Actuarial Valuation of the
Connecticut State Teachers'
Retirement System

as of June 30, 2000

Gabriel, Roeder, Smith & Company

REPORT OF THE JUNE 30, 2000 ACTUARIAL VALUATION
OUTLINE OF CONTENTS

January 9, 2001

Board of Trustees
Connecticut State Teachers' Retirement System
21 Grand Street
Hartford, Connecticut 06106

Dear Members of the Board:

The results of the annual actuarial valuation of the Connecticut State Teachers' Retirement System as of June 30, 2000 are presented in this report. This valuation is based upon the Teachers' Retirement System benefit provisions, as described in Section C of this report.

The census and financial operations data necessary for an actuarial valuation were furnished by the Retirement System in the Summer of 2000. Preparation of this data requires considerable staff time. The helpful cooperation of the Administrator and his staff in furnishing the data is acknowledged with appreciation.

The actuarial assumptions used in the actuarial valuation are summarized in the Appendix of this report. These assumptions were adopted by the Board in January, 1996 based on a study of Retirement System experience for the period 1989-1994.

The valuation was completed using generally accepted actuarial principles and in accordance with standards of practice prescribed by the Actuarial Standards Board. To the best of our knowledge, this report is complete and accurate and the methods and assumptions produced results which are reasonable.

Respectfully submitted,

Brian F. Dunn, A.S.A.   Mark K. Johnson

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COMMENTS

The previous actuarial valuation of the Connecticut State Teachers Retirement System was prepared as of June 30, 1998. In comparing the results of that valuation with the current results, the most noteworthy change has been the reduction in the Unfunded Actuarial Accrued Liability (UAAL) from $3,249,030,560 to $2,191,628,116. Recognized asset gains in excess of $1.2 billion were the principal cause of this reduction. In addition, there were slight non-investment gains due in part to the retirement of very experienced higher paid members who were replaced by lower paid members beginning their careers. The significant decrease in the UAAL reduced the State's contribution rate from 9.49% to 7.64%. Included in the latter amount was an adjustment of 0.27% of payroll for compliance with he requirements of Governmental Accounting Standards Board (GASB) Statements No. 25 and No. 27. This was necessary to keep the net effective amortization period from exceeding the maximum GASB period of 40 years.

The continued good performance of the assets has increased the funded status of the plan from 70% to 81% since the last valuation.

Section A

Financial Principles

Promises Made and To Be Paid For. As each year is completed, the System in effect hands an "IOU" to each member then acquiring a year of service credit. The "IOU" says: "The Connecticut State Teachers' Retirement System (CSTRS) owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

The related *key financial questions* are:

Which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member's present year of service?

Or the future taxpayers, who happen to be in Connecticut at the time the IOU becomes a cash demand?

The financial objective of the CSTRS is that this year's taxpayers contribute the money to cover the IOUs being handed out this year so that *the employer contribution rate will remain approximately level from generation to generation* -- our children and our grandchildren will not have to contribute greater percents of pay than we contribute now.

(There are systems which have *a design for deferring contributions to future taxpayers*, lured by a lower contribution rate now and putting aside the fact that the contribution rate must then relentlessly grow much greater over decades of time -- consume now, and let your children face higher contribution rates after you retire.)

An inevitable byproduct of the level-cost design is the accumulation of reserve assets for decades and the income produced when the assets are invested. *Investment income* becomes the *3rd and largest contributor* for benefits to employees, and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

> Normal Cost (the cost of members' service being rendered this year)
>
> ... plus ...
>
> Interest on Unfunded Actuarial Accrued Liabilities (unfunded accrued liabilities are the difference between (i) liabilities for service already rendered and (ii) the accrued assets of the plan).

Computing Contributions to Support System Benefits. From a given schedule of benefits and from the employee data and asset data furnished, the actuary determines the contribution rates to support the benefits, by means of *an actuarial valuation*.

An actuarial valuation has a number of ingredients such as: the rate of investment income which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In an actuarial valuation, assumptions must be made as to what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the System can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the accuracy of the various financial assumptions or the skill of the actuary and the precision of the calculations made. The System copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continual adjustments in financial position.

The financing diagram on the next page shows the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program), and is thus an *increasing contribution method*; and the *level contribution method* which equalizes contributions between the generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

A.   *Census Data*, furnished by the plan administrator

>   Retired lives now receiving benefits
>
>   Former employees with vested benefits not yet payable
>
>   Active employees

B. + *Asset data* (cash and investments), furnished by the plan administrator

C. + **Benefit provisions** that establish eligibility and amounts of payments to members

D. + *Assumptions concerning future financial experiences in various risk areas*, which assumptions are established by the Board of Trustees after consulting with the actuary.

E. + *The funding method* for employer contributions (the long-term planned pattern for employer contributions)

F. + *Mathematically combining the assumptions, the funding method, and the data*

G. = Determination of:

>   *Plan financial position*, and/or
>
>   *New Employer Contribution Rate*

% OF
ACTIVE
EMPLOYEE
PAYS

PAY-AS-YOU-GO CONTRIBUTIONS

CASH BENEFITS

INVESTMENT
INCOME

LEVEL CONTRIBUTIONS

CONTRIBUTIONS:
EMPLOYER
AND EMPLOYEE
COMBINED

START

50 ±

YEARS OF TIME
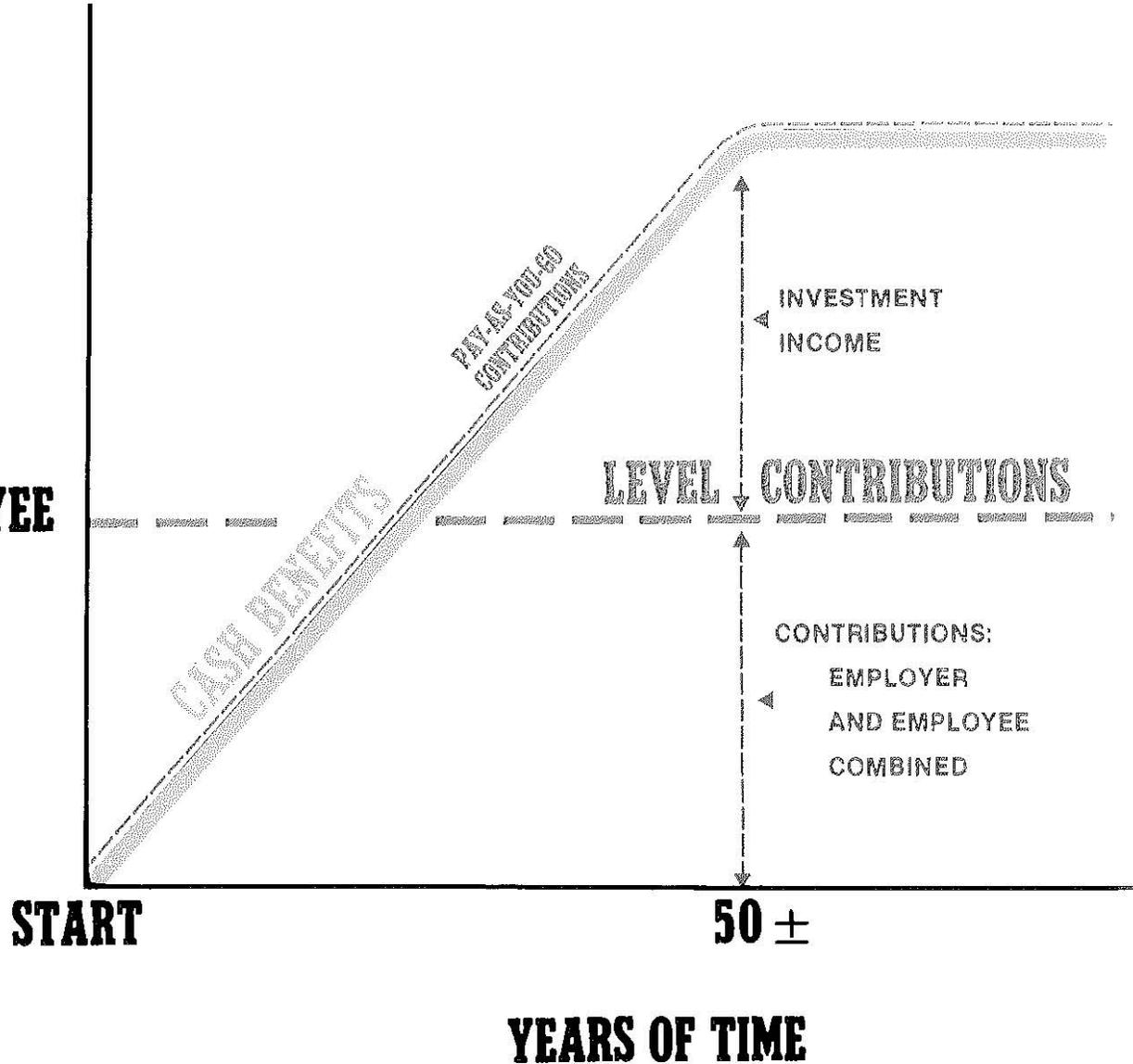
CASH BENEFITS LINE.   This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE.   Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas

