State Universities Retirement System Of Illinois

Actuarial Valuation Completed As Of June 30, 1991

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INTRODUCTION

The law governing the State Universities Retirement System requires the Actuary, as the technical advisor to the Board of Trustees, to make:

> an annual determination of the liabilities and reserves of this System and an annual determination of the amount and distribution of required employer contributions. (Chapter 108-1/2, Par. 15-173).

The Wyatt Company, as Actuary, has completed a valuation as of June 30, 1991, based upon membership and financial data compiled by the administrative staff of the System, and the results of the valuation are presented in this report.

Senate Bill 1951, which was signed by the governor in January, 1991, included the following significant benefit change:

> A 7% automatic annual increase (AAI) for disability benefits is now paid on the January 1 following the fourth anniversary of the granting of the benefit. On each subsequent January 1, an AAI of 3% is paid on such disability benefits. The first increase under the bill is payable January 1, 1991.

The results of this valuation for purposes of developing disclosure values as of June 30, 1991 were based upon using the same actuarial methods and assumptions as used in the prior valuation. The assumptions, which were based on an experience review for the five years ending August 31, 1986, are described in detail beginning on page 23.

We have recently completed an experience analysis covering the four year period ending June 30, 1991. Because of data problems, we did not include the usual fifth year (FY 1986-87) in the study.

As a result of that study several key actuarial assumptions have changed. In particular the following changes have been made:

1. Termination -- This assumption was updated to reflect current data. In addition, the format of that assumption was changed to reflect the effect of years of service on termination patterns.

2. Salary Increase -- While the basic general level of annual salary increase remained at 7%, we have added an allowance for additional pay increases for members with less than six years of service.

3. Retirement Rates -- We have structured a set of retirement rates which better reflects the retirement patterns of the members.

4. Disability Rates -- These rates were modified slightly and extended to age 70.

The effects of these new assumptions on certain actuarial valuation results are as follows:

		Old Assumptions ($ in Millions)	New Assumptions
1.	Normal Cost	$ 315.1	$ 333.4
2.	Actuarial Accrued Liability		
	Active	$4,247.0	$4,164.2
	Inactive and Retired	2,400.4	2,400.4
	Total	$6,647.4	$6,564.6

The change in assumptions produces an increase of about 6% in the Normal Cost of the system and a decrease of about 1% in the Actuarial Accrued Liability.

CHANGES SINCE LAST VALUATION

Senate Bill 1951 was approved and became effective in January, 1991. New assumptions have been developed which affected the normal cost and appropriation requirements for this valuation. Changes in membership data and fund assets also affected the results of the valuation.

		June 30, 1990	June 30, 1991
1.	Number of Active Members	54,278	55,374
2.	Annualized Reported Earnings	$ 1,676,008,871	$ 1,768,548,990
	(Average)	$ (30,878)	$ (31,938)
3.	Number of Members Receiving Payments	18,132	18,909
4.	Annual Benefit Payments	$ 186,715,166	$ 207,348,176
	(Average)	$ (10,298)	$ (10,966)
5.	Assets:		
	(a) Book Value	3,299,957,176 *	3,529,759,901
	(b) Market Value	3,961,450,756	4,209,125,051
6.	State Normal Cost	159,802,707	181,692,749 **
	(% Payroll)	(9.535%)	(10.274%)
7.	Accrued Actuarial Liability	6,238,346,005	6,647,500,584
	(Funded Percentage)	(52.9%)	(53.1%)
8.	Unfunded Accrued Actuarial Liability	2,938,388,829	3,117,740,683

* Changed since the last valuation report due to adjustment of the June 30, 1990 SURS Balance Sheet.

** Based on actuarial assumptions adopted as of July 1, 1991.

Analysis of Increase in Unfunded Accrued Actuarial Liability

The increase in the unfunded accrued actuarial liability (UAAL) of $179,351,854, before recognition of the new actuarial assumptions, was due to the following:

1.	Unfunded at 6/30/90 for purposes of disclosure			$ 2,938,388,829
2.	Increase due to adjustment of SURS 6/30/90 Balance Sheet			$ 111,042
3.	Contribution being less than the amount necessary to fund normal cost and interest on the unfunded.			
	(a)	Contributions Due		
		(i)	Interest on (1) and (2) to 6/30/91	$ 235,079,990
		(ii)	Employee Contributions (including ERO payments)	152,380,511
		(iii)	Employer Normal Cost	174,321,110
		(iv)	Employer Early Retirement Option Payments	2,435,977
		(v)	Service Credit Purchases	6,888,828
		(vi)	Interest on (ii) - (v)	13,182,480
		(vii)	Total	$ 584,288,896

