projected to 1984 by Scale D*	Graded: .19% @ 35 1.35% @ 55	Varies between ages 50-60	Graded: 1.83% @ 35 .11% @ 55
State Employees (Chapter 352)	1983 GAM* Male set back 4 years	Graded: .02% @ 35 .34% @ 55	Graded from age 58 and 25% of Rule of 90	Graded: 7.20% @ 35 2.10% @ 55
State Patrol (Chapter 352B)	1971 GAM*	Graded: .11% @ 35 .88% @ 55	Age 58 (age 63 if hired prior to 1961)	Graded: 1.50% @ 35 0.00% @ 55
Correctional (Chapter 352)	1971 GAM*	Graded: .02% @ 35 .34% @ 55	Age 58	Graded: 7.20% @ 35 2.10% @ 55
Legislators (Chapter 3A)	1971 GAM	None	Age 62	Varies based upon service; 0% @ 9 years
Elective State Officers (Chapter 352C)	1971 GAM	None	Age 62	Varies based upon service; 0% @ 9 years
Judges (Chapter 490)	1971 GAM	Graded: .02% @ 35 .34% @ 55	Age 68	None
Teachers (Chapter 354)	1983 GAM* Male set back 8 years	Graded: .06% @ 35 .36% @ 55	Age 62 and 30% of Rule of 90	Select & ultimate graded
Duluth Teachers (Chapter 354A)	1971 GAM set back 8 years	Graded: .29% @ 35 .87% @ 55	Age 61 Old Plan Age 63 New Plan 30% under Rule of 90	Graded: 4.91% @ 35 .13% @ 55
St. Paul Teachers (Chapter 354A)	1971 GAM set back 8 years	Graded: .10% @ 35 .40% @ 55	Age 62 with 30 years and 30% of Rule of 90	Graded: 4.91% @ 35 1.00% @ 55
Minneapolis Teachers (Chapter 354A)	1971 GAM set back 8 years	Graded: .05% @ 35 .36% @ 55	Age 63 (60 for Basic) and 30% of Rule of 90	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, 1995 ACTUARIAL ASSUMPTIONS - CATEGORY 3**  
*(Highlighted box indicates change from prior year.)*

<b>Fund</b>	<b>Family Composition (Male/Female)</b>	<b>Expenses (Admin. Only)</b>	<b>Bounceback Annuity Election (Male/Female)</b>	<b>Other</b>
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	None
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
Police and Fire Consolidation	85%/65% married; no children	Expenses paid outside the fund	40%/15% for 50% J&S 45%/15% for 100% J&S	None
State Employees (Chapter 352)	85%/85% married	Prior year as % of payroll	25%/5% for 50% J&S 45%/5% for 100% J&S	None
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%/10% for 50% J&S 50%/10% for 100% J&S	None
Duluth Teachers (Chapter 354A)	80%/80% married	Prior year as % of payroll	40%/10% for 50% J&S 40%/10% 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	None
Minneapolis Teachers (Chapter 354A)	80%/60% married	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 Employees (Chapter 422A)	67%/67% married	Prior year increased by 4% as % of payroll	None	Investment expense amortized to a required date

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

The valuation results summarized below provide insight into the cost implications of the proposed changes in actuarial assumptions for this plan. Appendix A.2. includes a summary of the changes in assumptions which are being recommended based on a recently completed experience study.

The results shown below are displayed in three columns. The first column contains numbers straight out of our "official" July 1, 1995 actuarial valuation. The second column is hypothetical only. It represents what the results would have been at July 1, 1995 had the recommended assumptions been used, but before recognition of the newly enhanced early retirement benefits under this plan. The third column reflects a July 1, 1995 valuation reflecting new assumptions and new benefits. We believe that this set of results is most representative of expected future costs absent further legislated benefit changes.

APPENDIX A.1.

**JULY 1, 1995**  
*(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>	<b>NEW ASSUMPTIONS/ NEW BENEFITS</b>
<b>Present Value of Projected Benefits:</b>			
Benefit Recipients	395,341	408,544	408,544
Former Members	13,664	15,271	15,271
Active Members	1,593,812	1,547,065	1,590,802
<b>TOTAL</b>	<b>2,002,817</b>	<b>1,970,880</b>	<b>2,014,617</b>
<b>Present Value of Future Normal Cost</b>			
<b>Actuarial Accrued Liability</b>	806,022	774,661	796,288
<b>Current Assets</b>	1,196,795	1,196,219	1,218,329
	1,385,901	1,385,901	1,385,901
<b>Unfunded Actuarial Accrued Liability:</b>			
Continuing	(189,106)	(189,106)	(189,106)
New (Assumptions)	0	(576)	(576)
New (Benefits)	0	0	22,110
<b>TOTAL</b>	<b>(189,106)</b>	<b>(189,682)</b>	<b>(167,572)</b>
<b>Statutory Contributions:</b>			
Employee Contributions	7.60%	7.60%	7.60%
Employer Contributions	11.40%	11.40%	11.40%
<b>TOTAL</b>	<b>19.00%</b>	<b>19.00%</b>	<b>19.00%</b>
<b>Required Contributions:</b>			
Normal Cost	19.49%	20.24%	20.80%
Supplemental	(3.12)%	(3.30)%	(2.91)%
Expenses	0.12%	0.12%	0.12%
<b>TOTAL</b>	<b>16.49%</b>	<b>17.06%</b>	<b>18.01%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>			
	2.51%	1.94%	0.99%
<b>Funding Ratios:</b>			
Accrued Benefit	124.49%	120.87%	118.60%
Accrued Liability	115.80%	115.86%	113.75%
Projected Benefit	107.60%	105.65%	102.83%

**P.E.R.A. - POLICE & FIRE**

*Actuarial Assumptions*

	Current	Recommended
Salary Increase	6.5%	5.0% + Merit Increase (table attached)
Payroll Growth	6.5%	6.0%
Retirement Age	60	Age-related Table (attached)
Annuitant Mortality	1971 GAM projected to 1984(D) (M or F)	1983 GAM (M or F)
Active Mortality	1971 GAM projected to 1984(D) (M or F)	1983 GAM (M or F) With 5-year Setback

All other assumptions remain unchanged.

**P.E.R.A. - POLICE & FIRE**

RECOMMENDED MERIT		RECOMMENDED	
Age	Salary Increase	Age	Retirement Decrements
<21	6.5%	50-54	5%
22	6.0	55	20
23	5.5	56-59	10
24	5.0	60-61	20
25	4.5	62-69	50
26	4.2	70+	100
27	3.9		
28	3.6		
29	3.3		
30	3.0		
31	2.8		
32	2.6		
33	2.4		
34	2.2		
35	2.0		
36	1.8		
37	1.6		
38	1.4		
39	1.2		
40	1.0		
41	0.9		
42	0.8		
43	0.7		
44	0.6		
45	0.5		
46	0.4		
57	0.3		
48	0.2		
49	0.1		
50+	0.0		

## **MINNESOTA STATE RETIREMENT SYSTEM**

The valuation results summarized below provide insight into the cost implications of the proposed changes in actuarial assumptions for these plans. Appendix B.2. includes a summary of the changes in assumptions.

The results shown below are displayed in two columns. The first column contains numbers straight out of our "official" July 1, 1995 actuarial valuation. The second column represents what the results would have been at July 1, 1995 had the recommended assumptions been used. We believe that this set of results is representative of expected future costs absent further legislated benefit changes.

**STATE PATROL PLAN****JULY 1, 1995***(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	\$129,038	\$126,319
Former Members	2,204	2,228
Active Members	<u>240,678</u>	<u>232,409</u>
<b>TOTAL</b>	<b>\$371,920</b>	<b>\$360,956</b>
<b>Present Value of Future Normal Cost</b>	<b>\$ 88,842</b>	<b>\$ 82,759</b>
<b>Actuarial Accrued Liability</b>	<b>\$283,078</b>	<b>\$278,197</b>
<b>Current Assets</b>	<b>\$284,918</b>	<b>\$284,918</b>
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	\$ (1,840)	\$ (1,840)
New (Assumptions)	<u>0</u>	<u>(4,881)</u>
<b>TOTAL</b>	<b>\$ (1,840)</b>	<b>\$ (6,721)</b>
<b>Statutory Contributions:</b>		
Employee Contributions	8.92%	8.92%
Employer Contributions	<u>14.88</u>	<u>14.88</u>
<b>TOTAL</b>	<b>23.80%</b>	<b>23.80%</b>
<b>Required Contributions:</b>		
Normal Cost	21.21%	20.99%
Supplemental	0.00	0.00
Expenses	<u>0.13</u>	<u>0.13</u>
<b>TOTAL</b>	<b>21.34%</b>	<b>21.12%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>	<b>2.46%</b>	<b>2.68%</b>

**Funding Ratios:**

Accrued Benefit	104.82%	105.93%
Accrued Liability	100.65%	102.42%
Projected Benefit	105.58%	106.75%



**MINNESOTA STATE RETIREMENT SYSTEM  
STATE PATROL PLAN**

*Compilation of Recommended Changes*

***Salary Increase Assumption:*** From flat 6.5% to age-related table grading from 7.25% at youngest ages to 5.25% at oldest ages (same as for State Employees).

***Payroll Growth Assumption:*** From 6.5% to 5.0%.

***Retirement Assumptions:*** From 100% at age 58 or older to age-related table as follows:

Ages:	50-53	2%
	54	20
	55	60
	56-61	20
	62-64	50
	65+	100

***Terminations:*** Modest reduction in rates (see attached).

***Annuitant and Survivor Mortality:*** From GA 71 Male Table with 0-year and 8-year setback to:

Males - 1983 GAM (Males +2)  
Females - 1983 GAM (Females +2)

***Disability Mortality:*** From same as annuitant to Combined Annuity Mortality Table.

***Active Mortality:*** From GA 71 Male Table with 0-year and 8-year setback to:

Males - 1983 GAM (Males -1)  
Females - 1983 GAM (Females)

**MINNESOTA STATE RETIREMENT SYSTEM**  
**STATE PATROL PLAN**

***Proposed Withdrawal Rates***

<b>Age</b>	<b>Males</b>	<b>Females</b>
20	2.20%	2.20%
21	2.10	2.10
22	2.00	2.00
23	1.90	1.90
24	1.80	1.80
25	1.70	1.70
26	1.60	1.60
27	1.50	1.50
28	1.40	1.40
29	1.30	1.30
30	1.20	1.20
31	1.10	1.10
32	1.00	1.00
33	0.90	0.90
34	0.80	0.80
35	0.70	0.70
36	0.60	0.60
37	0.60	0.60
38	0.60	0.60
39	0.60	0.60
40	0.60	0.60
41	0.60	0.60
42	0.60	0.60
43	0.60	0.60
44	0.60	0.60
45	0.60	0.60
46	0.60	0.60
47	0.60	0.60
48	0.60	0.60
49	0.30	0.30
50+	0.00	0.00

**CORRECTIONAL PLAN****JULY 1, 1995***(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	\$ 48,776	\$ 48,243
Former Members	10,752	10,847
Active Members	<u>156,560</u>	<u>164,865</u>
<b>TOTAL</b>	<b>\$216,088</b>	<b>\$223,955</b>
<b>Present Value of Future Normal Cost</b>	<b>\$ 62,597</b>	<b>\$ 68,831</b>
<b>Actuarial Accrued Liability</b>	<b>\$153,491</b>	<b>\$155,124</b>
<b>Current Assets</b>	<b>\$165,427</b>	<b>\$165,427</b>
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	\$ (11,936)	\$ (11,936)
New (Assumptions)	<u>0</u>	<u>1,633</u>
<b>TOTAL</b>	<b>\$ (11,936)</b>	<b>\$ (10,303)</b>
<b>Statutory Contributions:</b>		
Employee Contributions	4.90%	4.90%
Employer Contributions	<u>6.27</u>	<u>6.27</u>
<b>TOTAL</b>	<b>11.17%</b>	<b>11.17%</b>
<b>Required Contributions:</b>		
Normal Cost	10.96%	12.29%
Supplemental	0.00	0.00
Expenses	<u>0.15</u>	<u>0.15</u>
<b>TOTAL</b>	<b>11.11%</b>	<b>12.44%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>	<b>0.06%</b>	<b>(1.27)%</b>

**Funding Ratios:**

Accrued Benefit	123.52%	118.73%
Accrued Liability	107.78	106.64
Projected Benefit	105.90%	101.42%

**MINNESOTA STATE RETIREMENT SYSTEM  
CORRECTIONAL PLAN**

*Compilation of Recommended Changes*

***Salary Increase Assumption:*** From flat 6.5% to age-related table grading from 7.25% at youngest ages to 5.25% at oldest ages (same as for State Employees).

