

*Wigatt*

# State Employees' Retirement System of Illinois

Actuarial Valuation as of June 30, 1994

October, 1994

## **Introduction**

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

**...make an annual valuation of the liabilities and reserves of the system, an annual determination of the amount of contributions required from the State under this Article, and certify the results thereof to the board. (40 ILCS Section 5/14 - 138).**

**The Wyatt Company has been retained by the Board of Trustees to perform an actuarial valuation as of June 30, 1994. In this report we present the results of the valuation and the appropriation requirements under Senate Bill 533 (SB533) for fiscal year 1996. For purposes of disclosure, this report also includes the actuarial present value of accumulated plan benefits, as required by FASB Statement No. 35, and the actuarial present value of credited projected benefits, as required by GASB Statement No. 5.**

**The valuation was completed based upon membership and financial data provided by the administrative staff of the System. The actuarial assumptions used were based on an experience review for the five-year period ending June 30, 1990. The cost method used to process the valuation was the Projected Unit Credit Cost Method. Both the actuarial assumptions and the cost method are unchanged from last year.**

## Changes Since Last Valuation

Since the last valuation, Senate Bill 533 was unanimously passed by the General Assembly and signed into law by the governor in August, 1994. This bill contained provisions affecting the annual appropriation requirements to the System. There were no other substantive legislative changes which have affected SERS costs and liabilities. In addition, changes in membership data and fund assets have affected the valuation results.

Summarized below are certain important results for both years.

	June 30, 1994	June 30, 1993
1. Number of Active Members	78,440	77,146
2. Annualized Pay (Average)	\$2,619,033,805 (33,389)	\$2,414,671,893 (31,300)
3. Number of Members Receiving Payments	39,082	39,066
4. Annualized Benefit Payments (Average)	\$315,750,929 (8,079)	\$304,318,070 (7,790)
5. Value of Assets:		
(a) Book Value	\$3,721,891,160	\$3,496,486,400
(b) Market Value	\$4,057,279,352	\$3,985,019,270
6. Accrued Actuarial Liability (AAL) (Funded Percentage)	\$6,502,121,427 (57.2%)	\$6,044,465,371 (57.8%)
7. Unfunded Accrued Actuarial Liability	\$2,780,230,267	\$2,547,978,971

The actual rate of return on the book value of assets, on an actuarial basis, was 9.04%. The expected investment return was 8.0%.

## Analysis of Increase in Unfunded Accrued Actuarial Liability

The increase in the unfunded accrued actuarial liability (UAAL) of \$232,251,296 was due to the following:

1.	UAAL at 6/30/93	\$2,547,978,971
2.	Contribution being less than the amount necessary to fund the normal cost and interest on the unfunded.	
	a. Contributions Due	
	i. Interest on (1) to 6/30/94	\$ 203,838,318
	ii. Member Contributions	128,481,556
	iii. Employer Normal Cost	82,236,329
	iv. Interest on (ii) and (iii) to 6/30/94	<u>8,266,565</u>
	v. Total Contributions Due	\$ 422,822,768
	b. Contributions Paid	
	i. Member Contributions	\$ 128,481,556
	ii. Employing State Agencies and Appropriations	127,649,961
	iii. Interest on (i) and (ii) to 6/30/94	<u>10,048,164</u>
	iv. Total Contributions Paid	\$ 266,179,681
	c. Expected Increase [(a) minus (b)]	\$ 156,643,087
3.	Expected UAAL at 6/30/94	\$2,704,622,058
4.	Actuarial (Gains) Losses	
	a. Gain from investment return greater than 8%	\$ (35,777,163)
	b. Loss from fewer terminations than expected	35,830,239
	c. Loss from change in the actuarial valuation software	26,767,592
	d. Losses from other sources	<u>48,787,541</u>
	e. Total Actuarial (Gain)/Loss	\$ 75,608,209
5.	Total Increase in UAAL [(2) + (4)]	\$ 232,251,296
6.	UAAL at June 30, 1994 [(1) + (5)]	\$2,780,230,267