(b) Contributions Paid		
(i) Participants (including ERO payments)	$	152,380,511
(ii) State Appropriations		100,352,600
(iii) Employer ERO Payments		2,435,977
(iv) Reciprocity		278,924
(v) Federal, Trust Funds and Other		14,507,095
(vi) Interest on contributions to 6/30/91		10,590,470
(vii) Total	$	280,545,577
(c) Increase in the UAAL (a) minus (b)	$	303,743,319
4. Actuarial (Gains) Losses		
(a) Loss from investment return less than 8%	$	67,544,356
(b) (Gain) from salary increases less than 7%		(132,967,943)
(c) (Gain) due to age and service retirement		(13,588,854)
(d) (Gain) due to terminations		(44,401,661)
(e) (Gain) from other sources		(9,411,060)
(f) Net Actuarial (Gain)/Loss	$	(132,825,162)
5. Non-recurring items - AAI for disabled employees	$	8,322,655
6. Total Increase	$	179,351,854

APPROPRIATION REQUIREMENTS FOR FISCAL YEAR 1993

The law governing the System requires that the State shall make contributions to the System which, with employee contributions, investment income and other income of the System

> ...will be sufficient to meet the requirements of this Article in accordance with actuarial determinations. In no event shall employer contributions from State appropriations for any fiscal year be less than an amount which, when added to contributions from other sources, is sufficient to meet (1) the total accruing normal costs plus interest at the prescribed rate on the unfunded accrued liabilities or (2) the accruing requirements necessary to retain qualified status under Section 401(a) of the United States Internal Revenue Code[1], or any similar provision as successor thereof.
>
> [1] 26 U.S.C.A. §401

The law defines normal cost as:

> ...the liability for pensions and other benefits which accrues to the system because of the credits earned for service rendered by the participants during the fiscal year and expenses of administering the system.

Section 401(a) of the Internal Revenue Code would require essentially the same contribution as required under (1) above, and this amount is shown as the required contribution. The cited Section does require a different minimum contribution for private plans. The "40-year amortization" amount shown for comparison purposes corresponds to the minimum requirements for private plans upon passage of ERISA. It may also be deemed the minimum amount required as expense pursuant to Accounting Principles Board Opinion No. 8, although any "balance sheet accruals" prior to June 30, 1991 are ignored.

Projected Unit Credit Cost Method	**% of Payroll**(1)	**Required Appropriation**(1)
Normal Cost and Interest	23.550%	$461,337,000
Normal Cost and 40-Year Amortization(2)	24.303%	$476,092,000

(1) Based upon an assumed payroll of $1,959,000,000 for fiscal year July 1, 1992 - June 30, 1993.

(2) Assuming a starting date of July 1, 1990.

APPROPRIATION REQUIREMENTS FOR FISCAL YEARS 1993 - 1998

The law governing the System provides that:

Starting with ... fiscal year ... 1990, the State's contribution shall be increased incrementally over a 7-year period so that by ... fiscal year ... 1996, the minimum contribution ... shall be ... sufficient to meet the normal cost and amortize the unfunded liability over 40 years as a level percentage of payroll, determined under the projected unit credit actuarial cost method. (Chapter 108-1/2, Par. 15-155(a))

However, the State's projected contribution of $103,922,000 to SURS for fiscal year 1992 is insufficient to meet the System's total required contribution for that year of $156,954,000. As a result, the 7-year phase in period called for in the law has been reduced to a 5-year period starting with fiscal year 1992. The target date for completely amortizing the unfunded accrued actuarial liability remains unchanged at June 30, 2035.

The required State contribution rates and amounts are as follows:

Fiscal Year	Normal Cost	Amortization of Unfunded Liability	Total Required Rate	Assumed Payroll (Billions)	Total Required Contribution
1993	10.274%	(1.651%)	8.623%	$1.959	$168,925,000
1994	10.274	1.390	11.664	2.062	240,512,000
1995	10.274	4.430	14.704	2.170	319,077,000
1996	10.274	7.471	17.745	2.284	405,296,000
1997	10.274	7.471	17.745	2.404	426,590,000
1998	10.274	7.471	17.745	2.530	448,949,000

Contribution levels are shown on a gross basis. The net State appropriation requirements can be determined by adjusting for such items as State Pension Fund appropriations and contributions from federal and trust funds.

The results are based on the projected unit credit actuarial cost method, and on the data provided, and assumptions used, for the June 30, 1991 actuarial valuation. In order to determine projected contribution rates and amounts the following additional assumptions and estimates were used:

(1) Covered payroll of $1,861,000,000 for fiscal year 1992.
(2) 5.25% per annum rate of increase in covered payroll.
(3) Total employer contributions of $103,922,000 for fiscal year 1992.

