

**SUMMARY OF 1987 ACTUARIAL VALUATIONS
FOR THE LEGISLATIVE COMMISSION
ON PENSIONS AND RETIREMENT**

February 4, 1988

 **FILE COPY**

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INTRODUCTION

This report summarizes the results of the July 1, 1987 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, adopted by the Legislative Commission on Pensions and Retirement on August 26, 1987.

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

- Membership
- Assets
- Contributions
- Funding Ratios
- Actuarial Liabilities
- 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.

This report does not include the 46 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 firemen pension plans.

SECTION I
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 liabilities.

<u>Administrator</u>	<u>Fund</u>	<u>Salary Increases</u>	<u>Interest</u>	
			<u>Pre- Retirement</u>	<u>Post- Retirement</u>
MSRS	State Employees (General)	6.5%	8%	5%
MSRS	State Employees (Correctional)	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 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 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 (as is the case for 12 of the 13 plans in this study), 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 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 rule is the funding required for MERF. 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 funds.
- The six funds covering specialty, non-teaching professions.
- The four funds related to employees of First Class Cities.

These funds do not represent homogeneous groups. For example, one fund, the Minneapolis Employees Retirement Fund, is not open to new members and is referred to as a "closed fund". Another example is that six of the funds provide two levels of benefit. There is 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 monies 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 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 escalated by the same percentage as though the retired member or survivor had been drawing payments from MPRIF.

The Minneapolis Employees Retirement Fund does not participate in MPRIF, but does have a corresponding fund called the Retirement Benefit Fund that provides for escalating payments when investments exceed 5%. The three First Class City Teacher Plans have a different system 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 contribute a certain percentage of the member's pay to help prefund the pension obligation. The Statutes do not require the

employer to prefund benefits for Judges, Legislators and Elective State Officers. For these plans, the employer either contributes the additional money at the time of retirement that is needed to fund the annuity to be paid out of the MPRIF, or, if the annuity is not paid from MPRIF, 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	Yes	Yes	MPRIF*	Yes
State Employees (General)	Yes	No	MPRIF	Yes
Teachers Retirement Association	Yes	Yes	MPRIF	Yes
State Employees (Correctional)	Yes	No	MPRIF	Yes
State Patrol	Yes	No	MPRIF	Yes
PERA Police & Fire	Yes	No	MPRIF	Yes
Judges	Yes	Yes	MPRIF	No
Legislators	Yes	No	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

The table 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 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 Judges and Minneapolis Employees (MERF), which is closed to new members.

The number of annuitants increased by 6% over last year. The experience under the Rule of 85 (i.e. benefits are not reduced if a member retires after age 55 as long as age plus year of service equal or exceed 85) is reflected in these numbers.

**MEMBERSHIP SUMMARY
AS OF JUNE 30, 1987**

<u>PLAN</u>	<u>ACTIVE MEMBERS</u>	<u>TERMINATED MEMBERS WITH DEFERRED BENEFITS</u>	<u>ANNUITANTS</u>
Public Employees	92,497	2,152	25,015
State Employees (General)	45,707	1,014	12,341
Teachers Retirement Association	61,283	1,926	15,629
State Employees (Correctional)	1,232	43	333
State Patrol	771	16	430
PERA Police and Fire	5,385	97	1,271
Judges	238	7	152
Legislators	201	100	166
Elective State Officers	6	5	8
Minneapolis Employees	3,293	95	4,830
Minneapolis Teachers	3,117	352	2,397
St. Paul Teachers	3,264	39	1,191
Duluth Teachers	1,605	60	665
Total	218,599	5,906	64,428
Prior Year Total	213,097	5,966	61,050
Change From Prior Year	5,502	(60)	3,378
% Change	3%	-1%	6%

SECTION 4
FINANCIAL SUMMARY

This table shows the contributions (employee and employer) and benefit payments reported by the fund during the twelve months ending June 30, 1987.

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.

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.

During the past 12 months ending June 30, 1987, the assets have appreciated considerably. The market values for each plan 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.

**FINANCIAL SUMMARY
AS OF JULY 1, 1987
(In Thousands of Dollars)**

<u>PLAN</u>	<u>PRIOR YEAR</u>		<u>CURRENT ASSETS</u>
	<u>CONTRIBUTIONS</u>	<u>BENEFIT PAYMENTS</u>	
Public Employees	\$142,336	\$141,365	\$2,457,899
State Employees (General)	79,229	65,053	1,518,483
Teachers Retirement Association	214,937	132,009	3,638,835
State Employees (Correctional)	4,307	*	67,488
State Patrol	6,941	5,530	136,397
PERA Police and Fire	31,012	12,369	506,153
Judges	2,968	2,725	18,781
Legislators	2,277	1,168	11,158
Elective State Officers	164	114	246
Minneapolis Employees	25,278	45,100	656,719
Minneapolis Teachers	19,987	22,717	336,065
St. Paul Teachers	14,643	12,840	227,563
Duluth Teachers	3,753	3,995	75,130
Total	\$547,832	\$444,985	\$9,650,917
Prior Year Total (Estimated)	520,617	382,668	8,317,377
Change From Prior Year	27,215	62,317	1,333,540
% Change	5%	16%	16%

* Correctional numbers included in State Employees (General)

SECTION 5

1988 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 1987 actuarial valuations and apply to the 1988 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, there is a sufficiency and when the statutory rate is lower, there is a deficiency.

Statutory contributions include both employee and employer contributions (except for three of the plans where only employee contributions are utilized). These three plans are Judges, Legislators and Elective State Officers. 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, the State will make the necessary payments to fund annuities payable from the Minnesota Post-Retirement Investment Fund 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).
- 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.

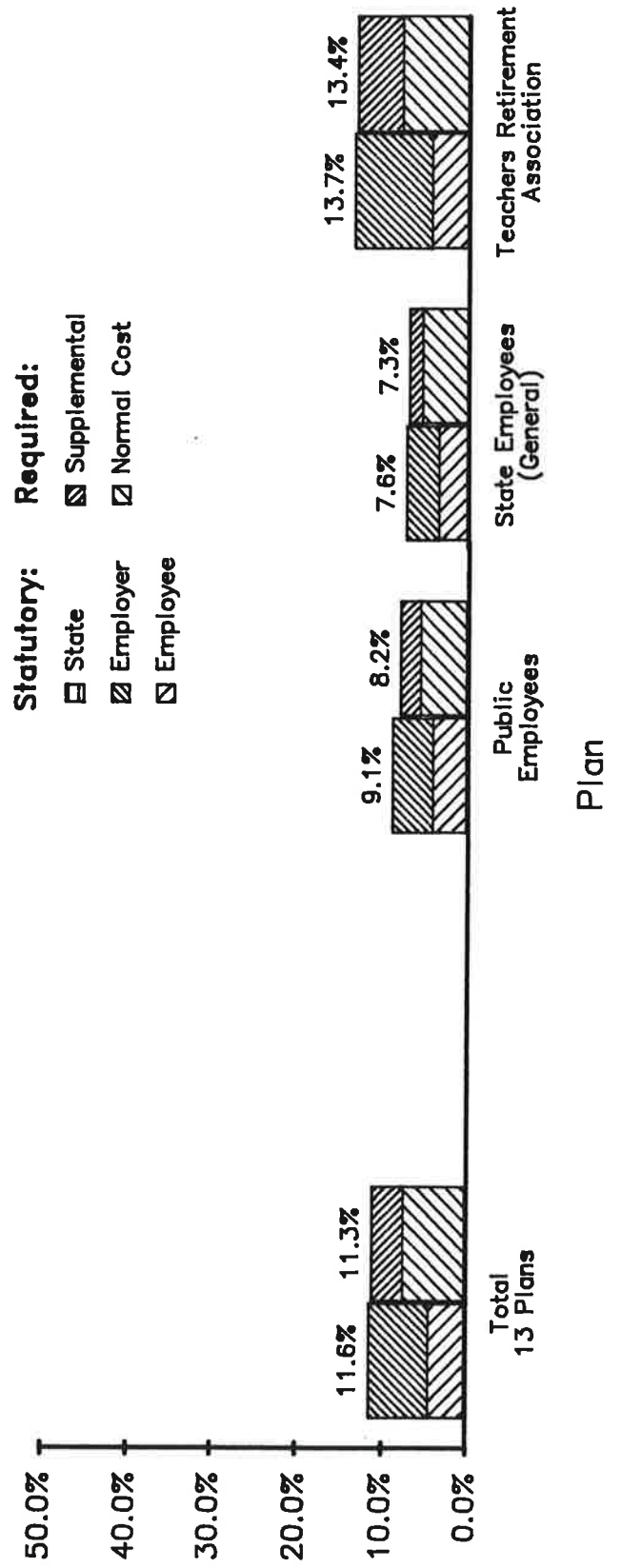
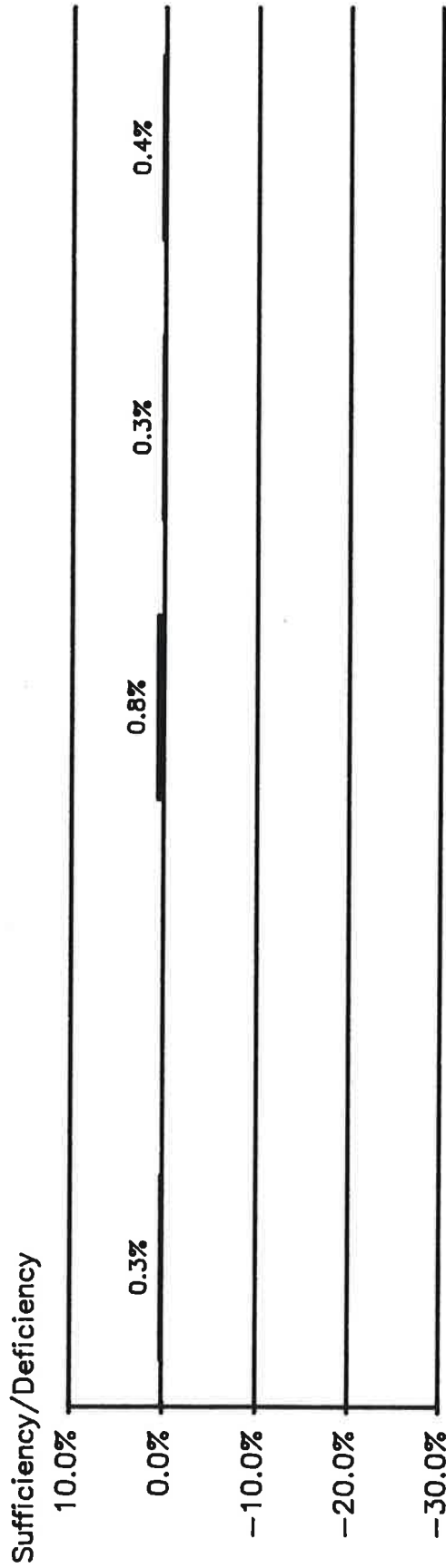
Overall, there is almost an equal balance between statutory contributions (11.6%) and the required contributions (11.3%). However, there are some notable differences among the plans.

