UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Experience Study and
Actuarial Valuation
as of June 30, 1983

December 23, 1983

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UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Experience Study and Actuarial Valuation as of June 30, 1983

INTRODUCTION

Chapter 356 of the Minnesota Statutes, as in effect on June 30, 1983, requires that an actuarial valuation be carried out annually and that an experience study be carried out every fourth year. This report contains the results of the actuarial valuation and experience study of the University of Minnesota Supplemental Benefits Plan that was carried out as of June 30, 1983 in compliance with this requirement. The report is divided into two principal parts as follows:

A. Part I - Experience Study

This part consists of an analysis of experience under the Supplemental Plan during the period since the last investigation (June 30, 1979) with respect to investment earnings, increases in salary, increases in offsetting Social Security Benefits, and rates of separation for active participants as well as mortality rates among annuitants. This analysis permits the actuary to develop appropriate assumptions with respect to each of these contingencies for use in the actuarial valuation. We conducted the last such experience study as of June 30, 1979.

B. Part II - Actuarial Valuation

This part consists of computing the actuarial assets and liabilities of the plan on the basis of the actuarial assumptions developed during the course of the experience study together with the 5% interest rate and 3½% salary scale assumptions specified in Chapter 356 of the Statutes.

* *

We certify that the experience study and actuarial valuation of the University of Minnesota Supplemental Benefits Plan performed as of June 30, 1983 was carried out on the basis of generally accepted actuarial principles and in accordance with the provisions of Chapter 356 of the Minnesota Statutes.

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

Respectfully submitted,

THE WYATT COMPANY

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Minneapolis/St. Paul
December 23, 1983

PART I

EXPERIENCE STUDY OF THE UNIVERSITY OF MINNESOTA SUPPLEMENTAL BENEFITS PLAN AS OF JUNE 30, 1983

PURPOSE

An actuarial valuation is basically a method for prescribing consistent annual contributions in order to fund future benefits payable under a retirement program. In order to determine applicable annual contribution amounts several assumptions affecting the level of projected benefits which will become payable under the plan are made. The extent to which any valuation method can accurately prescribe annual contribution requirements depends heavily on whether or not the actuarial assumptions, in the aggregate, reflect actual experience under the plan.

The purpose of an experience study is to compare "expected experience" predicted by the actuarial assumptions, with the "actual experience" over a number of years, with an eye toward revising assumptions which prove inconsistent with actual experience and in the aggregate would produce material cost deviations. This study consists of such a comparison and analysis with regard to the following:

1. Investment earnings.
2. Salary increases.
3. Increases in Social Security Benefits.
4. Post-retirement mortality.
5. Separation from service on account of:
   - Withdrawal
   - Death
   - Retirement

EXPERIENCE DATA

We have examined the experience of the participants of the plan during the four year period ending June 30, 1983. The data utilized was collected and maintained on an annual basis for purposes of performing the required annual June 30, actuarial valuations. All data was submitted by the Director of Insurance and Retirement at the University and by Minnesota Mutual Life Insurance Company.

In the following sections we analyze the appropriateness of the actuarial assumptions with respect to effects on the overall cost of the plan. Recommendations for any changes are deferred to the end of the experience study.

SUMMARY OF RESULTS - INTEREST RATE, SALARY SCALE, SOCIAL SECURITY BENEFITS

Interest Rate

Chapter 356 of the Minnesota Statutes requires that the actuarial valuation be performed using an assumed interest rate of 5%. We have estimated the average interest rate actually earned during the past four years to be as follows:

. FRP plan fixed income accounts	9%
. FRP plan variable income accounts	20%
. Assets accumulated to fund supplemental plan	11%

To the extent the interest rate earned on FRP accounts exceeds 5% the benefits payable under the supplemental plan benefit formula to currently active participants will be less than anticipated. The projected supplemental plan benefit is the difference between the fixed monthly retirement benefit established by the supplemental plan formula and the amount of monthly income that can be purchased from the participants FRB account balances assuming the fixed income investment option is elected. Earnings in excess of the 5% projected for the account balances therefore operates to reduce the projected difference. However, as the accrued liability for this projected difference was only $86,100 as of July 1, 1983, a very small part of the total liability of $11,048,900, the consequences are not material.

