UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1982

November 29, 1982

copy to Borkewick

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UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1982

PURPOSE AND SUMMARY

The purpose of this report is to set forth the results of our actuarial valuation of the University of Minnesota Supplemental Benefits Plan as of June 30, 1982 in accordance with Chapter 356 of the Minnesota Statutes. The valuation has been based on employee census data as of June 30, 1982 and plan provisions including benefit improvements effective July 1, 1982. In summary, our valuation reveals a Chapter 356 requirement of $518,200, well short of the $1,157,200 of annual benefits payable to retirees as of the valuation date.

Significant benefit improvements were made during the plan year:

- A benefit increase of $600 per year for retirees and survivors receiving payment on a life annuity basis ($480 if joint and survivor) with certain exceptions for widows, some vice presidents and deans, and those whose payment commenced after 1980.
- Supplemental benefits for female participants in the Faculty Retirement Plan (FRP) to increase benefits based on contributions made prior to July 1, 1982 from the level obtained using female purchase rates to the level obtained from male purchase rates.
- Contributions to FRP July 1, 1982 and thereafter will purchase annuities on a unisex basis.

A more detailed description of plan benefits in presented in Tables 3(a), 3(b), and 3(c).

The plan is composed of two distinct groups:

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- Employees who began participation in the FRP plan prior to 1963. This is essentially a closed group of participants; namely, existing retirees and a diminishing group of active participants soon to retire.
- Female participants in the FRP plan for whom contributions to FRP were made at any time prior to July 1, 1982. A few of these participants are already retired, however, most are still active. This is also a closed group.

Since appropriate projections would substantiate the diminishing nature of benefits payable under this program, any attempt to fund it strictly in accordance with the Statutes would prove to be meaningless. That is, a funding approach in strict accordance with Chapter 356 would result in a negative cash flow since current disbursements exceed resulting Chapter 356 contribution requirements.

As noted in prior reports, normal anticipated attrition of the covered group, combined with payment of current benefits from external sources, will indirectly fund the unfunded accrued liability at a rate more rapid than that prescribed under the Statutes. As set forth later in the detail of the report, if benefit improvements had not been made during the year, the indirect method of funding through payment of current benefits, in conjunction with additional contributions to the plan (total amounts are substantially in excess of Chapter 356 requirements), would have resulted in a reduction of the unfunded accrued liability under the plan from $6,066,700 as of June 30, 1981 to $4,835,300 as of June 30, 1982. Benefit increases granted during the year as previously described have increased the unfunded accrued liability to $7,612,600.

EMPLOYEE AND FINANCIAL DATA

We received complete data covering 529 active pre-1963 participants under the Faculty Retirement Plan. Based on current account balances and the actuarial assumptions set forth below, it is projected that 21 members of this group would receive benefits from the supplemental plan. In addition, we were furnished a listing for the 413 retirees, survivors and widows presently receiving or eligible to receive benefits under the plan. We also received a summary by age grouping of account balances under the Faculty Retirement Plan for female participants at November 30, 1981. From this data we estimated the total account balances as of June 30, 1982 subject to unisex adjustment. All of this data as utilized for valuation purposes is summarized in Table 2 of this report.

Assets of $2,853,800 as of June 30, 1982 were reported to us by the University, including a 1982 plan year contribution, in excess of current disbursements made from general funds, of $410,100.

PLAN VALUED

Since in fact benefits under this program are directly dependent on the level of benefits payable under the University's Faculty Retirement Plan, in addition to summarizing the pertinent provisions of the Supplemental Benefits Plan (pre-June 30, 1977 and post-June 30, 1977 in Tables 3(a) and 3(b) respectively) we have set forth a complete description of the principal provisions of the FRP plan in Table 3(c).

In brief, effective for retirement on or after June 30, 1977, the University adopted the revised "50%" formula as the target for supplemental benefits (as outlined in Table 3(b)) while at the same time retaining the prior formula as a "minimum" measure of benefits payable.

This report continues to reflect the revised early retirement provision that became effective on June 30, 1978 to coordinate with the current treatment of early retirees under the FRP plan (FRP benefits are currently payable immediately upon early retirement between ages 62 and 65, and the University no longer continues to make FRP contributions to an early retiree). Thus, on early retirement, benefits are payable immediately from the supplemental plan and are determined as follows:

(i) the 1 2/3% "target benefit" is projected to age 65

(ii) the FRP annuity equivalent and Social Security are both determined as payable immediately.

(iii) the benefit payable immediately is the difference between (i) and (ii).

