

ACTUARIAL
REPORT

DULUTH TEACHERS' RETIREMENT
FUND ASSOCIATION

AS OF JUNE 30, 1982



Hewitt Associates

PREPARATION OF THIS ACTUARIAL REPORT

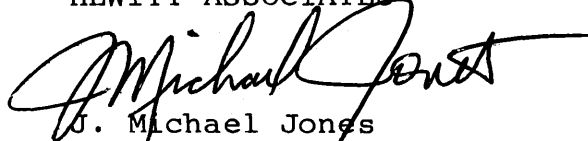
AS OF JUNE 30, 1982

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.

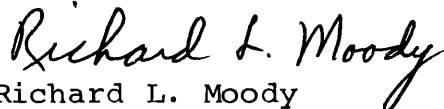
Respectfully submitted,

HEWITT ASSOCIATES



J. Michael Jones

Member, American Academy of Actuaries



Richard L. Moody

Fellow, Society of Actuaries

October 18, 1982



SUMMARY*

	<u>June 30, 1982**</u>	<u>June 30, 1981</u>	<u>June 30, 1980</u>
Accrued Liability	\$58,568,245	\$47,322,626	\$43,713,374
Actuarial Value of Assets	<u>39,004,140</u>	<u>36,521,054</u>	<u>33,801,048</u>
Unfunded Accrued Liability	\$19,564,105	\$10,801,572	\$ 9,912,326
Normal Cost as Percent of Compensation	7.94%	7.22%	7.25%
Contribution as a Percent of Compensation Based on Normal Cost plus:			
Interest only	12.13%	9.85%	9.76%
Amortization by 2009	13.49%	10.59%	10.41%
Value of Accrued Benefits			
Vested Only	\$29,870,216	\$25,819,473	\$24,081,511
All Accrued	31,687,788	26,795,561	25,120,515
Market Value of Assets	\$39,236,344	\$37,849,125	\$33,078,479
Number of Members			
Active	1,173	1,221	1,268
Retired	531	508	501
Terminated Deferred Vested	<u>63</u>	<u>53</u>	<u>50</u>
Total	1,767	1,782	1,819

*Based on statutory interest rate and salary scale.

**Total plan inclusive of the Old Coordinated and New Coordinated Programs and the benefit improvements effective July 1, 1981.

LIABILITIES, ASSETS, NORMAL COST

Shown below are the results of the actuarial valuation as of June 30, 1982. The results are inclusive of the benefit changes that were effective July 1, 1981, for the Old Coordinated Program and the addition of the New Coordinated Program for members hired after July 1, 1981. 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 anytime up to retirement.

	<u>Old Coordinated Program</u>	<u>New Coordinated Program</u>	<u>Total</u>
Present Value of Projected Benefits	\$ 78,236,957	\$ 3,724,419	\$ 81,961,376
Present Value of Future Normal Costs	<u>21,983,894</u>	<u>1,409,237</u>	<u>23,393,131</u>
Accrued Liability	\$ 56,253,063	\$ 2,315,182	\$ 58,568,245
Actuarial Value of Assets (page II-A-3)	<u>38,608,245</u>	<u>395,895</u>	<u>39,004,140</u>
Unfunded Accrued Liability	\$ 17,644,818	\$ 1,919,287	\$ 19,564,105
 Present Value of Future Compensation	 \$270,807,980	 \$23,644,679*	 \$294,452,659
Present Value of Future Normal Costs as a Percent of Present Value of Future Compensation	8.12%	5.96%	7.94%
Current Compensation for Members under the Assumed Retirement Age	\$23,376,643	\$ 1,836,530*	\$25,213,173
Normal Cost Based on Current Compensation	N/A	N/A	\$ 2,001,926

*These amounts are determined for the members of the New Coordinated Program, plus a proportionate amount attributable to the benefit payable from the New Coordinated Program for the current Old Coordinated Program members (the Old Coordinated Program amounts have been reduced by the amount the New Coordinated Program has been increased.) For this reason the dollar normal cost is not shown by separate program.