As of June 30, 1991, the unfunded accrued actuarial liability (UAAL) to be amortized was:

(1)	UAAL for purposes of disclosure	$3,117,740,683
(2)	Decrease due to Change in Assumptions	(82,835,320)
(3)	Total	$3,034,905,363

Method of Calculation

I. The contribution rates were determined in the following manner:

The projected unit credit actuarial cost method was used. The normal cost rate calculated for fiscal year 1992 was based on the results of the June 30, 1991 valuation. The difference between the total 1992 appropriation and the required normal cost was considered the 1992 amortization payment, and this payment was converted to a percentage of the expected 1992 payroll. An amortization schedule was then determined on the assumption that:

(1) The unfunded accrued actuarial liability existing at June 30, 1991 would be completely amortized by June 30, 2035.

(2) The amortization rates for fiscal years 1993 - 1996 would not be uniform, but the rate for any one of these years would exceed the rate for the previous year by a uniform percentage of payroll.

(3) The amortization rates for fiscal years 1996 - 2035 would be a uniform percentage of payroll.

The normal cost rate calculated for fiscal year 1992 (based on the results of the June 30, 1991 valuation) was assumed to remain unchanged.

GASB: VALUE OF ACCRUED PENSION BENEFIT OBLIGATION

Statement Number 5 of the Governmental Accounting Standards Board sets forth certain standards of financial accounting and reporting for the annual financial statements of a defined benefit pension plan.

This statement requires the disclosure of actuarial present value of credited projected benefits and the effect of any changes in actuarial assumptions or benefit provisions. The actuarial present value of credited projected benefits is a standardized measure of the accrued pension benefit obligation. It is the discounted amount of benefits estimated to be payable in the future as a result of employee service through the balance sheet date, computed by attributing an equal benefit amount (including the effects of projected salary increases and step-rate benefits) to each year of credited and expected future employee service.

This measure of the pension benefit obligation was computed for both this year's and last year's valuation, using the same assumptions as were used to process the respective valuations. Summarized on the following page are key results for both years.

GASB 5 Disclosure

Actuarial Present Value (APV) of Credited Projected Benefits	June 30, 1990	June 30, 1991
Accumulated Contributions		
Current employees	$ 1,503,256,779	$ 1,650,510,792
Inactive members	119,384,785	145,139,515
Payable to		
Retirees and Beneficiaries	2,035,532,761	2,042,069,540
Terminated Employees not yet receiving benefits - employer-financed portion	173,697,762	213,241,899
Vested Current Employees - employer-financed portion	2,308,699,452	2,496,846,806
Nonvested Current Employees - employer-financed portion	97,774,466	99,692,032
Total APV of Credited Projected Benefits	$ 6,238,346,005	$ 6,647,500,584
Net Assets Available for Benefits (Market value at June 30, 1991 is $4,209,125,051)	$ 3,299,957,176	$ 3,529,759,901
Unfunded APV of Credited Projected Benefits	$ 2,938,388,829	$ 3,117,740,683

Compared to the assets valued on the same basis as for funding purposes, the credited projected benefits are 53.1% funded compared with 52.9% last year. Plan amendments since the last valuation had the following effect on the actuarial present value of credited projected benefits.

Increase due to disabled AAI	$8,322,655

The remainder of this report is comprised of the following:

Table 1 - Results of Actuarial Valuation
Table 2 - Value of Accumulated Plan Benefits
Table 3 - Value of Credited Projected Benefits (GASB)
Table 4 - Analysis of Financial Experience
Description of Actuarial Cost Method and Assumptions
Summary of Plan Provisions

To the best of our knowledge, this actuarial statement is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,
THE WYATT COMPANY

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Chicago, Illinois
November, 1991

dlm:vsur91

RESULTS OF ACTUARIAL VALUATION AS OF JUNE 30, 1991

Table 1

MEMBER DATA

1.	Number of Members			
	(a)	Members Receiving Annuities		
		(i)	Retirement	14,321
		(ii)	Survivor (includes Prospective Widows and Widowers)	3,649
		(iii)	Disability	939
		(iv)	Total	18,909
	(b)	Other Inactive Members		7,024
	(c)	Active		55,374
	(d)	Total		81,307
2.	Annual Reported Earnings of Active Members			$ 1,768,548,990
3.	Annual Annuity Payments Currently Being Made:			
	(a)	Retirement		$ 180,695,258
	(b)	Survivor		17,180,049
	(c)	Disability		9,472,869
	(d)	Total		$ 207,348,176

