ACTUARIAL
REPORT

DULUTH TEACHERS' RETIREMENT
FUND ASSOCIATION

AS OF JUNE 30, 1984

Hewitt Associates

PREPARATION OF THIS ACTUARIAL REPORT

AS OF JUNE 30, 1984

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION

This report has been prepared in accordance with generally accepted actuarial principles and practices. This actuarial valuation was made in accordance with the provisions of Sections 356.20 to 356.23 of Minnesota Statutes 1969, as amended. The material from which this report was prepared consisted of personnel data furnished by the Association, the annual report of Eikill and Schilling for the Association, and actuarial tables compiled by Hewitt Associates. The usual care has been exercised in making the calculations and presenting the results. The contents of this report are, therefore, believed to be a correct appraisal of the state of affairs of the Plan.

Respectfully submitted,

HEWITT ASSOCIATES

Jay A. Yager

Jay A. Yager
Associate, Society of Actuaries

Richard L. Moody

Richard L. Moody
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January 8, 1985

SUMMARY*

	June 30, 1984	June 30, 1983	June 30, 1982
Accrued Liability	$73,174,515	$63,630,916	$58,568,245
Actuarial Value of Assets	47,859,415	42,901,016	39,004,140
Unfunded Accrued Liability	$25,315,100	$20,729,900	$19,564,105
Normal Cost as Percent of Compensation	8.05%	7.87%	7.94%
Contribution as a Percent of Compensation Based on Normal Cost plus:			
Amortization by 2009	13.26%	13.82%	13.49%
Value of Accrued Benefits**			
Vested Only	$38,717,444	$32,792,153	$29,870,216
All Accrued	40,531,167	34,793,103	31,687,788
Market Value of Assets	$49,437,118	$49,665,414	$39,236,344
Number of Members			
Active	1,137	1,119	1,173
Retired	562	557	531
Terminated Deferred Vested	47	50	63
Total	1,746	1,726	1,767

*Based on statutory interest rate and salary scale.

**Determined under Financial Accounting Standards Board Statement No. 35 and an assumed interest rate of 7.0%.

LIABILITIES, ASSETS, NORMAL COST

Shown below are the results of the actuarial valuation as of June 30, 1984. The results for the New Coordinated Program take into account the plan feature that allows members in the Old Coordinated Program to elect the New Coordinated Program at any time up to retirement.

	Old Coordinated Program	New Coordinated Program	Total
Present Value of Projected Benefits	$90,710,793	$8,238,388	$98,949,181
Present Value of Future Normal Costs	23,148,411	2,626,255	25,774,666
Accrued Liability	$67,562,382	$5,612,133	$73,174,515
Actuarial Value of Assets (page II-A-3)	45,662,754	2,196,661	47,859,415
Unfunded Accrued Liability	$21,899,628	$3,415,472	$25,315,100
Normal Cost	$ 2,069,684	$ 225,301	$ 2,294,985
Current Compensation for All Active Members	$25,590,903	$2,928,347	$28,519,250
Normal Cost as a Percentage of Current Compensation	8.09%	7.69%	8.05%

Current and Expected Future Assets

Current Assets	
Cash and equivalents	$ 2,246,331
Fixed Income Investments	16,788,811
Equity Investments	27,090,369
Other	1,733,904
Total Current Assets	$47,859,415
Expected Future Assets	
Present Value of Expected Future Supplemental Contributions	$ 7,491,447
Present Value of Future Normal Costs	25,774,666
Total Expected Future Assets	$33,266,113
Total Current and Expected Future Assets	$81,125,528

Current and Expected Future Benefit Obligations

Current Benefit Obligations	
Actuarial Value of benefit obligations on account of service rendered to date:	
For annuitants:	
Retirement Annuities	$19,823,809
Disability Annuities	276,330
Survivor Annuities	570,543
For Former Members without Vested Rights	0
For Deferred Annuitants' Benefits	359,198
For active Employees	
Retirement Benefits	46,321,749
Disability Benefits	1,403,949
Refund Liability due to Death or Withdrawal	174,705
Survivors' Benefits	786,291
Total Current Benefit* Obligations	$69,716,574
Expected Future Benefit Obligations	
Actuarial Value of Benefit Obligations on Account of Future Service for Active Employees	$29,232,607
Total Current and Expected Future Benefit Obligations	$98,949,181
Current Unfunded Liability	$21,857,159
Current and Future Unfunded Liability	$17,823,653

*Approximate present value included from pay augmentation is $17,740,000.

LIABILITIES, ASSETS, NORMAL COST (Continued)

Determination of Actuarial Value of Assets Before Change in Method

(1)	Actuarial Value of Assets, 6/30/83	$42,901,016
(2)	Contributions	2,915,203
(3)	Benefits Paid	2,323,413
(4)	Assumed Investment Return at 5% on:	
	(a) Actuarial Value of Assets, line (1)	2,145,051
	(b) Contributions, line (2)	72,880
	(c) Benefits Paid, line (3)	58,085
	(d) Total, (4a)+(4b)-(4c)	$ 2,159,846
(5)	Expected Value of Assets, 6/30/84 (1)+(2)-(3)+(4d)	$45,652,652
(6)	Market Value, 7/1/84	$51,456,276
(7)	Adjustment Towards Market Value, 20% of (6)-(5)	$ 1,160,725
(8)	Actuarial Value of Assets, 6/30/84, (5)+(7)	$46,813,377

Determination of Actuarial Value of Assets After Change in Method

(1)	Assets at Cost	$47,073,396
(2)	Liabilities	2,833
(3)	1/3 of Unrealized Appreciation	788,852
(4)	Actuarial Value of Assets, 6/30/84, (1)-(2)+(3)	$47,859,415

The total actuarial value of assets under both methods has been allocated to the Old Coordinated Program and the New Coordinated Program as follows:

	Before Change	After Change
Old Coordinated Program	$44,664,727	$45,662,754
New Coordinated Program	2,148,650	2,196,661
	$46,813,377	$47,859,415

CONTRIBUTIONS

Required Support Levy from the State of Minnesota

Active members of the Fund contribute 4.50% of their compensation to meet part of the cost of the Plan. The following tables indicate the total contributions and the support levy from the State of Minnesota, expressed as a percent of compensation, required to meet the remaining cost of the Plan. The expense entries shown have been determined by dividing the 1983-84 expense (excluding Investment Advisor's fees) by current compensation. The contribution is expressed as payable half way through the plan year.