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.

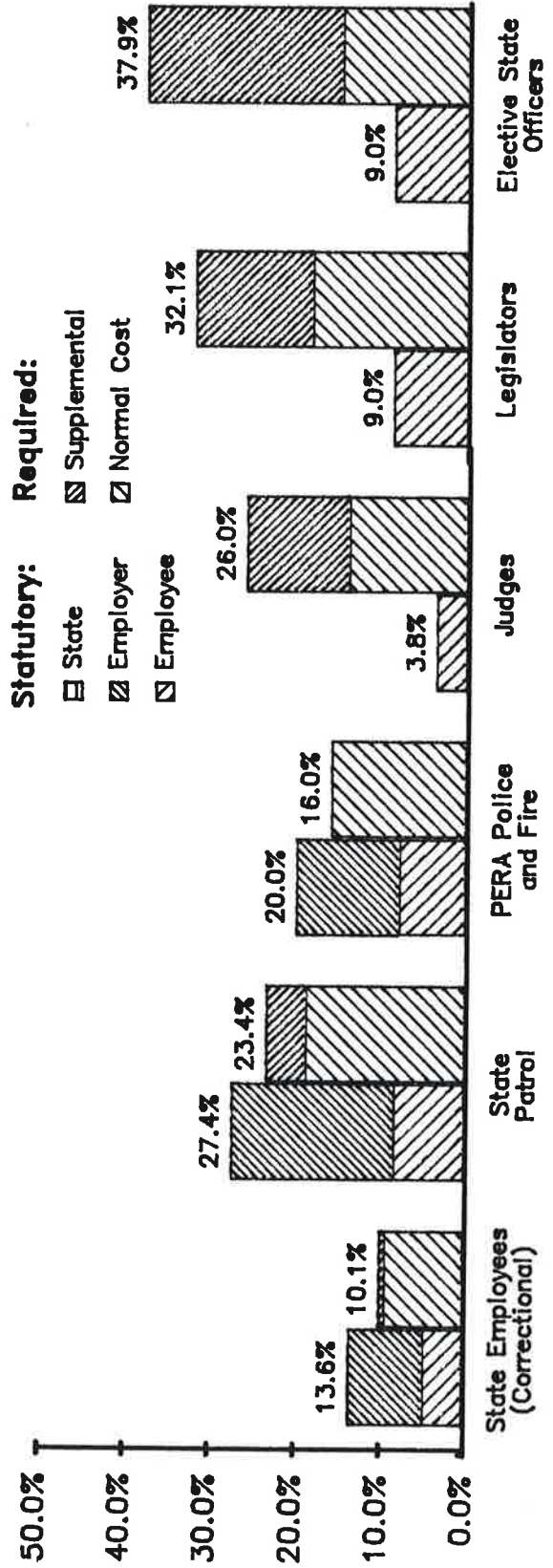
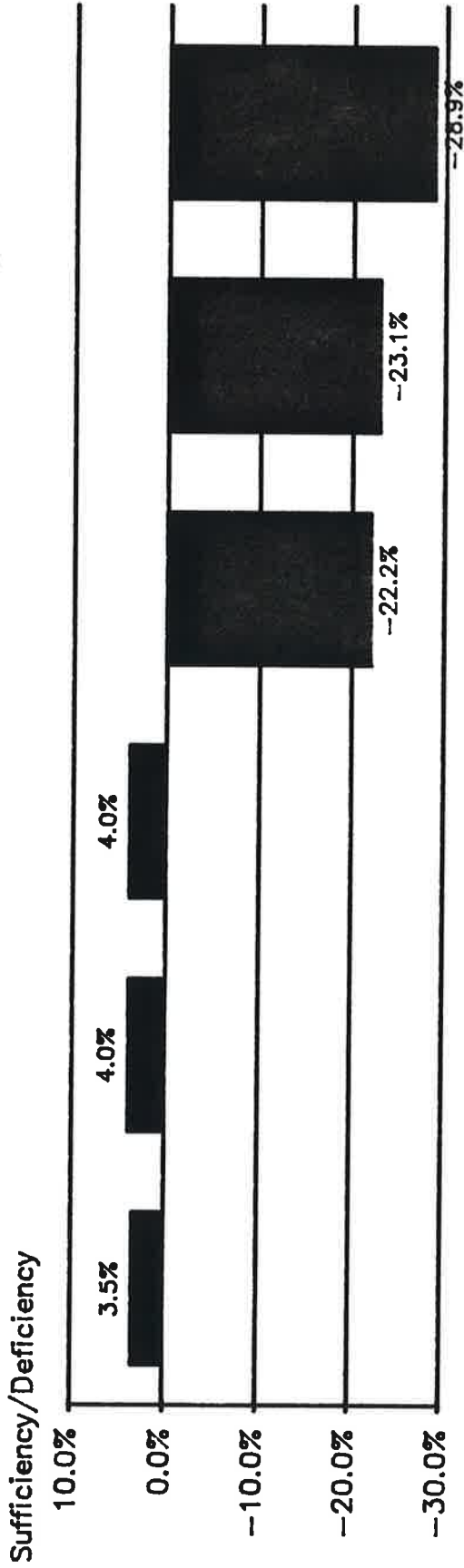
The remaining plans showing deficiencies, in order of magnitude, are:

- Minneapolis Teachers -10.4%
- St. Paul Teachers - 3.7%
- Duluth Teachers - 0.1%