This approach introduces an additional cost over what had been recognized in years prior to June 30, 1978 primarily attributable to the entire benefit being payable from this plan up to age 65 (previously these were charged back to the member's department outside the plan).

Recognizing these additional costs which emerge as participants retire early (we assume that members retire at age 66, on the average), the plan funds are reimbursed for these by the portion of total current disbursements representing these additional payments.

In addition, this report recognizes increases granted to existing retirees ($600 per year on a life annuity basis) effective July 1, 1981, cost of living increases granted to widows of pre-1956 retirees (increased from $3,330 per year to $4,020 per year) effective July 1, 1981, and supplemental benefits granted female participants in the FRP plan based on contributions made prior to July 1, 1982.

ACTUARIAL ASSUMPTIONS AND METHODS

The actuarial assumptions and methods employed in this valuation are outlined in Table 4 of this report. These assumptions and methods conform to those provisions of Chapter 356 of the Minnesota Statutes.

The actuarial method utilized is the entry-age-normal cost method as prescribed by Statutes. Under this method, the normal cost is determined as the level percentage of future covered payroll which would be required to be paid from each member's date of employment to retirement in order to provide the benefits under the plan. The accrued liability under this method is equal to the present value of all benefits payable under the plan less the present value of future normal costs calculated in accordance with the actuarial cost method. The unfunded accrued liability is then determined by subtracting the assets on the valuation date from the accrued liability. Minnesota Statutes call for annual normal costs to be provided in addition to the amortization of unfunded accrued liabilities as of the first valuation made after June 1, 1979 by the end of the fiscal year occurring in 2009. The amortization of the additional unfunded accrued liability generated by benefit improvements is determined by first computing the amortization over 30 years. The amount of this amortization is added to the amortization of the June 1, 1979 amount and a determination is made of the fiscal year when this combined payment will have fully funded the total unfunded accrued liability. Due to the increases in benefits which occurred during the year, all unfunded accrued liabilities must be amortized by the end of the fiscal year occurring in 2010.

Actuarial assumptions were identical to those used in the prior year and reflect the current Social Security Law. As indicated, the amount of benefits provided under the supplemental plan are directly dependent on those benefits provided under the FRP plan. Thus, in order to appropriately determine projected benefits payable, advance assumptions were also made in regard to future projections under the FRP itself; namely, that contribution levels would continue in accordance with the salary scale assumption set forth in item 5 of Table 4. For this purpose, fund balances were projected assuming a return of 5% per annum with accumulated values converted to annuity benefits on the basis of a continuation of purchase rates utilized in 1975. This maintains a degree of conservatism in the valuation, since current annuity purchase rates (which, effective July 1, 1982 are based on an assumed interest rate of 12 %)

applied to determine offsetting FRP benefits are more favorable than those used in 1975 (which are based on an assumed interest rate of 6¼%). Utilization of this more conservative basis for valuation purposes is consistent with the salary/investment return described below.

It should be noted that the combined salary/investment return assumptions of 3½%/5% are prescribed by Statute and do not anticipate future increases of an inflationary nature. In fact, to the extent that salaries increase more than 3½% and basic FRP accumulations take place at a rate in excess of 5%, the increased level of FRP benefits would serve to diminish supplemental benefits payable from the plan. Any future increases in offsetting Social Security benefits will also serve to reduce supplemental benefits payable from the plan under the post June 30, 1977 formula.

VALUTION RESULTS

The results of our valuation are set forth in Table 1. Section A of the table sets forth basic data items relative to active and retired (including survivors and widows) participants.

Section B sets forth the determination of accrued liability, unfunded accrued liability, annual normal cost, and annual cost provision all in accordance with Chapter 356, with the Chapter 356 annual cost provision amounting to $518,200, and the current disbursement requirement of $1,157,200.

GAIN AND LOSS ANALYSIS

In Table 5 we reconcile the unfunded accrued liability over the past year and set forth a gain and loss analysis. This analysis denotes a decrease of some $153,700 in the June 30, 1982 unfunded accrued liability when compared to that expected. Actuarial losses resulted primarily from salary increases substantially in excess of the 3½% valuation rate and from the subsidy for retirements prior to age 65. This was more than offset by actuarial gains resulting from changes in projected Social Security benefits and favorable investment income pertaining to supplemental plan assets and offsetting FRP benefits. The net decrease in the unfunded accrued liability is attributable to the following:

(a)	Decrease due to increases in Social Security	137,200
(b)	Decrease due to supplemental plan asset earnings in excess of 5%	254,900
(c)	Increase due to other actuarial losses, primarily as a result of salary increases in excess of 3½%	196,500
(d)	Increase due to early retirement subsidy for retirement prior to 65	41,900
(e)	Total Decrease ((a) + (b) - (c) - (d))	153,700

COMPARISON OF 1981 and 1982 VALUATION RESULTS

In Table 6, we set forth a comparison of the principal values underlying the 1981 and 1982 valuations. The unfunded accrued liability has increased due to the benefit improvements made during the year. If these improvements had not been made the unfunded accrued liability would have decreased to $4,835,300 rather than increasing to $7,612,600 as shown.