Of course, the interest income earned on assets which are accumulating to fund the supplemental plan directly offsets contributions that would otherwise be required. To the degree that these earnings exceed 5% future contribution requirements are reduced.

Future benefits payable to active female participants pursuant to the July 1, 1982 unisex adjustments are directly related to the portion of their FRP account balances based on contributions made prior to July 1, 1982 as accumulated to retirement. Earnings on these amounts in excess of 5% increases these future benefits over the benefits projected in the valuation thereby increasing future contribution requirements.

In order for the 5% interest assumption to be adequate, any actuarial loss from increases in unisex benefits due to higher interest earning in FRP accounts must be offset by investment gains made on assets accumulated to fund the plan. The plan assets of $3,541,700 are equal to 168% of the unisex accrued liability of $2,102,300. The interest earnings in excess of 5% on the FRP accounts used to establish unisex benefits would have to exceed 1.68 times the comparable excess on plan assets before any actuarial loss would occur. The account balances are approximately 50% fixed and 50% variable so that the average return the past four years on the combined balances is about 14.5%. The 11% rate earned on assets accumulating to fund benefits multiplied by 1.68 is 18.48%. Therefore, interest assumption gains are more than offsetting losses. The assumed rate of 5% is appropriate for use in the valuation and is slightly conservative.

Salary Scale

Chapter 356 requires that the actuarial valuation be performed on the basis of assumed future salary increases of 3½% per year. Over the past four years, average salaries have increased as follows:

Average Annual Salary Increases

Valuation Date	Average Salary	% Increase Over Prior Year
June 30, 1979	$32,768	---
June 30, 1980	34,081	4.0%
June 30, 1981	37,153	9.0%
June 30, 1982	41,291	11.0%
June 30, 1983	42,873	3.8%

In fact, these increases should be analyzed for individuals appearing in each of the four respective valuations. However, since we have displayed these increases on the basis of total payroll covered on each valuation date these increases are slightly on the low side due to the impact of turnover.

Increases in salary in excess of those assumed tend to increase projected benefits and overall costs. Since the supplemental plan has a maximum on earnings which is considered in determining benefits for all active participants, this effect is somewhat reduced. In addition, higher salary increases also result in increased projections of the offsetting Faculty Retirement Plan and Social Security benefits. Consequently, we expect that, in the long run, the excess earnings on accumulating funds and future increases in offsetting Social Security benefits will more than offset increases in salary which are in excess of those assumed.

Social Security Benefits

Offsetting Social Security benefits are projected assuming no increases due to wage base or cost of living increases. To the extent that future Social Security does undergo increases due to changes in the wage base and the cost of living index, benefits and corresponding costs of the post June 30, 1977 Supplemental Plan formula will be reduced. It should also be noted that actuarial gains due to increases in Social Security benefits have occurred in each of the past four actuarial valuations.

Summary

Assumptions regarding interest rate, future salary increases and increases in Social Security benefits are directly related in that they reflect the basic assumption or approach regarding ensuing economic conditions. It could be reasonably expected that over the long run, actual experience concerning interest, salary increases and Social Security increases will parallel each other increasing and decreasing in tandem during extended economic cycles. Generally, because of the offsetting effects of these assumptions, it is reasonable to expect that Chapter 356 requirements would remain fairly stable, ignoring for the moment the decreasing nature of the "closed group" in question.

However, because the effects of salary increases on costs are reduced due to the aformentioned maximum on recognized earnings and due to associated increases in Social Security benefits, we feel that the prescribed assumptions concerning salary scale, Social Security and investment earnings remain appropriate.

SUMMARY OF RESULTS - ANNUITANT MORTALITY

The following schedule shows a comparison of the deaths which actually occurred among participants retired for age or service and the number expected by the mortality table currently in use which is referred to as the Progressive Annuity Mortality Table with ages set back 0.6 years for males and 4.6 years for females. The experience is based on approximately 400 annuitants each year and includes retirees, people receiving widows and spouses benefits, and early retirees with deferred payments.