LIABILITIES, ASSETS, NORMAL COST (Continued)

Actuarial Balance Sheet

	<u>Old Coordinated Program</u>	<u>New Coordinated Program</u>	<u>Total</u>
<u>Present and Prospective Assets</u>			
Actuarial Value of Assets	\$38,608,245	\$ 395,895	\$39,004,140
Present Value of Future Member Contributions	12,183,254	1,074,818	13,258,072
Present Value of Future Normal Cost Contributions from State of Minnesota	9,800,640	334,419	10,135,059
Unfunded Accrued Liability	<u>17,644,818</u>	<u>1,919,287</u>	<u>19,564,105</u>
Total	\$78,236,957	\$ 3,724,419	\$81,961,376

Present and Prospective Liabilities

Present Value of Benefits
Payable on Account of:

Service Retirement Annuitants	\$15,653,200	\$ 375,702	\$16,028,902
Disability Retirement Annuitants	143,940	0	143,940
Beneficiaries	474,004	0	474,004
Deferred Vested	327,862	0	327,862

Present Value of Future
Benefits Anticipated on
Account of Present Active
Members for:

Service Retirement	\$49,404,708	\$ 3,239,097	\$52,643,805
Disability Retirement	4,029,669	19,511	4,049,180
Withdrawal Prior to Retirement	3,966,946	83,332	4,050,278
Death Prior to Retirement	<u>4,236,628</u>	<u>6,777</u>	<u>4,243,405</u>
Total	\$78,236,957	\$ 3,724,419	\$81,961,376

LIABILITIES, ASSETS, NORMAL COST (Continued)

Determination of Actuarial Value of Assets

(1)	Actuarial Value of Assets, 6/30/81	\$36,521,054
(2)	Contributions	2,747,935
(3)	Benefits Paid	2,163,562
(4)	Assumed Investment Return at 5% on:	
	(a) Actuarial Value of Assets, line (1)	1,826,053
	(b) Contributions, line (2)	68,698
	(c) Benefits Paid, line (3)	<u>54,089</u>
	(d) Total, (4a)+(4b)-(4c)	\$ 1,840,662
(5)	Expected Value of Assets, 6/30/82 (1)+(2)-(3)+(4d)	\$38,946,089
(6)	Market Value, 7/1/82*	\$39,236,344
(7)	Adjustment Towards Market Value, 20% of (6)-(5)	\$ 58,051
(8)	Actuarial Value of Assets, 6/30/82, (5)+(7)	\$39,004,140

*Recognizes marketable common stocks valued at market and total bonds and notes valued at cost.

The total actuarial value of assets of \$39,004,140 has been allocated to the Old Coordinated Program and the New Coordinated Program as follows:

Old Coordinated Program	\$38,608,245
New Coordinated Program	\$ 395,895

CONTRIBUTIONS

Required Support Levy from the State of Minnesota

Active members of the Fund contribute 4.5% 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 1981-82 expense (excluding Investment Advisor's fees) by current compensation.

Normal Cost Plus Interest on Unfunded Accrued Liability

	<u>Total</u>	<u>State of Minnesota</u>
Normal Cost	7.94%	3.44%
Interest on Unfunded Accrued Liability	3.69%	3.69%
Expenses	<u>.50%</u>	<u>.50%</u>
Total	12.13%	7.63%

This contribution could be viewed as 12.21% for the Old Coordinated Program and 11.44% for the New Coordinated Program. The State of Minnesota portion would be 7.71% and 6.94% respectively.

Normal Cost Plus Amortization of Unfunded Accrued Liability by 2009

	<u>Total</u>	<u>State of Minnesota</u>
Normal Cost	7.94%	3.44%
Payment on Unfunded Accrued Liability	5.05%	5.05%
Expenses	<u>.50%</u>	<u>.50%</u>
Total	13.49%	8.99%

This contribution could be viewed as 13.53% for the Old Coordinated Program and 13.25% for the New Coordinated Program. The State of Minnesota portion would be 9.03% and 8.75% respectively.

EXPERIENCE

Changes in Unfunded Accrued Liability

The unfunded accrued liability as determined on the basis of an interest assumption of 5.0% increased from \$10,801,572 on June 30, 1981, to \$19,564,105 on June 30, 1982. This increase of \$8,762,533 reflects the effect of the contributions, plan amendments, and the experience loss under the Plan.

The actuarial valuation report as of June 30, 1981, based on a 5.0% interest assumption, indicated a required support levy of 5.85% of compensation by the State of Minnesota 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 was 5.79% of compensation (0.06% of compensation less than required). Thus, the contribution shortage increased the unfunded accrued liability by \$14,264 (0.06% of \$23,772,822).

Effective July 1, 1981, the following plan amendments were adopted:

- increase the retirement formula from 1.15% of pay to 1.25% of pay
- increase retiree benefits by 8.7%
- provide a preretirement death benefit for members age 55 with 10 years of service

These changes increased the accrued liability by approximately \$4,575,000.