* * * * * * * * * * * *

If in connection with this report, any further investigations are indicated, we will be happy to proceed as directed.

Respectfully submitted,

The Wyatt Company

Allan J. Grosh
Fellow, Society of Actuaries

Jerome J. McKoskey
Fellow, Society of Actuaries

Minneapolis/Saint Paul
November 29, 1982

Table I

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1982
(Valuation determinations rounded to nearest $100)

A. BASIC DATA

1. Active Pre-1963 Participants	
(a) Total active pre-1963 participants under Faculty Retirement Plan (FRP)	529
(b) Total projected to receive supplemental benefits	
(i) Number	21
(ii) Average annual projected supplement 1/	1,030
2. Estimated Account Balance for Female Participants at July 1, 1982	11,039,900
3. Retirees, Survivors and Widows	
(a) Number receiving or entitled to receive benefits	413
(b) Average annual benefit being paid	2,802

B. DETERMINATION OF ANNUAL REQUIREMENTS IN ACCORDANCE WITH CHAPTER 356 (MINNESOTA STATUTES)

1. Accrued Liability as of June 30, 1982

	Pre-July 1, 1981 Benefits	July 1, 1981 Through July 1, 1982 Benefit Increase	Total Benefits July 1, 1982
(a) Actives	281,000	(97,700)	183,300
(b) Retirees	6,273,700	1,605,100	7,878,800
(c) Widows	475,600	98,500	574,100
(d) Survivors	658,800	135,100	793,900
(e) Female unisex increase 7/1/82	0	1,036,300	1,036,300
(f) Total	7,689,100	2,777,300	10,466,400

2. Assets as of June 30, 1982	2,853,800
3. Unfunded Accrued Liability as of June 30, 1982 (1(f) less 2)	7,612,600
4. Annual Normal Cost	31,600

5. Annual Requirement to Fund Normal Cost and Amortize the Unfunded Accrued Liability by June 30, 2010

(a) Based on pre-July 1, 1981 benefits	315,700
(b) $600/$480 increase for retirees and survivors	106,000
(c) Cost of living increases for widows	6,300
(d) Female unisex increase 7/1/82	90,200
(e) Total	518,200

6. Annual Rate of Benefit Payment $1,157,200

1/ Per investment earnings, salary scale, and Social Security assumptions summarized in Table 4.

Table 2

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Distribution of Participants as of June 30, 1982

A. ACTIVE PARTICIPANTS (Pre-1963 FRP Participants)

Age Group Last Birthday	Males	Females	Total
45 - 49	10	2	12
50 - 54	90	2	92
55 - 59	141	14	155
60 - 64	179	10	189
65 & Over	75	6	81
Total	495	34	529

B. WIDOWS OF PRE-1956 RETIREES

Age Group Last Birthday	Number (All Females)	Annual Benefit Being Paid
70 - 74	1	$ 4,020
75 - 79	5	20,100
80 - 84	4	16,080
85 - 89	6	24,120
90 & Over	12	48,240
Total	28	$ 112,560

C. SURVIVORS

Age Group Last Birthday	Number (All Females)	Annual Benefit Being Paid
50 - 54	1	$ 1,211
55 - 59	1	3,907
60 - 64	2	5,536
65 - 69	7	17,181
70 - 74	10	25,195
75 - 79	5	12,075
80 - 84	6	15,655
85 - 89	1	4,217
Total	33	$ 84,977

D. RETIREES

Age Group Last Birthday	Males	Females	Total	Annual Benefit Being Paid
60 - 64	9	3	12	$ 22,261
65 - 69	48	26	74	151,189
70 - 74	82	20	102	218,774
75 - 79	69	13	82	222,416
80 - 84	32	8	40	148,097
85 - 89	21	9	30	132,554
90 & Over	7	5	12	64,409
Total	268	84	352	$ 959,700

E. RECONCILIATION OF RETIREES/WIDOWS/SURVIVORS

		Number
1.	Number receiving benefits last year	379
2.	Deaths during year with no continuing benefits payable	15
3.	New retirees this year	8
4.	New retirees as result of benefit increases	41
5.	Number receiving or entitled to receive benefits this year (1 - 2 + 3 + 4)	413*

