CONNECTICUT STATE EMPLOYEES'
RETIREMENT SYSTEM

ACTUARIAL VALUATION AS OF DECEMBER 31, 1978

MARTIN E. SEGAL COMPANY
INCORPORATED

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May 16, 1980

State Employees' Retirement Commission
State of Connecticut
30 Trinity Street
Hartford, Connecticut 06115

Dear Commissioners:

We are pleased to submit herewith our Actuarial Valuation of the State Employees' Retirement System as of December 31, 1978.

Our report analyzes the actuarial status of the System, and determines the cost factors which are used to project contribution requirements for Fiscal 1980-81 for the Commission to certify to the Legislature.

The actuarial calculations which this report presents were directed by Sherman B. Lieberman, F.S.A., M.A.A.A.

We received a great deal of help from State employees in obtaining the information which forms the basis of this report. Most important, Mrs. JoAnn Mogensen, Chief of the Retirement Division, and her staff were available whenever needed to answer any questions and provide any information requested. Indeed, the material they provided on their own initiative anticipated many of our needs.

For convenience, this report is divided into the following sections:

I. SUMMARY

II. BENEFIT PROVISIONS

III. EMPLOYEE DATA

IV. RETIREE DATA

V. RETIREMENT FUND

VI. ACTUARIAL ASSUMPTIONS AND METHODS

VII. RESULTS OF VALUATION

This valuation and this report were completed, except for editorial review of the text, prior to the decision of the Federal District Court in Pineman v. Oechslin. This valuation and this report, accordingly, do not account for or otherwise reflect that court decision--which invalidated the attempt of the Legislature in 1975 to reinstate the age 55 requirement for unreduced benefits to employees retiring after July 1, 1980 as to persons already employed at the time the Legislature so acted. The cost effects of the application of this decision will be treated in separate reports to the Commission.

We will be pleased to meet with you to discuss this report at your convenience.

Sincerely yours,

MARTIN E. SEGAL COMPANY, INCORPORATED

By Sherman G. Sass

Sherman G. Sass
Senior Vice President

SGS/lf

I. SUMMARY

Benefit Provisions

The Connecticut State Employees' Retirement System covers most State employees except legislators, judges, State's attorneys, and those teachers electing coverage under the Teachers Retirement System. There are two levels of benefits -- Plan B, providing benefits coordinated with Social Security, and Plan C, providing maximum benefits. Employees contribute 5 per cent of their annual earnings, except that Plan B members contribute only 2 per cent on earnings covered under Social Security (with the 5 per cent rate applying to any excess earnings).

The System provides unreduced benefits of 2 per cent per year of service. Such benefits are available to members at least 55 with 25 years of service or age 65 with 10 years of service. State police can retire at age 47 if they have 20 years of service, at 50 per cent of salary plus 2 per cent for each year of service over 20.* Benefits are based on the average of the highest 3 years' earnings. After retirement, "cost-of-living increases" amounting to 3 per cent per year are provided, independent of actual changes in the Consumer Price Index.

The Plan also provides non-service-connected disability and vested benefits after 5 and 10 years of service, respectively, and service-connected disability pensions with no minimum service requirement.

Employee Data

We received data on 43,855 active employees as of December 31, 1978 who were participating in the State System. Their average salary was $12,700. (We excluded 4,114 members from the calculation because they had less than one year of service, leaving 39,741 active employees included in the valuation.) On the average, the participants were age 42 and had 9 years of service. This average salary has increased by 20 per cent since our last valuation, three years ago.

*As used in this report, "state police" also includes certain correctional department employees described in Section 5-173 for retirement (but not survivor) benefits.

Retiree Data

We received data on 13,328 pensioners and 280 beneficiaries as of December 31, 1978. The pensioners' average monthly benefit was $428. In the last three years, the number of pensioners has increased by 6.1 per cent per year, the average benefit by 4.6 per cent per year, and the total annual payment level by 10.9 per cent per year. Of all the pensioners on the rolls, 8 per cent had retired in 1978.

Retirement Fund

As of December 31, 1978, the Fund had assets of $200 million (at adjusted cost value) available as an offset to the actuarial liabilities for future benefits.

Actuarial Valuation

Our valuation was prepared as of December 31, 1978. Our calculations were based on what we believe are reasonable assumptions as to expected future experience. The assumptions are the same as those used in our previous actuarial valuation with the exception of a modified salary scale and Social Security wage base, the plan transfer assumption, and the assumed post-retirement cost-of-living adjustments. We used the "entry age normal cost" method of funding, which spreads the cost of each employee's pension as a level percentage of his earnings from date of hire to retirement.

The normal cost* to the State is $49 million. This is 8.86 per cent of the payroll of participating employees.

The past service liability* is $1.998 billion of which $875 million represents the liability for pensioners currently on the rolls. The unfunded past service liability at the end of 1978 was $1.798 billion.

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*Please refer to the "Actuarial Assumptions and Methods" section of the report for definitions of these terms.

The value of the System's vested benefits is $1.374 billion. Thus the assets are short of this amount by $1.174 billion.

Based on the normal cost plus 40 year amortization of the unfunded past service liability, the annual cost to the State as of January 1, 1979 is $169 million or 30.32 per cent of covered payroll. This amount is in addition to the required employee contributions.

II. BENEFIT PROVISIONS

Coverage

Virtually all non-teaching employees of the State are eligible to be covered except for those covered under the General Assembly, State's Attorneys' and Probate Court Retirement Systems. Teachers in State employment may elect either the State Employees' Retirement System or the Retirement System for Teachers. Prior to becoming a permanent employee in the classified service, each employee (except police) may elect either "Plan B," which provides benefits integrated with Social Security benefits, or "Plan C," providing maximum benefits unreduced for Social Security. Prior to 1973, he could also elect not to participate. Once an employee becomes a permanent employee in the classified service, he may not change his election except to upgrade his benefits from Plan B to Plan C.

State police are covered for benefits similar to those of Plan C; they are not under Social Security.

Employee Contributions

State police and Plan C employees contribute 5 per cent of their salary. Plan B employees contribute 2 per cent of that part of their earnings on which Social Security contributions are deducted plus 5 per cent on salary in excess of that amount. In addition, State police contribute 1 3/4 per cent of the first $4,800 of salary to pay for survivor's benefits.

Retirement Benefits

Normal unreduced benefits are available after 25 years of service to employees at age 55*, and after 10 years of service to 65*-year-olds. Benefits are computed on "base salary" -- the average salary of the three highest years of State service.