Rates of investment return

Rates of pay increase

Changes in active member group size

Non-Economic Risk Areas

Ages at actual retirement

Rates of mortality

Rates of withdrawal of active members (turnover)

Rates of disability

Section B

Results of Valuation

STATE CONTRIBUTION RATE COMPUTED AS OF JUNE 30, 2000
FOR THE TWO-YEAR PERIOD BEGINNING JULY 1, 2001

Computed Contributions for	Percents of Active Member Payroll
Normal Cost	
Age and service annuities	7.95 %
Separation benefits	1.44 %
Disability annuities	0.26 %
Death-in-service annuities	0.15 %
Total	9.80 %
Member Contributions	6.00 %
State Normal Cost	3.80 %
Unfunded Actuarial Accrued Liabilities:	
Plan in effect 6/30/91 (32 years)	7.78 %
Public Act 82-91 (13 years)	0.12 %
Public Act 87-381 (18 years)	0.01 %
Public Act 92-205 (23 years)	(4.36)%
Public Act 98-251 (28 years)	0.02 %
GASB Adjustment	0.27 %
Total	3.84 %
State Contribution Rate	7.64 %

Based on a projected member payroll of $2,757,872,000 for the 2001-2002 Fiscal Year, the computed State contribution for that Fiscal Year is $210,701,421. Based on a projected member payroll of $2,895,765,600 for the 2002-2003 Fiscal Year, the computed State contribution for that Fiscal Year is $221,236,492.

The length of an amortization period is a matter of judgment, not a matter of solving an algebraic equation. No one amortization period is "correct" – there is a range of reasonable judgment. As specified in Chapter 167a, Section 10-183z of the Connecticut General Statutes, the Unfunded Actuarial Accrued Liability (UAAL) resulting from the plan provisions in effect as of June 30, 1991 is to be amortized over a 40-year period, while subsequent changes in the UAAL are to be amortized over 30 years. The 0.27% GASB adjustment was required so the net effective amortization period would not exceed 40 years. 40 years is the maximum amortization period for amortizing the UAAL under GASB 25.

COMPUTED ACTUARIAL LIABILITIES
AS OF JUNE 30, 2000

Actuarial Present Value of	(1) Total Present Value	Entry Age Actuarial Cost Method	
		(2) Portion Covered By Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	$7,965,708,729	$1,834,631,752	$6,131,076,977
Separation benefits (refunds of contributions, and deferred allowances) likely to be paid present active members	282,740,675	329,070,133	(46,329,458)
Disability benefits likely to be paid present active members	85,758,839	60,512,281	25,246,558
Death in service benefits likely to be paid on behalf of present active members	112,060,633	34,034,158	78,026,475
Contributions due to members not receiving a vested benefit	74,707,212	0	74,707,212
Benefits payable to present retirees and beneficiaries	5,343,601,053	0	5,343,601,053
Deferred benefits payable to members who terminated with vested rights	191,237,368	0	191,237,368
Future Cost of Living Adjustments to be paid from the Excess Earnings Account (EEA)	1,563,496,139	0	1,563,496,139
Total	$15,619,310,648	$2,258,248,324	$13,361,062,324
Applicable assets including EEA balance			11,169,434,208
Unfunded actuarial accrued liability			$2,191,628,116

Various Acts have provided benefit changes for groups of plan members. These liabilities are included in the unfunded actuarial accrued liabilities shown on the previous page, and the resulting added contribution is included in the employer contribution rate shown in this report. At June 30, 2000, the remaining unfunded actuarial accrued liability was $2,191,628,116.

Closed Group Population Projection

Expected Terminations from Active Employment for Current Active Members

0%

78%

4%

%

▨ Retirements ▨ Non-Vested Separations ☐ Deaths and Disabilities ☐ Vested Separations
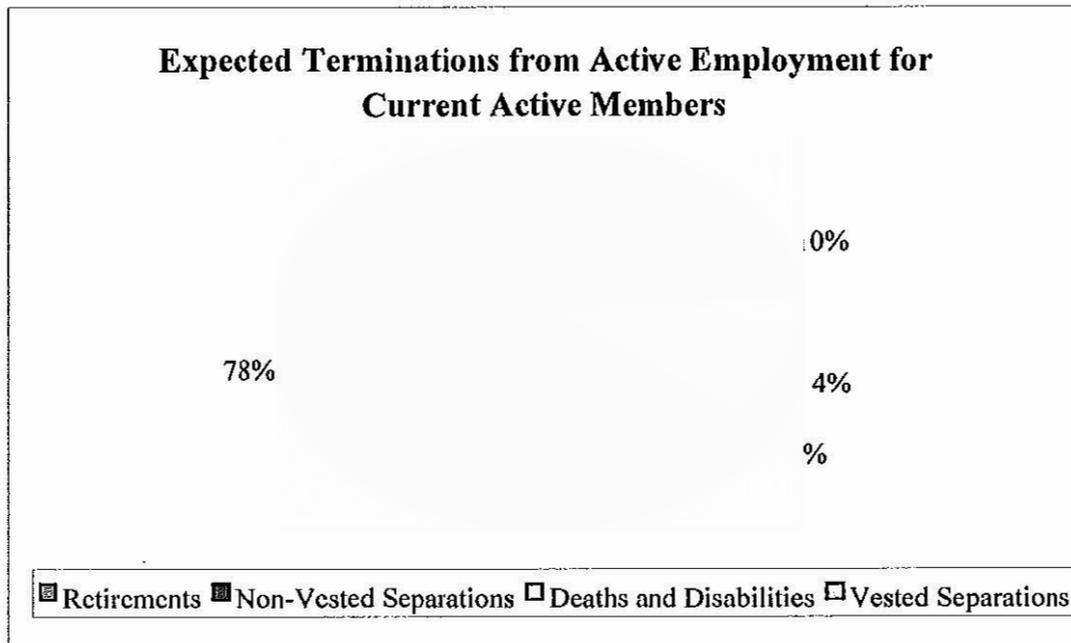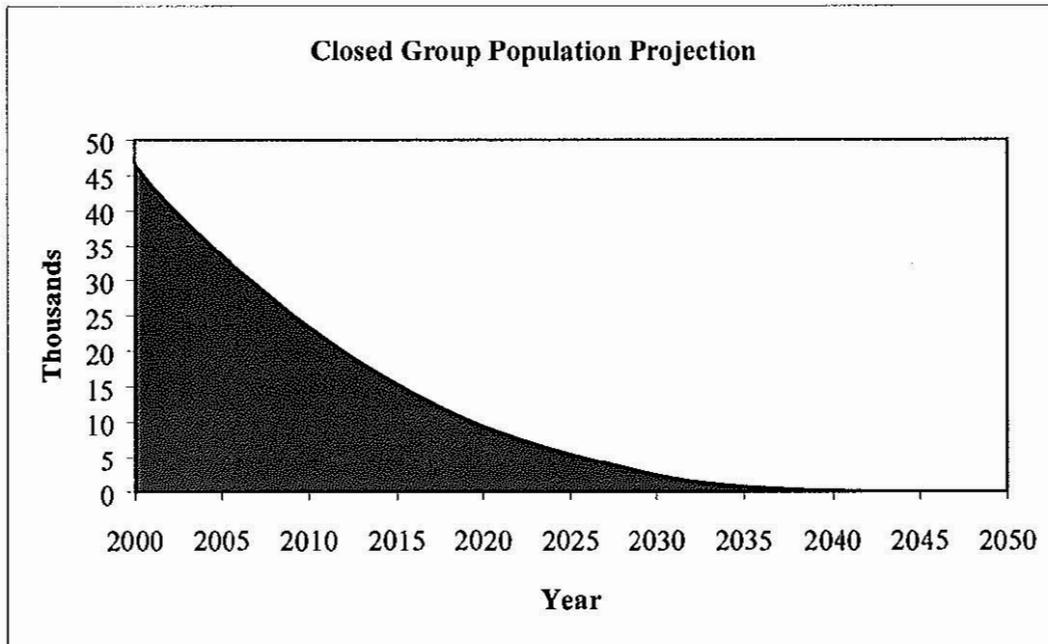
The charts show the expected future development of the present population in simplified terms. The retirement system presently covers 46,553 active members. Eventually, 10% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Nearly 86% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 4% of the present population is expected to become eligible for death-in-service or disability benefits. Within 11 years, over half of the covered membership is expected to consist of new hires.

