

**UNIVERSITY OF MINNESOTA  
SUPPLEMENTAL BENEFITS PLAN**

**Actuarial Valuation  
as of July 1, 1997**

**June 12, 1998**



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**Watson Wyatt**  
*Worldwide*

**University of Minnesota Supplemental Benefits Plan  
Actuarial Valuation as of July 1, 1997**

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**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 July 1, 1997, in accordance with Chapter 356 of the Minnesota Statutes. The valuation establishes a cost provision of \$709,600 for the year ending June 30, 1998.

The valuation has been based on employee census data as of July 1, 1997 and plan provisions in effect as of July 1, 1997. The plan is composed of two distinct groups:

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

In summary, the valuation shows a Chapter 356 requirement of \$709,600. Contributions to the plan are made from central resources and from self-supporting departments. In order to satisfy Chapter 356, the total contribution from all sources, plus interest at 5% to June 30, 1998, must be at least \$709,600.

The estimated annual benefits payable to retirees as of the valuation date are \$1,851,925. This amount could be transferred from the plan asset account to the benefit payment account. This is an estimate of the benefits to be paid during the year. The accounts would need to be adjusted prior to June 30, 1998 for any differences in the amount transferred and the actual benefit payments. The net amount transferred from the plan asset account to the benefit payment account during the year should be the exact amount of the benefits paid during the year.



**EMPLOYEE AND FINANCIAL DATA**

Table 2 summarizes the data used for the valuation. Data covering 57 active pre-1963 participants under the Faculty Retirement Plan (FRP) was provided to us. Based on current account balances and the actuarial assumptions set forth below, it is projected that no member of this group will receive benefits from the Supplemental Benefits Plan. In addition, we were furnished a listing for the 497 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 July 1, 1997. The University reported assets with a book value of \$10,301,400, and unrealized gains of \$1,087,000 as of July 1, 1997. We have used book value plus one third of unrealized gains, as allowed by Chapter 356, for valuation assets.

**PLAN VALUED**

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

We project that no active employee will receive benefits from the Supplemental Benefits Plan. Therefore, the liabilities reflected in this report are for inactive participants and female participants subject to unisex adjustment.

**ACTUARIAL ASSUMPTIONS AND METHODS**

Table 4 is a summary of the actuarial assumptions and methods used in this valuation. These assumptions and methods conform to the provisions of Chapter 356 of the Minnesota Statutes.

The actuarial method used 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 that is 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. The unfunded accrued liability is then determined by subtracting the assets on the valuation date from the accrued liability.

Minnesota Statutes require funding the annual normal cost plus the amortization of unfunded accrued liability as of the first valuation made after June 1, 1979 by the end of the fiscal year occurring in 2009. The amortization of any 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 have occurred since 1979, all unfunded accrued liabilities are being amortized by the end of the fiscal year occurring in 2019.

Actuarial assumptions are identical to those used in the prior year. In order to determine projected benefits appropriately, advance assumptions are made in regard to future projections under FRP; 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.

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.

It should be noted that any interest earnings in excess of the assumed rate of 5% will serve to increase the liability for the account balances for female participants which are subject to unisex adjustment.



**VALUATION RESULTS**

Table 1 sets forth the results of our valuation. Section A of the table sets forth basic data items for active and retired 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. As of July 1, 1997, the annual cost provision is \$675,800. Interest accrues at 5% until date of payment. As of June 30, 1998, the annual cost provision is \$709,600.

**GAIN AND LOSS ANALYSIS**

Table 5 reconciles the unfunded accrued liability over the past year and summarizes the gain and loss analysis. There was a decrease of \$124,000 in the July 1, 1997 unfunded accrued liability when compared to that expected. This decrease resulted from earnings on plan assets in excess of 5%, offset by experience losses.

**COMPARISON OF 1996 AND 1997 VALUATION RESULTS**

Table 6 sets forth a comparison of the principal values underlying the 1996 and 1997 valuations. The unfunded accrued liability increased from \$7,177,600 to \$8,211,300.

