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UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1978

January 19, 1979

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UNIVERSITY OF MINNESOTA
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Actuarial Valuation as of June 30, 1978

## 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, 1978 in accordance with Chapter 356 of the Minnesota Statutes. The valuation has been based on the plan as last amended effective June 30, 1977, and takes into account increases to widows benefits granted during the past plan year.

In summary, our valuation reveals a Chapter 356 requirement of $799,300 well short of the annualized benefits payable to retirees as of the valuation date ($1,066,800).

The plan is essentially one for a "closed group" of participants; namely, existing retirees and a diminishing group of active participants soon to retire. 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.

In last year's report we again pointed out that absent further modification to the plan, normal anticipated attrition of the covered group would 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, this indirect method of funding through payment of current benefits, in conjunction with actuarial gains during the plan year, have resulted in a reduction of the unfunded accrued liability under the plan from $10,845,100 as of June 30, 1977 to $9,719,100 as of June 30, 1978.

Thus, for the present plan, a funding posture following that of current disbursement (meeting current disbursements as they become due) would continue to be indicated.

## EMPLOYEE AND FINANCIAL DATA

We received complete data covering 673 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 163 members of this group would receive benefits from the supplemental plan. In addition, we were furnished a listing for the 381 retirees, survivors and widows presently receiving or eligible to receive benefits under the plan. The data utilized for purposes of this valuation is summarized in Table 2 of this report.

Assets of $638,500 as of June 30, 1978 were reported to us by the University, including a 1978 plan year contribution in excess of current disbursement amounts of $323,100.

## 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 retirements 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. In addition, during the past year, benefits to widows of pre-1956 retirees were increased from $2,517 to $2,674 per annum.

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 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 the 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 as of 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 by the end of the fiscal year occurring in 1997.

It should be noted that the above method represents a slight revision in the actuarial method utilized in previous years. Previously, normal cost had been determined as a level dollar amount as opposed to a level percentage of pay. This revision has resulted in (i) an increase in normal cost of $13,200, (ii) a decrease in the unfunded accrued liability of $43,700, and

(iii) an overall increase in the Chapter 356 annual requirement of $9,600 (about 0.90% of estimated current annual disbursements). This slight revision was instituted to more exactly conform with Chapter 356 of the Minnesota Statutes.

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 at the same percentage of increasing covered payroll 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 are based on an assumed interest rate of 7¼%) applied to determine offsetting FRP benefits are more favorable than those utilized 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 revised formula.

## VALUATION 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 (in-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 provision amounting to $799,300.

In Section C of the table, we have again set forth the determination of a funding requirement on two alternative bases corresponding to suggested alternatives offered in the past. These requirements have been set forth for illustrative purposes only.

## GAIN AND LOSS ANALYSIS

In Table 5 we set forth a gain and loss analysis and reconcile the unfunded accrued liability over the past year. This analysis denotes a decrease of some $266,800 in the June 30, 1978 unfunded accrued liability (when compared to that expected) which is attributable primarily to an actuarial gain resulting from changes in projected Social Security benefits. This gain results from increases in projected offsetting Social Security benefits which may be explained as follows:

(1) Although the Social Security Act of 1977 provides for decreases in the future Social Security benefits to become payable, these decreases will not affect employees who were born prior to 1917. This is particularly important with regard to the University of Minnesota Supplemental Plan since most of the employees projected to receive benefits under the plan were born prior to 1917.

(2) With regard to employees discussed in item (1) above, a 6.5% cost of living increase in Social Security benefits became effective July 1, 1978.

(3) Wage base increases (up to $29,700 in 1981) were prescribed by the Social Security Act of 1977 and were reflected in this valuation.

Table 5 also denotes some other causes for change in the unfunded accrued liability which were relatively minor in nature.

## COMPARISON OF 1977 and 1978 VALUATION RESULTS

In Table 6, we set forth a comparison of the principal values underlying the 1977 and 1978 valuations. Items 3(c) and 5 are of particular interest in that they denote the reductions in the accrued liability and the unfunded accrued liability during the past plan year. This illustrates the appropriateness of funding through the current disbursement method.