Normal Cost Plus Amortization of Unfunded Accrued Liability by 2009

	Total	State of Minnesota
Normal Cost	8.37%	3.87%
Payment on Unfunded Accrued Liability	4.35%	4.35%
Expenses	.54%	.54%
Total	13.26%	8.76%

This contribution could be viewed as 13.14% for the Old Coordinated Program and 14.25% for the New Coordinated Program. The State of Minnesota portion would be 8.64% and 9.75% respectively.

EXPERIENCE

Changes in Unfunded Accrued Liability

The unfunded accrued liability as determined on the same basis as in the past, increased from $20,729,900 on June 30, 1983, to $20,770,650 on June 30, 1984. This increase of $40,750 reflects the effect of the contributions and the experience gain under the Plan.

The actuarial valuation report as of June 30, 1983, based on a 5.0% interest assumption, indicated a required support levy of 12.30% of compensation by the State of Minnesota and the members to keep the unfunded accrued liability from increasing (that is, to meet the normal cost payment, pay interest on the unfunded accrued liability, and to meet expenses). The actual contribution by the State of Minnesota and the members was 10.29% of compensation from July 1983 through June 1984. This results in a contribution shortage of about 2.01%. Thus, the contribution shortage increased the unfunded accrued liability by about $514,000 (2.01% of $25,545,672).

Since the unfunded accrued liability increased less than $514,000, the actual experience under the plan for the year resulted in an actuarial gain of approximately $473,000.

Normal Cost Percentage

The normal cost percentage before change remained constant at 7.87% on June 30, 1983 and June 30, 1984.

Actuarial Gain

During the 1983-1984 school year, there was an actuarial gain (i.e., an unanticipated decrease in the unfunded accrued liability because of experience) of about $473,000.

The primary source of this gain was favorable investment performance. The rate of return during the year based on the actuarial value of assets was 7.7%, well in excess of the assumed 5% rate. This investment experience produced a gain of $1,160,725 based on the actuarial value of assets. The annual market value rate of return was approximately 2.4%. In addition, the mortality experience among the retired members produced a gain of about $100,000 as more liability was released than expected.

Partially offsetting these gains was an actuarial loss due to compensation increases in excess of the assumed salary increases of 3-1/2%. For members who were active in both the 1983 and 1984 valuations, the average compensation increased 5.0%. For members age 45 and older, the average increase was 4.3%. These increases are shown graphically by five-year age groups on page IV-7. This experience produced an actuarial loss of about $600,000. The average age of the new service retirements was 60.6 years, lower than the assumed retirement age of 63, producing an additional loss.

ACCRUED BENEFIT VALUES

The Financial Accounting Standards Board Statement No. 35 was issued in March of 1980 for reporting in the annual financial statements of the plan. This statement requires the inclusion of the present value of vested benefits and all accrued benefits determined on an ongoing plan basis for all defined benefit pension plans.

To provide guidance for consistent actuarial practice in the determination of accrued benefit values for an ongoing plan, the American Academy of Actuaries has recommended procedures for calculating the present value of vested benefits (Interpretation 1) and the present value of accrued benefits (Interpretation 2). In the judgment of the Academy Committee on Pension Actuarial Principles and Practices, these Interpretations are acceptable for the determination of both vested and all accrued benefit values.

Both Interpretations include the present value as of June 30, 1984, of the sum of: (a) all benefits expected to be paid to former members, and their beneficiaries, who have retired or have terminated with vested rights, and (b) benefits expected to be paid at future dates to present active members, based only on compensation and service prior to June 30, 1984, as further described in the next two paragraphs.

The calculation of the present value of vested benefits using Interpretation 1, as shown on page III-2, represents only the benefits in which an active member retains a right, independent of continuation of employment. It does not include any additional benefits which might arise because of the future death or disability of a member that become payable only if the member remains employed until death or disability.

The calculation of the present value of all accrued benefits using Interpretation 2, also shown on page III-2, represents all accrued benefits expected to become payable at future dates, including the accrued portion of disability or pre-retirement death benefits which are expected to become payable. In addition, members who are not vested in any benefits as of June 30, 1984, are included in this calculation based on their current accrued benefits that are expected to become payable upon the occurrence of future events (termination, retirement, etc.) and the probability of becoming eligible for such benefits.

ACCRUED BENEFIT VALUES (Continued)

These present values represent the single sum values based on the actuarial assumptions described in Section V-B of this report. With the exception of the interest rate, where 7% has been assumed for purposes of the accrued benefit values for pre- and post-retirement, these are the same assumptions as used for determining the valuation results that produce the contribution requirements for this plan. The basic retirement benefit on which these calculations were made was the estimated benefit accrued to June 30, 1984, for each member based on the five-year average compensation, which was calculated from the actual compensation reported for the previous five school years.

	Old Coordinated Program	New Coordinated Program	Total
Present Value of Vested Benefits			
Retired (Including Beneficiaries)	$16,457,844	$1,579,401	$18,037,245
Terminated Deferred Vested Members	253,372	9,391	262,763
Active Members	20,129,600	287,836	20,417,436
Total, Vested Benefits	$36,840,816	$1,876,628	$38,717,444
Present Value of Nonvested Benefits	1,292,146	521,577	1,813,723
Total Present Value of Accrued Benefits	$38,132,962	$2,398,205	$40,531,167
Assets			
Actuarial Value	$45,662,754	$2,196,661	$47,859,415
Market Value	N/A	N/A	$49,437,118

Changes in Value

Since the actuarial valuation as of June 30, 1983, the only changes in the actuarial assumptions for valuing accrued benefits were changes in the disability and mortality rates used. There were benefit improvements of an increase to the interest rate credited to member contributions and an unreduced early retirement benefit window for members who retire with 85 age/service points before 1987. The change in the accrued benefit values between the June 30, 1983, and June 30, 1984, calculation dates was an increase of $5,738,064 as shown below:

Present Value of All Accrued Benefits	
June 30, 1984	$40,531,167
June 30, 1983	34,793,103
Increase	$ 5,738,064

The change in plan provisions increased the present value of all accrued benefits approximately $200,000. The change in actuarial assumptions increased the present value of all accrued benefits approximately $3,500,000.

PERSONNEL INVENTORY

The following tables show the changes that occurred in the active and retired membership from June 30, 1983, to June 30, 1984. The following pages provide more information pertaining to these members.

