STATE EMPLOYEES' RETIREMENT SYSTEM
OF ILLINOIS

ACTUARIAL VALUATION COMPLETED AS OF JUNE 30, 1989

Chicago, Illinois
October 1989

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### INTRODUCTION

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

> ...make an annual valuation of the liabilities and reserves of this System, an annual determination of the amount of contributions required from the State under this Article, and certify the results thereof to this board. (Chapter 108 1/2, Par. 14-138).

The Wyatt Company, as Actuary, has completed a valuation as of June 30, 1989, 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 95 and House Bill 332 were passed by the Illinois legislature in June and approved by the governor in August. These bills contained provisions affecting benefits and annual appropriation requirements. As these bills were approved after the end of the 1989 fiscal year, the accrued actuarial liability disclosed in this report does not reflect the amendments they contain. However, because the bills were approved before completion of the actuarial valuation, and because this valuation calculates the contribution requirements for the 1991 fiscal year, the annual funding requirements developed herein do reflect the provisions of these bills.

The bills included the following significant benefit changes:

- The 3% automatic annual increase for retirees is now compounded and applies to the total annuity, including any Ad Hoc increases that have been or may be granted. The first increase affected is the one payable January 1, 1990. §14-114(a); §14-115(c)

- Effective January 1, 1990, or the January 1 on or after the first anniversary of the benefit, whichever is later, a 3% annual increase is applied to widow and survivor annuities. The increase is compounded; that is, each 3% increase is applied to the total benefit being paid. §14-119(g); §14-121(m)

- For State Police with 20 years of eligible creditable service as State Police, the definition of final average compensation for such service is the greater of the monthly rate of pay on the last day of service or the average monthly pay received during the last 48 months of employment. §14-103.12(c)

- Security Employees of the Department of Mental Health and Developmental Disabilities, and members of the Prisoner Review Board are eligible for the same retirement formulas as Security Employees of the Department of Corrections. §14-108(g)-(i)

- Court Reporters with at least 10 years of service as a Court Reporter are entitled to the following retirement benefit for such service: 2.2% of final average compensation times service as a non-covered employee plus 1.5% of final average compensation times service as a covered employee. §14-108(k)

- Investigators for the Department of State Police, and Dangerous Drug Inspectors, are eligible for the alternative formulas for service in such positions. (Both positions are considered State Police positions and are affected also by the change in definition of final average compensation described above.) §14-110

- The provisions requiring discontinuance of disability benefits upon attainment of age 70 have been removed. §14-123; §14-123.1; §14-124

Senate Bill 95 also contained a provision requiring annual State appropriations to be based on the projected unit credit cost method, and requiring the unfunded accrued actuarial liability to be funded as a level percent of payroll over a 40-year period, after an initial phase-in period ending June 30, 1996. §14-131(f)

Prior valuations were completed based on the Entry Age Normal Cost Method. This year, in conjunction with the approval of Senate Bill 95, the cost method was changed to Projected Unit Credit. The actuarial assumptions, which are unchanged from last year, were based on our experience review for the five years ending June 30, 1985, and are described in detail beginning on page 19.

## Changes Since Last Valuation

Senate Bill 95 and House Bill 332, passed in June and approved in August, affect the current funding of the System, but not the liabilities disclosed at June 30, 1989. Two changes which affect both costs and disclosed liabilities are: First, the cost method was changed from entry age normal to projected unit credit. Second, the System has provided the Actuary with additional individual data for non-retired members detailing both service covered by each benefit formula (service buckets), and reciprocal service. This information was estimated in previous valuations. Changes in the valuation results are also due to changes in membership data and fund assets.

Summarized below are certain important results for both years.

| | | June 30, 1988 | June 30, 1989 |
|---|---|---|---|
| 1. | Number of Active Members | 74,923 | 76,651 |
| 2. | Reported Earnings | $1,876,849,234 | $2,023,661,652 |
| | (Average) | ($25,050) | ($26,401) |
| 3. | Number of Members Receiving Payments | 32,868 | 33,523 |
| 4. | Annual Benefit Payments | $ 167,225,152 | $ 178,306,617 |
| | (Average) | ($5,088) | ($5,319) |
| 5. | Assets: (a) Book Value | $2,381,806,066 | $2,580,198,846 |
| | (b) Market Value | $2,499,972,641 | 2,856,941,986 |
| 6. | Accrued Actuarial Liability (AAL) | $3,641,579,030* | $3,752,134,283** |
| | (Funded Percentage) | (65.4%) | (68.8%) |
| 7. | Unfunded Accrued Actuarial Liability | $1,259,772,964 | $1,171,935,437 |