1988 Pension Plan Contributions: Statutory vs. Required



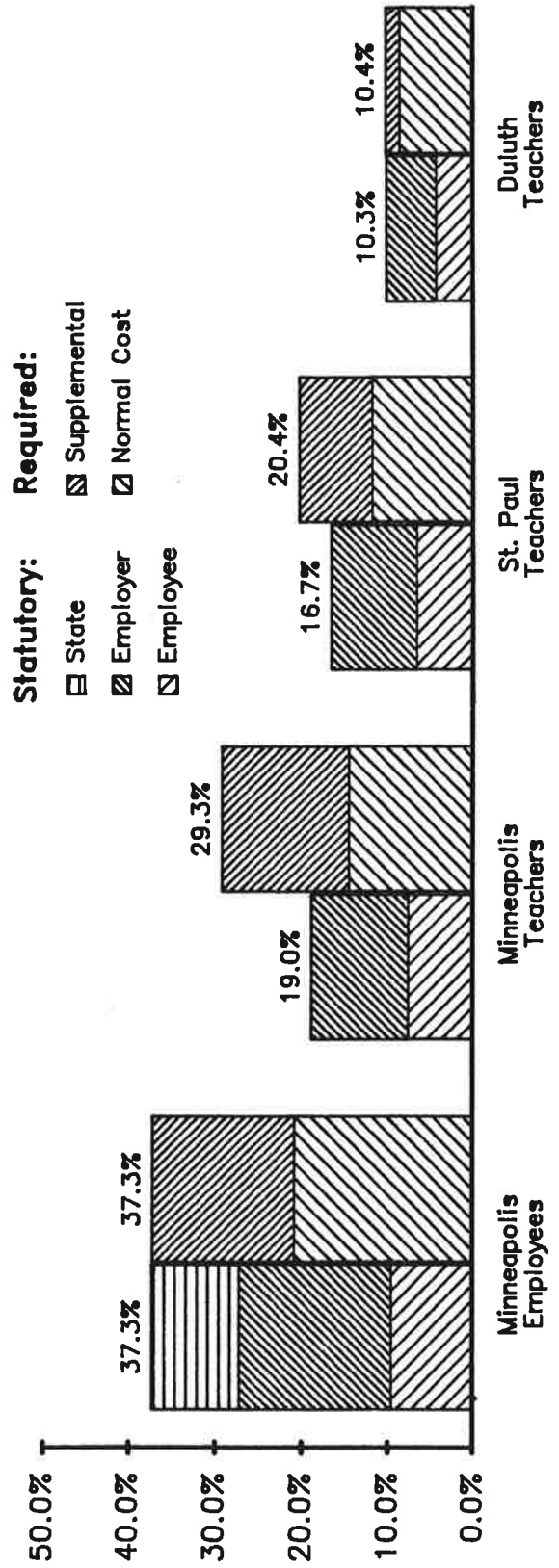
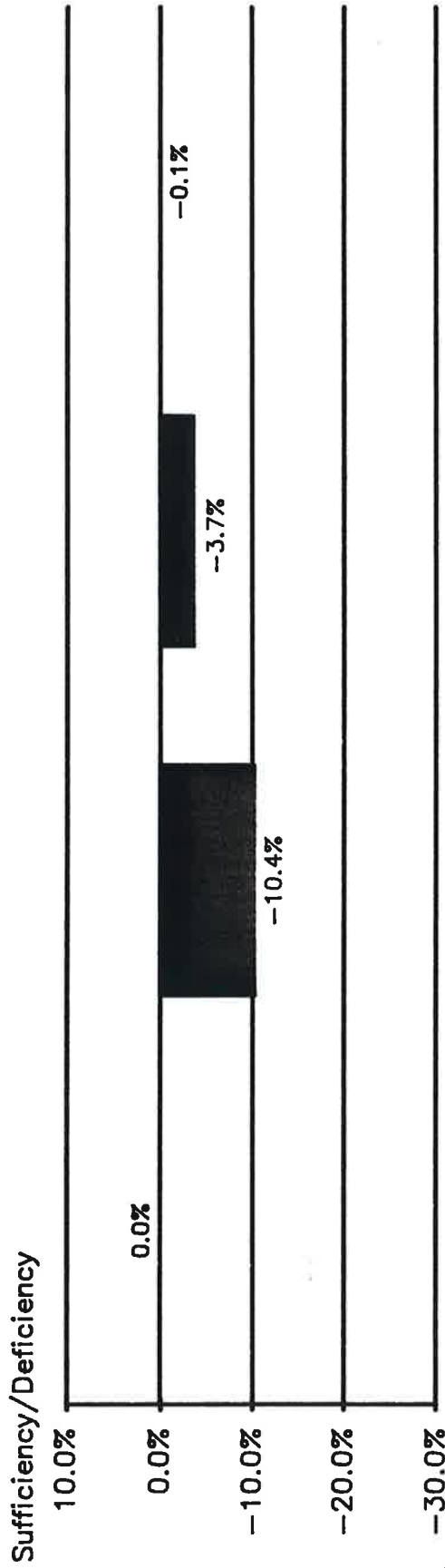
1988 Pension Plan Contributions: Statutory vs. Required(cont)



Plan

2/16/88

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



Plan

SECTION 6
CONTRIBUTIONS FOR 1988 FISCAL YEAR

Each plan's projected payroll for the 1988 Fiscal Year is used to produce the contributions in the following table. This table is important because it illustrates the relative dollar size of the funds according to contribution level.

In aggregate, the statutory contributions are sufficient by \$13.0 million which is more than 2% of the total required contributions of \$570 million.

However, focusing solely on the three Teachers' plans with deficiencies, the shortfall is over \$14 million, or more than 2.6% of the total required contribution.

CONTRIBUTIONS FOR 1988 FISCAL YEAR
(In Thousands of Dollars)

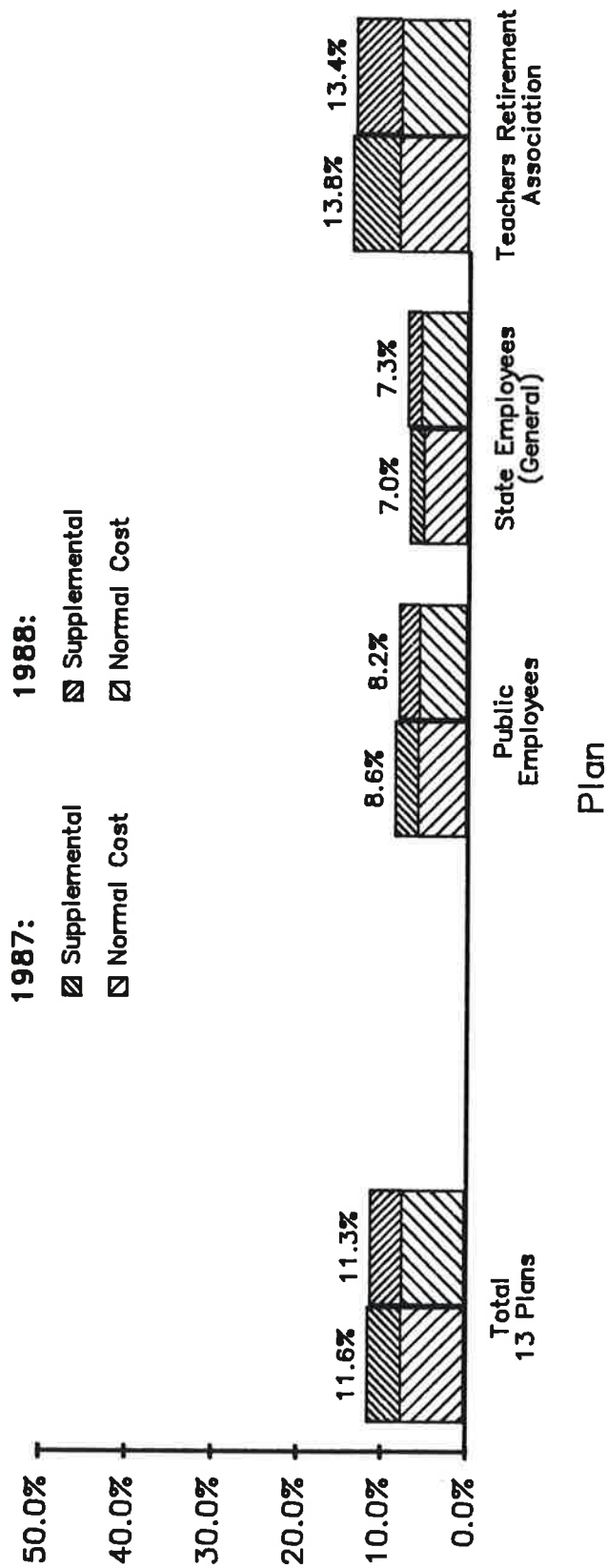
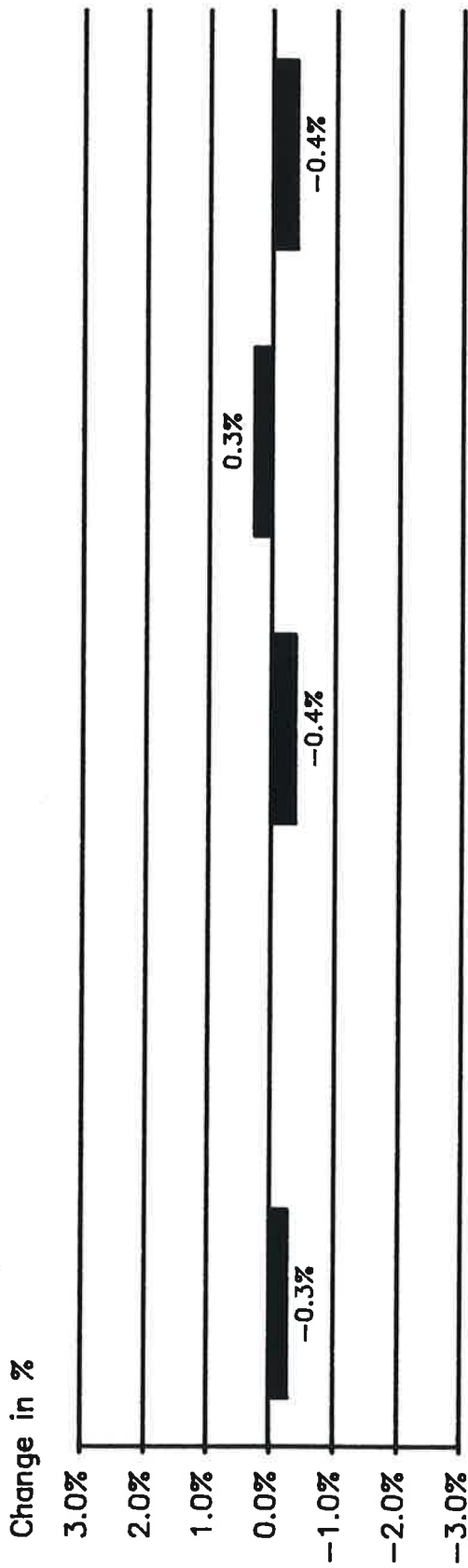
<u>PLAN</u>	<u>STATUTORY CONTRIBUTION</u>	<u>REQUIRED CONTRIBUTION</u>	<u>SUFFICIENCY (DEFICIENCY)</u>
Public Employees	\$148,985	\$135,163	\$13,822
State Employees (General)	92,174	88,150	4,024
Teachers Retirement Association	219,687	214,041	5,646
State Employees (Correctional)	4,782	3,545	1,237
State Patrol	7,832	6,685	1,147
PERA Police and Fire	32,995	26,345	6,650
Judges	601	4,152	(3,551)
Legislators	429	1,532	(1,103)
Elective State Officers	34	142	(108)
Minneapolis Employees	35,852	35,841	11
Minneapolis Teachers	20,550	31,808	(11,258)
St. Paul Teachers	15,131	18,429	(3,298)
Duluth Teachers	3,775	3,813	(38)
Total	\$582,827	\$569,646	\$13,181
Prior Year Total	554,858	551,269	3,589
Change From Prior Year	27,969	18,377	9,592
% Change	5%	3%	NA