## Appropriation Requirements For Fiscal Years 1996 - 2000, 2005, 2010 Under SB533

The law governing the System as recently enacted in SB533 provides that:

For fiscal years 2011 through 2045, the minimum contribution to the System for each fiscal year shall be an amount determined to be sufficient to bring the total assets of the System up to 90% of the total actuarial liabilities of the System by the end of fiscal year 2045. In making these determinations, the required contribution shall be calculated each year as a level percentage of payroll over the years remaining to and including fiscal year 2045 and shall be determined under the projected unit credit actuarial cost method.

For fiscal years 1996 through 2010, the contribution to the System, as a percentage of the payroll, shall be increased in equal annual increments so that by fiscal year 2010, the contribution rate is at the same level as the contribution rate for fiscal years 2011 through 2045.

Beginning in fiscal year 2046, the minimum contribution to the System for each fiscal year shall be the amount needed to maintain the total assets of the System at 90% of the total actuarial liabilities of the System. (40 ILCS Section 5/14-131(e)).

The required contribution rates and amounts calculated on this basis are as follows:

Fiscal Year	Total Required Rate	Assumed Payroll (billions)	Total Required Contribution
1996*	5.097%	\$2.836	\$144,538,000
1997	5.331	2.954	157,505,000
1998	5.565	3.078	171,284,000
1999	5.800	3.206	185,922,000
2000	6.034	3.340	201,519,000
2005	7.206	4.090	294,712,000
2010	8.378	5.042	422,382,000

\* After reflecting the \$9.351 million from the unclaimed property fund for fiscal year 1994, the net required rate is 4.767% and the net required contribution is \$135,187,000.

Contribution levels are shown on a gross basis. The net State appropriation requirements can be determined by adjusting the gross amount for such items as State Pension Fund appropriations and other 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, 1994 actuarial valuation. In order to determine projected contribution rates and amounts the following additional assumptions were used:

- ① Projected annualized payroll of \$2,723,000,000 for fiscal year 1995.
- ② Total employer contributions of \$132,400,000 (including the \$9.7 million from the unclaimed property fund) for fiscal year 1995.
- ③ New entrants whose average age is 34.54 and average pay is \$23,104 (1994 dollars).
- ④ Number of active membership remains constant during the 50-year projection period.

Assumptions 3 and 4 above replace the prior year's assumptions that covered payroll increase at the rate of 5% per year. The average increase in payroll for the 50-year projection period is 4.6% per year.

## **Method Of Calculation**

The contribution rates were determined in the following manner:

The projected unit credit actuarial cost method was used. The expected 1995 appropriation was converted to a percentage of the expected 1995 payroll. An amortization schedule was then determined on the assumption that:

- ① The ratio of total assets to total actuarial liabilities would be 90% by June 30, 2045.
- ② The amortization rates for fiscal years 1996 - 2010 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 2010 - 2045 would be a uniform percentage of payroll.

## 50-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 50 years under the Projected Unit Credit Cost method. Actual State contributions were assumed to be \$132,400,000 for fiscal year 1995, and in accordance with SB533 for fiscal years 1996 through 2045.

Certain key results are summarized below. (\$ amounts are in millions.)

Fiscal Year Ending June 30											
	1995	1996	1997	1998	1999	2000	2005	2010	2020	2030	2045
Active Members	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440
Payroll	\$2,723	\$2,836	\$2,954	\$3,078	\$3,206	\$3,340	\$ 4,090	\$ 5,042	\$ 7,876	\$12,719	\$25,990
Actuarial Liability	\$6,894	\$7,261	\$7,652	\$8,059	\$8,489	\$8,944	\$11,558	\$14,584	\$21,201	\$33,202	\$74,093
Assets (Book Value)	\$3,868	\$4,021	\$4,197	\$4,384	\$4,587	\$4,807	\$ 6,167	\$ 7,963	\$12,950	\$22,974	\$66,683
Funded Ratio	56.1%	55.4%	54.9%	54.4%	54.0%	53.7%	53.4%	54.7%	61.1%	69.2%	90.0%
Assumed Employer Contributions	\$ 132	\$ 145	\$ 158	\$ 171	\$ 186	\$ 202	\$ 295	\$ 422	\$ 660	\$ 1,066	\$ 2,177