*The age requirement is five years lower for retirements prior to July 1, 1980.

Plan C members receive a pension of 2 per cent of base pay per year of service. Plan B members receive the same benefit until age 65, at which time their benefit is recomputed based on 1 per cent of the first $4,800 of base pay plus 2 per cent of base pay in excess of $4,800 per year of service.

State police can take unreduced benefits at age 47 if they have 20 years of service. Their benefit is 50 per cent of base salary plus 2 per cent of salary per year of service over 20.

Employees retiring after age 70* with at least 5 years of service receive a benefit of 2 1/2 per cent of salary (1 1/4 per cent on the first $4,800 under Plan B) per year of service (maximum 20 years) if this will provide a larger benefit. Those retiring after age 55* with 10 but less than 25 years of service receive reduced benefits at rates which vary from 1 per cent to 1.99 per cent of salary.

Note that Plan B benefits are integrated based on a $4,800 salary although contributions are based on the actual Social Security wage base each year. Thus each time the Social Security wage base is increased, the Plan B contributions are decreased but the Plan B benefits are not.

A member may elect an option that gives him a reduced pension but guarantees that some or all of his pension will be payable to his spouse after his death.

If a pensioner dies before a fixed portion (currently 25 per cent) of his pension payments exceeds his own contributions, the balance of his contributions will be paid to his beneficiary.

After retirement, there is a "cost-of-living" adjustment every year. Each person's pension is increased by 3 per cent each year, starting

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* The age requirement is five years lower for retirements prior to July 1, 1980.

with the first January 1 or July 1 following nine months of retirement. This increase is provided regardless of the actual changes in the Consumer Price Index.*

Disability Benefits

A member who becomes unable to perform his job due to disability will get a pension if he has five years of service. The five-year service requirement does not apply if the disability was job-connected. After two years of payments, the employee must be totally disabled for this coverage to continue. The benefit formula is 3 per cent of base salary for each year of service, but not more than 1 2/3 per cent of base salary for each year of service the employee would have had if he had continued to work until age 60. For service-connected disability, the benefit is 1 2/3 per cent of base salary for each year of service projected as if the employee worked to age 60. There are also certain limits to the disabled pensioner's total income including Social Security, outside earnings, workers' compensation, and pension.

Death Benefits

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. If an option is in effect, however, there may be a pension payable to the spouse. The widow of a policeman receives $275 per month, provided she has not remarried. In addition, there is a payment of $100 a month for one child under 18 and $175 a month for more than one such child.

Withdrawal Benefits

An employee who terminated employment after 10 years of service (with at least the last 5 continuous) may choose either a deferred pension (based on his accumulated credits) or a refund of his contri-

*Under most collective bargaining agreements, employees who retire prior to January 1, 1980 are eligible for "cost-of-living" adjustments based on actual changes in the CPI (minimum 3%, maximum 5%).

butions. Any other former employee is entitled only to a refund of his contributions, unless he is already eligible for a pension.

Changes since December 31, 1975

In the period following our prior valuation, there have been these two significant changes in the benefits of the System which affect the actuarial cost determination:

1. Interim legislative action as well as subsequent collective bargaining agreements effectively increased the post-retirement cost-of-living adjustments for all participants retiring before January 1, 1980 while preserving the flat 3 per cent per year formula for retirements after that date. The pre-1980 formula provides for full annual CPI adjustments with a minimun increase of 3 per cent and a maximum of 5 per cent in each year of retirement.

2. In the case of Fitzpatrick v. Bitzer, it was held that the System discriminated against male employees by requiring them to work until higher ages than were required of women for the same benefits. In 1975, the legislature responded to this decision by providing that the benefits formerly payable to women would be payable to all employees retiring before July 1, 1980. The former male level of benefits was made applicable to retirements by all employees on and after that date.

Collective bargaining agreements recognized the post June 30, 1980 reversion to the pre-Fitzpatrick benefit levels adding a grandfather provision permitting employees eligible for retirement on June 30, 1980 to have their benefit percentages frozen as a minimum guarantee if they were to retire at a later date. Both the benefit level reversion and the grandfather provision are accounted for in this valuation for the first time.

III. EMPLOYEE DATA

We received data on 43,855 State employees participating in the System as of December 31, 1978. The data included age, service, sex, salary, and retirement plan for each of them. The average salary of the participants was $12,700, a 20 per cent increase over the average salary of $10,600 three years ago.

As part of our turnover assumption, we take no cost for members with less than a full year of actual state service. There were 4,114 members for whom we took no cost. This left 39,741 employees to be included in the valuation. In our valuations as of December 31, 1975 and 1972 there were 32,158 and 30,540 such members respectively -- reflecting a significantly greater expansion (24 per cent) of the work force during the last three years as compared to the three-year period ended December 31, 1975 (5 per cent).

The distribution of members by retirement plan has also fluctuated noticeably since 1969. The percentage membership in each plan as of the indicated valuation dates is shown below:

Retirement Plan	As of December 31			
	1969	1972	1975	1978
Police	2.2%	2.4%	2.5%	2.0%
Plan B	73.1	62.0	57.4	61.2
Plan C	24.7	35.6	40.1	36.8

It can be seen that the trend exhibited in the past of movement from Plan B to Plan C by members nearing retirement is being offset in the overall distribution by new entrants electing to participate in Plan B. This is apparently in reaction to the rapid escalation of the Social Security wage base since the passage of the 1977 Social Security amendments. New employees are not willing to contribute the extra 3 per cent of pay below the FICA base ($22,900 in 1979 and rising to $29,700 in 1981) in order to qualify for the additional Plan C benefits.

Switching from Plan B to Plan C continues to be a good buy for current retirees as the payments required by the member are based on the much lower prior FICA salary bases than apply today. In fact, the Retirement Division reports that roughly 65 per cent of new pensioners are under Plan C -- compared with 60 per cent reported three years ago. We are continuing to make adjustments to our plan transfer assumptions to conform with the external factors which have an impact on the System's operations. These are discussed later in this report in the section that treats assumptions and methods.

Tables 1A, 1B, and 1C give age, service, and salary statistics by retirement plan. Tables 2A, 2B, and 2C give summary statistical data by retirement plan. In these tables, "normal" retirement means retirement at the unreduced rate of 2 per cent (or more) per year of service.