Table 1 (Page 2)

VALUATION RESULTS

	Normal Cost (New Assumptions)	Actuarial Liability (Old Assumptions)
4. Actuarial Liability for Members Receiving Annuities:		
(a) Retirement		$ 1,813,550,805
(b) Survivor		172,363,726
(c) Disability		56,155,009
(d) Total		$ 2,042,069,540
5. Actuarial Liability for Inactive Members		$ 358,381,414
6. Active Members:		
(a) Pension Benefits	$ 173,434,931	$ 2,482,039,096
(b) Cost-of-Living Adjustments	50,259,479	744,069,868
(c) Death Benefits: (Excludes Refunds)	26,918,570	317,781,859
(d) Disability:		
(i) Accidental	893,750	5,892,677
(ii) Ordinary	16,199,554	107,659,366
(iii) Total	$ 17,093,304	$ 113,552,043
(e) Withdrawals and Refunds	48,735,447	589,606,764
(f) Expenses	16,929,125	---
(g) Total Actives	$ 333,370,856	$ 4,247,049,630

Table 1 (Page 3)

	Normal Cost (New Assumptions)	Actuarial Liability (Old Assumptions)
7. Total	$ 333,370,856	$ 6,647,500,584
8. Assets		$ 3,529,759,901
9. Unfunded Actuarial Liability		$ 3,117,740,683
10. Expected Employee Contributions	$ 151,678,107	
11. Annual Normal Cost to be Provided by the State (% Payroll)	$ 181,692,749 (10.274%)	

ANNUAL FUNDING REQUIREMENT FOR FISCAL YEAR 1993 -- New Assumptions	Percent Of Payroll	Amount
12. "Interest Only Funding":		
(a) Normal Cost	10.274%	$ 201,268,000
(b) Interest on Unfunded	13.276%	260,069,000
(c) Total	23.550%	$ 461,337,000
13. "Forty Year Amortization" from (7/1/90):		
(a) Normal Cost	10.274%	$ 201,268,000
(b) Contributions Towards Unfunded	14.029%	274,824,000
(c) Total	24.303%	$ 476,092,000

Notes:

(1) All figures have been adjusted by the appropriate interest factor for monthly contributions.

(2) Funding requirements are based on an assumed payroll of $1,959,000,000 for fiscal year 1993.

(3) For purposes of funding, both the normal cost and amortization requirements are based on the new actuarial assumptions adopted July 1, 1991. For purposes of disclosure, the actuarial liability shown is based on the old assumptions in effect on June 30, 1991.

ACTUARIAL PRESENT VALUE OF ACCUMULATED PLAN BENEFITS AT JUNE 30, 1991

Table 2

(Old Assumptions)	Vested	Non-Vested	Total
Participants Currently Receiving Payments	$ 2,042,069,540	$ ---	$ 2,042,069,540
Inactive Members	358,381,414	---	358,381,414
Active Members			
(a) Pension Benefits	2,184,913,926	68,048,589	2,252,962,515
(b) Annual Increases	654,350,673	20,905,797	675,256,470
(c) Death Benefits: (Without Refunds)	285,620,551	24,899,548	310,520,099
(d) Disability:			
(i) Accidental	4,941,612	1,368,834	6,310,446
(ii) Ordinary	93,797,942	19,275,911	113,073,853
(iii) Total	98,739,554	20,644,745	119,384,299
(e) Withdrawal and Refunds	526,197,753	62,126,598	588,324,351
(f) Total	3,749,822,457	196,625,277	3,946,447,734
Total	$ 6,150,273,411	$ 196,625,277	$ 6,346,898,688

Non-Retired Member Contributions with Interest

Active	$ 1,650,510,792
Inactive	145,139,515
Total	$ 1,795,650,307

NOTES:

(1) Accumulated benefits were calculated in accordance with plan provisions in effect on June 30, 1991, based on the members' history of pay and service as of such date.

(2) Projected years of service were considered only in determining members' expected eligibility for particular benefits.

(3) Future automatic cost-of-living increases were recognized.