The CSTRS funding objective is to meet long term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will *pay all promised benefits when due -- the ultimate test of financial soundness*. Testing for level contribution rates is *the* long term test.

A short condition test is one means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with: 1) Member contributions on deposit; 2) The liabilities for future benefits to present retired lives; 3) The liabilities for service already rendered by members. In a system that has been following the discipline of level percent of payroll financing, the liabilities for member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the system. Liability 3 being fully funded had been unusual prior to the period of sustained run-up in market values. Now it has become more common.

	Entry Age Accrued Liability				Portion of Present Values Covered by Present Assets			
Val. Date June 30	(1) Member Contr.	(2) Retirees and Benef.	(3) Active and Inactive Members (Employer Financed Portion)	Present Valuation Assets@	(1)	(2)	(3)	Total
			($ in Millions)					
1992#	$1,561	$3,463	$2,254	$4,848	100%	95%	0%	67%
1993								
1994	1,900	3,825	2,498	5,602	100%	97%	0%	68%
1995								
1996*	2,277	4,099	3,251	6,648	100%	100%	8%	69%
1997								
1998#	2,882	4,680	3,408	7,721	100%	100%	5%	70%
1999								
2000	3,381	5,344	3,073	9,606	100%	100%	29%	81%

\#   *After change in benefit provisions.*
@   *Valuation assets do not include the Excess Earnings Account balance.*
*   *After changes in actuarial assumptions and methods.*
Note: No actuarial valuations were performed as of June 30, 1993, June 30, 1995, June 30, 1997 and June 30,1999.

Section C

Summary of Benefits

Outlined below are the principal provisions of the System which were reflected in the results shown in this report.

1. **Covered Employees**

   Any teacher, principal, superintendent or supervisor engaged in service of public schools, plus professional employees at State schools of higher education if they choose to be covered.

2. **Salary**

   Amount paid to a teacher as specified in a contract of employment excluding amounts paid for extra duty assignments, coaching, unused sick time, unused vacation or terminal pay.

3. **Average Annual Salary**

   Average of annual salary received during three years of highest salary.

4. **Credited Service**

   One month for each month of service as a teacher in Connecticut public schools, maximum 10 months for each school year. Ten months of credited service constitutes one year of Credited Service. Certain other types of teaching service, State employment,. or war-time military service may be purchased at retirement, if the Member pays one-half of the cost.

5. Normal Retirement

Eligibility: Age 60 and 20 years of Credited Service in Connecticut or 35 years of Credited Service including at least 25 years of service in Connecticut.

Benefit: 2% times years of Credited Service times Average Annual Salary (maximum percent is 75%)

plus

any additional amounts derived from the accumulation of 6th percent contributions made prior to July 1, 1989 and voluntary contributions by the teacher.

Minimum Benefit: Effective January 1, 1999, Public Act 98-251 provides a minimum monthly retirement benefit of $1,200 to teachers who retire under the Normal Retirement provisions and who complete at least 25 years of full time Connecticut service at retirement.

6. Early Retirement

Eligibility: At any age after the completion of 25 years of Credited Service including 20 years of Connecticut service or at or after age 55 and the completion of 20 years of Credited Service including 15 years of Connecticut service, with the last 5 years in Connecticut.

Benefit: Reduced normal retirement benefit. The early retirement factors currently in effect are 6% per year for the first five years by which early retirement precedes the minimum normal retirement age and 4% per year for the next five years by which early retirement precedes the minimum normal retirement age. The Teachers' Retirement Board has adopted new early retirement factors that will apply effective July 1, 1999 to any member who retires on or after that date with at least 30 years of service. The new factors are 3% per year by which early retirement precedes the minimum normal retirement age.

7. Proratable Retirement

Eligibility: Age 60 and 10 years of Credited Service with the last 5 years in Connecticut.

Benefit: 2% less .1% for each year less than 20 years times years of Credited Service in Connecticut plus 1% times years of additional Credited Service times Average Annual Salary.

8. Disability Retirement

Eligibility: Disability after 5 years of Credited Service in Connecticut if not incurred in the performance of duty and without regard to service if incurred in the performance of duty.

Benefit: 2% times Credited Service to date of disability times Average Annual Salary, but not less than 15% times Average Annual Salary, nor more than 50% of Average Annual Salary. In addition, in no case will a disability benefit under this plan (without regard to any cost of living adjustments) plus any initial award of Social Security benefits and workers' compensation exceed the Average Annual Salary.

9. Termination of Employment

With less than 5 years of Credited Service: Return of 6% contributions with interest.

With 5 or more years of Credited Service: Return of 6% contributions with interest and 1% contributions made prior to July 1, 1989 without interest.

With 10 or more years of Credited Service: 100% vested. Member may elect return of all contributions plus interest on 6% contributions in lieu of vested benefit.

10. Pre-Retirement Death Benefits

A lump sum plus one of the following: survivor's benefit, return of all contributions with interest, surviving spouse's benefit, or automatic surviving spouse's benefit.

- Lump Sum: $1,000 for the first 5 years of Connecticut service plus $200 per year thereafter. Maximum benefit: $2,000.

- Survivor's Benefit: For active teachers who die while in service the family maximum benefit payable to survivors has been increased from $600 to $1,500 per month. Each minor child is entitled to $300 per month. The surviving spouse's benefit will be $300 per month if the member has 12 or less years of service. For each additional year of service, the surviving spouse's monthly benefit is increased $25, up to a maximum of $600.

- Accumulated contributions with interest plus dependent children's benefits as described in the "Survivor's Benefit" paragraph.

- Surviving Spouse's Benefit: the 50% co-participant option plus dependent children's benefits as described in the "Survivor Benefit" paragraph.

- Automatic Surviving Spouse's Benefit: An active member who is eligible for immediate retirement and who has named his or her spouse as primary beneficiary will be automatically covered by a 100% Plan D co-participant option in the event of his or her death prior to retirement.