Also effective July 1, 1981, all future members are covered by the New Coordinated Program. In addition, current members can at any time prior to retirement elect to retire under the New Coordinated Program. Since this feature may provide a larger retirement benefit for long service members, the accrued liability in the New Coordinated Program has been increased by approximately \$1,925,000. This amount was determined as the difference in the accrued liability between the New Coordinated Program and the Old Coordinated Program for members who are expected to have 30 or more years of service at the assumed retirement age.

The total effect of the amendments and the contribution shortage was an increase in the accrued liability of approximately \$6,515,000.

Since the unfunded accrued liability increased more than \$6,515,000, the actual experience under the plan for the year resulted in an actuarial loss of approximately \$2,247,000.

EXPERIENCE (Continued)

Normal Cost Percentage

Before recognizing the plan amendments and addition of the New Coordinated Program, the normal cost percentage decreased from 7.22% on June 30, 1981, to 7.12% on June 30, 1982. After recognizing all plan changes the normal cost percentage increased to 7.94%.

Actuarial Loss

During the 1981-1982 school year, there was an actuarial loss (i.e., an unanticipated increase in the unfunded accrued liability because of experience) of about \$2,247,000.

The primary source of this loss was compensation increases in excess of the assumed salary increases of 3-1/2%. For members who were active in both the 1981 and 1982 valuations, the average compensation increased 11.75% from \$20,318 for 1981 to \$22,704 for 1982. These increases are shown graphically by five-year age groups on page IV-7. This experience produced an actuarial loss of about \$1,900,000. The mortality experience among the retired members produced a loss of about \$230,000 as less liability was released than expected. The average age of the new service retirements was lower than the assumed retirement age of 63, producing an additional loss.

Partially offsetting these losses was an actuarial gain due to favorable investment performance. Investment experience produced a gain of about \$58,000. The annual market value rate of return was 2.1%. This percentage was determined by starting with the market value on June 30, 1981, and adding contributions, less benefit payments (assuming these amounts were paid in the middle of the year).



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, 1982, 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, 1982, 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 preretirement death benefits which are expected to become payable. In addition, members who are not vested in any benefits as of June 30, 1982, 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, 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, 1982, 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)	\$14,355,316	\$319,328	\$14,674,644
Terminated Deferred Vested Members	231,580	0	231,580
Active Members	14,941,933	22,059	14,963,992
Total, Vested Benefits	\$29,528,829	\$341,387	\$29,870,216
Present Value of Nonvested Benefits	1,462,864	354,708	1,817,572
Total Present Value of Accrued Benefits	\$30,991,693	\$696,095	\$31,687,788
Assets			
Actuarial Value	\$38,608,245	\$395,895	\$39,004,140
Market Value	N/A	N/A	39,236,344

Changes in Value

Since the actuarial valuation as of June 30, 1981, there have been no changes in the actuarial assumptions for the Old Coordinated Program. The plan has been amended to improve the benefit formula for active members, add a preretirement death benefit, increase the monthly benefit for retired members and add the New Coordinated Program for new members. The change in the accrued benefit values between the June 30, 1981, and June 30, 1982, calculation dates was an increase of \$4,892,227 as shown below:

Present Value of All Accrued Benefits

June 30, 1982	\$31,687,788
June 30, 1981	26,795,561
Increase	\$ 4,892,227

The plan amendments increased the present value of all accrued benefits by approximately \$2,810,000.

PERSONNEL INVENTORY

The following tables show the changes that occurred in the active and retired membership from June 30, 1981, to June 30, 1982. The following pages provide more information pertaining to these members.

Active Members, June 30, 1981	1,221
New Entrants	62
Total	<u>1,283</u>

Separations from Active Service:

Refund of Contributions	63
Separation With Deferred Annuity	13
Separation Without Refundment or Deferred Annuity	0
Disability	2
Death	5
Service Retirement	27
Total Separations	<u>110</u>