* Entry Age Normal AAL

** Projected Unit Credit AAL

The decrease in the unfunded accrued actuarial liability of $87,837,527 was due to the following:

| | | |
|---|---|---|
| 1. | Contribution being less than the amount necessary to fund normal cost and interest on the unfunded. | |
| | (a) Unfunded at 6/30/88 | $ 1,259,772,964 |
| | (b) Contributions Due | |
| | (i) Interest on the unfunded to 6/30/89 | $ 100,781,837 |
| | (ii) Total Normal Cost due 6/30/88 | 151,944,310 |
| | (iii) Repayment of Refunds | 1,232,422 |
| | (iv) Interest on Normal Cost and Repayments to 6/30/89 | 12,203,893 |
| | (v) Total Due | $ 266,162,462 |
| | (c) Contributions Paid | |
| | (i) Participants (includes Repayment of Refunds) | $ 101,805,417 |
| | (ii) Employing State Agencies and appropriations | 98,471,993 |
| | (iii) Interest on contributions to 6/30/89 | 7,856,980 |
| | (iv) Total Paid | $ 208,134,390 |
| | (d) Increase in the Unfunded (b) minus (c) | $ 58,028,072 |
| 2. | Actuarial (Gains) Losses | |
| | (a) (Gain) from investment return greater than 8% | $ (8,949,482) |
| | (b) Loss from salary increases greater than 6½% | $ 25,390,148 |
| | (c) Loss from retirement at other than the expected age | $ 25,976,199 |
| | (d) Loss from fewer terminations than expected | $ 17,585,391 |
| | (e) Losses from other sources | $ 10,514,210 |
| 3. | Non-Recurring Items | |
| | (a) (Decrease) due to change in cost method | $ (202,280,426) |
| | (b) Change in data provided by SERS: | |
| | (i) (Decrease) due to service buckets | $ (25,354,216) |
| | (ii) Increase due to reciprocal service | $ 11,252,577 |
| 4. | Total | $ (87,837,527) |
| 5. | Unfunded Accrued Actuarial Liability at June 30, 1989 | $1,171,935,437 |

STATE EMPLOYEES' RETIREMENT SYSTEM
APPROPRIATION REQUIREMENTS FOR
FISCAL YEARS 1991 - 1996

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 108½, Par. 14-131(f))

The required contribution rates and amounts are as follows:

| Fiscal Year | Normal Cost | Amortization of Unfunded Liability | Total Required Rate | Assumed Payroll (Billions) | Total Required Contribution |
|---|---|---|---|---|---|
| 1991 | 2.491% | 2.228% | 4.719% | $2.368 | $111,746,000 |
| 1992 | 2.491% | 2.295% | 4.786% | 2.486 | 118,980,000 |
| 1993 | 2.491% | 2.361% | 4.852% | 2.610 | 126,637,000 |
| 1994 | 2.491% | 2.427% | 4.918% | 2.741 | 134,802,000 |
| 1995 | 2.491% | 2.493% | 4.984% | 2.878 | 143,440,000 |
| 1996 | 2.491% | 2.560% | 5.051% | 3.022 | 152,641,000 |

Contribution levels are shown on a gross basis. The net State appropriation requirements can be determined by adjusting for such things as State Pension Fund appropriations and contributions from non-appropriated agencies.

The results are based on the projected unit credit actuarial cost method, and on the data provided, and assumptions used, for the June 30, 1989 actuarial valuation. In order to determine projected contribution rates and amounts the following additional assumptions and estimates were used:

(1) Covered payroll of $2,255,000,000 for fiscal year 1990.
(2) 5% per annum rate of increase in covered payroll.
(3) Total employer contributions of $104,922,000 for fiscal year 1990.

The unfunded accrued actuarial liability (UAAL) to be amortized was:

| | | |
|---|---|---|
| (1) | UAAL as of June 30, 1989 | $1,171,935,437 |
| (2) | Increase due to Senate Bill 95 and House Bill 332 | 251,523,053 |
| (3) | Total | $1,423,458,490 |

# 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 1990 was based on the results of the June 30, 1989 valuation and reflected the benefit increases included in Senate Bill 95 and House Bill 332. The difference between the total 1990 appropriation and the required normal cost was considered the 1990 amortization payment, and this payment was converted to a percentage of the expected 1990 payroll. An amortization schedule was then determined on the assumptions that:

(1) The unfunded accrued actuarial liability existing at June 30, 1989 (including the effect of the benefit increases in Senate Bill 95 and House Bill 332) would be completely amortized by June 30, 2035.

(2) The amortization rates for fiscal years 1991 - 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 1991 (based on the results of the June 30, 1989 valuation) was assumed to remain unchanged.

II. In the future, the amortization and normal cost schedules will be revised as follows:

(1) Gains and losses (including contribution shortfalls) for a fiscal year will affect contribution rates for the fourth following fiscal year.

(2) A change in actuarial assumptions adopted as of the end of a fiscal year will affect contribution rates for the second following fiscal year.

(3) Benefit increases passed by the General Assembly and approved by the Governor during any fiscal year will affect contribution rates for the second following fiscal year.

(4) Amortization schedules will be revised on the assumption that the amortization will be completed by June 30, 2035, that the rates for fiscal years after 1995 will be a uniform percentage of payroll, and that 1991 - 1996 is a phase-in period. There will be no phase-in period for changes in normal cost.

## 20 Year Projection

Based on the results of our valuation and the assumptions used therefor, we have projected what the valuation results will be for the next 20 years under the Projected Unit Credit Cost method. The projection was completed on the assumption that the State makes contributions as required by Chapter 108½, Par. 14-131(f) of the Illinois Pension Code. The Fiscal Year 1991 - 1996 contribution requirements are given on page 5.