\*\*\*\*\*



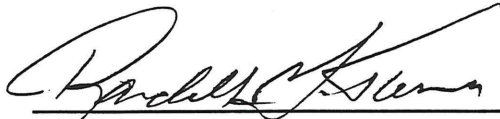


**University of Minnesota Supplemental Benefits Plan**  
**Actuarial Valuation as of July 1, 1997**

***DISCUSSION***

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

Respectfully submitted,  
**WATSON WYATT WORLDWIDE**



Randall G. Tuma  
Consulting Actuary



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Minneapolis/St. Paul  
June 12, 1998



**University of Minnesota Supplemental Benefits Plan**  
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**TABLE 1**

**ACTUARIAL VALUATION RESULTS**  
**(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)	57
(b)	Total projected to receive supplemental benefits	
(i)	Number	0
(ii)	Average annual projected supplement <sup>1</sup>	0
2.	Estimated Account Balance for Female Participants at July 1, 1997	48,526,166
3.	Retirees, Survivors and Widows	
(a)	Number receiving or entitled to receive benefits	497
(b)	Average annual benefit being paid	3,726

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

1.	Accrued Liability as of July 1, 1997	
(a)	Actives	0
(b)	Retirees	8,823,200
(c)	Widows	19,800
(d)	Survivors	4,273,000
(e)	Female unisex increase 7/1/82	5,759,000
(f)	Total	18,875,000
2.	Assets as of July 1, 1997	10,663,700
3.	Unfunded Accrued Liability as of July 1, 1997 (1(f) less 2)	8,211,300
4.	Annual Normal Cost	81,700

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





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***TABLE 1 (continued)***

5.	Annual Requirement to Fund Normal Cost and Amortize the Unfunded Accrued Liability by June 30, 2019	
(a)	Amortization of Unfunded Accrued Liability by June 30, 2019	594,100
(b)	Normal cost	81,700
(c)	Total as of July 1, 1997	675,800
(d)	Total as of June 30, 1998	709,600
6.	Annual Rate of Benefit Payment	1,851,925



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**TABLE 2**

**DISTRIBUTION OF PARTICIPANTS AS OF JULY 1, 1997**

**A. ACTIVE PARTICIPANTS (Pre-1963 FRP Participants)**

<u>Age Group Last Birthday</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
60 - 64	4	0	4
65 & Over	<u>53</u>	<u>0</u>	<u>53</u>
Total	57	0	57

**B. WIDOWS OF PRE-1956 RETIREES**

<u>Age Group Last Birthday</u>	<u>Number (All Females)</u>	<u>Annual Benefit Being Paid</u>
90 & Over	1	\$5,104
Total	1	\$5,104

**C. SURVIVORS**

<u>Age Group Last Birthday</u>	<u>Males</u>	<u>Females</u>	<u>Annual Benefit Being Paid</u>
55 - 59	0	2	\$8,195
60 - 64	0	0	0
65 - 69	0	3	8,426
70 - 74	0	13	32,307
75 - 79	0	26	85,945
80 - 84	0	26	133,591
85 - 89	1	32	250,351
90 & Over	<u>0</u>	<u>13</u>	<u>102,992</u>
Total	1	115	\$621,807





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**TABLE 2 (continued)**

**D. RETIREEES**

<u>Age Group Last Birthday</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Annual Benefit Being Paid</u>
60 - 64	-	4	4	\$ 2,133
65 - 69	-	9	9	4,993
70 - 74	19	38	57	56,953
75 - 79	75	34	109	197,182
80 - 84	92	33	125	381,545
85 - 89	28	12	40	252,403
90 & Over	<u>29</u>	<u>7</u>	<u>36</u>	<u>329,805</u>
Total	243	137	380	\$1,225,014

**E. RECONCILIATION OF RETIREES/WIDOWS/SURVIVORS**

	<u>Number</u>
1. Number receiving benefits last year	514
2. Deaths during year with no continuing benefits payable	17
3. New retirees this year	0
4. Number receiving or entitled to receive benefits this year (1 - 2 + 3)	497*

* Widows	1
Survivors	116
Retirees	<u>380</u>
Total	497



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**TABLE 2 (continued)**

**F. ESTIMATED FACULTY RETIREMENT PLAN ACCOUNT BALANCES FOR**  
**FEMALE PARTICIPANTS AS OF JUNE 30, 1997 ATTRIBUTABLE TO**  
**CONTRIBUTIONS MADE PRIOR TO JULY 1, 1982**

<b>Age</b>	<b>Number of Participants</b>	<b>Total Account Balance</b>
41	2	29,761
43	7	98,946
44	6	119,517
45	8	189,485
46	15	239,850
47	20	721,656
48	24	783,733
49	19	599,383
50	30	1,284,758
51	25	1,373,375
52	23	1,245,976
53	29	1,942,118
54	30	1,825,802
55	27	2,112,071
56	37	3,456,707
57	25	2,684,822
58	24	2,852,928
59	17	1,873,932
60	22	3,527,480
61	24	3,447,674
62	24	2,348,763
63	16	2,328,954
64	14	1,692,458
65	16	1,717,358
66	10	1,045,328
67	14	1,561,749
68	4	195,301
69	10	1,399,504
70	9	781,698
71	9	1,361,780
72	8	1,418,655
73	6	571,924
74	10	900,995
75	5	451,054
76	2	105,178
77	2	75,336
79	1	160,157
	<hr/> 574 <hr/>	<hr/> 48,526,166 <hr/>





**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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**TABLE 3(a) (continued)**

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 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).