Active Members, June 30, 1983	1,119
New Entrants	77
Total	1,196
Separations from Active Service:	
Refund of Contributions	34
Separation With Deferred Annuity	2
Separation Without Refundment or Deferred Annuity	0
Disability	0
Death	3
Service Retirement	20
Total Separations	59
Active Members, June 30, 1984	1,137

	Number	Annual Benefits
Service Retirements as of June 30, 1983	526	$2,097,379
New Retirements	24	180,047
Total	550	$2,277,426
Terminations:		
Death	19	$ 72,408
Other	0	33,863*
Total	19	$ 106,271
Service Retirements as of June 30, 1984	531	$2,171,155
Disability Retirements as of June 30, 1983	8	$ 29,729
New Retirements	1	5,112
Total	9	$ 34,841
Terminations	1	5,919
Disability Retirements as of June 30, 1984	8	$ 28,922
Beneficiaries as of June 30, 1983	23	$ 55,832
New Entrants	2	11,962
Total	25	$ 67,794
Terminations	2	8,498
Beneficiaries as of June 30, 1984	23	$ 59,296

*Reflects reduction to age 62 benefit under Social Security adjustment option.

Active Membership Characteristics

There were 1,137 active members in the personnel data submitted as of June 30, 1984. Included in this total are 5 members who were on leave of absence. As of June 30, 1984, 142 members are participating in the New Coordinated Program and 995 members are participating in the Old Coordinated Program. Shown below are the personnel characteristics of the 1,137 members. The average age is computed to years and completed months on the valuation date and the average service is the number of years and months from the date of appointment to the valuation date. The average compensation during the 1983-1984 school year is estimated from the actual member contributions during that period.

Number	1,137
Average Age	43.8
Average Service	12.9
Average Age at Hire	30.9
Total Compensation	$26,777,586
Average Compensation	$ 23,551

Distribution of Active Members

Page IV-4 shows the distribution of active members by age last birthday and completed years of service on June 30, 1984. A key showing the contents of the age and service breakdown is shown in the upper right hand corner of the page. All members hired at the same age lie along the same diagonal line.

Several observations can be made by the use of these charts:

- the number of members who will become eligible for early or normal retirement benefits in the next few years
- the number of members who will reach the vesting requirements in the next few years
- number of members effected by changes in other benefits related to service (e.g., additional benefits for those with certain minimum service)
- number of hires per year for all past years who have remained with the School District and hiring patterns by age of hire
- some idea of median age and service figures that averages do not take into account.

Distribution of Active Members (Continued)

Supplementing these age/service distributions are two sets of graphs. The first graph (on page IV-5) illustrates the distribution of these members by five-year age groups, showing the average service and compensation for each group, and indicates separately the number of members, average service and average compensation for each age 55 and over.

The second graph (on page IV-6) shows the percentage of active members age 55 and over by expected service at age 65 classifications. This second graph can assist in reviewing the level of retirement benefits these individuals will receive at retirement.

The last graph (on page IV-7) illustrates the movement of average compensation by five-year age groups from 1983 to 1984. Only members who were active in both 1983 and 1984 are included in the graph. The solid line illustrates the "expected" compensation level for 1984 based on the actuarial assumption for salary increases.

Retired Members Information

There were 562 retired members in the personnel data submitted as of June 30, 1984. These members and their annual benefits can be summarized as follows:

	Number	Annual Benefits
Service Retirements		
Males	126	$ 678,785
Females	405	1,492,370
Total	531	$2,171,155
Disability Retirements		
Males	3	$ 11,889
Females	5	17,033
Total	8	$ 28,922
Beneficiaries (All Females)	23	$ 59,296
Total All Retirements		
Males	129	$ 690,674
Females	433	1,568,699
Total	562	$2,259,373

In addition, there were 25 members who resigned and elected a deferred annuity and 22 members who have repaid their contribution to reinstate prior service years.

Distribution of Pensioners

The graph on page IV-8 shows the distribution of the 531 service retirements by age last birthday and completed years since retirement as of June 30, 1984.

DISTRIBUTION OF PERSONNEL BY AGE AND YEARS OF SERVICE

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION ACTIVE MEMBERS

- THIS DISTRIBUTION SHOWS PERSONNEL BY AGE LAST BIRTHDAY AND COMPLETED YEARS OF SERVICE AS OF 07/01/84. FOR INSTANCE, THE CELL AT AGE 24 AND 2 YEARS OF SERVICE CONTAINS 6 EMPLOYEES.
- INDIVIDUAL CAREERS PROGRESS ALONG A DIAGONAL (STAIR-STEP) LINE; E.G., ALL EMPLOYEES HIRED AT AGE 25 APPEAR ON THE DIAGONAL WHICH STARTS AT AGE 25 WITH 0 SERVICE AND RUNS THROUGH 26 AND 1, 27 AND 2, ETC.
- THE AVERAGE AGE OF THIS GROUP IS 43.8 AND THE AVERAGE SERVICE IS 12.9.

