

**SUMMARY OF 1988 ACTUARIAL VALUATIONS
FOR THE LEGISLATIVE COMMISSION
ON PENSIONS AND RETIREMENT**

February 20, 1989

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INTRODUCTION

This report summarizes the results of the July 1, 1988 actuarial valuations performed by the Commission Actuary, The Wyatt Company.

All calculations were performed in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, last amended by the Legislative Commission on Pensions and Retirement on August 22, 1988.

The purpose of this report is to provide the members of the Legislature a summary of the actuarial valuations of 13 public pension plans, including the three major State plans, by comparing information on:

- | | |
|-----------------|-------------------------|
| . Membership | . Funding Ratios |
| . Assets | . Actuarial Liabilities |
| . Contributions | . Projected Cash Flows |

The Appendix contains additional information on each of the thirteen public pension plans that were evaluated. That information is in the form of the highlights page from each of the individual reports. More detailed information is provided in each plan's actuarial valuation report. These individual reports have been filed with the Reference Library and with the staff of the Legislative Commission on Pensions and Retirement and would be available from either source.

The actuarial valuation of the Relief Association Consolidation Accounts, which was performed by the Commission Actuary, is not included in this summary because of its small size and unique character. There were two consolidated accounts on July 1, 1988, consisting of Buhl Police and Duluth Police.

This report does not include the 44 local Police and Fire Funds which are closed to new membership, the University of Minnesota Supplemental Retirement Plan (which is also closed to new membership) and numerous volunteer firefighter pension plans.

SECTION 1
STATUTORY REQUIREMENTS

The purpose of an actuarial valuation is to establish an appropriate rate of funding for benefits that may not be payable for many years in the future. This process requires determining the value of future benefits to be paid to current members. Such determinations require assumptions about future events.

Assumptions may be categorized as economic assumptions or demographic assumptions. The primary economic assumptions, which are shown in the table below, are established by Minnesota Statutes and have a very significant effect on the calculation of actuarial liabilities.

<u>Administrator</u>	<u>Plan</u>	<u>Salary Increases</u>	<u>Interest Rate</u>	
			<u>Pre- Retirement</u>	<u>Post- Retirement</u>
MSRS	State Employees Retirement Fund	6.5%	8%	5%
MSRS	Correctional Employees	6.5%	8%	5%
MSRS	State Patrol	6.5%	8%	5%
MSRS	Judges	6.5%	8%	5%
MSRS	Legislators	6.5%	8%	5%
MSRS	Elective State Officers	6.5%	8%	5%
PERA	Public Employees	6.5%	8%	5%
PERA	Police & Fire	6.5%	8%	5%
TRA	Teachers Retirement Association	6.5%	8%	5%
MERF	Minneapolis Employees	3.5%	5%	5%
Minneapolis Teachers	Minneapolis Teachers	6.5%	8%	8%
St. Paul Teachers	St. Paul Teachers	6.5%	8%	8%
Duluth Teachers	Duluth Teachers	6.5%	8%	8%

The demographic assumptions, while also important, have a lesser effect on the calculation of actuarial liabilities and are concerned with such factors as when

members retire and how long they can be expected to live. These demographic assumptions vary by individual plan and are based on previous experience studies.

Once the value of future benefits to be paid to current members has been calculated, the next step is to determine the rate at which this value will be funded. The desired rate of funding dictates the selection of the actuarial cost method. Minnesota Statutes require the use of the Entry Age Normal Actuarial Cost Method.

The Entry Age Method funds benefits for each individual member by contributions that are a level percentage of the member's salary from entry into the plan until retirement. Each year a contribution is determined by applying this percentage to the member's salary and the resulting amount is referred to as the "normal cost" for that year.

Since the cost method defines the rate of funding during the member's active years, it follows that the amount of funding required by the valuation date is the amount of "actuarial accrued liability". If the normal cost is contributed each year beginning from entry into the plan and if all assumptions come true, then the assets in the fund will equal the actuarial accrued liability. When assets and liabilities are equal, the plan is fully funded. If the assets are insufficient, then there is an "unfunded actuarial accrued liability".

The Statutes define the method for determining assets for purposes of calculating this unfunded actuarial accrued liability. The required value of assets is based on the cost value of the assets plus 1/3 of the amount of unrealized gains and losses. This amount is referred to as the "current assets". For those plans that transfer funds upon retirement to a post retirement fund, the current asset value is the value of the liability based on the current benefit level and a 5% interest rate.

Minnesota Statutes also establish a date for amortizing the amount of unfunded. For most of the funds, the required date is the year 2009 or 2010 and the rate for funding this unfunded amount is expressed as a level percentage of payroll. Thus, as payroll increases so will the dollar amount of contribution to amortize the unfunded.

An exception to this amortization rule is the funding required for MERF (Minneapolis Employees Retirement Fund). In the case of MERF, the unfunded is required to be amortized by the year 2017. Furthermore, the rate of funding is expressed as a level dollar amount each year rather than a level percentage of payroll.

SECTION 2

CHARACTERISTICS OF THE PLANS

For purposes of this report, the 13 plans have been grouped as follows:

- . The three largest statewide plans.
- . The six plans covering specialty, non-teaching professions.
- . The four plans related to employees of First Class Cities.

These plans do not represent homogeneous groups. For example, one plan, MERF, is not open to new members and is referred to as a "closed plan". Another example is that six of the plans provide two levels of benefit - a basic benefit to cover those members who are not contributing to Social Security and a much smaller coordinated benefit for those members who are contributing to Social Security.

Another important distinction between the plans is that eight of the plans transfer required reserves upon retirement from the active account to the Minnesota Post Retirement Investment Fund (MPRIF). Transfers are made assuming that the fund will earn 5% in the future. If earnings are in excess of 5%, then higher benefits will be provided to retired members. In the case of the Elective State Officers Plan and for certain categories of annuitants in other State plans, the monies are not transferred to MPRIF, but payments are adjusted by the same percentage as though the retired member or survivor had been drawing payments from MPRIF.

MERF does not participate in MPRIF, but does have a corresponding post retirement adjustment mechanism called the Retirement Benefit Fund that provides for escalating payments when investment yield exceeds 5%. The three First Class City Teachers' Plans have different methods for sharing investment gains with retirees and they do not maintain a separate post retirement fund.

Another distinction is the Statutory requirement for employer contributions. All but three of the plans require that the employer concurrently contribute a certain percentage based on the member's rate of pay to help prefund the pension obligation. The Statutes do not require the employer to prefund benefits during the active

member's working lifetime for Judges, Legislators and Elective State Officers. For the Judges and Legislators Plans, the employer contributes the additional money that is needed to fund the annuity paid from MPRIF when the plan member retires. Or, for the Elective State Officers if the annuity is not paid from MPRIF, the employer makes contributions as necessary to meet the monthly payments.

The following table summarizes the distinctions described above:

<u>Plan</u>	<u>New Members</u>	<u>Basic/ Coordinated</u>	<u>Post Retirement</u>	<u>Statutory Employer Contributions</u>
Public Employees State Employees Retirement Fund	Yes	Yes	MPRIF*	Yes
Teachers Retirement Association	Yes	No	MPRIF	Yes
Correctional Employees State Patrol	Yes	Yes	MPRIF	Yes
PERA Police & Fire	Yes	No	MPRIF	Yes
Judges	Yes	No	MPRIF	No
Legislators	Yes	Yes	MPRIF	No
Elective State Officers	Yes	No	NA	No
Minneapolis Employees	No	No	RBF**	Yes
Minneapolis Teachers	Yes	Yes	NA	Yes
St. Paul Teachers	Yes	Yes	NA	Yes
Duluth Teachers	Yes	Yes	NA	Yes

* Minnesota Post Retirement Investment Fund

** Retirement Benefit Fund

SECTION 3

MEMBERSHIP SUMMARY

Table 1 on the following page summarizes the number of members in these three primary classifications:

- . Active members who are continuing to accrue benefits under the plan.
- . Terminated members who have a vested right to receive benefits in the future.
- . Annuitants who are presently receiving benefits as retired members, disabled members or survivors of members.

Most funds also have a small actuarial accrued liability which represents the employee contributions to be refunded to those members who have terminated without any vested rights, and some funds have liabilities for those members who are currently on a leave of absence but can be anticipated to return to work.

Overall active membership increased 3% since last year. The only plans with a reduction in active membership were MERF, which is closed to new members, State Patrol and Duluth Teachers.

The number of annuitants increased by 4% over last year. The number of new annuitants decreased substantially from the rate during prior years with the expiration of the temporary Rule of 85 (i.e. benefits are not reduced if a member retires after age 55 as long as age plus years of service equal or exceed 85).

**TABLE 1
MEMBERSHIP SUMMARY
AS OF JUNE 30, 1988**

<u>PLAN</u>	<u>ACTIVE MEMBERS</u>	<u>TERMINATED MEMBERS WITH DEFERRED BENEFITS</u>	<u>ANNUITANTS</u>
Public Employees	95,224	2,094	26,700
State Employees Retirement Fund	47,040	1,162	12,877
Teachers Retirement Association	63,326	1,878	16,064
Correctional Employees	1,267	47	346
State Patrol	740	16	455
PERA Police and Fire	5,611	105	1,363
Judges	246	5	161
Legislators	201	97	169
Elective State Officers	6	5	8
Minneapolis Employees	3,084	95	4,891
Minneapolis Teachers	3,188	555	2,404
St. Paul Teachers	3,280	36	1,210
Duluth Teachers	1,578	51	665
Total	224,791	6,146	67,313
Prior Year Total	218,599	5,906	64,428
Change From Prior Year	6,192	240	2,885
% Change	3%	4%	4%

SECTION 4
FINANCIAL SUMMARY

Table 2 shows the contributions (employee and employer) and benefit payments reported by the fund during the twelve months ending June 30, 1988. Over the past two years contributions have increased 5% each year and benefit payments have risen 16% each year.

The table also shows the asset value used to determine the unfunded actuarial accrued liabilities (described in Section 1). This asset value is called the "current assets" and is based on cost value of the assets plus 1/3 of the amount of unrealized gains and losses.

The market values for each plan, with the exception of Judges, equal or exceed the value of current assets. However, the difference between market and current values is not recognized for actuarial purposes regardless of whether the difference is positive (as it is this year) or negative.

Benefit payments represent all payments whether periodic or a lump sum return of contributions. Also, amounts paid from the post retirement funds (MPRIF and RBF described in Section 2) are included.