* as follows:

Widows	28
Survivors	33
Retirees	352
Total	413

F. Faculty Retirement Plan Account Balances for Female Participants as of November 30, 1981

Age	Total Account Balance
25	$ 208.81
26	0
27	10,175.84
28	16,197.21
29	33,889.84
30	41,155.68
31	124,893.30
32	57,679.78
33	120,800.48

Age	Total Account Balance
34	165,680.71
35	179,807.96
36	282,945.78
37	244,657.96
38	251,937.99
39	398,363.77
40	364,468.89
41	312,951.13
42	315,098.24
43	261,250.11
44	357,414.35
45	378,129.97
46	319,015.09
47	337,383.15
48	206,293.16
49	340,065.02
50	173,628.55
51	337,232.78
52	201,331.50
53	190,508.40
54	385,454.92
55	518,058.62
56	389,279.39
57	404,150.16
58	581,935.31
59	545,790.08
60	199,768.49
61	235,216.95
62	342,296.12
63	211,369.03
64	177,586.50
65	218,501.01
66	145,980.98
67	83,910.08
68	26,800.62
69	0
70	0
TOTAL:	$10,489,263.71

Table 3(a)

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN (PRE-JUNE 30, 1977)

Summary of Principal Provisions of the Supplemental Plan
(provisions in effect for pre-June 30, 1977 retirees)

1. **Eligibility:** Generally applicable to employees who first began participation in the Faculty Retirement Plan prior to 1963, and who retire on or after the June 30, next following the 65th birthday. Special early retirement provisions are available (see below).

2. **Amount of Supplement:** Supplement (annual) is computed as follows:

(a) Determine 2% of final five year average salary for each year of actual service (maximum 30), but not to exceed the following:

(i)	Professor	$8,500
(ii)	Associate Professor	$8,000
(iii)	Assistant Professor or Instructor	$7,500

(b) Convert Faculty Retirement Plan net accumulations to fixed dollar life annuities using fixed annuity factors under FRP. Note that variable accumulations are converted on fixed basis for this purpose. Prior endowment accumulations are treated as annuity in this computation.

(c) Deduct $1,524 (estimate of 1963 Social Security level) from (a).

(d) Determine supplement as equal to (a) less (b) after adjustment for (c).

(Note: Dividends payable for coverage prior to 1963 are not included in (b) above. 1963 and later coverage dividends are included by direct reflection in interest credited on accumulations).

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3. **Early Retirement:**
(Note: Any reference to age 65 in this description means the June 30th following the 65th birthday).

A member may retire as early as age 62 in which case his FRP accounts are used to purchase an annuity commencing immediately. Supplemental benefits payable are determined as follows:

(a) Determine 2% of final five year average salary for each year of service (projected to age 65 but subject to a maximum of 30) not to exceed the following:

(i)	Professor	$8,500
(ii)	Associate Professor	$8,000
(iii)	Assistant Professor or Instructor	$7,500

(b) Convert Faculty Retirement Plan net accumulations to fixed dollar life annuities payable at early retirement using annuity factors under FRP. Note that variable accumulations are converted on a fixed basis for this purpose.

(c) Deduct $1,524 (estimate of 1963 Social Security level) from (a).

(d) Determine supplemental benefit as equal to (a) less (b) after adjustment for (c).

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Table 3(b)

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN (JUNE 30, 1977)

Summary of Principal Provisions of the Supplemental Plan
(provisions in effect for June 30, 1977 and later retirees)

1. Eligibility:

Generally applicable to employees who first began participation in the Faculty Retirement Plan prior to 1963, and who retire on or after the June 30, next following the 65th birthday. Special early retirement provisions are available (see below).

2. Amount of Supplement:

Greater of benefit as determined under Supplemental Benefits Plan (Pre-June 30, 1977) or benefit computed as follows:

(a) Determine final five year average salary subject to following maximums for indicated retirement years:

Year	Amount	Year	Amount
1976-77	$37,200	1981-82	$45,300
1977-78	38,700	1982-83	47,100
1978-79	40,300	1983-84	49,000
1979-80	41,900	1984-85	51,000
1980-81	43,600	1985-86	53,000

(b) Determine 1-2/3% of final five year average salary for each year of actual service (maximum 30).

(c) Convert Faculty Retirement Plan net accumulations to fixed dollar life annuities using fixed annuity factors under FRP. Note that variable accumulations are converted on fixed basis for this purpose.

