

**SUMMARY OF 1986 ACTUARIAL VALUATIONS  
FOR THE LEGISLATIVE COMMISSION  
ON PENSIONS AND RETIREMENT**

**March 12, 1987**

 **FILE COPY**

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## INTRODUCTION

This report summarizes the results of the July 1, 1986 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 June 30, 1986 and amended on July 21 and July 28 of 1986.

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>Salary Increases</u>	<u>Interest</u>	
		<u>Pre-Retirement</u>	<u>Post-Retirement</u>
MSRS, PERA, TRA	6.5%	8%	5%
MERF	3.5%	5%	5%
First Class City 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 determine 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 all 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 not required to be paid off until 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 plan with a reduction in active membership was 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, 1986**

<u>PLAN</u>	<u>ACTIVE MEMBERS</u>	<u>TERMINATED MEMBERS WITH DEFERRED BENEFITS</u>	<u>ANNUITANTS</u>
Public Employees	89,336	1,746	23,322
State Employees (General)	45,172	957	11,870
Teachers Retirement Association	60,174	2,088	14,725
State Employees (Correctional)	1,220	35	328
State Patrol	769	18	425
PERA Police and Fire	5,127	555	1,198
Judges	243	7	138
Legislators	201	101	156
Elective State Officers	6	5	8
Minneapolis Employees	3,551	94	4,729
Minneapolis Teachers	2,942	272	2,406
St. Paul Teachers	3,105	30	1,137
Duluth Teachers	1,251	58	608
Total	213,097	5,966	61,050
Prior Year Total	207,214	6,050	57,779
Change From Prior Year	5,883	(84)	3,271
% 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, 1986.

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.

Contributions have been estimated for Minneapolis Teachers and St. Paul Teachers for the prior year due to a change in fiscal years on December 31, 1984.

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, 1986, 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, 1986  
(In Thousands of Dollars)

<u>PLAN</u>	<u>PRIOR YEAR</u>		<u>CURRENT ASSETS</u>
	<u>CONTRIBUTIONS</u>	<u>BENEFIT PAYMENTS</u>	
Public Employees	\$136,212	\$120,699	\$2,148,114
State Employees (General)	78,921	57,157	1,313,155
Teachers Retirement Association	202,502	109,256	3,104,264
State Employees (Correctional)	*	*	56,894
State Patrol	6,722	4,698	118,174
PERA Police and Fire	28,924	10,103	424,936
Judges	2,735	2,391	15,982
Legislators	1,368	888	9,535
Elective State Officers	132	99	230
Minneapolis Employees	26,945	40,745	592,045
Minneapolis Teachers	18,445	21,415	276,360
St. Paul Teachers	14,301	11,643	193,015
Duluth Teachers	3,410	3,574	64,673
<b>Total</b>	<b>\$520,617</b>	<b>\$382,668</b>	<b>\$8,317,377</b>
Prior Year Total (Estimated)	492,187	332,077	7,030,235
Change From Prior Year	28,430	50,591	1,287,142
% Change	6%	15%	18%

\* Correctional numbers included in State Employees (General)

SECTION 5  
1987 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 1986 actuarial valuations and apply to the 1987 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.

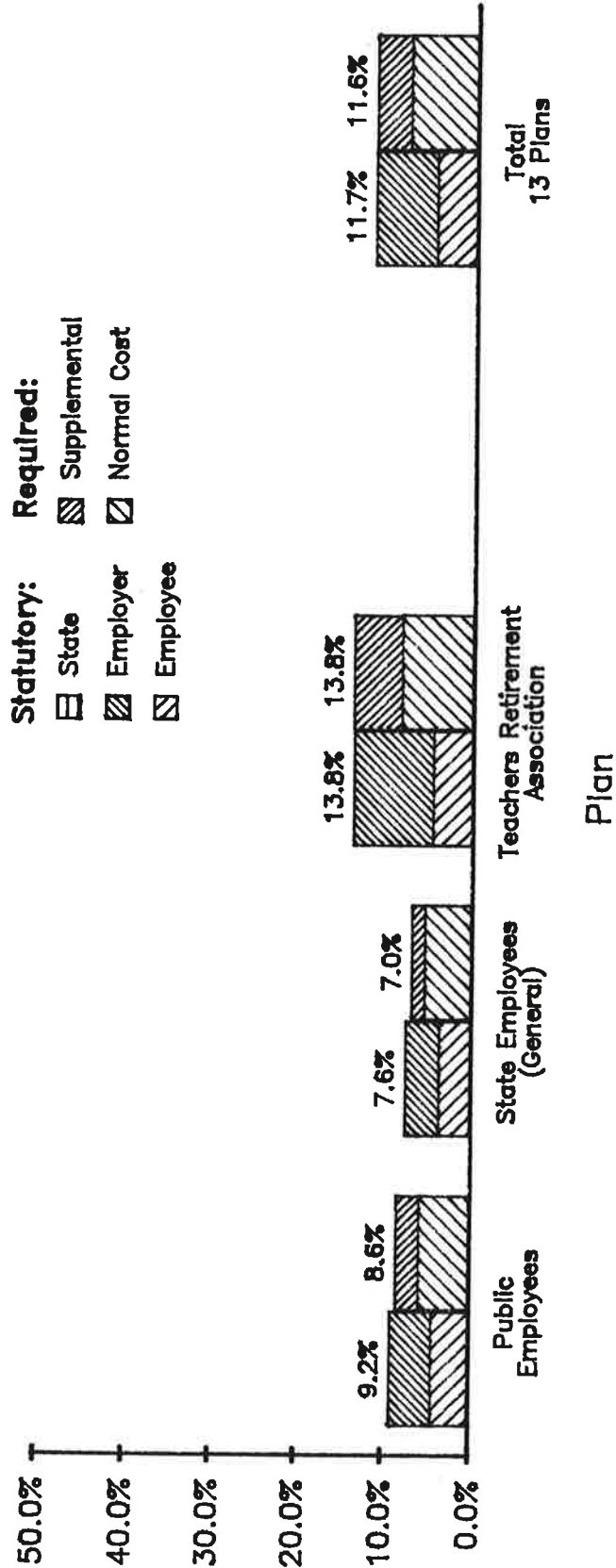
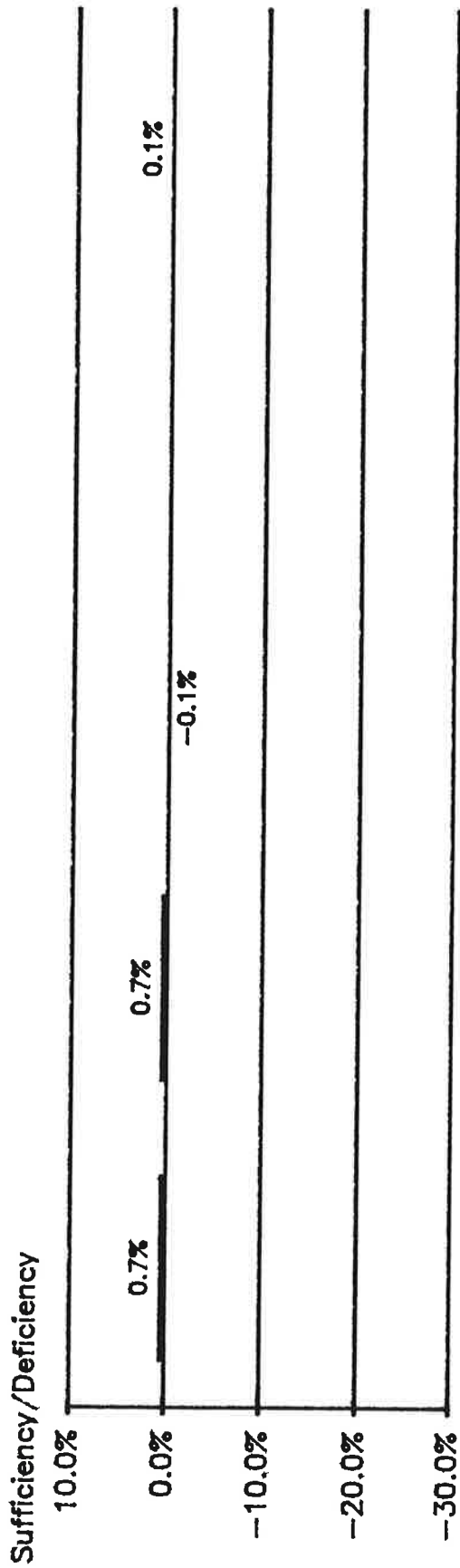
Overall, there is almost an equal balance between statutory contributions (11.7%) and the required contributions (11.6%). However, there are some notable differences among the plans.

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.

