

# State Employees' Retirement System of Illinois

Actuarial Valuation as of June 30, 1999

October, 1999





October 19, 1999

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### Actuarial Certification

We have completed the annual actuarial valuation of the assets and liabilities of the State Employees' Retirement System of Illinois (SERS) as of June 30, 1999. This report describes the current actuarial condition of SERS, analyzes the changes since the prior year, and determines the required employer contribution rate for the year beginning July 1, 2000 and ending June 30, 2001.

The contribution rate has been determined under the Projected Unit Credit Cost Method, providing for a 90% funding of total actuarial liabilities by fiscal year 2045 as required by 40 ILCS Section 5/14-131(e). Future contribution rates through fiscal year 2009 are not less than the specified percentages under HB110. A level contribution rate is determined for fiscal year 2010 through 2045. The required contribution rates and amounts for fiscal year 2001 are shown below.

	Total	Net**
Required Rate	10.200%	9.944%
Required Contribution	\$339,966,000	\$331,442,039
<i>** These values reflect the \$8,523,961 received from the unclaimed property fund for fiscal year 1999.</i>		


For purposes of determining contribution rates, the market value of assets as reported by the Illinois State Board of Investment is used for the 1999 fiscal year. Assets have been projected using expected market value for subsequent fiscal years. The liabilities have been valued based on employee data which is supplied by the administrative staff of the System and verified by the System's auditor. We did not audit this data, but have reviewed the statistical support and concluded that the data is reasonable and consistent with the prior year's data.

We certify that the information presented herein is accurate and fairly portrays the actuarial position of SERS as of June 30, 1999. We prepared the accompanying Summary of Actuarial Cost Method and Major Actuarial Assumptions, but the SERS staff prepared the other supporting schedules in this section and the trend tables in the financial section, based on information supplied in our report.



All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the calculations also comply with the requirements of Illinois state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries. Both are Enrolled Actuaries and Fellows of the Society of Actuaries, and both are experienced in performing valuations for public retirement systems.

**Watson Wyatt & Company**

By:   
Denise Patterson, FSA  
Actuary

By:   
Lloyd L. Nordstrom, FSA  
Actuary

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## **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, make 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(c)).

Watson Wyatt & Company has been retained by the Board of Trustees to perform an actuarial valuation as of June 30, 1999. In this report, we present the results of the valuation and the appropriation requirements under Senate Bill 533 (SB533) for fiscal year 2001. For purposes of disclosure, this report also includes the annual required contribution and schedule of funding progress as required by GASB Statement No. 25 and the development of the net pension obligation in accordance with GASB Statement No. 27.

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 seven-year period ending June 30, 1997 and are unchanged from last year. The cost method used to determine the benefit liabilities is the Projected Unit Credit Cost Method. The value of assets is the fair value at the valuation date. These methods are unchanged from last year.

## **Changes Since Last Valuation**

### **Legislative Changes**

House Bill 3515 (P.A. 90-0766), effective August 14, 1998, modified the interest calculation for leave of absence service credit; allowed establishment of up to one year of service credit for the Legislative Staff Internship program by making required contributions; extended by one year, the window for optional purchase of federal or out-of-state employment; and clarified the provision authorizing optional contribution payments. House Bill 1612 (P.A. 90-0731) is effective July 1, 1999 and provides for recognition of the rights of an alternate payee under a Qualified Illinois Domestic Relations Order (QILDRO). Neither of these acts significantly impacted the cost of the System.



## Actuarial Assumptions

There were no changes from the actuarial assumptions used in the June 30, 1998 valuation.

## Modifications to Valuation Model

After review of discussions during the year with the internal auditor of the System and review of an audit of the valuation process, modifications were made to the valuation model to:

- Add the minimum benefit formula
- Correct the application of the 75% of salary cap for disability benefits
- Correct the retirement rates applied to general formula employees with 30 years of service.

The net effect of these modifications was to decrease liabilities by 1%.

## Key Results

Summarized below are certain important results for both years.