(d) Determine 100% of estimated primary Social Security benefit payable based on continuous coverage from date of University hire (or January 1, 1955, if later), to the date of retirement.

(e) Determine supplement equal to the excess of (b) over the sum of (c) plus (d).

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3. **Early Retirement:**
(Note: Any reference to age 65 in this description means the June 30th next following the 65th birthday).

A member may retire as early as age 62 in which case his FRP accounts are used to purchase an annuity commencing immediately. Supplemental benefits payable are determined as follows:

(a) Determine final five year average salary subject to the following maximums based on the year of early retirement:

Year	Amount	Year	Amount
1978-79	$40,300	1982-83	$47,100
1979-80	41,900	1983-84	49,000
1980-81	43,600	1984-85	51,000
1981-82	45,300	1985-86	53,000

(b) Determine 1-2/3% of final five year average salary for each year of actual service, including projected service to age 65 (maximum 30).

(c) Convert Faculty Retirement Plan net accumulation to fixed dollar annuities using fixed annuity factors under FRP and reflecting early retirement. Note that variable accumulations are converted to the fixed basis for this purpose.

(d) Determine 100% of estimated primary Social Security benefit payable at early retirement based on continuous coverage from date of University hire (or January 1, 1955 if later) to the date of retirement.

(e) Determine supplement equal to the excess of (b) over the sum of (c) plus (d).

4. **Unisex Adjustment Policy:**
Established July 1, 1982:

Periodic retirement benefits paid pursuant to the Faculty Retirement Plan shall be equalized for similarly situated males and females effective July 1, 1982. To the extent that benefits in addition to those which are available from the annuity contracts shall be required, such amounts shall be paid through the University of Minnesota Supplemental Benefits Plan.

The equalization shall be accomplished in the following manner:

For Individuals Not Yet Retired:

1. All contributions to the faculty retirement plan after the effective date shall be applied to purchase annuities under sex-neutral (unisex) rates.

2. Total benefits (annuities plus supplement) from contributions to the faculty retirement plan which are made prior to the effective date shall be determined by using male mortality rates for all University employees and female mortality rates for all joint annuitants under the joint and survivor option.

For Individuals Already Retired:

The amount of the total periodic benefit (annuity plus supplement) being paid shall be recalculated using male mortality rates for all University employees and female mortality rates for all joint annuitants under the joint and survivor option. In those instances where the application of such mortality rates provides for increased benefits, such increased benefits shall be paid through the University supplement on a retroactive and prospective basis.

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Table 3(c)

UNIVERSITY OF MINNESOTA
FACULTY RETIREMENT PLAN

Summary of Principal Provisions of the Faculty Retirement Plan

1. Eligibility:

All full time academic staff members (including certain civil service staff members) participating in $20,000 Group Life program, eligible to participate as follows:

Classification	Date of Participation
(a) Associate professor or higher	(i) If hired between October 1 and April 2, on date of hire. (ii) If hired between April 2 and September 30, on October 1 next following date of hire.
(b) Assistant professor or research associate	On October 1 following two years of service. If hired between October 2 and March 1, service is credited back to prior to October 1.
(c) Instructor or research fellow	On October 1 following three years of service. If hired between October 2 and March 1, service is credited back to prior October 1.
(d) Eligible civil service member	(i) If salary less than $27,980, same as (c).* (ii) If salary greater or equal to $27,980 but less than $33,764, same as (b). (iii) If salary greater than or equal to $33,764 same as (a). * Salary ranges are as of July 1, 1982.

2. Financing:

Staff member contributes 2½% of gross annual salary, with University making contributions of 2½% of the first $5,000 of gross annual salary, plus 13% of such gross annual salary in excess of $5,000. Effective in 1973, summer research and training grants have been included for nine-month appointees for the purposes of determining compensation for contributions.

3. Mandatory Retirement Age:

June 30 following 70th birthday.