It should also be noted that average benefits payable (item 2(b)) have decreased during the year from $3,036 to $2,856. This decrease is attributed to the fact that (i) favorable investment results and increased salaries resulted in increases in offsetting FRP benefits for recent retirees, and (ii) several older retirees with relatively substantial supplemental benefits have died during the year.

* * * * * * * * * * 

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

Respectfully submitted,

THE WYATT COMPANY

Allan J. Grosh, F.S.A.
Member, American Academy of Actuaries

Alan J. Schutz
Associate, Society of Actuaries

Minneapolis/St. Paul
January 19, 1979
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Table 1

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1978
(Valuation determinations rounded to nearest $100)

| | | | | |
|---|---|---|---|---|
| A. | BASIC DATA | | | |
| | 1. | Active Participants | | |
| | | (a) | Total active pre-1963 participants under Faculty Retirement Plan (FRP) | 673 |
| | | (b) | Total projected to receive supplemental benefits | |
| | | | (i) Number | 163 |
| | | | (ii) Average annual projected supplement 1/ | 1,241 |
| | 2. | Retirees, Survivors and Widows | | |
| | | (a) | Number receiving or entitled to receive benefits | 381 |
| | | (b) | Average annual benefit being paid or payable 2/ | 2,856 |
| B. | DETERMINATION OF ANNUAL REQUIREMENT IN ACCORDANCE WITH CHAPTER 356 (MINNESOTA STATUTES) | | | |
| | 1. | Accrued Liability as of June 30, 1978 | | |
| | | (a) | Active participants | 1,747,400 |
| | | (b) | Retirees | 7,233,000 |
| | | (c) | Widows | 599,200 |
| | | (d) | Survivors | 394,100 |
| | | (e) | Deferred annuitants 2/ | 383,900 |
| | | (f) | Total | 10,357,600 |
| | 2. | Assets as of June 30, 1978 | | 638,500 |
| | 3. | Unfunded Accrued Liability as of June 30, 1978 [1(f) less 2] | | 9,719,100 |
| | 4. | Annual Normal Cost | | 33,400 |
| | 5. | Annual Requirement to Fund Normal Cost and Amortize the Accrued Liability by July 1, 1997 | | 799,300 |
| C. | DETERMINATION OF ALTERNATE PROVISIONS | | | |
| | 1. | Current Disbursement Requirement | | 1,066,800 |
| | 2. | Normal Cost Plus Amortization to the Year in which Youngest Active Participant Presently Eligible will Retire (June 30, 1990) | | 1,077,700 |

1/ Per salary scale and Social Security assumption of Table 4.
2/ Including adjustment for future early retirement adjustments at age 65.

Table 2

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Distribution of Participants as of June 30, 1978

A. ACTIVE PARTICIPANTS (Pre-1963 FRP Participants)

| Age Group Last Birthday | Male | Females | Total |
|---|---|---|---|
| 40 - 44 | 7 | 2 | 9 |
| 45 - 49 | 70 | 2 | 72 |
| 50 - 54 | 144 | 11 | 155 |
| 55 - 59 | 199 | 15 | 214 |
| 60 - 64 | 158 | 17 | 175 |
| 65 & Over | 46 | 2 | 48 |
| Total | 624 | 49 | 673 |

B. WIDOWS OF PRE-1956 RETIREES

| Age Group Last Birthday | Number (All Females) | Annual Benefit Being Paid |
|---|---|---|
| 70 - 74 | 5 | $ 13,370 |
| 75 - 79 | 5 | 13,370 |
| 80 - 84 | 3 | 8,022 |
| 85 - 89 | 17 | 45,458 |
| 90 - 94 | 10 | 26,740 |
| Total | 40 | $106,960 |