Active Members, June 30, 1982	1,173
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	<u>Number</u>	<u>Annual Benefits</u>
Service Retirements as of June 30, 1981	482	\$1,665,135
Change in Benefits	0	132,488
New Retirements	<u>33</u>	<u>218,778</u>
Total	515	\$2,016,401
Terminations:		
Death	12	\$ 41,548
Other	0	16,152*
Total	<u>12</u>	<u>\$ 57,700</u>
Service Retirements as of June 30, 1982	503	\$1,958,701
Disability Retirements as of June 30, 1981	3	\$ 5,565
Change in Benefits	0	631
New Retirements	<u>2</u>	<u>10,053</u>
Total	5	\$ 16,249
Terminations	<u>0</u>	<u>0</u>
Disability Retirements as of June 30, 1982	5	\$ 16,249
Beneficiaries as of June 30, 1981	23	\$ 52,298
Change in Benefits	0	6,182
New Entrants	<u>2</u>	<u>4,080</u>
Total	25	\$ 62,560
Terminations	<u>2</u>	<u>4,806</u>
Beneficiaries as of June 30, 1982	23	\$ 57,754

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

PERSONNEL INVENTORY (Continued)

Active Membership Characteristics

There were 1,173 active members in the personnel data submitted as of June 30, 1982. Included in this total are 15 members who were on leave of absence. As of June 30, 1982, 61 members are participating in the New Coordinated Program and 1,112 members are participating in the Old Coordinated Program. Shown below are the personnel characteristics of the 1,173 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 is the actual compensation during the 1981-1982 school year.

Number	1,173
Average Age	42.8
Average Service	11.9
Average Age at Hire	30.9
Total Compensation	\$25,548,612
Average Compensation	\$ 21,781

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, 1982. 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.

PERSONNEL INVENTORY (Continued)

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 1981 to 1982. Only members who were active in both 1981 and 1982 are included in the graph. The solid line illustrates the "expected" compensation level for 1982 based on the actuarial assumption for salary increases.

Retired Members Information

There were 531 retired members in the personnel data submitted as of June 30, 1982. These members and their annual benefits can be summarized as follows:

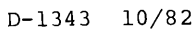
Service Retirements	Number	Annual Benefits
Males	108	\$ 543,933
Females	395	1,414,768
Total	503	\$1,958,701
Disability Retirements		
Males	3	\$ 12,434
Females	2	3,815
Total	5	\$ 16,249
Beneficiaries (All Females)	23	57,754
Total All Retirements		
Males	111	\$ 556,367
Females	420	1,476,337
Total	531	\$2,032,704

In addition, there were 37 members who resigned and elected a deferred annuity and 26 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 503 service retirements by age last birthday and completed years since retirement as of June 30, 1982.