The results of the projection are shown in Table 2. Certain key results are summarized below. ($ amounts are in millions.)

| | Fiscal Year Ending | | | | |
|---|---|---|---|---|---|
| | 6/30/90 | 6/30/95 | 6/30/00 | 6/30/05 | 6/30/10 |
| Number of Active Members | 76,651 | 76,651 | 76,651 | 76,651 | 76,651 |
| Payroll | $2,255 | $2,878 | $3,673 | $4,688 | $5,983 |
| State Normal Cost | $56 | $72 | $91 | $117 | $149 |
| (% Payroll) | (2.491%) | (2.491%) | (2.49%) | (2.491%) | (2.491%) |
| Actuarial Liability | $4,269 | $5,842 | $7,914 | $10,669 | $14,310 |
| Assets (Book Value) | $2,782 | $4,031 | $5,770 | $8,179 | $11,494 |
| (Funded %) | (65.2%) | (69.0%) | (72.9%) | (76.7%) | (80.3%) |

## 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 the 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 valuation. Summarized below are key results for both years.

| Actuarial Present Value (APV) of Credited Projected Benefits | June 30, 1988 | June 30, 1989 |
|---|---|---|
| Accumulated Contributions of current employees | $ 947,077,130 | 1,073,289,313 |
| Accumulated Contributions of inactive members | 45,814,181 | 46,726,965 |
| Payable to Retirees and Beneficiaries | 1,546,828,161 | 1,653,880,384 |
| Payable to Terminated Employees not yet receiving benefits - employer-financed portion | 14,605,254 | 14,003,475 |
| Payable to Vested Current Employees - employer-financed portion | 886,198,521 | 918,189,370 |
| Payable to Nonvested Current Employees - employer-financed portion | 50,132,422 | 46,044,776 |
| Total APV of Credited Projected Benefits | $3,490,655,669 | $3,752,134,283 |
| Net Assets available for benefits (Market value at June 30, 1989 is $2,856,941,986) | $2,381,806,066 | $2,580,198,846 |
| Unfunded APV of Credited Projected Benefits | $1,108,849,603 | $1,171,935,437 |

Compared to the assets valued on the same basis as for funding purposes, the credited projected benefits are 68.8% funded compared with 68.2% last year. Changes in reporting procedures since the last valuation had the following effects on the actuarial present value of credited projected benefits:

| | | |
|---|---|---|
| 1. | Decrease due to service buckets | ($25,354,216) |
| 2. | Increase due to reciprocal service | $11,252,577 |

## APB8: Level Dollar Funding

The Board of Trustees has adopted a policy of amortizing the Unfunded Accrued Actuarial Liability (UAAL), on a level percent of payroll basis, by June 30, 2035. Accounting Principals Board Opinion No. 8 sets forth requirements for amortizing the UAAL of a defined benefit plan. The minimum requirements specified by APB8 are a 40-year amortization period and level dollar annual payments. The Board's policy results in lower annual contributions in the early years of the amortization period and higher annual contributions in the later years than the APB8 method. The APB8 method is designed to complete the amortization by June 30, 2028. The Fiscal Year 1991 contribution required by the Board is given on page 5. The Fiscal Year 1991 contribution under APB8 would be determined as follows:

| | % of Payroll(1) | Annual Contribution(1) |
|---|---|---|
| Normal Cost | 2.491% | $ 58,987,000 |
| Amortization of the Unfunded Actuarial Liability with level annual payments By June 30, 2028 | 5.281% | $125,059,000 |
| Total Contribution | 7.772% | $184,046,000 |

(1) Based upon an assumed payroll of $2,368,000,000 for Fiscal Year July 1, 1990 - June 30, 1991.

## Expenses for Fiscal Year Ended June 30, 1989

Based on the results of our valuation as of June 30, 1987, and actual covered payroll for the year July 1, 1988 to June 30, 1989 of $2,106,121,000, the minimum pension expense for fiscal year 1989 would be $175,612,316 or 8.338% of actual covered payroll.

The remainder of this report is comprised of the following:



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

By S. Lynn Hill
S. Lynn Hill
Consultant

By____________________
Lloyd L. Nordstrom
Fellow of The Society of Actuaries

By____________________
Robert L. Barnes
Fellow of The Society of Actuaries

Chicago, Illinois
October, 1989

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Table 1

## STATE EMPLOYEES' RETIREMENT SYSTEM OF ILLINOIS

## RESULTS OF ACTUARIAL VALUATION AS OF JUNE 30, 1989

### MEMBER DATA

| | |
|---|---|
| 1. Number of Members | |
| (a) Active | 76,651 |
| (b) Inactive: | |
| (i) Eligible for deferred vested pension benefits | 2,973 |
| (ii) Eligible for Return of contributions only | 17,871 |
| (c) Benefit Recipients: | |
| (i) Retirement Annuities | 23,572 |
| (ii) Survivor Annuities | 8,497 |
| (iii) Disability Annuities | 1,454 |
| (d) Deferred: | |
| (i) Retirement Annuities | 42 |
| (ii) Survivor Annuities | 182 |
| (e) Total | 131,242 |
| 2. Annual Reported Earnings | $2,023,661,652 |
| 3. Annual Benefit Payments Currently Being Made: | |
| (a) Retirement | $146,816,922 |
| (b) Survivor | 20,612,989 |
| (c) Disability | 10,876,706 |
| (d) Total | $178,306,617 |