***Payroll Growth Assumption:*** From 6.5% to 5.0%.

***Retirement Assumptions:*** From 100% at age 58 or older to age-related table as follows:

Ages:	50-53	2%
	54	20
	55	60
	56-61	20
	62-64	50
	65+	100

***Active Disability:*** Change from schedule of rates under State Employees' plan to schedule of rates under State Patrol plan.

***Terminations:*** Significantly modified table based on experience study results (see attached).

***Annuitant and Survivor Mortality:*** From GA 71 Male Table with 0-year and 8-year setback to:

Males - 1983 GAM (Males +2)  
Females - 1983 GAM (Females +2)

***Active Mortality:*** From GA-71 Male Table with 0-year and 8-year setback to:

Males - 1983 GAM (Males -1)  
Females - 1983 GAM (Female)

**MINNESOTA STATE RETIREMENT SYSTEM**  
**CORRECTIONAL EMPLOYEES SAMPLE WITHDRAWAL RATES**

*Proposed Assumptions*

Age	Males	Females
20	24.0%	16.0%
21	22.0	15.6
22	20.0	15.2
23	18.1	14.8
24	16.3	14.5
25	14.7	14.2
26	13.3	14.0
27	12.1	13.8
28	11.0	13.7
29	10.0	13.6
30	9.1	13.5
31	8.3	13.4
32	7.6	13.3
33	7.0	13.2
34	6.5	13.1
35	6.0	12.9
36	5.6	12.6
37	5.2	12.2
38	4.9	11.7
39	4.6	11.1
40	4.4	10.4
41	4.2	9.6
42	4.0	8.7
43	3.8	7.8
44	3.6	7.0
45	3.4	6.4
46	3.2	5.9
47	3.0	5.6
48	2.8	5.3
49	2.6	5.0
50	2.4	4.7
51	2.2	4.4
52	2.0	4.1
53	1.8	3.9
54	1.6	3.6
55	1.4	3.3
56	1.2	2.9
57	1.0	2.3
58	0.7	1.7
59	0.4	0.9

**LEGISLATORS' PLAN****JULY 1, 1995***(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	\$ 21,539	\$ 22,210
Former Members	13,209	13,513
Active Members	<u>25,991</u>	<u>25,003</u>
<b>TOTAL</b>	<b>\$ 60,739</b>	<b>\$ 60,726</b>
<b>Present Value of Future Normal Cost</b>	<b>\$ 10,484</b>	<b>\$ 9,155</b>
<b>Actuarial Accrued Liability</b>	<b>\$ 50,255</b>	<b>\$ 51,571</b>
<b>Current Assets</b>	<b>\$ 21,213</b>	<b>\$ 21,213</b>
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	\$ 29,042	\$ 29,042
New (Assumptions)	<u>0</u>	<u>1,316</u>
<b>TOTAL</b>	<b>\$ 29,042</b>	<b>\$ 30,358</b>
<b>Statutory Contributions:</b>		
Employee Contributions	9.00%	9.00%
Employer Contributions	<u>0.00</u>	<u>0.00</u>
<b>TOTAL</b>	<b>9.00%</b>	<b>9.00%</b>
<b>Required Contributions:</b>		
Normal Cost	20.25%	18.15%
Supplemental	20.91	23.71
Expenses	<u>0.38</u>	<u>0.38</u>
<b>TOTAL</b>	<b>41.54%</b>	<b>42.24%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>	<b>(32.54)%</b>	<b>(33.24)%</b>
<b>Funding Ratios:</b>		
Accrued Benefit	44.09%	43.15%
Accrued Liability	42.21	41.13
Projected Benefit	52.19%	50.01%

MINNESOTA STATE RETIREMENT SYSTEM  
LEGISLATORS' PLAN

*Compilation of Recommended Changes*

<i>Salary Increase Assumption:</i>	From flat 6.5% to flat 5.0%.
<i>Payroll Growth Assumption:</i>	From 6.5% to 5.0%.
<i>Annuitant and Survivor Mortality:</i>	From GA 71 Male Table with 0-year and 8-year setback to:  Males - 1983 GAM (Males) Females - 1983 GAM (Females)
<i>Active Mortality:</i>	From GA-71 Male Table with 0-year and 8-year setback to:  Males - 1983 GAM (Males -4) Females - 1983 GAM (Females -2)

**ELECTED OFFICIALS PLAN****JULY 1, 1995***(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	\$ 1,384	\$ 1,429
Former Members	258	274
Active Members	<u>1,555</u>	<u>1,602</u>
<b>TOTAL</b>	<b>\$ 3,197</b>	<b>\$ 3,305</b>
<b>Present Value of Future Normal Cost</b>		
<b>Actuarial Accrued Liability</b>	<b>\$ 249</b>	<b>\$ 244</b>
<b>Current Assets</b>	<b>\$ 2,948</b>	<b>\$ 3,061</b>
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	\$ 2,570	\$ 2,570
New (Assumptions)	<u>0</u>	<u>113</u>
<b>TOTAL</b>	<b>\$ 2,570</b>	<b>\$ 2,683</b>
<b>Statutory Contributions:</b>		
Employee Contributions	9.00%	9.00%
Employer Contributions	<u>0.00</u>	<u>0.00</u>
<b>TOTAL</b>	<b>9.00%</b>	<b>9.00%</b>
<b>Required Contributions:</b>		
Normal Cost	13.93%	14.10%
Supplemental	29.43	35.14
Expenses	<u>0.22</u>	<u>0.22</u>
<b>TOTAL</b>	<b>43.58%</b>	<b>49.46%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>	<b>(34.58)%</b>	<b>(40.46)%</b>

**Funding Ratios:**

Accrued Benefit	13.50%	13.01%
Accrued Liability	12.82	12.35
Projected Benefit	19.61%	18.82%



MINNESOTA STATE RETIREMENT SYSTEM  
ELECTED OFFICIALS' PLAN

Compilation of Recommended Changes

<i>Salary Increase Assumption:</i>	From flat 6.5% to flat 5.0%.
<i>Payroll Growth Assumption:</i>	From 6.5% to 5.0%.
<i>Annuitant and Survivor Mortality:</i>	From GA 71 Male Table with 0-year and 8-year setback to:  Males - 1983 GAM (Males) Females - 1983 GAM (Females)
<i>Active Mortality:</i>	From GA-71 Male Table with 0-year and 8-year setback to:  Males - 1983 GAM (Males -4) Females - 1983 GAM (Females -2)

**JUDGES' PLAN**

JULY 1, 1995

*(dollars in thousands)*

	OFFICIAL VALUATION	NEW ASSUMPTIONS
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	\$ 57,245	\$ 58,472
Former Members	902	989
Active Members	<u>87,804</u>	<u>79,569</u>
<b>TOTAL</b>	<b>\$ 145,951</b>	<b>\$ 139,030</b>
<b>Present Value of Future Normal Cost</b>	<b>\$ 43,713</b>	<b>\$ 34,910</b>
<b>Actuarial Accrued Liability</b>	<b>\$ 102,238</b>	<b>\$ 104,120</b>
<b>Current Assets</b>	<b>\$ 56,813</b>	<b>\$ 56,813</b>
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	\$ 45,425	\$ 45,425
New (Assumptions)	<u>0</u>	<u>1,882</u>
<b>TOTAL</b>	<b>\$ 45,425</b>	<b>\$ 47,307</b>
<b>Statutory Contributions:</b>		
Employee Contributions	6.36%	6.36%
Employer Contributions	<u>22.00</u>	<u>22.00</u>
<b>TOTAL</b>	<b>28.36%</b>	<b>28.36%</b>
<b>Required Contributions:</b>		
Normal Cost	17.15%	15.46%
Supplemental	10.04	11.98
Expenses	<u>0.13</u>	<u>0.13</u>
<b>TOTAL</b>	<b>27.32%</b>	<b>27.57%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>	<b>1.04 %</b>	<b>0.79%</b>
<b>Funding Ratios:</b>		
Accrued Benefit	57.50%	57.38%
Accrued Liability	55.57	54.56
Projected Benefit	103.22%	102.25%

**MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' PLAN**

**Compilation of Recommended Changes**

***Salary Increase Assumption:*** From flat 6.5% to flat 5.0%.

***Payroll Growth Assumption:*** From 6.5% to 5.0%.

***Retirement Assumptions:*** From 100% at age 68 to age-related table as follows:

Ages:	62-64	10%
	65-67	20
	68-70	30
	71+	100

***Annuitant and Survivor Mortality:*** From GA 71 Male Table with 0-year and 8-year setback to:

Males - 1983 GAM (Males)  
Females - 1983 GAM (Females)

***Disability Mortality:*** From same as annuitant to Combined Annuity Mortality Table.

***Active Mortality:*** From GA-71 Male Table with 0-year and 8-year setback to:

Males - 1983 GAM (Males -4)  
Females - 1983 GAM (Females -2)

## **DULUTH TEACHERS' RETIREMENT FUND**

The valuation results summarized below provide insight into the cost implications of the proposed changes in actuarial assumptions for this plan. Appendix C.2. includes a summary of the changes in assumptions which are being recommended based on a recently completed experience study.

The results shown below are displayed in two columns. The first column contains numbers straight out of our "official" July 1, 1995 actuarial valuation. The second column reflects a July 1, 1995 valuation with new assumptions. We believe that this set of results is most representative of expected future costs absent further legislated benefit changes.

APPENDIX C.1.

**JULY 1, 1995**  
*(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	77,439	76,180
Former Members	2,090	1,863
Active Members	135,663	118,101
<b>TOTAL</b>	<b>215,192</b>	<b>196,144</b>
<b>Present Value of Future Normal Cost</b>	41,227	33,983
<b>Actuarial Accrued Liability</b>	173,965	162,161
<b>Current Assets</b>	142,852	142,852
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	31,113	31,113
New (Assumptions)	0	(11,804)
<b>TOTAL</b>	<b>31,113</b>	<b>19,309</b>
<b>Statutory Contributions:</b>		
Employee Contributions	5.50%	5.50%
Employer Contributions	5.79	5.79
<b>TOTAL</b>	<b>11.29%</b>	<b>11.29%</b>
<b>Required Contributions:</b>		
Normal Cost	9.17%	8.19%
Supplemental	3.32	2.42
Expenses	0.74	0.74
<b>TOTAL</b>	<b>13.23%</b>	<b>11.35%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>	<b>(1.94)%</b>	<b>(0.06)%</b>
<b>Funding Ratios:</b>		
Accrued Benefit	88.44%	94.17%
Accrued Liability	82.12%	88.09%
Projected Benefit	91.54%	99.76%

**DULUTH TEACHERS' RETIREMENT FUND**

**Compilation of Recommended Changes**

***Salary Increase Assumption:*** From flat 6.5% to age-related table grading from 8.0% at youngest ages to 5.25% at oldest ages (see Appendix C.2.a.).

***Payroll Growth Assumption:*** From 6.5% to 5.0%.

***Retirement Assumption:***

Rule-of-90: From 30% to 40%.