**TABLE 2
FINANCIAL SUMMARY
AS OF JULY 1, 1988
(In Thousands of Dollars)**

<u>PLAN</u>	<u>PRIOR YEAR</u>		<u>CURRENT ASSETS</u>
	<u>CONTRIBUTIONS</u>	<u>BENEFIT PAYMENTS</u>	
Public Employees	\$149,596	\$162,762	\$2,657,038
State Employees Retirement Fund	84,583	71,189	1,644,145
Teachers Retirement Association	224,096	153,871	3,978,898 *
Correctional Employees	4,842	2,874	74,065
State Patrol	7,215	6,272	148,355
PERA Police and Fire	33,562	14,514	557,669
Judges	3,215	3,116	20,760
Legislators	1,321	1,168	11,857
Elective State Officers	166	98	281
Minneapolis Employees	25,493	50,258	716,780
Minneapolis Teachers	20,279	28,378	360,814
St. Paul Teachers	15,122	15,347	236,183
Duluth Teachers	3,784	4,645	76,279
Total	\$573,274	\$514,492	\$10,483,124
Prior Year Total	547,832	444,985	9,650,917
Change From Prior Year	25,442	69,507	832,207
% Change	5%	16%	9%

* Includes Variable Annuity Fund Assets

SECTION 5

1989 PENSION PLAN CONTRIBUTIONS: STATUTORY VS REQUIRED

The next three graphs present a comparison of the contributions presently required by Statute to the required contributions calculated by the Commission Actuary. The contributions are determined by the 1988 actuarial valuations and apply to the 1989 Fiscal Year.

The bottom half of each graph expresses the contributions as a percentage of payroll. The top half of the graph illustrates the difference between the statutory and required percentages. When the statutory rate is higher than the required rate, there is a sufficiency and when the statutory rate is lower, there is a deficiency.

Statutory contributions include both employee and employer contributions. However, in the Judges, Legislators and Elective State Officers plans only employee contributions are made on a regular recurring basis. The deficiency shown in the upper portion of the second graph reflects that there is no stated employer contribution each year in the case of these three plans. However, for these plans, the State will make the necessary payments to fund annuities payable from MPRIF and pay other benefits as they come due.

The required contribution consists of three parts:

- Normal cost - the cost attributable to the current year.
- Supplemental contribution - the amount required to amortize the unfunded actuarial accrued liability as a level percentage of payroll at a future date (usually July 1, 2009 or 2010).
- Expenses (shown in the graphs as part of the normal cost).

In order to make the graphs more readable, the contribution percentages have been rounded. The formal results may be found in the Appendix.

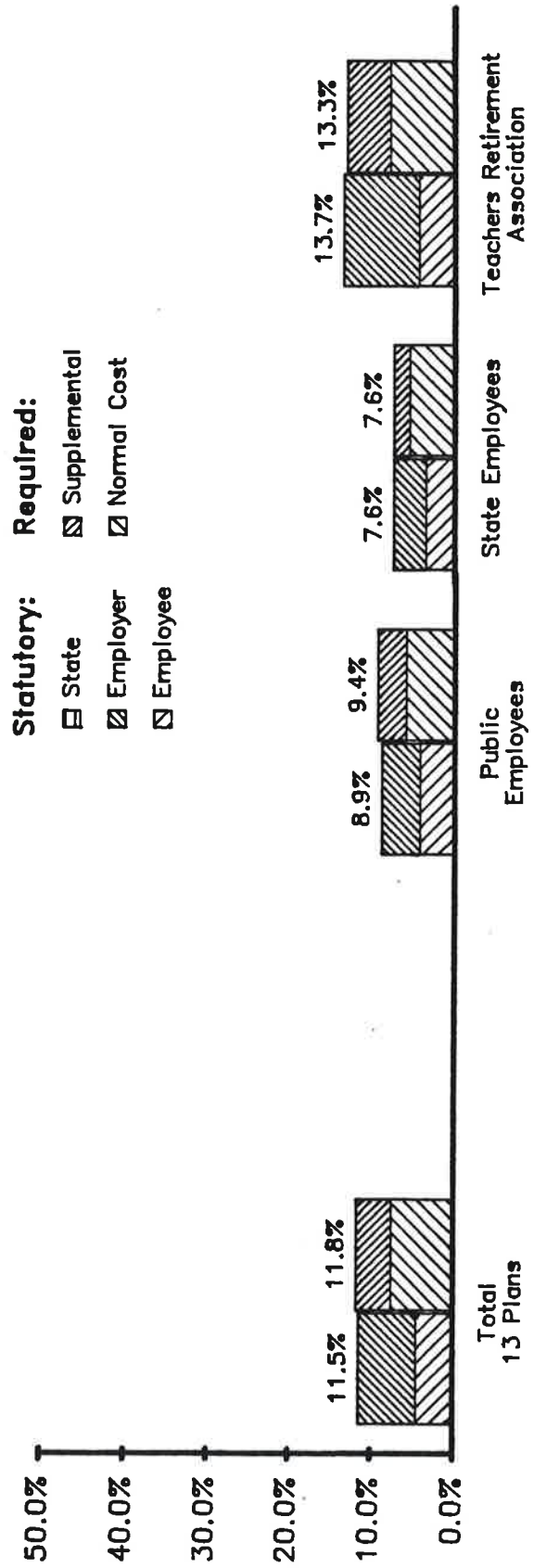
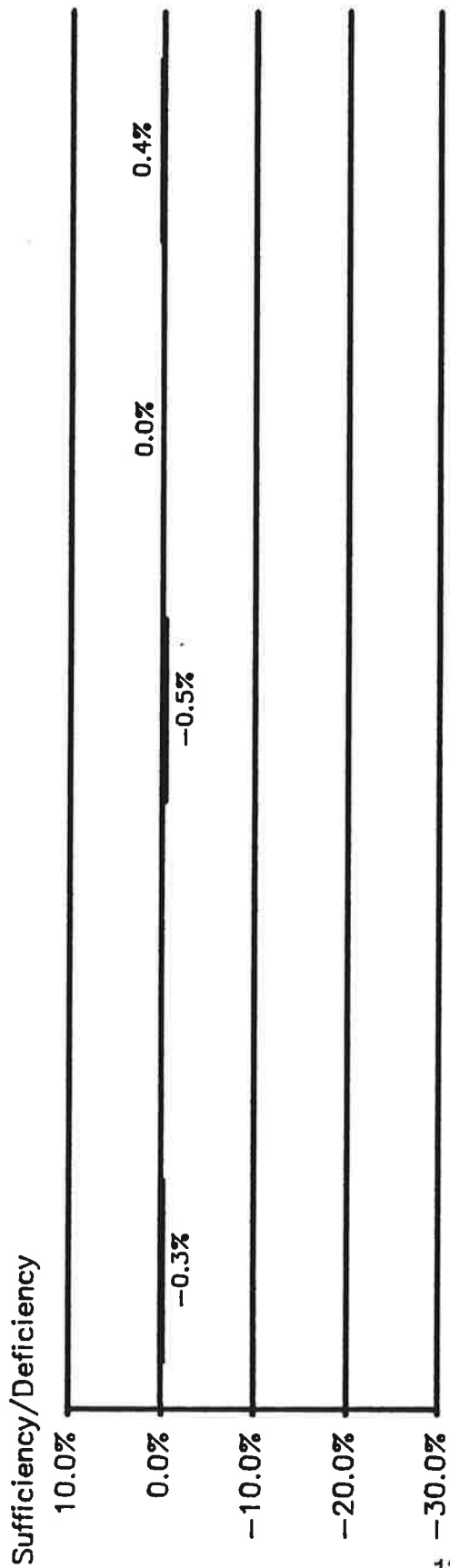
Overall, there is almost an equal balance between statutory contributions of 11.5% and the required contributions of 11.8%. However, there are some notable differences among the plans.

The largest deficiencies shown are for the Judges, Legislators, and Elective State Officers Plans. As described earlier, while these are true deficiencies at the present time, there is not a long term problem as long as the State makes the agreed upon contributions as they become due in future years.

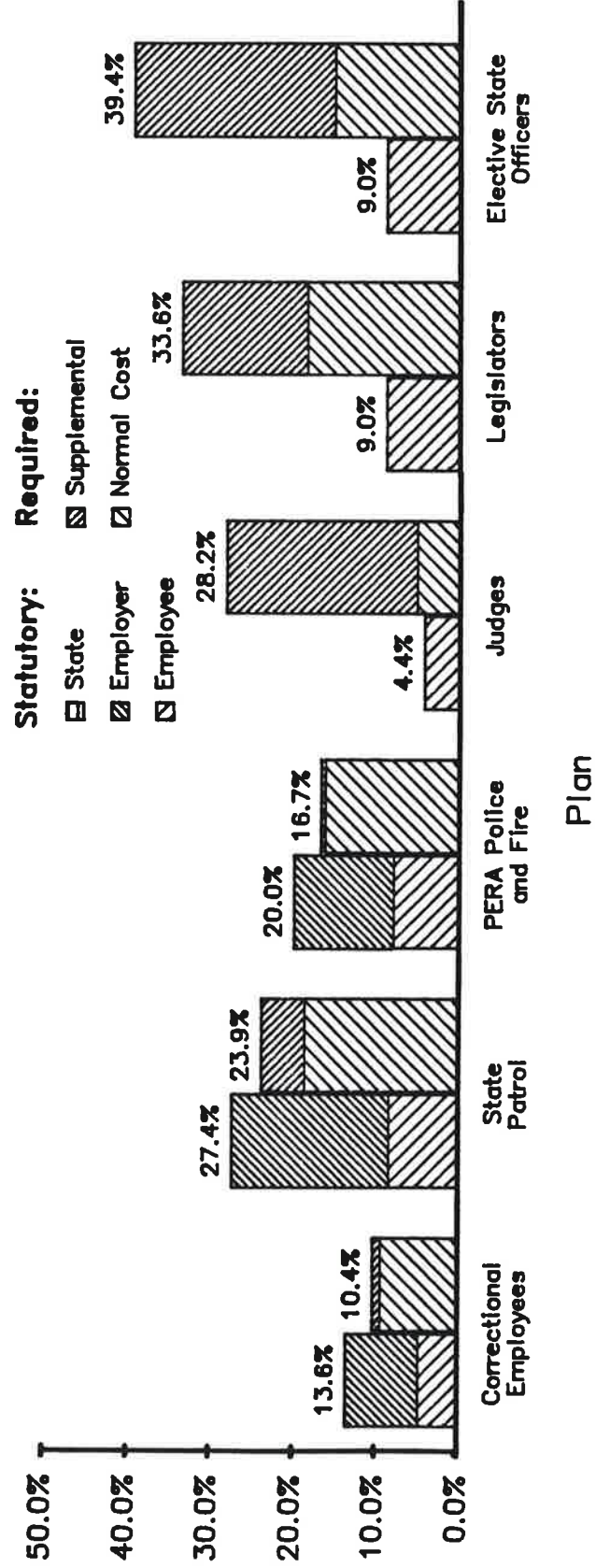
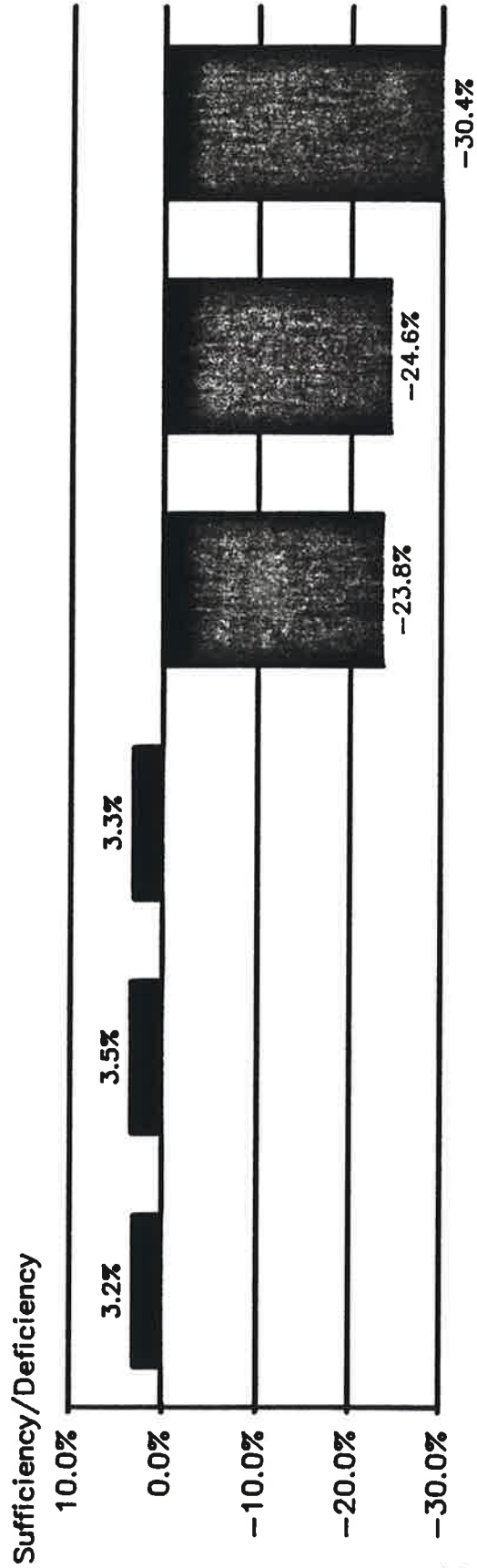
The remaining plans showing deficiencies, in order of magnitude, are:

<u>Fund</u>	<u>Deficiency</u>	
	<u>Last Year</u>	<u>This Year</u>
. Minneapolis Teachers	-10.4%	-11.4%
. St. Paul Teachers	- 3.7	- 4.5
. Duluth Teachers	- 0.1	- 0.9
. Public Employees	N/A	- 0.5

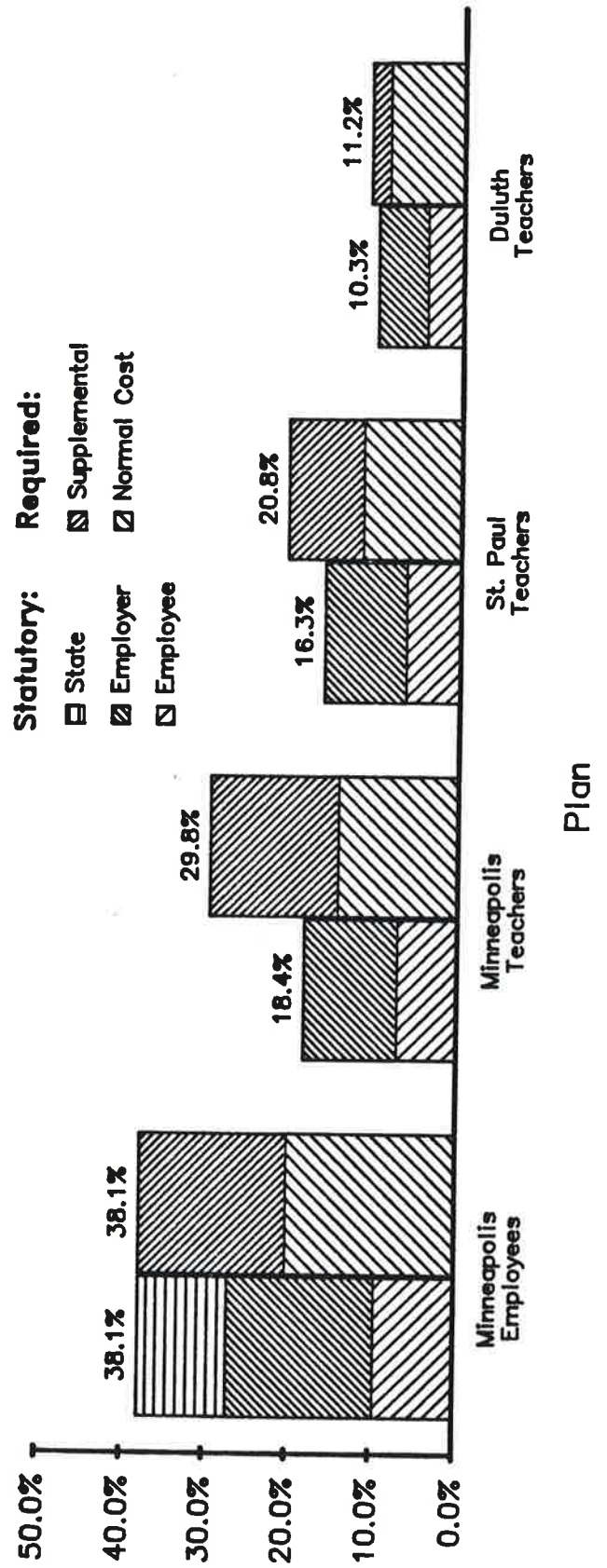
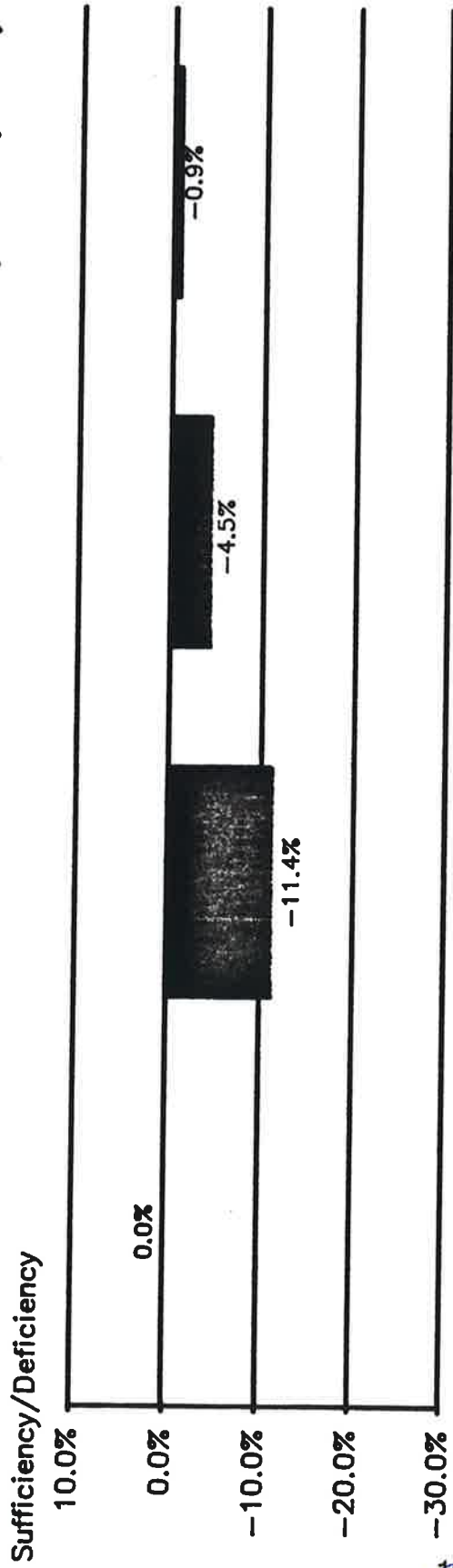
1989 Pension Plan Contributions: Statutory vs. Required



1989 Pension Plan Contributions: Statutory vs. Required(cont)



1989 Pension Plan Contributions: Statutory vs. Required (cont)



SECTION 6
CONTRIBUTIONS FOR 1989 FISCAL YEAR

Each plan's projected payroll for the 1989 Fiscal Year is used to produce the contributions in Table 3. This table is important because it illustrates the relative dollar size of the funds according to contribution level.

In aggregate, the statutory contributions are deficient by \$16.1 million which is 2.5% of the total required contributions of \$642 million.