	June 30, 1999	June 30, 1998
1. Number of Active Members	79,502	78,060
2. Covered Payroll (Average Earnings)	\$ 3,212,569,000 (40,409)	\$ 3,096,086,838 (39,663)
3. Number of Members Receiving Payments	41,131	40,431
4. Annualized Benefit Payments (Average Payment)	\$ 440,882,099 (10,719)	\$ 402,840,861 (9,964)
5. Fair Value of Assets	\$ 7,986,432,969	\$ 7,064,494,830
6. Accrued Actuarial Liability (Funded Percentage)	\$ 9,998,204,988 (79.88%)	\$ 9,341,897,641 (75.62%)
7. Unfunded Accrued Actuarial Liability	\$ 2,011,772,019	\$ 2,277,402,811

The actual rate of return on the fair value of assets was 12.8%. The expected investment return for the fiscal year ended June 30, 1999, was 8.50%.



## Analysis of Decrease in Unfunded Accrued Actuarial Liability

In addition to the expected change in the unfunded accrued actuarial liability, changes in membership demographics and fund assets have affected the valuation results. The decrease in the unfunded accrued actuarial liability (UAAL) of \$265,630,792 was due to the following:

1.	UAAL at June 30, 1998	\$ 2,277,402,811
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 June 30, 1999	\$ 193,579,239
	ii. Member Contributions	159,580,234
	iii. Employer Normal Cost	149,863,359
	iv. Interest on (ii) and (iii) to June 30, 1999	<u>12,883,168</u>
	v. Total Contributions Due	\$ 515,906,000
	b. Contributions Paid	
	i. Member Contributions	\$ 159,580,234
	ii. Employing State Agencies and Appropriations	315,525,007
	iii. Interest on (i) and (ii) to June 30, 1999	<u>19,780,215</u>
	iv. Total Contributions Paid	\$ 494,885,456
	c. Expected Increase [(a) minus (b)]	\$ 21,020,544
3.	Expected UAAL at June 30, 1999 [(1) + (2c)]	\$ 2,298,423,355
4.	Actuarial (Gains) Losses	
	a. (Gain) from investment return more than 8.5%	\$ (307,064,512)
	b. (Gain) from lower salary increases than expected	(12,536,220)
	c. Losses from other sources	<u>150,010,381</u>
	d. Total actuarial (gain)/loss	\$ (169,590,351)
5.	Total (Gain) Loss due to change in valuation model	\$ (117,060,985)
6.	Total Change in UAAL [(2c) + (4d)+ (5)]	\$ (265,630,792)
7.	UAAL at June 30, 1999 [(1) + (6)]	\$2,011,772,019



## Appropriation Requirements Under SB533

The law governing the System under 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 1997 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. In accordance with HB110, State contribution rates for fiscal years 2000 through 2009 will not be less than the following schedule:

Fiscal Year	Statutory Rate	Fiscal Year	Statutory Rate
2000	10.0	2005	11.0%
2001	10.2	2006	11.2
2002	10.4	2007	11.4
2003	10.6	2008	11.6
2004	10.8	2009	11.8

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 fiscal year 2001 and projected future year required contribution rates and amounts calculated on this basis are as follows:

<b>Fiscal Year</b>	<b>Total Required Rate</b>	<b>Assumed Payroll (billions)</b>	<b>Total Required Contribution</b>
2001*	10.200%	\$3.333	\$339,966,000
2002	10.400	3.447	358,488,000
2003	10.600	3.563	377,678,000
2005	11.000	3.801	418,110,000
2008	11.600	4.176	484,416,000
2010	9.588	4.440	425,704,000

\* After reflecting the \$8,523,961 from the unclaimed property fund for fiscal year 1999, the net required rate is 9.944% and the net required contribution is \$331,442,039.

Contribution levels are shown on a gross basis. The net State appropriation requirement can be determined by adjusting the gross amount by the amount of the State Pension Fund appropriation.



## Method of Calculation for Appropriation Requirements

The results are based on the projected unit credit actuarial cost method, and on the data provided and assumptions used, for the June 30, 1999 actuarial valuation. In order to determine projected contribution rates and amounts, the following additional assumptions were used:

- Projected annualized payroll of \$3,222,000,000 for fiscal year 2000.
- Total employer contributions of \$325,705,000 (including \$12.7 million from the unclaimed property fund) for fiscal year 2000.
- New entrants whose average age is 34.13 and average pay is \$26,700 (1999 dollars).
- Number of active members remains constant during the 50-year projection period.