SECTION 7
REQUIRED PENSION PLAN CONTRIBUTIONS: 1987 VS 1988

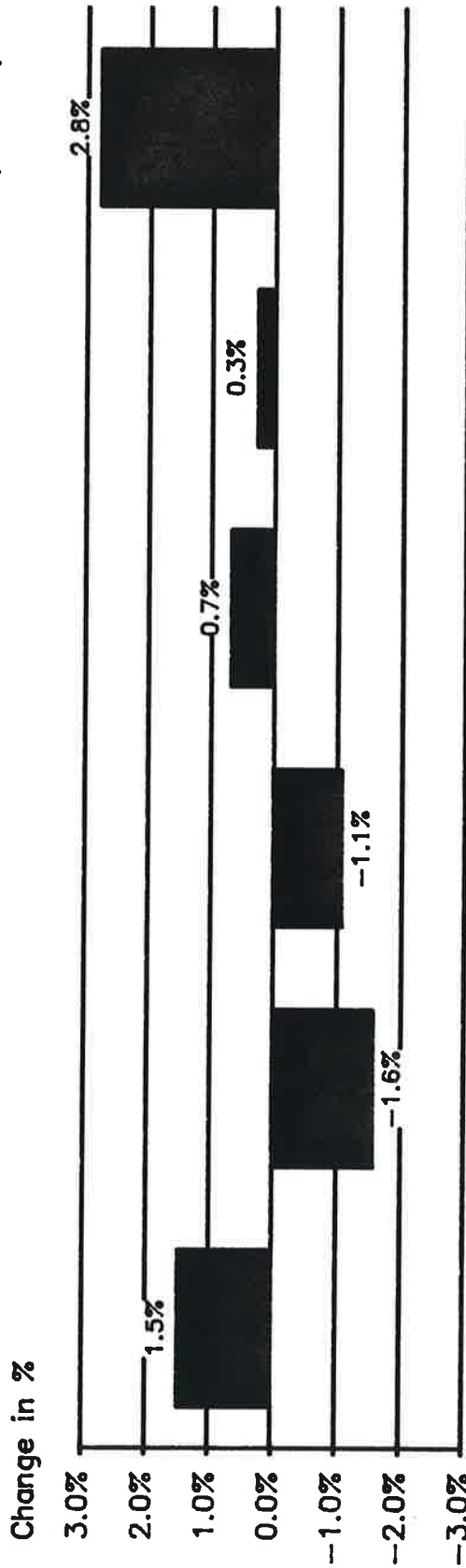
The following three graphs compare this year's required contributions to that calculated in the prior year. These contributions are expressed as a percentage of payroll.

In aggregate, the required contributions have decreased from 11.6% of payroll to 11.3%. This reduction is primarily attributable to favorable investment earnings.

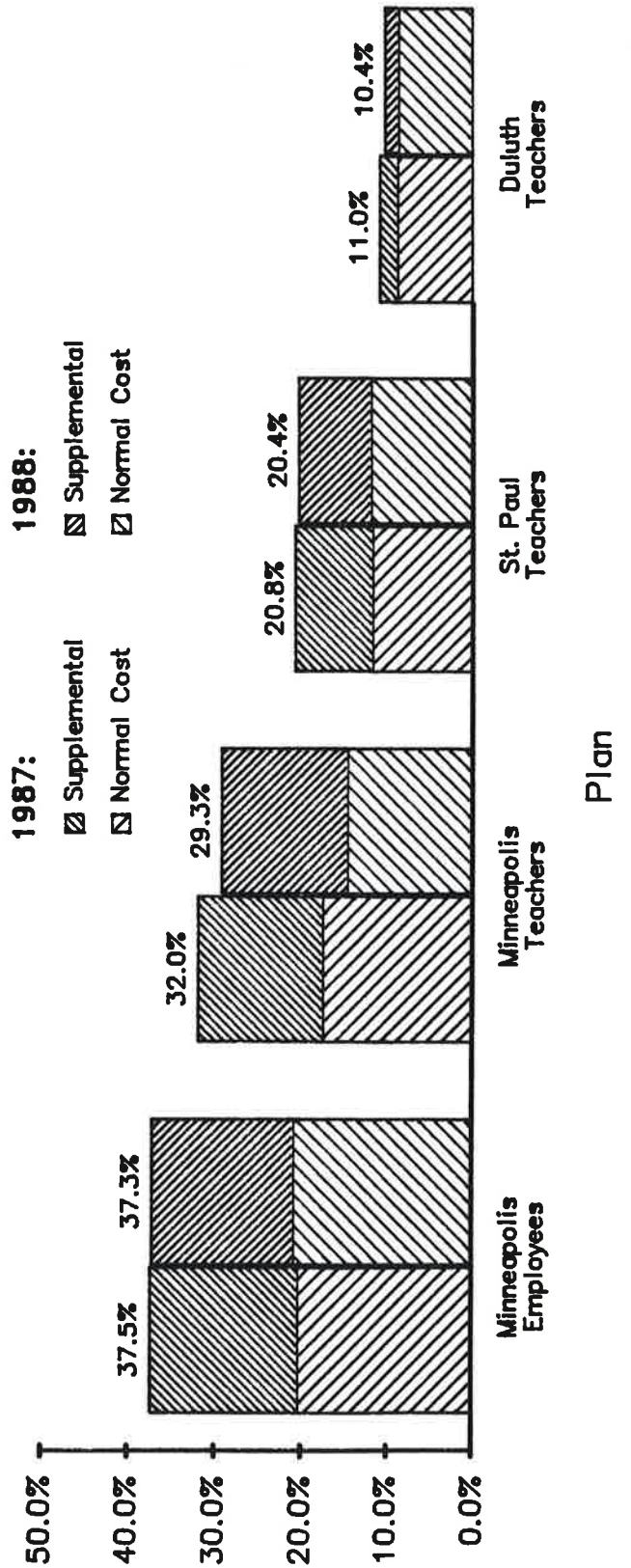
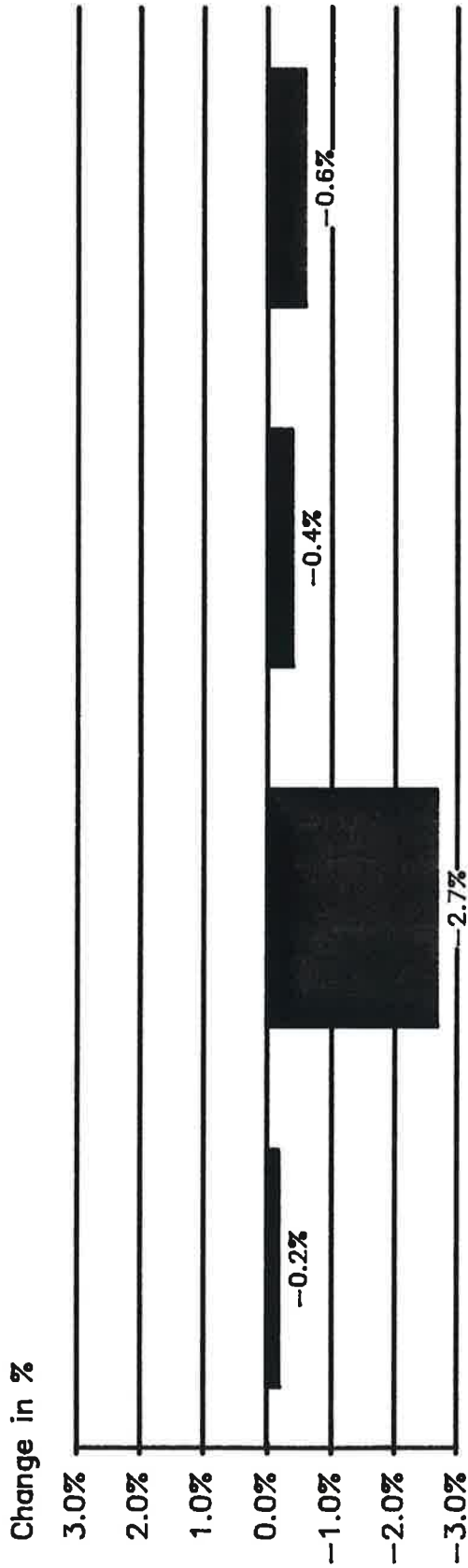
Required Pension Plan Contributions: 1987 vs. 1988