However, focusing solely on the three First Class City Teachers' Plans and PERA, the shortfall is over \$26 million, or more than 4.0% of the total required contribution. The deficiency by fund is shown below:

<u>Fund</u>	<u>Deficiency</u>	
	<u>Last Year</u>	<u>This Year</u>
. Public Employees	\$ N/A	\$ 8,452,000
. Minneapolis Teachers	11,258,000	12,926,000
. St. Paul Teachers	3,298,000	4,284,000
. Duluth Teachers	<u>38,000</u>	<u>344,000</u>
Total	\$14,594,000	\$26,006,000

TABLE 3
CONTRIBUTIONS FOR 1989 FISCAL YEAR
(In Thousands of Dollars)

<u>PLAN</u>	<u>STATUTORY CONTRIBUTION</u>	<u>REQUIRED CONTRIBUTION</u>	<u>SUFFICIENCY (DEFICIENCY)</u>
Public Employees	\$158,063	\$166,515	(\$8,452)
State Employees Retirement Fund	100,462	100,262	200
Teachers Retirement Association	239,830	232,887	6,943
Correctional Employees	5,278	4,024	1,254
State Patrol	8,019	6,986	1,033
PERA Police and Fire	35,753	29,842	5,911
Judges	759	4,833	(4,074)
Legislators	442	1,657	(1,215)
Elective State Officers	35	153	(118)
Minneapolis Employees	36,476	36,476	0
Minneapolis Teachers	21,031	33,957	(12,926)
St. Paul Teachers	15,591	19,875	(4,284)
Duluth Teachers	3,987	4,331	(344)
Total	\$625,726	\$641,798	(\$16,072)
Prior Year Total	582,827	569,646	13,181
Change From Prior Year	42,899	72,152	(29,253)
% Change	7%	13%	NA

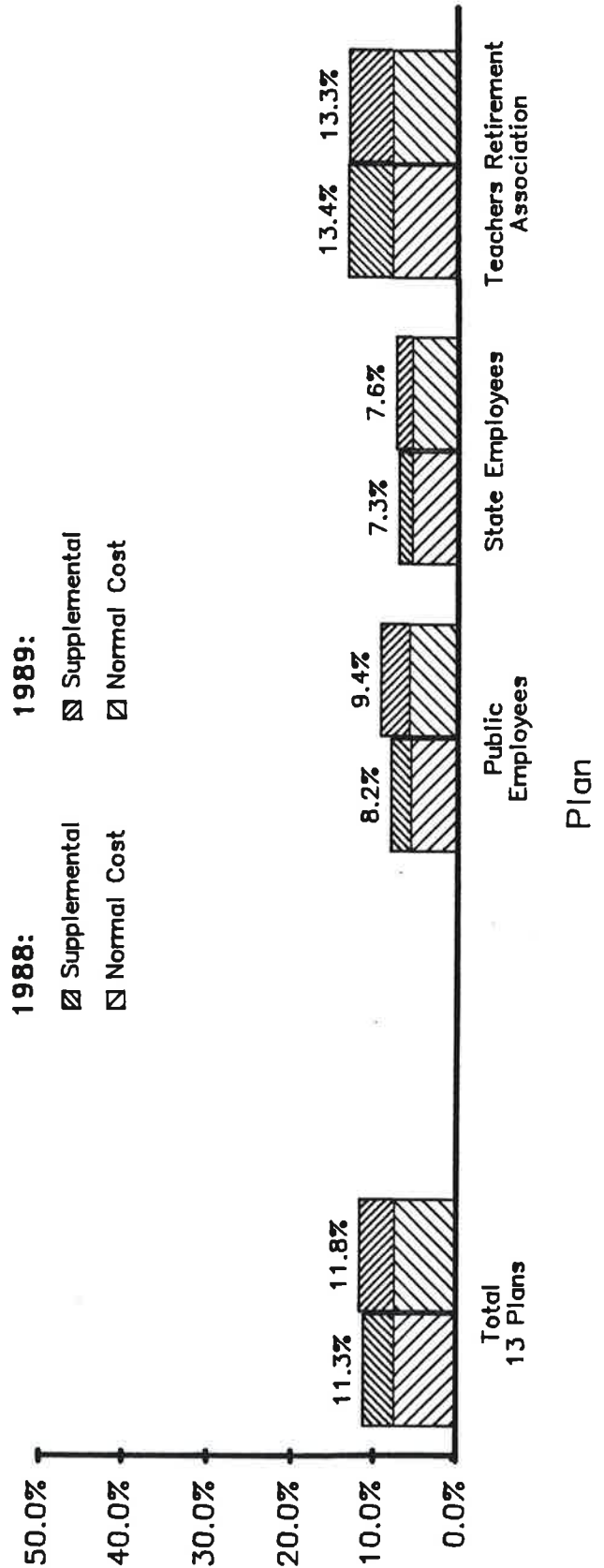
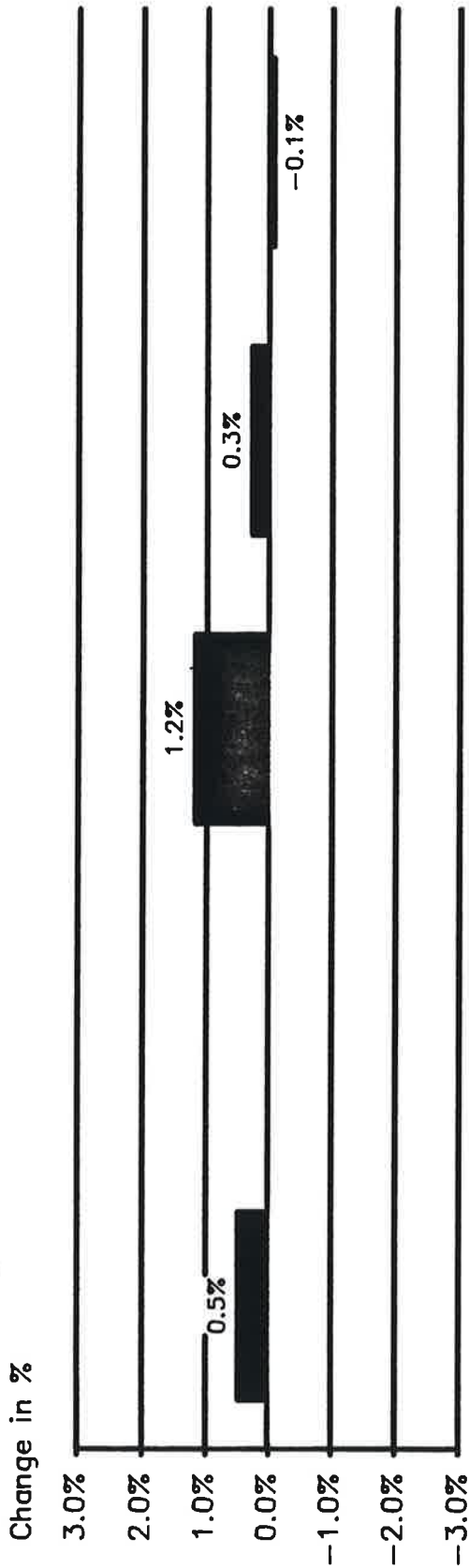
SECTION 7

REQUIRED PENSION PLAN CONTRIBUTIONS: 1988 VS 1989

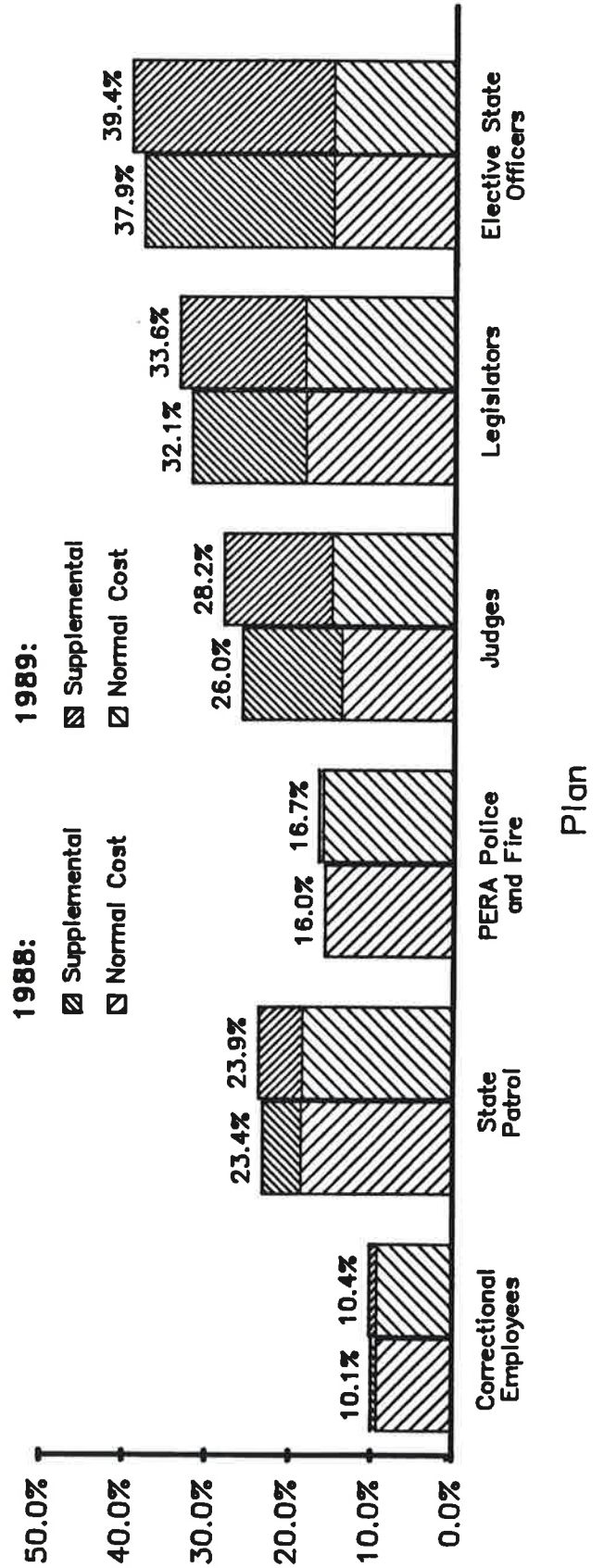
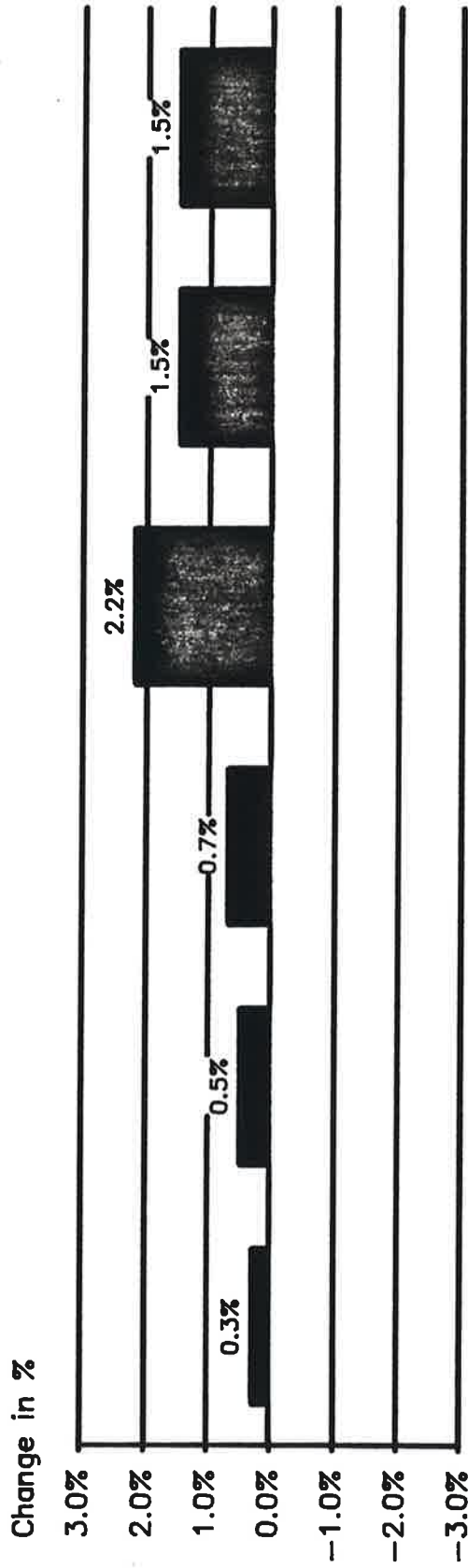
The following three graphs compare this year's required contributions to that calculated in the prior year. These contributions are expressed as a percentage of payroll.