## **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.**

## GASB 5 Disclosure

	June 30, 1994	June 30, 1993
<b>Actuarial Present Value (APV) of Credited Projected Benefits</b>		
<b>Accumulated Contributions</b>		
Current Employees	\$1,492,769,779	\$1,337,518,200
Inactive Members	80,758,384	75,192,482
<b>Payable to</b>		
Retirees and Beneficiaries	3,242,856,575	3,221,629,786
Terminated Employees <i>not yet receiving benefits - employer-financed portion</i>	17,212,988	6,904,527
Vested Current Employees <i>employer-financed portion</i>	1,545,751,408	1,303,436,543
Nonvested Current Employees <i>employer-financed portion</i>	<u>122,772,293</u>	<u>99,783,833</u>
<b>Total APV of Credited Projected Benefits</b>	<b>\$6,502,121,427</b>	<b>\$6,044,465,371</b>
<b>Net Assets Available for Benefits (Book) (Market value at June 30, 1994 is \$4,057,279,352)</b>	<b>\$3,721,891,160</b>	<b>\$3,496,486,400</b>
<b>Unfunded APV of Credited Projected Benefits</b>	<b>\$2,780,230,267</b>	<b>\$2,547,978,971</b>

Compared to the assets valued on the same basis as for funding purposes, the credited projected benefits are 57.2% funded compared with 57.8% last year.

## APB8: Level Dollar Funding For Fiscal Year Ended June 30, 1996

The Board of Trustees has adopted a policy of funding the Unfunded Accrued Actuarial Liability (UAAL) based on the requirement under SB533. Accounting Principles Board Opinion No. 8 (APB8) sets forth requirements for determining pension expense for 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 method prescribed by APB8. The APB8 method is designed to complete the amortization by June 30, 2028. The Fiscal Year 1996 contribution required by the Board is given on page 4. The Fiscal Year 1996 contribution under APB8 would be determined as follows:

	% of Payroll <sup>(1)</sup>	Annual Contribution <sup>(1)</sup>
Normal Cost	3.533%	\$100,195,880
Amortization of the UAAL with level annual payments by June 30, 2028	8.141%	\$230,887,000
<b>Total Contribution</b>	<b>11.674%</b>	<b>\$327,091,000</b>
<i><sup>(1)</sup> Based upon an assumed payroll of \$2,836,000,000 for fiscal year July 1, 1995 - June 30, 1996.</i>		

## Expense: Fiscal Year Ended June 30, 1994

Based on the results of our valuation as of June 30, 1992, and actual covered payroll for the year July 1, 1993 to June 30, 1994 of \$2,624,000,000 the minimum pension expense for fiscal year 1994 would be \$278,878,233 or 10.628% of actual covered payroll.

The remainder of this report is comprised of the following:

- Table 1 - Results of Actuarial Valuation
- Table 2 - 50 Year Projection
- Table 3 - Value of Credited Projected Benefits (GASB)
- Table 4 - Value of Accumulated Plan Benefits
- Table 5 - Analysis of Financial Experience
- Description of Actuarial 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  
October, 1994

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**Results Of Actuarial Valuation as of June 30, 1994**