It should be noted that the problems encountered in assembling the data for our actuarial studies remain as significant as when actuarial studies were begun nine years ago. The Retirement Division does not have a single record of the age, service, sex, plan and salary for each participant, nor does such a record exist elsewhere in the State. As a result, records have to be assembled from the payroll and personnel department each time a valuation is done. Then each employee's several records must be combined into a single record. We believe that the overall efficiency of the Retirement Division could be improved, and that the valuations could be produced earlier and at lower cost, if there were a master retirement record available in computer-applicable form for each employee. We understand that the State has undertaken such a program and recommend it be carried to completion.

Table 1A

Number and Average Salaries of Employees in Active Service
as of December 31, 1978
by Age and by Years of Service

ALL PARTICIPANTS*

Age	Total	Years of service								
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 and over	Unknown
Total	43,855 $12,700	14,876 $ 9,900	9,080 $12,800	7,110 $14,700	3,437 $15,800	2,251 $17,000	986 $18,200	538 $18,200	193 $17,100	5,384 $12,000
Under 20	343 $ 7,000	327 $ 6,900	-- --	-- --	-- --	-- --	-- --	-- --	-- --	16 $ 8,500
20 - 24	3,327 8,600	2,921 8,500	118 $10,100	-- --	-- --	-- --	-- --	-- --	-- --	288 8,900
25 - 29	5,377 10,400	3,591 9,900	1,154 11,900	68 $12,400	-- --	-- --	-- --	-- --	-- --	564 10,500
30 - 34	4,891 12,700	2,139 11,500	1,537 13,200	796 15,100	55 $14,800	-- --	-- --	-- --	-- --	364 12,300
35 - 39	4,353 13,500	1,398 10,600	1,106 14,100	1,119 15,700	407 16,400	52 $15,400	-- --	-- --	-- --	271 12,000
40 - 44	4,050 14,200	1,090 10,500	869 14,100	877 16,200	568 16,800	385 18,300	44 $17,200	-- --	-- --	217 11,300
45 - 49	4,570 13,900	1,071 10,100	976 13,200	941 15,400	537 16,700	494 17,100	231 18,100	54 $19,100	-- --	266 10,500
50 - 54	4,751 13,600	922 9,800	1,057 12,000	1,088 14,500	605 16,200	432 17,800	240 18,100	148 16,700	11 $14,000	248 11,100
55 - 59	4,248 13,100	684 9,700	968 11,300	968 13,000	549 14,900	396 16,200	237 19,100	157 18,400	56 14,800	233 10,700
60 - 64	2,645 13,000	320 10,800	636 11,600	685 13,100	348 13,500	266 14,800	103 16,800	97 18,700	64 17,900	126 10,100
65 and over	628 13,400	57 10,700	147 12,000	157 13,000	91 13,400	59 14,600	35 16,000	26 21,200	25 18,200	31 12,000
Unknown	4,672 13,700	356 11,800	512 14,100	411 13,700	277 15,600	167 18,400	96 19,000	56 18,500	37 19,600	2,760 13,100

*Includes 873 Police members.

Table 1B

Number and Average Salaries of Employees in Active Service
as of December 31, 1978
by Age and by Years of Service

PLAN B

Age	Total	Years of service								
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 and over	Unknown
Total	26,824 $13,000	10,000 $ 9,800	4,058 $13,400	4,261 $15,700	2,373 $16,800	1,433 $18,000	553 $19,700	266 $19,300	57 $19,000	3,823 $12,100
Under 20	269 $ 7,200	256 $ 7,200	-- --	-- --	-- --	-- --	-- --	-- --	-- --	13 $ 7,200
20 - 24	2,556 8,300	2,245 8,200	73 $10,300	-- --	-- --	-- --	-- --	-- --	-- --	238 8,700
25 - 29	4,022 10,300	2,756 9,700	761 12,100	54 $13,000	-- --	-- --	-- --	-- --	-- --	451 10,400
30 - 34	3,408 13,000	1,577 11,500	886 13,900	615 15,900	51 $15,000	-- --	-- --	-- --	-- --	279 12,100
35 - 39	2,932 14,200	943 10,800	606 14,900	806 16,900	339 17,200	44 $15,300	-- --	-- --	-- --	194 11,900
40 - 44	2,693 15,200	669 10,400	444 14,900	645 17,300	440 17,900	306 19,300	38 $17,500	-- --	-- --	151 11,600
45 - 49	2,608 14,900	549 10,100	350 13,300	633 16,100	416 17,700	340 18,200	146 19,000	34 $19,700	-- --	140 10,200
50 - 54	2,341 14,900	362 9,700	317 12,800	621 15,000	425 16,900	270 18,700	141 20,300	89 18,200	2 $ 9,400	114 11,800
55 - 59	1,770 14,300	239 9,300	220 11,300	425 14,000	329 15,500	247 16,500	127 21,800	75 19,900	20 14,800	88 10,700
60 - 64	921 13,500	131 11,000	139 11,900	227 12,900	174 14,100	113 15,500	38 17,900	40 20,200	16 21,500	43 8,700
65 and over	197 12,800	30 8,400	28 12,000	41 13,000	41 14,800	18 13,700	15 12,700	6 18,100	8 19,000	10 9,100
Unknown	3,107 13,900	243 12,100	234 14,400	194 14,200	158 16,900	95 20,700	48 20,300	22 19,700	11 24,800	2,102 13,200

Table 1C

Number and Average Salaries of Employees in Active Service
as of December 31, 1978
by Age and by Years of Service

PLAN C

Age	Total	Years of service								
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 and over	Unknown
Total	16,158 $12,300	4,698 $10,200	4,797 $12,400	2,617 $13,300	944 $13,900	748 $15,300	425 $16,300	270 $17,100	136 $16,400	1,523 $11,800
Under 20	74 $ 6,400	71 $ 6,000	-- --	-- --	-- --	-- --	-- --	-- --	-- --	3 $14,300
20 - 24	724 9,300	632 9,300	45 $ 9,700	-- --	-- --	-- --	-- --	-- --	-- --	47 9,900
25 - 29	1,218 10,900	744 10,500	356 11,700	13 $10,400	-- --	-- --	-- --	-- --	-- --	105 10,800
30 - 34	1,290 12,100	526 11,300	544 12,800	139 13,100	4 $12,800	-- --	-- --	-- --	-- --	77 12,700
35 - 39	1,200 12,300	449 10,100	431 13,500	194 13,900	45 13,600	8 $16,400	-- --	-- --	-- --	73 12,500
40 - 44	1,228 12,600	420 10,600	415 13,500	177 14,100	70 15,200	78 14,400	6 $14,800	-- --	-- --	62 10,300
45 - 49	1,880 12,700	522 10,100	626 13,100	295 14,200	93 14,300	116 15,700	85 16,600	20 $17,900	-- --	123 10,700
50 - 54	2,372 12,300	560 9,800	740 11,700	467 13,700	172 14,900	139 16,600	96 15,400	59 14,500	9 $15,100	130 10,600
55 - 59	2,472 12,200	445 9,900	748 11,300	543 12,300	220 14,000	147 15,700	106 16,100	82 16,900	36 14,700	145 10,700
60 - 64	1,722 12,800	189 10,600	497 11,600	458 13,200	174 13,000	153 14,200	64 16,300	56 17,800	48 16,700	83 10,900
65 and over	431 13,700	27 13,300	119 11,900	116 12,900	50 12,200	41 15,000	20 18,600	20 22,100	17 17,800	21 13,400
Unknown	1,547 13,400	113 11,100	276 13,800	215 13,200	116 13,900	66 14,900	48 17,700	33 17,700	26 17,400	654 12,800