### VALUATION RESULTS

| | |
|---|---|
| 4. Actuarial Liability for Annuitants: | |
| (a) Benefit Recipients: | |
| (i) Retirement Annuities | $1,418,366,965 |
| (ii) Survivor Annuities | 164,394,170 |
| (iii) Disability Annuities | 63,549,013 |
| (b) Deferred: | |
| (i) Retirement Annuities | 1,312,735 |
| (ii) Survivor Annuities | 6,257,501 |
| (c) Total | $1,653,880,384 |
| 5. Actuarial Liability for Inactive Members: | |
| (a) Eligible for deferred vested pension benefits | $55,409,933 |
| (b) Eligible for return of contributions only | 5,320,507 |
| (c) Total | $60,730,440 |

| | Normal Cost* | Actuarial Liability* |
|---|---|---|
| 6. Active Members: | | |
| (a) Pension Benefits | $69,974,295 | $1,156,741,617 |
| (b) Cost-of-Living Adjustments | 18,035,061 | 229,719,180 |
| (c) Death Benefits: | | |
| (i) Occupational | 1,166,068 | 11,713,793 |
| (ii) Survivor & Widow | 10,145,654 | 143,458,139 |
| (iii) Non-Occupational | 304,697 | 3,373,047 |
| (iv) Refund | 3,603,349 | 52,233,813 |
| (v) Total | $15,219,768 | $210,778,792 |
| (d) Disability: | | |
| (i) Occupational | 4,126,041 | 44,150,025 |
| (ii) Non-Occupational | 5,327,081 | 85,657,502 |
| (iii) Total | 9,453,122 | 129,807,527 |
| (e) Withdrawal | 30,197,397 | 310,476,343 |
| (f) Expenses | 7,238,361 | --- |
| (g) Total | $142,879,643 | $2,037,523,459 |
| 7. Total Actuarial Liability | | $3,752,134,283 |
| 8. Assets (Book) | | $2,580,198,846 |
| 9. Unfunded Accrued Actuarial Liability (UAAL) | | $1,171,935,437 |
| 10. Employee Contributions | $97,952,706 | |
| 11. Annual Normal Cost to be Provided by the State (% Payroll) | $52,165,298 ( 2.491%) | |

ANNUAL FUNDING REQUIREMENT FOR FISCAL YEAR 1991*

| | |
|---|---|
| 12. Projected Unit Credit | |
| (a) Contributions as a percent of payroll | |
| (i) Annual Normal Cost | 2.491% |
| (ii) Amortization of UAAL per Par. 14-131(f) of the Illinois Pension Code | 2.228% |
| (iii) Total Required Contribution | 4.719% |
| (b) Total contribution based on a payroll of $2.368 billion for fiscal year 1991 | $111,746,000 |

*For purposes of funding, both the normal cost and amortization requirements reflect the effect of Senate Bill 95 and House Bill 332. For purposes of disclosure, the actuarial liability shown does not reflect these bills.

Table 2

STATE EMPLOYEES' RETIREMENT SYSTEM OF ILLINOIS
TWENTY YEAR PROJECTION OF COSTS AND LIABILITIES
(All Dollar Amounts in Millions)

| | Fiscal Year Ending 6/30 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 2000 | 2005 | 2010 |
| **BASIC DATA** | | | | | | | | | |
| 1. Number of Active Members | 76,651 | 76,651 | 76,651 | 76,651 | 76,651 | 76,651 | 76,651 | 76,651 | 76,651 |
| 2. Expected Total Payroll | $2,255 | $2,368 | $2,486 | $2,610 | $2,741 | $2,878 | $3,673 | $4,688 | $5,983 |
| **VALUATION RESULTS - PROJECTED UNIT CREDIT** | | | | | | | | | |
| 3. Actuarial Liability | $4,269 | $4,551 | $4,849 | $5,163 | $5,493 | $5,842 | $7,914 | $10,669 | $14,310 |
| (Retired Lives Reserves) | (1,850) | (1,942) | (2,039) | (2,141) | (2,249) | (2,362) | (3,159) | (4,417) | (6,017) |
| 4. Assets (Book) | $2,782 | $3,001 | $3,234 | $3,482 | $3,747 | $4,031 | $5,770 | $8,179 | $11,494 |
| 5. Unfunded Actuarial Liability | $1,487 | $1,551 | $1,616 | $1,681 | $1,746 | $1,811 | $2,144 | $2,490 | $2,816 |
| (Funded Percentage) | (65.2) | (65.9) | (66.7) | (67.4) | (68.2) | (69.0) | (72.9) | (76.7) | (80.3) |
| 6. Annual Normal Cost | | | | | | | | | |
| (a) Total | $166 | $174 | $182 | $190 | $199 | $208 | $262 | $330 | $414 |
| (b) Employee Contributions | 110 | 115 | 120 | 125 | 131 | 137 | 171 | 213 | 265 |
| (c) Balance | 56 | 59 | 62 | 65 | 68 | 72 | 91 | 117 | 149 |
| (% Total Payroll) | (2.49) | (2.49) | (2.49) | (2.49) | (2.49) | (2.49) | (2.49) | (2.49) | (2.49) |
| 7. State Contribution | $105 | $112 | $119 | $127 | $135 | $143 | $186 | $237 | $302 |
| (% Total Payroll) | (4.65) | (4.72) | (4.79) | (4.85) | (4.92) | (4.98) | (5.05) | (5.05) | (5.05) |
| 8. Benefit Payments | $199 | $213 | $228 | $243 | $259 | $276 | $367 | $486 | $643 |

Notes:

Total payroll as advised by the Board for FY 1990, increasing by 5.00% per annum thereafter.
Normal Cost rate includes Administrative Expenses.
State Contribution based on the requirements of Senate Bill 95.
Benefit payments shown do not include refunds.