<b>1. Number of Members</b>	
a. Active	78,440
b. Inactive	
i. Eligible for deferred vested pension benefits (2,793 are eligible based on SERS service alone. An additional 1,195 are eligible when reciprocal service is added to SERS service.)	3,988
ii. Eligible for return of contributions only	18,093
c. Current Benefit Recipients	
i. Retirement annuities	28,129
ii. Survivor annuities	9,245
iii. Disability annuities	1,708
d. Eligible for Deferred Benefits	
i. Retirement annuities	63
ii. Survivor annuities	<u>173</u>
e. Total	139,843
<b>2. Annualized Reported Earnings</b>	<b>\$2,619,033,805</b>
<b>3. Annualized Benefit Payments Currently Being Made</b>	
a. Retirement	\$ 270,913,833
b. Survivor	29,742,323
c. Disability	<u>15,094,773</u>
d. Total	<b>\$ 315,750,929</b>

**Table 1**  
*(Continued)*

<b>4. Annuitants</b>	
<b>a. Current Benefit Recipients</b>	
i. Retirement annuities	\$2,863,092,870
ii. Survivor annuities	274,596,967
iii. Disability annuities	94,014,210
<b>b. Eligible for Deferred Benefits</b>	
i. Retirement annuities	1,538,247
ii. Survivor annuities	<u>9,614,281</u>
<b>c. Total</b>	<b>\$3,242,856,575</b>
<b>5. Inactive Members</b>	
<b>a. Eligible for Deferred Vested Pension Benefits</b>	\$ 88,766,059
<b>b. Eligible for Return of Contributions Only</b>	<u>9,205,313</u>
<b>c. Total</b>	<b>\$ 97,971,372</b>

Table 1  
(Continued)

	<u>Normal Cost</u>	<u>Actuarial Liability</u>
6. Active Members		
a. Pension Benefits	\$100,873,305	\$1,685,238,770
b. Cost of Living Adjustments	25,618,449	423,921,149
c. Death Benefits		
i. Occupational	1,953,515	19,673,933
ii. Survivor & Widow	19,060,732	257,862,428
iii. Non-Occupational	394,840	4,185,771
iv. Refund	<u>7,567,188</u>	<u>102,132,117</u>
v. Total	\$ 28,976,275	\$ 383,854,249
d. Disability		
i. Occupational	\$ 5,356,292	\$ 58,001,480
ii. Non-Occupational	<u>7,251,459</u>	<u>101,490,221</u>
iii. Total	\$ 12,607,751	\$ 159,491,701
e. Withdrawal	41,226,049	508,787,611
f. Expenses	<u>5,700,000</u>	<u>---</u>
g. Total	\$215,001,829	\$3,161,293,480
7. Total Actuarial Liability		\$6,502,121,427
8. Assets (Book)		\$3,721,891,160
9. Unfunded Actuarial Liability		\$2,780,230,267
10. Total Normal Cost	\$215,001,829	
11. Employee Contributions	\$122,483,238	
12. Annual Employer Normal Cost (% payroll)	\$ 92,518,591 (3.533)%	

**Table 1**  
*(Continued)*

**Annual Funding Requirement for Fiscal Year 1996**

**13. Projected Unit Credit**

<b>a. Contribution as a Percent of Payroll</b>	<b>5.097%</b>
<b>b. Total Contribution Based on a Payroll of \$2.836 billion for Fiscal Year 1996</b>	<b>\$144,538,000</b>



Table 2

50-Year Projection of Costs and Liabilities

State Contribution Based on Senate Bill 533  
 Rate of Return on Assets = 8%  
 (All Dollar Amounts in Millions)