The average increase in payroll for the 47-year projection period is 3.5% per year.

The contribution rates were determined in the following manner:

The expected 2000 appropriation was converted to a percentage of the expected 2000 payroll. An amortization schedule was then determined on the assumption that:

- The ratio of total assets to total actuarial liabilities would be 90% by June 30, 2045.
- The contribution rates for fiscal years 1997 - 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. The rate for any year through 2009 will not be less than the statutory rate provided under HB110 for such year.
- The contribution rates for fiscal years 2010 - 2045 would be a uniform percentage of payroll.



## GASB: Financial Accounting Information

In an effort to enhance the understandability and usefulness of the pension information that is included in the financial reports of pension plans for state and local governments, the Governmental Accounting Standards Board (GASB) has issued Statement No. 25—Financial Reporting for Defined Benefit Pension Plans and Statement No. 27—Accounting for Pensions by State and Local Governmental Employers.

GASB Statement No. 25 establishes a financial reporting framework for defined benefit plans. In addition to two required statements regarding plan assets, the statement requires two schedules and accompanying notes disclosing information relative to the funded status of the plan and contribution patterns.

- The Schedule of Funding Progress includes information about the actuarially determined funded status from a long-term ongoing plan perspective and the progress made toward accumulating sufficient assets. For SERS, the liabilities are developed based on the Projected Unit Credit Cost Method. The assets are shown at fair value. The funded ratio has increased from 75.62% as of June 30, 1998 to 79.88% as of June 30, 1999, primarily due to gains from investment performance.
- The Schedule of Employer Contributions provides information about the annual required contribution (ARC) and the percentage of the ARC that was actually contributed. For SERS, the ARC is equal to the employer normal cost plus a 40-year level percentage of payroll amortization of the unfunded actuarial liability. This contribution will be different from the employer contribution required under SB533.

The annual required contribution for fiscal years 2000 and 2001 is shown below. The ARC for 2001 is based on the results of the June 30, 1999 valuation.

	Fiscal Year 2001	Fiscal Year 2000
1. Employer normal cost	\$ 155,767,247	\$ 149,863,359
2. Annual amount to amortize the unfunded liability over 40 years as a level percentage of payroll	119,460,594	136,010,414
3. ARC [(1) + (2)]	\$ 275,227,841	\$ 285,873,773
4. Estimated payroll for fiscal year	\$3,333,000,000	\$3,222,000,000
5. ARC as a percentage of payroll [(3) ÷ (4)]	8.258%	8.873%



GASB Statement No. 27 establishes standards for the measurement, recognition, and display of pension expense and related liabilities. Annual pension cost is measured and disclosed on the accrual basis of accounting. In general, the annual pension cost is equal to the ARC with adjustments for past under-contributions or over-contributions. These adjustments are based on the net pension obligation (NPO) that represents the cumulative difference between the annual pension cost and the actual contribution to the plan. The first adjustment is equal to interest on the NPO which is added to the ARC. The second adjustment is an amortization of the NPO which is deducted from the ARC. This amortization is over an open 40-year period (i.e., the 40-year period is restarted each fiscal year). Following the first 10 years after transition, the amortization will be over an open 30-year period.

These statements were adopted by SERS (and the State of Illinois) for the 1997 fiscal year. A transition pension liability (asset) was developed under Statement No. 27 equal to the cumulative difference between the actuarially determined funding requirement and the actual amount contributed for fiscal years 1988 through 1997. As of the adoption date, all outstanding pension liabilities (assets) were adjusted to equal the transition NPO. The NPO as of June 30, 1998 of \$1,160,623,565, has increased to \$1,188,870,576 as of June 30, 1999, due to the 1999 APC of \$343,772,018 and actual 1999 employer contributions of \$315,525,007.