C. SURVIVORS

| Age Group Last Birthday | Number (All Females) | Annual Benefit Being Paid |
|---|---|---|
| 45 - 50 | 1 | $ 731 |
| 50 - 54 | 1 | 3,907 |
| 55 - 59 | 1 | 2,448 |
| 60 - 64 | 4 | 7,844 |
| 65 - 69 | 1 | 1,452 |
| 70 - 74 | 3 | 7,851 |
| 75 - 79 | 5 | 9,354 |
| 80 - 84 | 1 | 4,217 |
| Total | 17 | $37,804 |

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D. RETIREES

| Age Group Last Birthday | Male | Females | Total | Annual Benefit Being Paid |
|---|---|---|---|---|
| 65 - 69 | 56 | 20 | 76 | $174,428 |
| 70 - 74 | 81 | 12 | 93 | 206,148 |
| 75 - 79 | 47 | 10 | 57 | 167,957 |
| 80 - 84 | 29 | 11 | 40 | 141,773 |
| 85 - 89 | 21 | 11 | 32 | 145,192 |
| 90 - 94 | 6 | 3 | 9 | 52,616 |
| 95 - 99 | 2 | - | 2 | 11,339 |
| Total | 242 | 67 | 309 | $899,453 |

E. RETIREES WITH DEFERRED BENEFITS

| Age Group Last Birthday | Male | Females | Total | Annual Benefit Being Paid |
|---|---|---|---|---|
| 60 - 64 | 11 | 4 | 15 | $ 37,513 |
| 65 - 69 | - | - | - | - |
| Total | 11 | 4 | 15 | $ 37,513 * |

* In addition, benefits are currently being paid to 3 of these individuals at an annual rate of $22,543 in total (early retirement under pre-June 30, 1977 plan). 1/

F. RECONCILIATION OF RETIREES/WIDOWS/SURVIVORS

| | | Number |
|---|---|---|
| (a) | Number receiving benefits last year | 366 |
| (b) | Deaths during year where no continuing benefits payable | 10 |
| (c) | New retirees this year (including deferred) | 25 |
| (d) | Number receiving or entitled to receive benefits this year [(a) - (b) + (c)] | 381 * |

* as follows:

| | |
|---|---|
| Widows | 40 |
| Survivors | 17 |
| Retirees | 309 |
| Deferred 1/ | 15 |
| Total | 381 |

1/ Of the 14 deferred participants, 3 are pre-June 30, 1977 early retirees being paid temporary early retirement benefits under the plan. The other 11 are receiving temporary early retirement benefits outside the plan through general funds.

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).

3. **Early Retirement Provision:** (NOTE: that any reference to age 65 in this description implies the June 30 next following the 65th birthday, including references to Social Security benefits payable at age 65).

As early as age 62, although total funding is continued by the University to age 65 (i.e., University funds member contribution as well) member would receive a benefit for life (supplement and annuity) which in total would be level during both the pre-65 and post-65 periods. The determination, however, recognizes effective replacement of annuity (at age 65 assuming continuation of funding to that date) and Social Security benefit differential (age 65 vs. age 62) based on 1972 law. Simplification of computation is as follows:

(a) Increase maximum limitation in 2(a) above (i.e., $8,500, $8,000, $7,500) by difference between (i) projected Social Security benefit at age 65 (assuming continuation of present salary level to such age) under 1971 amendments to Social Security law, and (ii) $1,524.

(b) Using estimate of actual Social Security benefit payable commencing on early retirement date under 1972 law, determine total benefit payable to age 65 [equal to (a) less (b)], representing supplement from early retirement age to age 65.

(c) By deducting fixed income benefit (as in 2(b) above) based on continued funding to age 65, difference would represent supplement payable after age 65.

(NOTE: In fact, it is contemplated that in practice, should the computation in (c) above yield a projected annuity at 65, which when combined with the $1,524 Social Security estimate would exceed the limitation prior to 65 for an early retirement, Faculty Retirement Plan would commence earlier than age 65.

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: Supplement (annual) is 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) Deduct from (c) 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 as equal to (b) less (c) after adjustment for (d).

3. Early Retirement Provision: (NOTE: that any reference to age 65 in this description implies the June 30 next following the 65th birthday, including references to Social Security benefits payable at age 65).