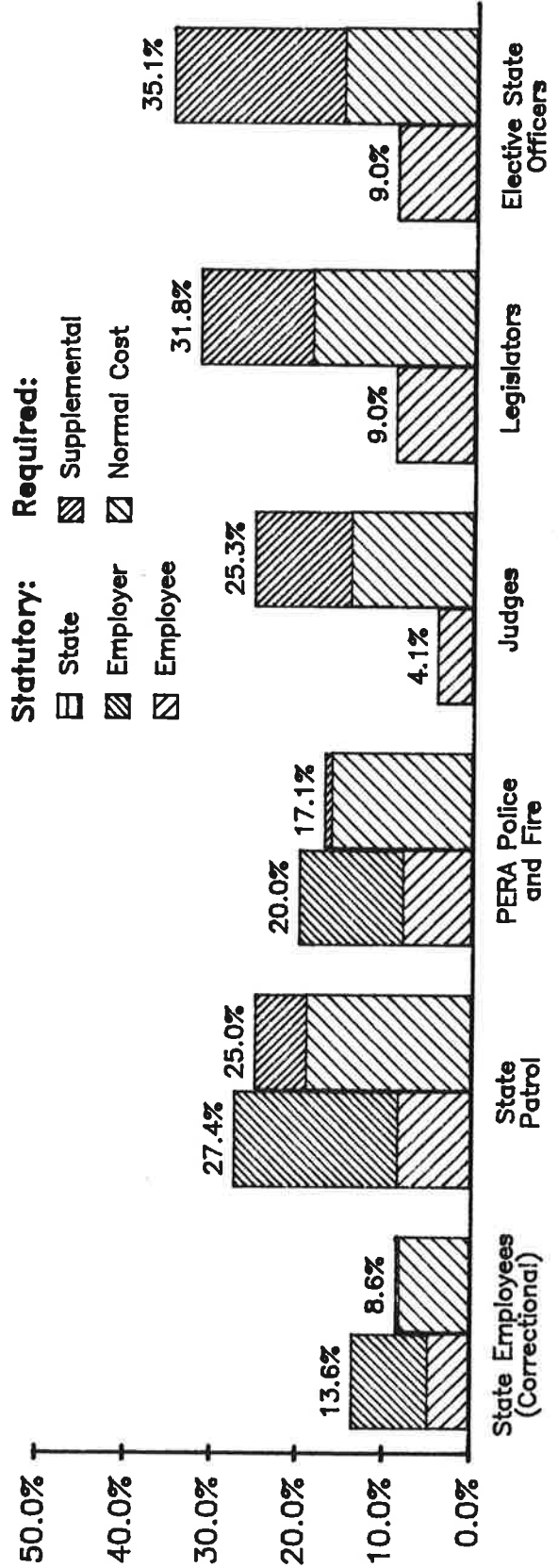
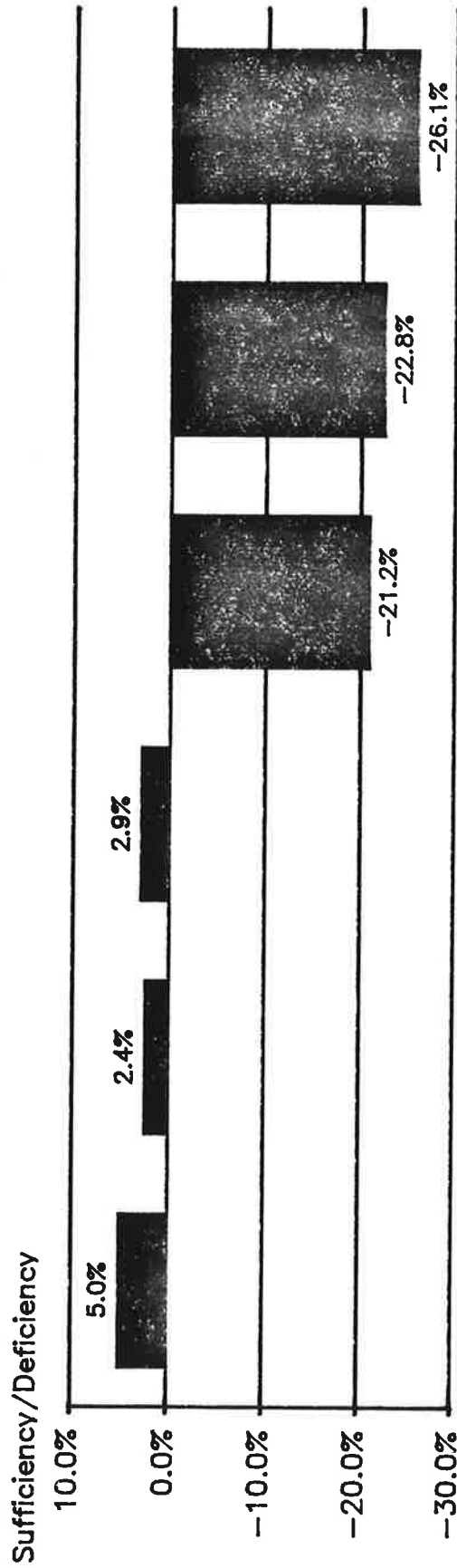
The remaining plans showing deficiencies, in order of magnitude, are:

- Minneapolis Teachers -12.4%
- St. Paul Teachers - 3.6%
- Duluth Teachers - 0.7%
- Teachers Retirement Association - 0.1%

# 1987 Pension Plan Contributions: Statutory vs. Required

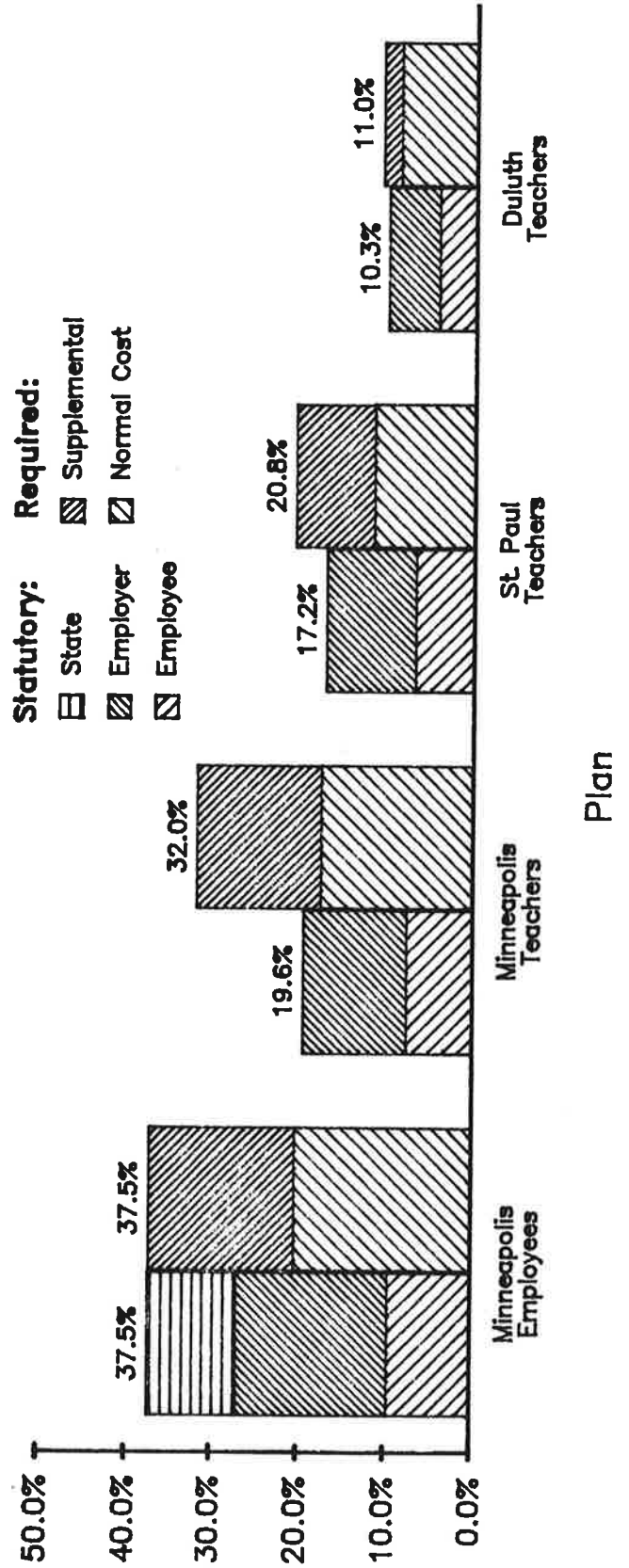
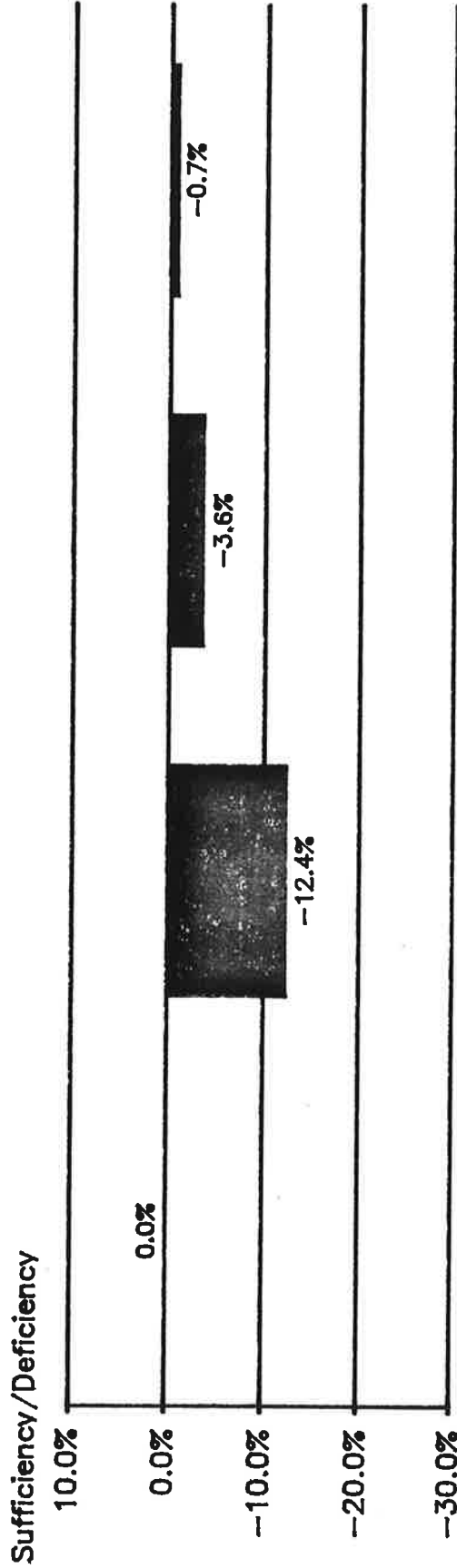