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4.	Date to Which University Contributions are Made	For staff member beginning participation on October 2, 1974 and later, contributions are continued until the June 30 next following the 65th birthday; otherwise continued during eligible employment until June 30 next following 68th birthday.
5.	Investment Medium (Pre-Retirement):	Net contributions (gross less front end load) are accumulated through the medium of insured funding contracts as follows: (i) Fixed dollar: accumulate at rate of interest declared by insurers, but never less than minimum stipulated. Only future accumulations transferable to variable in pre-retirement period. (ii) Variable Income: Net contributions are immediately converted to accumulation units which are valued each month. Unit values reflect earnings of separate account less the fixed investment charge stipulated (subject to guaranteed maximum charges). Past and future accumulations are transferable to fixed in pre-retirement period. (NOTE: Variable contributions cannot exceed 50%, or alternatively 75% of total contributions, including employees' contributions).
6.	Types of Annuities Available at Retirement (Post-Retirement)	Either guaranteed fixed retirement annuities or non-guaranteed variable annuities are provided (see (7) for conversion). Fixed funds cannot be converted to variable annuity basis at retirement although variable fund conversion to fixed annuity is allowed in which case, accumulation units would be cancelled and transferred to the general assets of the insurer to be applied to provide guaranteed retirement annuity coverage.
7.	Amount of Benefits:	At retirement, cash value (representing accumulation of contributions under insured funding contracts, net of front end load - presently 2%), or value of accumulation units under variable, is applied to provide "life only" retirement income on the basis of stipulated income conversion factors as listed below. In the determination of the monthly income on the "fixed income" basis, a $200 set-up charge is deducted from the proceeds prior to application of the "fixed income" factor. Account balances resulting from contributions made prior to July 1, 1982 will be applied on a male employee and female joint annuitant basis. Account balances resulting from contributions made subsequent to July 1, 1982 will be applied on a unisex basis.

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7/1/82 Conversion Basis	Monthly Income for Each $1,000 of Proceeds			
	Fixed Income (12% interest net)		Variable Annuity (4% interest net)	
Pre-7/1/82 contributions:	Age 65	Age 68	Age 65	Age 68
Male	12.02	12.74	7.18	7.95
Female	11.14	11.63	6.37	6.95
Contributions 7/1/82 and later:				
Unisex:	11.45	12.02	6.47	7.08

(NOTE: In the past when fixed income conversion factors proved to be too conservative, excess interest credits were being accorded to benefits in payment status via year-end dividends. Certain prior retirees are still being credited with excess interest dividend increases).

8. Early Retirement:

Participants may retire early, with annuity equivalents payable immediately.

9. Vesting (termination value):

Immediate 100% vested right in accumulations to date of termination. Disposition is as follows:

(i) If initial participation is December 15, 1972 or earlier, or after December 15, 1972 and has less than five years of participation, entitled to receive total net accumulation to date of termination.

(ii) If initial participation is after December 15, 1972 and has more than five years participation, entitled to sum of:

(a) His own contributions plus interest, and

(b) Paid-up annuity for remainder of total net accumulation, providing for death benefits prior to income commencement of remaining paid-up values.

(NOTE: Variable portion of net accumulation, if $2,000 or more, may be applied to provide variable retirement annuity, or alternatively placed in paid-up status to provide variable retirement annuity at later date. In addition, terminating member can continue retirement annuity accumulations by paying total premiums directly to the insurer).

10. Death Benefits:
(a) Pre-retirement:

Named beneficiary would receive total termination value of retirement annuity as in (9). Optional forms of payment as may be elected by beneficiary must be approved by the University.

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(b) Post-retirement:

In accordance with optional form of payment elected, as follows:

(i) life annuity with no post-retirement death benefit.

(ii) life annuity with 60, 120, 180, or 240 monthly payments guaranteed in any event.

(iii) joint and survivor annuity payable until the death of the last survivor of the annuitant and his designated beneficiary, with 120 monthly payments guaranteed payable in any event.

11. Disability:

In the event of total and continuous disability for a period of at least four months, all contributions are waived with future credits being accorded on the basis of a continuation of contribution levels in effect at time of disability.

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Table 4

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Summary of Actuarial Assumptions and Methods

1.	Mortality:	Progressive Annuity Mortality Table set back 0.6 for males and 4.6 years for females.
2.	Turnover:	None assumed.
3.	Expenses:	None assumed. To be met directly. 2% front-end load utilized for purposes of converting FRP accumulations.
4.	Interest Rate:	5% per annum.
5.	Salary Scale:	3½% per annum.
6.	Assumed Retirement Age:	June 30th following 66th birthday.
7.	Actuarial Cost Method:	Individual entry-age-normal cost method, with normal cost determined as a level percentage of future covered payroll.
8.	Amortization of Unfunded Accrued Liability:	As a level dollar amount by June 30, 2010.
9.	Faculty Retirement Plan Accumulations:	Accumulated at 5% per annum assuming a continuation of present contribution percentages on increasing covered payroll (per salary scale assumption). Net accumulations converted to fixed dollar life annuities using following 6¼% factors (monthly income for each $1,000 of proceeds) after 2% front-end load adjustment. Male 8.65 Female 7.64 Unisex 8.55
10.	Social Security:	Based on present law (2nd phase 1982) and 3½% salary scale applicable to current salaries. No wage base or cost of living increases are projected.