**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 Supplemental: 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:

<u>Year</u>	<u>Amount</u>	<u>Year</u>	<u>Amount</u>	<u>Year</u>	<u>Amount</u>
1976-77	\$37,200	1984-85	\$51,000	1992-93	\$69,700
1977-78	38,700	1985-86	53,000	1993-94	75,400
1978-79	40,300	1986-87	55,100	1994-95	75,400
1979-80	41,900	1987-88	57,300	1994-95	75,400
1980-81	43,600	1988-89	59,600	1995-96	78,400
1981-82	45,300	1989-90	62,000	1996-97	81,600
1982-83	47,100	1990-91	64,500	1997-98	84,800
1983-84	49,000	1991-92	67,000		

- (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.



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TABLE 3(b) (continued)

(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).

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:

<u>Year</u>	<u>Amount</u>	<u>Year</u>	<u>Amount</u>	<u>Year</u>	<u>Amount</u>
1978-79	\$40,300	1985-86	\$53,000	1992-93	\$69,700
1979-80	41,900	1986-87	55,100	1993-94	72,500
1980-81	43,600	1987-88	57,300	1994-95	75,400
1981-82	45,300	1988-89	59,600	1995-96	78,400
1982-83	47,100	1989-90	62,000	1996-97	81,600
1983-84	49,000	1990-91	64,500	1997-98	84,800
1984-85	51,000	1991-92	67,000		

(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(b) (continued)**

5. Post-Retirement Benefit  
Increases Established July 1,  
1981 and July 1, 1984:

Increases granted to certain retired faculty in the amount of \$600 for a full share and \$480 for an 80% share with full shares being paid to those retirees who are receiving single life annuities and 80% shares paid to retirees, or surviving spouses of retirees, who elected the survivorship option. Those retired faculty eligible to receive the increase shall be determined as follows:

  1. Exclude Vice Presidents, widows of Vice Presidents, and those with Dean status for retirement purposes.
  2. Include only pre-1963 participants, who retired on or before June 30, 1980 (June 30, 1983 for July 1, 1984 increase) and who are not specifically excluded, whether or not they are currently receiving a Supplement payment. 1969 and later surviving spouses currently receiving a Supplement are considered participants.
  
6. Post-Retirement Benefit  
Increase Established July 1,  
1986:

Benefit increases were granted to pre-1963 participants who retired not later than July 1, 1985, excluding those Vice Presidents and Deans who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option. The amount of increase was \$13.00 (single life annuities) or \$10.40 (joint and survivor or surviving spouse annuities) per year for each "point," where one point was awarded for each year of service up to 30 years and 1-1/2 points were awarded for each year since retirement. The value of a point was determined by the amount of funds available in the department budget for increases.
  
7. Cost of Living Increases  
Granted to Widows of  
Pre-1956 Retirees:

<u>Effective Date</u>	<u>Revised Annual Benefit</u>
July 1, 1981	\$4,020 (formerly \$3,330)
July 1, 1984	4,176
January 1, 1986	4,464
January 1, 1988	4,704



**University of Minnesota Supplemental Benefits Plan**  
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**TABLE 3(b) (continued)**

8. Post-Retirement Benefit  
Established July 1, 1988  
Increase

- (a) Benefit increases were granted to pre-1963 participants who retired not later than July 1, 1987, excluding those Vice Presidents and Deans who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option. The amount of increase was \$8.00 (single life annuities) or \$6.40 (joint and survivor or surviving spouse annuities) per year for each "point," where one point was awarded for each year of service up to 30 years and 1½ points were awarded for each year since retirement. The value of a point was determined by the amount of funds available in the department budget for increases.
- (b) A supplemental benefit increase was granted to certain retired faculty in the amount of \$600 annually. Those retired faculty eligible to receive the increase were determined as follows:
1. Exclude Vice Presidents, Widows of Vice Presidents, and those with Dean status for retirement purposes.
  2. Include only pre-1963 participants, who retired on or before June 30, 1987 and who are not specifically excluded, whether or not they are currently receiving a Supplement payment. 1969 and later surviving spouses currently receiving a Supplement are considered participants.