Table 2A

Statistical Data on Active Employees

ALL PARTICIPANTS#

	December 31, 1978	December 31, 1975
Number of covered employees	43,855	34,294
Total annual salary	$556,243,500	$362,397,300
Average annual salary	$12,700	$10,600
Average age	42	43
Average years of service+	9	9
Number excluded from costs because of service less than one year	4,114	2,136
Number* eligible to retire on:		
Normal retirement	3,000	2,360
Early retirement	4,013	2,899
Number* vested but not eligible to retire	7,655	4,406

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#Includes 873 Police members as of December 31, 1978 and 847 as of December 31, 1975.

+Includes purchased service adjustment.

*Based on plan in effect on valuation date. Includes only employees with known age and/or service.

Table 2B

Statistical Data on Active Employees

PLAN B

	December 31, 1978	December 31, 1975
Number of covered employees	26,824	19,701
Total annual salary	$348,514,000	$209,169,700
Average annual salary	$13,000	$10,600
Average age	39	40
Average years of service+	9	8½
Number excluded from costs because of service less than one year	2,903	1,456
Number* eligible to retire on:		
Normal retirement	1,219	884
Early retirement	2,317	1,685
Number* vested but not eligible to retire	5,435	3,101

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+Includes purchased service adjustment.

*Based on plan in effect on valuation date. Includes only employees with known age and/or service.

Table 2C

Statistical Data on Active Employees

PLAN C

	December 31, 1978	December 31, 1975
Number of covered employees	16,158	13,746
Total annual salary	$198,233,300	$142,776,300
Average annual salary	$12,300	$10,400
Average age	46½	47½
Average years of service+	9½	9
Number excluded from costs because of service less than one year	1,193	654
Number* eligible to retire on:		
Normal retirement	1,724	1,438
Early retirement	1,688	1,204
Number* vested but not eligible to retire	1,853	1,036

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+Includes purchased service adjustment.

*Based on plan in effect on valuation date. Includes only employees with known age and/or service.

IV. RETIREE DATA

The data on retired members and beneficiaries included age, sex, monthly benefit, retirement date, option, and type of pension. It should be noted that the records on retired employees are generally complete and accessible.

The following are significant statistics on the retired group:

Item	December 31, 1978	December 31, 1975
Pensioners:		
Number	13,328	11,158
Average age	68	68
Average monthly benefit	$428	$374
Beneficiaries:		
Number	280	262
Average age	73	71
Average monthly benefit	$378	$237

Since 1975 the pension rolls have increased by 2,170 participants. Thus there has been a 19.4 per cent three-year increase -- a 6.1 per cent annual compound rate. The average benefit shows a 14.4 per cent increase (4.6 per cent per year). These two items have combined to increase the total pensioner payroll (excluding beneficiaries) from $4.2 million to $5.7 million per month. This is a 36.5 per cent increase in three years -- about 10.9 per cent per year. (This experience illustrates one of the main reasons for the transition to "level" actuarial funding of retirement costs -- to get away from the irregular severe year-to-year increases that necessarily occur on "pay-as-you-go" type funding.

Table 3 gives distributions of the 1,081 new 1978 pensions which were still in force at the end of the year by type of pension and amount. Table 4 does the same for age at retirement.

Table 5 gives distributions for all 13,328 pensions in force at the end of 1978 by type and amount. Tables 6 does the same thing by age.

In addition to the active employees, pensioners and beneficiaries, there are 164 former employees who are vested and therefore eligible for an immediate or deferred pension.

Table 3

Pensions Awarded in the Year Ended December 31, 1978
by Type and by Monthly Amount

Monthly amount	Total	Type of pension				
		Regular	Service disability	Regular disability	Police	Sec. 5-173
Total	1,081	1,006	9	37	16	13
Under $50	12	9	--	3	--	--
$ 50 - 99	23	20	--	3	--	--
100 - 149	114	108	--	6	--	--
150 - 199	131	125	--	5	--	1
200 - 249	138	133	3	2	--	--
250 - 299	87	83	2	2	--	--
300 - 349	82	77	1	4	--	--
350 - 399	64	60	--	4	--	--
400 - 449	59	55	--	4	--	--
450 - 499	56	53	2	1	--	--
500 - 599	83	78	1	2	--	2
600 - 699	56	53	--	--	1	2
700 - 799	37	31	--	--	4	2
800 - 899	44	39	--	--	2	3
900 - 999	31	25	--	1	3	2
1,000 - 1,099	19	17	--	--	2	--
1,100 - 1,199	11	8	--	--	2	1
1,200 - 1,299	8	8	--	--	--	--
1,300 - 1,399	8	7	--	--	1	--
1,400 - 1,499	7	7	--	--	--	--
1,500 - 1,999	8	7	--	--	1	--
2,000 - 2,499	3	3	--	--	--	--

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Pensions Awarded in the Year Ended December 31, 1978
by Type and by Age on Effective Date