Annuitant Mortality

	Actual Deaths	Deaths Expected by Progressive Annuity Mortality Table (-.6, - 4.6)
Male	52	54
Female	26	35
Total	78	89

Even though we have experienced fewer deaths than expected, in that the Progressive Annuity Mortality Table (PAMT) is a conservative annuitant mortality basis, we feel that the PAMT remains appropriate.

SUMMARY OF RESULTS - RATES OF SEPARATION FROM ACTIVE SERVICE

The paragraphs below summarize the expected experience versus actual experience pertaining to rates of separation from active service. All comparisons are based on the valuation data reflecting between 641 active participants (on June 30, 1979) and 494 active participants (on June 30, 1983).

Withdrawal (Other Than Death Or Retirement)

Reflecting the fact that employees who began participation in the FRP plan prior to 1963 are a closed group of long term faculty members employed at the University since prior to 1963, no withdrawal (other than for death or retirement) is assumed. Comparison of actual to expected experience over the past four years is illustrated by the following schedule:

Withdrawal Prior To Retirement (Other Than Death Or Retirement)

	Expected Terminations	Actual Terminations
Male	0	20
Female	0	0
Total	0	20

To the extent that actual withdrawal from service prior to retirement occurs, overall costs will be slightly lower than those set forth in the actuarial valuations.

With regard to the new group of active females with account balances subject to unisex adjustments, it is also assumed there will be no withdrawal. Sufficient data is not available to enable us to analyze withdrawal patterns within this group at this time. However, any withdrawals will produce actuarial gains so that ignoring them is a conservative assumption.

Mortality

The following schedule shows a comparison of deaths which actually occurred among active participants and the number expected by the Progressive Annuity Mortality Table with ages set back 0.6 years for males and 4.6 years for females.

Mortality Prior To Retirement

	Expected Deaths	Actual Deaths
Male	20	9
Female	2	1
Total	22	10

Noting again that the Progressive Annuity Mortality Table is a conservative annuitant mortality basis, we feel that the PAMT remains appropriate.

Retirement

The following schedule compares actual retirements at all ages to those expected according to our age 66 assumption during the four year period ending June 30, 1983.

Retirements

	Expected Retirements	Actual Retirements
Male	278	109
Female	16	13
Total	294	122

To the extent that participants retire later than that assumed in the valuation, costs will reduce. The reductions are attributable to (1) increases in offsetting FRP benefits which outweigh any additional accruals in the supplemental benefit formula and (2) the decrease in the number of retirement payments made if participants terminate subsequent to age 66 (no actuarial increase is applied).

As explained in depth in the actuarial valuation, if a participant retires prior to age 65 he receives an early retirement subsidy. Therefore, to the extent that participants retire early, actuarial losses will occur. However, it is our understanding that the plan will be remunerated annually for the elements of the additional subsidy. Such remuneration shall be made by the University Department from which the participant retired and will represent the amount of the subsidy paid each year. Therefore, over the long run, the early retirement subsidy will have little or no cost consequences to the plan.

Summary

As set forth above, the withdrawal and retirement age assumptions have proven to be conservative over the years. Although actual deaths have been less than those expected, the Progressive Annuity Mortality Table is a conservative annuitant mortality table and we feel that it is appropriate.

SUMMARY AND RECOMMENDATIONS - ALL ASSUMPTIONS

Our analysis indicates that in the aggregate the existing actuarial assumptions are appropriate for use with this plan. As a somewhat independent check of the conservatism of the assumptions, the following schedule sets forth a progression of unfunded accrued liabilities under the plan in the past four years (as presented in the June 30, 1979 through June 30, 1983 actuarial valuations).