Required Pension Plan Contributions: 1987 vs. 1988(cont)



Required Pension Plan Contributions: 1987 vs. 1988(cont)



SECTION 8
ACCRUED LIABILITY FUNDING RATIOS: 1984 - 1987

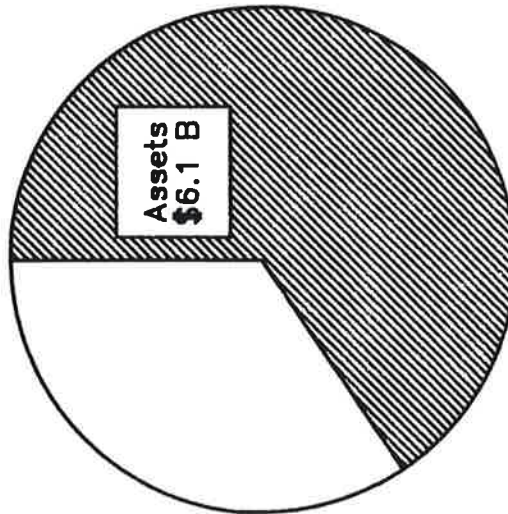
These funding ratios represent a relationship determined on the date of actuarial valuation. For 1985 through 1987, this date is July 1. For 1984 the date is June 30 in the case of most funds with the exception of Minneapolis Teachers and St. Paul Teachers where the date is December 31, 1984. The 1984 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 used by the actuary) to the actuarial accrued liability determined by the Entry Age Actuarial Cost Method.

The total funding ratios for all 13 plans have improved each of the last four years and are now at the 74% levels. Most of this improvement can be attributable to favorable investment performance.