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,

**Watson Wyatt & Company**

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Chicago, Illinois  
October, 1999  
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Table 1

## Results Of Actuarial Valuation as of June 30, 1999

1. Number of Members	
a. Active	79,502
b. Inactive:	
i. Eligible for deferred vested pension benefits (3,749 are eligible based on SERS service alone. An additional 1,392 are eligible when reciprocal service is added to SERS service.)	5,141
ii. Eligible for return of contributions only	15,247
c. Current Benefit Recipients:	
i. Retirement annuities	29,360
ii. Survivor annuities	9,810
iii. Disability annuities	1,961
d. Eligible for Deferred Benefits:	
i. Retirement annuities	93
ii. Survivor annuities	<u>140</u>
e. Total	141,254
2. Covered Payroll	\$3,212,569,000
3. Annualized Benefit Payments Currently Being Made	
a. Retirement	\$376,972,433
b. Survivor	40,877,623
c. Disability	<u>23,032,043</u>
d. Total	\$440,882,099
4. Actuarial Liability—Annuitants	
a. Current Benefit Recipients:	
i. Retirement annuities	\$4,036,586,530
ii. Survivor annuities	374,951,369
iii. Disability annuities	124,600,197
b. Eligible for Deferred Benefits:	
i. Retirement annuities	4,026,911
ii. Survivor annuities	<u>7,238,169</u>
c. Total	\$4,547,403,176
5. Actuarial Liability—Inactive Members	
a. Eligible for Deferred Vested Pension Benefits	\$202,902,640
b. Eligible for Return of Contributions Only	<u>13,636,729</u>
c. Total	\$216,539,369



Table 1  
(Continued)

	<u>Normal Cost</u>	<u>Actuarial Liability</u>
6. Active Members		
a. Pension Benefits	\$165,969,798	\$3,032,627,122
b. Cost-of-Living Adjustments	57,544,508	998,434,473
c. Death Benefits		
i. Occupational	\$ 1,348,478	\$ 16,160,824
ii. Survivor & widow	14,012,979	224,071,790
iii. Non-occupational	340,560	4,319,686
iv. Refund	<u>6,795,885</u>	<u>107,077,587</u>
v. Total	\$ 22,497,902	\$ 351,629,887
d. Disability		
i. Occupational	\$ 8,098,989	\$ 103,568,775
ii. Non-occupational	<u>16,997,195</u>	<u>250,296,509</u>
iii. Total	\$ 25,096,184	\$ 353,865,284
e. Withdrawal	37,462,089	497,705,677
f. Expenses	<u>6,777,000</u>	<u>-</u>
g. Total	\$315,347,481	\$5,234,262,443
7. Total Actuarial Liability (4 + 5 + 6)		\$9,998,204,988
8. Assets (Fair Value)		\$7,986,432,969
9. Unfunded Actuarial Liability		\$2,011,772,019
10. Total Normal Cost	\$315,347,481	
11. Employee Contributions	\$159,580,234	
12. Annual Employer Normal Cost (% payroll)	\$155,767,247 (4.849%)	