As early as age 62, although total funding is continued by the University to age 65 (i.e., University funds member contributions as well), member would receive a benefit payable at age 65 determined as follows (benefits prior to age 65 would be paid from general funds):

(a) Determine 1-2/3% benefit based on continued funding to age 65 (item 2(b)).

(b) Determine primary Social Security benefit payable at actual retirement date.

(c) Convert FRP net accumulations on basis of continued funding to age 65 to fixed dollar life annuities at age 65.

(d) Determine supplement at age 65 as (a) less (b) less (c).

4. Minimum Benefit:

In no event shall any retiring employee receive less than would have been payable under the plan provisions in effect for retirements prior to June 30, 1977.

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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.<br>(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 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 $21,347, same as (c).<br>(ii) If salary greater or equal to $21,347 but less than $26,010, same as (b).<br>(iii) If salary greater than or equal to $26,010, same as (a). |

2. Financing:

Staff member contributes 2½% of gross annual salary, with University making indirect 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 purposes of determining compensation for contributions.

3. Mandatory Retirement Age:

June 30 following 68th birthday.

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 retirement income on "life only" basis in accordance with stipulated income conversion factors as follows:

| 6/30/78 Conversion Basis | Monthly Income for Each $1,000 of Proceeds | | | |
|---|---|---|---|---|
| | Fixed Income (7¼% interest net) | | Variable Annuity (4% interest net) | |
| | Age 65 | Age 68 | Age 65 | Age 68 |
| Male | 9.03 | 9.78 | 7.18 | 7.95 |
| Female | 8.10 | 8.62 | 6.37 | 6.95 |

(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. 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).

9. Death Benefits:

(a) Pre-retirement:

Named beneficiary would receive total termination value of retirement annuity is in (8). 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 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.

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.

Table 4

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Summary of Actuarial Assumptions and Methods

| | | |
|---|---|---|
| 1. | Mortality: | Progressive Annuity Mortality Table set back 0.6 years 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 July 1, 1997. |
| 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.<br>Male 8.65<br>Female 7.64 |
| 10. | Social Security: | Based on present law (2nd phase 1978) and 3½% salary scale applicable to current salaries. No wage base increases beyond those specifically prescribed in the Social Security Act of 1977 are projected. No cost of living increases are projected. |

Table 5

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Gain and Loss Analysis (Plan Year Ending June 30, 1978)

| | | | |
|---|---|---|---|
| 1. | Unfunded Accrued Liability as of June 30, 1977 | | $10,845,100 |
| 2. | Normal Cost | | 29,800 |
| 3. | Interest at Valuation Rate (5%) on (1) and (2) | | 543,700 |
| 4. | Contributions During Year | | |
| | (i) | Approximate "pay-as-you-go" payments to retirees | 1,066,800 |
| | (ii) | Supplemental contribution | 323,100 |
| | (iii) | Total effective contributions [(i) + (ii)] | 1,389,900 |
| 5. | Interest at Valuation Rate (5%) on 4(i) and 4(ii) | | 42,800 |
| 6. | Expected Unfunded Accrued Liability as of June 30, 1978 [(1) + (2) + (3) - (4) - (5)] | | 9,985,900 |
| 7. | Actual Unfunded Accrued Liability as of June 30, 1978 | | 9,719,100 |
| 8. | Decrease During Year [6 - 7] | | 266,800 |
| 9. | Analysis of Decrease | | |
| | (i) | Decrease resulting from change in actuarial cost method 1/ | 43,700 |
| | (ii) | Decrease resulting from actuarial gains 2/ | 260,300 |
| | (iii) | Increase resulting from increase in benefits to widows of pre-1956 retirees | 37,200 |
| | (iv) | Net decrease [(i) + (ii) - (iii)] | 266,800 |

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1/ As required by Section 356.215 of the Minnesota Statutes, normal cost is being determined as a level % of future covered payroll. In the past, normal cost was determined as a level dollar amount.