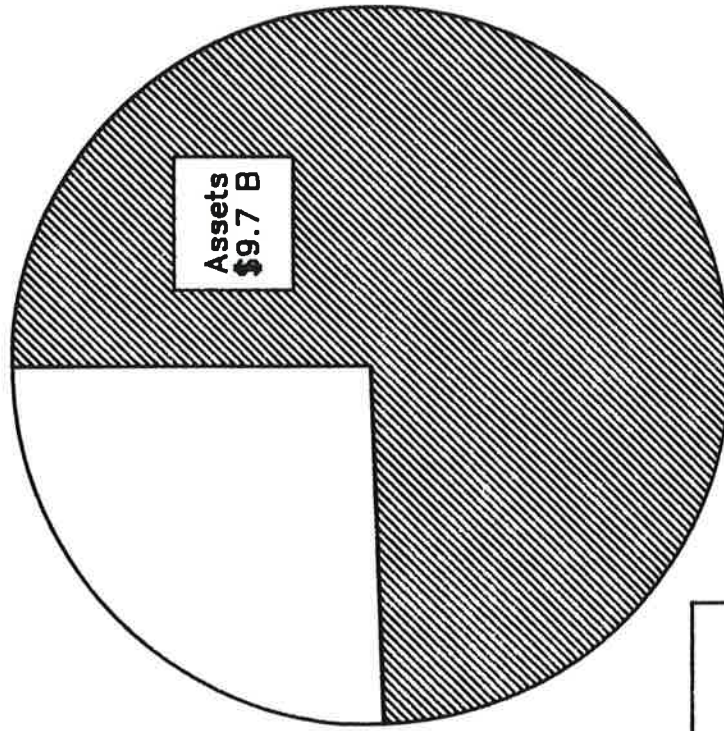
Total For All 13 Plans

Liabilities
\$9.3 B

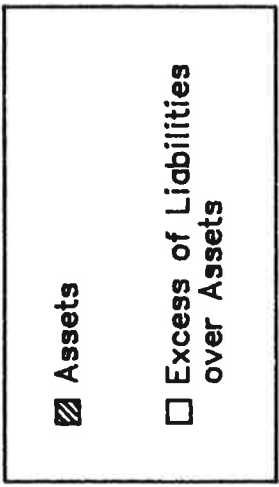


1984
Funding Ratio 65%

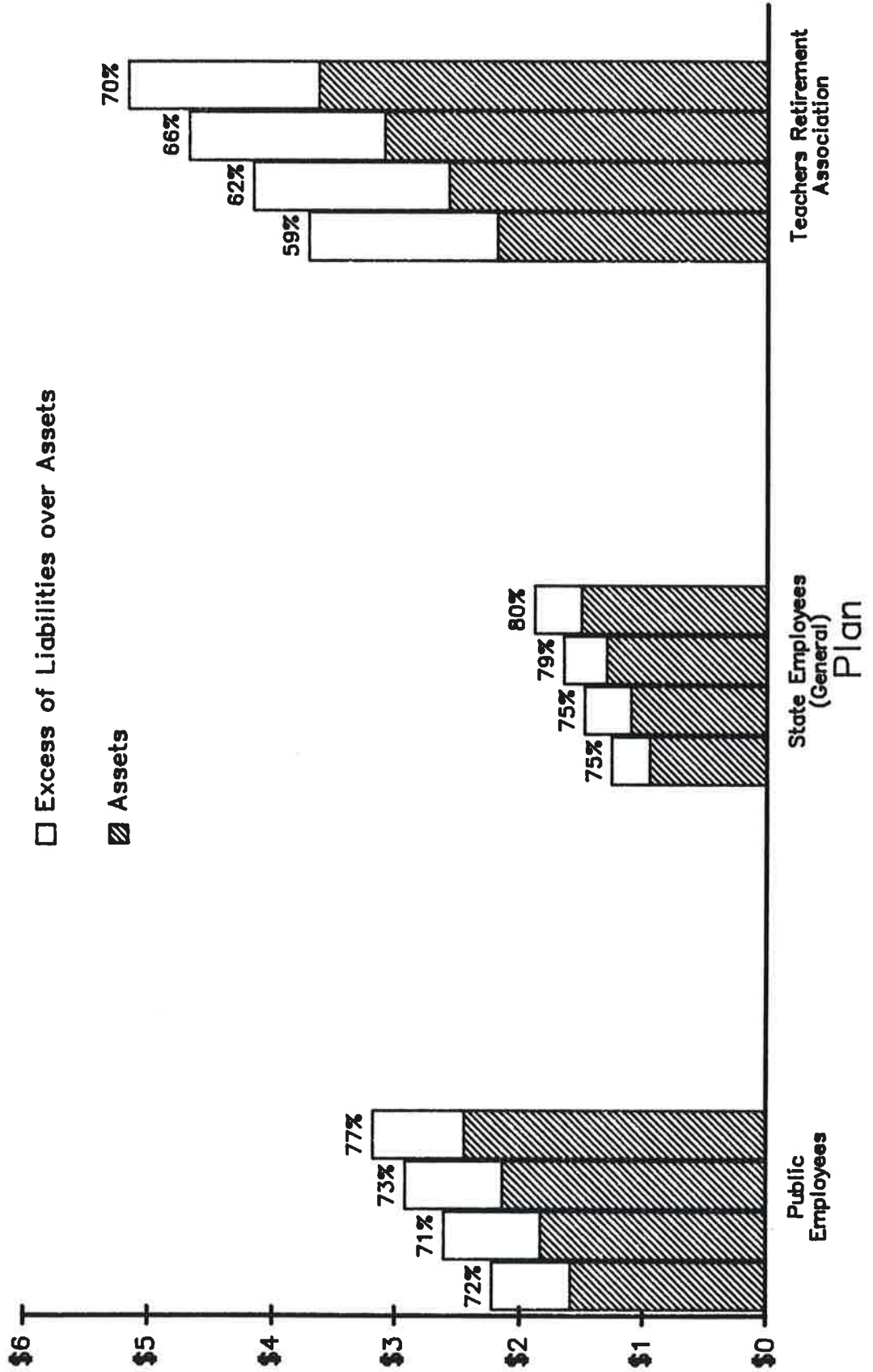
Liabilities
\$13.0 B



1987
Funding Ratio 74%

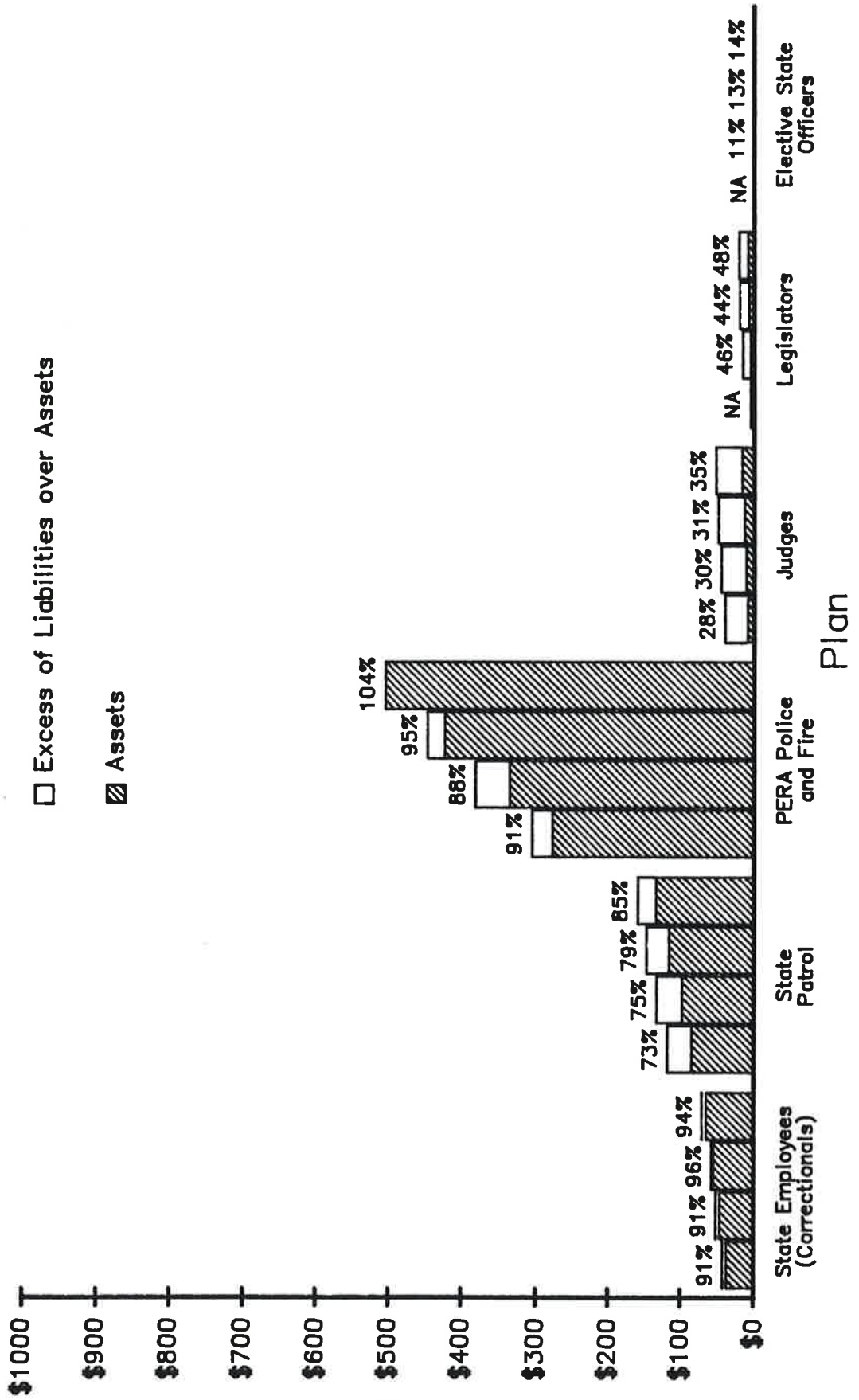


Accrued Liability Funding Ratios: 1984 - 1987 (Billions of Dollars)

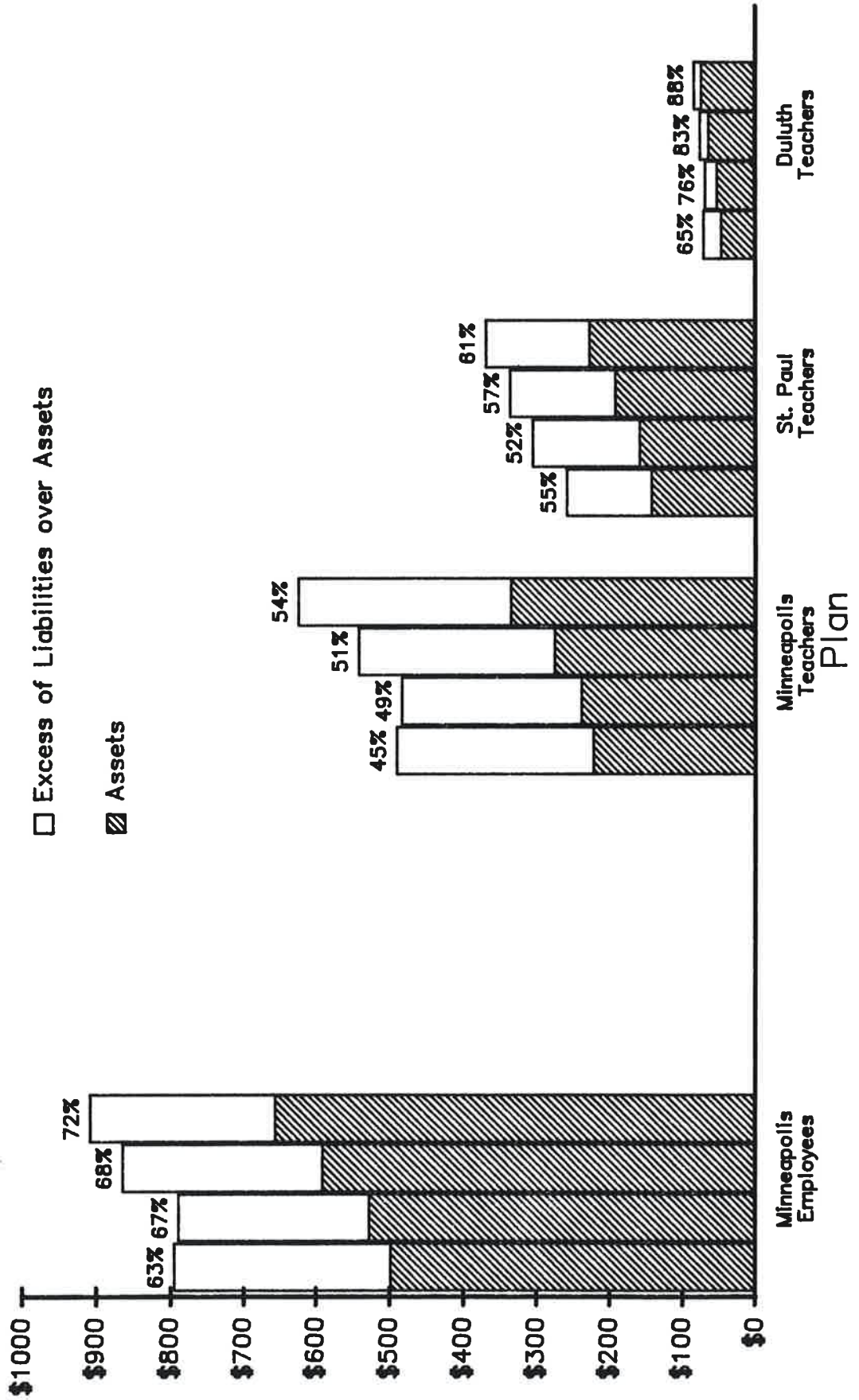


Accrued Liability Funding Ratios: 1984 - 1987 (cont)

(Millions of Dollars)



Accrued Liability Funding Ratios: 1984 - 1987 (cont) (Millions of Dollars)



SECTION 9
ACTUARIAL LIABILITY SUMMARY

The following table shows the calculation of the funding ratios in the previous graphs.

As a result of the favorable investment performance, the value of current assets has grown by 16%, which is considerably faster than the 10% growth in actuarial accrued liability.

ACTUARIAL LIABILITY SUMMARY
AS OF JULY 1, 1987
(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	\$3,188,962	\$2,457,899	\$731,063	77.08%
State Employees (General)	1,894,142	1,518,483	375,659	80.17%
Teachers Retirement Association	5,172,415	3,638,835	1,533,580	70.35%
State Employees (Correctional)	72,081	67,488	4,593	93.63%
State Patrol	160,628	136,397	24,231	84.91%
PERA Police and Fire	486,674	506,153	(19,479)	104.00%
Judges	54,034	18,781	35,253	34.76%
Legislators	23,083	11,158	11,925	48.34%
Elective State Officers	1,800	246	1,554	13.67%
Minneapolis Employees	910,196	656,719	253,477	72.15%
Minneapolis Teachers	626,069	336,065	290,004	53.68%
St. Paul Teachers	371,278	227,563	143,715	61.29%
Duluth Teachers	85,504	75,130	10,374	87.87%
Total	\$13,046,866	\$9,650,917	\$3,395,949	73.97%
Prior Year Total	11,819,525	8,317,377	3,502,148	70.37%
Change From Prior Year	1,227,341	1,333,540	(106,199)	3.60%
% Change	10%	16%	-3%	NA

SECTION 10
CASH FLOW PROJECTION SUMMARY

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

The following table 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 the Minnesota Post Retirement Investment Fund or MERF's Retirement Benefit Fund.