Age on effective date	Total		Type of pension				
			Regular	Service disability	Regular disability	Police	Sec. 5-173
Total	1,081		1,006	9	37	16	13
25 - 29		1	--	1	--	--	--
35 - 39		3	--	1	2	--	--
40 - 44		5	--	--	5	--	--
45 - 49		20	--	3	5	7	5
50	227	99	94	--	4	1	--
51		39	32	2	1	4	--
52		29	26	--	2	--	1
53		30	29	--	--	1	--
54		30	26	--	1	2	1
55	199	45	42	--	3	--	--
56		33	31	--	1	--	1
57		35	31	1	3	--	--
58		41	37	--	3	--	1
59		45	37	1	6	--	1
60	325	55	54	--	--	--	1
61		66	66	--	--	--	--
62		120	120	--	--	--	--
63		64	63	--	--	--	1
64		20	19	--	--	--	1
65	260	144	143	--	1	--	--
66		55	55	--	--	--	--
67		23	23	--	--	--	--
68		22	22	--	--	--	--
69		16	16	--	--	--	--
70	41	37	36	--	--	1	--
71		2	2	--	--	--	--
73		2	2	--	--	--	--

Table 5

Pensions in Force on December 31, 1978
by Type and by Monthly Amount

Monthly amount	Total	Type of pension				
		Regular	Service disability	Regular disability	Police	Sec. 5-173
Total	13,328	11,462	370	1,252	144	100
Under $50	131	129	--	2	--	--
$ 50 - 99	750	733	2	15	--	--
100 - 149	1,189	1,129	14	46	--	--
150 - 199	1,215	1,096	17	101	--	1
200 - 249	1,175	1,013	31	131	--	--
250 - 299	1,000	825	33	141	1	--
300 - 349	1,273	988	47	218	20	--
350 - 399	961	728	52	167	12	2
400 - 449	840	664	37	129	10	--
450 - 499	767	620	44	97	4	2
500 - 599	1,170	1,005	42	103	5	15
600 - 699	774	675	20	44	6	29
700 - 799	613	523	16	31	28	15
800 - 899	431	378	6	12	16	19
900 - 999	270	238	1	3	19	9
1,000 - 1,099	202	181	3	6	7	5
1,100 - 1,199	142	131	1	3	6	1
1,200 - 1,299	109	103	1	2	3	--
1,300 - 1,399	71	66	2	--	2	1
1,400 - 1,499	79	76	--	1	1	1
1,500 - 1,999	140	135	1	--	4	--
2,000 - 2,499	23	23	--	--	--	--
2,500 - 2,999	2	2	--	--	--	--
3,500 - 3,999	1	1	--	--	--	--

CONNECTICUT SERS

Table 6

Pensions in Force on December 31, 1978
by Type and by Age

Age on December 31, 1978	Total	Type of pension				
		Regular	Service disability	Regular disability	Police	Sec. 5-173
Total	13,328	11,462	370	1,252	144	100
25 - 29	3	--	3	--	--	--
30 - 34	12	--	10	2	--	--
35 - 39	23	--	14	9	--	--
40 - 44	50	--	27	23	--	--
45 - 49	120	1	43	61	8	7
50 - 54	822	613	40	110	44	15
55 - 59	1,356	1,049	52	193	26	36
60 - 64	2,280	1,937	70	233	12	28
65 - 69	3,129	2,787	49	255	27	11
70 - 74	2,673	2,398	39	214	19	3
75 - 79	1,673	1,545	11	110	7	--
80 - 84	817	782	8	26	1	--
85 - 89	296	280	3	13	--	--
90 - 94	64	60	1	3	--	--
95 - 99	5	5	--	--	--	--
100 - 104	3	3	--	--	--	--
105 - 109	2	2	--	--	--	--

CONNECTICUT SERS

V. RETIREMENT FUND

The State Treasurer maintains the State Employees' Retirement Fund. The Retirement Division provided us with financial statements as of December 31, 1978.

The Fund receives all employee and State contributions. The assets are invested in accordance with the State's trust law, with the income being added to the Fund and available for reinvestment. The bulk of the assets are invested in the State's mutual investment accounts for retirement funds.

Payments out of the Fund are primarily for refunds of employee contributions and for pension payments. Contribution refunds occur when an employee terminates employment and elects to take a refund, or when he dies after retirement without having received a portion of his payments from the Fund equal to his total contributions.

At December 31, 1978, the Fund Balance was $202,375,700 at book value. A detailed breakdown of these assets is shown in Table 7. Three years ago the assets totalled $107,335,100.

In prior valuations, assets were carried at book value as reported by the State Treasurer. After discussion with members of the Retirement Commission, it was agreed that for actuarial purposes a procedure should be used which would recognize the fair market value of all assets while minimizing cost fluctuations resulting from short-term market movements. Therefore beginning with this review, assets are carried at an "adjusted cost value" reflecting the capital appreciation or depreciation of the investment portfolio.

The adjusted cost value of assets as of December 31, 1978 was $200,036,800; derived as follows:

Determination of Adjusted Cost Value of Assets

1.	Value of Fund at beginning of year	$154,966,149
2.	Net new money (including net interest and dividends)	47,409,504
3.	Preliminary value of Fund at end of year: (1) + (2)	202,375,653
4.	Market value of Fund at end of year:	190,681,362
5.	Minimum adjusted cost value of Fund: 80% of (4)	152,545,090
6.	Maximum adjusted cost value of Fund: 120% of (4)	228,817,634
7.	Trial write-(down): 20% of [(4) - (3)]	(2,338,858)
8.	Trial adjusted cost value of Fund: (3) + (7)	200,036,795
9.	Final adjusted cost value of Fund at end of year: (8), but not less than (5) nor more than (6)	200,036,795
10.	Final write-(down) for year ended December 31, 1978: (9) - (3)	(2,338,858)

The preceding determination is used for two purposes:

(1) The adjusted cost value is applied to the System's total accrued liability to determine the unfunded accrued liability.

(2) The amount of write-up or write-down is considered part of the investment yield for the year. This procedure treats realized and unrealized capital gains on all investments equally.

Net investment income for the year ended December 31, 1978 totalled $10,285,500 and represented an annual yield of 5.97 per cent at adjusted cost value. The total income consisted of interest and dividends amounting to $12,624,400 (a return of 7.32 per cent) offset by the $2,338,900 write-down.

Table 7

Assets as of December 31, 1978

Cash		$ 3,147,975
Accounts receivable		9,018
Investments		
Mutual fixed income fund	$133,530,601	
Mutual equity fund	55,331,469	
Short-term investment fund	10,359,088	199,221,158
Total assets at book value		$202,378,152
Less: Accounts payable		2,500
Net assets at book value (Market value $190,681,362)		$202,375,652
Adjustment to adjusted cost value		(2,338,857)
Net assets at adjusted cost value		$200,036,795

Note: Detail figures may not add to totals shown because of rounding.