Progression of the Unfunded Accrued Liability Over the Past Four Years

Valuation Date	Accrued Liability	Assets	Unfunded Accrued Liability	Net Actuarial Gain
June 30, 1979	$ 9,761,200	$1,041,500	$8,719,700	$ 168,600
June 30, 1980	8,825,700	1,522,200	7,303,500	553,700
June 30, 1981	8,139,900	2,073,200	6,066,700	224,700
June 30, 1982	11,064,400 *	2,853,800	8,210,600 *	153,700
June 30, 1983	11,048,900	3,541,700	7,507,200	(456,000)

* As revised per Table 6 of this report.

Excepting for the increase in the unfunded accrued liability from 1981 to 1982, which was due to increases in retired benefits and the addition of the unisex adjustment, the unfunded accrued liability has decreased markedly each year. These decreases have been due primarily to the following:

1. Benefit payments have been made from general funds. Thus, total effective contributions (i.e., including current disbursements) to this plan have substantially exceeded those that would be required to maintain the unfunded accrued liability unchanged from year to year.

2. The actuarial gains which have occurred. In 1983, however, there was an actuarial loss of $456,000 due to the unusually favorable market performance as reflected in the variable portion of the female account balances subject to unisex adjustment. We do not believe this is representative of the established trend of actuarial gains.

In our opinion, the current funding arrangement, whereby benefits are being paid out of general funds (in addition to contributions to plan assets in the area of $400,000 -$500,000 per year) has been very successful. We feel that this, plus monitoring the liability for future benefits on a conservative basis indicates that costs for this plan are well under control.

PART II

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1983

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, 1983 in accordance with Chapter 356 of the Minnesota Statutes. The valuation has been based on employee census data as of June 30, 1983 and plan provisions in effect as of June 30, 1983. In summary, our valuation reveals a Chapter 356 requirement of $542,600, well short of the $1,114,500 of annual benefits payable to retirees as of the valuation date.

The plan is composed of two distinct groups:

- 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.

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

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, 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), has resulted in a reduction of the unfunded accrued liability under the plan from $8,210,600 as of June 30, 1982 to $7,507,200 as of June 30, 1983.

EMPLOYEE AND FINANCIAL DATA

We received complete data covering 494 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 9 members of this group would receive benefits from the supplemental plan. In addition, we were furnished a listing for the 412 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 September 1, 1983. From this data we estimated the total account balances as of June 30, 1983 subject to unisex adjustment. All of this data as utilized for valuation purposes is summarized in Table 2 of this report.

Assets of $3,541,700 as of June 30, 1983 were reported to us by the University, including a 1983 plan year contribution, in addition to current disbursements made from general funds, of $462,700.

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.

We continue to recognize 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 have occurred since 1979, all unfunded accrued liabilities are being 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, 1983 are based on an assumed interest rate of 11%) 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.

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

VALUTION RESULTS

The results of our valuation are set forth in Table I. 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 $542,600, and the current disbursement requirement of $1,114,500.

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 an increase of some $456,000 in the June 30, 1983 unfunded accrued liability when compared to that expected. Actuarial losses resulted primarily from investment return substantially in excess of the 5% valuation assumption on the female account balances subject to unisex adjustments. This was offset somewhat 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 increase in the unfunded accrued liability is attributable to the following:

(a)	Increase due to early retirement subsidy for retirement prior to 65	18,600
(b)	Increase due to other actuarial losses, primarily as a result of investment return on female account balances	509,900
(c)	Decrease due to increases in Social Security	3,400
(d)	Decrease due to supplemental plan asset earnings in excess of 5%	69,100
(e)	Total Increase ((a) + (b) - (c) - (d))	456,000

COMPARISON OF 1982 and 1983 VALUATION RESULTS

In Table 6, we set forth a comparison of the principal values underlying the 1982 and 1983 valuations. Prior to making the comparisons, certain revisions were made to the July 1, 1982 figures. In 1982 the estimated account balances for female participants with account balances prior to July 1, 1982 did not include variable account assets. The revised 1982 figures reflect the corrected Items 2, 4, 6, 7 and 8.

The unfunded accrued liability has decreased during the year from $8,210,600 to $7,507,200.