In aggregate, the required contributions have increased from 11.3% of payroll to 11.8%. This increase is primarily attributable to unfavorable investment experience and, in the case of PERA, a new mortality table.

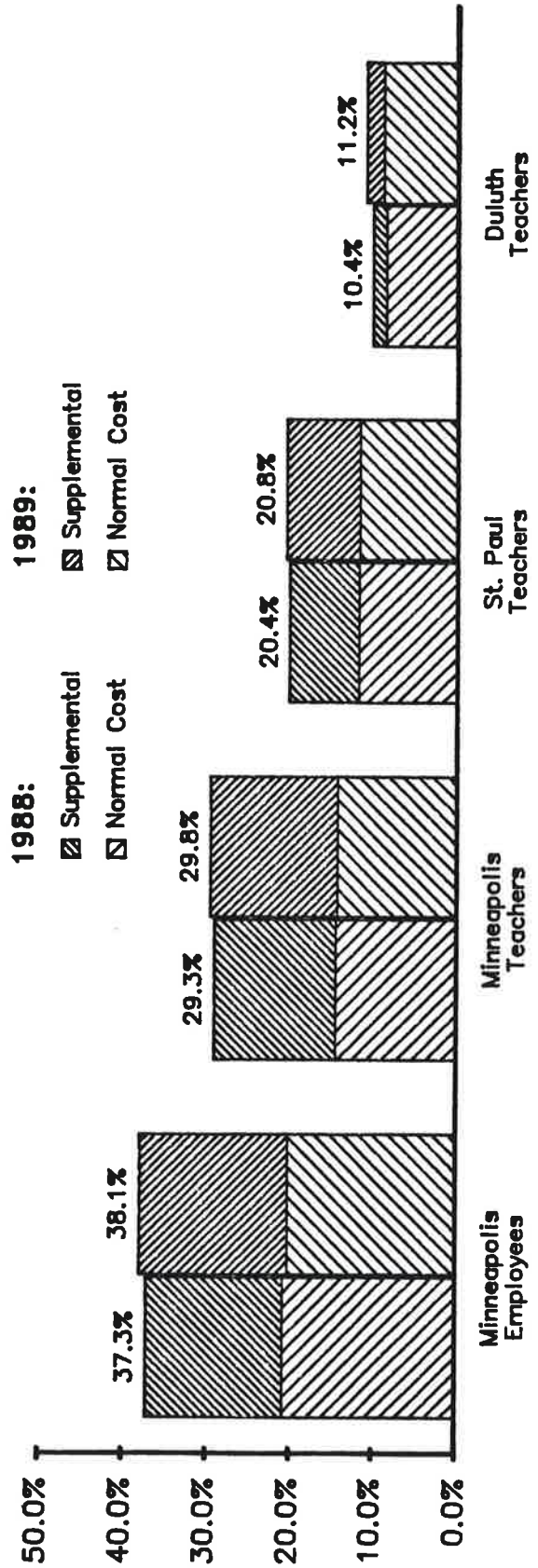
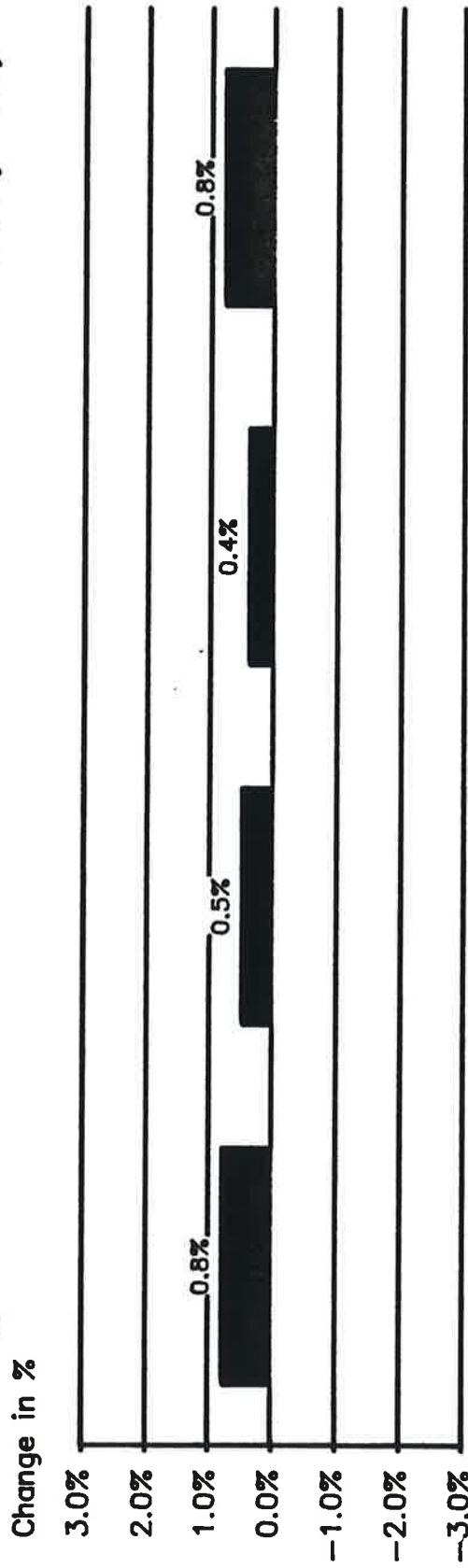
Required Pension Plan Contributions: 1988 vs. 1989



Required Pension Plan Contributions: 1988 vs. 1989(cont)



Required Pension Plan Contributions: 1988 vs. 1989(cont)



SECTION 8

ACCRUED LIABILITY FUNDING RATIOS: 1984 - 1988

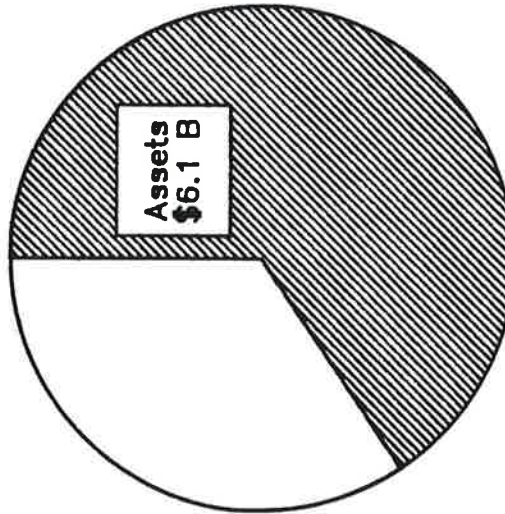
These funding ratios represent a relationship determined on the date of actuarial valuation. For 1985 through 1988, this date is July 1. For 1984 the date is June 30 in the case of most funds with the exception of Minneapolis Teachers and St. Paul Teachers where the date is December 31, 1984. The 1984 valuations were not performed for the Legislators or the Elective State Officers Plans.

The accrued liability funding ratio is the traditional measurement that has been used over the past several years. It is the ratio of assets (the current assets as defined by Statute and used in the actuarial valuations) to the actuarial accrued liability determined by the Entry Age Normal Actuarial Cost Method.

The total funding ratio for all 13 plans has increased for four consecutive years, but this year fell from 74% to 72%, principally as a result of unfavorable investment performance and the new mortality table adopted by PERA.