Table 5

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Gain and Loss Analysis (Plan Year Ending June 30, 1982)

1.	Unfunded Accrued Liability as of June 30, 1981		$6,066,700
2.	Normal Cost		6,200
3.	Interest at Valuation Rate (5%) on (1) and (2)		303,600
4.	Contributions During Year		
	(a)	Approximate "pay-as-you-go" payments to retirees	1,157,200
	(b)	Supplemental contributions	410,100
	(c)	Total effective contributions ((a) + (b))	1,567,300
5.	Interest at Valuation Rate (5%) on 4(a) and 4(b)		40,800
6.	Approximate payments required during year due to benefit increases effective July 1, 1981		215,200
7.	Interest at Valuation Rate (5%) on (6)		5,400
8.	Increase in liablity due to benefit improvements		2,777,300
9.	Expected Unfunded Accrued Liability as of June 30, 1982 (1 + 2 + 3 - 4 - 5 + 6 + 7 + 8)		7,766,300
10.	Actual Unfunded Accrued Liability as of June 30, 1982		7,612,600
11.	Decrease During Year (9 - 10)		153,700
12.	Gain and Loss Analysis		
	(a)	Gain due to increase to offsetting Social Security benefits	137,200
	(b)	Gain due to supplemental plan asset earnings in excess of 5%	254,900
	(c)	Loss due to early retirement subsidy for retirement prior to 65 *	41,900
	(d)	Other actuarial losses **	196,500
	(e)	Net gain((a) + (b) - (c) - (d))	153,700

* It is our understanding that this loss will be offset by annual reimbursements by individual departments, representing the early retirement subsidy paid to each early retiree.

** Due primarily to salary increase in excess of 3½%.

Table 6

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Comparison of 1981 and 1982 Valuation Results

		1981	1982
1.	Active Pre-1963 Participants		
	(a) Total active pre-1963 participants under FRP	577	529
	(b) Total projected to receive supplemental benefits		
	(i) Number	38	21
	(ii) Average annual supplemental benefit 1/	963	1,030
2.	Estimated account balance for female participants at July 1, 1982	---	11,039,900
3.	Retirees, Survivors and Widows		
	(a) Number - Retirees	318	352
	- Survivors	29	33
	- Widows	32	28
	- Total	379	413
	(b) Average annual benefit being paid or payable	2,590	2,802
4.	Accrued Liability on Valuation Date		
	(a) Active participants	301,900	183,300
	(b) Retirees, survivors and widows	7,838,000	9,246,800
	(c) Female participants with account balances at July 1, 1982	---	1,036,300
	(d) Total	8,139,900	10,466,400
5.	Assets on Valuation Date	2,073,200	2,853,800
6.	Unfunded Accrued Liability	6,066,700	7,612,600
7.	Annual Normal Cost	6,200	31,600
8.	Chapter 356 Minimum Provision	394,000	518,200
9.	Alternate Provision-Current Disbursement	981,500	1,157,200

1/ Per actuarial assumptions regarding earnings on FRP account balances, salary increases and increases in Social Security. See Table 4 for summary of actuarial assumptions.

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MEMORANDUM TO: Legislative Commission on Pensions and Retirement

FROM: James R. Bordewick, F.S.A.

RE: June 30, 1982 Actuarial Valuation of the Minnesota Faculty Supplemental Benefits Plan

DATE: December 29, 1982

The purpose of this memorandum is to review and discuss the results of the June 30, 1982 Actuarial Valuation of the Minnesota Faculty Supplemental Benefits Plan. The Actuarial Valuation was prepared by Mr. Alan J. Grosh and Mr. Jerome J. McKoskey of The Wyatt Company actuarial firm.

The Actuarial Valuation was conducted using the Entry Age Normal Cost actuarial method, interest at 5% and a salary increase assumption of 3½% which are in accordance with Minnesota Statutes, Chapter 356.

There were no changes in this Actuarial Valuation for actuarial assumptions or valuation methods. The provisions of the plan were changed in the following respects since the last Actuarial Valuation:

- Cost of living increases for retirees generally in the range of $480 to $600 per year. This was effective July 1, 1981.

- Cost of living increases for widows of pre-1956 retirees of $690 per year. This was effective July 1, 1981.

- Supplemental benefits for female members to equalize benefits to those of comparable male members. This supplement is based on contributions made by female members prior to July 1, 1982. Contributions for female members made on or after July 1, 1982 will purchase annuities on a unisex basis.