Basic Data	Fiscal Year Ending 6/30											
	1995	1996	1997	1998	1999	2000	2005	2010	2020	2030	2045	
1. Number of Active Members	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440	78,440
2. Expected Total Payroll	\$2,723	\$2,836	\$2,954	\$3,078	\$3,206	\$3,340	\$4,090	\$5,042	\$7,876	\$12,719	\$25,990	
<b>Valuation Results — Projected Unit Credit</b>												
3. Actuarial Liability	\$6,894	\$7,261	\$7,652	\$8,059	\$8,489	\$8,944	\$11,558	\$14,584	\$21,201	\$33,202	\$74,093	
(Retired Lives Reserves)	(3,396)	(3,473)	(3,555)	(3,651)	(3,768)	(3,899)	(4,848)	(6,256)	(9,269)	(14,977)	(31,041)	
4. Assets (Book)	\$3,868	\$4,021	\$4,197	\$4,384	\$4,587	\$4,807	\$6,167	\$7,963	\$12,950	\$22,974	\$66,683	
5. Unfunded Actuarial Liability	\$3,026	\$3,240	\$3,455	\$3,675	\$3,902	\$4,137	\$5,391	\$6,621	\$8,251	\$10,228	\$7,410	
6. Funded Percentage	56.1%	55.4%	54.9%	54.4%	54.0%	53.7%	53.4%	54.6%	61.1%	69.2%	90.0%	
7. Annual Normal Cost	\$224	\$234	\$244	\$253	\$263	\$274	\$327	\$386	\$591	\$955	\$1,950	
(a) Total	\$126	\$130	\$135	\$139	\$144	\$149	\$176	\$210	\$315	\$509	\$1,040	
(b) Employee Contributions	\$98	\$104	\$109	\$114	\$119	\$125	\$151	\$176	\$276	\$446	\$910	
(c) Balance	(3.60)	(3.67)	(3.69)	(3.70)	(3.71)	(3.74)	(3.70)	(3.49)	(3.50)	(3.51)	(3.50)	
8. State Contribution	\$132	\$145	\$158	\$171	\$186	\$202	\$295	\$422	\$660	\$1,066	\$2,177	
(% Total Payroll)	(4.86)	(5.10)	(5.33)	(5.57)	(5.80)	(6.03)	(7.21)	(8.38)	(8.38)	(8.38)	(8.38)	
9. Total Expense	401	421	429	449	467	486	621	823	1,295	1,863	3,174	
10. Accumulated Active Employee Contributions	1,729	1,840	1,952	2,064	2,179	2,295	2,900	3,703	6,015	12,053	33,299	

Notes:  
 Normal Cost rate includes Administrative Expenses.  
 State Contribution based on the requirements of Senate Bill 533.  
 Total Expenses shown include benefit payments, refunds and administrative expenses.



Table 3

**Actuarial Present Value of Credited Projected Benefits at June 30, 1994**

	<u>Vested</u>	<u>Non-Vested</u>	<u>Total</u>
<b>Annuitants</b>			
a. Participants Currently Receiving Payments	\$3,231,704,047	---	\$3,231,704,047
b. Deferred Benefits	11,152,528	---	11,152,528
<b>Inactive Members</b>			
a. Employee Contributions	\$80,758,384	---	\$ 80,758,384
b. Employer Financed	17,212,988	---	17,212,988
<b>Active Members</b>			
a. Pension Benefits	\$1,588,398,789	\$ 96,839,981	\$1,685,238,770
b. Annual Increases	399,223,850	24,697,299	423,921,149
c. Death Benefits			
i. Occupational	15,286,674	\$ 4,387,259	\$ 19,673,933
ii. Survivor & Widow	203,952,122	53,910,306	257,862,428
iii. Non-Occupational	3,320,175	865,596	4,185,771
iv. Refund	<u>90,860,708</u>	<u>11,271,409</u>	<u>102,132,117</u>
v. Total	\$ 313,419,679	\$ 70,434,570	\$ 383,854,249
d. Disability			
i. Occupational	\$ 46,877,574	\$ 11,123,906	\$ 58,001,480
ii. Non-Occupational	<u>90,482,868</u>	<u>11,007,353</u>	<u>101,490,221</u>
iii. Total	\$ 137,360,442	\$ 22,131,259	\$ 159,491,701
e. Withdrawal	<u>435,146,287</u>	<u>73,641,324</u>	<u>508,787,611</u>
f. Total	\$2,873,549,047	\$287,744,433	\$3,161,293,480
g. Employee Contributions	\$1,327,797,639	\$164,972,140	\$1,492,769,779
h. Employer Financed	\$1,545,751,408	\$122,772,293	\$1,668,523,701
<b>Total</b>	<b>\$6,214,376,994</b>	<b>\$287,744,433</b>	<b>\$6,502,121,427</b>