Table 3

## STATE EMPLOYEES' RETIREMENT SYSTEM OF ILLINOIS

## ACTUARIAL PRESENT VALUE OF CREDITED PROJECTED BENEFITS AT JUNE 30, 1989

| | Vested | Non-Vested | Total |
|---|---|---|---|
| 1. Annuitants | | | |
| (a) Participants Currently Receiving Payments | $1,646,310,148 | --- | $1,646,310,148 |
| (b) Deferred | $7,570,236 | --- | $7,570,236 |
| 2. Inactive Members | | | |
| (a) Employee Contributions | $46,726,965 | --- | $46,726,965 |
| (b) Employer Financed | $14,003,475 | --- | $14,003,475 |
| 3. Active Members: | | | |
| (a) Pension Benefits | $1,088,436,647 | $68,304,970 | $1,156,741,617 |
| (b) Cost-of-Living Adjustments | $216,132,908 | $13,586,272 | $229,719,180 |
| (c) Death Benefits: | | | |
| (i) Occupational | 9,375,631 | 2,338,162 | 11,713,793 |
| (ii) Survivor & Widow | 133,166,553 | 10,291,586 | 143,458,139 |
| (iii) Non-Occupational | 2,796,409 | 576,638 | 3,373,047 |
| (iv) Refund | 47,978,006 | 4,255,807 | 52,233,813 |
| (v) Total | $193,316,599 | $17,462,193 | $210,778,792 |
| (d) Disability: | | | |
| (i) Occupational | 36,821,677 | 7,328,348 | 44,150,025 |
| (ii) Non-Occupational | 81,103,483 | 4,554,019 | 85,657,502 |
| (iii) Total | $117,925,160 | $11,882,367 | $129,807,527 |
| (e) Withdrawal | $255,680,420 | $54,795,923 | $310,476,343 |
| (f) Total | $1,871,491,734 | $166,031,725 | $2,037,523,459 |
| (g) Employee Contributions | $953,302,364 | $119,986,949 | $1,073,289,313 |
| (h) Employer Financed | $918,189,370 | $46,044,776 | $964,234,146 |
| 4. TOTAL | $3,586,102,558 | $166,031,725 | $3,752,134,283 |

NOTES:

(1) Credited projected benefits were calculated in accordance with plan provisions in effect on June 30, 1989 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 cost-of-living increases were recognized.

(4) The actuarial assumptions utilized were the same as those adopted for funding purposes.

Table 4

## STATE EMPLOYEES' RETIREMENT SYSTEM OF ILLINOIS

### ACTUARIAL PRESENT VALUE OF ACCUMULATED PLAN BENEFITS AT JUNE 30, 1989

| | Vested | Non-Vested | Total |
|---|---|---|---|
| 1. Annuitants | | | |
| (a) Participants Currently Receiving Payments | $1,646,310,148 | --- | $1,646,310,148 |
| (b) Deferred | $7,570,236 | --- | $7,570,236 |
| 2. Inactive Members | | | |
| (a) Employee Contributions | $46,726,965 | --- | $46,726,965 |
| (b) Employer Financed | $14,003,475 | --- | $14,003,475 |
| 3. Active Members: | | | |
| (a) Pension Benefits | $594,887,649 | $26,006,106 | $620,893,755 |
| (b) Cost-of-Living Adjustments | $116,868,739 | $5,020,846 | $121,889,585 |
| (c) Death Benefits: | | | |
| (i) Occupational | 8,574,051 | 3,848,221 | 12,422,272 |
| (ii) Survivor & Widow | 100,102,344 | 18,241,990 | 118,344,334 |
| (iii) Non-Occupational | 2,614,439 | 644,760 | 3,259,199 |
| (iv) Refund | 45,657,246 | 4,239,090 | 49,896,336 |
| (v) Total | $156,948,080 | $26,974,061 | $183,922,141 |
| (d) Disability: | | | |
| (i) Occupational | 32,998,703 | 12,241,806 | 45,240,509 |
| (ii) Non-Occupational | 62,179,699 | 1,728,875 | 63,908,574 |
| (iii) Total | $95,178,402 | $13,970,681 | $109,149,083 |
| (e) Withdrawal | $188,412,968 | $41,761,931 | $230,174,899 |
| (f) Total | $1,152,295,838 | $113,733,625 | $1,266,029,463 |
| (g) Employee Contributions | $953,302,364 | $119,986,949 | $1,073,289,313 |
| (h) Employer Financed | $198,993,474 | ($6,253,324) | $192,740,150 |
| 4. TOTAL | $2,866,906,662 | $113,733,625 | $2,980,640,287 |

NOTES:

(1) Accumulated benefits were calculated in accordance with plan provisions in effect on June 30, 1989, 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.

(4) The actuarial assumptions utilized were the same as those adopted for funding purposes.