CASH FLOW PROJECTION SUMMARY
(In Thousands of Dollars)

<u>PLAN</u>	<u>CURRENT ASSETS</u>	
	<u>1987</u>	<u>2012</u>
Public Employees	\$1,246,871 *	\$8,435,495 *
State Employees (General)	954,468 *	3,245,368 *
Teachers Retirement Association	1,964,389 *	13,832,681 *
State Employees (Correctional)	44,808 *	801,238 *
State Patrol	75,626 *	279,214 *
PERA Police and Fire	390,142 *	3,918,642 *
Judges	4,454 *	(286,880)*
Legislators	2,840 *	(76,848)*
Elective State Officers	246	(5,631)
Minneapolis Employees	207,477 **	19,548 **
Minneapolis Teachers	336,065	164,962
St. Paul Teachers	227,563	635,987
Duluth Teachers	75,130	386,274
TOTAL	\$5,530,079	\$31,350,050

* Excluding Minnesota Post Retirement Investment Fund Assets

** Excluding Retirement Benefit Fund Assets

APPENDIX - HIGHLIGHTS

STATE EMPLOYEES RETIREMENT FUND (GENERAL)

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 352 % of Payroll	7.63%	7.63%
2. Required Contributions - Chapter 356 % of Payroll	6.96%	7.30%
3. Sufficiency (Deficiency) (A1-A2)	0.67%	0.33%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 2)	\$1,313,155	\$1,518,483
b. Current Benefit Obligations (Table 8)	\$1,388,785	\$1,589,505
c. Funding Ratio (a/b)	94.55%	95.53%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 2)	\$1,313,155	\$1,518,483
b. Actuarial Accrued Liability (Table 9)	\$1,656,860	\$1,894,142
c. Funding Ratio (a/b)	79.26%	80.17%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$2,373,711	\$2,610,849
b. Current and Expected Future Benefit Obligations	\$2,223,246	\$2,532,039
c. Funding Ratio (a/b)	106.77%	103.11%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	45,172	45,707
b. Projected Annual Earnings	\$1,135,260	\$1,208,043
c. Average Annual Earnings (Actual \$)	\$25,132	\$26,430
d. Average Age	39.9	40.1
e. Average Service	9.1	9.3
2. Others		
a. Service Retirements (Table 4)	10,601	10,994
b. Disability Retirements (Table 5)	670	676
c. Survivors (Table 6)	599	671
d. Deferred Retirements (Table 7)	957	1,014
e. Terminated Other Non-vested (Table 7)	4,402	4,496
f. Total	17,229	17,851

STATE EMPLOYEES RETIREMENT FUND (CORRECTIONAL)

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</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	8.57%	10.08%
3. Sufficiency (Deficiency) (A1-A2)	5.03%	3.52%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 2)	\$56,894	\$67,488
b. Current Benefit Obligations (Table 8)	\$50,349	\$61,488
c. Funding Ratio (a/b)	113.00%	109.76%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 2)	\$56,894	\$67,488
b. Actuarial Accrued Liability (Table 9)	\$59,042	\$72,081
c. Funding Ratio (a/b)	96.36%	93.63%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$117,094	\$131,111
b. Current and Expected Future Benefit Obligations	\$83,876	\$101,839
c. Funding Ratio (a/b)	139.60%	128.74%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,220	1,232
b. Projected Annual Earnings	\$33,561	\$35,155
c. Average Annual Earnings (Actual \$)	\$27,509	\$28,535
d. Average Age	36.7	37.1
e. Average Service	7.4	7.8
2. Others		
a. Service Retirements (Table 4)	309	313
b. Disability Retirements (Table 5)	11	11
c. Survivors (Table 6)	8	9
d. Deferred Retirements (Table 7)	35	43
e. Terminated Other Non-vested (Table 7)	83	84
f. Total	446	460

STATE PATROL RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 352B % of Payroll	27.40%	27.40%
2. Required Contributions - Chapter 356 % of Payroll	25.00%	23.39%
3. Sufficiency (Deficiency) (A1-A2)	2.40%	4.01%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$118,174	\$136,397
b. Current Benefit Obligations (Table 8)	\$142,626	\$153,107
c. Funding Ratio (a/b)	82.86%	89.09%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$118,174	\$136,397
b. Actuarial Accrued Liability (Table 9)	\$149,064	\$160,628
c. Funding Ratio (a/b)	79.28%	84.91%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$225,623	\$246,237
b. Current and Expected Future Benefit Obligations	\$213,091	\$225,285
c. Funding Ratio (a/b)	105.88%	109.30%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	769	771
b. Projected Annual Earnings	\$27,474	\$28,583
c. Average Annual Earnings (Actual \$)	\$35,727	\$37,072
d. Average Age	40.2	40.4
e. Average Service	13.5	13.8
2. Others		
a. Service Retirements (Table 4)	306	318
b. Disability Retirements (Table 5)	13	13
c. Survivors (Table 6)	106	99
d. Deferred Retirements (Table 7)	18	16
e. Terminated Other Non-vested (Table 7)	9	8
f. Total	452	454

JUDGES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 490 % of Payroll	4.11%	3.76%
2. Required Contributions - Chapter 356 % of Payroll	25.32%	25.96%
3. Sufficiency (Deficiency) (A1-A2)	-21.21%	-22.20%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$15,982	\$18,781
b. Current Benefit Obligations (Table 8)	\$51,178	\$53,677
c. Funding Ratio (a/b)	31.23%	34.99%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$15,982	\$18,781
b. Actuarial Accrued Liability (Table 9)	\$51,360	\$54,034
c. Funding Ratio (a/b)	31.12%	34.76%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$23,279	\$25,135
b. Current and Expected Future Benefit Obligations	\$77,843	\$78,446
c. Funding Ratio (a/b)	29.91%	32.04%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	243	238
b. Projected Annual Earnings	\$16,718	\$15,999
c. Average Annual Earnings (Actual \$)	\$68,800	\$67,221
d. Average Age	53.6	53.5
e. Average Service	11.8	11.5
2. Others		
a. Service Retirements (Table 4)	83	87
b. Disability Retirements (Table 5)	5	5
c. Survivors (Table 6)	50	60
d. Deferred Retirements (Table 7)	7	7
e. Terminated Other Non-vested (Table 7)	0	1
f. Total	145	160

LEGISLATORS RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 3A % of Payroll	9.00%	9.00%
2. Required Contributions - Chapter 356 % of Payroll	31.77%	32.14%
3. Sufficiency (Deficiency) (A1-A2)	-22.77%	-23.14%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$9,535	\$11,158
b. Current Benefit Obligations (Table 8)	\$20,532	\$21,950
c. Funding Ratio (a/b)	46.44%	50.83%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$9,535	\$11,158
b. Actuarial Accrued Liability (Table 9)	\$21,591	\$23,083
c. Funding Ratio (a/b)	44.16%	48.34%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$13,656	\$15,526
b. Current and Expected Future Benefit Obligations	\$30,540	\$31,570
c. Funding Ratio (a/b)	44.72%	49.18%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	201	201
b. Projected Annual Earnings	\$4,880	\$4,765
c. Average Annual Earnings (Actual \$)	\$24,279	\$23,709
d. Average Age	46.6	46.9
e. Average Service	6.9	6.6
2. Others		
a. Service Retirements (Table 4)	115	124
b. Disability Retirements (Table 5)	NA	NA
c. Survivors (Table 6)	41	42
d. Deferred Retirements (Table 7)	101	100
e. Terminated Other Non-vested (Table 7)	12	17
f. Total	269	283

ELECTIVE STATE OFFICERS RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</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	35.06%	37.93%
3. Sufficiency (Deficiency) (A1-A2)	-26.06%	-28.93%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$230	\$246
b. Current Benefit Obligations (Table 8)	\$1,555	\$1,619
c. Funding Ratio (a/b)	14.79%	15.19%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$230	\$246
b. Actuarial Accrued Liability (Table 9)	\$1,706	\$1,800
c. Funding Ratio (a/b)	13.48%	13.67%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$430	\$482
b. Current and Expected Future Benefit Obligations	\$2,054	\$2,210
c. Funding Ratio (a/b)	20.93%	21.81%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	6	6
b. Projected Annual Earnings	\$392	\$373
c. Average Annual Earnings (Actual \$)	\$65,373	\$62,219
d. Average Age	47.2	49.1
e. Average Service	6.9	7.2
2. Others		
a. Service Retirements (Table 4)	4	3
b. Disability Retirements (Table 5)	NA	NA
c. Survivors (Table 6)	4	5
d. Deferred Retirements (Table 7)	5	5
e. Terminated Other Non-vested (Table 7)	1	1
f. Total	14	14