2/ Actuarial gains during the year are allocated as follows:

| | | |
|---|---|---|
| (i) | Changes in the Social Security Act including the 6.5% cost of living increase effective July 1, 1978 | 244,900 |
| (ii) | Investment income on assets in excess of the assumed interest rate | 15,300 |
| (iii) | Miscellaneous actuarial losses for other causes | 100 |
| (iv) | Total actuarial gain [(i) + (ii) - (iii)] | 260,300 |

Table 6

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Comparison of 1977 and 1978 Valuation Results

| | | 1977 | 1978 1/ |
|---|---|---|---|
| 1. | Active Participants | | |
| | (a) Total active pre-1963 participants under FRP | 705 | 673 |
| | (b) Total projected to receive supplemental benefits | | |
| | (i) Number | 194 | 163 |
| | (ii) Average annual supplemental benefit | 1,420 | 1,241 |
| 2. | Retirees, Survivors and Widows | | |
| | (a) Number - Retirees (including deferred) | 310 | 324 |
| | - Survivors | 12 | 17 |
| | - Widows | 44 | 40 |
| | - Total | 366 | 381 |
| | (b) Average annual benefit being paid or payable | 3,036 | 2,856 |
| 3. | Accrued Liability on Valuation Date | | |
| | (a) Active participants | 2,416,100 | 1,747,400 |
| | (b) Retirees, survivors and widows | 8,699,400 | 8,610,200 |
| | (c) Total | 11,115,500 | 10,357,600 |
| 4. | Assets on Valuation Date | 270,400 | 638,500 |
| 5. | Unfunded Accrued Liability | 10,845,100 | 9,719,100 |
| 6. | Annual Normal Cost | 29,800 | 33,400 |
| 7. | Chapter 356 Minimum Provision (Normal Cost Plus Amortization by 1997) | 858,600 | 799,300 |
| 8. | Alternate Provisions | | |
| | (a) Current disbursement | 1,097,200 | 1,066,800 |
| | (b) Normal cost plus amortization to year in which youngest active participant presently eligible will retire (1990 in both 1977 and 1978) | 1,129,300 | 1,077,700 |

1/ Reflects increase in benefits (from \$2,517 to \$2,674) to widows of pre-1956 retirees.

2/ Per salary scale assumption of Table 4.

GVS Minnesota Memorandum No. 78-8
August 20, 1979

# THE UNIVERSITY OF MINNESOTA FACULTY SUPPLEMENTAL PLAN

## VALUATION AS OF JUNE 30, 1978

The purpose of this memorandum is to discuss the valuation report of the University of Minnesota Faculty Supplemental Plan as of June 30, 1978. The 1978 valuation was prepared by Allan J. Grosh and Alan J. Schutz of The Wyatt Company. Allan Grosh also prepared the 1977 valuation.

This memorandum contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Conclusion

### 1. Statistical and Valuation Data

| | As of June 30, 1977 | As of June 30, 1978 |
|---|---|---|
| Active Participants Eligible for Supplement | 194 | 163 |
| Retired Participants | 298 | 309 |
| Widows | 44 | 40 |
| Survivors | 12 | 17 |
| Annual Benefits | $ 1,097,200 | $ 1,066,800 |
| Reserve for Annuitants | $ 8,283,500 | $ 8,226,300 |
| Reserve for Deferreds | 415,900 | 383,900 |
| Accrued Liability for Actives | 2,416,100 | 1,747,400 |
| Total Accrued Liability | $ 11,115,500 | $10,357,600 |
| Assets | 270,400 | 638,500 |
| Unfunded Accrued Liability | $ 10,845,100 | $ 9,719,100 |
| Normal Cost | $ 29,800 | $ 33,400 |
| Amortization by 1997 | 799,000 | 765,900 |
| Total | $ 828,800 | $ 799,300 |

### 2. Discussion of Valuation Results

This plan guarantees a stated level of total retirement income (Basic Plan + Social Security + Supplemental Plan) for a closed group of faculty members. The level of the guarantee depends upon the academic rank of the faculty member.