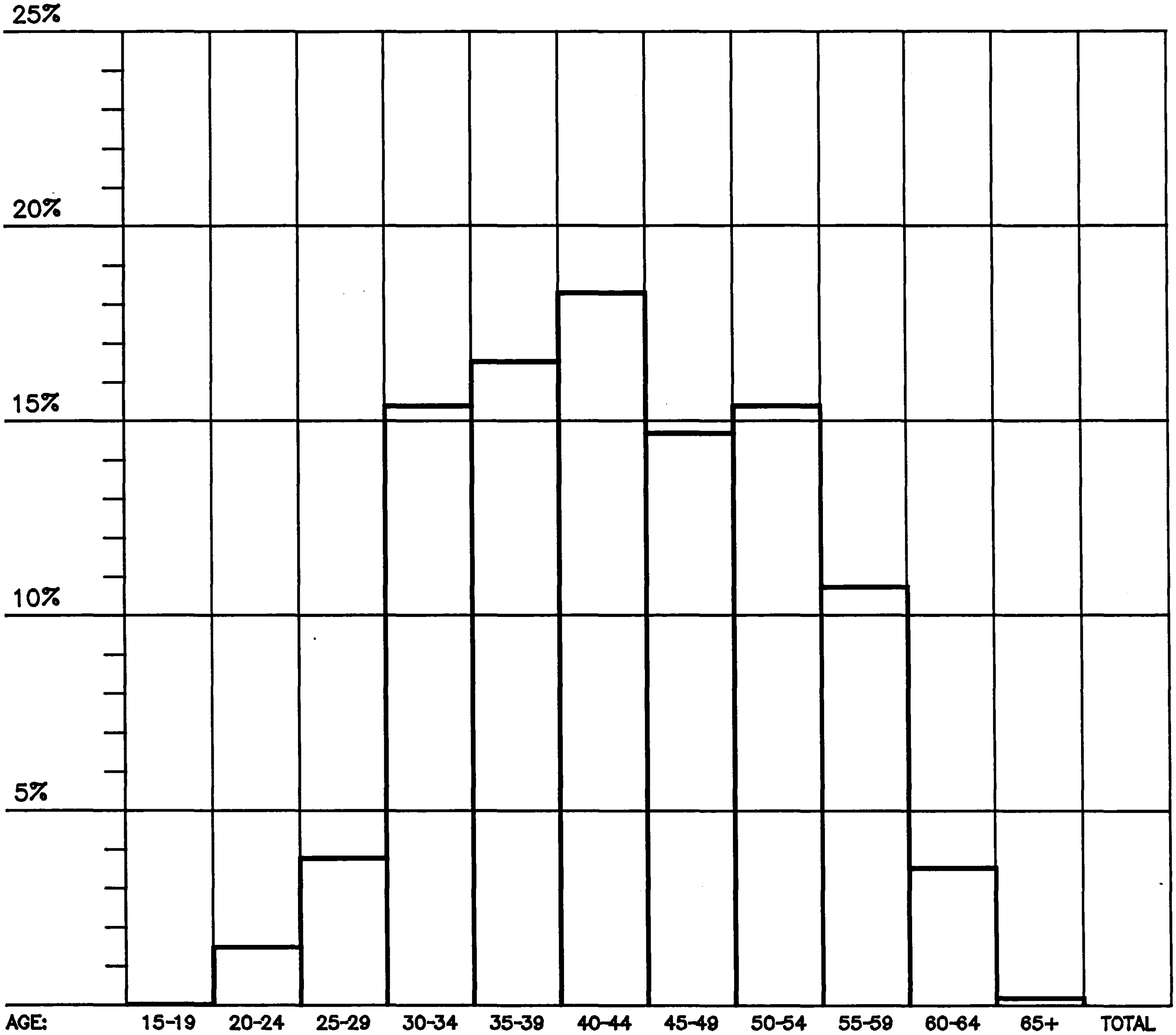
YEARS OF SERVICE

AGE	0					5					10					15					20					25					30					35					40+	M	F	T
15																																												
16																																												
17																																												
18																																												
19																																												
20																																												
21																																												
22	2																																									2		2
23	3	1	1																																							2	3	5
24	2	1	6			1																																				2	8	10
25	2		1																																							1	2	3
26	5			2		1																																				4	4	8
27	1		2	2	1	1																																				1	6	7
28	2	1	2	1	1																																					1	6	7
29	1		2	3	6	4	2																																			6	12	18
30	17	1		2	3	5	2	1	1																																	5	27	32
31	3	21		1	4	4	1	2	4			1																														14	27	41
32	4	1	2	2	2	3	2	3	3	2	2																															10	16	26
33		1		2	4	1	2	3	2	4	12	5																														9	27	36
34	6	1	3	1	3	2	1	2	2	3	4	7	3	2																												9	31	40
35		2			1		1	5	3	1	2	6	8	1																												17	13	30
36			1	3	2	5	1	1	1	1	5	6	3	5	4																											18	20	38
37			2	2	3	6			1	1	1	3	10	2	5	1																										14	23	37
38	3			2	1	1		4	1	4	2	2	3	1	1	4	2																									13	18	31
39	2	1		4		4	1	1	2			3	4	3	4	8	13	2																								27	25	52
40	1	1		1	1	3	2	3	1	1	2	3	6	2	5	4	2	4	2																							24	20	44
41	3			1	1	3	2	4	1	1	3	7	2	2	6	3	6	1	6	1																						28	25	53
42	1	2	2		4	1	1	4	1	1	1	1	1	3	3	5	2	2	1	3	1																					17	23	40
43	1		1		1	2		3	2	1	1	3	2	2	1	6	1	2	2	1	1	1																				20	14	34
44	1				2	2			1		1	2	1	7	2	4		2	1	2	4	3	2																			23	14	37
45	1					2	1	2		3	1	3	1	1	3	3	4	1	4		2		2																			16	18	34
46	1		2		1	2	1			1	2	2	1	2	2	2	3	2	1	1	1		2	1	2																	16	16	32
47				1		1	1	1	2				1	1	1	2	3	2	1	1		4	2		3																	12	15	27
48	3	2		1	1		1	1	2	1	3	1	2		5	1	2	1	1	1	1	2	4	1																		18	19	37
49	3	1			2	2		1	2	1		2	1	2		4	3		3		2		2		4	1	1															20	17	37
50	1								1		1	3	3	3	1	1	2		1	1	4	1	6	1	1	1	2		1													19	16	35
51	2						1	1		2	1	2		1	1	2	2	4		1	3	1	2	3	2	1		1	1													17	17	34
52					1				1		2	2	1	3				2		2	3	2		2	2	1	3			1	1											17	12	29
53	1	1				1	1	1	1			4		3	3	1	2	1	2	1		2	1		4	3	6	1														15	25	40
54	1					2			1	2		1	1	3	2	3	3	1	2		3	1	1	1	2	2	1		2	1	1											22	15	37
55								2			1	2		1	1	3	1	2		1	1	1	3	1	2	3	2	5	2	1	2	1		1								26	13	39
56	2						1	1		1				1	1	4	3	1		1	2	2		1	3	1			1	1	1		1									14	15	29
57								1		1	1				1	4	1	2	1		2				1	1	2			2		1	1			1						15	8	23
58								1				2	1	1	1	1				1			2	1		1	1	1	1	1		1	1									11	7	18
59														1				1		1	1		2	1						1	2		1	2								10	3	13
60								1				1		1	2	1	1			1	2	2						1	1		1	1			1							10	7	17
61								1		1		1	1	1		3				1		1																				4	6	10
62			1					1								1						1				1										1						3	3	6
63														1			1		1					1	1																	2	3	5
64												1			1																												2	2
65																																												
66							1																																				1	1
67															1																												1	1
68																																												
69																																												
70+																																												
M	21	10	7	13	16	6	5	13	7	9	25	29	26	32	30	35	38	19	18	16	24	15	24	12	22	12	13	7	8	7	5	1	4	3	1	1						534		
F	54	28	21	18	29	53	21	38	29	24	23	47	30	24	27	36	19	14	11	5	9	9	7	2	5	4	5	2	1	1	3	3				1							603	
T	75	38	28	31	45	59	26	51	36	33	48	76	56	56	57	71	57	33	29	21	33	24	31	14	27	16	18	9	9	8	8	4	4	3	1	2								1,137