Others Old-Plan: From 100% at 61 or older to age-related from 15% to 80%.

Others New-Plan: From 100% at 63 or older to age-related from 10% to 80% (see page 3 of narrative).

***Active Disability:*** Reduce rates to table proposed in Appendix C.2.b.

***Terminations:*** Leave as is for males, reduce modestly for females (see Appendix C.2.c.).

***Annuitant and Survivor Mortality:*** From GA 71 Males with 8-year setback to:  
Males - 1983 GAM (Males -2)  
Females - 1983 GAM (Females -1)

***Disability Mortality:*** From same as annuitant to 1977 Railroad Retirement Board Mortality for Disabled Annuitants.

***Active Mortality:*** From same as old annuitant mortality to new annuitant mortality setback two more years.

**DULUTH TEACHERS' RETIREMENT FUND**

*Assumptions as to Annuity Form Election Option:*

Annuity Option	Current	Revised
<u>Females</u>		
50% J&S	10%	30%
100% J&S	10%	20%
<u>Males</u>		
50% J&S	40%	30%
100% J&S	40%	55%

**DULUTH TEACHERS' RETIREMENT FUND*****Salary Increase Assumptions***

Age	Current Assumption	Proposed Assumption
< 22	6.5%	8.00%
23	6.5	7.90
24	6.5	7.80
25	6.5	7.70
26	6.5	7.60
27	6.5	7.50
28	6.5	7.40
29	6.5	7.30
30	6.5	7.20
31	6.5	7.10
32	6.5	7.00
33	6.5	6.90
34	6.5	6.80
35	6.5	6.70
36	6.5	6.60
37	6.5	6.50
38	6.5	6.40
39	6.5	6.30
40	6.5	6.20
41	6.5	6.10
42	6.5	6.00
43	6.5	5.90
44	6.5	5.80
45	6.5	5.70
46	6.5	5.60
47	6.5	5.50
48	6.5	5.45
49	6.5	5.40
50	6.5	5.35
51	6.5	5.30
52	6.5	5.25
53	6.5	5.25
54	6.5	5.25
55+	6.5	5.25



**DULUTH TEACHERS' RETIREMENT FUND**

***Disability Assumption***  
 (Number of Occurrences Per 10,000)

Age	Current Assumption	Proposed Assumption
20	28	4
21	28	4
22	28	4
23	28	5
24	28	5
25	28	5
26	28	5
27	28	5
28	28	5
29	28	5
30	28	6
31	28	6
32	28	6
33	28	6
34	28	6
35	29	6
36	29	7
37	30	7
38	31	8
39	31	8
40	32	8
41	33	9
42	35	9
43	37	10
44	38	10
45	41	11
46	43	12
47	46	13
48	49	14
49	53	16
50	57	17
51	62	19
52	68	22
53	74	26
54	80	30
55	87	36
56	95	41
57	104	47
58	114	52
59	125	58
60	136	63
61	149	69
62	163	76
63	0	84
64	0	93

**DULUTH TEACHERS' RETIREMENT FUND**

***Withdrawal Assumption***  
(Number of Occurrences Per 10,000)

Age	Current Unisex Assumption	Proposed Male Assumption	Proposed Female Assumption
20	2,000	2,000	1,500
21	1,931	1,931	1,360
22	1,731	1,731	1,220
23	1,532	1,532	1,080
24	1,332	1,332	940
25	1,132	1,132	800
26	932	932	660
27	732	732	520
28	703	703	500
29	673	673	480
30	643	643	460
31	612	612	440
32	582	582	420
33	552	552	400
34	522	522	380
35	491	491	360
36	461	461	340
37	430	430	320
38	409	409	300
39	389	389	280
40	368	368	260
41	347	347	240
42	325	325	220
43	304	304	210
44	282	282	200
45	260	260	190
46	237	237	180
47	214	214	170
48	191	191	160
49	167	167	150
50	143	143	140
51	118	118	118
52	92	92	92
53	67	67	67
54	40	40	40
55	13	13	13
56+	0	0	0

## ST. PAUL TEACHERS' RETIREMENT FUND

The valuation results summarized below provide insight into the cost implications of the proposed changes in actuarial assumptions for this plan. Appendix D.2. includes a summary of the changes in assumptions which are being recommended based on a recently completed experience study.

The results shown below are displayed in two columns. The first column contains numbers straight out of our "official" July 1, 1995 actuarial valuation. The second column reflects a July 1, 1995 valuation with new assumptions. We believe that this set of results is most representative of expected future costs absent further legislated benefit changes.

APPENDIX D.1.

	<b>JULY 1, 1995</b>	
	<i>(dollars in thousands)</i>	
	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	248,399	245,292
Former Members	4,458	4,584
Active Members	515,374	464,379
<b>TOTAL</b>	<b>768,231</b>	<b>714,255</b>
<b>Present Value of Future Normal Cost</b>	135,161	120,537
<b>Actuarial Accrued Liability</b>	633,070	593,718
<b>Current Assets</b>	445,733	445,733
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	187,337	187,337
New (Assumptions)	0	(39,352)
<b>TOTAL</b>	<b>187,337</b>	<b>147,985</b>
<b>Statutory Contributions:</b>		
Employee Contributions	5.90%	5.90%
Employer Contributions	9.54	9.54
State	0.34	0.34
Special Expense Assessment	0.09	0.09
<b>TOTAL</b>	<b>15.87%</b>	<b>15.87%</b>
<b>Required Contributions:</b>		
Normal Cost	11.15%	10.52%
Supplemental	6.55	6.10
Expenses	0.26	0.26
<b>TOTAL</b>	<b>17.96%</b>	<b>16.88%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>		
	<b>(2.09)%</b>	<b>(1.01)%</b>
<b>Funding Ratios:</b>		
Accrued Benefit	73.23%	78.58%
Accrued Liability	70.41%	75.07%
Projected Benefit	91.93%	96.81%

## ST. PAUL TEACHERS' RETIREMENT FUND

### Compilation of Recommended Changes

**Salary Increase Assumption:** From flat 6.5% to age-related table grading from 8.0% at youngest ages to 5.25% at oldest ages (see Appendix A).

**Payroll Growth Assumption:** From 6.5% to 5.0%.

**Retirement Assumption:**

	Basic	Coordinated
Rule-of-90 Eligible	40%	40%
Otherwise:		
Ages 55-61	10	5
61-65	40	20
66-70	50	40
71+	80	80

**Active Disability:** Reduce rates to table proposed in Appendix B.

**Terminations:** Modify slightly for males, somewhat more for females (see Appendix C).

**Annuitant and Survivor Mortality:** From GA 71 Males with 8-year setback to:

Males - 1983 GAM (Males -3)  
Females - 1983 GAM (Females -1)

**Disability Mortality:** From same as annuitant to 1977 Railroad Retirement Board Mortality for Disabled Annuitants.

**Active Mortality:** From same as old annuitant mortality to new annuitant mortality setback two more years.

## ST. PAUL TEACHERS' RETIREMENT FUND

*Salary Increase Assumptions*

Age	Current Assumption	Proposed Assumption
< 22	6.5%	7.25%
23	6.5	7.25
24	6.5	7.20
25	6.5	7.15
26	6.5	7.10
27	6.5	7.05
28	6.5	7.00
29	6.5	6.95
30	6.5	6.90
31	6.5	6.85
32	6.5	6.80
33	6.5	6.75
34	6.5	6.70
35	6.5	6.65
36	6.5	6.60
37	6.5	6.55
38	6.5	6.50
39	6.5	6.40
40	6.5	6.30
41	6.5	6.20
42	6.5	6.10
43	6.5	6.00
44	6.5	5.90
45	6.5	5.80
46	6.5	5.70
47	6.5	5.65
48	6.5	5.60
49	6.5	5.55
50	6.5	5.50
51	6.5	5.45
52	6.5	5.40
53	6.5	5.35
54	6.5	5.30
55+	6.5	5.25

**ST. PAUL TEACHERS' RETIREMENT FUND**

***Disability Assumption***  
(Number of Occurrences Per 10,000)

<b>Age</b>	<b>Current Assumption</b>	<b>Proposed Assumption</b>
20	7	4
21	7	4
22	7	4
23	7	5
24	7	5
25	8	5
26	8	5
27	8	5
28	8	5
29	8	5
30	8	6
31	9	6
32	9	6
33	9	6
34	9	6
35	10	6
36	10	7
37	10	7
38	11	8
39	11	8
40	12	8
41	12	9
42	13	9
43	14	10
44	15	10
45	16	11
46	18	12
47	19	13
48	21	14
49	22	16
50	24	17
51	26	19
52	29	22
53	32	26
54	36	30
55	40	36
56	46	41
57	53	47
58	61	52
59	72	58
60	84	63
61	98	69
62	113	76
63	131	84
64	149	93

**ST. PAUL TEACHERS' RETIREMENT FUND*****Withdrawal Assumption***

(Number of Occurrences Per 10,000)

<b>Age</b>	<b>Current Male Assumption</b>	<b>Proposed Male Assumption</b>	<b>Current Female Assumption</b>	<b>Proposed Female Assumption</b>
20	600	2,000	1,000	2,000
21	600	2,000	1,000	2,000
22	600	2,000	1,000	2,000
23	600	1,800	1,000	1,800
24	600	1,600	1,000	1,600
25	600	1,400	1,000	1,400
26	600	1,200	1,000	1,200
27	600	1,000	1,000	1,000
28	600	850	1,000	850
29	600	750	1,000	750
30	600	690	1,000	690
31	570	630	1,000	630
32	540	570	1,000	570
33	510	530	1,000	530
34	480	490	1,000	490
35	450	450	1,000	450
36	430	420	960	420
37	410	400	920	400
38	390	380	880	380
39	370	360	840	360
40	350	340	800	340
41	340	320	720	320
42	330	300	640	300
43	320	280	560	280
44	310	260	530	260
45	300	240	500	240
46	280	220	460	220
47	260	200	420	200
48	240	180	380	180
49	220	160	340	160
50	200	140	300	140
51	180	120	260	120
52	160	100	220	100
53	140	80	180	80
54	120	60	140	60
55	100	50	100	50
56	80	40	80	40
57	60	30	60	30
58	40	20	40	20
59	20	10	20	10
60+	0	0	0	0



**PUBLIC EMPLOYEES RELIEF ASSOCIATION  
POLICE AND FIRE CONSOLIDATION ACCOUNT**

**EXPLANATION OF ATTACHED SUPPLEMENTAL COST SUMMARY**

The attached sheet, relating to the individual relief association consolidation account so indicated, provides useful information about the estimated cost impact of possible assumption and benefit changes. This sheet is intended to help you understand the results shown on the attached sheet.

Column (a) provides the contribution information which was developed in the formal July 1, 1995 actuarial valuation. Line 2 of this column, if positive, should be consistent with the additional municipal contribution requirement that has previously been communicated to you (if this number is negative, you would not have received a supplemental billing).

Column (b) provides contribution information calculated as if the actuarial assumptions proposed for adoption by the PERA Police and Fire Fund had been in place for the July 1, 1995 valuation. These new assumptions are based on a recently completed experience study of the PERA Police and Fire Fund. Minnesota Statutes require the use of the same actuarial assumptions for the Police and Fire Consolidation Accounts. We expect these new assumptions to be adopted prior to the July 1, 1996 valuations. The most direct measurement of the impact of the assumption change is the difference between line (4), column (b), and line (4), column (a); this impact varies by account. Most groups will see a modest increase; well-funded groups will see no change; groups with significant retiree liability outside of MPRIF may see a decrease.