Table 2

## 47-Year Projection of Costs and Liabilities

### State Contribution Based on Senate Bill 533 Rate of Return on Assets = 8.5% (All Dollar Amounts in Millions)

Basic Data	Fiscal Year Ending 6/30										
	2000	2001	2002	2003	2005	2010	2020	2030	2045		
1. Number of Active Members	79,502	79,502	79,502	79,502	79,502	79,502	79,502	79,502	79,502	79,502	
2. Expected Total Payroll	\$3,222	\$3,333	\$3,447	\$3,563	\$3,801	\$4,440	\$6,116	\$8,869	\$16,033		
<b>Valuation Results - Projected Unit Credit</b>											
3. Actuarial Liability	\$10,615	\$11,331	\$12,087	\$12,869	\$14,543	\$19,218	\$29,063	\$38,435	\$58,855		
(Retired Lives Reserves)	(4,861)	(5,186)	(5,530)	(5,885)	(6,645)	(8,762)	(13,192)	(17,368)	(26,418)		
4. Assets (Fair Value)	\$8,619	\$9,292	\$10,009	\$10,770	\$12,422	\$17,079	\$25,638	\$33,161	\$52,970		
5. Unfunded Actuarial Liability	\$1,996	\$2,039	\$2,078	\$2,099	\$2,121	\$2,139	\$3,425	\$5,274	\$5,885		
6. Funded Percentage	81.19%	82.00%	82.81%	83.69%	85.42%	88.87%	88.21%	86.28%	90.00%		
7. Annual Normal Cost											
(a) Total	\$318	\$332	\$346	\$359	\$384	\$442	\$562	\$792	\$1,441		
(b) Employee Contributions	\$166	\$170	\$175	\$179	\$188	\$212	\$277	\$393	\$707		
(c) Balance	\$152	\$162	\$171	\$180	\$196	\$230	\$285	\$399	\$734		
(% Total Payroll)	(4.7)	(4.9)	(5.0)	(5.1)	(5.2)	(5.2)	(4.7)	(4.5)	(4.6)		
8. State Contribution	\$326	\$340	\$358	\$378	\$418	\$425	\$586	\$850	\$1,537		
(% Total Payroll)	(10.1)	(10.2)	(10.4)	(10.6)	(11.0)	(9.59)	(9.59)	(9.59)	(9.59)		
9. Total Expense	\$536	\$568	\$603	\$643	\$738	\$1,091	\$2,136	\$3,124	\$4,467		
10. Accumulated											
Employee Contributions	\$2,310	\$2,544	\$2,790	\$3,048	\$3,603	\$5,238	\$9,854	\$17,167	\$37,149		

## Notes:

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Senate Bill 533, as amended by House Bill 110.

Total expenses shown include benefit payments, refunds and administrative expenses.





**Analysis of Financial Gains and Losses in Actuarial Liability  
for Fiscal Year Ending June 30, 1999**

<u>Activity</u>	<u>Gain (Loss)</u>
1. Actuarial Gains and Losses	
a. Incidence of Disability	\$ (2,698,708)
b. In-Service Mortality	(16,347,327)
c. Retiree Mortality	(8,302,276)
d. Disabled Mortality	(523,844)
e. Termination of Employment	(91,687,454)
f. Salary Increases	12,536,220
g. Investment Gain	307,064,512
h. Other	<u>(30,450,772)</u>
i. Total Actuarial Gain (Loss)	\$ 169,590,351
2. Contribution Income (Shortfall)	\$ (21,020,544)
3. Total Gain (Loss) Due to change in valuation model	\$ 117,060,985
4. Total Financial Gain (Loss)	\$ 265,630,792



## Financial Accounting Information in Accordance With Statement No. 25 of the Governmental Accounting Standards Board

### A. Schedule of Funding Progress

	6/30/1999	6/30/1998
1. Fair Value of Assets	\$7,986,432,969	\$7,064,494,830
2. Actuarial Accrued Liability (AAL)	9,998,204,988	9,341,897,641
3. Unfunded AAL (UAAL) [(2) - (1)]	2,011,772,019	2,277,402,811
4. Funded Ratio [(1) ÷ (2)]	79.88%	75.62%
5. Covered Payroll	3,212,569,000	3,096,086,838
6. UAAL as a Percentage of Covered Payroll	62.62%	73.56%

### B. Schedule of Employer Contributions for the Fiscal Year Ended June 30, 1999

1. Annual Required Contribution (ARC) per GASB 25		
(a) Percentage of payroll		9.953%
(b) Covered payroll for fiscal year 1999		\$3,212,569,000
(c) ARC for fiscal year 1999		\$319,746,993
2. Total Employer Contribution		\$315,525,007
3. Percentage of ARC Contributed [(2) ÷ (1)]		98.68%
4. Annual Contribution Required per State Statute		
(a) Percentage of payroll (net of Pension Fund Appropriation)		9.528%
(b) Covered payroll for fiscal year 1999		\$3,212,569,000
(c) Total required contribution		\$306,093,574
5. Employer Contribution Net of Pension Fund Appropriation		\$307,001,046
6. Percentage of (4) Contributed [(5) ÷ (4)]		100.30%



Table 4  
*(Continued)*

**C. Notes to Required Schedules**

1. The cost method used to determine the ARC is the Projected Unit Credit Cost Method. The ARC for the 1999 fiscal year was determined as of June 30, 1997, based on the assumptions then in effect.
2. The assets are shown at fair value.
3. Economic assumptions include an inflation rate of 3.50%; an investment return rate of 8.50%; salary increase rates based on age-related productivity and merit rates plus inflation; and postretirement benefit increases of 3.00%.
4. The amortization method is an open 40-year period, level percentage of payroll.