SERVICE

DISTRIBUTION OF PERSONNEL BY AGE

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
ACTIVE MEMBERS



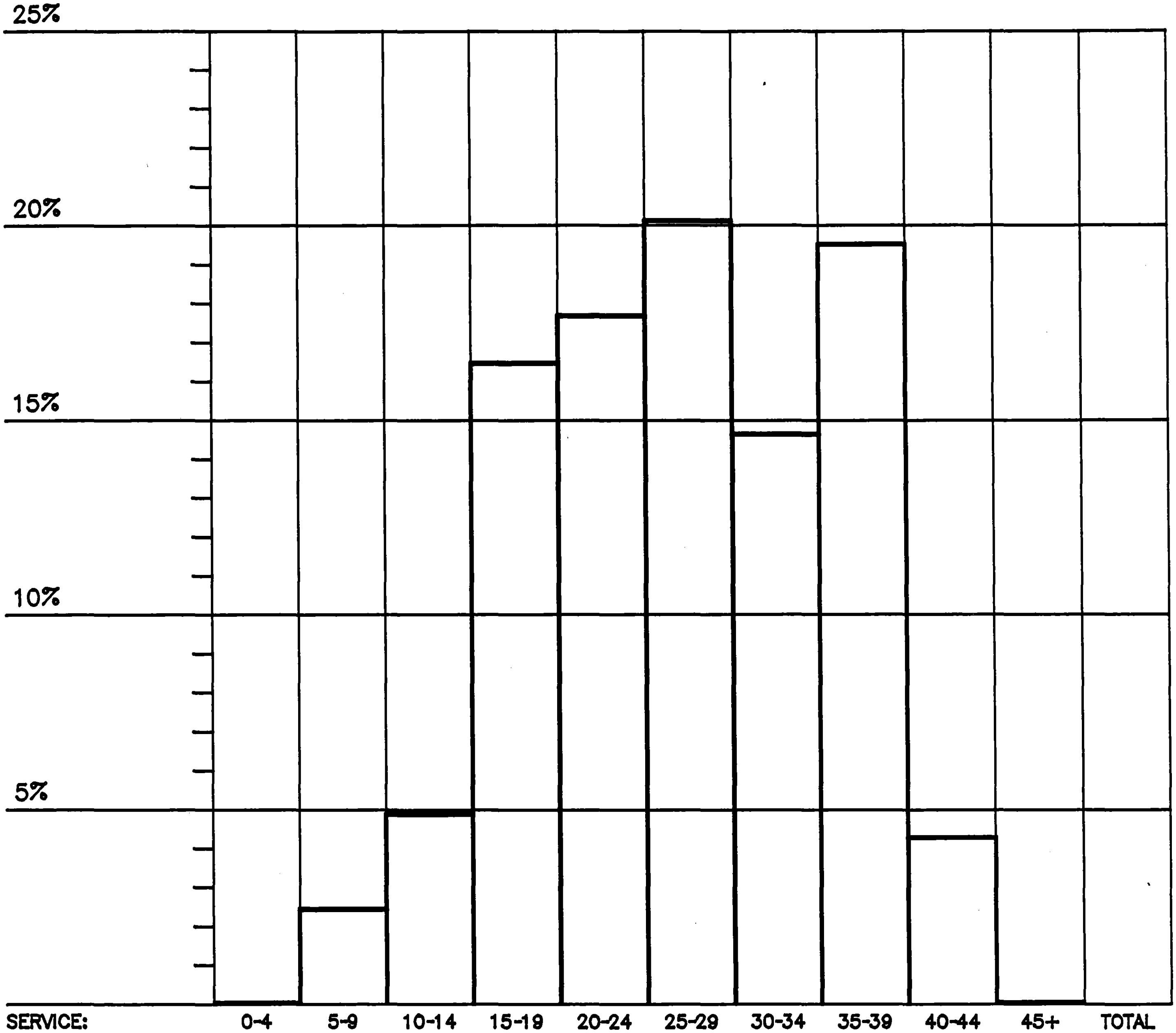
AGE:	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	TOTAL
NUMBER	0	17	43	175	188	208	167	175	122	40	2	1,137
AVERAGE PAY	0	7,730	11,059	14,397	23,523	25,240	26,008	28,245	29,070	27,464	23,835	23,551
AVERAGE SERVICE	0.0	1.8	3.3	5.7	10.5	12.5	14.2	18.0	21.2	18.3	10.3	12.9

DETAIL OF EMPLOYEES 55 & OVER

AGE:	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70+
NUMBER	39	29	23	18	13	17	10	6	5	2	0	1	1	0	0	0
AVERAGE PAY	30,079	28,166	28,042	28,541	30,607	30,270	25,580	21,276	28,582	28,801	0	19,144	28,525	0	0	0
AVERAGE SERVICE	22.2	18.4	20.9	21.1	25.6	20.8	14.4	18.2	19.6	13.3	0.0	6.3	14.3	0.0	0.0	0.0

DISTRIBUTION OF PERSONNEL BY EXPECTED SERVICE AT AGE 65
(BASED UPON PERSONNEL AGE 55 AND OVER)