Whenever Social Security benefits are increased and as projections indicate larger benefits from the Basic Plan, the projected amount of benefits required from this Supplemental Plan declines. This fact accounts for the large decrease in the Accrued Liability for Actives during the year.

Prior to the 1976-77 plan year, this plan was financed on a pay-as-you-go basis, and there was no advance funding. During each of the two most recent plan years, the University has contributed about $250,000 and $323,100 respectively, in excess of the amount of the benefit payments, and assets of $638,500 have been accumulated.

It is obvious from the above valuation data that the normal funding method of paying normal cost plus the amount needed to amortize the unfunded liability by 1997 is inappropriate for this plan. Although no policy has been stated, it appears that the University is attempting to achieve a fully funded status for this plan by the time the last retirement under the plan occurs. During the current year, this would require about $1,077,700 which is about $11,000 in excess of the projected benefit payments for the year. The level of support during each of the past two years has exceeded this amount.

The unfunded liability decreased by $1,126,000 during the year. The Actuary gave the following analysis of this decrease:

| | | |
|---|---|---|
| Decreases: | | |
| Amortization Contribution | $859,200 | |
| Change in Cost Method | 43,700 | |
| Increases in Social Security Benefits | 244,900 | |
| Excess Interest | 15,300 | |
| Other Actuarial Gains | 100 | |
| Total Decreases | | $1,163,200 |
| Increases: | | |
| Improvement in Benefits to Widows | $ 37,200 | |
| Total Increases | | 37,200 |
| Net Decrease | | $1,126,000 |

The 1978 report on the University Faculty Supplemental plan complies with the requirements of Chapter 356 insofar as they apply to the plan of this type.

Franklin C. Smith
Associate, Society of Actuaries
Commission Actuary

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

Summary of Principal Provisions of 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).

| | |
|---|---|
| 3. <u>Early Retirement Provision</u>: (NOTE: that any reference to age 65 in this description implies the June 30 next following the 65th birthday, including references to Social Security benefits payable at age 65). | As early as age 62, although total funding is continued by the University to age 65 (i.e., University funds member contribution as well) member would receive a benefit for life (supplement and annuity) which in total would be level during both the pre-65 and post-65 periods. The determination, however, recognizes effective replacement of annuity (at age 65 assuming continuation of funding to that date) and Social Security benefit differential (age 65 vs. age 62) based on 1972 law. Simplification of computation is as follows:<br><br>(a) Increase maximum limitation in 2(a) above (i.e., \$8,500, \$8,000, \$7,500) by difference between (i) projected Social Security benefit at age 65 (assuming continuation of present salary level to such age) under 1971 amendments to Social Security law, and (ii) \$1,524.<br><br>(b) Using estimate of actual Social Security benefit payable commencing on early retirement date under 1972 law, determine total benefit payable to age 65 [equal to (a) less (b)], representing supplement from early retirement age to age 65.<br><br>(c) By deducting fixed income benefit (as in 2(b) above) based on continued funding to age 65, difference would represent supplement payable after age 65.<br><br>(NOTE: In fact, it is contemplated that in practice, should the computation in (c) above yield a projected annuity at 65, which when combined with the \$1,524 Social Security estimate would exceed the limitation prior to 65 for an early retirement, Faculty Retirement Plan would commence earlier than age 65. |

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

Summary or Principal Provisions of 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: Supplement (annual) is 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) Deduct from (c) 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 as equal to (b) less (c) after adjustment for (d).

3. Early Retirement Provision: (NOTE: that any reference to age 65 in this description implies the June 30 next following the 65th birthday, including references to Social Security benefits payable at age 65).

As early as age 62, although total funding is continued by the University to age 65 (i.e., University funds member contributions as well), member would receive a benefit payable at age 65 determined as follows (benefits prior to age 65 would be paid from general funds):

(a) Determine 1-2/3% benefit based on continued funding to age 65 (item 2(b)).

(b) Determine primary Social Security benefit payable at actual retirement date.

(c) Convert FRP net accumulations on basis of continued funding to age 65 to fixed dollar life annuities at age 65.

(d) Determine supplement at age 65 as (a) less (b) less (c).