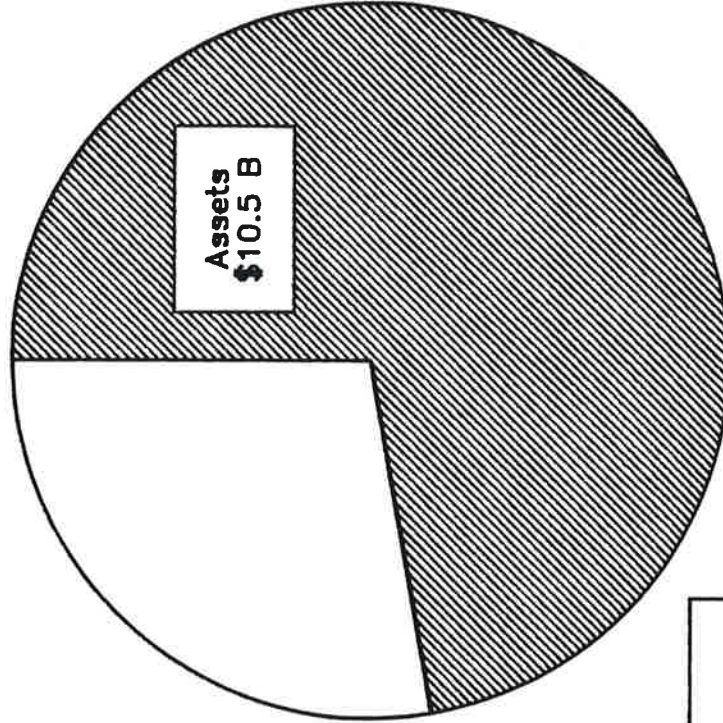
Total For All 13 Plans

Liabilities
\$9.3 B

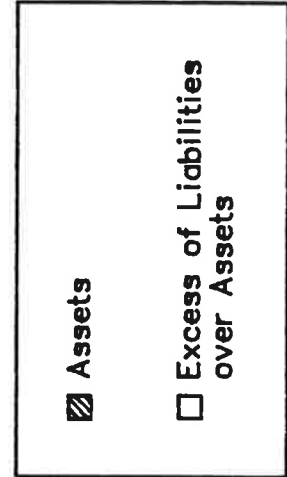


1984
Funding Ratio 65%

Liabilities
\$14.5 B

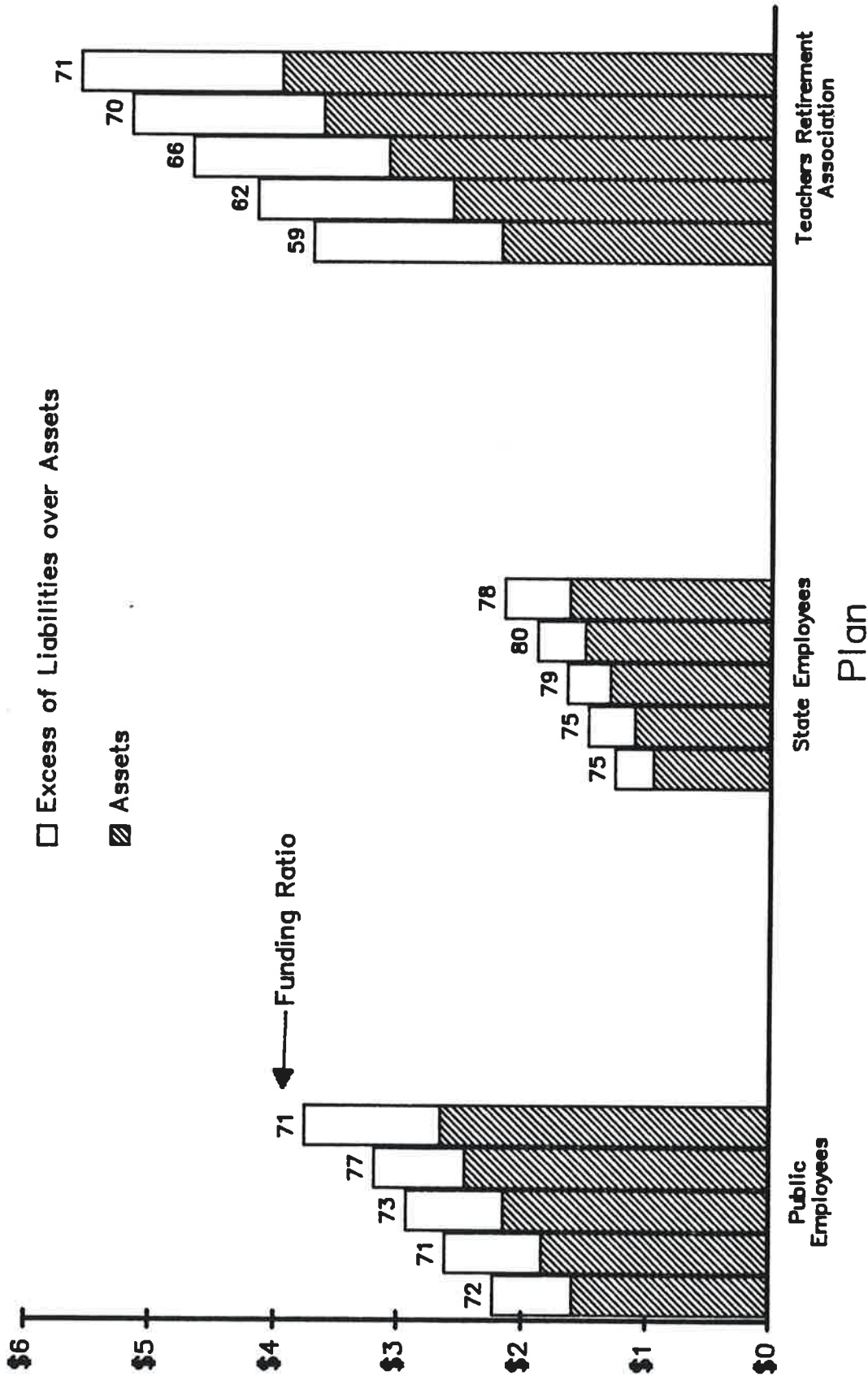


1988
Funding Ratio 72%



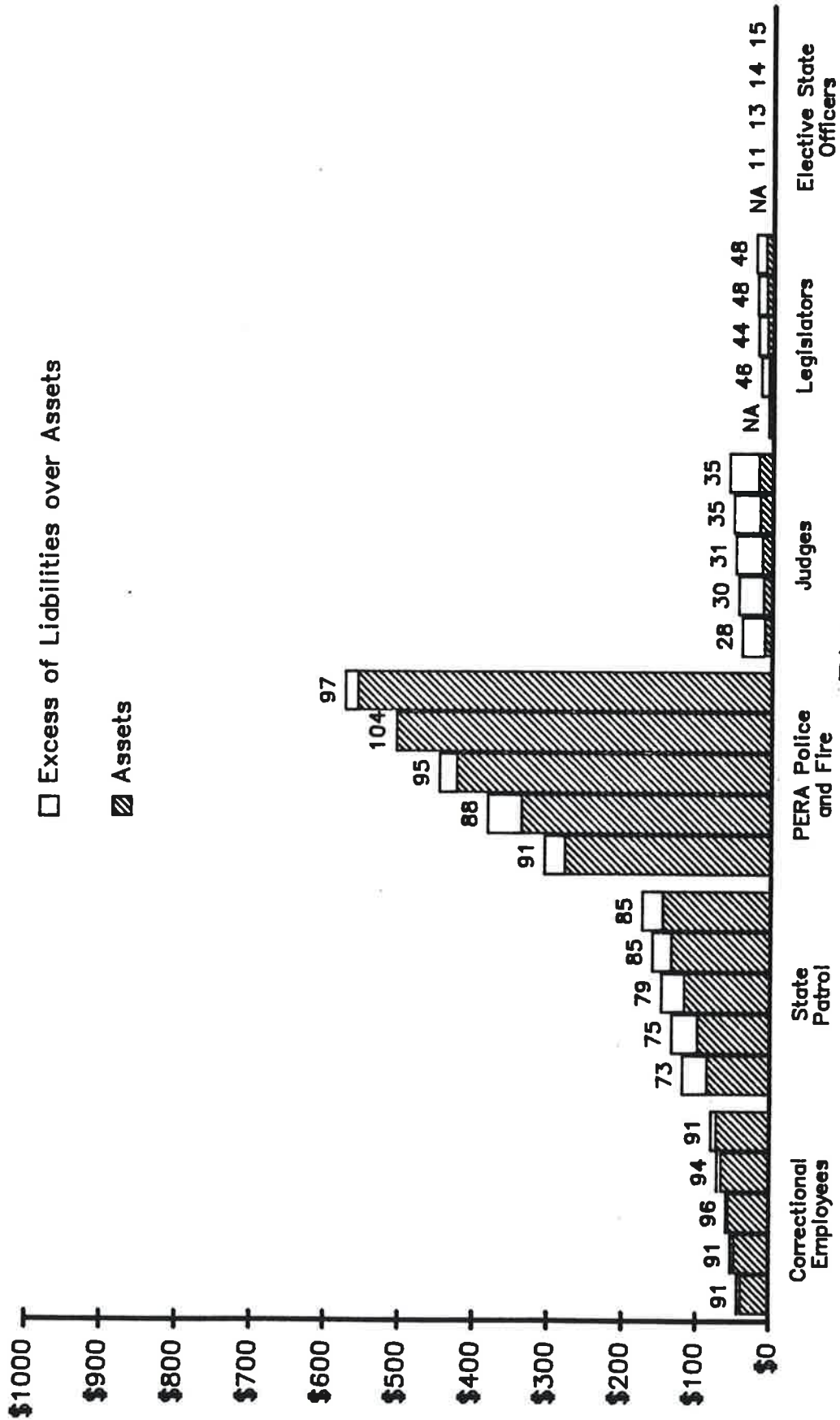
Accrued Liability Funding Ratios: 1984 - 1988

(Billions of Dollars)



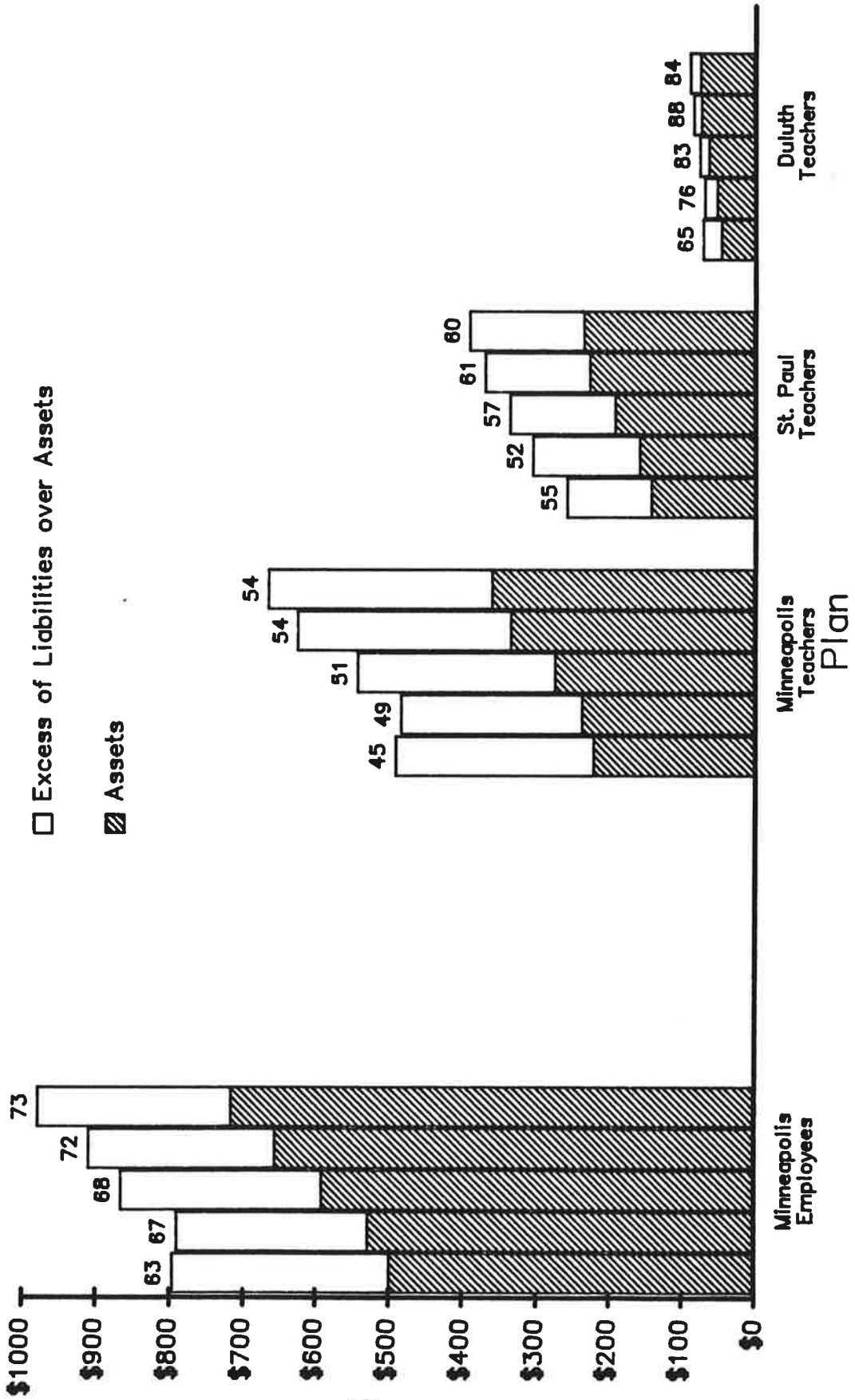
Accrued Liability Funding Ratios: 1984 - 1988 (cont)

(Millions of Dollars)



Accrued Liability Funding Ratios: 1984 - 1988(cont)

(Millions of Dollars)



SECTION 9
ACTUARIAL LIABILITY SUMMARY

Table 4 on the following page shows the calculation of the funding ratios in the previous graphs.