11. Form of Annuity

Normal: Partial Refund Option - 75% of total benefit is paid as a life annuity. If 25% of the benefits paid prior to death do not exceed the Member's 6% contributions plus interest frozen at the date of benefit commencement, the difference is paid to the Member's beneficiary.

Optional Forms: 5-, 10-, 20-, or 25-year certain and life. 33-1/3%, 50%, 66-2/3%, 75%, or 100% co-participant annuity (if co-participant dies first, benefit reverts to unreduced amount).

12. Cost-of-Living Allowance

For teachers who retired prior to September 1, 1992, pension benefit adjustments are made in accordance with increases in the Consumer Price Index, with a minimum of 3% and a maximum of 5% per annum. Benefit adjustments for teachers who retire on or after September 1, 1992, will be provided through the Excess Earnings Account. The amount of such adjustments will depend upon the adequacy of the Excess Earnings Account as well as the investment returns of the Teachers' Retirement Fund.

13. Teachers' Required Contribution

Effective July 1, 1992, each teacher is required to contribute 6% of annual salary for the pension benefit. An additional 1% of annual salary is contributed for health insurance of retired teachers, except for the first $500,000 of such total.

14. State Contribution

The State's contribution requirement to fund the balance of the liability for benefits with annual contributions (currently paid in installments at the beginning of each quarter) is determined in accordance with Section 10-183z (which reflects Public Act 79-436 as amended).

SAMPLE BENEFIT COMPUTATIONS FOR A MEMBER
RETIRING JUNE 30, 2000

The data for the sample member is shown below.

A.	$40,000	Average Annual Salary
B.	32	Total Credited Service (all in Connecticut for the purpose of this example)
C.	60	Age of Retiree
D.	55	Age of Spouse
E.	100%	Percentage of Retirement Allowance to Continue to Spouse after Retiree's Death (Retiree Chooses this Percentage)

The computations that would be made for this case are:

		Annual Amount
F.	Formula Benefit: 2% x A x B	$25,600
G.	Adjustment for Line E election (1 - .828) x $25,600	4,403
H.	Net Annual Benefit Payable	$21,197

Subject to the availability of funds in the Excess Earnings Account, this benefit could be increased by a cost of living adjustment (COLA). The amount of the COLA in a given year depends on the Teachers' Retirement Fund investment returns and the rate of increases in Social Security benefits.

Section D

Financial Information

An essential step in measuring a retirement system's financial position is comparing valuation assets with computed actuarial accrued liabilities. Valuation assets are the current plan assets recognized for valuation purposes. They may be based on:

- Original cost
- Amortized cost (= book)
- Market
- Smoothing techniques

In the very long term, consistent use of any of the methods will produce the same result. However, in the short term, variations in results are often significant. *The timing of recognition of investment return is what distinguishes one asset valuation method from another.*

The key to pinning down "investment return" is the treatment given to capital value changes during the valuation period. By any definition, investment return dollars will include ordinary investment income. But when should capital value changes be recognized?

A rate of investment return is determined by dividing investment return dollars by "dollars invested". "Dollars invested" means the system's assets, including the cumulative amount of "investment return dollars" recorded in the past (ordinary income plus capital value changes).

Cost Basis. Investment return is the total of: ordinary income; plus capital gains (and losses) realized on the sales, if any, of investments during the period.

Investment return can be greatly affected by whether there is a lot of sales activity or little sales activity. The type of sales activity is also significant; for example, is there a pattern of selling only when a gain can be realized, and not selling if a loss would be realized? The overall capital value changes recorded can differ substantially from overall market value changes.

This potential for distortion of recorded investment results, for reasons outside of investment market activity, is a weakness of the cost basis. A related criticism of cost basis is that an investment has to be sold in order to have market value change recorded.

Market Basis. Since the cost value of a security is simply its market value at the time of purchase, why not keep up to date by using current market value? Market price on any date is usually established by less than 5% (and often less than 1%) of the security being traded. Many of the traders are influenced by such non-investment considerations as tax minimization (recording a gain or loss), accounting statements (making a financial statement look more impressive), and meeting prescribed standards for portfolio composition (legal and/or self-imposed standards). Irrational human behavior is also present in the market place, in varying amounts from day to day, but always defying on-the-spot measurement. An issuer of a security can be operating in a stable manner (sales, earnings, dividends) and yet have its stock price go up 10+% in one year and down 10+% the year after. Short-term factors are operating rather than a change in long-term value. Over a period of years the ups and downs offset each other to some extent, but important judgments are made year by year (and sometimes more frequently).

Market price on one day is not a reliable measure of long-term value. Further, use of pure market in actuarial valuations will introduce volatility that is generally inconsistent with funding objectives.

Better Basis. The long-term value of assets is not knowable today. Recognition of this truth leads to the search for a good approximation, because a value is needed for measuring funding progress and/or determining a new contribution rate.

There are many different asset valuation methods in use and they vary widely in difficulty. A method requiring laborious work (such as a method requiring separate valuation of each security in a portfolio) is usually not justified because the quality of the result is not correlated with the hours spent.

The method used in CSTRS is shown on the following page. It is designed to filter out the effect of timing of security sales on the asset value recognized. It does this by phasing in differences between actual investment income (market value basis) and expected investment income (funding value basis) over a 4 year period.

DEVELOPMENT OF FUNDING VALUE OF ASSETS
(4 YEAR SMOOTHING)

Valuation Date June 30	2000	2001	2002	2003
A. Funding Value Beginning of Year	$9,959,514,254			
B. Market Value End of Year	11,949,456,155			
C. Market Value Beginning of Year	10,807,413,401			
D. Non-Investment Net Cash Flow	(258,233,080)			
E. Investment Return				
E1. Market Total: B-C-D	1,400,275,834			
E2. Assumed Rate	8.50%			
E3. Amount for Immediate Recognition	835,583,806			
E4. Amount for Phased In Recognition: E1-E3	564,692,028			
F. Phased-In Recognition of Investment Return				
F1. Current Year: 0.25 x E4	141,173,007	$ 0	$ 0	$ 0
F2. First Prior Year	72,652,972	141,173,007	0	0
F3. Second Prior Year	211,196,987	72,652,972	141,173,007	0
F4. Third Prior Year	207,546,262	211,196,983	72,652,971	141,173,007
F5. Total Recognized Investment Gain	632,569,228	425,022,962	213,825,978	141,173,007
G. Funding Value End of Year: A+D+E3+F5	11,169,434,208			
H. Difference Between Market & Funding Values	780,021,947	354,998,985	141,173,007	0
I. Recognized Rate of Return	14.93%			

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (Line E4) are phased in over a closed 4 year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 3 consecutive years, funding value will become equal to market value.

FUNDING VALUE OF ASSETS - COMPARATIVE STATEMENT

Valuation Date June 30	1997	1998	1999	2000
A. Funding Value Beginning of Year	$7,055,096,095	$7,786,989,338	$8,841,960,336	$9,959,514,254
B. Market Value End of Year	8,682,033,133	9,992,279,241	10,807,413,401	11,949,456,155
C. Market Value Beginning of Year	7,440,954,724	8,682,033,133	9,992,279,241	10,807,413,401
D. Non-Investment Net Cash Flow	(181,093,343)	(188,427,752)	(217,788,351)	(258,233,080)
E. Investment Return				
E1. Market Total: B-C-D	1,422,171,752	1,498,673,860	1,032,922,511	1,400,275,834
E2. Assumed Rate	8.50%	8.50%	8.50%	8.50%
E3. Amount for Immediate Recognition	591,986,701	653,885,914	742,310,624	835,583,806
E4. Amount for Phased In Recognition: E1-E3	830,185,051	844,787,946	290,611,887	564,692,028
F. Phased-In Recognition of Investment Return				
F1. Current Year: 0.25 x E4	207,546,263	211,196,987	72,652,972	141,173,007
F2. First Prior Year	101,635,423	207,546,263	211,196,987	72,652,972
F3. Second Prior Year	69,134,163	101,635,423	207,546,263	211,196,987
F4. Third Prior Year	(57,315,964)	69,134,163	101,635,423	207,546,262
F5. Total Recognized Investment Gain	320,999,885	589,512,836	593,031,645	632,569,228
G. Funding Value End of Year: A+D+E3+F5	7,786,989,338	8,841,960,336	9,959,514,254	11,169,434,208
H. Difference Between Market & Funding Values	895,043,795	1,150,318,905	847,899,147	780,021,947
I. Recognized Rate of Return	13.11%	16.16%	15.29%	14.93%

The market value of the assets of the Retirement System, as of June 30, 2000, was $11,949,456,155.