4. Minimum Benefit:

In no event shall any retiring employee receive less than would have been payable under the plan provisions in effect for retirements prior to June 30, 1977.

UNIVERSITY OF MINNESOTA
FACULTY RETIREMENT PLAN

Summary of Principal Provisions of Plan
(based on plan in effect in December 1975)

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.<br>(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 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 $20,300, same as (c).<br>(ii) If salary greater or equal to $20,300 but less than $24,500, same as (b).<br>(iii) If salary greater than or equal to $24,500, same as (a). |

2. Financing:

Staff member contributes 2½% of gross annual salary, with University making indirect 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 purposes of determining compensation for contributions.

3. Mandatory Retirement Age:

June 30 following 68th birthday.

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 retirement income on "life only" basis in accordance with stipulated income conversion factors as follows:

| 6/30/77 Conversion Basis | Monthly Income for Each $1,000 of Proceeds | | | |
|---|---|---|---|---|
| | Fixed Income (7¼% interest net) | | Variable Annuity (4% interest net) | |
| | Age 65 | Age 68 | Age 65 | Age 68 |
| Male | 9.03 | 9.78 | 7.18 | 7.95 |
| Female | 8.10 | 8.62 | 6.37 | 6.95 |

(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. 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).

9. Death Benefits:

(a) Pre-retirement:

Named beneficiary would receive total termination value of retirement annuity is in (8). 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 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.

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.

State of Minnesota \ LEGISLATIVE COMMISSION ON PENSIONS AND RETIREMENT

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147 State Office Building
St. Paul, Minnesota 55155
Telephone 296-2750 - 296-6806
Lawrence A. Martin, Executive Secretary
Stephen H. Harrington, Assistant

August 22, 1979

Mr. C. Peter Magrath
President
University of Minnesota
202 Morrill Hall
Minneapolis, Minnesota 55455

Dear President Magrath:

Pursuant to a motion adopted by the Legislative Commission on Pensions and Retirement on August 20, 1979, the staff of the Commission was directed to contact the University for information concerning any benefit increases or plan modifications in the University Faculty Regular Retirement Plan or in the University Faculty Supplemental Retirement Plan anticipated to be considered by the Board of Regents in the near future. The Commission would appreciate being notified of the specifics of any benefit increases or plan modifications which are being considered.

The Commission would also like to convey a standing request that advance notice be given to the Commission of any future benefit increases or plan modifications in either faculty plan prior to final consideration of the changes by the Board of Regents.

The Commission will appreciate prompt attention to this matter. If there are any questions concerning this matter, please feel free to contact the Commission office.

Sincerely,

Lawrence A. Martin

Lawrence A. Martin
Executive Secretary

LAM/ed
CC: Harold J. Bernard
Director of University Employee Benefits
Rep. Al Patton, Acting Chairman

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September 18, 1979

Mr. Harold Bernard
Director of Insurance
and Retirement
University of Minnesota
2642 University Avenue
St. Paul, Minnesota 55114

Re: August 22, 1979 Memo from Larry Martin concerning the University Supplemental Benefits Plan

Dear Harold:

Per your August 31, 1979 letter, we have estimated the information requested in Mr. Martin's memo as follows:

| | | |
|---|---|---|
| 1. | Accrued Liability as of January 1, 1979 | $10,093,600 |
| 2. | Estimated January 1, 1979 assets as submitted by Dave Swanson including portion of contribution paid in for year ending June 30, 1979. | 965,000 |
| 3. | Unfunded Accrued Liability as of January 1, 1979 [1 - 2] | 9,128,600 |

Please note that the predicted decrease in unfunded accrued liability from $9,719,100 on July 1, 1978 to $9,128,600 on January 1, 1979 resulted primarily from (1) an increase in assets from $638,500 to an estimated $965,000 and (2) the fact that benefits to current retirees are paid from general funds outside the plan.

If you have any questions, or if you require any additional information, please let us know.

Very truly yours,

Alan Schutz

Alan J. Schutz, A.S.A.
Associate Actuary

AJS:sw