Column (c) shows the results reflecting the new early retirement reduction factors and a 2.65% multiplier. Since most groups are already using the 2.65% multiplier, line (4), column (d), represents the cost increase associated with the more generous early retirement provisions. These more generous provisions have been enacted, but are subject to individual municipality approval. For those groups who have not yet adopted the 2.65% multiplier, line (4), column (d), represents the cost increase to increase the multiplier and to adopt the new early retirement provisions.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Buhl Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	0	0	0	0
(2) <b>Additional Municipal Contribution</b>	(23,130)	(19,123)	(19,123)	0
(3) <b>Theoretical Municipal Contribution</b>	(23,130)	(19,123)	(19,123)	0
(4) <b>Municipal Cash Contribution Requirement</b>	0	0	0	0
(5) <b>Regular Employee Contribution</b>	0	0	0	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Duluth Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	307,907	307,907	307,907	0
(2) <b>Additional Municipal Contribution</b>	816,114	840,988	884,216	43,228
(3) <b>Theoretical Municipal Contribution</b>	1,124,021	1,148,895	1,192,123	43,228
(4) <b>Municipal Cash Contribution Requirement</b>	1,124,021	1,148,895	1,192,123	43,228
(5) <b>Regular Employee Contribution</b>	205,271	205,271	205,271	0
(6) <b>Total Statutory Contribution</b>	1,329,292	1,354,166	1,397,394	43,228

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**West St. Paul Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	49,116	49,116	49,116	0
(2) <b>Additional Municipal Contribution</b>	(130,947)	(132,837)	(125,161)	7,676
(3) <b>Theoretical Municipal Contribution</b>	(81,831)	(83,721)	(76,045)	7,676
(4) <b>Municipal Cash Contribution Requirement</b>	49,116	49,116	49,116	0
(5) <b>Regular Employee Contribution</b>	32,744	32,744	32,744	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Red Wing Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	24,939	24,939	24,939	0
(2) <b>Additional Municipal Contribution</b>	(27,728)	(40,665)	(38,372)	2,293
(3) <b>Theoretical Municipal Contribution</b>	(2,789)	(15,726)	(13,433)	2,293
(4) <b>Municipal Cash Contribution Requirement</b>	24,939	24,939	24,939	0
(5) <b>Regular Employee Contribution</b>	16,626	16,626	16,626	0
(6) <b>Total Statutory Contribution</b>	13,837	900	3,193	2,293

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Rochester Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	281,630	281,630	281,630	0
(2) <b>Additional Municipal Contribution</b>	590,103	527,006	567,935	40,929
(3) <b>Theoretical Municipal Contribution</b>	871,733	808,636	849,565	40,929
(4) <b>Municipal Cash Contribution Requirement</b>	871,733	808,636	849,565	40,929
(5) <b>Regular Employee Contribution</b>	187,753	187,753	187,753	0
(6) <b>Total Statutory Contribution</b>	1,059,486	996,389	1,037,318	40,929

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Winona Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	58,996	58,996	58,996	0
(2) <b>Additional Municipal Contribution</b>	284,522	305,233	332,939	27,706
(3) <b>Theoretical Municipal Contribution</b>	343,518	364,229	391,935	27,706
(4) <b>Municipal Cash Contribution Requirement</b>	343,518	364,229	391,935	27,706
(5) <b>Regular Employee Contribution</b>	39,331	39,331	39,331	0
(6) <b>Total Statutory Contribution</b>	382,849	403,560	431,266	27,706

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**St. Cloud Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	81,950	81,950	81,950	0
(2) <b>Additional Municipal Contribution</b>	376,629	378,750	391,429	12,679
(3) <b>Theoretical Municipal Contribution</b>	458,579	460,700	473,379	12,679
(4) <b>Municipal Cash Contribution Requirement</b>	458,579	460,700	473,379	12,679
(5) <b>Regular Employee Contribution</b>	54,633	54,633	54,633	0
(6) <b>Total Statutory Contribution</b>	513,212	515,333	528,012	12,679

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.



**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Hibbing Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	61,967	61,967	61,967	0
(2) <b>Additional Municipal Contribution</b>	158,058	170,621	182,043	11,422
(3) <b>Theoretical Municipal Contribution</b>	220,025	232,588	244,010	11,422
(4) <b>Municipal Cash Contribution Requirement</b>	220,025	232,588	244,010	11,422
(5) <b>Regular Employee Contribution</b>	41,311	41,311	41,311	0
(6) <b>Total Statutory Contribution</b>	261,336	273,899	285,321	11,422

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Hibbing Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	76,454	76,454	76,454	0
(2) <b>Additional Municipal Contribution</b>	230,533	250,531	262,823	12,292
(3) <b>Theoretical Municipal Contribution</b>	306,987	326,985	339,277	12,292
(4) <b>Municipal Cash Contribution Requirement</b>	306,987	326,985	339,277	12,292
(5) <b>Regular Employee Contribution</b>	50,969	50,969	50,969	0
(6) <b>Total Statutory Contribution</b>	357,956	377,954	390,246	12,292

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**St. Louis Park Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	84,069	84,069	84,069	0
(2) <b>Additional Municipal Contribution</b>	81,720	(18,455)	(8,596)	9,859
(3) <b>Theoretical Municipal Contribution</b>	165,789	65,614	75,473	9,859
(4) <b>Municipal Cash Contribution Requirement</b>	165,789	84,069	84,069	0
(5) <b>Regular Employee Contribution</b>	56,046	56,046	56,046	0
(6) <b>Total Statutory Contribution</b>	221,835	121,660	131,519	9,859

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Anoka Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	13,309	13,309	13,309	0
(2) <b>Additional Municipal Contribution</b>	4,446	12,966	14,006	1,040
(3) <b>Theoretical Municipal Contribution</b>	17,755	26,275	27,315	1,040
(4) <b>Municipal Cash Contribution Requirement</b>	17,755	26,275	27,315	1,040
(5) <b>Regular Employee Contribution</b>	8,873	8,873	8,873	0
(6) <b>Total Statutory Contribution</b>	26,628	35,148	36,188	1,040

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Red Wing Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	33,258	33,258	33,258	0
(2) <b>Additional Municipal Contribution</b>	(26,648)	(122,017)	(119,704)	2,313
(3) <b>Theoretical Municipal Contribution</b>	6,610	(88,759)	(86,446)	2,313
(4) <b>Municipal Cash Contribution Requirement</b>	33,258	33,258	33,258	0
(5) <b>Regular Employee Contribution</b>	22,172	22,172	22,172	0
(6) <b>Total Statutory Contribution</b>	28,782	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Mankato Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	13,719	13,719	13,719	0
(2) <b>Additional Municipal Contribution</b>	73,346	108,433	116,763	8,330
(3) <b>Theoretical Municipal Contribution</b>	87,065	122,152	130,482	8,330
(4) <b>Municipal Cash Contribution Requirement</b>	87,065	122,152	130,482	8,330
(5) <b>Regular Employee Contribution</b>	9,146	9,146	9,146	0
(6) <b>Total Statutory Contribution</b>	96,211	131,298	139,628	8,330

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Chisolm Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	8,990	8,990	8,990	0
(2) <b>Additional Municipal Contribution</b>	17,033	26,214	31,227	5,013
(3) <b>Theoretical Municipal Contribution</b>	26,023	35,204	40,217	5,013
(4) <b>Municipal Cash Contribution Requirement</b>	26,023	35,204	40,217	5,013
(5) <b>Regular Employee Contribution</b>	5,993	5,993	5,993	0
(6) <b>Total Statutory Contribution</b>	32,016	41,197	46,210	5,013

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Chisolm Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	5,044	5,044	5,044	0
(2) <b>Additional Municipal Contribution</b>	19,562	25,797	28,934	3,137
(3) <b>Theoretical Municipal Contribution</b>	24,606	30,841	33,978	3,137
(4) <b>Municipal Cash Contribution Requirement</b>	24,606	30,841	33,978	3,137
(5) <b>Regular Employee Contribution</b>	3,363	3,363	3,363	0
(6) <b>Total Statutory Contribution</b>	27,969	34,204	37,341	3,137

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.



**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Crookston Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	25,675	25,675	25,675	0
(2) <b>Additional Municipal Contribution</b>	22,395	25,033	36,817	11,784
(3) <b>Theoretical Municipal Contribution</b>	48,070	50,708	62,492	11,784
(4) <b>Municipal Cash Contribution Requirement</b>	48,070	50,708	62,492	11,784
(5) <b>Regular Employee Contribution</b>	17,117	17,117	17,117	0
(6) <b>Total Statutory Contribution</b>	65,187	67,825	79,609	11,784

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Rochester Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	228,720	228,720	228,720	0
(2) <b>Additional Municipal Contribution</b>	932,713	716,674	746,819	30,145
(3) <b>Theoretical Municipal Contribution</b>	1,161,433	945,394	975,539	30,145
(4) <b>Municipal Cash Contribution Requirement</b>	1,161,433	945,394	975,539	30,145
(5) <b>Regular Employee Contribution</b>	152,480	152,480	152,480	0
(6) <b>Total Statutory Contribution</b>	1,313,913	1,097,874	1,128,019	30,145

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Winona Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	75,177	75,177	75,177	0
(2) <b>Additional Municipal Contribution</b>	89,175	118,451	154,221	35,770
(3) <b>Theoretical Municipal Contribution</b>	164,352	193,628	229,398	35,770
(4) <b>Municipal Cash Contribution Requirement</b>	164,352	193,628	229,398	35,770
(5) <b>Regular Employee Contribution</b>	50,118	50,118	50,118	0
(6) <b>Total Statutory Contribution</b>	214,470	243,746	279,516	35,770

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**St. Louis Park Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	152,143	152,143	152,143	0
(2) <b>Additional Municipal Contribution</b>	(284,192)	(253,937)	(226,051)	27,886
(3) <b>Theoretical Municipal Contribution</b>	(132,049)	(101,794)	(73,908)	27,886
(4) <b>Municipal Cash Contribution Requirement</b>	152,143	152,143	152,143	0
(5) <b>Regular Employee Contribution</b>	101,429	101,429	101,429	0
(6) <b>Total Statutory Contribution</b>	0	0	27,521	27,521

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Faribault Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	33,406	33,406	33,406	0
(2) <b>Additional Municipal Contribution</b>	187,525	188,746	189,722	976
(3) <b>Theoretical Municipal Contribution</b>	220,931	222,152	223,128	976
(4) <b>Municipal Cash Contribution Requirement</b>	220,931	222,152	223,128	976
(5) <b>Regular Employee Contribution</b>	22,271	22,271	22,271	0
(6) <b>Total Statutory Contribution</b>	243,202	244,423	245,399	976

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Albert Lea Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	46,657	46,657	46,657	0
(2) <b>Additional Municipal Contribution</b>	(136,826)	(159,291)	(153,692)	5,599
(3) <b>Theoretical Municipal Contribution</b>	(90,169)	(112,634)	(107,035)	5,599
(4) <b>Municipal Cash Contribution Requirement</b>	46,657	46,657	46,657	0
(5) <b>Regular Employee Contribution</b>	31,105	31,105	31,105	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Richfield Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	89,357	89,357	89,357	0
(2) <b>Additional Municipal Contribution</b>	(97,041)	(135,436)	(128,028)	7,408
(3) <b>Theoretical Municipal Contribution</b>	(7,684)	(46,079)	(38,671)	7,408
(4) <b>Municipal Cash Contribution Requirement</b>	89,357	89,357	89,357	0
(5) <b>Regular Employee Contribution</b>	59,571	59,571	59,571	0
(6) <b>Total Statutory Contribution</b>	51,887	13,492	20,900	7,408

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Crystal Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	56,176	56,176	56,176	0
(2) <b>Additional Municipal Contribution</b>	(223,614)	(207,722)	(200,347)	7,375
(3) <b>Theoretical Municipal Contribution</b>	(167,438)	(151,546)	(144,171)	7,375
(4) <b>Municipal Cash Contribution Requirement</b>	56,176	56,176	56,176	0
(5) <b>Regular Employee Contribution</b>	37,451	37,451	37,451	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.