Assets	June 30, 2000
Market value of plan assets	$11,949,456,155
Market value adjustment	(780,021,947)
Funding value of assets prior to adjustment for Excess Earnings Account	$11,169,434,208
Excess Earnings Account balance	(1,563,496,139)
Net funding value of plan assets	$9,605,938,069

In financing the Retirement System actuarial accrued liabilities, the applicable assets of $11,169,434,208 were applied as follows:

	Assets Applied to		
Account	Retiree and Beneficiary Liabilities	Active and Inactive Member Liabilities	Totals
Computed Accrued Liabilities	$5,343,601,053	$6,453,965,132	$11,797,566,185
Valuation Assets	$5,343,601,053	4,262,337,016	9,605,938,069
Unfunded Accrued Liabilities	$ 0	$2,191,628,116	$2,191,628,116

Assets during the year developed as follows:

MARKET VALUE RECONCILIATION OF ASSETS

	Reconciliation as of June 30, 2000
Net Market Value July 1, 1999	$10,807,413,401
Additions	
Employer Contributions	204,445,443
Employee Contributions	168,207,183
Change in Net Appreciation	522,291,725
Interest and Dividends	412,207,726
Gain on Sale of Securities	461,947,176
Total Additions	$1,769,099,253
Deductions	
Benefits	610,526,727
Refunds of Contributions	20,358,978
Total Deductions	$ 630,885,706
Net Increase	1,138,213,547
Net Market Value June 30,2000	$11,945,626,948

EXCESS EARNINGS ACCOUNT BALANCE AS OF JUNE 30, 2000

Pursuant to PA 92-205, a special reserve account, known as the "Excess Earnings Account", was established within the assets for the Teachers' Retirement System effective January 1, 1992. Beginning in 1992, the Account is charged with the actuarial present value of cost-of-living adjustments to the pensions of any member whose date of retirement is on or after September 1, 1992.

The Account is credited with investment earnings in any year that the rate of investment return exceeds 11.5%.

Following is a development of the Excess Earnings Account from June 30, 1996 to June 30, 2000:

		Eligible Pensioners	Rate of Return
1. **Excess Earnings Account Balance, June 30, 1996**	$ **401,745,639**		
Actuarial Liability for July 1, 1996 COLA = 2.6%	(19,613,424)	2,596	
Excess Investment Earnings for FY 1996	184,168,334		14.26%
Actuarial Liability for January 1, 1997 COLA = 2.9%	(2,325,032)	406	
2. **Excess Earnings Account Balance, June 30, 1997**	**563,975,517**		
Actuarial Liability for July 1, 1997 COLA = 2.9%	(30,613,126)	3,521	
Excess Investment Earnings for FY 1997	585,983,621		19.58%
Actuarial Liability for January 1, 1998 COLA = 2.1%	(2,291,394)	521	
3. **Excess Earnings Account Balance, June 30, 1998**	**1,117,054,618**		
Actuarial Liability for July 1, 1998 COLA = 2.1%	(29,374,297)	4,482	
Excess Investment Earnings for FY 1998	503,723,027		17.34%
Actuarial Liability for January 1, 1999 COLA = 1.3%	(1,774,445)	574	
4. **Excess Earnings Account Balance, June 30, 1999**	**1,589,628,903**		
Actuarial Liability for July 1, 1999 COLA = 1.3%	(22,072,808)	5,370	
Excess Investment Earnings for FY 1999	0		10.55%
Actuarial Liability for January 1, 2000 COLA = 2.4%	(4,059,956)	701	
5. **Excess Earnings Account Balance, June 30, 2000**	**1,563,496,139**		

Basic Series

Year-by-Year Total Returns (1926-1999)

For a type of investment,
Red means a REAL Return less than 3%
[(Total - Inflation)<3%]

For Inflation,
RED means a purchasing power loss

Year	Large Company Stocks	Small Company Stocks	Long-Term Corporate Bonds	Long-Term Government Bonds	Intermediate Term Government Bonds	U.S. Treasury Bills	Inflation
1926	11.62	0.28	7.37	7.77	5.38	3.27	-1.49
1927	37.49	22.10	7.44	8.93	4.52	3.12	-2.08
1928	43.61	39.69	2.84	0.10	0.92	3.56	-0.97
1929	-8.42	-51.36	3.27	1.17	6.01	4.75	0.20
1930	-24.90	-38.15	7.98	4.66	6.72	2.41	-6.03
1931	-43.34	-49.75	-1.85	-5.31	-2.32	1.07	-9.52
1932	-8.19	-5.39	10.32	16.84	8.81	0.96	-10.30
1933	53.99	142.87	10.38	-0.07	1.83	0.30	0.51
1934	-1.44	24.22	13.84	10.03	9.00	0.16	2.03
1935	47.67	40.19	9.61	4.98	7.01	0.17	2.99
1936	33.92	64.80	6.74	7.52	3.06	0.18	1.21
1937	-35.03	-58.01	2.75	0.23	1.56	0.31	3.10
1938	31.12	32.80	6.13	5.53	6.23	-0.02	-2.78
1939	-0.41	0.35	3.97	5.94	4.52	0.02	-0.48
1940	-9.78	-5.16	3.39	6.09	2.96	0.00	0.96
1941	-11.59	-9.00	2.73	0.93	0.50	0.06	9.72
1942	20.34	44.51	2.60	3.22	1.94	0.27	9.29
1943	25.90	88.37	2.83	2.08	2.81	0.35	3.16
1944	19.75	53.72	4.73	2.81	1.80	0.33	2.11
1945	36.44	73.61	4.08	10.73	2.22	0.33	2.25
1946	-8.07	-11.63	1.72	-0.10	1.00	0.35	18.16
1947	5.71	0.92	-2.34	-2.62	0.91	0.50	9.01
1948	5.50	-2.11	4.14	3.40	1.85	0.81	2.71
1949	18.79	19.75	3.31	6.45	2.32	1.10	-1.80
1950	31.71	38.75	2.12	0.06	0.70	1.20	5.79
1951	24.02	7.80	-2.69	-3.93	0.36	1.49	5.87
1952	18.37	3.03	3.52	1.16	1.63	1.66	0.88
1953	-0.99	-6.49	3.41	3.64	3.23	1.82	0.62
1954	52.62	60.58	5.39	7.19	2.68	0.86	-0.50
1955	31.56	20.44	0.48	-1.29	-0.65	1.57	0.37
1956	6.56	4.28	-6.81	-5.59	-0.42	2.46	2.86
1957	-10.78	-14.57	8.71	7.46	7.84	3.14	3.02
1958	43.36	64.89	-2.22	-6.09	-1.29	1.54	1.76
1959	11.98	16.40	-0.97	-2.26	-0.39	2.95	1.50
1960	0.47	-3.29	9.07	13.76	11.76	2.66	1.48
1961	26.89	32.09	4.82	0.97	1.85	2.13	0.67
1962	-8.73	-11.90	7.95	6.89	5.56	2.73	1.22
1963	22.80	23.57	2.19	1.21	1.64	3.12	1.65
1964	16.48	23.52	4.77	3.51	4.04	3.54	1.19
1965	12.45	41.75	-0.46	0.71	1.02	3.93	1.92
1966	-10.06	-7.01	0.20	3.65	4.69	4.76	3.35
1967	23.98	83.57	-4.95	-9.18	1.01	4.21	3.04
1968	11.06	35.97	2.57	-0.26	4.54	5.21	4.72
1969	-8.50	-25.05	-8.09	-5.07	-0.74	6.58	6.11
1970	4.01	-17.43	18.37	12.11	16.86	6.52	5.49
1971	14.31	16.50	11.01	13.23	8.72	4.39	3.36
1972	18.98	4.43	7.26	5.69	5.16	3.84	3.41
1973	-14.66	-30.90	1.14	-1.11	4.61	6.93	8.80
1974	-26.47	-19.95	-3.06	4.35	5.69	8.00	12.20
1975	37.20	52.82	14.64	9.20	7.83	5.80	7.01
1976	23.84	57.38	18.65	16.75	12.67	5.08	4.81
1977	-7.18	25.38	1.71	-0.69	1.41	5.12	6.77
1978	6.56	23.46	-0.07	-1.18	3.49	7.18	9.03
1979	18.44	43.46	-4.18	-1.23	4.09	10.38	13.31
1980	32.42	39.88	-2.62	-3.95	3.91	11.24	12.40
1981	-4.91	13.88	-0.96	1.86	9.45	14.71	8.94
1982	21.41	28.01	43.79	40.36	29.10	10.54	3.87
1983	22.51	39.67	4.70	0.65	7.41	8.80	3.80
1984	6.27	-6.67	16.39	15.48	14.02	9.85	3.95
1985	32.16	24.66	30.09	30.97	20.33	7.72	3.77
1986	18.47	6.85	19.85	24.53	15.14	6.16	1.13
1987	5.23	-9.30	-0.27	-2.71	2.90	5.47	4.41
1988	16.81	22.87	10.70	9.67	6.10	6.35	4.42
1989	31.49	10.18	16.23	18.11	13.29	8.37	4.65
1990	-3.17	-21.56	6.78	6.18	9.73	7.81	6.11
1991	30.55	44.63	19.89	19.30	15.46	5.60	3.06
1992	7.67	23.35	9.39	8.05	7.19	3.51	2.90
1993	9.99	20.98	13.19	18.24	11.24	2.90	2.75
1994	1.31	3.11	-5.76	-7.77	-5.14	3.90	2.67
1995	37.43	34.46	27.20	31.67	16.80	5.60	2.54
1996	23.07	17.62	1.40	-0.93	2.10	5.21	3.32
1997	33.38	22.78	12.95	15.85	8.38	5.26	1.70
1998	28.58	-7.31	10.76	13.06	10.21	4.86	1.61
1999	21.04	29.79	-7.45	-8.96	-1.77	4.68	2.68