Table 5

## STATE EMPLOYEES' RETIREMENT SYSTEM OF ILLINOIS

## ANALYSIS OF FINANCIAL EXPERIENCE

Gains and losses in Actuarial Liability for Fiscal Year ending June 30, 1989.

| Activity | Gain (Loss) |
|---|---|
| 1. Actuarial Gains and Losses | |
| (a) Age & Service Retirements | $ (25,976,199) |
| (b) Incidence of Disability | (1,519,256) |
| (c) In-Service Mortality | (4,849,061) |
| (d) Retiree Mortality | (223,533) |
| (e) Disabled Mortality | 107,585 |
| (f) Termination of Employment | (17,585,391) |
| (g) Salary Increases | (25,390,148) |
| (h) Investment Income | 8,949,482 |
| (i) Other | (4,029,945) |
| (j) Total Actuarial Gain (Loss) | $ (70,516,466) |
| 2. Contribution Income | $ (58,028,072) |
| 3. Non Recurring Items | |
| (a) Change in Cost Method | $ 202,280,426 |
| (b) Change in Data Provided by SERS | |
| (i) Service Buckets | 25,354,216 |
| (ii) Reciprocal Service | (11,252,577) |
| 4. Total Financial Gain (Loss) | $ 87,837,527 |

## ACTUARIAL COST METHOD

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 member's 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.

Estimated annual administrative expenses are added to the normal cost.

For valuation purposes assets are valued at book.

## ACTUARIAL ASSUMPTIONS

**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. 5% of deaths amongst active employees are assumed to be in the performance of their duty.

**Interest:** 8% per annum, compounded annually.

**Termination:** Illustrative rates of withdrawal from the plan are as follows:

| Age | Males | Females |
|---|---|---|
| 20 | .605 | .397 |
| 25 | .178 | .164 |
| 30 | .112 | .116 |
| 35 | .077 | .092 |
| 40 | .064 | .076 |
| 45 | .054 | .061 |
| 50 | .044 | .048 |
| 55 | .000 | .000 |

It is assumed that terminated employees will not be rehired.

**Salary Increases:** 6½% per annum, compounded annually.

**Disability Rates:** Incidence of disability amongst employees eligible for disability benefits:

| Age | Males | Females |
|---|---|---|
| 20 | .0020 | .0026 |
| 25 | .0021 | .0031 |
| 30 | .0022 | .0037 |
| 35 | .0025 | .0045 |
| 40 | .0031 | .0057 |
| 45 | .0043 | .0074 |
| 50 | .0068 | .0098 |
| 55 | .0116 | .0131 |
| 60 | .0186* | .0177* |

* Nil for "alternative formula" employees.

15% of disabilities amongst active employees are assumed to be in the performance of their duty.

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

| Age | Rate of Recovery Male/Female | Rate of Mortality Male | Rate of Mortality Female |
|---|---|---|---|
| 20 | 0.689 | 0.044 | 0.044 |
| 25 | 0.572 | 0.044 | 0.044 |
| 30 | 0.465 | 0.044 | 0.044 |
| 35 | 0.370 | 0.044 | 0.044 |
| 40 | 0.286 | 0.044 | 0.044 |
| 50 | 0.150 | 0.045 | 0.044 |
| 60 | 0.058 | 0.053 | 0.045 |
| 70 | 0.010 | 0.075 | 0.053 |
| 80 | -- | 0.130 | 0.075 |
| 90 | -- | 0.240 | 0.130 |

Retirement Rates: Retirement was assumed to occur at age 65 except for employees who retire under the "alternative formula", who were assumed to retire at age 60.

Assets: Assets available for benefits are used at book value.

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

Marital Status: 85% of employees are assumed to be married.

Spouse's Age: The female spouse is assumed to be 3 years younger than the male spouse.

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

| Age | Rate of Remarriage |
|---|---|
| 20 | 0.144 |
| 25 | 0.094 |
| 30 | 0.059 |
| 35 | 0.040 |
| 40 | 0.028 |
| 45 | 0.018 |
| 50 | 0.010 |
| 55 | 0.004 |

**Children:**

It is assumed that married members have 2.2 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 | 2 |
| 25 | 3 |
| 30 | 4 |
| 35 | 5 |
| 40 | 6 |
| 45 | 8 |
| 50 | 10 |
| 55 | 12 |
| 60 | 14 |

**Social Security Benefits:**

Social Security Disability and Survivor benefits payable in future years are assumed to bear the same relationship to future compensation levels at time of entitlement as current Social Security benefits bear to current compensation levels.

**Overtime and Shift Differentials:**

Reported earnings include base pay alone. It is assumed that overtime and shift differentials will increase total payroll by 3.5% over reported earnings.

## SUMMARY OF RETIREMENT SYSTEM PLAN
## (As of July 1, 1989)

1. PURPOSE

The State Employees' Retirement System of Illinois, a State Agency, provides an orderly means whereby aged or disabled employees may be retired from active service without prejudice or hardship and enables the employees to accumulate reserves for old age, disability, death and termination of employment.

2. ADMINISTRATION

Responsibility for the operation of the System and the direction of its policies is vested in a Board of Trustees of seven members. The administration of the detailed affairs of the System is the responsibility of the Executive Secretary who is appointed by the Board of Trustees. Administrative policies and procedures are designed to insure an accurate accounting of funds of the System and prompt payment of claims for benefits within the applicable statute.