ACTUARIAL PRESENT VALUE OF CREDITED PROJECTED BENEFITS AT JUNE 30, 1991

Table 3

(Old Assumptions)	Vested	Non-Vested	Total
Participants Currently Receiving Payments	$ 2,042,069,540	$ ---	$ 2,042,069,540
Inactive Members	358,381,414	---	358,381,414
Active Members:			
(a) Pension Benefits	2,410,827,762	71,211,334	2,482,039,096
(b) Annual Increases	722,194,646	21,875,222	744,069,868
(c) Death Benefits (Without Refunds)	304,019,839	13,762,020	317,781,859
(d) Disability:			
(i) Accidental	5,137,597	755,080	5,892,677
(ii) Ordinary	97,512,657	10,146,709	107,659,366
(iii) Total	102,650,254	10,901,789	113,552,043
(e) Withdrawal and Refunds	527,993,087	61,613,677	589,606,764
(f) Total	4,067,685,588	179,364,042	4,247,049,630
(g) Employee Contributions	1,570,838,782	79,672,010	1,650,510,792
(h) Employer Financed	2,496,846,806	99,692,032	2,596,538,838
Total	$ 6,468,136,542	$ 179,364,042	$ 6,647,500,584

NOTES:

(1) Credited projected benefits were calculated in accordance with plan provisions in effect on June 30, 1991 based on the members' service as of such date and on the members' historical and projected pay.

(2) Projected years of service were considered only in determining members' expected eligibility for particular benefits.

(3) Future automatic annual increases were recognized.

ANALYSIS OF FINANCIAL EXPERIENCE

Table 4

GAINS AND LOSSES IN UNFUNDED ACCRUED ACTUARIAL LIABILITY FOR FISCAL YEAR ENDING JUNE 30, 1991

Activity	Gain (Loss)
1. Actuarial Gains and (Losses)	
(a) Age & Service Retirements	$ 13,588,854
(b) Incidence of Disability	(82,940)
(c) In-Service Mortality	(3,876,413)
(d) Retiree Mortality	3,753,015
(e) Disabled Mortality	(357,982)
(f) Termination of Employment	44,401,661
(g) Salary Increases	132,967,943
(h) Investment Income	(67,544,356)
(i) Other	9,975,380
(j) Total Actuarial Gain (Loss)	$ 132,825,162
2. Contribution Income	$ (303,743,319)
3. Adjustment in 6/30/90 Asset Value	$ (111,042)
4. Non-Recurring Items (Loss) due to Senate Bill 1951 Change in AAI for Disabled	$ (8,322,655)
5. Total Gain (Loss)	$ (179,351,854)

ACTUARIAL COST METHOD ADOPTED JUNE 30, 1989

A projected unit credit normal cost method is used. Under this method, the projected pension at retirement age is first calculated and the value thereof at the individual member's current or attained age is determined. The normal cost for the member for the current year is equal to the value so determined divided by the members projected service at retirement. The normal cost for the plan for the year is the sum of the individual normal costs.

The actuarial liability at any point in time is the value of the projected pensions at that time less the value of future normal costs.

For ancillary benefits for active members, in particular disability benefits, death and survivor benefits, termination benefits, and the post-retirement increases, the same procedure as outlined above is followed.

Actuarial gains and losses are amortized as a level percentage of payroll over a 40 year period ending June 30, 2035, after an initial phase in period ending June 30, 1996.

Estimated annual administrative expenses are added to the normal cost.

For valuation purposes assets are valued at book.

ACTUARIAL ASSUMPTIONS USED FOR PURPOSES OF DISCLOSURE
ADOPTED AUGUST 31, 1986

Mortality

1986 Projected Experience Table, a table based on experience underlying the 1971 Group Annuity Mortality Table, without margins, with a projection for mortality improvements to 1986, with a three year setback for males and a two-year setback for females.

Interest

8% per annum, compounded annually.

Termination

Illustrative rates of withdrawal from the plan are as follows:

Age	Males	Females
20	0.184	0.224
25	0.152	0.188
30	0.120	0.152
35	0.087	0.116
40	0.059	0.083
45	0.041	0.059
50	0.029	0.045
55	--	--

It is assumed that terminated employees will not be rehired.

Salary Increases

7% per annum, compounded annually.

In addition, for purposes of determining annual appropriations as a percent of total covered payroll, it is assumed that total payroll will increase 5.25% per annum, compounded annually.

These increases include a 4.5% component for inflation.

In determining total covered payroll, the size of the active group is assumed to remain constant.

Disability

Incidence of disability amongst employees.

Age	Males	Females
20	0.0002	0.0006
25	0.0002	0.0007
30	0.0004	0.0010
35	0.0007	0.0014
40	0.0011	0.0019
45	0.0019	0.0025
50	0.0032	0.0035
55	0.0055	0.0052
60	0.0094	0.0080

5% of disabilities amongst active employees are assumed to be caused by "on-the-job" accidents where a qualifying workers' compensation award is granted. During the first two years of service, one quarter of disabilities are assumed to arise as a result of an accident.