# 1987 Pension Plan Contributions: Statutory vs. Required(cont)



Plan

# 1987 Pension Plan Contributions: Statutory vs. Required(cont)





SECTION 6  
CONTRIBUTIONS FOR 1987 FISCAL YEAR

Each plan's projected payroll for the 1987 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 fall short by \$3.7 million which is less than 1% of the total required contributions of \$521 million.

However, focusing solely on the four Teachers' plans with deficiencies, the shortfall is over \$16 million, or more than 3% of the total required contribution.

**CONTRIBUTIONS FOR 1987 FISCAL YEAR  
(In Thousands of Dollars)**

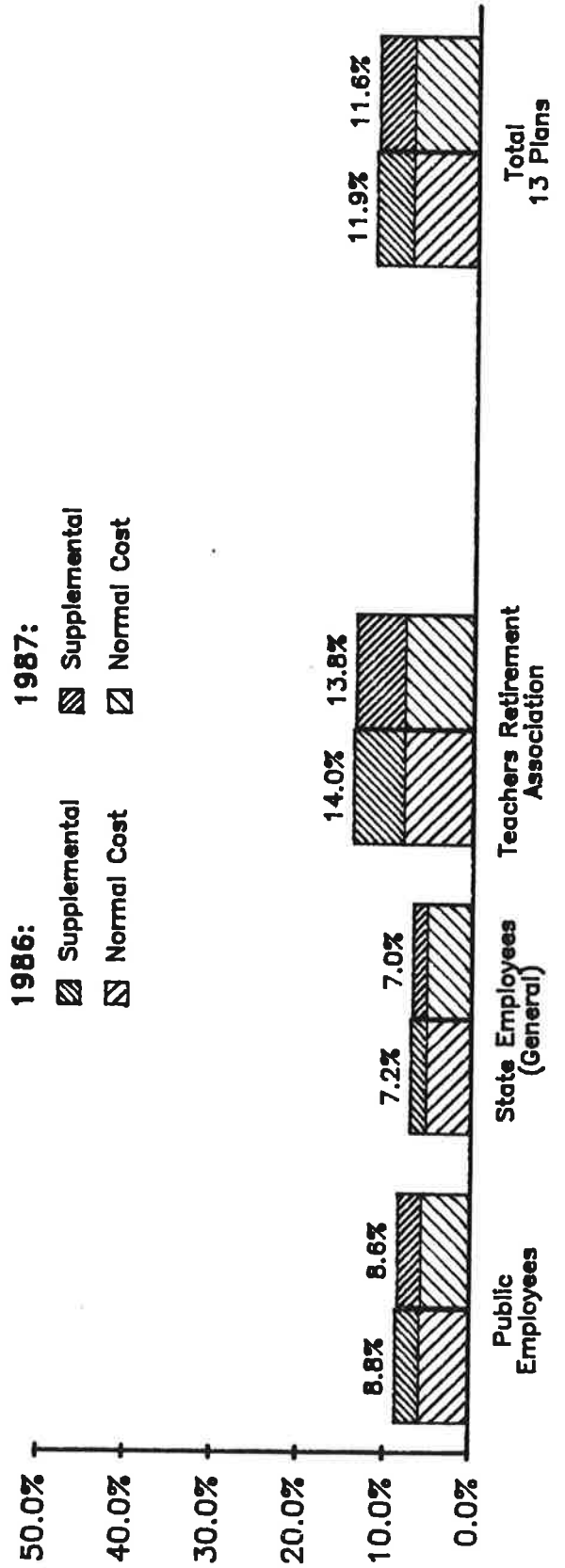
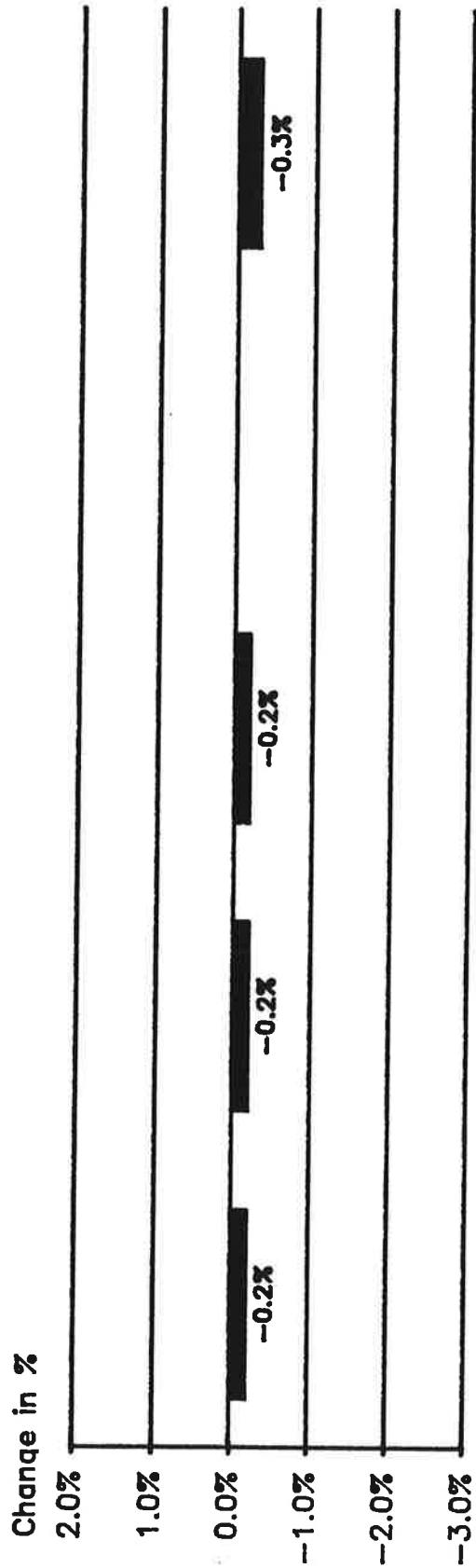
<u>PLAN</u>	<u>STATUTORY CONTRIBUTION</u>	<u>REQUIRED CONTRIBUTION</u>	<u>SUFFICIENCY (DEFICIENCY)</u>
Public Employees	\$142,739	\$132,664	\$10,075
State Employees (General)	86,620	79,017	7,603
Teachers Retirement Association	206,345	207,086	(741)
State Employees (Correctional)	4,565	2,875	1,690
State Patrol	7,528	6,869	659
PERA Police and Fire	30,743	26,292	4,451
Judges	687	4,233	(3,546)
Legislators	439	1,551	(1,112)
Elective State Officers	35	138	(103)
Minneapolis Employees	37,927	37,927	0
Minneapolis Teachers	19,192	31,286	(12,094)
St. Paul Teachers	14,592	17,640	(3,048)
Duluth Teachers	3,446	3,691	(245)
<b>Total</b>	<b>\$554,858</b>	<b>\$551,269</b>	<b>\$3,589</b>
<b>Prior Year Total</b>	<b>517,098</b>	<b>520,839</b>	<b>(3,741)</b>
<b>Change From Prior Year</b>	<b>37,760</b>	<b>30,430</b>	<b>7,330</b>
% Change	7%	6%	NA