Notes:

1. Credited projected benefits were calculated in accordance with plan provisions in effect on June 30, 1994 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.
4. The actuarial assumptions utilized were the same as those adopted for funding purposes.

Table 4

## Actuarial Present Value of Accumulated Plan Benefits at June 30, 1994

	<u>Vested</u>	<u>Non-Vested</u>	<u>Total</u>
<b>Annuitants</b>			
a. Participants Currently Receiving Payments	\$3,231,704,047	---	\$3,231,704,047
b. Deferred Benefits	11,152,528	---	11,152,528
<b>Inactive Members</b>			
a. Employee Contributions	\$ 80,758,384	---	\$ 80,758,384
b. Employer Financed	17,212,988	---	17,212,988
<b>Active Members</b>			
a. Pension Benefits	\$ 988,011,308	\$ 36,884,333	\$1,024,895,641
b. Annual Increases	246,288,079	9,002,689	255,290,768
c. Death Benefits			
i. Occupational	\$ 13,315,775	\$ 6,358,158	\$ 19,673,933
ii. Survivor & Widow	182,593,545	47,627,602	230,221,147
iii. Non-Occupational	3,092,182	1,093,589	4,185,771
iv. Refund	<u>90,828,974</u>	<u>11,303,143</u>	<u>102,132,117</u>
v. Total	\$ 289,830,476	\$ 66,382,492	\$ 356,212,968
d. Disability			
i. Occupational	\$ 41,404,809	\$ 16,596,671	\$ 58,001,480
ii. Non-Occupational	<u>77,997,604</u>	<u>9,932,213</u>	<u>87,929,817</u>
iii. Total	\$ 119,402,413	\$ 26,528,884	\$ 145,931,297
e. Withdrawal	<u>316,097,763</u>	<u>48,664,629</u>	<u>364,762,392</u>
f. Total	\$1,959,630,039	\$187,463,027	\$2,147,093,066
g. Employee Contributions	\$1,327,797,639	\$164,972,140	\$1,492,769,779
h. Employer Financed	\$ 631,832,400	\$ 22,490,887	\$ 654,323,287
<b>Total</b>	<b>\$5,300,457,986</b>	<b>\$187,463,027</b>	<b>\$5,487,921,013</b>

**Notes**

- Accumulated benefits were calculated in accordance with plan provisions in effect on June 30, 1994 based on the members' history of pay and service as of such date.
- Projected years of service were considered only in determining members' expected eligibility for particular benefits.
- Future automatic annual increases were recognized.
- The actuarial assumptions utilized were the same as those adopted for funding purposes.

## Analysis of Financial Experience Gains and Losses in Actuarial Liability for Fiscal Year Ending June 30, 1994

<u>Activity</u>	<u>Gain (Loss)</u>
1. Actuarial Gains and Losses	
a. Incidence of Disability	\$ 2,000,550
b. In-Service Mortality	(3,542,052)
c. Retiree Mortality	2,008,795
d. Disabled Mortality	228,642
e. Termination of Employment	(35,830,239)
f. Salary Increases	(7,686,676)
g. Investment Income	35,777,163
h. Actuarial Valuation Software	(26,767,592)
i. Other	<u>(41,796,800)</u>
j. Total Actuarial Gain (Loss)	\$ (75,608,209)
2. Contribution Income	\$(156,643,087)
3. Total Financial Gain (Loss)	\$(232,251,296)

## **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 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 Adopted June 30, 1990

### 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. Five percent 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	.188	.377
25	.126	.144
30	.085	.096
35	.062	.072
40	.047	.056
45	.038	.041
50	.032	.030
55+	.030	.030

It is assumed that terminated employees will not be rehired.