CONNECTICUT SERS

VI. ACTUARIAL ASSUMPTIONS AND METHODS

The actual cost of a pension plan consists of the benefit payments and administrative expenses less any investment earnings. An actuarial cost method aims to budget this cost so as to establish a reasonable relationship between employer pension contributions and the employee services that give rise to the pension obligation. The result is an employer contribution which anticipates future costs. A fund accumulates which earns investment income, thus reducing the ultimate cost.

Calculating the appropriate contribution requires that projections, and therefore assumptions, be made as to future experience. Some items, such as mortality rates, can be predicted fairly accurately. Others, such as future salary increases, are, of course, subject to considerable error. It will be useful to identify the assumptions used, particularly because broad questions of fiscal policy are implicit in certain of the assumptions.

As noted earlier, with the exception of changes in salary scale and Social Security wage base, assumed plan transfers and the assumed post-retirement cost-of-living adjustments, the assumptions for this review are the same as those used in our previous valuation.

Mortality Rates

We assumed that mortality rates would conform with the 1971 Group Annuity Mortality Table. This is a recently published table of pension plan mortality, and we believe it is a reasonable basis for anticipating experience under the System. It is one of the tables in general use in valuing pensions plans in the United States.

Salary Projections

The System provides benefits that are based on the three highest years' salary for each employee. To assume that each employee's salary will be the same in the three years before retirement as it is today would seriously understate the System's cost. Accordingly, we use a salary projection to anticipate future increases in earnings. Additionally, it is appropriate to compute pension normal costs which are level as a percentage of payroll rather than level as a dollar amount, and a salary projection is also used for this purpose. If the cost were calculated as a level dollar amount for an individual, the cost might be a high per cent of his pay when he was young and a lower per cent of his higher salary at a later age. By use of a salary projection, the contribution for an individual, all other things remaining the same, tends to stay at the same percentage over the years.

How to project future salaries is a major policy question. To what extent should one seek to anticipate, through present contributions, the full impact on pension costs of future general salary changes?

For purposes of our cost determination, we have made a moderate allowance for general salary increases in the future. As a result of ecomonic changes and negotiated settlements occurring since our last review, this component has been increased from 3 per cent to 3 1/2 per cent per annum. We also reflect salary increases as the result of longevity and promotions. The scale has relatively greater increases at the younger ages to correspond with the State's salary schedules, which have only seven steps in each salary group. The salary scale factors are:

	Present Salary as a % of Age 65 Salary		Annual Increase (Rate %)	
Age	New Assumptions	Old Assumptions	New Assumptions	Old Assumptions
20	14.04	17.45	5.34	4.84
25	18.19	22.07	5.26	4.75
30	23.43	27.76	5.10	4.59
35	29.94	34.62	4.90	4.39
40	37.81	42.68	4.58	4.08
45	46.98	51.76	4.22	3.72
50	57.44	61.77	3.95	3.45
55	69.53	72.98	3.83	3.33
60	84.02	86.08	3.66	3.16

As will appear, the problem of salary projection has a parallel in the question of choosing an assumption as to future investment yield and the two are somewhat interrelated.

Termination Rates

In any employee group, many employees will terminate and receive less than full benefits. Employees terminating with less than ten years of active service, for example, receive only a refund of their contributions. The termination assumption anticipates the release of State funds that may have been accumulated for such people, thus resulting in a reduced ongoing cost. Our termination data, although limited, showed quite high turnover rates for new employees. As a result, we decided to include no cost for employees with less than one year of service. We assumed that terminations each year from all causes except retirement would be as follows:

	Rate (%)			
Age	Death*	Disability	Withdrawal	Total*
20	.05	.06	5.44	5.55
25	.06	.09	5.29	5.44
30	.08	.11	5.07	5.26
35	.11	.15	4.70	4.96
40	.16	.22	4.19	4.57
45	.29	.36	3.54	4.19
50	.53	.61	2.47	3.61
55	.85	1.01	.94	2.80
60	1.31	--	--	1.31

*Rates shown are for men. Rates for women are slightly lower.

We have assumed that future disabilities will occur at about the same rates as reported by the Social Security Administration. Service-connected disability rates comprise 50 per cent of disabilities for Police and 20 per cent for other participants.

Retirement Ages

The System provides unreduced benefits as early as age 55 for general employees and 47 for State police. Experience in recent years (both before and after the Fitzpatrick decision), however, has been that, on the average, general employees retire at age 61. We have therefore assumed employees will retire at age 61, or completion of 10 years of service if later. State police retirements are assumed to occur when the officer is both age 53 and has 25 years of service. In any case where the employee already meets these assumed conditions of age and service, it is projected that he will retire immediately.

Post-Retirement Increases

Cost-of-living increases are regularly provided to pensioners. Our calculation assumed 3 per cent annual post-retirement increases as provided by Statute in respect of employees now active, and 4 1/2 per cent increases for those current pensioners covered by the "up to 5 per cent" program. An additional liability allowance was held for employees active on December 31, 1978 who were known to have retired prior to December 31, 1979 under the "up to 5 per cent" cost-of-living program. (The previous valuation assumed 3 per cent increases for the current and future pensioners as provided by the Statute then in force.)

Investment Return

Investment return has a major effect on the ultimate cost of a retirement system. In general, if a system is actuarially funded and if its invested assets cover a significant percentage of its liabilities, a yield of 6 per cent - in contrast to a 5 per cent yield - will reduce cost by 16-20 per cent.

An assumption must be made concerning future yields. It must be a rate that will be valid for the long run, that is, not only for money invested today or next year, but also for money invested 10 and 20 years from now.

We selected an investment return assumption of 6 1/2 per cent per year for our calculation. This assumption takes account of probable moderate long-term inflation but is not tied directly to the higher rates currently available.

Social Security Wage Base

Plan B participants' contributions depend in part on the Social Security wage base in effect in any year, because a lower rate of contribution is required on salaries below that base. For our calculations, we assumed that the base would increase at the rate of 3 1/2 per cent per year. This change from 3 per cent used in our previous review is consistent with the salary scale revisions described earlier.

Transfers Between Plans

Plan B participants may transfer to Plan C prior to retirement by making up the difference in employee contributions (without interest). Experience indicates that this continues to be a common practice. As discussed in Section III, only 37 per cent of all participants are in Plan C, and yet 65 per cent of new retirements are under Plan C. Therefore, the reported costs for Plan B include a factor to cover the expectation that enough present Plan B members will transfer to Plan C at a later date to sustain a pattern of 60 per cent of retirements being under Plan C. This assumption represents no change from our previous valuation. Because of changes in the Social Security law passed in 1977, however, we have added the following new assumption: 80 per cent of new entrants will elect coverage and retire under Plan B, with the remaining 20 per cent electing the higher employee contributions and retiring under Plan C.