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
ACTIVE MEMBERS

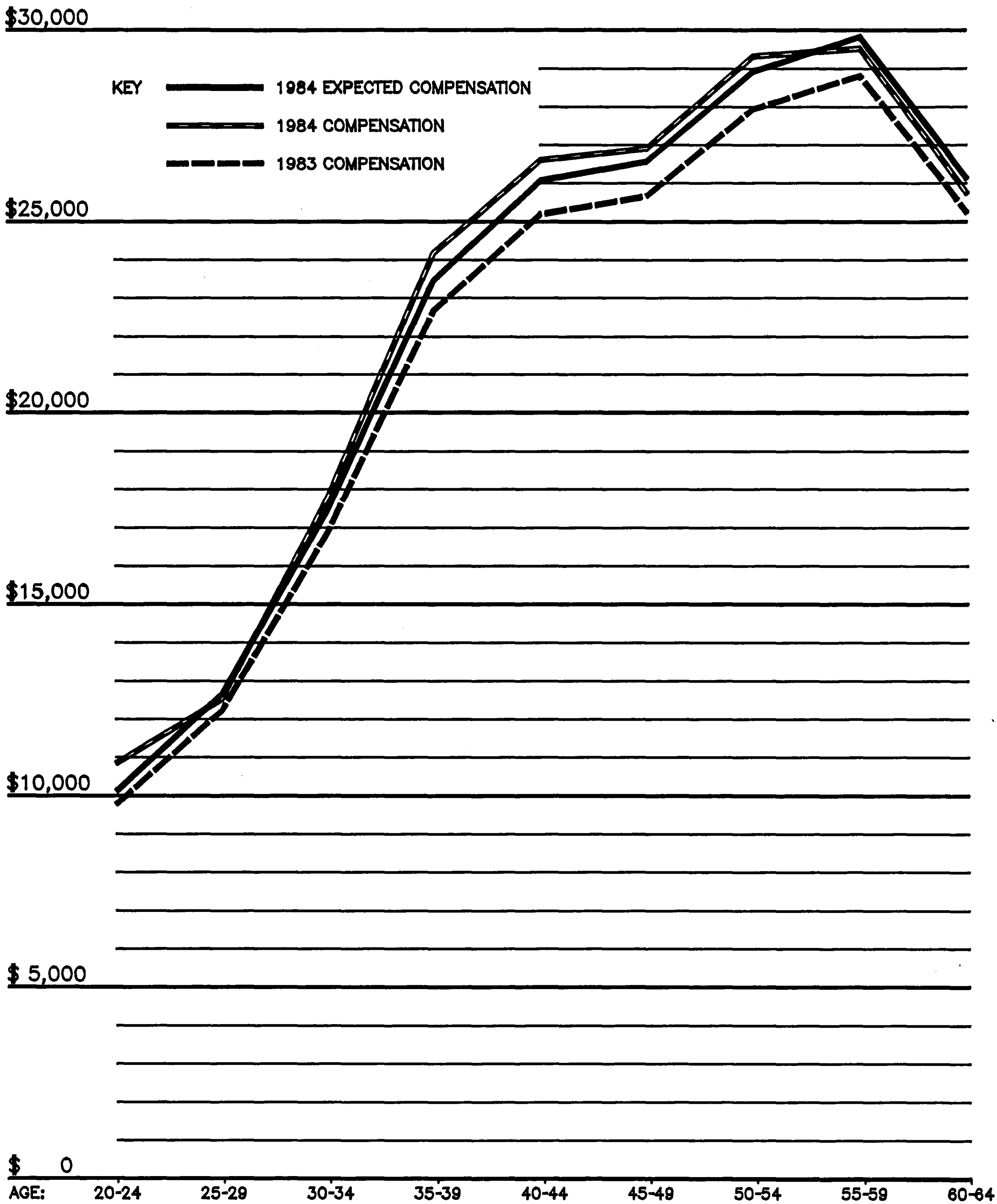


SERVICE:	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	TOTAL
NUMBER	0	4	8	27	29	33	24	32	7	0	164
AVERAGE PAY	0	10,693	22,955	26,315	29,371	29,123	30,228	31,892	28,139	0	28,814
AVERAGE SERVICE AT AGE 65 *	0.0	7.4	12.9	17.9	23.2	27.2	32.9	37.4	41.5	0.0	27.2

* OR CURRENT AGE IF OLDER

AVERAGE COMPENSATION BY AGE

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
INCLUDES MEMBERS WHO WERE ACTIVE
BOTH JUNE 30, 1983 AND JUNE 30, 1984



DISTRIBUTION OF PERSONNEL BY AGE AND YEARS SINCE RETIREMENT

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION SERVICE RETIREMENTS

- THIS DISTRIBUTION SHOWS PERSONNEL BY AGE LAST BIRTHDAY AND COMPLETED YEARS SINCE RETIREMENT AS OF 07/01/84. FOR INSTANCE, THE CELL AT AGE 56 AND 1 YEAR SINCE RETIREMENT CONTAINS 3 RETIREES.
- INDIVIDUALS RETIRING AT THE SAME AGE PROGRESS ALONG A DIAGONAL (STAIR-STEP) LINE; E.G., ALL EMPLOYEES RETIRING AT AGE 65 APPEAR ON THE DIAGONAL WHICH STARTS AT AGE 65 WITH 0 YEARS SINCE RETIREMENT AND RUNS THROUGH 66 AND 1, 67 AND 2, ETC.

YEARS SINCE RETIREMENT

AGE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+	M	F	T
45																																												
46																																												
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49																																												
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51																																												
52																																												
53																																												
54																																												
55	1																																									1		1
56	1	3																																								1	3	4
57	2	3	2																																							2	5	7
58	3	1	2	3																																						6	3	9
59	2	4	3		1																																					5	5	10
60	6		1	2		3																																				5	7	12
61	1	3	5				1																																			1	9	10
62	1	7	1	2	4	2																																				9	8	17
63	3	8	1	4			1	1	1																																	11	8	19
64	1	4	7	3	1	1	1	1	1																																	5	15	20
65	3	2	3	2	4		1	1	3																																	9	10	19
66		4	3	2	5	3			2																																	5	14	19
67		1	4	2	2	2	2	5	1	1	1																															7	14	21
68			1	5	1		3	4		1																																3	12	15
69					3	2	2	3	5	2		1	2																													4	16	20
70				1			4	4	4	3	1																															2	15	17
71							8	4	1	4		2																														2	17	19
72								6	2	2		2	1	1																												5	9	14
73								1	4	2	4	6			2																											3	16	19
74									1	6	7	2	5	1	3		1			1																						7	20	27
75											8	5	6	3	3																											6	19	25
76											4	8	3	3	2	2	2																									3	21	24
77												9	2	2	2	1																										3	13	16
78											1	1	4	4	4		1		2																							2	15	17
79													4	3	1	3	5	1																								5	12	17
80													1	3	3	3	1	2	3	1	1																					2	16	18
81														6	2	1	3	3		1							1															5	12	17
82															2	1	2	1	1	1	1	1																				1	9	10
83																4		2		1		1																				1	7	8
84																	2	4	2	1	1	2	1																			1	12	13
85																		3		1	1	2				1		1															9	9
86																			4			3									1												8	8
87																				4		3	1	2	1			1		1												1	12	13
88																					2	1	1				1															1	4	5
89																						4			1																	1	4	5
90																						1				1		1	1			1											5	5
91																							3		1	1										1						1	5	6
92																										2				1		1				1	1						6	6
93																										1											1						2	2
94																																												
95																												1				1		1						1			4	4
96																																				1							1	1
97																																												
98																																		1									1	1
99																																1											1	1
100+																																									1		1	1
M	12	16	15	14	9	4	3	2	5	3	8	10	5	7	2	5		1	1	1	1	1	1																			126		
F	12	24	18	12	12	9	20	28	20	18	18	26	23	19	22	10	17	15	11	10	5	17	5	2	3	6	2	4	1	2	1	4		2		3	2			1	1		405	
T	24	40	33	26	21	13	23	30	25	21	26	36	28	26	24	15	17	16	12	11	6	18	6	2	3	6	2	4	1	2	1	4		2		3	2			1	1			531

YEARS

PLAN PROVISIONS

Effective Date	December 31, 1957. Most recent amendments effective July 1, 1984.
Coverage	Any teacher in the employ of the Board of Education of the City of Duluth who elects to make the required contributions. Includes the superintendent, supervisors, principals, instructors and association staff members.
Active Member	A member who is making contributions under this Plan.
Inactive Member	A member who is no longer making contributions under the Plan and who has not withdrawn his contributions.
Credited Service	Service as an employee of the school district for which required contributions are made to this Plan. One full year of credit shall be given for each full school year but not more than one year of credit shall be given for any 12-month period. Credit for part of a year shall be in proportion to the required contributions for a full school year, computed to the nearest tenth of a year.
Final Average Salary	Average annual cash remuneration, including any such cash remuneration for assignment to extra-curricular services, during the five school years yielding the highest average.