The rates apply only to employees who have not fulfilled the service requirement necessary for retirement at any give age.

## Salary Increases

Illustrative rates of increase per individual employee per annum, compounded annually:

Age	Annual Increase	Age	Annual Increase
20	9.2%	45	6.7%
25	8.7	50	6.2
30	8.2	55	5.7
35	7.7	60	5.2
40	7.2	65	5.0

These increases include a component for inflation of 4.5% per annum. In addition, for purposes of determining annual appropriation as a percent of total covered payroll, the size of the active group is assumed to remain constant, and new entrants are assumed to enter with an average age of 34.54 years and average pay of \$23,104 (1994 dollars).

The average increase in payroll for the 50-year projection period is 4.6% per year.

## Disability

Incidence of disability amongst employees eligible for disability benefits:

Age	Males	Females	Age	Males	Females
20	.0020	.0026	45	.0043	.0074
25	.0021	.0031	50	.0068	.0098
30	.0022	.0037	55	.0109	.0128
35	.0025	.0045	60	.0162	.0164
40	.0031	.0057	65	.0226	.0226

Amongst active employees, 15% of disabilities 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	0.040	0.035
25	0.572	0.040	0.035
30	0.466	0.040	0.035
35	0.370	0.040	0.035
40	0.286	0.040	0.036
50	0.150	0.044	0.038
60	0.058	0.059	0.045
70	--	0.094	0.059
80	--	0.174	0.091

## Retirement

Employees are assumed to retire in accordance with the following rates:

Age	General Employees	Alternative Formula Employees*
50-54	--	20%
55-59	10%	20
60	25	20
61	15	20
62	20	20
63-64	15	20
65	40	40
66-69	25	30
70	100	100

\* *An additional 10% are assumed to retire in the year in which the employee completes 30 years of service. The rates apply only to employees who have fulfilled the service requirement necessary for retirement at any given age.*



## 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

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	0.144	40	0.028
25	0.094	45	0.018
30	0.059	50	0.010
35	0.040	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	Age at Death of Employee	Age of Youngest Child
20	2	40	6
25	3	45	8
30	4	50	10
35	5	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.

### Missing Data

If earnings were not available, the annual rate of pay was assumed to be \$32,000. If a birthdate was not available, the member was assumed to be age 40.

# **Summary Of Retirement System Plan (As of July 1, 1994)**

## **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.

## **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.

## **Membership**

All persons entering State service on or after January 1, 1984 become members upon completion of 6 months of continuous service except that beginning July 1, 1991 employees in police positions become members on their first day of employment. Persons entering State service from January 1, 1972 to January 1, 1984 became members on 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 enrolled 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.

## **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.

## **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:

Members covered by Social Security - 4% of Salary.

Members without Social Security - 8% of Salary.

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 - 5-1/2% of Salary.

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 - 9-1/2% of Salary.

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

## **Retirement Pension**

*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 of 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. A special formula is provided for members with at least 10 years of service as a Court Reporter.

**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.

Final Average Compensation is the average of the highest 48 consecutive months in the last 10 years. State policemen with at least 20 years of service will have their pension calculated on the greater of the 48 month average or the base rate of pay on the last day of service.

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

<u>For Each Year of Credit</u>	<u>General Employees</u>		<u>Court Reporters</u>	
	Covered*	Not Covered*	Covered*	Not Covered*
First 10	1.0%	1.67%	1.5%	2.2%
Second 10	1.1	1.90	1.5	2.2
Third 10	1.3	2.10	1.5	2.2
Over 30	1.5	2.30	1.5	2.2

<u>For Each Year of Credit</u>	<u>Department of Corrections</u>		<u>Alternative Formula</u>	
	Covered*	Not Covered*	Covered*	Not Covered*
First 10	1.67%	1.90%	1.67%	2.25%
Second 10	1.90	2.10	1.90	2.50
Third 10	2.10	2.25	2.10	2.75
Over 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.