3. EMPLOYEE MEMBERSHIP

All persons entering State service on or after January 1, 1984 become members upon completion of 6 months of continuous service. Persons entering State service prior to January 1, 1984 became members upon their first day of employment. Excluded from membership are: any employee whose position is subject to membership under another State supported system; any person who becomes an employee after June 30, 1979 as a public service employment program participant under the federal CETA program, or any enrollee of the Young Adult Conservation Corps. Prior to January 1, 1984, emergency and temporary employees were excluded from membership. Persons appointed by the Governor with the advice and consent of the Senate may elect to become members of the System.

4. MEMBERSHIP SERVICE

Membership service includes all service rendered while a member of the System for which credit is allowable. Persons entering service on or after January 1, 1984, or after July 1, 1982 in the case of emergency or temporary employees, may also receive membership service credit for periods of employment prior to membership by making contributions for such periods.

5. MEMBER CONTRIBUTIONS

Members are required to contribute a percentage of salary as their share of meeting the cost of the various benefits. Contribution rates are as shown below:

A. Members covered by Social Security - 4% of Salary.

B. Members without Social Security - 8% of Salary.

C. Members covered by Social Security who are serving in a position in which service toward the Alternative Retirement Annuity may be earned, or who are Security Employees of the Department of Corrections - 5½% of Salary.

D. Members without Social Security who are serving in a position in which service toward the Alternative Retirement Annuity may be earned, or who are Security Employees of the Department of Corrections - 9½% of Salary.

Members coordinated with Social Security also pay the current Social Security tax rate.

6. RETIREMENT PENSION

A. Qualification of Member:

Upon termination of State service, a member is eligible for a pension at age 60 with at least eight years of pension credit; at any age with 35 or more years of credit; between ages 55 and 60 with 30 to 35 years of credit with the pension reduced by one-half of 1% for each month the member is under age 60.

Members serving in a position in which service toward the Alternative Retirement Annuity may be earned are eligible to receive the alternative retirement annuity at age 50 with at least 25 years pension credit or at age 55 with at least 20 years of pension credit in such a position. Security employees of the Department of Corrections were placed under the alternative formula effective August 16, 1985. The age and service requirements in accordance with the alternative formula are being phased in over a five-year period for these employees.

B. Amount of Pension:

The pension is based on the member's final average compensation and the number of years of pension credit that has been established.

The pension formula reflects a graded or progressive method according to length of service as follows:

SUMMARY OF RETIREMENT SYSTEM PLAN
(As of July 1, 1989)



| For Each Year Of Credit | General Employees | | Department Of Corrections Security Employees** | | Alternative Formula Employees | |
|---|---|---|---|---|---|---|
| | Covered* | Not Covered* | Covered* | Not Covered* | Covered* | Not Covered* |
| First 10 | 1.0% | 1.67% | 1.67% | 1.90% | 1.67% | 2.25% |
| Second 10 | 1.1% | 1.90% | 1.90% | 2.10% | 1.90% | 2.50% |
| Third 10 | 1.3% | 2.10% | 2.10% | 2.25% | 2.10% | 2.75% |
| Over 30 | 1.5% | 2.30% | 2.30% | 2.50% | 2.30% | 2.75% |

* By Social Security.

** Who are not eligible for Alternative Formula.

The maximum pension payable is 75% of final average compensation.

C. Optional Forms of Payment:

Reversionary Annuity - A member may elect to receive a smaller pension during his lifetime in order to provide a spouse or a designated dependent with a lifetime income. That payment would be in addition to any other benefit payable by the System.

Level Income - A member who contributes to Social Security as a State employee may elect to have his pension payments increased before age 65 and reduced thereafter. To be eligible for this election the member must have established eligibility for a Social Security pension.

D. Annual Increases in Pension:

Post retirement increases of 3% of the original pension are granted to members effective each January 1.

7. SURVIVORS ANNUITY

A. Qualification of Survivor:

If death occurs while in State employment, the member must have established at least 18 months of pension credit. If death occurs after termination of State service and the member was not receiving a retirement pension, the member must have established at least eight years of pension credit.

An eligible spouse qualifies at age 50 or at any age if there is in the care of the spouse any unmarried children of the member under age 18; unmarried children under age 18 qualify if no spouse survives; dependent parents at age 50 qualify if neither an eligible spouse nor children survive the member.

B. Amount of Payment:

If the member's death occurs before retirement, the named beneficiary receives a lump sum refund of all of the pension contributions made by the member, excluding contributions for widows and survivors benefits. A single lump sum payment of $1,000 is also made immediately to the survivor beneficiary of the member.

An eligible spouse receives a monthly annuity equal to 30% of the member's final average compensation subject to a maximum of $400. If children of the member are under the care of the spouse, the annuity is increased for each child, subject to a maximum of $600 or 80% of final average salary. If only eligible children survive, the monthly annuity may not exceed the lesser of $600 or 80% of final average compensation. The maximum combined monthly payment to parents may not exceed $400. If the member's death occurs after retirement or after termination of State employment but before the member receives a pension, the monthly benefit is further limited to 80% of the pension received or earned by the member. Monthly benefits payable to survivors of a member who was covered by Social Security as a State employee are reduced by one-half of the amount of benefits they are entitled to from Social Security. If death of the member occurs on or after January 1, 1984 the minimum total survivors annuity benefit payable is equal to 50% of the member's earned pension without regard to the member's age at death.