SECTION 7  
REQUIRED PENSION PLAN CONTRIBUTIONS: 1986 VS 1987

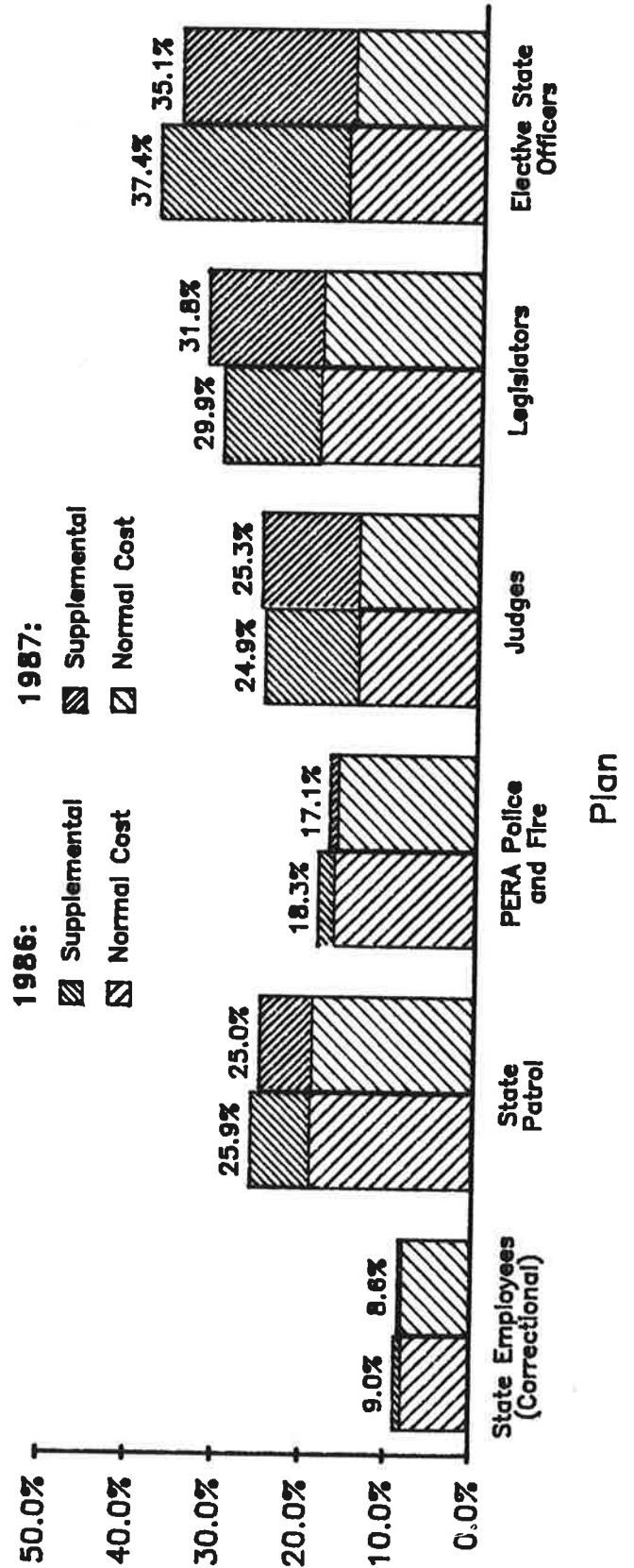
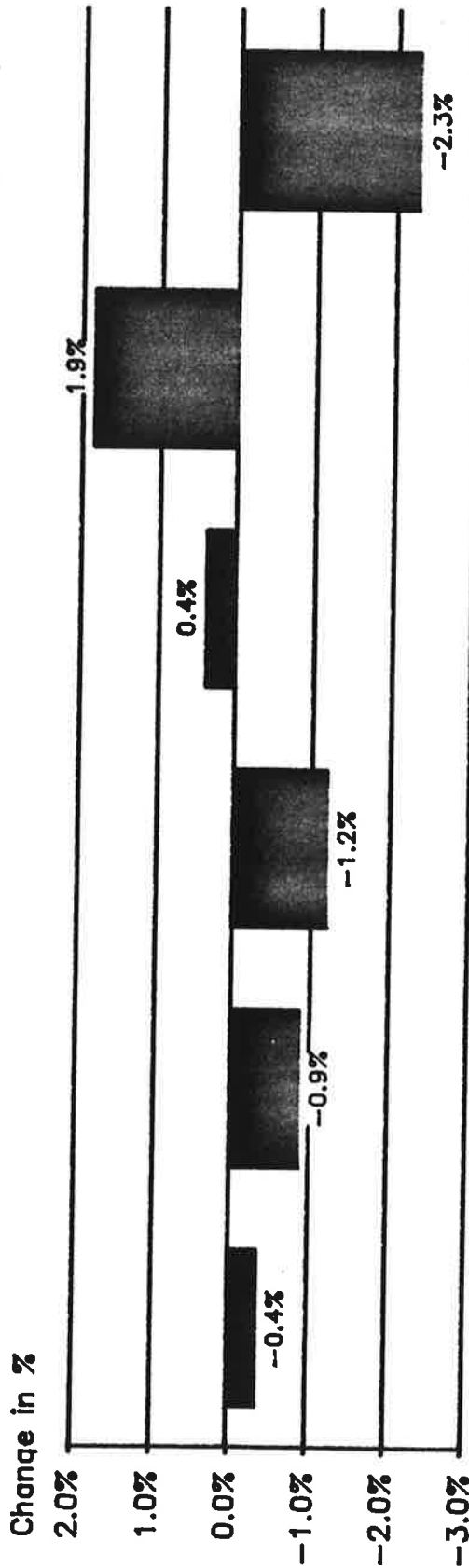
The following three graphs compare this year's required contributions to that calculated in the prior year. These contributions are expressed as a percentage of payroll.

In aggregate, the required contributions have decreased from 11.9% of payroll to 11.6%. This reduction is primarily attributable to favorable investment earnings.