* *

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

Respectfully submitted,

THE WYATT COMPANY

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Minneapolis/St. Paul
December 23, 1983

Table I

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Actuarial Valuation as of June 30, 1983
(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)	494
	(b) Total projected to receive supplemental benefits	
	(i) Number	9
	(ii) Average annual projected supplement 1/	1,071
2.	Estimated Account Balance for Female Participants at July 1, 1983	21,600,254
3.	Retirees, Survivors and Widows	
	(a) Number receiving or entitled to receive benefits	412
	(b) Average annual benefit being paid	2,705

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

		Total Benefits July 1, 1983
1.	Accrued Liability as of June 30, 1983	
	(a) Actives	86,100
	(b) Retirees	7,569,100
	(c) Widows	489,200
	(d) Survivors	802,200
	(e) Female unisex increase 7/1/82 (active accounts)	2,102,300
	(f) Total	11,048,900
2.	Assets as of June 30, 1983	3,541,700
3.	Unfunded Accrued Liability as of June 30, 1983 (1(f) less 2)	7,507,200
4.	Annual Normal Cost	54,300

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5.	Annual Requirement to Fund Normal Cost and Amortize the Unfunded Accrued Liability by June 30, 2010		
	(a)	Amortization of Unfunded Accrued Liability by June 30, 2010	488,300
	(b)	Normal cost	54,300
	(c)	Total	542,600
6.	Annual Rate of Benefit Payment		$1,114,500

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

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Table 2

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Distribution of Participants as of June 30, 1983

A. ACTIVE PARTICIPANTS (Pre-1963 FRP Participants)

Age Group Last Birthday	Males	Females	Total
45 - 49	7	2	9
50 - 54	66	2	68
55 - 59	136	11	147
60 - 64	172	12	184
65 & Over	81	5	86
Total	462	32	494

B. WIDOWS OF PRE-1956 RETIREES

Age Group Last Birthday	Number (All Females)	Annual Benefit Being Paid
75 - 79	5	$ 20,100
80 - 84	5	20,100
85 - 89	1	4,020
90 & Over	13	52,260
Total	24	$ 96,480

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	4	9,404
70 - 74	13	32,743
75 - 79	6	14,474
80 - 84	8	20,620
Total	35	$ 87,895

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D. RETIREES

Age Group Last Birthday	Males	Females	Total	Annual Benefit Being Paid
55 - 59	-	1	1	$ 479
60 - 64	7	4	11	24,233
65 - 69	42	24	66	112,750
70 - 74	75	29	104	229,809
75 - 79	73	13	86	215,342
80 - 84	36	7	43	158,452
85 - 89	18	6	24	102,818
90 & Over	9	9	18	86,268
Total	260	93	353	$930,151

E. RECONCILIATION OF RETIREES/WIDOWS/SURVIVORS

		Number
1.	Number receiving benefits last year	413
2.	Deaths during year with no continuing benefits payable	16
3.	New retirees this year	15
4.	Number receiving or entitled to receive benefits this year (1 - 2 + 3 + 4)	412*

* as follows:

Widows	24
Survivors	35
Retirees	353
Total	412

F. ESTIMATED FACULTY RETIREMENT PLAN ACCOUNT BALANCES FOR FEMALE PARTICIPANTS AS OF JUNE 30, 1983 ATTRIBUTABLE TO CONTRIBUTIONS MADE PRIOR TO JULY 1, 1982

Age	Number Of Participants	Total Account Balance
25	0	$ 0
26	0	0
27	4	3,456
28	0	0
29	10	26,524
30	13	36,950
31	19	59,765
32	23	146,793
33	29	208,500

Age	Number Of Participants	Total Account Balance
34	20	186,938
35	28	268,598
36	23	317,727
37	20	360,292
38	28	525,551
39	24	425,877
40	32	773,779
41	20	391,239
42	25	684,923
43	30	800,312
44	19	596,016
45	19	791,435
46	19	1,068,743
47	27	824,171
48	15	676,785
49	12	452,405
50	14	703,210
51	15	474,256
52	13	566,084
53	11	656,916
54	10	464,127
55	16	528,184
56	16	925,680
57	20	1,248,471
58	18	823,014
59	19	1,215,648
60	22	1,595,633
61	12	639,850
62	6	367,720
63	9	663,457
64	2	105,316
65	5	371,796
66	2	199,777
67	1	170,419
68	4	253,917
69	0	0
70	0	0
Total:	674	$21,600,254

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:**
(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).