**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Duluth Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	444,141	444,141	444,141	0
(2) <b>Additional Municipal Contribution</b>	2,398,437	2,443,755	2,499,312	55,557
(3) <b>Theoretical Municipal Contribution</b>	2,842,578	2,887,896	2,943,453	55,557
(4) <b>Municipal Cash Contribution Requirement</b>	2,842,578	2,887,896	2,943,453	55,557
(5) <b>Regular Employee Contribution</b>	296,094	296,094	296,094	0
(6) <b>Total Statutory Contribution</b>	3,138,672	3,183,990	3,239,547	55,557

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**St. Paul Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	1,484,315	1,484,315	1,484,315	0
(2) <b>Additional Municipal Contribution</b>	1,815,367	2,301,352	2,549,930	248,578
(3) <b>Theoretical Municipal Contribution</b>	3,299,682	3,785,667	4,034,245	248,578
(4) <b>Municipal Cash Contribution Requirement</b>	3,299,682	3,785,667	4,034,245	248,578
(5) <b>Regular Employee Contribution</b>	989,543	989,543	989,543	0
(6) <b>Total Statutory Contribution</b>	4,289,225	4,775,210	5,023,788	248,578

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Fridley Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	48,219	48,219	48,219	0
(2) <b>Additional Municipal Contribution</b>	(100,727)	(92,287)	(86,134)	6,153
(3) <b>Theoretical Municipal Contribution</b>	(52,508)	(44,068)	(37,915)	6,153
(4) <b>Municipal Cash Contribution Requirement</b>	48,219	48,219	48,219	0
(5) <b>Regular Employee Contribution</b>	32,146	32,146	32,146	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Albert Lea Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	57,733	57,733	57,733	0
(2) <b>Additional Municipal Contribution</b>	(313,815)	(295,925)	(293,048)	2,877
(3) <b>Theoretical Municipal Contribution</b>	(256,082)	(238,192)	(235,315)	2,877
(4) <b>Municipal Cash Contribution Requirement</b>	57,733	57,733	57,733	0
(5) <b>Regular Employee Contribution</b>	38,489	38,489	38,489	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**West St. Paul Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	53,768	53,768	53,768	0
(2) <b>Additional Municipal Contribution</b>	(132,689)	(116,156)	(106,548)	9,608
(3) <b>Theoretical Municipal Contribution</b>	(78,921)	(62,388)	(52,780)	9,608
(4) <b>Municipal Cash Contribution Requirement</b>	53,768	53,768	53,768	0
(5) <b>Regular Employee Contribution</b>	35,845	35,845	35,845	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Austin Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	36,929	36,929	36,929	0
(2) <b>Additional Municipal Contribution</b>	(127,993)	(103,471)	(96,193)	7,278
(3) <b>Theoretical Municipal Contribution</b>	(91,064)	(66,542)	(59,264)	7,278
(4) <b>Municipal Cash Contribution Requirement</b>	36,929	36,929	36,929	0
(5) <b>Regular Employee Contribution</b>	24,619	24,619	24,619	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Bloomington Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	264,651	264,651	264,651	0
(2) <b>Additional Municipal Contribution</b>	(1,214,479)	(1,194,035)	(1,177,302)	16,733
(3) <b>Theoretical Municipal Contribution</b>	(949,828)	(929,384)	(912,651)	16,733
(4) <b>Municipal Cash Contribution Requirement</b>	264,651	264,651	264,651	0
(5) <b>Regular Employee Contribution</b>	176,434	176,434	176,434	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Columbia Heights Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	5,831	5,831	5,831	0
(2) <b>Additional Municipal Contribution</b>	7,051	7,963	7,963	0
(3) <b>Theoretical Municipal Contribution</b>	12,882	13,794	13,794	0
(4) <b>Municipal Cash Contribution Requirement</b>	12,882	13,794	13,794	0
(5) <b>Regular Employee Contribution</b>	3,887	3,887	3,887	0
(6) <b>Total Statutory Contribution</b>	16,769	17,681	17,681	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.



**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**South St. Paul Fire Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	61,872	61,872	61,872	0
(2) <b>Additional Municipal Contribution</b>	143,896	157,597	166,922	9,325
(3) <b>Theoretical Municipal Contribution</b>	205,768	219,469	228,794	9,325
(4) <b>Municipal Cash Contribution Requirement</b>	205,768	219,469	228,794	9,325
(5) <b>Regular Employee Contribution</b>	41,248	41,248	41,248	0
(6) <b>Total Statutory Contribution</b>	247,016	260,717	270,042	9,325

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**St. Paul Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	Without Assumption Change (a)	With Assumption Change (b)	With Benefit Change (c)	Increase Due To Benefit Change (c)-(b)
(1) <b>Regular Municipal Contribution</b>	1,764,540	1,764,540	1,764,540	0
(2) <b>Additional Municipal Contribution</b>	426,364	837,324	1,132,059	294,735
(3) <b>Theoretical Municipal Contribution</b>	2,190,904	2,601,864	2,896,599	294,735
(4) <b>Municipal Cash Contribution Requirement</b>	2,190,904	2,601,864	2,896,599	294,735
(5) <b>Regular Employee Contribution</b>	1,176,360	1,176,360	1,176,360	0
(6) <b>Total Statutory Contribution</b>	3,367,264	3,778,224	4,072,959	294,735

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**Columbia Heights Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	24,518	24,518	24,518	0
(2) <b>Additional Municipal Contribution</b>	21,052	34,412	38,070	3,658
(3) <b>Theoretical Municipal Contribution</b>	45,570	58,930	62,588	3,658
(4) <b>Municipal Cash Contribution Requirement</b>	45,570	58,930	62,588	3,658
(5) <b>Regular Employee Contribution</b>	16,345	16,345	16,345	0
(6) <b>Total Statutory Contribution</b>	61,915	75,275	78,933	3,658

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

**Estimated Impact of Police and Fire  
Assumption and Benefit Changes on Local  
Relief Association Consolidation Accounts**

*For*

**New Ulm Police Consolidation Account**

*as if all changes were effective July 1, 1995*

	<b>Without Assumption Change (a)</b>	<b>With Assumption Change (b)</b>	<b>With Benefit Change (c)</b>	<b>Increase Due To Benefit Change (c)-(b)</b>
(1) <b>Regular Municipal Contribution</b>	18,635	18,635	18,635	0
(2) <b>Additional Municipal Contribution</b>	(132,853)	(124,627)	(123,253)	1,374
(3) <b>Theoretical Municipal Contribution</b>	(114,218)	(105,992)	(104,618)	1,374
(4) <b>Municipal Cash Contribution Requirement</b>	18,635	18,635	18,635	0
(5) <b>Regular Employee Contribution</b>	12,423	12,423	12,423	0
(6) <b>Total Statutory Contribution</b>	0	0	0	0

(1) 11.4% percentage of covered pay.

(2) Total of amortization charges (credits).

(3) Sum of (1) plus (2).

(4) The greater of (1) or (3). Does not reflect possible supplementary requirements for transfer to MPRIF.

(5) 7.6% percentage of covered pay.

(6) Sum of (3) plus (5), but not less than \$0.

## **MINNEAPOLIS TEACHERS' RETIREMENT FUND**

The valuation results summarized below provide insight into the cost implications of the proposed changes in actuarial assumptions for this plan. Appendix F.2. includes a summary of the changes in assumptions which are being recommended based on a recently completed experience study.

The results shown below are displayed in two columns. The first column contains numbers straight out of our "official" July 1, 1995 actuarial valuation. The second column reflects a July 1, 1995 valuation with new assumptions. We believe that this set of results is most representative of expected future costs absent further legislated benefit changes.

## MINNEAPOLIS TEACHERS' RETIREMENT FUND

**JULY 1, 1995**

*(dollars in thousands)*

	<b>OFFICIAL VALUATION</b>	<b>NEW ASSUMPTIONS</b>
<b>Present Value of Projected Benefits:</b>		
Benefit Recipients	510,848	513,643
Former Members	17,835	18,129
Active Members	645,104	599,135
<b>TOTAL</b>	<b>1,173,787</b>	<b>1,130,907</b>
<b>Present Value of Future Normal Cost</b>		
<b>Actuarial Accrued Liability</b>	190,538	157,348
<b>Current Assets</b>	983,249	973,559
	554,960	554,960
<b>Unfunded Actuarial Accrued Liability:</b>		
Continuing	428,289	428,289
New (Assumptions)	0	(9,690)
<b>TOTAL</b>	<b>428,289</b>	<b>418,599</b>
<b>Statutory Contributions:</b>		
Employee Contributions	6.16%	6.16%
Employer Contributions	9.80	9.80
State	2.87	2.90
Special Expense Assessment	0.17	0.17
<b>TOTAL</b>	<b>19.00%</b>	<b>19.03%</b>
<b>Required Contributions:</b>		
Normal Cost	12.12%	10.94%
Supplemental	12.72	14.66
Expenses	0.34	0.34
<b>TOTAL</b>	<b>25.18%</b>	<b>25.94%</b>
<b>CONTRIBUTION SUFFICIENCY/(DEFICIENCY)</b>		
	<b>(6.18)%</b>	<b>(6.91)%</b>
<b>Funding Ratios:</b>		
Accrued Benefit	59.23%	59.80%
Accrued Liability	56.44%	57.00%
Projected Benefit	78.68%	79.96%

## MINNEAPOLIS TEACHERS' RETIREMENT FUND

### Compilation of Recommended Changes

**Salary Increase Assumption:** From flat 6.5% to age-related table grading from 7.5% at youngest ages to 5.0% at oldest ages (see Appendix A).

**Payroll Growth Assumption:** From 6.5% to 5.0%.

**Retirement Assumption:**

Basic (non 30-year): From 100% at 61 or older to age-related from 3% to 75%.

Coordinated (non Rule-of-90): From 100% at 63 or older to age-related from 2% to 75% (see page 3 of narrative).

**Annuity Options Selected:**

	Percentage of Married Males Electing		Percentage of Married Females Electing	
	Current	Recommended	Current	Recommended
Straight Life	35%	25%	80%	70%
50% Bounce Back	15	15	10	15
75% Bounce Back	0	20	0	5
100% Bounce Back	50	40	10	10

**Annuitant and Survivor Mortality:** From GA 71 Males with 8-year setback to:  
 Males - 1983 GAM (Males -4)  
 Females - 1983 GAM (Females -2)