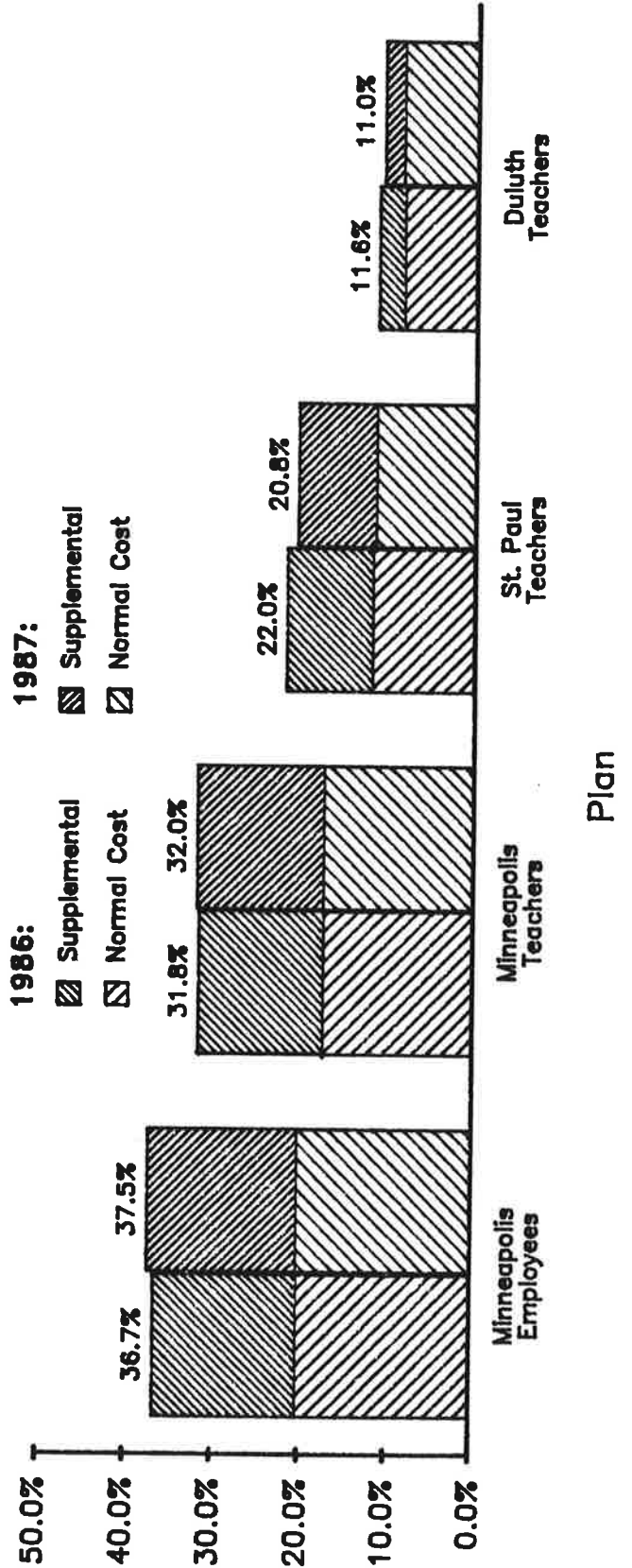
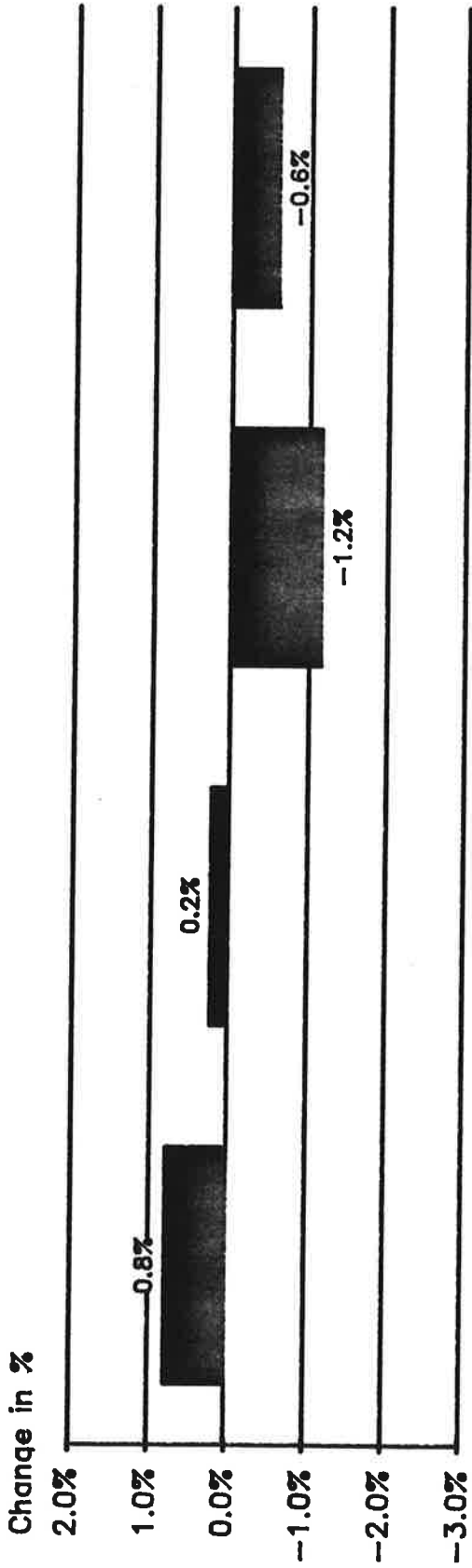
# Required Pension Plan Contributions: 1986 vs. 1987



# Required Pension Plan Contributions: 1986 vs. 1987(cont)



# Required Pension Plan Contributions: 1986 vs. 1987(cont)



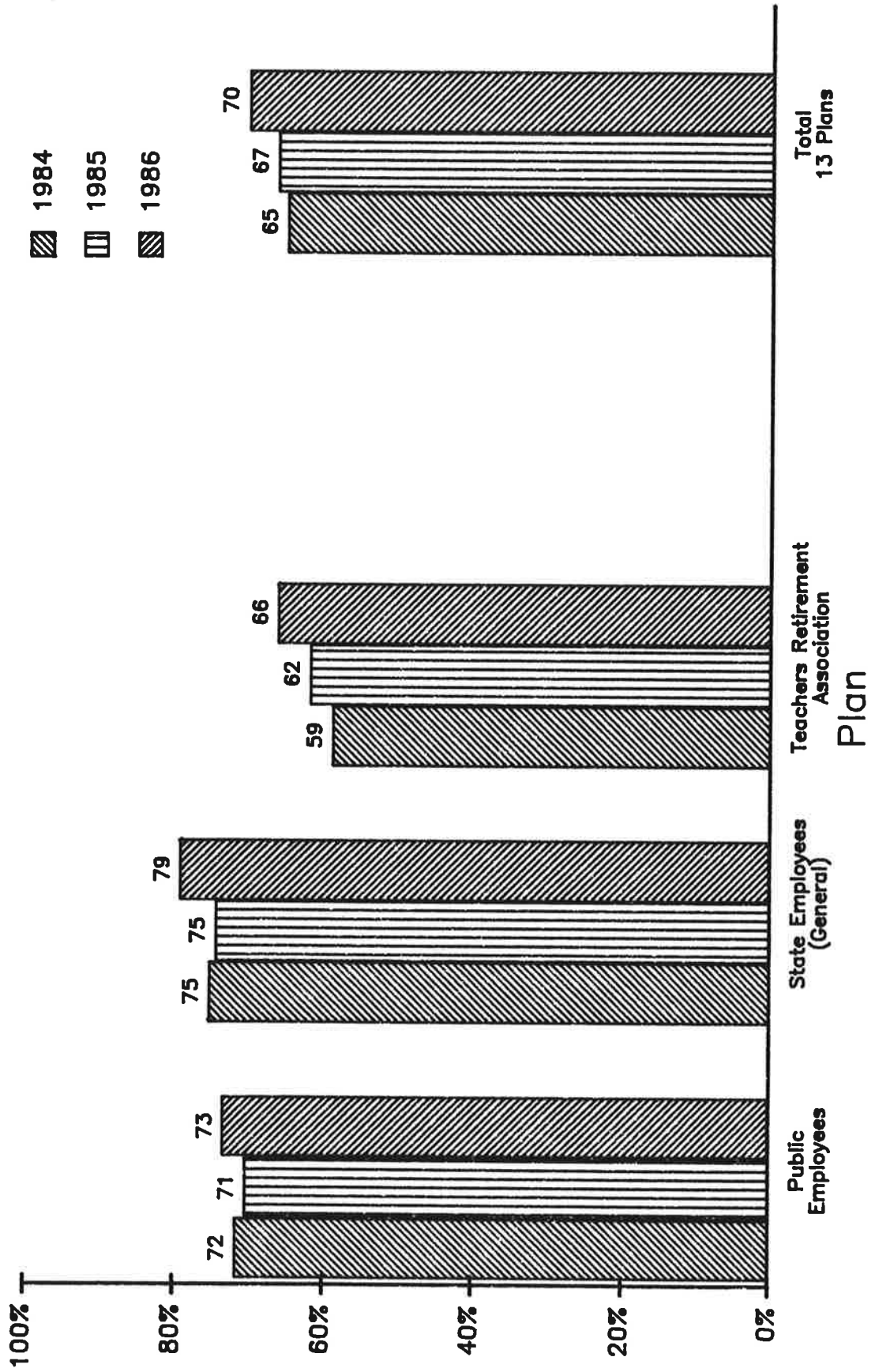
SECTION 8  
ACCRUED LIABILITY FUNDING RATIOS: 1985 VS 1986

These funding ratios represent a relationship determined on the date of actuarial valuation. For 1985 and 1986, 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.