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).

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.

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 $29,351, same as (c).* (ii) If salary greater or equal to $29,351 but less than $35,514, same as (b). (iii) If salary greater than or equal to $35,514 same as (a). * Salary ranges are as of July 1, 1983.

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.

4.	<u>Date to Which University Contributions are Made</u>	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.	<u>Investment Medium (Pre-Retirement):</u>	Net contributions (gross less front end load) are accumulated through the medium of insured funding contracts as follows: (i) <u>Fixed dollar</u>: 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) <u>Variable Income</u>: 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. (<u>NOTE</u>: Variable contributions cannot exceed 50%, or alternatively 75% of <u>total</u> contributions, including employees' contributions).
6.	<u>Types of Annuities Available at Retirement (Post-Retirement)</u>	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.	<u>Amount of Benefits:</u>	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.

7/1/82 Conversion Basis	Monthly Income for Each $1,000 of Proceeds: Fixed Income (11% interest net) Age 65	Fixed Income (11% interest net) Age 68	Variable Annuity (4% interest net) Age 65	Variable Annuity (4% interest net) Age 68
Pre-7/1/82 contributions:				
Male	11.38	12.11	7.18	7.95
Female	10.49	10.99	6.37	6.95
Contributions 7/1/82 and later:				
Unisex:	10.80	11.38	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.

(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.

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 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, 1983)

1.	Unfunded Accrued Liability as of June 30, 1982 (revised)	$8,210,600
2.	Normal Cost (revised)	46,300
3.	Interest at Valuation Rate (5%) on (1) and (2)	412,800
4.	Contributions During Year	
	(a) Approximate "pay-as-you-go" payments to retirees	1,114,500
	(b) Supplemental contributions	462,700
	(c) Total effective contributions ((a) + (b))	1,577,200
5.	Interest at Valuation Rate (5%) on 4(a) and 4(b)	41,300
6.	Expected Unfunded Accrued Liability as of June 30, 1983 (1 + 2 + 3 - 4 - 5)	7,051,200
7.	Actual Unfunded Accrued Liability as of June 30, 1983	7,507,200
8.	Decrease During Year (6 - 7)	(456,000)
9.	Gain and Loss Analysis	
	(a) Loss due to early retirement subsidy for retirement prior to 65 *	18,600
	(b) Other actuarial losses **	509,900
	(c) Gain due to increase to offsetting Social Security benefits	3,400
	(d) Gain due to supplemental plan asset earnings in excess of 5%	69,100
	(e) Net loss ((a) + (b)- (c) - (d))	456,000

* 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 investment return in excess of 5% on female account balances subject to unisex adjustment.

Table 6

UNIVERSITY OF MINNESOTA
SUPPLEMENTAL BENEFITS PLAN

Comparison of 1982 and 1983 Valuation Results

		1982	1982 2/	1983
1.	Active Pre-1963 Participants			
	(a) Total active pre-1963 participants under FRP	529	529	494
	(b) Total projected to receive supplemental benefits			
	(i) Number	21	21	9
	(ii) Average annual supplemental benefit 1/	1,030	1,030	1,071
2.	Estimated account balance for female participants with account balance prior to July 1, 1982	11,039,900	17,131,100	21,600,254
3.	Retirees, Survivors and Widows			
	(a) Number - Retirees	352	352	353
	- Survivors	33	33	35
	- Widows	28	28	24
	- Total	413	413	412
	(b) Average annual benefit being paid or payable	2,802	2,802	2,705
4.	Accrued Liability on Valuation Date			
	(a) Active participants	183,300	183,300	86,100
	(b) Retirees, survivors and widows	9,246,800	9,246,800	8,860,500
	(c) Female participants with account balances prior to July 1, 1982	1,036,300	1,634,300	2,102,300
	(d) Total	10,466,400	11,064,400	11,048,900
5.	Assets on Valuation Date	2,853,800	2,853,800	3,541,700
6.	Unfunded Accrued Liability	7,612,600	8,210,600	7,507,200
7.	Annual Normal Cost	31,600	46,300	54,300
8.	Chapter 356 Minimum Provision	518,200	569,900	542,600
9.	Alternate Provision-Current Disbursement	1,157,200	1,157,200	1,114,500

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.