**Disability Mortality:** From same as annuitant to 1977 Railroad Retirement Board Mortality for Disabled Annuitants.

**Active Mortality:** From same as old annuitant mortality to new annuitant mortality setback two more years.

## MINNEAPOLIS TEACHERS' RETIREMENT FUND

***Salary Increase Assumptions***

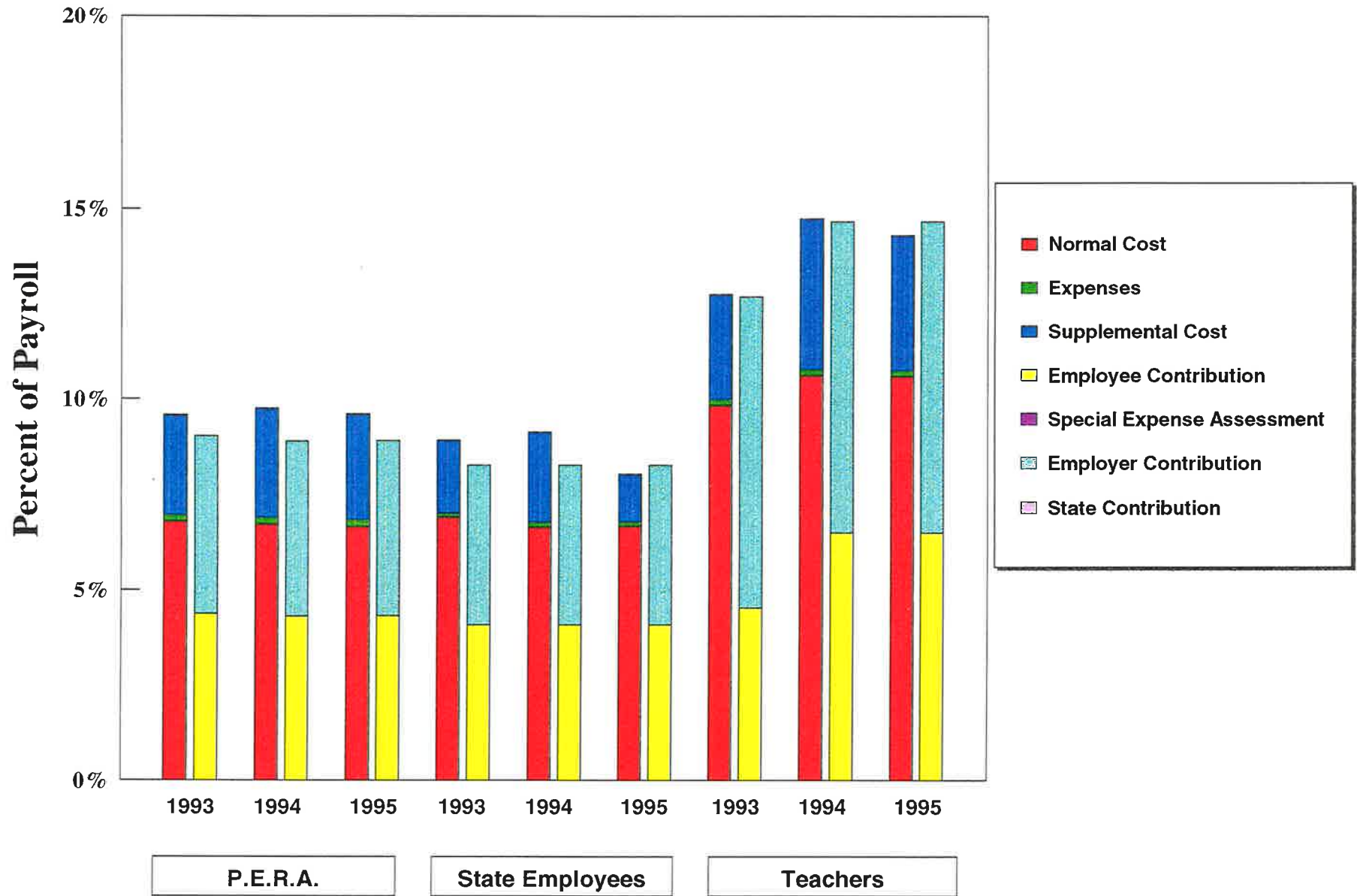
<b>Age</b>	<b>Current Assumption</b>	<b>Proposed Assumption</b>
< 22	6.5%	7.50%
23	6.5	7.40
24	6.5	7.30
25	6.5	7.20
26	6.5	7.10
27	6.5	7.00
28	6.5	6.90
29	6.5	6.80
30	6.5	6.70
31	6.5	6.60
32	6.5	6.50
33	6.5	6.40
34	6.5	6.30
35	6.5	6.20
36	6.5	6.10
37	6.5	6.00
38	6.5	5.90
39	6.5	5.80
40	6.5	5.70
41	6.5	5.60
42	6.5	5.50
43	6.5	5.45
44	6.5	5.40
45	6.5	5.35
46	6.5	5.30
47	6.5	5.25
48	6.5	5.20
49	6.5	5.15
50	6.5	5.10
51	6.5	5.05
52	6.5	5.00
53	6.5	5.00
54	6.5	5.00
55+	6.5	5.00

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# State Wide Funds

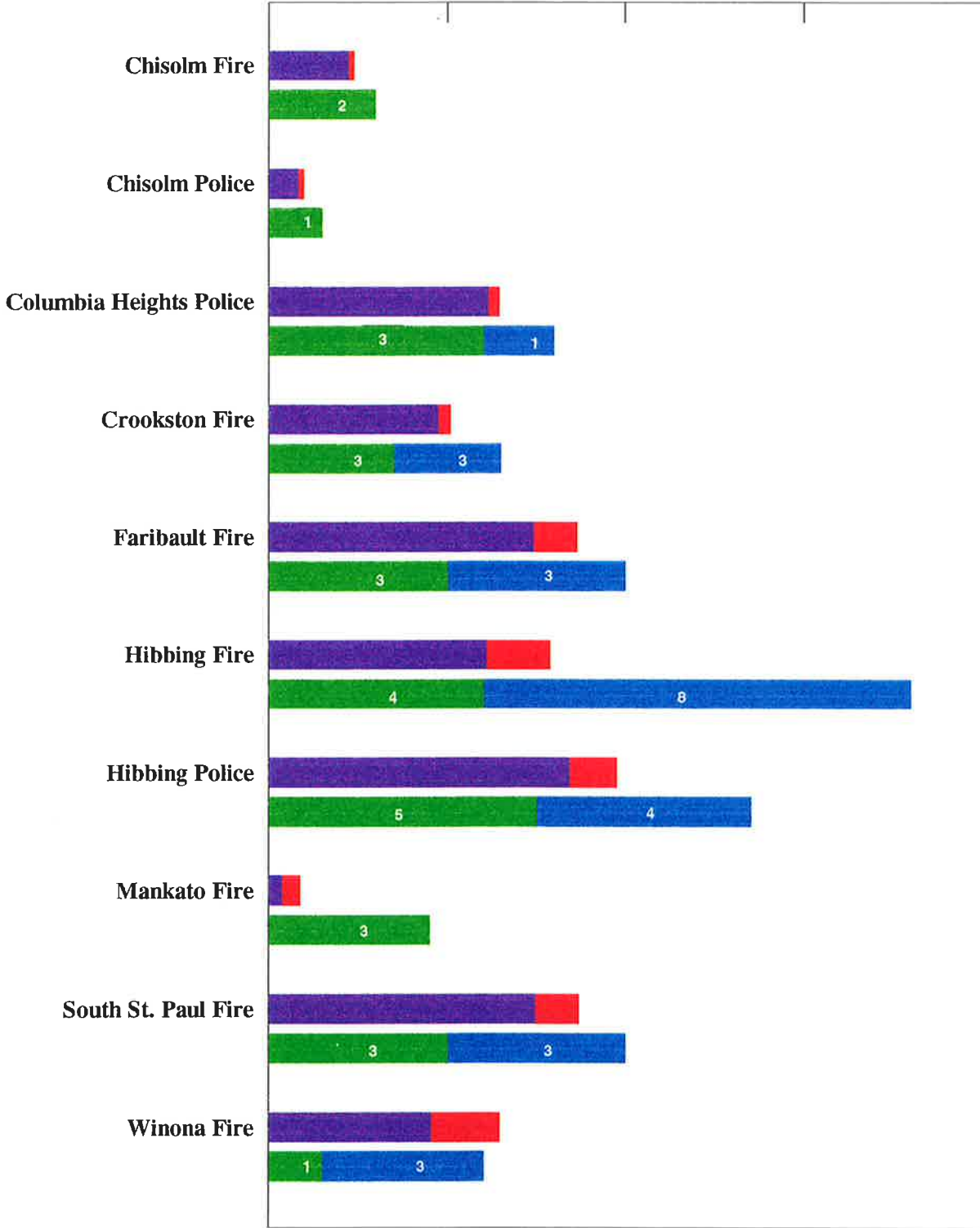
3 Year Experience



# Consolidated Funds Funding Status C or D

Millions

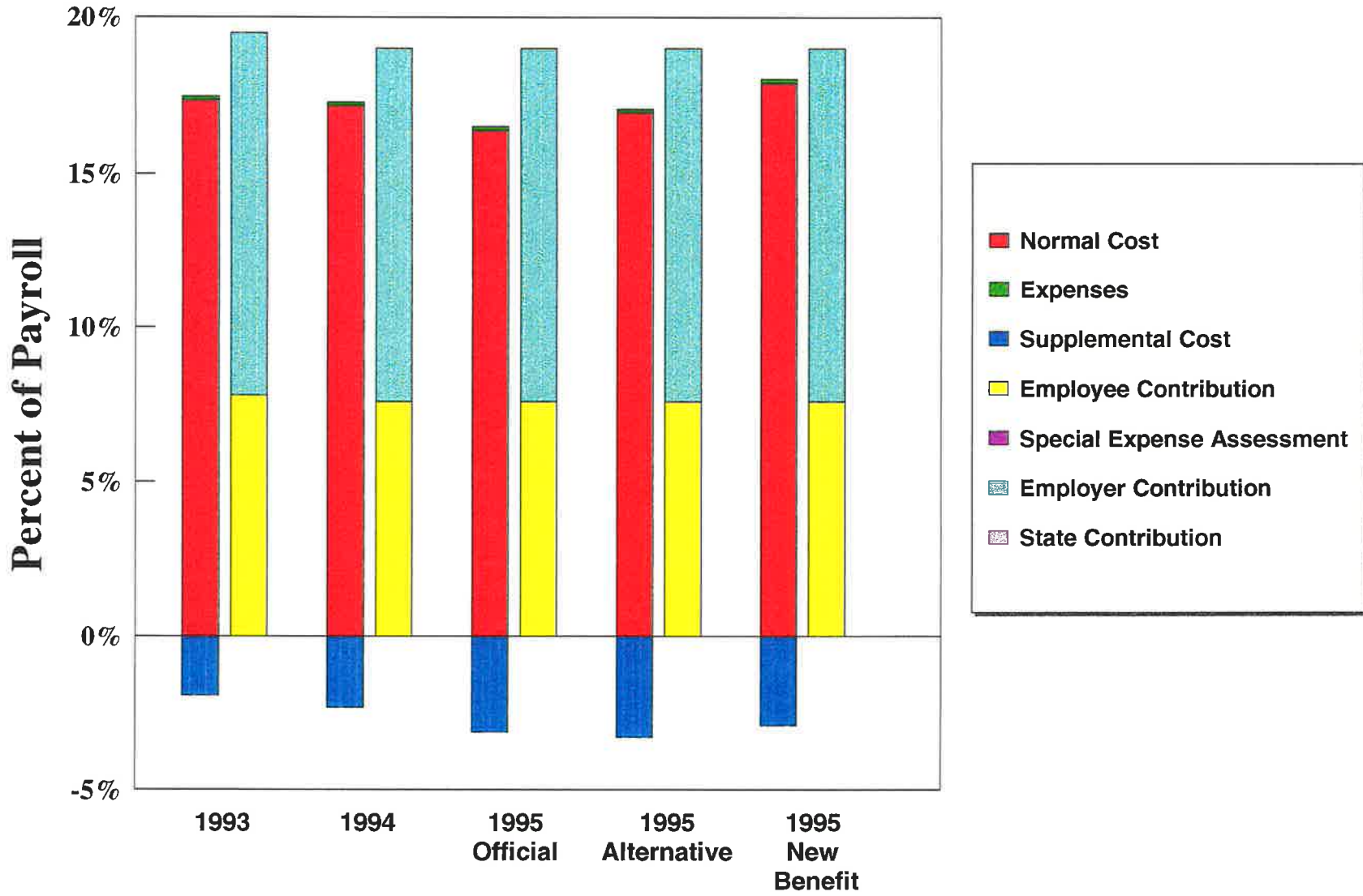
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■ Current One-year Funding Requirement     
 ■ Approximate Transfer Exposure-Five Years     
 ■ Assets Available for MPRIF Transfer     
 ■ Approximate Transfer Exposure-Immediate     
 ■ ■ Number Eligible to Retire