C. Duration of Payment:

The monthly annuity payable to a spouse terminates upon death or remarriage prior to attainment of age 55; to children upon death, marriage or attainment of age 18, except for a child who at age 18 is physically or mentally disabled and unable to accept gainful employment.

8. <u>WIDOW'S ANNUITY OPTION</u>

The widow of a male member who was a participant in the System prior to July 19, 1961, may have the option of taking a Widow's Annuity rather than the Survivor's Annuity.

A. Qualification of Widow:

An eligible widow receives a Widow's Annuity if she is age 50 or over or has in her care any of the member's unmarried children under age 18. If she is not age 50 and has no such children in her care, she becomes eligible at age 50.

B. Amount of Payment:

The Widow's Annuity consists of a lump sum payment of $500, plus a monthly annuity equal to 50% of the pension earned or received by the member at the date of death. If the widow has in her care eligible children of the member, the monthly annuity is increased because of each child, subject to a maximum payment equal to 66-2/3% of the earned pension. Monthly benefits payable to a widow of a member who was covered by Social Security as a State employee are reduced by one-half of the amount of benefits she is entitled to from Social Security.

C. Duration of Payment:

The monthly payment to the widow continues for her lifetime whether or not she remarries. If the amount of benefit was increased because of eligible children, it is adjusted downward as these children's benefits are terminated (death, marriage or attainment of age 18).

9. OCCUPATIONAL DEATH BENEFIT

A. Qualification of Survivors:

If a member's death results from an injury on the job or a job related cause, the spouse may be eligible for an Occupational Death benefit. If only unmarried children under age 18 survive, they would be eligible for the benefit. If neither a spouse nor eligible children survive, a dependent father or mother would be eligible.

B. Amount and Duration of Payment:

The nominated beneficiary receives a lump sum payment consisting of all contributions made by the member plus interest credited to his account.

A surviving spouse is entitled to a monthly benefit equal to 50% of the member's final average compensation. The benefit is payable until remarriage of the spouse unless the remarriage occurs after attainment of age 55. If children under age 18 also survive, the annuity is increased by 15% of such average because of each child subject to a maximum of 75%. If there is no spouse, or if the spouse remarries prior to attainment of age 55 or dies before all children have attained age 18, each child receives a monthly allowance of 15% of final average compensation.

The combined payment to children may not exceed 50% of the member's final average compensation. Payments to or on account of children terminate upon their death, marriage or attainment of age 18.

If there is no spouse or eligible children, a benefit of 25% of final average compensation is payable to each surviving dependent parent for life.

The monthly benefit is reduced by any payments awarded under the Workmen's Compensation or Occupational Diseases Acts.

10. OTHER DEATH BENEFITS

If the beneficiaries of the member do not qualify for any of the previously described death benefits, one of the following benefits is payable:

A. Before Retirement:

If the member's death occurred while in State service the benefit consists of: (1) a refund of all contributions plus interest credited to the member's account; and (2) a payment equal to one month's salary for each full year of pension credit not to exceed six month's salary. The minimum payment is equal to one month's salary.

If the member had terminated State service but not yet qualified for a pension, the benefit consists of a refund of all of the member's contributions to the System plus the interest credited to the member's account.

B. After Retirement:

The benefit consists of a lump sum payment equal to the excess of contributions plus interest credited to the member's account over the total amount of pension payments made to the member. The minimum payment is $500.00

11. NON-OCCUPATIONAL DISABILITY BENEFITS

A. Qualification and Amount of Payment:

Available to any member under age 70 who has established at least one and one-half years of creditable service and who has been granted a disability leave of absence by his employing agency. The benefit is 50% of final average compensation plus a credit to the member's account of service and contributions. It begins on the 31st day of absence from service on account of disability.

If the member has Social Security coverage as a State employee, the benefit payable by the System is reduced by the amount of any disability payment to which he is entitled under Social Security.

B. Duration of Payment:

The member is eligible for the monthly benefit until the occurrence of any of the following events: (1) disability ceases; (2) resumption of gainful employment; (3) payments are made for a period of time equal to one-half of the service credit established as of the date disability began; (4) attainment of age 65 or payment for five years if later; or (5) attainment of age 70.

12. OCCUPATIONAL DISABILITY BENEFIT

A. Qualification and Amount of Payment:

Provided for any member under age 70 who becomes disabled as the direct result of injury or diseases arising out of and in the course of State employment.

The benefit is 75% of final average compensation plus a credit to the member's account of service and contributions. The cash benefit is reduced by any payment received under the Workmen's Compensation or Occupational Diseases Acts.

B. Duration of Payment:

Monthly benefits are payable until the occurrence of any of the following events: (1) disability ceases; (2) resumption of gainful employment; (3) attainment of age 65 or payment for five years if later; or (4) attainment of age 70.

If termination of the benefit is due to the member having attained age 65 or having received benefits for five years or to age 70, the member is entitled to a retirement pension based upon service credit established as of that date.

C. Temporary Disability Benefit

A member who is initially denied Workers' Compensation benefits and is appealing the denial may receive payment at the nonoccupational rate, 50% of pay, providing all eligibility requirements for the nonoccupational benefit are met, until the determination is made.

13. SEPARATION BENEFITS

Upon termination of State employment a member may obtain a refund of the contributions made to the System. By accepting a refund, a member forfeits all accrued rights and benefits in the System for himself and his beneficiaries.