Normal Retirement Benefit

Old Coordinated Program

Eligibility	Age 60.

Normal Retirement Benefit (Continued)

Amount

Annual normal retirement benefit equal to 1.25% of the member's final average salary multiplied by the number of years of credited service.

The minimum annual normal retirement benefit to a member who was a member on June 30, 1971, consists of:

(i) An annuity of equivalent actuarial value to two times the accumulated regular contributions to the member; plus

(ii) An annuity equal to 20% of the annuity determined in (i) above.

New Coordinated Program

Eligibility

Age 65, or age 62 if the member has completed 30 years of service.

Amount

Annual normal retirement benefit equal to 1.0% per year for the first 10 years plus 1.5% for each year in excess of 10 years times the member's final average salary.

Early Retirement Benefit

Old Coordinated Program

Eligibility

Age 55 and ten years of credited service.

Amount

A deferred benefit commencing at age 60 equal to the amount computed as a normal retirement benefit on the basis of the final average compensation and years of credited service at the time of the retirement; in lieu of such deferred benefit an immediate benefit of equivalent actuarial value.

Early Retirement Benefit (Continued)

New Coordinated Program

Eligibility	Age 55 and ten years of credited service.
Amount	A deferred benefit commencing at age 65 equal to the amount computed as a normal retirement benefit on the basis of the final average compensation and years of credited service at the time of retirement; The benefit is reduced 1/2 of 1% for each month the benefit commences before age 65 unless the member has completed 30 years of service, then the reduction will be for each month before age 62.

Disability Retirement

Old Coordinated Program

Eligibility	Five or more years of credited service and permanently incapacitated for teaching service.
Amount	Equal to the normal retirement benefit determined on the basis of the final average salary and years of credited service at the time of the disability.

New Coordinated Program

Eligibility	Age 50 and five or more years of credited service, or ten years of credited service, and totally and permanently disabled.
Amount	Equal to the normal retirement benefit determined on the basis of the final average salary and years of credited service at the time of disability.

Vested Retirement

Old Coordinated Program

Eligibility	Ten or more years of credited service if member does not elect to withdraw the accumulated contributions.
Amount	Deferred benefit commencing at age 60 or the first day of the month following receipt of the application for the benefit, whichever is later, and is equal to the amount computed as a normal retirement benefit on the basis of the final average salary and years of credited service at the time of termination. In lieu of the deferred benefit, a member who has attained age 55 may elect to receive an immediate allowance of equivalent actuarial value. In lieu of a Vested Retirement Benefit, any member may elect to withdraw the accumulated contributions.

New Coordinated Program

Eligibility	Ten or more years of credited service if member does not elect to withdraw the accumulated contributions.
Amount	Deferred benefit commencing at age 65 or the first day of the month following receipt of the application for the benefit, whichever is later, and is equal to the amount computed as a normal retirement benefit on the basis of final average salary and years of credited service at the time of termination. In lieu of the deferred benefit, a member who has attained age 55 may elect to receive an immediate allowance of equivalent actuarial value. In lieu of a Vested Retirement Benefit, any member may elect to withdraw the accumulated contributions.

Death Benefit--Before Retirement

Old Coordinated Program

a) Two times the member's accumulated regular contributions with 5% interest shall be paid to the designated beneficiary or estate;

b) if the deceased member had completed ten or more years of credited service and had designated as his beneficiary his surviving spouse to whom he had been married for at least three years, the surviving spouse may elect, in lieu of the lump sum payment, an immediate or deferred annuity of equivalent actuarial value to the member's accumulated regular contributions and the matching funds of the district, increased by 20%;

c) if the deceased member had attained age 55 and completed 10 years of service, in lieu of b), the surviving spouse may elect to receive an annuity equal to the remainder of the equivalent actuarial value of the 100% joint and survivor annuity which the member would have been entitled to had the member retired on the date of his death.

New Coordinated Program

a) the member's accumulated contributions with interest at 5% interest shall be paid to the members designated beneficiary or estate;

b) if the deceased member had attained age 55 and completed 20 years of service or completed 30 years of service, the surviving spouse shall receive an annuity equal to the remainder of the equivalent actuarial value of the 100% joint and survivor annuity which the member would have been entitled to had the member retired on the date of his death.

Death Benefit--After Retirement

Old Coordinated and New Coordinated Programs

The excess, if any, of a member's accumulated regular contributions at retirement over the total amount received as retirement allowance payments is paid in a lump sum to his designated beneficiary or estate provided that he has not elected an optional benefit that has become effective. If an option has become effective, the terms of the option are to govern.

Refund of Contributions

Upon termination of employment for reasons other than death or retirement, a refund of the accumulated member contributions is payable in lieu of any other benefits from the Association.

Upon the death of a terminated member entitled to a vested retirement benefit, whose death occurs prior to the commencement of the retirement allowance, the amount of the members accumulated contributions at the time of death is payable in a single sum.

Optional Benefits

Normal, early or disability retirement benefits may be paid in one of the following optional forms of equivalent actuarial value:

Option 1. A reduced retirement benefit payable during the member's life, with the provision that after death it is paid to the member's contingent annuitant for life.

Option 2. A reduced retirement benefit payable during the member's life, with the provision that after death one-half of such reduced allowance is paid to the member's contingent annuitant for life.

Option 3. A reduced retirement allowance payable during the member's life, with the provision that if death occurs within a period of five, ten, fifteen or twenty years, the reduced benefit is continued for the balance of the designated period.

Annuity Values	Effective July 1, 1969, annuity values for converting a member's accumulated contributions to monthly payments, where applicable, are to be based on an interest rate of 5% per annum, compounded annually.
Contributions	Members: 4.50% of annual salary.
	State of Minnesota: 5.79% of salary of active members.
Temporary Rule of 85 Early Retirement	
Eligibility	Age 55 and the sum of age plus service greater than or equal to 85 upon application prior to December 31, 1986.
Amount	The normal retirement benefit without early retirement reductions.