Employees receiving a disability allowance are assumed to recover or die in accordance with the following tables:

Age	Rate of Recovery	Rate of Mortality
20	0.591	0.044
25	0.478	0.044
30	0.377	0.044
35	0.288	0.044
40	0.211	0.044
50	0.094	0.045
60	0.024	0.053
70	0.001	0.075
80	--	0.130
90	--	0.240

Retirement

General employees are assumed to retire at age 62. Police and firefighters are assumed to retire upon the attainment of age 55 and completion of twenty years of service, or at age 62 if earlier.

Assets

Assets available for benefits are used at book value.

Expenses

As estimated and advised by SURS staff, based on current expenses with an allowance for expected increases.

Marital Status

Employees are assumed to be married in accordance with the following table:

Age	Males	Females
20	25%	40%
30	70%	75%
40	80%	80%
50	85%	80%
60	85%	70%

Spouse's Age

The female spouse is assumed to be three years younger than the male spouse.

Remarriage

The surviving spouses of deceased employees are assumed to remarry in accordance with the following table:

Age	Rate of Remarriage	Age	Rate of Remarriage
20	0.145	40	0.029
25	0.095	45	0.019
30	0.060	50	0.012
35	0.041	55	0.007

Children

It is assumed that married members have 2.0 children one year apart in age.

The age of the youngest child of a deceased employee at his date of death is assumed to be as follows:

Age At Death Of Employee	Age of Youngest Child
20	0
25	1
30	3
35	5
40	7
45	9
50	12
55	15
60	18

Effective Rate of Interest

The rate of interest credited on member contributions is assumed to be 8% per annum.

Missing Data

If earnings were not available, the annual salary was assumed to be $25,900. If a birth date was not available the employee was assumed to be age 40.

Procedure for Determining Prior Year Earnings

In November of each year the System provides the Actuary with a tape containing actual salaries for the 12 month period ended August 31. That tape is matched against the valuation tape that contains actual salaries for the 10 month period ended June 30, resulting in a file with salaries for July and August. When the following year's valuation tape is received it is matched against this special file resulting in a file with salaries for the period July 1 - June 30.

ACTUARIAL ASSUMPTIONS USED FOR NORMAL COST AND APPROPRIATION REQUIREMENTS

ADOPTED JUNE 30, 1991

Mortality

1986 Projected Experience Table, a table based on experience underlying the 1971 Group Annuity Mortality Table, without margins, with a projection for mortality improvements to 1986, with a three year setback for males and a two-year setback for females.

Interest

8% per annum, compounded annually.

Termination

Illustrative rates of withdrawal from the plan are as follows:

Age	Males	Females
20	0.050	0.050
25	0.047	0.047
30	0.042	0.042
35	0.034	0.037
40	0.024	0.031
45	0.017	0.025
50	0.013	0.024
55	0.018	0.024
60	0.026	0.033
65	0.041	0.051
70	0.054	0.065

For the first ten years of service, the termination rate is increased by multiplying the initial rate by the following:

Service Year	Males	Females
0	5.75	5.90
1	5.75	5.60
2	4.70	4.75
3	3.90	3.95
4	3.20	3.30
5	2.50	2.60
6	2.15	2.30
7	1.80	2.00
8	1.50	1.65
9	1.25	1.30

Salary Increases

7% per annum, compounded annually with the 7% increased by the following multiples for the first six years of service.

Service Year	Multiplier
0	1.0400
1	1.0300
2	1.0175
3	1.0175
4	1.0175
5	1.0100

Disability

Incidence of disability amongst employees.

Age	Males	Females
20	0.0000	0.0000
25	0.0003	0.0003
30	0.0006	0.0008
35	0.0007	0.0011
40	0.0009	0.0014
45	0.0013	0.0021
50	0.0021	0.0031
55	0.0043	0.0050
60	0.0088	0.0081
65	0.0104	0.0113
70	0.0050	0.0100

Retirement

Employees are assumed to retire after becoming eligible according to the following schedule:

Age	Males	Females
50 - 55	.075	.065
56	.040	.045
57 - 58	.040	.040
59	.050	.065
60	.100	.105
61	.095	.065
62	.115	.145
63	.110	.115
64	.130	.175
65	.240	.225
66	.200	.155
67	.200	.165
68	.165	.200
69	.200	.200
70	1.000	1.000

Assets Assets available for benefits are used at book value.

Expenses As estimated and advised by SURS staff, based on current expenses with an allowance for expected increases.

Marital Status Employees are assumed to be married in accordance with the following table:

Age	Males	Females
20	25%	40%
30	70	75
40	80	80
50	85	80
60	85	70

Spouse's Age The female spouse is assumed to be three years younger than the male spouse.