9. Post-Retirement Benefit  
Increase Established  
January 1, 1990

Benefit increases were granted to pre-1963 participants who retired not later than June 30, 1988, excluding those Vice Presidents who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option. The amount of increase was \$20.00 (single life annuities) or \$16.00 (joint and survivor or surviving spouse annuities) per year for each "point," where one point was awarded for each year of service up to 30 years and 3 points were awarded for each year since retirement. The amount of increase was limited such that the combination of available Faculty Retirement Plan annuities plus primary Social Security plus the supplement would not exceed \$30,000.





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**TABLE 3(b) (continued)**

10. Post-Retirement Benefit  
Increase Established  
July 1, 1993

Benefit increases were granted to pre-10/1/63 participants who retired not later than June 30, 1992, excluding those Vice Presidents who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option. The amount of the increase was the greater of \$400 or 5% of the initial base. The initial base was the sum of the annual amounts of the Minnesota Mutual Fixed Annuity (not including the Additional Annuity), the University Supplements and the Unisex Supplements. The amount of increase was limited such that the combination of available Faculty Retirement Plan annuities plus primary Social Security plus the supplement would not exceed \$20,000 times years of service (limited to 30) divided by 30.

11. Post-Retirement Benefit  
Increase Established  
July 1, 1994

Benefit increases were granted to pre-10/1/63 participants who retired no later than June 30, 1993, excluding those Vice Presidents who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option. The amount of the increase was the amount needed to bring the participant's initial base (which includes University Supplement, Unisex Supplement, Estimated Social Security based upon the Primary Insurance Amount (PIA) and a life annuity calculated from the Accumulated Cash Value of monies with Minnesota Mutual at the time of retirement) up to a minimum annual amount. The minimum annual amount is based on a floor level, which was \$20,500 for the July 1, 1994 increase. For participants with at least 30 years of service, the minimum annual amount is equal to the floor level. For participants that have less than 30 years of service, the minimum annual amount is calculated by subtracting the participant's estimated Social Security (PIA) from the floor level, dividing the balance by 30 and multiplying it by years of service (up to 30), then adding back the estimated Social Security (PIA). The floor level will be adjusted annually to reflect the cost-of-living increase applied to Social Security the previous January. However, the floor level will not be increased beyond \$30,000.





12. Post-Retirement Benefit Increase  
Established July 1, 1995

Benefit increases were granted to pre-10/1/63 participants who retired no later than June 30, 1994, excluding those Vice Presidents who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option.

Each July 1, eligible participants will receive a benefit increase equal to the lesser of the following amounts:

- (a) The difference between the current year's COLA amount and the prior year's COLA amount less the difference between the current year's Primary Social Security amount and the prior year's Primary Social Security amount. The resulting amount is reduced proportionally for service at retirement less than 30 years. (The COLA amount was set at \$20,500 on July 1, 1995, and is increased each July 1 by the cost-of-living increase applied to Social Security the previous January.)
- (b) \$30,000, reduced proportionally for service at retirement less than 30 years, less the sum of the University Supplement (converted to a life annuity, if applicable), the Unisex Supplement, the Primary Social Security amount and the Estimated Life Annuity (calculated based on the Accumulated Cash Value of monies with Minnesota Mutual at the time of retirement).

If the retiree elected the Joint and Survivor payment option, the increase is reduced 20%.

13. Post-Retirement Benefit Increase  
Established July 1, 1996

Benefit increases were granted to pre-10/1/63 participants who retired no later than June 30, 1995, excluding those Vice Presidents who qualified for special benefits, but including surviving spouses of retirees who elected the survivorship option.

Each July 1, eligible participants will receive a benefit increase equal to the sum of (a) and (b) below:

- (a) The lesser of:



1. The difference between the current year's COLA amount and the prior year's COLA amount less the difference between the current year's Primary Social Security amount and the prior year's Primary Social Security amount. The resulting amount is reduced proportionally for service at retirement less than 30 years. (The COLA amount was set at \$21,622 on July 1, 1996, and is increased each July 1 by the cost-of-living increase applied to Social Security the previous January.)
2. \$30,000, reduced proportionally for service at retirement less than 30 years, less the sum of the University Supplement (converted to a life annuity, if applicable), the Unisex Supplement, the Primary Social Security amount and the Estimated Life Annuity (calculated based on the Accumulated Cash Value of monies with Minnesota Mutual at the time of retirement).