***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.

***Annual Increases in Pension:*** Post retirement increases of 3% of the current pension are granted to members effective each January 1 occurring on or after the first anniversary of the pension (i.e., increases are compounded).

**Survivors Annuity**

***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.

***Amount of Payment:*** If the member's death occurs before retirement, the named beneficiary receives a lump sum refund of all of the member's pension contributions plus interest, 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 compensation. 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 Social Security benefits for which the survivors are eligible. For benefits granted on or after January 1, 1992, the reduction does not exceed 50% of the amount of survivors annuity otherwise payable. If death of the member occurs on or after January 1, 1984 the minimum total survivors annuity benefit payable (before any reduction for Social Security benefits) is equal to 50% of the member's earned pension without regard to the member's age at death.

***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.

***Annual Increases in Annuity:*** If the member's death occurs before retirement, increases of 3% of the current annuity are granted to survivors effective each January 1 occurring on or after the first anniversary of the annuity (i.e., increases are compounded). If the member's death occurs after retirement, the initial 3% increase applies on the January 1 on or after the survivor annuity begins.

### **Widow's Annuity Option**

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.

***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.

***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. For benefits granted on or after January 1, 1992, the reduction does not exceed 50% of the amount of widow's annuity otherwise payable.

***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).

***Annual Increases in Annuity:*** If the member's death occurs before retirement, increases of 3% of the current annuity are granted to widows effective each January 1 occurring on or after the first anniversary of the annuity (i.e., increases are compounded). If the member's death occurs after retirement, the initial 3% increase applies on the January 1 on or after the widow's annuity begins.

## **Occupational Death Benefit**

***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.

***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.

*Annual Increases in Annuity:* Increases of 3% of the current annuity are granted effective each January 1 occurring on or after the first anniversary of the annuity (i.e., increases are compounded).

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

## **Other Death Benefits**

If the survivor beneficiaries of the member do not qualify for any of the previously described death benefits, one of the following benefits is payable to the nominated beneficiary on file with the System at the date of death.

*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.

***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

## **Non-Occupational Disability Benefits**

***Qualification and Amount of Payment:*** Available to any member 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 the member's 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.

***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; or (4) attainment of age 65 if the benefit commences prior to age 60, or payment for 5 years if benefit commences after age 60.

If termination of the benefit is due to the member receiving benefits for a period of time equal to 1/2 of the service credit established at the date of disability, he shall be eligible for a retirement annuity if he has attained age 55 and has 15 years of service, or if he has attained age 50 and has 20 years of service.

***Annual Increases in Annuity:*** A one time increase of 7% of the original annuity is granted to members on the January 1 following the fourth anniversary of the annuity. Increases of 3% of the current annuity are then granted to members each January 1 following the 7% increase (i.e., the 3% increases are compounded).

## **Occupational Disability Benefit**

***Qualification and Amount of Payment:*** Provided for any member 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.

***Duration of Payment:*** Monthly benefits are payable until the occurrence of any of the following events: (1) disability ceases; (2) resumption of gainful employment; or (3) attainment of age 65 if the benefit commences prior to age 60, or payment for 5 years if the benefit commences after age 60.

If termination of the benefit is due to the member having attained age 65 or having received benefits for five years after age 60, the member is entitled to a retirement pension based upon service credit established as of that date.

***Annual Increases in Annuity:*** A one time increase of 7% of the original annuity is granted to members on the January 1 following the fourth anniversary of the annuity. Increases of 3% of the current annuity are then granted to members each January 1 following the 7% increase (i.e., the 3% increases are compounded).

***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.

## **Separation Benefits**

Upon termination of State employment by resignation, discharge, dismissal, or layoff, 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.