Remarriage The surviving spouses of deceased employees are assumed to remarry in accordance with the following table:

Age	Rate of Remarriage	Age	Rate of Remarriage
20	0.145	40	0.029
25	0.095	45	0.019
30	0.060	50	0.012
35	0.041	55	0.007

Children It is assumed that married members have 2.0 children one year apart in age.

The age of the youngest child of a deceased employee at his date of death is assumed to be as follows:

Age At Death Of Employee	Age of Youngest Child
20	0
25	1
30	3
35	5
40	7
45	9
50	12
55	15
60	18

Effective Rate of Interest

The rate of interest credited on member contributions is assumed to be 8% per annum.

Missing Data

If earnings were not available, the annual salary was assumed to be $25,900. If a birth date was not available the employee was assumed to be age 40.

Procedure for Determining Prior Year Earnings

In November of each year the System provides the Actuary with a tape containing actual salaries for the 12 month period ended August 31. That tape is matched against the valuation tape that contains actual salaries for the 10 month period ended June 30, resulting in a file with salaries for July and August. When the following year's valuation tape is received it is matched against this special file resulting in a file with salaries for the period July 1 - June 30.

SUMMARY OF PLAN PROVISIONS

The following is a summary of the major provisions of the State Universities Retirement System as in effect on the date of the valuation (6/30/91).

Membership

The System covers faculty and non-academic permanent employees of State Universities and Colleges, Community Colleges, State Scientific Surveys and other related agencies.

Employees employed less than 50% full-time or employed on a temporary basis at less than full-time and attending classes with an employer are ineligible to participate.

Member Contributions

8% of gross earnings. 6-1/2% of the 8% contributions are designated for retirement annuities, 1/2% for automatic annual increases and 1% for survivor benefits. Police officers and firefighters contribute 9-1/2% of earnings. The additional 1-1/2% is a normal retirement contribution.

Interest Credited on Member Contributions

The interest rate credited is fixed by the Board and has been 8% in recent years. (For FY89 it was 7-1/2%.) For purposes of lump sum payments to former members, the interest rate is 4-1/2%.

Normal Retirement

Members are eligible for normal retirement after thirty-five years of covered service, after eight years of covered service and age 60, or after five years of covered service and age 62. Policemen and firemen are eligible for normal retirement at age 55 with twenty years of service, or at age 50 with twenty-five years of service.

The annuity payable is based on the largest of three formulas:

(1) The following percentages of "average earnings":

	General	Police & Firemen
(a) For each of the first 10 years of service	1.67%	2.25%
(b) For each of the next 10 years of service	1.90%	2.50%
(c) For each of the next 10 years of service	2.10%	2.75%
(d) For each year of service over 30	2.30%	2.75%

Average earnings are the average of the highest earnings for any four consecutive years. Optionally, for all employees except academic employees paid on other than a twelve-month basis, average earnings may be based on the forty-eight consecutive calendar months ending with the last day of employment. A lump sum payment for up to 56 days of accrued vacation may be included in this computation.

(2) The actuarial equivalent of 2.4 times the accumulated member contributions for retirement annuities (6-1/2% of earnings for ordinary members, 8% of earnings for police officers and firefighters). The actuarial equivalent assumes a constant annuity payable for life.

(3) For each year of service up to a maximum of thirty years, if employed one-half time or more, the following monthly amount based on average earnings:

"Average Annual Earnings"	
Under $3,500	$ 8
$3,500 - $4,500	9
$4,500 - $5,500	10
$5,500 - $6,500	11
$6,500 - $7,500	12
$7,500 - $8,500	13
$8,500 - $9,500	14
$9,500 and above	15

For members first participating hired after September 14, 1977, the maximum annuity under (1) or (2) is 75% of average earnings. The maximum is 80% of average earnings for members who participated on or before September 14, 1977.

Early Retirement

Members are eligible for early retirement after 8 years of service and age 55 but the annuity calculated under formula (1) or (3) above is reduced by 1/2% for each month such retirement precedes age 60.

Early Retirement Without Discount

A member may retire between the ages of 55 and 60 with at least 8, but not more than 35 years service credit, without the 1/2 of 1% reduction provided:

(1) The member does so between June 1, 1981 and September 1, 1992.

(2) The member retires within 6 months of the last day of employment.

(3) The member and the employer make one-time lump sum payments to the Retirement System based upon the member's highest full-time annual salary rate during the 4-year average salary period. The member pays 7% of such salary rate for each year or fraction of a year prior to age 60 or for each year or fraction of a year that his service credit is less than 35 years, whichever is less. The employer payment is 20% of the salary rate for each year or fraction of a year prior to age 60.