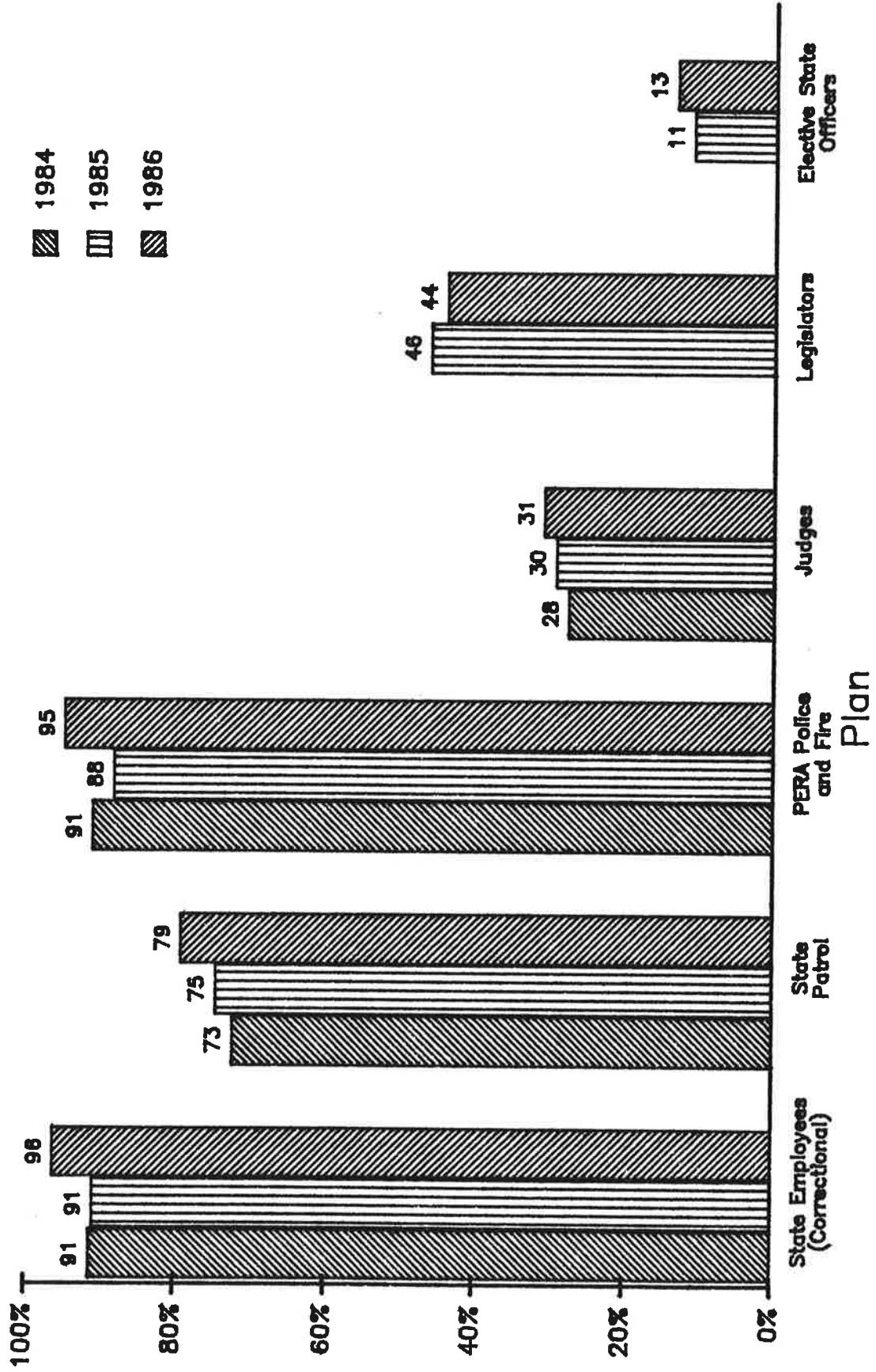
The total funding ratios for all 13 plans have improved each of the last three years and are now at the 70% levels. Most of this improvement can be attributable to the favorable investment performance of the past two years.

# Accrued Liability Funding Ratios: 1984 - 1986

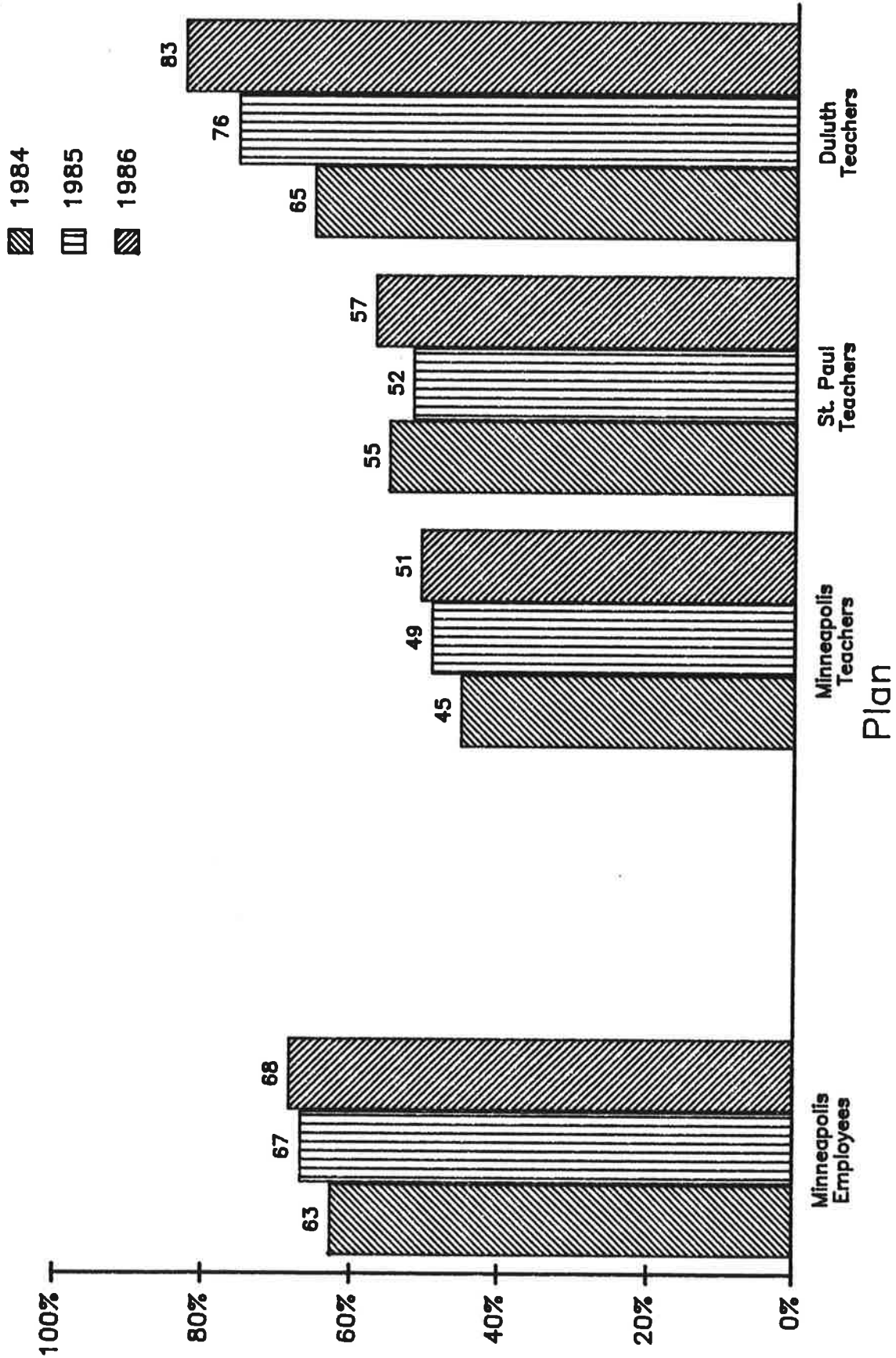




# Accrued Liability Funding Ratios: 1984 - 1986(cont)



# Accrued Liability Funding Ratios: 1984 - 1986(cont)



**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 18%, which is considerably faster than the 12% growth in actuarial accrued liability.

**ACTUARIAL LIABILITY SUMMARY  
AS OF JULY 1, 1986  
(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	\$2,925,006	\$2,148,114	\$776,892	73.44%
State Employees (General)	1,656,860	1,313,155	343,705	79.26%
Teachers Retirement Association	4,681,573	3,104,264	1,577,309	66.31%
State Employees (Correctional)	59,042	56,894	2,148	96.36%
State Patrol	149,064	118,174	30,890	79.28%
PERA Police and Fire	447,742	424,936	22,806	94.91%
Judges	51,360	15,982	35,378	31.12%
Legislators	21,591	9,535	12,056	44.16%
Elective State Officers	1,706	230	1,476	13.48%
Minneapolis Employees	865,907	592,045	273,862	68.37%
Minneapolis Teachers	543,886	276,360	267,526	50.81%
St. Paul Teachers	337,777	193,015	144,762	57.14%
Duluth Teachers	78,011	64,673	13,338	82.90%
<b>Total</b>	<b>\$11,819,525</b>	<b>\$8,317,377</b>	<b>\$3,502,148</b>	<b>70.37%</b>
<b>Prior Year Total</b>	<b>10,561,313</b>	<b>7,030,235</b>	<b>3,531,078</b>	<b>66.57%</b>
<b>Change From Prior Year</b>	<b>1,258,212</b>	<b>1,287,142</b>	<b>(28,930)</b>	<b>3.80%</b>
<b>% Change</b>	<b>12%</b>	<b>18%</b>	<b>-1%</b>	<b>NA</b>

**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>1986</u>	<u>2011</u>
Public Employees	\$1,150,137 *	\$10,517,667 *
State Employees (General)	835,868 *	4,442,177 *
Teachers Retirement Association	1,717,114 *	13,809,302 *
State Employees (Correctional)	36,836 *	454,154 *
State Patrol	64,639 *	258,031 *
PERA Police and Fire	333,040 *	3,444,414 *
Judges	5,362 *	(290,903)*
Legislators	2,585 *	(78,977)*
Elective State Officers	230	(5,642)
Minneapolis Employees	190,475 **	197,405 **
Minneapolis Teachers	276,360	444,365
St. Paul Teachers	193,015	585,705
Duluth Teachers	64,673	364,447
<b>TOTAL</b>	<b>\$4,870,334</b>	<b>\$34,142,145</b>