ACTUARIAL ASSUMPTIONS
(Adopted effective June 30, 1984)

Actuarial Method	Entry Age Cost Method with normal cost determined as a level percentage of current and future compensation. Those members who are at or over the assumed retirement age are assumed to retire in one year. The normal cost (if positive) is equal to the difference between the present value of benefits assuming immediate retirement and the present value of benefits assuming retirement one year from the valuation date. Accordingly, these members are considered active members for the year and salaries are included in the development of the normal cost percentage and the supplemental contribution percentage.
Investment Return	
Pre-retirement	Eight percent compounded annually.
Post-retirement	Five percent compounded annually.
Salary Increases	Six and one-half percent per year until retirement.
Retirement Age	
Old Coordinated Program	Age 63 (at present age if greater than age 63).
New Coordinated Program	Age 63 with 30 years of service, otherwise age 65.
Members Eligible for Rule of 85	50% retire on June 30, 1985, and the rest retire on June 30, 1986, rather than the ages shown above for the Old and New Programs.

ACTUARIAL ASSUMPTIONS (Continued)

Actuarial Value of Assets	The basis for determining the actuarial value of assets was changed with the June 30, 1984, valuation. Under the new basis, the actuarial value of assets is equal to the value of assets at cost plus one-third of any unrealized gains or losses plus realized income which includes realized gains and losses.
Mortality	
Nondisabled Lives	See page V-B-3 (1971 Group Annuity Table, female rates).
Disabled Lives	The 1977 Railroad Retirement Board Mortality Table.
Withdrawal	See page V-B-3.
Disability	See page V-B-3.
Percent Married	80% of all active members are assumed to be married at the time of death before retirement. The husband is assumed to be three years older than his spouse.
Special Consideration	Members in the old coordinated program who were hired before age 33 are assumed to receive their retirement benefits from the new coordinated program.
Expenses	Actual expenses for previous year (excluding investment management fees) as a percent of valuation payroll.

ACTUARIAL ASSUMPTIONS (Continued)
Probability of Withdrawal, Disability and Death

Age	Withdrawal	Disability	Death	Age	Withdrawal	Disability	Death
18	.2000	.0028	.0002	53	.0067	.0074	.0027
19	.2000	.0028	.0002	54	.0040	.0080	.0030
20	.2000	.0028	.0003	55	.0013	.0087	.0033
21	.1931	.0028	.0003	56	.0000	.0095	.0036
22	.1731	.0028	.0003	57	.0000	.0104	.0039
23	.1532	.0028	.0003	58	.0000	.0114	.0044
24	.1332	.0028	.0003	59	.0000	.0125	.0049
25	.1132	.0028	.0003	60	.0000	.0136	.0055
26	.0932	.0028	.0004	61	.0000	.0149	.0062
27	.0732	.0028	.0004	62	.0000	.0163	.0069
28	.0703	.0028	.0004	63	.0000	.0000	.0077
29	.0673	.0028	.0004	64	.0000	.0000	.0086
30	.0643	.0028	.0005	65	.0000	.0000	.0096
31	.0612	.0028	.0005	66	.0000	.0000	.0106
32	.0582	.0028	.0005	67	.0000	.0000	.0116
33	.0552	.0028	.0006	68	.0000	.0000	.0129
34	.0522	.0028	.0006	69	.0000	.0000	.0145
35	.0491	.0029	.0007	70	.0000	.0000	.0165
36	.0461	.0029	.0007	71	.0000	.0000	.0190
37	.0430	.0030	.0008	72	.0000	.0000	.0219
38	.0409	.0031	.0008	73	.0000	.0000	.0251
39	.0389	.0031	.0009	74	.0000	.0000	.0286
40	.0368	.0032	.0009	75	.0000	.0000	.0324
41	.0347	.0033	.0010	76	.0000	.0000	.0364
42	.0325	.0035	.0011	77	.0000	.0000	.0408
43	.0304	.0037	.0012	78	.0000	.0000	.0455
44	.0282	.0038	.0013	79	.0000	.0000	.0506
45	.0260	.0041	.0014	80	.0000	.0000	.0561
46	.0237	.0043	.0015	81	.0000	.0000	.0619
47	.0214	.0046	.0017	82	.0000	.0000	.0679
48	.0191	.0049	.0018	85	.0000	.0000	.0892
49	.0167	.0053	.0020	90	.0000	.0000	.1386
50	.0143	.0057	.0022	95	.0000	.0000	.2161
51	.0118	.0062	.0023	100	.0000	.0000	.3316
52	.0092	.0068	.0025	105	.0000	.0000	.5192

ACTUARIAL ASSUMPTIONS (Continued)

Actuarial Status

Actuarial status is measured by comparing the value of the assets of the plan with the value of prospective payments to be made from the plan and determining the value of future contributions necessary to obtain actuarial balance of the plan. This may be expressed in an equation as follows:

Value of Prospective Payments from the Plan	less	Value of Assets of the Plan	equals	Value of Future Contributions

The value of prospective payments from the plan is called the present value of benefits in actuarial terminology. This value is determined by considering the provisions of the plan and known past and current personnel information, such as number of employees, their ages, and their compensation. To determine how many of the employees will become eligible for benefits in the future, what benefits will be paid, and how long benefits will be paid, it is necessary to make some forecasts, called actuarial assumptions, as to when people will retire, who will die and leave before retirement, how long people will live after retirement, etc. Actuarial assumptions are made on the basis of past experience, both specific and general, and expected trends.

The value of assets of the plan is essentially a financial valuation. Certain types of assets may be valued on different bases. For example, common stocks might be valued at market, at cost, or on some other basis.

Actuarial Method

Valuations of the plan use the Entry Age Normal Cost Method of allocating future contributions into portions attributable to past and to current and future employment of employees.

Under this actuarial method, the value of future contributions attributable to current and future employment of employees is first determined. This is called present value of future normal costs. The following steps indicate how this is determined for benefits expected to be paid upon normal retirement.

- Expected pension benefit at normal retirement is determined for each employee.
- The normal cost is determined for each employee computed as a level percentage of his pay and assuming that such percentage of pay is paid from the employee's date of hire to his normal retirement. This normal cost is determined so that its accumulated value at normal retirement is sufficient to provide the expected pension benefits. (The sum of the normal costs for all employees determines the normal cost of the plan.)
- The value of future payments of normal cost is determined for each employee, based on the number of years with the Association to normal retirement date.
- The sum of such values for all employees determines the present value of future normal costs.

In general, the calculations for any disability benefits, vested termination benefits and death benefits follow the above procedure taking into consideration that there is no single time at which the employee is entitled to the benefits. Rather, each age prior to normal retirement has associated with it appropriate probabilities of disability, termination, and death.

The portion of the present value of future benefits which is not covered by future normal costs is called the accrued liability. It is the amount to which past normal costs would have accumulated had they been paid each year in the employee's career and had all assumptions been realized. The unfunded accrued liability is thus equal to the accrued liability less the accumulated assets.

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