HISTORICAL PATTERNS OF INVESTMENT RETURN, PAY INCREASES & INFLATION

Calendar Year Period	Gross Market Returns		Cash Equiv. (T Bills)	Stocks (S&P 500)	Price Inflation (CPI)	National Average Earnings (NAE)	Sample Balanced Fund*	
	Bonds (Long)							
	U.S. Treasury	Corp. (S&P AA)					Total (I)	Spread: I - NAE - e
1960-69	1.4%	1.7%	3.9%	7.8%	2.5%	4.3%	5.2%	0.4%
1970-79	5.5	6.2	6.3	5.9	7.4	6.9	6.3	(1.1)
1980-89	12.6	13.0	8.9	17.5	5.1	5.8	15.1	8.8
1990-99	8.8	8.4	4.9	18.2	2.9	4.0	13.2	8.7
Last 40 Years	7.0%	7.2%	6.0%	12.2%	4.5%	5.2%	9.9%	4.2%

* Sample Balanced Fund	
Equities	50%
Bonds - Government	20
- Corporate	20
Cash Equivalents	10
	100%
Fund Expenses (e)	0.5%

Section E

Covered Member Data

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	630							630	$ 20,174,128
25-29	3,857	480						4,337	153,880,062
30-34	2,675	1,880	251	2				4,808	191,422,323
35-39	1,236	980	1,283	273	2			3,774	177,061,281
40-44	1,285	838	1,090	1,213	424	1		4,851	247,310,941
45-49	1,346	1,169	1,313	1,049	2,202	1,058	1	8,138	455,041,187
50-54	886	893	1,452	1,228	1,311	3,318	1,868	10,956	669,344,554
55-59	308	287	655	844	881	1,023	2,733	6,731	432,833,916
60	27	25	44	83	117	91	216	603	38,854,154
61	15	13	46	58	68	72	160	432	29,315,230
62	19	14	35	45	60	60	122	355	23,361,433
63	7	18	17	34	36	50	86	248	16,993,179
64	2	11	18	26	34	32	66	189	12,537,753
65	3	2	18	10	34	29	53	149	9,916,782
66	2	3	10	13	15	21	44	108	7,055,799
67	3	4	6	5	11	14	28	71	5,258,988
68	1	2	4	9	8	14	13	51	3,271,319
69	1	3	4	5	1	3	6	23	1,465,083
70 & Over	3	2	7	7	12	19	49	99	6,372,906
Totals	12,306	6,624	6,253	4,904	5,216	5,805	5,445	46,553	$2,501,471,018

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:	45.4	years
Service:	14.7	years
Annual Pay:	$53,734	

MALE, FEMALE, AND TOTAL MEMBERS IN VALUATION JUNE 30, 2000
BY YEARS OF SERVICE

Service Years	Active Member Count			Active Member Pays	
	Males	Females	Total	Total	Average
0	390	1,086	1,476	$ 55,355,901	$37,504
1	839	2,850	3,689	133,248,532	36,121
2	696	2,030	2,726	101,393,498	37,195
3	579	1,773	2,352	90,772,165	38,594
4	509	1,554	2,063	82,942,763	40,205
5	400	1,419	1,819	76,440,805	42,024
6	341	1,163	1,504	66,593,352	44,277
7	271	1,026	1,297	61,050,992	47,071
8	206	924	1,130	54,546,266	48,271
9	130	744	874	44,756,811	51,209
10	191	858	1,049	56,529,727	53,889
11	201	909	1,110	60,858,272	54,827
12	216	1,111	1,327	75,330,569	56,768
13	252	1,180	1,432	83,035,101	57,985
14	216	1,119	1,335	78,504,384	58,805
15 & Up	6,895	14,475	21,370	1,380,111,880	64,582
Totals	12,332	34,221	46,553	$2,501,471,018	$53,734

FORMER ACTIVE MEMBERS AND BENEFICIARIES
IN PAY STATUS BY PLAN CODE

Number in Each Plan Code

Plan	Retirees	Beneficiaries*	Disabled	Total
A (Life Annuity)	643	0	11	654
B (100% Cash Refund)	926	0	9	935
C (Period Certain and Life)	1,406	280	8	1,694
D (Joint and Survivor)	2,677	534	1	3,212
N (25% Cash Refund)	13,357	24	13	13,394
S (Survivor)	0	495	0	495
W (Disability)	0	3	337	340
Total	**19,009**	**1,336**	**379**	**20,724**

Monthly Benefits Paid in Each Plan Code

Plan	Retirees	Beneficiaries*	Disabled	Total
A (Life Annuity)	$ 962,536	$ 0	$ 8,969	$ 971,505
B (100% Cash Refund)	1,527,108	0	7,435	1,534,543
C (Period Certain and Life)	2,881,321	545,510	7,390	3,434,221
D (Joint and Survivor)	8,049,714	898,096	3,041	8,950,851
N (25% Cash Refund)	34,330,675	25,548	15,436	34,371,659
S (Survivor)	0	184,776	0	184,776
W (Disability)	0	2,601	663,399	666,000
Total	**$47,751,354**	**$1,656,531**	**$705,670**	**$50,113,555**