Funding Method

We have used the "entry age normal cost method of funding." This method spreads the cost of the benefits to be provided to an individual as a level percentage of his pay from his date of employment to his assumed date of retirement. The normal cost for the entire system is equal to the sum of the normal costs for all participants. In a rough sense, it can be visualized as the cost of benefits earned during the current year.

The past service liability represents the amount by which the future normal costs fall short of meeting the cost of future benefit payments. It can also be viewed, roughly, as the value of benefits accrued for service prior to the valuation date.

Overall Actuarial Basis

We believe that our assumptions, taken as a whole, are reasonable. To the extent that actual experience is better or worse than assumed, gains or losses will develop, with appropriate decreases or increases in future costs.

Missing Data

It was also necessary to make certain "non-actuarial" assumptions where data was missing or incomplete. In all cases, we assumed such individuals had the same characteristics as other participants, taking into account the known characteristics (e.g., male members age 37 with unknown service were assumed to have the same service distribution as male members age 37 with known service). We also made an adjustment for purchased service and estimated the current value of each employee's past contributions.

VII. RESULTS OF VALUATION

The plan provides benefits on four different occurrences: retirement, death, disability, and withdrawal from employment. We calculated costs separately for each of these types of benefits. The cost factors are shown in Table 8. As previously reported in our discussion of employee turnover, these cost factors do not include either State or employee contributions for employees with less than one year of service.

The normal cost to the State is 8.86 per cent ($49.3 million) of the payroll of participating employees. This is lower than the figure in 1975 of 9.21 per cent. The difference is attributable to (a) changes in the active employee group (the average entry age dropped a full year); (b) the change in the expected Plan B elections of new members (with the cost reduction being more than offset by the decline in ultimate employee contributions); (c) the reduction in benefits after June 30, 1980 to the pre-Fitzpatrick male level (offset only partially by the grandfather guarantees), and, finally, (d) the one-half per cent increase in the salary scale assumption.

A reconciliation of these changes is presented below:

	State Normal Cost as % of Participating Payroll
As of December 31, 1975	9.21%
(a) lower entry-age of group	(.62)
(b) change in Plan B elections for new entrants	.54
(c) reduction in benefits	(1.04)
(d) one-half per cent increase in salary scale assumption	.77
As of December 31, 1978	8.86%

The past service liability totals nearly two billion dollars - $1,997,991,700. About 44 per cent - $874,786,700 - of this represents the value of benefits to present pensioners. That sum of almost $900 million is the amount required to meet lifetime payments to present pensioners, if one were to assume no additional contributions. The calculation of the lump sum takes account of the monthly benefit amount of each pensioner, the life expectancy of each pensioner (based on sex and attained age), the applicable post-retirement cost-of-living adjustment, and an investment return of 6 1/2 per cent on the sum before it is expended in pension payments. Three years ago the pensioner liability was 45 per cent of the total. This shows that over time the pensioners remain a substantial actuarial burden compared to the employees actively at work for the State - another key factor in the decision to adopt level funding.

As an offset to this liability, there are assets in the State Employees' Retirement Fund of $200 million at adjusted cost value. The unfunded past service liability of the System is therefore $1.798 billion. (This does not represent an accounting deficit in the usual sense - it is a calculated value of earned pension credits that are due to be covered in future pension contributions expressly earmarked for amortization of this unfunded present value.) This compares with an unfunded liability reported as of December 31, 1975 of $1.162 billion -- an increase of $636 million. The bulk of this increase is attributed to two factors:

(a) Contributions to the System are currently being made on a transition basis -- that is, a specified (by statute) increasing percentage of "full cost" is deposited in each fiscal year. The difference between this deposit and the sum of normal cost and interest on the unfunded liability becomes an addition to the unfunded liability each year. (This addition has been estimated to be roughly $170 million.)

(b) Average annual salaries have increased in the last three years by 19.8 per cent -- an annual rate of 6.2 per cent. This is substantially higher than that assumed in our previous review (about 4 per cent) and was a primary consideration in adopting a modification in the salary scale assumption. Because the System provides benefits based on final average salary, these actuarial losses have the effect of raising projected benefits not only for prospective service (funded by normal costs) but also for service earned prior to the valuation date (which is approximated by the past service liability). Thus, salary losses represented a major portion of the increase in the unfunded liability since December 31, 1975. (Again, a rough estimate of this loss is $190 million.)

Other factors contributing to the change in unfunded liability were the "up to 5 per cent" cost-of-living program for employees retiring prior to January 1, 1980 (an increase of about $136 million), and the modified salary scale assumption (a $33 million increase). Offsetting these was the effect of revision to pre-Fitzpatrick male benefit levels after June 30, 1980 which resulted in a $66 million reduction in liability.

The magnitude of the unfunded past service liability underscores the need to continue on the State's present funding schedule.

"Full Cost" as of January 1, 1979

The "full cost" to the State for the year beginning January 1, 1979 based on the December 31, 1978 valuation cost factors is $168,635,200, calculated as follows (per cents of payroll reflect total participating payroll, including employees with less than one year of service):

	Item	Amount	% of 12/31/78 Payroll
(1)	Participating payroll, 12/31/78	$ 556,243,500	--
(2)	Normal cost to State	49,288,600	8.86%
(3)	Unfunded past service liability	1,797,954,900	--
(4)	Payment on unfunded liability*	119,346,600	21.46
(5)	Total annual cost = (2) + (4)	168,635,200	30.32

*40 years remaining from January 1, 1979. This schedule will continue to show 40 years remaining until 1986, where the scheduled contribution will be the full cost of the System. Thereafter, the period will be decreased annually.

These factors are to be used in projecting the Fiscal 1980-81 State contribution requirement. As mentioned earlier, the State is currently funding the System on a transition basis with the required Fiscal 1980-81 contribution being 70% of the "full cost" for that year. The "full cost" is the normal cost rate applied to the projected 1980-81 payroll plus 40-year amortization of the unfunded liability as estimated as of July 1, 1980. This determination is presented in a separate report letter to the Commission.

Value of Vested Benefits

In private pension plans, it is customary for the actuary to provide the "value of vested benefits." This figure is used by accountants in preparing financial statements, both as a disclosure item and as a factor in determining the pension expense charge, in accordance with Opinion No. 8 of the Accounting Principles Board of the American Institute of Certified Public Accountants, "Accounting for the Cost of Pension Plans." While we recognize that the State may not be covered by this Opinion, a brief discussion of this subject may be helpful.