As a result of the unfavorable investment performance, the value of current assets has grown by only 9%, which is considerably slower than the 11% growth in actuarial accrued liability. As a result, the unfunded has increased by 18%, compared to a decrease of 3% the prior year.

**TABLE 4
ACTUARIAL LIABILITY SUMMARY
AS OF JULY 1, 1988
(In Thousands of Dollars)**

<u>PLAN</u>	<u>ACTUARIAL ACCRUED LIABILITY</u> (1)	<u>CURRENT ASSETS</u> (2)	<u>UNFUNDED</u> (3)=(1)-(2)	<u>FUNDING RATIO</u> (2)/(1)
Public Employees	\$3,755,608	\$2,657,038	\$1,098,570	70.75%
State Employees Retirement Fund	2,115,476	1,644,145	471,331	77.72%
Teachers Retirement Association	5,586,441	3,978,898 *	1,607,543	71.22%
Correctional Employees	81,454	74,065	7,389	90.93%
State Patrol	175,062	148,355	26,707	84.74%
PERA Police and Fire	574,133	557,669	16,464	97.13%
Judges	59,708	20,760	38,948	34.77%
Legislators	24,882	11,857	13,025	47.65%
Elective State Officers	1,929	281	1,648	14.57%
Minneapolis Employees	979,146	716,780	262,366	73.20%
Minneapolis Teachers	667,343	360,814	306,529	54.07%
St. Paul Teachers	392,351	236,183	156,168	60.20%
Duluth Teachers	90,759	76,279	14,480	84.05%
Total	\$14,504,292	\$10,483,124	\$4,021,168	72.28%
Prior Year Total	13,046,866	9,650,917	3,395,949	73.97%
Change From Prior Year	1,457,426	832,207	625,219	-1.69%
% Change	11%	9%	18%	NA

* Includes Variable Annuity Fund Assets

SECTION 10
CASH FLOW PROJECTION SUMMARY

The actuarial reports project statutory contributions, disbursements and the assumed investment return over the next 25 years.

Table 5 summarizes the results of that projection by showing assets at the beginning and at the end of the projection period.

Assets for purposes of this projection represent the current assets. However, for those plans that participate in a post retirement fund, the current assets are exclusive of assets that will be transferred to either MPRIF or MERF's Retirement Benefit Fund.

TABLE 5
CASH FLOW PROJECTION SUMMARY
(In Thousands of Dollars)

<u>PLAN</u>	<u>CURRENT ASSETS</u>	
	<u>1988</u>	<u>2013</u>
Public Employees	\$1,180,614 *	\$6,901,625 *
State Employees Retirement Fund	995,081 *	7,150,958 *
Teachers Retirement Association	2,160,528 **	15,068,530 **
Correctional Employees	48,630 *	574,130 *
State Patrol	75,616 *	203,851 *
PERA Police and Fire	412,482 *	3,932,733 *
Judges	2,948 *	(298,230)*
Legislators	3,361 *	(83,385)*
Elective State Officers	281	(6,152)
Minneapolis Employees	215,718 ***	142,323 ***
Minneapolis Teachers	360,814	78,146
St. Paul Teachers	236,183	594,260
Duluth Teachers	76,279	374,139
TOTAL	\$5,768,535	\$34,632,928

* Excluding Minnesota Post Retirement Investment Fund Assets

** Excluding Minnesota Post Retirement Investment Fund Assets and Variable Annuity Fund Assets

*** Excluding Retirement Benefit Fund Assets

APPENDIX - HIGHLIGHTS

PUBLIC EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	9.05%	8.94%
2. Required Contributions - Chapter 356 % of Payroll	8.21%	9.42%
3. Sufficiency (Deficiency) (A1-A2)	0.84%	-0.48%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$2,457,899	\$2,657,038
b. Current Benefit Obligations (Table 8)	\$2,839,048	\$3,334,423
c. Funding Ratio (a/b)	86.57%	79.69%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$2,457,899	\$2,657,038
b. Actuarial Accrued Liability (Table 9)	\$3,188,962	\$3,755,608
c. Funding Ratio (a/b)	77.08%	70.75%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$4,090,664	\$4,363,206
b. Current and Expected Future Benefit Obligations	\$3,837,047	\$4,517,759
c. Funding Ratio (a/b)	106.61%	96.58%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	92,497	95,224
b. Projected Annual Earnings	\$1,645,876	\$1,767,041
c. Average Annual Earnings (Actual \$)	\$17,794	\$18,557
d. Average Age	42.2	42.3
e. Average Service	8.0	8.1
2. Others		
a. Service Retirements (Table 4)	20,341	21,882
b. Disability Retirements (Table 5)	645	650
c. Survivors (Table 6)	4,029	4,168
d. Deferred Retirements (Table 7)	2,152	2,094
e. Terminated Other Non-vested (Table 7)	40,185	6,621
f. Total	67,352	35,415

STATE EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87 VALUATION</u>	<u>07/01/88 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 352 % of Payroll	7.63%	7.63%
2. Required Contributions - Chapter 356 % of Payroll	7.30%	7.61%
3. Sufficiency (Deficiency) (A1-A2)	0.33%	0.02%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 2)	\$1,518,483	\$1,644,145
b. Current Benefit Obligations (Table 8)	\$1,589,505	\$1,775,445
c. Funding Ratio (a/b)	95.53%	92.60%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 2)	\$1,518,483	\$1,644,145
b. Actuarial Accrued Liability (Table 9)	\$1,894,142	\$2,115,476
c. Funding Ratio (a/b)	80.17%	77.72%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$2,610,849	\$2,824,501
b. Current and Expected Future Benefit Obligations	\$2,532,039	\$2,820,611
c. Funding Ratio (a/b)	103.11%	100.14%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	45,707	47,040
b. Projected Annual Earnings	\$1,208,043	\$1,316,671
c. Average Annual Earnings (Actual \$)	\$26,430	\$27,990
d. Average Age	40.1	40.2
e. Average Service	9.3	9.3
2. Others		
a. Service Retirements (Table 4)	10,994	11,455
b. Disability Retirements (Table 5)	676	669
c. Survivors (Table 6)	671	753
d. Deferred Retirements (Table 7)	1,014	1,162
e. Terminated Other Non-vested (Table 7)	4,496	4,084
f. Total	17,851	18,123

TEACHERS RETIREMENT ASSOCIATION FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354 % of Payroll	13.71%	13.69%
2. Required Contributions - Chapter 356 % of Payroll	13.36%	13.29%
3. Sufficiency (Deficiency) (A1-A2)	0.35%	0.40%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$3,638,835 *	\$3,978,898 *
b. Current Benefit Obligations (Table 8)	\$4,464,496 *	\$4,849,460 *
c. Funding Ratio (a/b)	81.51%	82.05%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$3,638,835 *	\$3,978,898 *
b. Actuarial Accrued Liability (Table 9)	\$5,172,415 *	\$5,586,441 *
c. Funding Ratio (a/b)	70.35%	71.22%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$6,637,583 *	\$7,205,992 *
b. Current and Expected Future Benefit Obligations	\$6,535,871 *	\$7,082,622 *
c. Funding Ratio (a/b)	101.56%	101.74%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	61,283	63,326
b. Projected Annual Earnings	\$1,601,809	\$1,752,322
c. Average Annual Earnings (Actual \$)	\$26,138	\$27,671
d. Average Age	41.9	42.1
e. Average Service	11.5	11.6
2. Others		
a. Service Retirements (Table 4)	14,582	14,974
b. Disability Retirements (Table 5)	217	221
c. Survivors (Table 6)	830	869
d. Deferred Retirements (Table 7)	1,926	1,878
e. Terminated Other Non-vested (Table 7)	13,106	13,310
f. Total	30,661	31,252

* Includes Variable Annuity Fund of \$171,630 in 1987 and \$172,659 in 1988.

CORRECTIONAL EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 352 % of Payroll	13.60%	13.60%
2. Required Contributions - Chapter 356 % of Payroll	10.08%	10.37%
3. Sufficiency (Deficiency) (A1-A2)	3.52%	3.23%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 2)	\$67,488	\$74,065
b. Current Benefit Obligations (Table 8)	\$61,488	\$69,142
c. Funding Ratio (a/b)	109.76%	107.12%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 2)	\$67,488	\$74,065
b. Actuarial Accrued Liability (Table 9)	\$72,081	\$81,454
c. Funding Ratio (a/b)	93.63%	90.93%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$131,111	\$143,306
b. Current and Expected Future Benefit Obligations	\$101,839	\$114,417
c. Funding Ratio (a/b)	128.74%	125.25%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,232	1,267
b. Projected Annual Earnings	\$35,155	\$38,807
c. Average Annual Earnings (Actual \$)	\$28,535	\$30,629
d. Average Age	37.1	37.4
e. Average Service	7.8	8.0
2. Others		
a. Service Retirements (Table 4)	313	328
b. Disability Retirements (Table 5)	11	6
c. Survivors (Table 6)	9	12
d. Deferred Retirements (Table 7)	43	47
e. Terminated Other Non-vested (Table 7)	84	80
f. Total	460	473

STATE PATROL RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 352B % of Payroll	27.40%	27.40%
2. Required Contributions - Chapter 356 % of Payroll	23.39%	23.87%
3. Sufficiency (Deficiency) (A1-A2)	4.01%	3.53%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$136,397	\$148,355
b. Current Benefit Obligations (Table 8)	\$153,107	\$167,349
c. Funding Ratio (a/b)	89.09%	88.65%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$136,397	\$148,355
b. Actuarial Accrued Liability (Table 9)	\$160,628	\$175,062
c. Funding Ratio (a/b)	84.91%	84.74%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$246,237	\$259,582
b. Current and Expected Future Benefit Obligations	\$225,285	\$241,433
c. Funding Ratio (a/b)	109.30%	107.52%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	771	740
b. Projected Annual Earnings	\$28,583	\$29,267
c. Average Annual Earnings (Actual \$)	\$37,072	\$39,550
d. Average Age	40.4	40.6
e. Average Service	13.8	14.0
2. Others		
a. Service Retirements (Table 4)	318	339
b. Disability Retirements (Table 5)	13	13
c. Survivors (Table 6)	99	103
d. Deferred Retirements (Table 7)	16	16
e. Terminated Other Non-vested (Table 7)	8	8
f. Total	454	479