* *Beneficiaries category includes 495 Surviving Spouses and Dependents combined.*

RETIREES, BENEFICIARIES, SURVIVING SPOUSES AND DEPENDENTS BY FISCAL YEAR BENEFITS COMMENCED

Year Ending	Number	Annuity	Pension	Voluntary	Total	Average
1947	1	$ 0	$ 592	$ 0	$ 592	$592
1952	1	9	389	0	398	398
1953	1	9	656	0	665	665
1954	2	60	1,779	0	1,839	920
1956	1	30	1,206	0	1,236	1,236
1957	3	90	3,695	0	3,785	1,262
1958	3	68	2,226	0	2,294	765
1959	3	26	1,026	600	1,652	551
1960	7	142	5,250	1,075	6,467	924
1961	15	402	14,059	1,690	16,151	1,077
1962	22	715	24,413	1,752	26,880	1,222
1963	18	602	19,902	811	21,315	1,184
1964	16	704	20,112	22	20,838	1,302
1965	18	863	25,588	852	27,303	1,517
1966	43	1,709	47,099	2,940	51,748	1,203
1967	37	1,928	46,637	2,147	50,712	1,371
1968	59	2,826	66,601	5,129	74,556	1,264
1969	80	4,369	93,949	4,868	103,186	1,290
1970	91	5,142	109,776	4,089	119,007	1,308
1971	116	7,870	154,008	4,022	165,900	1,430
1972	152	11,255	200,597	5,350	217,202	1,429
1973	236	18,692	332,665	5,174	356,531	1,511
1974	212	16,948	306,031	6,667	329,646	1,555
1975	245	21,303	359,948	3,635	384,886	1,571
1976	236	22,589	356,647	4,845	384,081	1,627
1977	307	32,789	440,918	8,187	481,894	1,570
1978	342	38,360	489,905	9,685	537,950	1,573
1979	360	43,827	491,524	11,538	546,889	1,519
1980	408	54,227	570,518	12,193	636,938	1,561
1981	401	60,837	554,690	8,750	624,277	1,557
1982	498	106,321	665,874	12,205	784,400	1,575
1983	547	126,879	754,775	15,080	896,734	1,639
1984	526	135,216	762,025	15,266	912,507	1,735
1985	612	172,368	919,708	20,164	1,112,240	1,817
1986	668	214,108	1,047,376	33,381	1,294,865	1,938
1987	674	235,983	1,108,605	36,708	1,381,296	2,049
1988	629	234,632	1,034,599	38,513	1,307,744	2,079
1989	636	228,903	1,184,850	39,844	1,453,597	2,286
1990	904	0	2,222,817	67,061	2,289,878	2,533
1991	974	0	2,486,486	57,387	2,543,873	2,612
1992	1,004	130	2,786,133	63,051	2,849,314	2,838
1993	1,920	4	5,825,826	128,931	5,954,761	3,101
1994	657	80	1,619,616	36,557	1,656,253	2,521
1995	1,101	0	3,154,041	72,084	3,226,125	2,930
1996	1,065	0	2,997,201	62,395	3,059,596	2,873
1997	1,060	0	2,980,773	61,438	3,042,211	2,870
1998	1,145	0	3,215,421	61,687	3,277,108	2,862
1999	1,058	0	2,921,596	56,017	2,977,613	2,814
2000	1,610	0	4,836,947	59,675	4,896,622	3,041
TOTAL	20,724	1,803,015	47,267,075	1,043,465	50,113,555	2,418

Section F

Information for Compliance with
Governmental Accounting Standards Board
Statements No. 25 and No. 27

INFORMATION FOR COMPLIANCE
WITH GASB STATEMENTS NO. 25 AND NO. 27

The information in this section of the report is provided to assist the Connecticut Teachers' Retirement System (CTRS) with the requirements of Governmental Accounting Standards Board Statements No. 25 (GAS 25) and No. 27 (GAS 27). The statements provided are:

1. Schedule of Funding Progress (GAS 25) – This provides a six-year history of the following:

    - The actuarial value of plan assets,
    - The actuarial accrued liability,
    - The relationship between the assets and the liability, and
    - The relationship between the unfunded actuarial accrued liability and member payroll.

2. Schedule of Employer Contributions – This provides a history of the State's Annual Required Contribution (ARC) and a comparison of the ARC with the actual contributions made each year by the State. (GAS 25)

3. Development of Annual Pension Cost and Net Pension Obligation – This shows a development of the APC and NPO for CTRS beginning in the 1987-1988 fiscal year and ending with the 1999-2000 fiscal year. (GAS 27)

4. Summary of Actuarial Methods and Assumptions – This states the assumptions made with regard to rates of return, salary increases, amortization periods and the actuarial cost method used. (GAS 27)

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a Percent of Covered Payroll [(b)-(a)]/(c)
6/30/1991	$4,692.0	$8,152.7	$3,460.7	57.6%	$1,792.5	193.1%
6/30/1992	4,848.0	7,278.2	2,430.2	66.6%	1,841.9	131.9%
6/30/1993#						
6/30/1994	5,602.1	8,222.6	2,620.5	68.1%	2,030.4	129.1%
6/30/1995#						
6/30/1996	6,648.2	9,626.8	2,978.6	69.1%	2,151.6	138.4%
6/30/1997#						
6/30/1998	7,721.1	10,970.1	3,249.0	70.4%	2,298.9	141.3%
6/30/1999#						
6/30/2000	9,605.9	11,797.6	2,191.7	81.4%	2,501.5	87.6%

 # No actuarial valuations were performed as of June 30, 1993, June 30, 1995, June 30, 1997 and June 30, 1999.

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ended June 30	Annual Required Contribution	Actual Contributions	Percent Contributed
1997	180,084,478	147,884,700	82.1%
1998	211,018,755	179,365,000	85.0%
1999	221,569,693	188,334,000	85.0%
2000	240,524,050	204,445,443	85.0%

DEVELOPMENT OF ANNUAL PENSION COST AND NET PENSION OBLIGATION

Fiscal Year Ending 6/30	Annual Required Contribution(ARC)	Interest on NPO	ARC Adjustment	Annual Pension Cost (APC)	Actual Contribution	Change in NPO	Net Pension Obligation Balance
1988	$ 241,563,000	$ 0	$ 0	$ 241,563,000	$ 241,563,000	$ 0	$ 0
1989	302,917,000	0	0	302,917,000	282,917,000	20,000,000	20,000,000
1990	348,639,000	1,600,000	845,768	349,393,232	321,639,000	27,754,232	47,754,232
1991	304,331,000	4,059,110	2,018,680	306,371,430	156,638,250	149,733,180	197,487,412
1992	308,724,000	16,786,430	8,348,240	317,162,190	133,057,000	184,105,190	381,592,602
1993	299,589,000	32,435,371	16,130,783	315,893,588	111,600,000	204,293,588	585,886,190
1994	145,786,000	49,800,326	25,111,757	170,474,569	124,253,932	46,220,637	632,106,827
1995	154,036,000	53,729,080	27,486,627	180,278,453	132,503,932	47,774,521	679,881,348
1996	164,650,000	57,789,915	30,012,706	192,427,209	139,953,000	52,474,209	732,355,557
1997*	180,084,478	62,250,222	32,841,687	209,493,013	147,884,700	61,608,313	793,963,870
1998	211,018,755	67,486,929	38,493,859	240,011,825	179,365,000	60,646,825	854,610,695
1999	221,569,693	72,641,909	42,055,657	252,155,945	188,334,000	63,821,945	918,432,640
2000	240,524,050	78,066,774	45,907,853	272,682,971	204,445,443	68,237,528	986,670,168

* The ARC for the fiscal year ending 6/30/1997 was developed as $173,982,000 + $6,102,478. This is the actuarially calculated contribution plus an additional amount that reduces the Effective Single Amortization Period to 40 years in accordance with GASB parameters.