PUBLIC EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	9.20%	9.05%
2. Required Contributions - Chapter 356 % of Payroll	8.55%	8.21%
3. Sufficiency (Deficiency) (A1-A2)	0.65%	0.84%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$2,148,114	\$2,457,899
b. Current Benefit Obligations (Table 8)	\$2,590,445	\$2,839,047
c. Funding Ratio (a/b)	82.92%	86.57%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$2,148,114	\$2,457,899
b. Actuarial Accrued Liability (Table 9)	\$2,925,006	\$3,188,962
c. Funding Ratio (a/b)	73.44%	77.08%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$3,773,569	\$4,090,664
b. Current and Expected Future Benefit Obligations	\$3,580,782	\$3,837,047
c. Funding Ratio (a/b)	105.38%	106.61%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	89,336	92,497
b. Projected Annual Earnings	\$1,551,555	\$1,645,876
c. Average Annual Earnings (Actual \$)	\$17,368	\$17,794
d. Average Age	42.2	42.2
e. Average Service	8.0	8.0
2. Others		
a. Service Retirements (Table 4)	18,719	20,341
b. Disability Retirements (Table 5)	633	645
c. Survivors (Table 6)	3,970	4,029
d. Deferred Retirements (Table 7)	1,746	2,152
e. Terminated Other Non-vested (Table 7)	40,023	40,185
f. Total	65,091	67,352

PUBLIC EMPLOYEES POLICE AND FIRE FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	20.00%	20.00%
2. Required Contributions - Chapter 356 % of Payroll	17.10%	15.97%
3. Sufficiency (Deficiency) (A1-A2)	2.90%	4.03%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$424,936	\$506,153
b. Current Benefit Obligations (Table 8)	\$402,314	\$437,229
c. Funding Ratio (a/b)	105.62%	115.76%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$424,936	\$506,153
b. Actuarial Accrued Liability (Table 9)	\$447,742	\$486,674
c. Funding Ratio (a/b)	94.91%	104.00%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$836,973	\$946,283
b. Current and Expected Future Benefit Obligations	\$752,324	\$805,164
c. Funding Ratio (a/b)	111.25%	117.53%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	5,127	5,385
b. Projected Annual Earnings	\$153,714	\$164,975
c. Average Annual Earnings (Actual \$)	\$29,981	\$30,636
d. Average Age	37.3	37.2
e. Average Service	9.6	9.6
2. Others		
a. Service Retirements (Table 4)	838	895
b. Disability Retirements (Table 5)	58	66
c. Survivors (Table 6)	302	310
d. Deferred Retirements (Table 7)	555	97
e. Terminated Other Non-vested (Table 7)	461	462
f. Total	2,214	1,830

TEACHERS RETIREMENT ASSOCIATION FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354 % of Payroll	13.77%	13.71%
2. Required Contributions - Chapter 356 % of Payroll	13.82%	13.36%
3. Sufficiency (Deficiency) (A1-A2)	-0.05%	0.35%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$3,104,264 *	\$3,638,835 *
b. Current Benefit Obligations (Table 8)	\$4,054,734 *	\$4,464,496 *
c. Funding Ratio (a/b)	76.56%	81.51%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$3,104,264 *	\$3,638,835 *
b. Actuarial Accrued Liability (Table 9)	\$4,681,573 *	\$5,172,415 *
c. Funding Ratio (a/b)	66.31%	70.35%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$5,998,980 *	\$6,637,583 *
b. Current and Expected Future Benefit Obligations	\$6,013,429 *	\$6,535,871 *
c. Funding Ratio (a/b)	99.76%	101.56%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	60,174	61,283
b. Projected Annual Earnings	\$1,498,590	\$1,601,809
c. Average Annual Earnings (Actual \$)	\$24,904	\$26,138
d. Average Age	41.7	41.9
e. Average Service	11.5	11.5
2. Others		
a. Service Retirements (Table 4)	13,695	14,582
b. Disability Retirements (Table 5)	222	217
c. Survivors (Table 6)	808	830
d. Deferred Retirements (Table 7)	2,088	1,926
e. Terminated Other Non-vested (Table 7)	12,957	13,106
f. Total	29,770	30,661

* Includes Variable Annuity Fund of \$142,214 in 1986 and \$171,630 in 1987.

MINNEAPOLIS EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 422A % of Payroll	37.46%	37.34%
2. Required Contributions - Chapter 356 % of Payroll	37.46%	37.32%
3. Sufficiency (Deficiency) (A1-A2)	0.00%	0.02%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$592,045	\$656,719
b. Current Benefit Obligations (Table 8)	\$832,311	\$877,156
c. Funding Ratio (a/b)	71.13%	74.87%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$592,045	\$656,719
b. Actuarial Accrued Liability (Table 9)	\$865,907	\$910,196
c. Funding Ratio (a/b)	68.37%	72.15%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$1,067,563	\$1,100,244
b. Current and Expected Future Benefit Obligations	\$1,067,563	\$1,100,244
c. Funding Ratio (a/b)	100.00%	100.00%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,551	3,293
b. Projected Annual Earnings	\$101,260	\$96,046
c. Average Annual Earnings (Actual \$)	\$28,516	\$29,167
d. Average Age	47.6	47.7
e. Average Service	15.8	16.5
2. Others		
a. Service Retirements (Table 4)	3,522	3,615
b. Disability Retirements (Table 5)	260	274
c. Survivors (Table 6)	947	941
d. Deferred Retirements (Table 7)	94	95
e. Terminated Other Non-vested (Table 7)	190	197
f. Total	5,013	5,122

MINNEAPOLIS TEACHERS' RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	19.64%	18.96%
2. Required Contributions - Chapter 356 % of Payroll	32.02%	29.34%
3. Sufficiency (Deficiency) (A1-A2)	-12.38%	-10.38%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$276,360	\$336,065
b. Current Benefit Obligations (Table 8)	\$513,441	\$586,466
c. Funding Ratio (a/b)	53.83%	57.30%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$276,360	\$336,065
b. Actuarial Accrued Liability (Table 9)	\$543,886	\$626,069
c. Funding Ratio (a/b)	50.81%	53.68%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$491,884	\$569,247
b. Current and Expected Future Benefit Obligations	\$721,605	\$775,162
c. Funding Ratio (a/b)	68.17%	73.44%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	2,942	3,117
b. Projected Annual Earnings	\$97,717	\$108,398
c. Average Annual Earnings (Actual \$)	\$33,215	\$34,776
d. Average Age	44.6	44.5
e. Average Service	14.4	14.0
f. Additional Members on Leave	202	152
2. Others		
a. Service Retirements (Table 4)	2,160	2,153
b. Disability Retirements (Table 5)	45	43
c. Survivors (Table 6)	201	201
d. Deferred Retirements (Table 7)	272	352
e. Terminated Other Non-vested (Table 7)	366	358
f. Total	3,044	3,107

ST. PAUL TEACHERS' RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	17.18%	16.74%
2. Required Contributions - Chapter 356 % of Payroll	20.77%	20.39%
3. Sufficiency (Deficiency) (A1-A2)	-3.59%	-3.65%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$193,015	\$227,563
b. Current Benefit Obligations (Table 8)	\$308,532	\$340,641
c. Funding Ratio (a/b)	62.56%	66.80%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$193,015	\$227,563
b. Actuarial Accrued Liability (Table 9)	\$337,777	\$371,278
c. Funding Ratio (a/b)	57.14%	61.29%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$382,493	\$419,349
b. Current and Expected Future Benefit Obligations	\$440,367	\$482,017
c. Funding Ratio (a/b)	86.86%	87.00%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,105	3,264
b. Projected Annual Earnings	\$84,932	\$90,392
c. Average Annual Earnings (Actual \$)	\$27,353	\$27,694
d. Average Age	42.7	42.6
e. Average Service	11.1	10.6
f. Additional Members on Leave of Absence	106	99
2. Others		
a. Service Retirements (Table 4)	991	1,050
b. Disability Retirements (Table 5)	34	31
c. Survivors (Table 6)	112	110
d. Deferred Retirements (Table 7)	30	39
e. Terminated Other Non-vested (Table 7)	1,852	1,955
f. Total	3,019	3,185

DULUTH TEACHERS' RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</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	11.02%	10.39%
3. Sufficiency (Deficiency) (A1-A2)	-0.73%	-0.10%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$64,673	\$75,130
b. Current Benefit Obligations (Table 8)	\$70,954	\$77,623
c. Funding Ratio (a/b)	91.15%	96.79%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$64,673	\$75,130
b. Actuarial Accrued Liability (Table 9)	\$78,011	\$85,504
c. Funding Ratio (a/b)	82.90%	87.87%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$107,393	\$123,102
b. Current and Expected Future Benefit Obligations	\$112,037	\$123,744
c. Funding Ratio (a/b)	95.85%	99.48%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,251	1,605
b. Projected Annual Earnings	\$33,497	\$36,683
c. Average Annual Earnings (Actual \$)	\$26,776	\$22,855
d. Average Age	43.5	41.9
e. Average Service	11.5	8.8
2. Others		
a. Service Retirements (Table 4)	576	628
b. Disability Retirements (Table 5)	7	11
c. Survivors (Table 6)	25	26
d. Deferred Retirements (Table 7)	58	60
e. Terminated Other Non-vested (Table 7)	0	0
f. Total	666	725