\* 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>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 352 % of Payroll	7.63%	7.63%
2. Required Contributions - Chapter 356 % of Payroll	7.18%	6.96%
3. Sufficiency (Deficiency) (A1-A2)	0.45%	0.67%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 2)	\$1,109,815	\$1,313,155
b. Current Benefit Obligations (Table 8)	\$1,239,375	\$1,388,785
c. Funding Ratio (a/b)	89.55%	94.55%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 2)	\$1,109,815	\$1,313,155
b. Actuarial Accrued Liability (Table 9)	\$1,489,214	\$1,656,860
c. Funding Ratio (a/b)	74.52%	79.26%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$2,089,415	\$2,373,711
b. Current and Expected Future Benefit Obligations	\$1,992,556	\$2,223,246
c. Funding Ratio (a/b)	104.86%	106.77%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	44,399	45,172
b. Projected Annual Earnings	\$1,047,928	\$1,135,260
c. Average Annual Earnings (Actual \$)	\$23,603	\$25,132
d. Average Age	39.7	39.9
e. Average Service	9.0	9.1
2. Others		
a. Service Retirements (Table 4)	10,155	10,601
b. Disability Retirements (Table 5)	683	670
c. Survivors (Table 6)	529	599
d. Deferred Retirements (Table 7)	910	957
e. Terminated Other Non-vested (Table 7)	4,878	4,402
f. Total	17,155	17,229



STATE EMPLOYEES RETIREMENT FUND (CORRECTIONAL)

REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 352 % of Payroll	13.60%	13.60%
2. Required Contributions - Chapter 356 % of Payroll	8.95%	8.57%
3. Sufficiency (Deficiency) (A1-A2)	4.65%	5.03%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 2)	\$48,568	\$56,894
b. Current Benefit Obligations (Table 8)	\$45,822	\$50,349
c. Funding Ratio (a/b)	105.99%	113.00%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 2)	\$48,568	\$56,894
b. Actuarial Accrued Liability (Table 9)	\$53,345	\$59,042
c. Funding Ratio (a/b)	91.05%	96.36%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$105,708	\$117,094
b. Current and Expected Future Benefit Obligations	\$76,308	\$83,876
c. Funding Ratio (a/b)	138.53%	139.60%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	1,191	1,220
b. Projected Annual Earnings	\$31,055	\$33,561
c. Average Annual Earnings (Actual \$)	\$26,075	\$27,509
d. Average Age	36.0	36.7
e. Average Service	7.0	7.4
2. Others		
a. Service Retirements (Table 4)	309	309
b. Disability Retirements (Table 5)	12	11
c. Survivors (Table 6)	8	8
d. Deferred Retirements (Table 7)	30	35
e. Terminated Other Non-vested (Table 7)	79	83
f. Total	438	446

**STATE PATROL RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85 VALUATION</u>	<u>07/01/86 VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 352B % of Payroll	27.40%	27.40%
2. Required Contributions - Chapter 356 % of Payroll	25.92%	25.00%
3. Sufficiency (Deficiency) (A1-A2)	1.48%	2.40%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$100,486	\$118,174
b. Current Benefit Obligations (Table 8)	\$128,874	\$142,626
c. Funding Ratio (a/b)	77.97%	82.86%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$100,486	\$118,174
b. Actuarial Accrued Liability (Table 9)	\$134,508	\$149,064
c. Funding Ratio (a/b)	74.71%	79.28%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$202,389	\$225,623
b. Current and Expected Future Benefit Obligations	\$194,860	\$213,091
c. Funding Ratio (a/b)	103.86%	105.88%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	764	769
b. Projected Annual Earnings	\$25,846	\$27,474
c. Average Annual Earnings (Actual \$)	\$33,830	\$35,727
d. Average Age	40.5	40.2
e. Average Service	13.7	13.5
2. Others		
a. Service Retirements (Table 4)	285	306
b. Disability Retirements (Table 5)	13	13
c. Survivors (Table 6)	109	106
d. Deferred Retirements (Table 7)	21	18
e. Terminated Other Non-vested (Table 7)	9	9
f. Total	437	452

## JUDGES RETIREMENT FUND

### REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 490 % of Payroll	4.13%	4.11%
2. Required Contributions - Chapter 356 % of Payroll	24.86%	25.32%
3. Sufficiency (Deficiency) (A1-A2)	-20.73%	-21.21%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$13,785	\$15,982
b. Current Benefit Obligations (Table 8)	\$47,074	\$51,178
c. Funding Ratio (a/b)	29.28%	31.23%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$13,785	\$15,982
b. Actuarial Accrued Liability (Table 9)	\$46,662	\$51,360
c. Funding Ratio (a/b)	29.54%	31.12%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$21,459	\$23,279
b. Current and Expected Future Benefit Obligations	\$72,435	\$77,843
c. Funding Ratio (a/b)	29.63%	29.91%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	240	243
b. Projected Annual Earnings	\$15,521	\$16,718
c. Average Annual Earnings (Actual \$)	\$64,671	\$68,800
d. Average Age	53.2	53.6
e. Average Service	11.5	11.8
2. Others		
a. Service Retirements (Table 4)	83	83
b. Disability Retirements (Table 5)	4	5
c. Survivors (Table 6)	52	50
d. Deferred Retirements (Table 7)	7	7
e. Terminated Other Non-vested (Table 7)	0	0
f. Total	146	145

**LEGISLATORS RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85 VALUATION</u>	<u>07/01/86 VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 3A % of Payroll	9.00%	9.00%
2. Required Contributions - Chapter 356 % of Payroll	29.92%	31.77%
3. Sufficiency (Deficiency) (A1-A2)	-20.92%	-22.77%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$8,398	\$9,535
b. Current Benefit Obligations (Table 8)	\$18,066	\$20,532
c. Funding Ratio (a/b)	46.49%	46.44%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$8,398	\$9,535
b. Actuarial Accrued Liability (Table 9)	\$18,145	\$21,591
c. Funding Ratio (a/b)	46.28%	44.16%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$15,697	\$13,656
b. Current and Expected Future Benefit Obligations	\$27,923	\$30,540
c. Funding Ratio (a/b)	56.22%	44.72%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	201	201
b. Projected Annual Earnings	\$4,507	\$4,880
c. Average Annual Earnings (Actual \$)	\$22,423	\$24,279
d. Average Age	45.6	46.6
e. Average Service	5.9	6.9
2. Others		
a. Service Retirements (Table 4)	108	115
b. Disability Retirements (Table 5)	NA	NA
c. Survivors (Table 6)	41	41
d. Deferred Retirements (Table 7)	111	101
e. Terminated Other Non-vested (Table 7)	15	12
f. Total	275	269

**ELECTIVE STATE OFFICERS RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 352C % of Payroll	9.00%	9.00%
2. Required Contributions - Chapter 356 % of Payroll	37.42%	35.06%
3. Sufficiency (Deficiency) (A1-A2)	-28.42%	-26.06%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$197	\$230
b. Current Benefit Obligations (Table 8)	\$1,595	\$1,555
c. Funding Ratio (a/b)	12.35%	14.79%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$197	\$230
b. Actuarial Accrued Liability (Table 9)	\$1,745	\$1,706
c. Funding Ratio (a/b)	11.29%	13.48%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$762	\$430
b. Current and Expected Future Benefit Obligations	\$2,116	\$2,054
c. Funding Ratio (a/b)	36.01%	20.93%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	6	6
b. Projected Annual Earnings	\$366	\$392
c. Average Annual Earnings (Actual \$)	\$61,000	\$65,373
d. Average Age	46.2	47.2
e. Average Service	5.9	6.9
2. Others		
a. Service Retirements (Table 4)	6	4
b. Disability Retirements (Table 5)	NA	NA
c. Survivors (Table 6)	3	4
d. Deferred Retirements (Table 7)	5	5
e. Terminated Other Non-vested (Table 7)	1	1
f. Total	15	14

**PUBLIC EMPLOYEES RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85 VALUATION</u>	<u>07/01/86 VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 353 % of Payroll	9.36%	9.20%
2. Required Contributions - Chapter 356 % of Payroll	8.77%	8.55%
3. Sufficiency (Deficiency) (A1-A2)	0.59%	0.65%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$1,842,957	\$2,148,114
b. Current Benefit Obligations (Table 8)	\$2,310,374	\$2,590,445
c. Funding Ratio (a/b)	79.77%	82.92%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$1,842,957	\$2,148,114
b. Actuarial Accrued Liability (Table 9)	\$2,614,116	\$2,925,006
c. Funding Ratio (a/b)	70.50%	73.44%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$3,373,562	\$3,773,569
b. Current and Expected Future Benefit Obligations	\$3,209,739	\$3,580,782
c. Funding Ratio (a/b)	105.10%	105.38%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	86,312	89,336
b. Projected Annual Earnings	\$1,423,911	\$1,551,555
c. Average Annual Earnings (Actual \$)	\$16,497	\$17,368
d. Average Age	42.2	42.2
e. Average Service	8.1	8.0
2. Others		
a. Service Retirements (Table 4)	17,277	18,719
b. Disability Retirements (Table 5)	654	633
c. Survivors (Table 6)	3,854	3,970
d. Deferred Retirements (Table 7)	1,863	1,746
e. Terminated Other Non-vested (Table 7)	38,986	40,023
f. Total	62,634	65,091