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	June 30, 2000
Actuarial cost method	Entry age actuarial cost method
Amortization method	Level percent of pay

Remaining amortization periods		
	Plan in effect 6/30/91	32 years
	Public Act 82-91	13 years
	Public Act 87-381	18 years
	Public Act 92-205	23 years
	Public Act 98-251	28 years

Asset valuation method	4-year smoothed market

Actuarial assumptions:

Investment rate of return*	8.5%
Projected salary increases*	5.0% - 8.1%
*Includes inflation at	5.0%
Cost-of-living adjustments for retirements prior to 9/1/92	4.0%

Section G

Appendix

SUMMARY OF ASSUMPTIONS USED IN ACTUARIAL VALUATIONS FOR THE CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM ADOPTED BY BOARD OF TRUSTEES AFTER CONSULTING WITH ACTUARY

Economic Assumptions

The investment return rate used in making the valuation was 8.5% per year, compounded annually (net after administrative expenses). This rate of return is not the assumed real rate of return. The real rate of return is the portion of investment return which is more than the inflation rate. Considering inflation recognition of 5.0%, the 8.5% rate translates to an assumed real rate of return of 3.5%. This rate was first used for the *June 30, 1996* valuation.

Pay increase assumptions for individual active members are shown on page ~~F-6~~ G-6. Part of the assumption for each age is for a merit and/or seniority increase, and the other 5.0% recognizes inflation. These rates were first used for the *June 30, 1996* valuation.

Certain towns and other reporting units did not provide updated active member census data as of June 30, 1996. As a result, we assumed the prior year's service increased by one year and the prior year's pay increased by 3%.

The Active Member Group size is assumed to remain constant at its present level.

Total active member payroll is assumed to increase 5.0% a year, which is the portion of the individual pay increase assumptions attributable to inflation. This rate was first used for the *June 30, 1996* valuation.

Non-Economic Assumptions

The mortality table used to measure retired life mortality was the 1971 Group Annuity Mortality Table, projected to 1984. Related values are shown on page ~~F-4~~ G-3. This table was first used for the *June 30, 1996* valuation. Rates for active members are 75% of the above rates, and rates for disabled members are based upon an age 10 years older than the actual age.

The probabilities of retirement for members eligible to retire are shown on page ~~F-5~~ G-4. These rates were first used in the *June 30, 1996* valuation.

The probabilities of withdrawal from service, *death-in-service* and *disability* are shown for sample ages on page ~~F-6~~ C-5. The withdrawal and disability rates were first used in the June 30, 1996 valuation, and do not apply to members who are eligible for retirement. The death-in-service rates were first used in the June 30, 1996 valuation.

The entry age actuarial cost method of valuation was used in determining age and service annuity liabilities and normal cost, and separation liabilities and normal cost.

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (the total of principal and interest) which are level percent of payroll contributions.

Asset Valuation Method. A market value related asset method is used as described on page D-3. This method was first used in the June 30, 1996 valuation.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

SINGLE LIFE RETIREMENT VALUES
BASED ON 1971 GROUP ANNUITY MORTALITY
PROJECTED TO 1984 AND 8.5% INTEREST

Sample Attained Ages	Single Life Retirement Values				Percent of Members Dying Within Next Year	
	Present Value of $1 Monthly for Life		Future Life Expectancy (years)			
	Men	Women	Men	Women	Men	Women
40	$134.61	$139.86	36.69	43.22	0.15%	0.08%
45	129.78	136.97	32.01	38.41	0.27%	0.12%
50	123.70	132.98	27.53	33.66	0.49%	0.18%
55	116.24	127.53	23.28	28.99	0.78%	0.27%
60	107.02	120.19	19.27	24.44	1.21%	0.46%
65	95.92	110.72	15.55	20.09	1.95%	0.81%
70	83.61	98.76	12.25	15.99	3.34%	1.40%
75	71.21	85.01	9.49	12.33	5.18%	2.79%
80	58.57	70.94	7.17	9.28	8.30%	4.92%
85	47.69	57.03	5.43	6.78	12.51%	8.03%
Ref:	68 1.00 0	69 1.00 0				

RETIREMENT RATES

Age	Normal	Early*	Proratable
45		1.0%	
46		1.0%	
47		1.0%	
48		1.0%	
49		1.0%	
50		2.0%	
51		2.0%	
52		3.0%	
53		3.0%	
54		4.0%	
55	20.0%	5.0%	
56	20.0%	6.0%	
57	20.0%	7.0%	
58	20.0%	7.0%	
59	20.0%	7.0%	
60	20.0%		10.0%
61	20.0%		10.0%
62	20.0%		10.0%
63	20.0%		10.0%
64	20.0%		10.0%
65	30.0%		10.0%
66	30.0%		10.0%
67	30.0%		10.0%
68	30.0%		10.0%
69	30.0%		10.0%
70	50.0%		100.0%
71	50.0%		100.0%
72	50.0%		100.0%
73	50.0%		100.0%
74	50.0%		100.0%
75	100.0%		100.0%
Ref	374	375	421

For ages 50-59 add 10% to the probability shown if the member has 30 or more years of service.

Sample Ages	Service	Percent of Active Members Separating Within the Next Year					
		Death		Disability		Other	
		Men	Women	Men	Women	Men	Women
	0					14.0%	14.0%
	1					12.0%	12.0%
	2					8.0%	8.0%
	3					7.0%	7.0%
	4					6.0%	6.0%
20	5 & Up	0.03%	0.02%	0.05%	0.05%	6.0%	6.0%
25		0.04%	0.02%	0.05%	0.05%	6.0%	6.0%
30		0.06%	0.03%	0.04%	0.04%	5.0%	5.0%
35		0.08%	0.04%	0.04%	0.04%	4.0%	4.0%
40		0.11%	0.06%	0.05%	0.07%	2.5%	2.5%
45		0.20%	0.09%	0.14%	0.12%	1.5%	1.5%
50		0.36%	0.14%	0.47%	0.26%	1.5%	1.5%
55		0.59%	0.21%	0.86%	0.44%	1.0%	1.0%
60		0.90%	0.35%	1.00%	0.50%	0.0%	0.0%
65		1.46%	0.61%	1.00%	0.50%	0.0%	0.0%
Ref:		68 0.75 0	69 0.75 0	134 0.5	135 0.5	170 293	170 293

Age	Pay Increase Assumptions For an Individual Member		
	Merit & Seniority	Base (Economic)	Increase Next Year
20	3.1%	5.0%	8.1%
25	2.5%	5.0%	7.5%
30	2.1%	5.0%	7.1%
35	1.9%	5.0%	6.9%
40	1.7%	5.0%	6.7%
45	1.3%	5.0%	6.3%
50	0.9%	5.0%	5.9%
55	0.5%	5.0%	5.5%
60	0.1%	5.0%	5.1%
65	0.0%	5.0%	5.0%
Ref:	167		

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Accumulated Benefit Obligation. The actuarial present value of vested and non-vested benefits based on service to date and past and current salary levels.

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Present Value of Credited Projected Benefits or Pension Benefit Obligation. The present value of future benefits based on service to date and the effect projected salary increases.

Actuary. A person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation A.S.A. and ultimately to Fellowship with the designation F.S.A.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Pension Benefit Obligation. A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date. The measure is the actuarial present value of credited projected benefits and is intended to (i) help users assess the plan's funding status on a going-concern basis, (ii) assess progress being made in accumulating sufficient assets to pay benefits when due, and (iii) allow for comparisons among public employee retirement plans. The measure is independent of the actuarial funding method used to determine contributions to the plan.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going concern" basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on book value plus a portion of unrealized appreciation or depreciation.