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
ACTIVE MEMBERS



DISTRIBUTION OF PERSONNEL BY AGE

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
ACTIVE MEMBERS

25%

20%

15%

10%

5%

AGE: 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65+ TOTAL

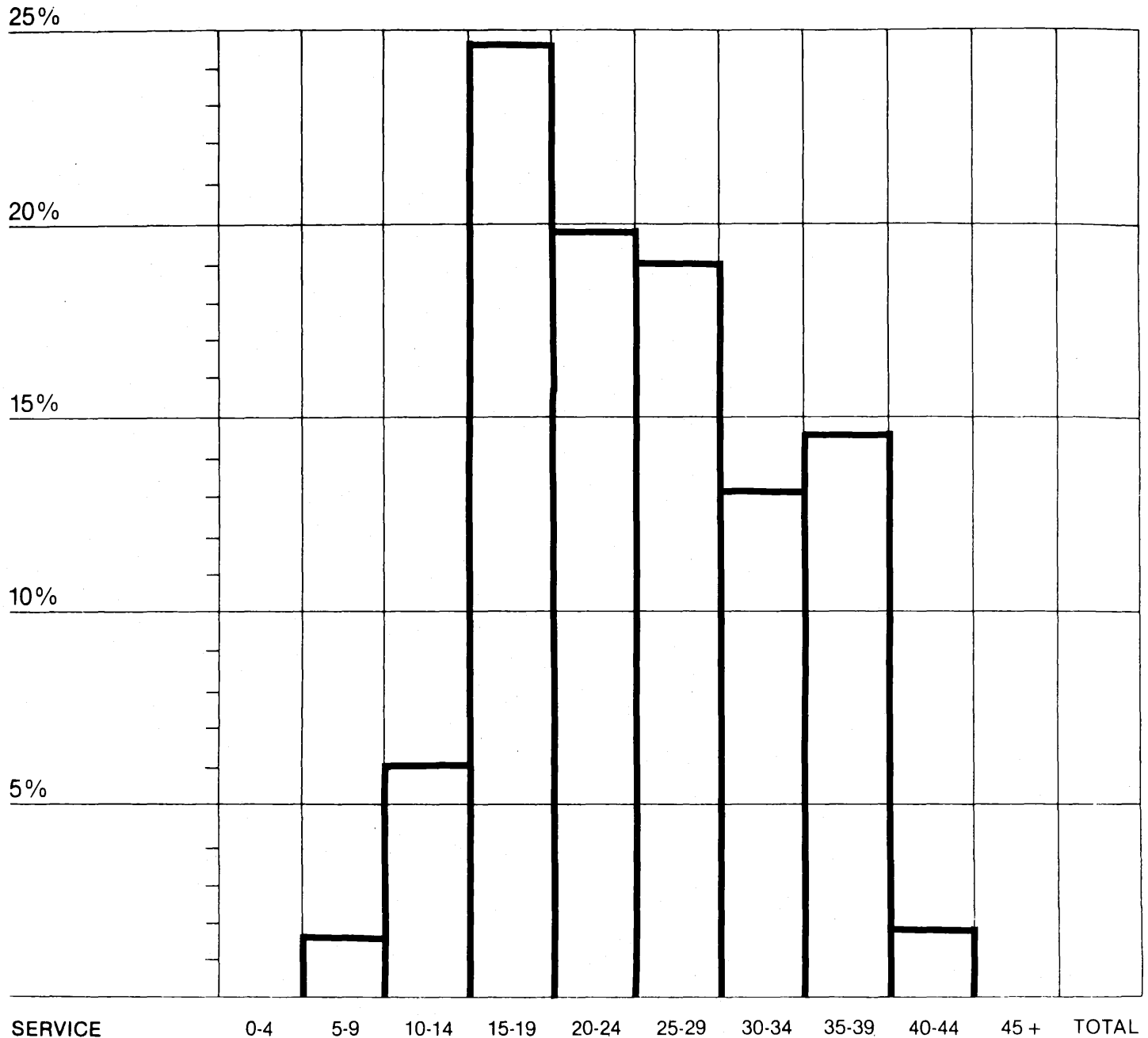
NUMBER	0	29	79	177	222	178	162	179	105	39	3	1,173
AVERAGE SERVICE	0.0	1.0	3.1	6.8	9.6	11.7	14.8	17.5	19.0	18.9	15.6	11.9
AVERAGE PAY	0	8,090	11,746	17,542	21,601	23,186	25,157	25,931	25,563	23,978	23,631	21,822

DETAIL OF EMPLOYEES AGE 55 & OVER

AGE:	55	56	57	58	59	60	61	62	63	64	65	66	67+
NUMBER	27	21	18	24	15	12	14	6	3	4	2	1	0
AVERAGE SERVICE	19.0	18.9	22.3	19.5	14.5	19.9	18.7	16.1	25.8	16.1	16.0	14.8	0.0
AVERAGE PAY	26,139	25,259	26,320	26,438	22,648	23,670	24,139	24,878	26,002	21,466	25,654	19,587	0

**DISTRIBUTION OF PERSONNEL BY EXPECTED SERVICE AT AGE 65
(BASED ON 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	2	9	36	29	28	19	21	3	0	147
AVERAGE SERVICE AT AGE 65*	0.0	5.1	12.9	17.9	22.7	27.1	32.9	37.3	41.8	0.0	25.3
AVERAGE PAY	0	8,959	21,486	23,260	25,919	24,866	28,197	27,730	25,187	0	25,103

*OR CURRENT
AGE IF OLDER

AVERAGE COMPENSATION BY AGE

DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
INCLUDES ONLY MEMBERS WHO WERE ACTIVE ON
BOTH JUNE 30, 1981 AND JUNE 30, 1982.

\$35,000

KEY

■ ■ ■ ■ ■ 1982 Compensation

————— 1982 Expected Compensation

■ · · · · ■ 1981 Compensation

\$30,000

\$25,000

\$20,000

\$15,000

\$10,000

\$5,000

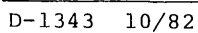
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IV-7



DULUTH TEACHERS' RETIREMENT FUND ASSOCIATION
SERVICE RETIREMENTS



PLAN PROVISIONS

Effective Date	December 31, 1957. Most recent amendments effective July 1, 1981.
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	
<i>Old Coordinated Program</i>	
Eligibility	Age 60.

PLAN PROVISIONS (Continued)

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.

PLAN PROVISIONS (Continued)

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.
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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.
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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.
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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.
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PLAN PROVISIONS (Continued)

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.

PLAN PROVISIONS (Continued)

Death Benefit--Before Retirement
Old Coordinated Program

- a) Two times the member's accumulated regular contributions 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 3-1/2% 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.