# P.E.R.A. Police and Fire Fund

## History / Alternative Assumptions

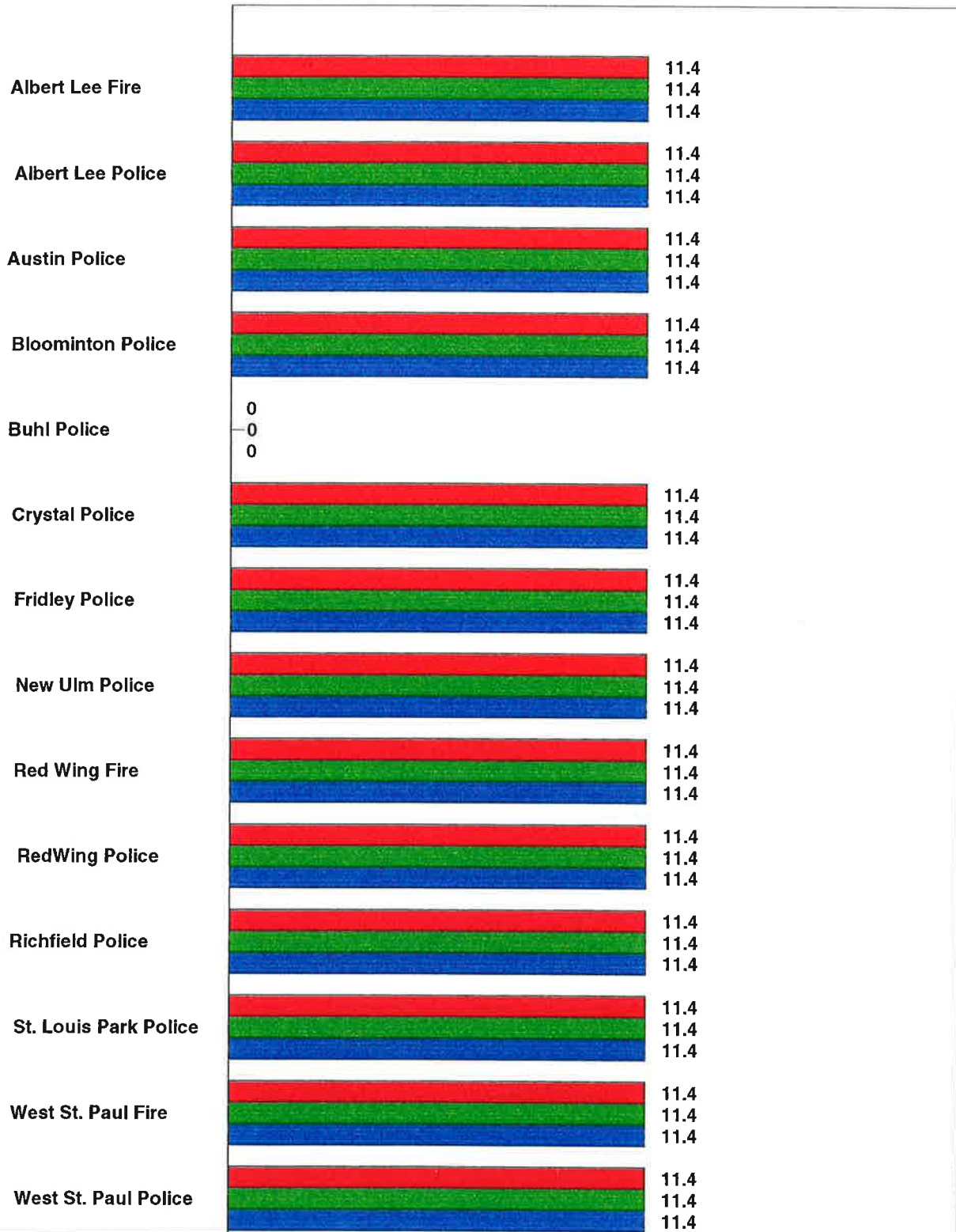


# P & F Consolidation Funds

Alternative Assumptions/Benefits

## Municipal Cash Contribution Requirement As a Percent Of Pay

0 4 8 12 16 20



■ Official Valuation

■ Alternate Assumption

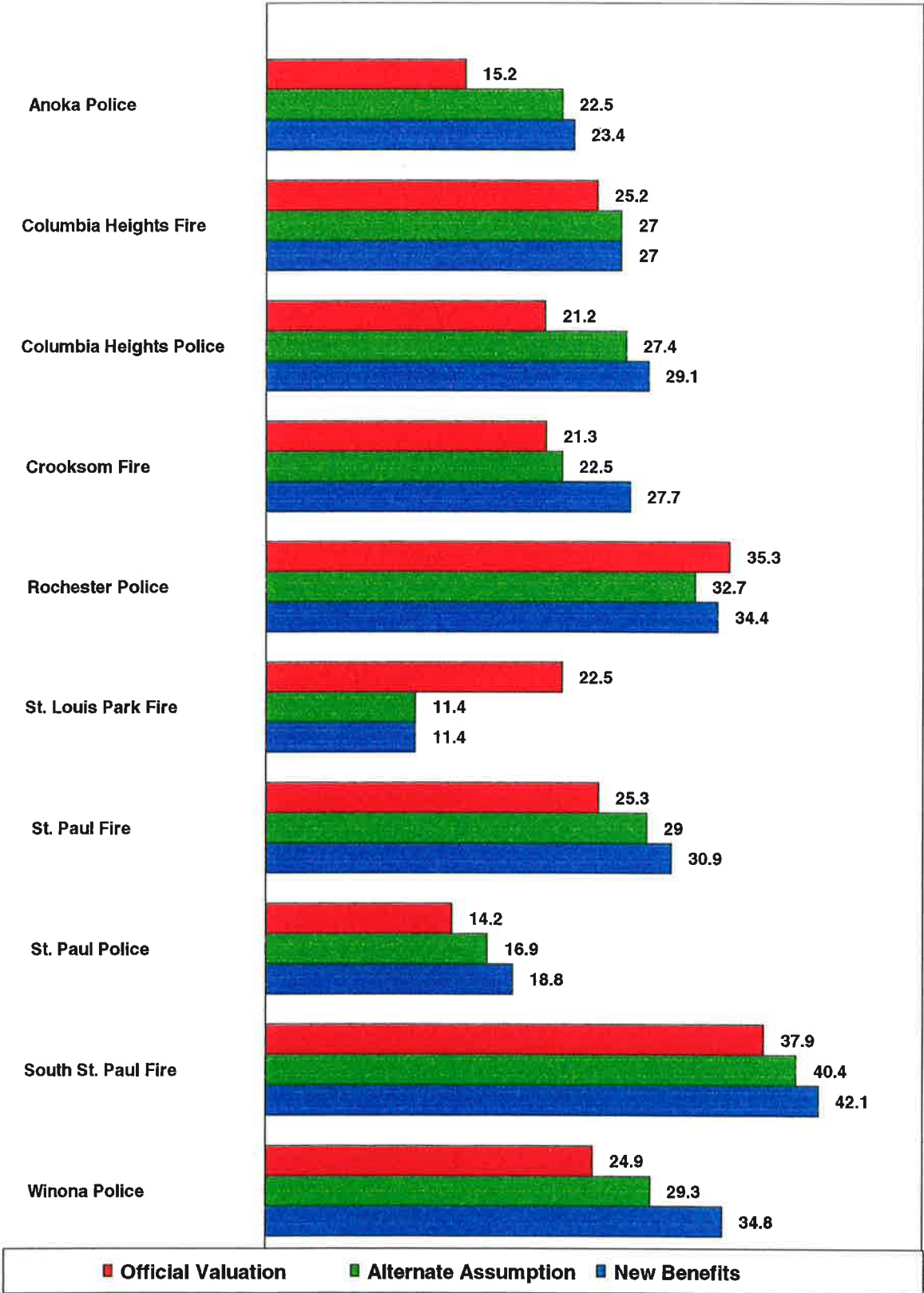
■ New Benefits

# P & F Consolidation Funds

Alternative Assumptions/Benefits

## Municipal Cash Contribution Requirement As a Percent Of Pay

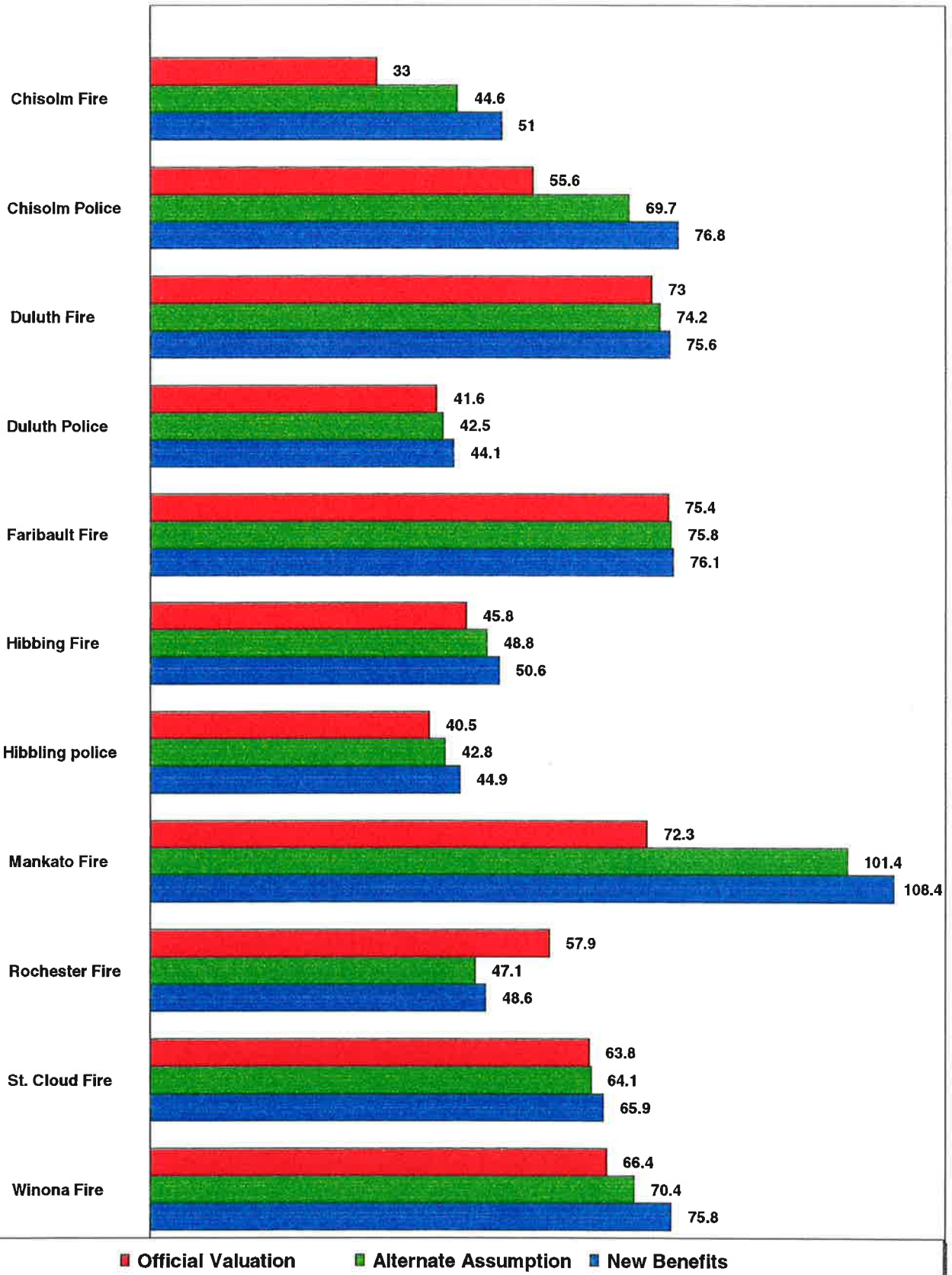
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# P & F Consolidation Funds