This plan covers a group of employees who became participants in the Faculty Retirement Plan prior to 1963 and female members in the Faculty Retirement Plan for whom contributions were made prior to July 1, 1982. Therefore, it is a closed group.

The benefits provided by the plan are supplemental to the benefits provided from the Faculty Retirement Plan and Social Security. In other words, a supplemental benefit would be paid if the benefits from the Faculty Retirement Plan and Social Security were less than a target benefit of 1.6667% of final average salary per year of service (maximum 30 years). In addition, a supplemental would be provided to female members to equalize the benefits with a comparable male member.

SUMMARY OF ACTUARIAL VALUATION RESULTS

1. Membership

	6-30-81	6-30-82	Increase
Active Members	577	529	-48
Active Members Projected for Supplement	38	31	- 5
Deferred Annuitants	0	0	0
Retired Members	318	352	34
Widows	32	28	- 4
Survivors	29	33	4

2. Anniuties In Force: Annual Basis

Anniuties In Force: Annual Basis	$ 981,463	$ 1,157,237	$ 175,774

3. Actuarial Balance Sheet:

Accrued Liabilities			
Annuities In Force	$ 7,838,000	$ 10,283,100	$ 2,445,100
Deferred Annities	-	-	-
Active Members	301,900	183,300	- 118,600
	$ 8,139,900	$ 10,466,400	$ 2,326,500
Assets	$ 2,073,200	$ 2,853,800	$ 780,600
Unfunded Accrued Liability	$ 6,066,700	$ 7,612,600	$ 1,545,900

4. Analysis of Increase in Unfunded Accrued Liability

The Unfunded Accrued Liability increased by $1,545,900 from June 30, 1981 to June 30, 1982. The items making up this increase are shown below:

(1) Actuarial Experience		
Interest	$ 254,900	Gain
Social Security Increases	137,200	Gain
Early Retirement	41,900	Loss
Other*	196,500	Loss
	$ 153,700	Gain
(2) Contribution Sufficiency	$ 1,077,700	
(3) Liability Increase for Benefit Improvements	$ 2,777,300	
(4) Total: (3)-(2)-(1)	$ 1,545,900	

* This is the net actuarial loss from sources such as mortality, salary, turnover of employment, and the like. The majority of of this loss is from salary increases in excess of 3½%.

SUMMARY OF ACTUARIAL VALUATION RESULTS (CONT.)

5. Contribution Levels

   Based on the Actuarial Valuation results, the contribution required to provide for the normal cost and to amortize the Unfunded Accrued Liability by June 30, 2010 is $518,200 as of June 30, 1981. This compares with a contribution requirement of $394,000 a year ago. The annual contribution requirement has increased by $124,200 from a year ago which is a result of benefit improvements granted July 1, 1981 and later.

DISCUSSION OF ACTUARIAL VALUATION RESULTS

1. The total number of active members decreased from a year ago. This is expected with a closed group as there are no new members.

2. The number of active members projected for a supplemental benefit decreased by 7 from a year ago. The main reasons for this decrease were the increases in projected Social Security and the projected benefits from the Faculty Retirement Plan.

3. The Unfunded Accrued Liability had decreased by $3,232,500 since June 30, 1977. This decrease has been a result of consistent actuarial gains during the period and contributions in excess of the amount to keep the Unfunded Accrued Liability from increasing and increased liabilities for benefit improvements.

   It is expected that actuarial gains will result in the future and, based on a contribution in excess of current benefit payments, the Unfunded Accrued Liability will continue to decrease.

4. Actuarial losses will continue from the early retirement provision of the plan since no advance funding for this provision is included. This loss is apparently offset by additional contributions to the plan to provide for these benefit payments.

5. The funding ratio - the ratio of assets of the plan to the Accrued Liabilities of the plan - was 27.3% as of June 30, 1982. This compares with a ratio of 25.5% a year ago. Assets still do not cover the Accrued Liabilities for members in a payment status.

6. As mentioned in previous valuation memoranda, the statutory funding method does not appear appropriate for this plan. Contributions since June 30, 1977 have been $3,774,300 in excess of statutory requirements.

   Assuming a level contribution of $1,567,000 (which approximates last years' contribution), the Unfunded Accrued Liability will be amortized in approximately six years.

CONCLUSION

The Actuarial Valuation complies with the requirements of Minnesota Statutes, Chapter 356. It is expected that the plan will reach a fully funded position at least 23 years prior to the required amortization date of June 30, 2010.

James R. Bordewick

James R. Bordewick, F.S.A.
Consulting Actuary