The number of members using this provision may be limited, at the option of the employer, to no less than 15% of those eligible during any year. The right to participate is allocated among those applying on the basis of seniority in the service of the employer.

Disability

Members with two years of covered service who are unable to perform their duties because of illness or any amount of covered service if because of an accident, are eligible for disability after sixty days of disability. Pregnancy and childbirth are considered a disability.

The amount of the disability benefit is as follows:

(1) 50% of basic compensation at disability or 50% of average earnings for the 24 months preceding disability, whichever is greater. Payments are made until (a) the total benefits paid equal 50% of the total earnings in covered service or (b) September 1 following the employee's 70th birthday or the end of the month following the fifth year anniversary if later. In case of disability caused by an on-the-job accident, where workers' compensation or occupational disease payments are granted, the 50% of total earnings limitation does not apply until the benefit ceases due to (b) above.

(2) After cessation of the benefit in (1), members who had 8 years of covered service will receive the normal retirement benefit commencing at or after age 55 (with no reduction for early retirement) if the member continues to be disabled.

The disability benefit will cease upon death or recovery.

Disability Retirement Allowance

If a member's disability benefits are discontinued due to the 50% of total earnings limitation, the member is entitled to a disability retirement allowance of 35% of the basic compensation which was payable at the time the disability began, provided at least two licensed and practicing physicians appointed by the Board certify that the member has a medically determined physical or mental impairment which would prevent him/her from engaging in any substantial gainful activity, and which can be expected to result in death, or which has lasted or can be expected to last for a continuous period of not less than twelve months.

The disability retirement allowance is payable for life unless the member is able to accept substantial gainful employment, or elects to receive a retirement annuity.

Death Benefits Before Retirement

Upon death of a participating employee* with one and one-half years of covered service, or of a former member with ten years of covered service, the following amounts are paid to the member's survivors:

(1) A death benefit equal to the retirement contributions (7% for general employees, 8-1/2% for police and firefighters) and interest, plus

(2) A lump sum payment of $1,000, plus

(3) A monthly survivor's annuity equal to the greater of 50% of the member's accrued normal retirement benefit or the following amounts if greater:

(i) 30% of average earnings to a spouse, child or parent, up to $400 monthly.

(ii) 60% of average earnings to a spouse and 1 child, up to $600 monthly.

(iii) 80% of average earnings to a spouse and 2 or more children, up to $600 monthly.

Survivor's benefits are payable until children attain age 18, to a spouse after age 50 and a dependent parent after age 55. The spouse's benefit is payable at any age while children are under 18 and living with the spouse. If death occurs after termination of employment, the monthly survivors annuity may not exceed 80 percent of the earned retirement annuity. The children's benefit is payable at any age provided that (i) the member's death occurs before the child attains age 18 and, (ii) upon attaining age 18, the child suffers a disability which would prevent him/her from engaging in any substantial gainful activities.

If there are no dependent survivors, the member did not have the necessary service or if the dependent survivors so elect in lieu of any other benefits, the following amounts will be paid.

(1) A refund of all contributions and interest, and

(2) If death occurred while a participating employee*

(i) to a dependent beneficiary an amount equal to the employee's final annual rate of earnings, but not less than $2,000 nor more than $5,000.

(ii) to a nondependent beneficiary a lump sum payment of $2,500.

* The recipient of a disability benefit is a participating employee. The recipient of a disability retirement allowance is not.

Death Of An Annuitant

Upon the death of an annuitant receiving a retirement annuity or disability retirement annuity, a lump sum benefit of $1,000 is payable to the member's spouse, children or dependent parent. In addition, a survivor's annuity as outlined above is payable. If no survivor annuity is payable, a minimum death benefit of $1,000 or an amount equal to the excess of the member's contributions and interest at retirement over the benefits paid is payable.

Automatic Increases

Retirement benefits are increased annually after retirement by 3% of the current retirement annuity. The increase is compounded and does apply to survivor's benefits. The first automatic annual increase in retirement annuity is paid on the January 1st following the annuitant's retirement date, and is based on the number of completed months that have elapsed since retirement began.

For the disability benefit, the first adjustment is effective on January 1 following the fourth anniversary of the granting of the disability. The first adjustment is 7%. At each subsequent January 1 an adjustment of 3% is made.

Termination of Service

A lump sum refund of all member contributions and interest (at 4-1/2%) will be made. If a member has 5 years of covered service and does not apply for a refund, a normal retirement benefit will be payable at age 62.