The "value of vested benefits" represents the single premium value under the plan's net investment return and mortality assumptions of all benefits to present and former employees which do not have future employment by the employee as a required condition for their receipt. Thus it includes the present value of an immediate or deferred pension for all pensioners, beneficiaries, vested former employees, and active participants with at least ten years of service. For active employees with less than ten years of service, only the accumulated employee contributions are included, since that is all such employees would receive if they had no further employment (except for those already over 65 with at least five years of service).

For the Connecticut State Employees' Retirement System, the value of vested benefits is $1,373,680,500.

It was noted earlier that the System's assets amount to $200,036,800 at adjusted cost value. Thus the State has vested benefits worth $1,173,643,700 more than the Retirement Fund holds in assets. Once again, we see that a strong commitment to funding is required to bring the System's assets and obligations into balance.

Overall Status of System

We believe that the State is progressing as expected on its plan to put the System on a sound financial basis, and look forward to assisting the Commission as it continues towards this goal.

Table 8

Summary of Cost Factors as of December 31, 1978

Item	Retirement Benefits	Death Benefits	Disability Benefits	Withdrawal Benefits	Total
Current Service Cost --					
Police	$ 1,363,500	$ 48,700	$ 85,600	$ 196,200	$ 1,694,000
Plan B	27,550,000	188,700	4,371,200	3,833,300	35,943,200
Plan C	21,230,700	203,000	2,546,100	1,918,100	25,897,900
Total	$ 50,144,200	440,400	$ 7,002,900	$ 5,947,600	$ 63,535,100
Less Imputed Employee Contributions*					-14,246,500
Normal Cost to State					$ 49,288,600
Past Service Liability --					
Police	$ 27,641,600	$ 218,200	$ 712,800	$ 901,000	$ 29,473,600
Plan B	573,384,000	4,335,100	46,905,200	35,536,600	660,160,900
Plan C	415,046,400	2,607,700	19,355,100	12,135,700	449,144,900
Total Active Employees	$1,016,072,000	$7,161,000	$66,973,100	$48,573,300	$1,138,779,400
Active Liability for "up to 5%" COLA					25,445,100
Credit against active liability**					(59,025,000)
Total Active Employees - adjusted					$1,105,199,500
Vested Former Employees					2,784,600
Pensioners					874,786,700
Beneficiaries					15,220,900
Total Past Service Liability					$1,997,991,700
Less Assets in Fund (at adjusted cost value)					-200,036,800
Unfunded Past Service Liability					$1,797,954,900

CONNECTICUT SERS

*Ultimate new entrant basis (80% Plan B)
**Present value of difference of actual over imputed employee contributions.

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March 10, 1980

CONNECTICUT STATE EMPLOYEES' RETIREMENT SYSTEM

Actuarial Valuation

This is to certify that we have prepared an actuarial valuation of the System as of December 31, 1978.

The valuation was made with respect to the following participants as of the valuation date:

a. 13,608 pensioners (including 280 beneficiaries of deceased pensioners and active employees)
b. 43,855 active participants (including 14,668 fully vested) with total annual salaries of $556,243,500
c. 164 inactive employees with vested right to immediate or deferred pension

The cost factors as of the valuation date are as follows:

1.	Current service cost	$ 63,535,100
2.	Projected employee contributions	14,246,500
3.	Normal cost to State (Item 1 less Item 2)	49,288,600
4.	Past service liability --	
	a. Active participants	1,105,199,500
	b. Vested former employees	2,784,600
	c. Pensioners	874,786,700
	d. Beneficiaries	15,220,900
	e. Total	$1,997,991,700
5.	Assets in fund (at adjusted cost value)	200,036,800
6.	Unfunded past service liability (Item 4e less Item 5)	1,797,954,900
7.	Payment on unfunded liability (Amortization of Item 6 over 40 years from January 1, 1979)	119,346,600
8.	Total annual cost* (Item 3 plus Item 7)	168,635,200

Present Value of Vested Benefits: $1,373,680,500

*Based on full normal cost and 40-year amortization. The funding statute calls for an increasing percentage of this "full cost" to be contributed by the State each year. For fiscal 1979-80, this percentage is 65 per cent, increasing by 5 per cent each year. For fiscal 1986-87 and later years, the entire "full cost" will be required.

The actuarial assumptions and funding method are as follows:

Mortality rates -- 1971 Group Annuity Mortality Table

Termination rates before retirement (no cost included for 4,114 employees with less than one year of service):

	Rate (%)			
Age	Death*	Disability	Withdrawal	Total*
20	.05	.06	5.44	5.55
25	.06	.09	5.29	5.44
30	.08	.11	5.07	5.26
35	.11	.15	4.70	4.96
40	.16	.22	4.19	4.57
45	.29	.36	3.54	4.19
50	.53	.61	2.47	3.61
55	.85	1.01	.94	2.80
60	1.31	--	--	1.31

Service-connected disability rates comprise 50% of disabilities for Police and 20% for other participants.

*Rates shown are for men. Rates for women are slightly lower.

Salary scale:

Age	Present salary as a percent of salary at 65	Annual increase (Rate %)
20	14.04	5.34
25	18.19	5.26
30	23.43	5.10
35	29.94	4.90
40	37.81	4.58
45	46.98	4.22
50	57.44	3.95
55	69.53	3.83
60	84.02	3.66

Social Security wage base increases: 3½% per year
Retirement age -- Police: 53, or completion of 25 years of service if later
Others: 61, or completion of 10 years of service if later
Investment return -- 6½%

Transfers:
(a) Present Active Employees - Plan B members to transfer to Plan C prior to retirement such that 60% of all retirements are under Plan C.
(b) New Entrants - 80% of all non-Police new entrants will elect and retire under Plan B. Remainder will elect Plan C.

Cost-of-living increases: 4½% per year for retirees awarded prior to January 1, 1980. 3% per year for all other awards.

Valuation of assets -- At adjusted cost value*

Funding method -- Entry age normal cost (non-participants not funded for)

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*Adjusted cost value of assets written up by 20% of the difference between market value and adjusted cost value, plus an additional write-up as necessary so that the resulting adjusted cost value is within 20% of market value.

Similar formula followed for write-down if adjusted cost value exceeds market value.

Sherman B. Lieberman

Sherman B. Lieberman, F.S.A., M.A.A.A.
Actuary