2/ Estimated account balances for female participants with account balances prior to July 1, 1982 in July 1, 1982 valuation did not include variable account assets. The revised July 1, 1982 figures reflect the corrected Items 2, 4, 6, 7 and 8.

MEMORANDUM TO: Legislative Commission on Pensions and Retirement

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

RE: June 30, 1983 Actuarial Valuation of the Minnesota Faculty Supplemental Benefits Plan

DATE: January 16, 1984

Chapter 356, Subdivision 2 requires that an actuarial valuation of the fund be conducted each year. An actuarial valuation is a calculation to determine the normal cost and accrued liability of the fund and includes a determination of the payment necessary to amortize the unfunded accrued liability over a stated period of time and a determination of the payment necessary to keep the unfunded accrued liability from increasing.

The actuarial valuation is conducted according to a stated actuarial cost method, Entry Age Normal Cost, and stated actuarial assumptions. The interest assumption of 5% and the salary scale assumption of 3½% are prescribed in Chapter 356, Subdivision 4(4).

The actuarial valuation was conducted by Jerome J. McKoskey and David C. Reynolds of The Wyatt Company.

The plan covers a closed group of members. Members included are those 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.

The benefits provided by the plan are supplemental to the benefits provided from the Faculty Retirement Plan and Social Security. 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 benefit would be provided to female members to equalize the benefits with a comparable male member.

A summary of the key actuarial results is shown on the next page.

SUMMARY OF KEY ACTUARIAL RESULTS	6-30-83	6-30-82
Members in Payment Status	412	413
Active Members	494	529
Active Members Projected for Supplement	9	21
Accrued Liability	$11,048,900	$11,064,400*
Assets	3,541,700	2,853,800
Unfunded Accrued Liability	7,507,200	8,210,600*
Chapter 356 Contribution: Amortization by June 30, 2010	542,600	569,900*

*Adjusted from June 30, 1982 actuarial report to include variable account balances for female participants with account balances prior to July 1, 1982.

COMMENT SUMMARY

1. There were no changes in the actuarial assumptions, actuarial methods, or the provisions of the plan from the previous actuarial valuation.

2. Active membership decreased from a year ago and this is expected with a closed group.

   Out of the 494 active members on June 30, 1983, only nine members were projected to have a supplemental benefit.

3. The unfunded accrued liability decreased by $703,400 from a year ago. The elements contributing to this decrease were:

Actuarial Losses	$ (456,000)
Contribution Sufficiency	1,159,400
	$ 703,400

   A contribution sufficiency is defined as the amount by which the contributions to the fund exceed the amount which will keep the unfunded accrued liability from increasing.

   In the last six years, the unfunded accrued liability has decreased by $3,337,900. This decrease has been the result of fairly consistent actuarial gains and contribution sufficiencies.

   Contributions have consisted of benefit payaments plus supplemental contributions.

4. The net actuarial losswas $456,000 for the year ended June 30, 1983. These losses were primarily due to the favorable investment return of the variable portion of the female account balances which, in turn, resulted in higher than expected benefit adjustments to equalize benefits with male members.

COMMENT SUMMARY

5. The funding ratio - the ratio of assets to accrued liabilities - was 32.1% on June 30, 1983 as compared to 25.8% on June 30, 1982. Assets do not cover the accured liabilities for members in a payment status.

6. As mentioned in previous memoranda, the Chapter 356 funding requirement is not appropriate for this plan since the method of financing has produced contributions far in excess of the Chapter 356 requirements.

   Contributions are equal to benefit payments and a supplemental contribution. Benefit payments by themselves are equal to $1,114,526 on June 30, 1983 as compared to the Chapter 356 requirement of $542,600.