**PUBLIC EMPLOYEES POLICE AND FIRE FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85 VALUATION</u>	<u>07/01/86 VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 353 % of Payroll	20.00%	20.00%
2. Required Contributions - Chapter 356 % of Payroll	18.32%	17.10%
3. Sufficiency (Deficiency) (A1-A2)	1.68%	2.90%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$338,400	\$424,936
b. Current Benefit Obligations (Table 8)	\$352,356	\$402,314
c. Funding Ratio (a/b)	96.04%	105.62%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$338,400	\$424,936
b. Actuarial Accrued Liability (Table 9)	\$382,998	\$447,742
c. Funding Ratio (a/b)	88.36%	94.91%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$719,219	\$836,973
b. Current and Expected Future Benefit Obligations	\$673,023	\$752,324
c. Funding Ratio (a/b)	106.86%	111.25%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	4,928	5,127
b. Projected Annual Earnings	\$139,222	\$153,714
c. Average Annual Earnings (Actual \$)	\$28,251	\$29,981
d. Average Age	37.2	37.3
e. Average Service	9.4	9.6
2. Others		
a. Service Retirements (Table 4)	765	838
b. Disability Retirements (Table 5)	54	58
c. Survivors (Table 6)	279	302
d. Deferred Retirements (Table 7)	163	555
e. Terminated Other Non-vested (Table 7)	350	461
f. Total	1,611	2,214

TEACHERS RETIREMENT ASSOCIATION FUND

REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 354 % of Payroll	13.83%	13.77%
2. Required Contributions - Chapter 356 % of Payroll	14.03%	13.82%
3. Sufficiency (Deficiency) (A1-A2)	-0.20%	-0.05%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$2,585,778 *	\$3,104,264 *
b. Current Benefit Obligations (Table 8)	\$3,614,856 *	\$4,054,734 *
c. Funding Ratio (a/b)	71.53%	76.56%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$2,585,778 *	\$3,104,264 *
b. Actuarial Accrued Liability (Table 9)	\$4,166,116 *	\$4,681,573 *
c. Funding Ratio (a/b)	62.07%	66.31%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$5,376,933 *	\$5,998,980 *
b. Current and Expected Future Benefit Obligations	\$5,430,487 *	\$6,013,429 *
c. Funding Ratio (a/b)	99.01%	99.76%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	58,533	60,174
b. Projected Annual Earnings	\$1,393,716	\$1,498,590
c. Average Annual Earnings (Actual \$)	\$23,811	\$24,904
d. Average Age	41.5	41.7
e. Average Service	11.5	11.5
2. Others		
a. Service Retirements (Table 4)	12,798	13,695
b. Disability Retirements (Table 5)	223	222
c. Survivors (Table 6)	781	808
d. Deferred Retirements (Table 7)	2,191	2,088
e. Terminated Other Non-vested (Table 7)	13,628	12,957
f. Total	29,621	29,770

\* Includes Variable Annuity Fund of \$111,591 in 1985 and \$142,214 in 1986.



**MINNEAPOLIS EMPLOYEES RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 422A % of Payroll	36.74%	37.46%
2. Required Contributions - Chapter 356 % of Payroll	36.74%	37.46%
3. Sufficiency (Deficiency) (A1-A2)	0.00%	0.00%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$529,066	\$592,045
b. Current Benefit Obligations (Table 8)	\$766,595	\$832,311
c. Funding Ratio (a/b)	69.02%	71.13%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$529,066	\$592,045
b. Actuarial Accrued Liability (Table 9)	\$791,325	\$865,907
c. Funding Ratio (a/b)	66.86%	68.37%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$999,784	\$1,067,563
b. Current and Expected Future Benefit Obligations	\$999,784	\$1,067,563
c. Funding Ratio (a/b)	100.00%	100.00%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	3,812	3,551
b. Projected Annual Earnings	\$99,740	\$101,260
c. Average Annual Earnings (Actual \$)	\$26,165	\$28,516
d. Average Age	47.6	47.6
e. Average Service	15.1	15.8
2. Others		
a. Service Retirements (Table 4)	3,459	3,522
b. Disability Retirements (Table 5)	261	260
c. Survivors (Table 6)	938	947
d. Deferred Retirements (Table 7)	101	94
e. Terminated Other Non-vested (Table 7)	197	190
f. Total	4,956	5,013

**MINNEAPOLIS TEACHERS' RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85 VALUATION</u>	<u>07/01/86 VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 354A % of Payroll	19.99%	19.64%
2. Required Contributions - Chapter 356 % of Payroll	31.78%	32.02%
3. Sufficiency (Deficiency) (A1-A2)	-11.79%	-12.38%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$239,072	\$276,360
b. Current Benefit Obligations (Table 8)	\$459,380	\$513,441
c. Funding Ratio (a/b)	52.04%	53.83%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$239,072	\$276,360
b. Actuarial Accrued Liability (Table 9)	\$484,578	\$543,886
c. Funding Ratio (a/b)	49.34%	50.81%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$454,677	\$491,884
b. Current and Expected Future Benefit Obligations	\$658,153	\$721,605
c. Funding Ratio (a/b)	69.08%	68.17%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	2,758	2,942
b. Projected Annual Earnings	\$87,643	\$97,717
c. Average Annual Earnings (Actual \$)	\$31,778	\$33,215
d. Average Age	44.0	44.6
e. Average Service	14.4	14.4
f. Additional Members on Leave	234	202
2. Others		
a. Service Retirements (Table 4)	2,153	2,160
b. Disability Retirements (Table 5)	47	45
c. Survivors (Table 6)	140	201
d. Deferred Retirements (Table 7)	562	272
e. Terminated Other Non-vested (Table 7)	60	366
f. Total	2,962	3,044

**ST. PAUL TEACHERS' RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 354A % of Payroll	17.71%	17.18%
2. Required Contributions - Chapter 356 % of Payroll	21.95%	20.77%
3. Sufficiency (Deficiency) (A1-A2)	-4.24%	-3.59%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$159,874	\$193,015
b. Current Benefit Obligations (Table 8)	\$282,588	\$308,532
c. Funding Ratio (a/b)	56.57%	62.56%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$159,874	\$193,015
b. Actuarial Accrued Liability (Table 9)	\$307,407	\$337,777
c. Funding Ratio (a/b)	52.01%	57.14%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$340,343	\$382,493
b. Current and Expected Future Benefit Obligations	\$403,836	\$440,367
c. Funding Ratio (a/b)	84.28%	86.86%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	2,888	3,105
b. Projected Annual Earnings	\$75,852	\$84,932
c. Average Annual Earnings (Actual \$)	\$26,265	\$27,353
d. Average Age	42.9	42.7
e. Average Service	11.6	11.1
f. Additional Members on Leave of Absence	134	106
2. Others		
a. Service Retirements (Table 4)	963	991
b. Disability Retirements (Table 5)	28	34
c. Survivors (Table 6)	112	112
d. Deferred Retirements (Table 7)	36	30
e. Terminated Other Non-vested (Table 7)	1,770	1,852
f. Total	2,909	3,019

**DULUTH TEACHERS' RETIREMENT FUND**

**REPORT HIGHLIGHTS  
(DOLLARS IN THOUSANDS)**

	<u>07/01/85</u> <u>VALUATION</u>	<u>07/01/86</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 354A % of Payroll	10.29%	10.29%
2. Required Contributions - Chapter 356 % of Payroll	11.55%	11.02%
3. Sufficiency (Deficiency) (A1-A2)	-1.26%	-0.73%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$53,839	\$64,673
b. Current Benefit Obligations (Table 8)	\$64,730	\$70,954
c. Funding Ratio (a/b)	83.17%	91.15%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$53,839	\$64,673
b. Actuarial Accrued Liability (Table 9)	\$71,154	\$78,011
c. Funding Ratio (a/b)	75.67%	82.90%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$95,064	\$107,393
b. Current and Expected Future Benefit Obligations	\$102,842	\$112,037
c. Funding Ratio (a/b)	92.44%	95.85%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	1,182	1,251
b. Projected Annual Earnings	\$31,222	\$33,497
c. Average Annual Earnings (Actual \$)	\$26,415	\$26,776
d. Average Age	43.5	43.5
e. Average Service	12.0	11.5
2. Others		
a. Service Retirements (Table 4)	562	576
b. Disability Retirements (Table 5)	8	7
c. Survivors (Table 6)	23	25
d. Deferred Retirements (Table 7)	50	58
e. Terminated Other Non-vested (Table 7)	0	0
f. Total	643	666