If the retiree elected the Joint & Survivor payment option, the increase is reduced by 20%.

(b) The lesser of:

1. The amount of \$8.00 per year for each "point," where one point is awarded for each year of service up to 30 years and 1½ points is awarded for each year since retirement.
2. \$30,000, reduced proportionally for service at retirement less than 30 years, less the sum of the actual University Supplement (not converted to a life annuity and including the COLA in (a)(1) above with Joint & Survivor reduction, if applicable), the Unisex Supplement, the Primary Social Security amount and the Estimated Life Annuity (calculated based on the Accumulated Cash Value of monies with Minnesota Mutual at the time of retirement).

If the retiree elected the Joint and Survivor payment option, the increase is reduced by 20%.



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:
- | <u>Classification</u>                         | <u>Date of Participation</u>   |
|---|--|
| (a) Associate professor or higher             | Date of hire.  |
| (b) Assistant professor or research associate | Immediately following two years of service.  |
| (c) Instructor or research fellow             | Immediately following three years of service.  |
| (d) Professional and Administrative           | (i) If salary less than \$45,863, same as (c).*<br>(ii) If salary greater or equal to \$45,863 but less than \$54,135, same as (b).<br>(iii) If salary greater than or equal to \$54,135, same as (a). |
- \* Salary breakpoints as of July 1, 1990.
2. Financing: Staff member contributes 2½% of gross annual salary, with University making contributions of 13% of such gross annual salary. Effective in 1973, summer research and training grants have been included for nine-month appointees for the purposes of determining compensation for contributions.
3. Date to Which University Contributions are Made: Contributions are continued until date of retirement.



4. Investment Vehicles (Pre-Retirement):

Contributions are accumulated through insured annuity contracts and/or mutual funds, as follows:

- (a) Annuity contracts
  - (i) Fixed dollar: accumulate at rate of interest declared by insurers, but never less than minimum stipulated.
  - (ii) Variable Income: Net contributions are immediately converted to accumulation units which are valued daily. 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.
- (b) Mutual funds: Participants may invest in one or more of a variety of mutual funds offered by the Vanguard Group, Fidelity Investments or Benham.

5. Forms of Payment Available at Retirement:

Various forms of payment are available:

- (a) Non-systematic withdrawal: Non-systematic withdrawals of a specific dollar amount or a percentage of the account balance may be made at any time.
- (b) Systematic withdrawal: Systematic withdrawals of a flat dollar amount, a percentage of the account balance, a specific number of accumulated units/shares or interest only may be made monthly, quarterly, semi-annually or annually.
- (c) Annuities: Either fixed annuities, or a combination of fixed and variable annuities may be purchased. Joint and survivor or certain and life options are available.
- (d) Rollover: Rollover into an Individual Retirement Account.





6. Amount of Annuity Benefits: At retirement, the cash value (representing accumulation of contributions under fixed dollar contracts or value of accumulation units under variable contracts) is applied to provide "life only" retirement income on the basis of stipulated income conversion factors as listed below. 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.

<u>7/1/97 Conversion Basis</u>	<u>Monthly Income for Each \$1,000 of Proceeds</u>			
	<u>Fixed Income</u>		<u>Variable Annuity</u>	
	(6.2% interest net)		(4% interest net)	
<u>Pre-7/1/82 contributions:</u>	<u>Age 65</u>	<u>Age 68</u>	<u>Age 65</u>	<u>Age 68</u>
Male	8.39	9.14	7.08	7.83
Female	7.97	7.97	6.13	6.66
 Contributions 7/1/82 and later:				
Unisex:	7.61	8.17	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).

7. Early Retirement: Participants may retire early, with annuity equivalents payable immediately.
8. Vesting (termination value): Immediate 100% vested right in accumulations to date of termination.



9. Death Benefits:

(a) Pre-retirement:

Named beneficiary would receive total termination value of retirement annuity as in (6). Optional forms of payment as may be elected by beneficiary must be approved by the University.

(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 100% survivor annuity with 120 monthly payments guaranteed payable in any event.
- (iv) joint and 66-2/3% to survivor annuity with 120 monthly payments guaranteed payable in any event.

10. 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.