PLAN PROVISIONS (Continued)

Death Benefit--After Retirement

Old Coordinated and New Coordinated Program

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.

PLAN PROVISIONS (Continued)

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: 4.5% of annual salary.

State of Minnesota: 5.79% of salary of active members.

ACTUARIAL ASSUMPTIONS
(Adopted effective June 30, 1982)

Actuarial Method	Entry Age Normal actuarial cost method with normal cost determined as a level percentage of current and future compensation.
Investment Return	Five percent compounded annually.
Salary Increases	Three and one-half percent per year until retirement.
Retirement Age	
<i>Old Coordinated Program</i>	Age 63 (at present age if greater than age 63).
<i>New Coordinated Program</i>	Age 63 with 30 years of service, otherwise age 65.
Actuarial Value of Assets	The basis for determining the actuarial value of assets was changed with the June 30, 1978, valuation, using as a starting value the actuarial value of assets developed from the prior basis in the June 30, 1977, valuation report. Under the new basis, the expected value of assets is calculated starting with the prior year's actuarial value, adding in the expected investment return at the valuation interest rate, adding the mandatory employee and State of Minnesota contributions and subtracting benefit payments. Both contributions and benefit payments are adjusted for interest to reflect the estimated timing of the amounts into and out of the fund. The actuarial value then equals the expected value plus 20% of the difference between market value and the expected value.

ACTUARIAL ASSUMPTIONS (Continued)

Mortality

Nondisabled Lives

See page V-B-³ (UP-1984 Mortality Table set back two years).

Disabled Lives

The 1956 Disability Mortality Table.

Withdrawal

See page V-B-³.

Disability

See page V-B-³.

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

<u>Age</u>	<u>Withdrawal</u>	<u>Disability</u>	<u>Death</u>	<u>Age</u>	<u>Withdrawal</u>	<u>Disability</u>	<u>Death</u>
18	.2000	.0028	.0014	53	.0067	.0074	.0062
19	.2000	.0028	.0014	54	.0040	.0080	.0069
20	.2000	.0028	.0014	55	.0013	.0087	.0075
21	.1931	.0028	.0014	56	.0000	.0095	.0083
22	.1731	.0028	.0013	57	.0000	.0104	.0090
23	.1532	.0028	.0013	58	.0000	.0114	.0099
24	.1332	.0028	.0012	59	.0000	.0125	.0108
25	.1132	.0028	.0012	60	.0000	.0136	.0119
26	.0932	.0028	.0011	61	.0000	.0149	.0130
27	.0732	.0028	.0011	62	.0000	.0163	.0142
28	.0703	.0028	.0011	63	.0000	.0000	.0155
29	.0673	.0028	.0011	64	.0000	.0000	.0170
30	.0643	.0028	.0011	65	.0000	.0000	.0187
31	.0612	.0028	.0011	66	.0000	.0000	.0205
32	.0582	.0028	.0011	67	.0000	.0000	.0226
33	.0552	.0028	.0011	68	.0000	.0000	.0248
34	.0522	.0028	.0012	69	.0000	.0000	.0272
35	.0491	.0029	.0012	70	.0000	.0000	.0296
36	.0461	.0029	.0013	71	.0000	.0000	.0321
37	.0430	.0030	.0014	72	.0000	.0000	.0347
38	.0409	.0031	.0015	73	.0000	.0000	.0377
39	.0389	.0031	.0016	74	.0000	.0000	.0409
40	.0368	.0032	.0018	75	.0000	.0000	.0445
41	.0347	.0033	.0019	76	.0000	.0000	.0485
42	.0325	.0035	.0021	77	.0000	.0000	.0529
43	.0304	.0037	.0023	78	.0000	.0000	.0578
44	.0282	.0038	.0026	79	.0000	.0000	.0631
45	.0260	.0041	.0028	80	.0000	.0000	.0686
46	.0237	.0043	.0031	81	.0000	.0000	.0746
47	.0214	.0046	.0034	82	.0000	.0000	.0813
48	.0191	.0049	.0038	85	.0000	.0000	.1043
49	.0167	.0053	.0042	90	.0000	.0000	.1551
50	.0143	.0057	.0046	95	.0000	.0000	.2330
51	.0118	.0062	.0051	100	.0000	.0000	.3495
52	.0092	.0068	.0056	105	.0000	.0000	.5243

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
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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 ASSUMPTIONS (Continued)

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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