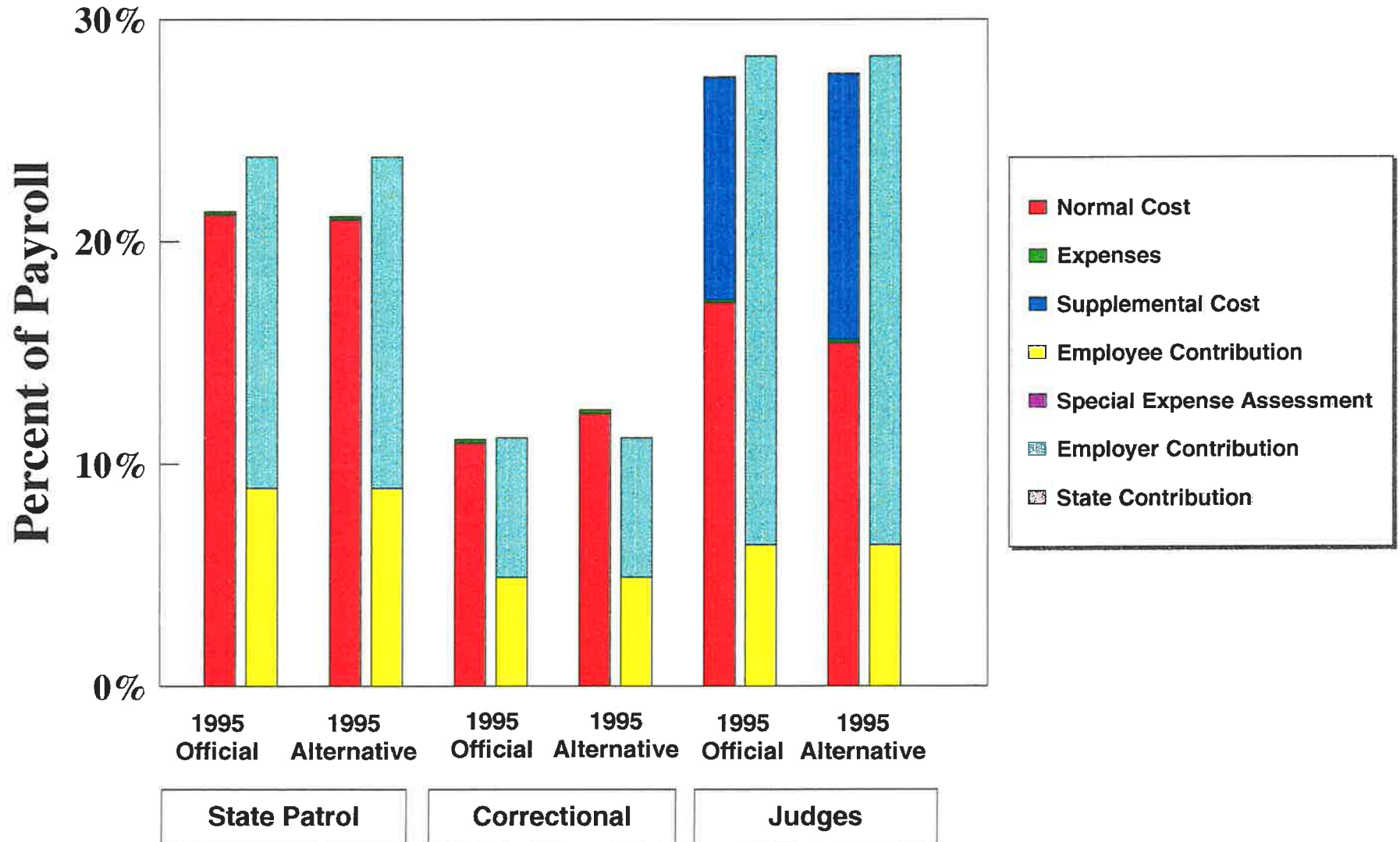
Alternative Assumptions/Benefits

Municipal Cash Contribution Requirement  
As a Percent Of Pay



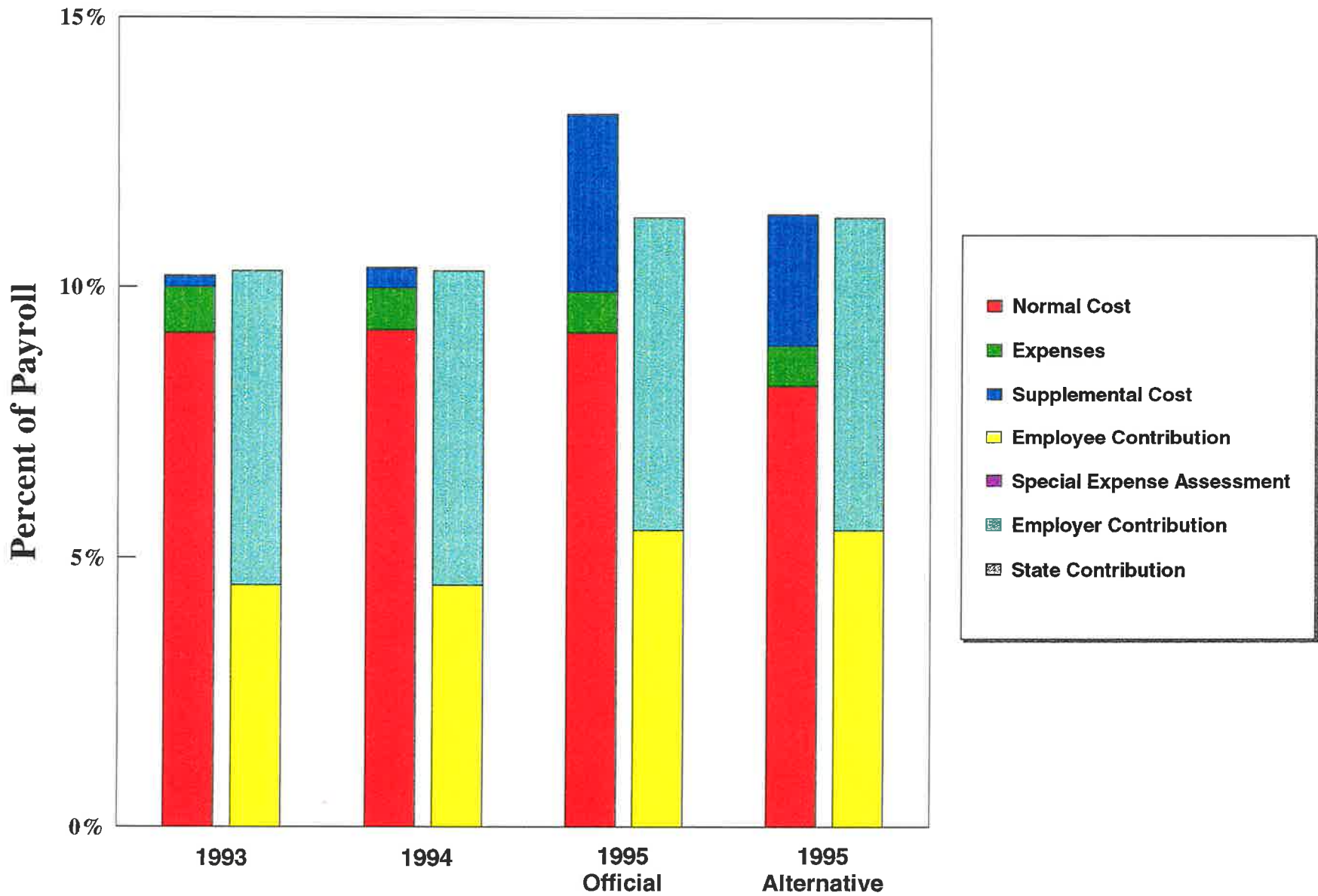
# M.S.R.S.

## Alternative Assumptions



# Duluth Teacher's Retirement Fund

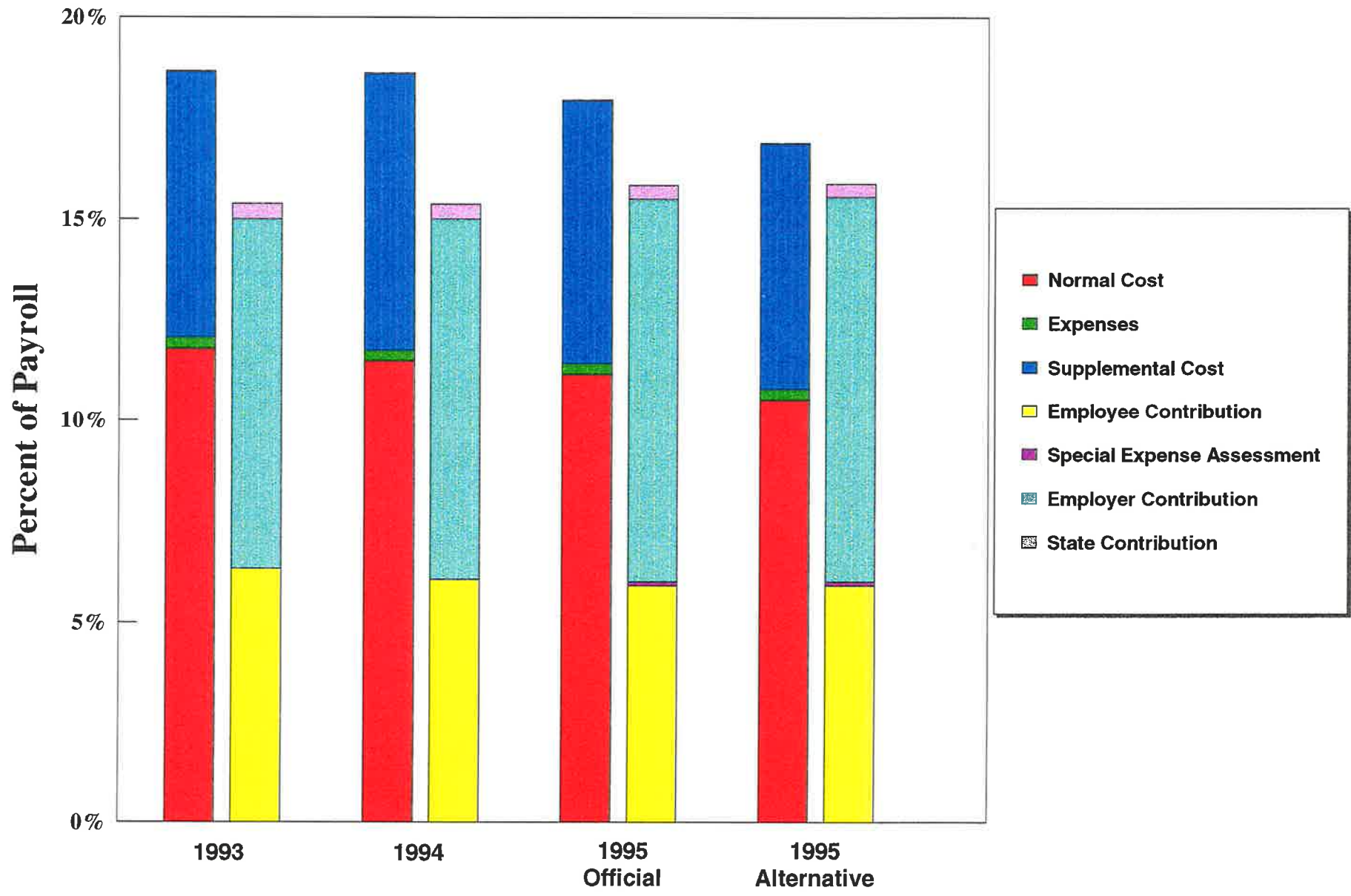
## History / Alternative Assumptions





# St. Paul Teacher's Retirement Fund

## History / Alternative Assumptions



# Minneapolis Teacher's Retirement Fund

## History / Alternative Assumptions