7. Assuming a level contribution of $1,577,00 (which approximates last year's contribution), the unfunded accrued liability will be amortized in about five years.

   The contribution required to prevent the unfunded accrued liability from increasing is $429,660 on June 30, 1983.

CONCLUSIONS

The actuarial valuation complies with the requirements of Minnesota Statutues, Chapter 356.

James R. Bordewick

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

MEMORANDUM TO: Legislative Commission on Pensions and Retirement

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

RE: University of Minnesota Supplemental Benefits Plan - Experience Study

DATE: January 16, 1984

Chapter 356.215, Subdivision 2 requires that an experience study of the fund be conducted every four years. An experience study is a report which furnishes experience data and an actuarial analysis which substantiates the actuarial assumptions of the fund. Certain other information is contained in the experience study and this is prescribed by Chapter 356.215, Subdivision 5.

The experience study of the University of Minnesota Supplemental Benefits Plan was conducted by Jerome J. McKoskey and David C. Reynolds of The Wyatt Company.

Ideally, actuarial assumptions should match the actual experience of the fund by each assumption and by assumptions in the aggregate. To put it another way, it would be ideal to utilize actuarial assumptions which do not result in any actuarial gains or losses to the fund.

In general, an actuarial gain results if the expected occurrence produced a larger liability than necessary to support the actual occurrence, if the expected liability released by the occurrence was smaller than the actual liability released by the occurrence, or if the actual rate of asset growth was greater than expected. The reverse is true for an actuarial loss.

In performing an experience study of this fund, it must be recognized that the fund is not large enough that actuarial assumptions would duplicate the experience of the fund.

The following is a summary discussion of the experience study results for the period from June 30, 1979 to June 30, 1983:

1. The unfunded accrued liability decreased by $1,212,500 over the period. The portion of this decrease attributable to actuarial gains was $644,700.

2. An interest assumption of 5% is required by Chapter 356. The annual rate of return of the three funds which have an effect on the actuarial costs is shown on the next page.

2. Faculty Retirement Plan Fixed Income Accounts 9%

   Faculty Retirement Plan Variable Income Accounts 20

   Supplemental Plan 11

   Since earnings were in excess of 5%, there was an actuarial gain which resulted over the period. However, a portion or all of the excess earnings (depending on actual return) are utilized for female participants with account balances prior to July 1, 1982 to equalize benefits with male participants. The actuaries have reported that interest gains in the period have offset the additional liability required to equalize these benefits.

3. A salary increase assumption of 3½% is required by Chapter 356. Over the past four years, salaries have increased by about 7% per year. There have been salary losses over the past four years. However, the effect of the salary scale assumption is somewhat neutralized by the cap on maximum earnings from the plan.

4. The estimates for Social Security are based on the law in effect at the time of the actuarial valauation and do not include any projections for wage base increases or cost-of-living increases. As a result, this assumption has produced actuarial gains because of yearly increases in Social Security.

5. The ratio of actual deaths to expected deaths among members in a payment status was .876 for the period. The assumption of post-retirement mortality is surprisingly close to actual experience given the small size of the group.

6. There is no assumption utilized for pre-retirement terminations from the plan. Over the past four years, there have been 20 terminations for reasons other by death. The assumption produces actuarial gains anytime there is a termination.

7. The ratio of actual to expected deaths during the period was .455. This ratio is expected to fluctuate widely with a group this small. There were only 10 deaths during the period.

8. The retirement age assumption is age 66. The ratio of actual to expected retirements in the four years period was .415. In other words, retirements are occurring after age 66 for the most part and this experience has produced actuarial gains.

   There is an early retirement subsidy when an early retirement occurs and there is no assumption utilized for this subsidy. Therefore, an actuarial loss occurs at early retirement. This loss is reimbursed by the Department from which the member retired.

The experience study complies with the applicable requirements specified in Chapter 356.

I agree with the actuaries' conclusions that no changes are required in the actuarial assumptions.

James R. Bordewick

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