**Calculation of Net Pension Obligation at Transition  
Under GASB Statement Number 27  
(Date of Transition is July 1, 1996)**

Fiscal Year (1)	Applicable Actuarial Valuation				Actual Contribution** (5)	Years (6)	Amortization Factor (7)	Beginning of Year NPO (8)	Interest on NPO (9)	Amortization of NPO (10)	Annual Pension Cost (APC)** (4 + 9 - 10) (11)	Increase in NPO (11 - 5) (12)	End of Year NPO (8 + 12) (13)
	As-of Date (2)	Investment Assumption (3)	Required Contribution* (4)										
7/1/87 - 6/30/88	6/30/1986	8%	\$ 186,935,353	\$ 99,990,922	40	11.92461333	\$0	\$0	\$0	\$186,935,353	\$86,944,431	\$86,944,431	
7/1/88 - 6/30/89	6/30/1987	8%	179,420,448	98,471,993	40	11.92461333	86,944,431	6,955,554	7,291,174	179,084,828	80,612,835	167,557,267	
7/1/89 - 6/30/90	6/30/1988	8%	184,689,149	107,938,094	40	11.92461333	167,557,267	13,404,581	14,051,379	184,042,351	76,104,257	243,661,524	
7/1/90 - 6/30/91	6/30/1989	8%	191,296,277	115,979,568	40	11.92461333	243,661,524	19,492,922	20,433,495	190,355,705	74,376,137	318,037,660	
7/1/91 - 6/30/92	6/30/1990	8%	208,717,019	98,532,783	40	11.92461333	318,037,660	25,443,013	26,670,690	207,489,343	108,956,560	426,994,220	
7/1/92 - 6/30/93	6/30/1991	8%	227,588,508	114,413,597	40	11.92461333	426,994,220	34,159,538	35,807,804	225,940,241	111,526,644	538,520,864	
7/1/93 - 6/30/94	6/30/1992	8%	277,518,586	127,649,961	40	11.92461333	538,520,864	43,081,669	45,160,447	275,439,808	147,789,847	686,310,711	
7/1/94 - 6/30/95	6/30/1993	8%	306,006,674	136,589,471	40	11.92461333	686,310,711	54,904,857	57,554,127	303,357,404	166,767,933	853,078,644	
7/1/95 - 6/30/96	6/30/1994	8%	335,219,027	146,397,934	40	11.92461333	853,078,644	68,246,292	71,539,313	331,926,005	185,528,071	1,038,606,716	
7/1/96 - 6/30/97	6/30/1995	8%	211,125,012	158,179,514	40	19.84983174	1,038,606,716	83,088,537	52,323,200	241,890,349	83,710,835	1,122,317,551	
7/1/97 - 6/30/98	6/30/1996	8%	206,725,718	200,741,736	40	19.53100753	1,122,317,551	89,785,404	57,463,372	239,047,750	38,306,014	1,160,623,565	
7/1/99 - 6/30/99	6/30/1997	8.5%	319,746,993	315,525,007	40	15.55212396	1,160,623,565	98,653,003	74,627,978	343,772,018	28,247,011	1,188,870,576	

\* The required contributions for FYE 6/30/88 through 6/30/96 were determined based on the APBS percentages provided by the System. Thereafter, the required contribution was obtained by adding the normal cost and a 40-year amortization (constant % of payroll) of the UAAL (AAL - MVA) at the valuation date shown in column (2). The resulting percentage of payroll is applied to the actual covered payroll for the applicable fiscal year.

\*\* The actual contributions for FYE 6/30/88 through 6/30/99 were obtained from the comprehensive annual financial report

\*\*\*  $APC = (4) \cdot (18) \cdot (3) - (18) \cdot (7)$



## **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 postretirement increases, the same procedure as outlined above is followed.

Estimated annual administrative expenses are added to the normal cost.