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.  |      |      |        |      |        |      |
| 4.     | Interest Rate:                              | 5% per annum.  |      |      |        |      |        |      |
| 5.     | Salary Scale:                               | 3½% per annum.   |      |      |        |      |        |      |
| 6.     | Cost of Living Adjustments:                 | The floor benefit and PIA amount are assumed to increase at 2½% per annum.   |      |      |        |      |        |      |
| 7.     | Assumed Retirement Age:                     | Age 66.  |      |      |        |      |        |      |
| 8.     | Actuarial Cost Method:                      | Individual entry-age-normal cost method, with normal cost determined as a level percentage of future covered payroll.  |      |      |        |      |        |      |
| 9.     | Amortization of Unfunded Accrued Liability: | As a level dollar amount by June 30, 2018.   |      |      |        |      |        |      |
| 10.    | Faculty Retirement Plan Accumulations:      | Accumulated at 5% per annum assuming 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). |      |      |        |      |        |      |
|        |   | <table border="0" style="margin-left: 400px;"> <tr> <td>Male</td> <td>8.65</td> </tr> <tr> <td>Female</td> <td>7.64</td> </tr> <tr> <td>Unisex</td> <td>8.55</td> </tr> </table>   | Male | 8.65 | Female | 7.64 | Unisex | 8.55 |
| Male   | 8.65  |  |      |      |        |      |        |      |
| Female | 7.64  |  |      |      |        |      |        |      |
| Unisex | 8.55  |  |      |      |        |      |        |      |
| 11.    | Social Security Benefit:                    | Based on present law and 3½% salary scale applicable to current salaries.  |      |      |        |      |        |      |



**University of Minnesota Supplemental Benefits Plan**  
**Actuarial Valuation as of July 1, 1997**

**TABLE 5**

**GAIN AND LOSS ANALYSIS**

1.	Unfunded Accrued Liability as of July 1, 1996	\$7,177,600
2.	Normal Cost	82,500
3.	Interest at Valuation Rate (5%) on (1) and (2)	363,000
4.	Contributions During Year	606,400
5.	Interest at Valuation Rate (5%) on 4	15,200
6.	Increase in Unfunded Accrued Liability Due to Benefit Improvements	1,333,800
7.	Expected Unfunded Accrued Liability as of July 1, 1997 (1 + 2 + 3 - 4 - 5 + 6)	8,335,300
8.	Actual Unfunded Accrued Liability as of July 1, 1997	8,211,300
9.	Actuarial Gain (Loss) During Year ( 7 - 8 )	124,000
10.	Gain and Loss Analysis	
	(a) Gain due to supplemental plan asset earnings in excess of 5%	391,800
	(b) Net loss due to other actuarial gains and losses	(267,800)
	(c) Net actuarial gain(loss) ( (a) + (b) )	124,000





**University of Minnesota Supplemental Benefits Plan**  
**Actuarial Valuation as of July 1, 1997**

**TABLE 6**

**COMPARISON OF 1996 AND 1997 VALUATION RESULTS**

	<u>1996</u>	<u>1997</u>
1. Active Pre-1963 Participants		
(a) Total active pre-1963 participants under FRP	75	57
(b) Total projected to receive supplemental benefits	0	0
2. Estimated account balance for female participants with account balance prior to July 1, 1982	46,597,507	48,526,166
3. Retirees, Survivors and Widows		
(a) Number		
- Retirees	398	380
- Survivors	114	116
- Widows	<u>2</u>	<u>1</u>
- Total	514	497
(b) Average annual benefit being paid or payable	3,589	3,726
4. Accrued Liability on Valuation Date		
(a) Active participants	0	0
(b) Retirees, survivors and widows	12,738,500	13,116,000
(c) Female participants with account balances prior to July 1, 1982	<u>5,471,800</u>	<u>5,759,000</u>
(d) Total (a) + (b) + (c)	18,210,300	18,875,000
5. Assets on Valuation Date	11,032,700	10,663,700
6. Unfunded Accrued Liability (4) – (5)	7,177,600	8,211,300



**University of Minnesota Supplemental Benefits Plan**  
**Actuarial Valuation as of July 1, 1997**

***TABLE 6 (continued)***

	<u>1996</u>	<u>1997</u>
7. Annual Normal Cost	82,500	81,700
8. Chapter 356 Minimum Provision		
(a) Beginning of year	601,800	675,800
(b) End of year	631,900	709,600
9. Estimated Benefit Payments	1,844,644	1,851,925

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