PUBLIC EMPLOYEES POLICE AND FIRE FUND

REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	20.00%	20.00%
2. Required Contributions - Chapter 356 % of Payroll	15.97%	16.69%
3. Sufficiency (Deficiency) (A1-A2)	4.03%	3.31%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$506,153	\$557,669
b. Current Benefit Obligations (Table 8)	\$437,229	\$512,921
c. Funding Ratio (a/b)	115.76%	108.72%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$506,153	\$557,669
b. Actuarial Accrued Liability (Table 9)	\$486,674	\$574,133
c. Funding Ratio (a/b)	104.00%	97.13%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$946,283	\$1,077,023
b. Current and Expected Future Benefit Obligations	\$805,164	\$936,934
c. Funding Ratio (a/b)	117.53%	114.95%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	5,385	5,611
b. Projected Annual Earnings	\$164,975	\$178,768
c. Average Annual Earnings (Actual \$)	\$30,636	\$31,860
d. Average Age	37.2	37.3
e. Average Service	9.6	9.8
2. Others		
a. Service Retirements (Table 4)	895	965
b. Disability Retirements (Table 5)	66	73
c. Survivors (Table 6)	310	325
d. Deferred Retirements (Table 7)	97	105
e. Terminated Other Non-vested (Table 7)	462	107
f. Total	1,830	1,575

JUDGES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 490 % of Payroll	3.76%	4.44%
2. Required Contributions - Chapter 356 % of Payroll	25.96%	28.24%
3. Sufficiency (Deficiency) (A1-A2)	-22.20%	-23.80%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$18,781	\$20,760
b. Current Benefit Obligations (Table 8)	\$53,677	\$59,389
c. Funding Ratio (a/b)	34.99%	34.96%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$18,781	\$20,760
b. Actuarial Accrued Liability (Table 9)	\$54,034	\$59,708
c. Funding Ratio (a/b)	34.76%	34.77%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$25,135	\$29,089
b. Current and Expected Future Benefit Obligations	\$78,446	\$88,854
c. Funding Ratio (a/b)	32.04%	32.74%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	238	246
b. Projected Annual Earnings	\$15,999	\$17,109
c. Average Annual Earnings (Actual \$)	\$67,221	\$69,548
d. Average Age	53.5	53.2
e. Average Service	11.5	11.2
2. Others		
a. Service Retirements (Table 4)	87	93
b. Disability Retirements (Table 5)	5	5
c. Survivors (Table 6)	60	63
d. Deferred Retirements (Table 7)	7	5
e. Terminated Other Non-vested (Table 7)	1	0
f. Total	160	166

LEGISLATORS RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 3A % of Payroll	9.00%	8.96%
2. Required Contributions - Chapter 356 % of Payroll	32.14%	33.58%
3. Sufficiency (Deficiency) (A1-A2)	-23.14%	-24.62%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$11,158	\$11,857
b. Current Benefit Obligations (Table 8)	\$21,950	\$23,758
c. Funding Ratio (a/b)	50.83%	49.91%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$11,158	\$11,857
b. Actuarial Accrued Liability (Table 9)	\$23,083	\$24,882
c. Funding Ratio (a/b)	48.34%	47.65%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$15,526	\$16,078
b. Current and Expected Future Benefit Obligations	\$31,570	\$33,120
c. Funding Ratio (a/b)	49.18%	48.54%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	201	201
b. Projected Annual Earnings	\$4,765	\$4,932
c. Average Annual Earnings (Actual \$)	\$23,709	\$24,540
d. Average Age	46.9	47.8
e. Average Service	6.6	7.3
2. Others		
a. Service Retirements (Table 4)	124	125
b. Disability Retirements (Table 5)	NA	NA
c. Survivors (Table 6)	42	44
d. Deferred Retirements (Table 7)	100	97
e. Terminated Other Non-vested (Table 7)	17	17
f. Total	283	283

ELECTIVE STATE OFFICERS RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 352C % of Payroll	9.00%	9.00%
2. Required Contributions - Chapter 356 % of Payroll	37.93%	39.43%
3. Sufficiency (Deficiency) (A1-A2)	-28.93%	-30.43%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$246	\$281
b. Current Benefit Obligations (Table 8)	\$1,619	\$1,757
c. Funding Ratio (a/b)	15.19%	15.99%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$246	\$281
b. Actuarial Accrued Liability (Table 9)	\$1,800	\$1,929
c. Funding Ratio (a/b)	13.67%	14.57%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$482	\$499
b. Current and Expected Future Benefit Obligations	\$2,210	\$2,311
c. Funding Ratio (a/b)	21.81%	21.59%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	6	6
b. Projected Annual Earnings	\$373	\$386
c. Average Annual Earnings (Actual \$)	\$62,219	\$64,399
d. Average Age	49.1	50.1
e. Average Service	7.2	8.2
2. Others		
a. Service Retirements (Table 4)	3	3
b. Disability Retirements (Table 5)	NA	NA
c. Survivors (Table 6)	5	5
d. Deferred Retirements (Table 7)	5	5
e. Terminated Other Non-vested (Table 7)	1	1
f. Total	14	14

MINNEAPOLIS EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 422A % of Payroll	37.34%	38.14%
2. Required Contributions - Chapter 356 % of Payroll	37.32%	38.14%
3. Sufficiency (Deficiency) (A1-A2)	0.02%	0.00%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$656,719	\$716,780
b. Current Benefit Obligations (Table 8)	\$877,156	\$944,313
c. Funding Ratio (a/b)	74.87%	75.90%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$656,719	\$716,780
b. Actuarial Accrued Liability (Table 9)	\$910,196	\$979,146
c. Funding Ratio (a/b)	72.15%	73.20%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$1,100,244	\$1,164,886
b. Current and Expected Future Benefit Obligations	\$1,100,244	\$1,164,886
c. Funding Ratio (a/b)	100.00%	100.00%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,293	3,084
b. Projected Annual Earnings	\$96,046	\$95,637
c. Average Annual Earnings (Actual \$)	\$29,167	\$31,011
d. Average Age	47.7	48.0
e. Average Service	16.5	17.2
2. Others		
a. Service Retirements (Table 4)	3,615	3,676
b. Disability Retirements (Table 5)	274	267
c. Survivors (Table 6)	941	948
d. Deferred Retirements (Table 7)	95	95
e. Terminated Other Non-vested (Table 7)	197	196
f. Total	5,122	5,182

MINNEAPOLIS TEACHERS' RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	18.96%	18.43%
2. Required Contributions - Chapter 356 % of Payroll	29.34%	29.76%
3. Sufficiency (Deficiency) (A1-A2)	-10.38%	-11.33%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$336,065	\$360,814
b. Current Benefit Obligations (Table 8)	\$586,466	\$628,003
c. Funding Ratio (a/b)	57.30%	57.45%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$336,065	\$360,814
b. Actuarial Accrued Liability (Table 9)	\$626,069	\$667,343
c. Funding Ratio (a/b)	53.68%	54.07%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$569,247	\$586,116
b. Current and Expected Future Benefit Obligations	\$775,162	\$813,417
c. Funding Ratio (a/b)	73.44%	72.06%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,117	3,188
b. Projected Annual Earnings	\$108,398	\$114,118
c. Average Annual Earnings (Actual \$)	\$34,776	\$35,796
d. Average Age	44.5	44.6
e. Average Service	14.0	14.0
f. Additional Members on Leave	152	220
2. Others		
a. Service Retirements (Table 4)	2,153	2,153
b. Disability Retirements (Table 5)	43	40
c. Survivors (Table 6)	201	211
d. Deferred Retirements (Table 7)	352	555
e. Terminated Other Non-vested (Table 7)	358	132
f. Total	3,107	3,091

ST. PAUL TEACHERS' RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	16.74%	16.34%
2. Required Contributions - Chapter 356 % of Payroll	20.39%	20.84%
3. Sufficiency (Deficiency) (A1-A2)	-3.65%	-4.50%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$227,563	\$236,183
b. Current Benefit Obligations (Table 8)	\$340,641	\$360,506
c. Funding Ratio (a/b)	66.80%	65.51%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$227,563	\$236,183
b. Actuarial Accrued Liability (Table 9)	\$371,278	\$392,351
c. Funding Ratio (a/b)	61.29%	60.20%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$419,349	\$427,217
b. Current and Expected Future Benefit Obligations	\$482,017	\$505,722
c. Funding Ratio (a/b)	87.00%	84.48%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,264	3,280
b. Projected Annual Earnings	\$90,392	\$95,390
c. Average Annual Earnings (Actual \$)	\$27,694	\$29,082
d. Average Age	42.6	42.7
e. Average Service	10.6	10.8
f. Additional Members on Leave of Absence	99	117
2. Others		
a. Service Retirements (Table 4)	1,050	1,064
b. Disability Retirements (Table 5)	31	30
c. Survivors (Table 6)	110	116
d. Deferred Retirements (Table 7)	39	36
e. Terminated Other Non-vested (Table 7)	1,955	1,056
f. Total	3,185	2,302

DULUTH TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	10.29%	10.29%
2. Required Contributions - Chapter 356 % of Payroll	10.39%	11.18%
3. Sufficiency (Deficiency) (A1-A2)	-0.10%	-0.89%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$75,130	\$76,279
b. Current Benefit Obligations (Table 8)	\$77,623	\$82,694
c. Funding Ratio (a/b)	96.79%	92.24%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$75,130	\$76,279
b. Actuarial Accrued Liability (Table 9)	\$85,504	\$90,759
c. Funding Ratio (a/b)	87.87%	84.05%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$123,102	\$124,717
b. Current and Expected Future Benefit Obligations	\$123,744	\$130,751
c. Funding Ratio (a/b)	99.48%	95.39%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,605	1,578
b. Projected Annual Earnings	\$36,683	\$38,751
c. Average Annual Earnings (Actual \$)	\$22,855	\$24,557
d. Average Age	41.9	42.5
e. Average Service	8.8	9.4
2. Others		
a. Service Retirements (Table 4)	628	625
b. Disability Retirements (Table 5)	11	10
c. Survivors (Table 6)	26	30
d. Deferred Retirements (Table 7)	60	51
e. Terminated Other Non-vested (Table 7)	0	159
f. Total	725	875