For valuation purposes, as well as projection purposes, assets are valued at fair value.



## Actuarial Assumptions Adopted June 30, 1997

### Mortality

1983 Group Annuity Mortality Table for males (with a one-year setback) and for females (with no setback). Five percent of deaths among active employees are assumed to be in the performance of their duty.

### Interest

8.50% per annum, compounded annually.

### Termination

Illustrative rates of withdrawal from the plan are as follows:

Age	Males	Females
20	.159	.339
25	.107	.129
30	.073	.086
35	.052	.065
40	.040	.050
45	.031	.037
50	.027	.027
55+	.026	.027

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 given age.



## Salary Increases

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

Age	Annual Increase	Age	Annual Increase
20	8.2%	45	5.7%
25	7.7	50	5.2
30	7.2	55	4.7
35	6.7	60	4.2
40	6.2	65	4.0

These increases include a component for inflation of 3.5% 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 34.13 years and average pay of \$26,700 (1999 dollars).

The average increase in payroll for the 47-year projection period is 3.5% per annum.

## Disability

Incidence of disability for 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

Among 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	--	10.0%
55-59	10.0%	15.0
60	12.5	20.0
61	15.0	22.0
62	17.5	24.0
63	20.0	26.0
64	22.5	28.0
65	25.0	30.0
66-69	25.0	30.0
70	100.0	100.0

\* 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 fair value.

## Expenses

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

## Marital Status

85% of members and annuitants are assumed to be married. 65% of married households are assumed to be two wage-earner households. For members who are married at retirement, 85% are assumed to be survived by such spouse.

## 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. The Primary Insurance Amount of the female spouse is assumed to be 80% of the Primary Insurance Amount of the male spouse.

## 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 \$32,260. If a birth date was not available, the member was assumed to be age 40.



## **Projection Methodology Adopted June 30, 1994**

For the purpose of calculating the appropriation requirements, we project assets and liabilities through the end of fiscal 2045 using the assumptions and methods stated in the previous section. In addition, we assume new entrants come into the system at a rate which keeps the active membership constant. The age, gender, and pay characteristics of the new entrant pool is based on the characteristics of the members hired during the past fiscal year. The assumptions are monitored each year to ensure consistency with the prior years. Any significant variances are discussed with the System to ensure use of the new characteristic would be appropriate for future members.



## **Summary Of Retirement System Plan (As of June 30, 1999)**

### **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 ensure 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 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.



## **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 not covered by 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 not 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—9 1/2% of Salary.

Members covered by 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 were phased-in over a five-year period for these employees.

***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. All employees whose benefit is calculated under the alternative formula will have their benefit based on the greater of (i) the salary rate in effect on their last day of service, provided the last day salary does not exceed 115% of the average monthly compensation received by the member for the last 24 months of service, or (ii) the average monthly compensation for the last 48 months prior to retirement.

The general formula for members retiring on or after January 1, 1998 (regardless of termination date) is as follows:

- 1.67% of final average salary per year of credited service for members covered by Social Security.
- 2.20% of final average salary per year of credited service for members not covered by Social Security.

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

For Each Year of Credit	Department of Corrections**		Alternative Formula	
	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. The annuity for a Department of Corrections member not covered by Social Security may be calculated under the general 2.2% formula if it provides a larger benefit.

### *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*

Postretirement increases of 3% of the current pension (i.e., increases are compounded) are granted to members effective each January 1 occurring on or after the first anniversary of the pension.

### **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 (age 22 if full-time student); unmarried children under age 18 (age 22 if full-time student) 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 may 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. The monthly annuity to children terminates upon death, marriage or attainment of age 18 (age 22 if full-time student). However, the monthly annuity will continue 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 as a widow from Social Security (reduced by one-half of the amount of benefits she is entitled to based on her own Primary Insurance Amount). For benefits granted on or after January 1, 1992, the reduction may 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 or 22).

### ***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 (age 22 if full-time student) 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 (age 22 if full-time student) 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 (age 22 if full-time student), 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 (age 22 if full-time student).

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 one-half 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 non-occupational rate, 50% of pay, providing all eligibility requirements for the non-occupational 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.

