Reels 185 Burry S

CONNECTICUT STATE EMPLOYEES
RETIREMENT SYSTEM

December 31, 1984 ACTUARIAL VALUATION

### MILLIMAN & ROBERTSON, INC. CONSULTING ACTUARIES

They stated

THREE CORPORATE PLACE BLOOMFIELD, CONNECTICUT 06002 203/243-1138

March 27, 1985

State of Connecticut State Employees Retirement Commission 30 Trinity Street Hartford, CT 06106

Ladies and Gentlemen:

We are pleased to provide this actuarial report for the Connecticut State Employees Retirement System. The report shows the financial status of the system as of December 31, 1984 and presents cost figures for the fiscal year beginning July 1, 1985.

As summarized in Section I, the recommended contribution for the fiscal year beginning July 1, 1985 is \$286,616,065. Since the State contribution will be based on 100% of Tier II costs and 95% of Tier O and Tier I costs, the actual State contribution, including Federal reimbursements, will be \$272,909,531.

This valuation was done using actuarial methods and assumptions which are the same as those used in the December 31, 1984 valuation except that both interest and salary scale assumptions have been increased by 1%. The method and assumptions are described in Section II of the report. The change in assumptions had the impact of reducing annual costs by approximately \$14,000,000.

The membership data provided to us was as of September 30, 1984; therefore salaries were increased by 1% to project them to December 30. This data is summarized in Section III and a detailed analysis of the membership by age and service is attached as Exhibit B. Although we did not audit this data (or the financial data referred to below), they are reasonably consistent with comparable data from the previous valuation. However, subsequent comparisons with actual payment records indicated that the salary rates understated actual compensation by 5.7%; therefore all active payroll figures and costs were adjusted by this percentage.

ALLAN D AFFLECK, F.S.A. DAVID V. AXENE, F.S.A. LAFRY D. BABER, F.S.A. JAMÉS R BEROUIST, F.C. A.S.
GEORGE L. BERRY, F.S. A.
DAVIO P. BICKERSTAFF, F.C. A.S.
THOMAS P. BLEARNEY, F.S.A.
BRUNO V. BOIN, F.S.A.
PETER J. BONDY, F.S.A.
STEPHEN D. BRINK, F.S.A.
ROBERT E. CAMPBELL, F.S.A.
ROBERT M. CHANDLER, F.S.A.
ROBERT M. CHANDLER, F.S.A.
ROBERT M. CHANDLER, F.S.A. JAMES R. BEROUIST, F.C. A.S. ROBERT C. CAMPBELL, F.S.A.
ROBERT M. CHANDLER, F.S.A.
MILTON F. CHAUDER, F.S.A.
MILTON F. CHAUDER, F.S.A.
MARK A. CHESNER, F.S.A.
BARION H. CLENNON, F.S.A.
JOHN P. COOKSON, F.S.A.
JOHN P. COOKSON, F.S.A.
JOHN P. COOKSON, F.S.A.
THOMAS K. CUSTIS, F.S.A.
CART E. DAHLMAN, F.S.A.
CHISTIAN J. DESPOCHERS, F.S.A.
PHYLLIS A. DOPAN, F.S.A.
JOHN S. ECKLET, F.S.A.
JOHN S. EDWARDS, F.C.A.
CARY B. EKLOF, F.S.A.
JOHN E. FOLEY, F.S.A.
JOHN E. FOLEY, F.S.A.
LAPEDLY, F.C.A.S.
JOHN E. FOLEY, F.S.A.
LAPEDLE T. A. FRITCH, F.S.A.
HERBERT A. FRITCH, F.S.A.
HERBERT A. FRITCH, F.S.A. CAPT D. FRANKLIN, F.S.A.
HERBERT A FRITCH, F.S.A.
JAMES A. GOBES, F.S.A.
DENNIS J. GRAF, F.S.A.
PATRICK J. GRANNAN, F.C.A.S.
DENNIS L. GRAVES, F.S.A.
JANET S. GRAVES, F.C.A.S.
CHARLES W. HABECK, F.S.A.
JANET S. GRAVES, F.S.A.
DALES W. HABECK, F.S.A.
DALES W. HABECK, F.S.A.
RENDALD G. HARRIS, F.S.A.
RENDALD G. HARRIS, F.S.A.
RENDALD G. HARRIS, F.S.A.
FENTON R. ISSACSON, F.S.A.
FENTON R. ISSACSON, F.S.A.
GREGORY D. JACOBS, F.S.A.
MARA O. JOHNSON, F.S.A.
MARA O. JOHNSON, F.S.A.
HOUGEN B. M. KALWARSKII, F.S.A. MARK O. JOHNSON, F.S.A.
EUGENE M. KALWARSKI, F.S.A.
DOUGLAS F. KLINE, F.C.A.S.
GERALD T. KOGER, F.C.A.
DAVID W. KRUEGER, F.S.A.
TIMOTHY D. LEE, F.S.A.
JOHN M. LENSER, F.S.A.
LEONARD P. J. LEONG, F.S.A.
LEONARD P. J. LEONG, F.S.A.
MARK E. LITOW, F.S.A.
O. ALAN LITTLE, F.S.A.
MICHAEL J. MAHONEY, F.S.A.
MICHAEL J. MAHONEY, F.S.A.

O.ALAN LITTLE, F.S.A.
MICHAEL J. MAHONEY, F.S.A.
RICHARD L. MARKER, F.S.A.
BRIAN J. MATTSON, F.S.A.
DOBERT G. MAULE, F.S.A.
DANIEL J. MCCARTHY, F.S.A.
MICHAEL A. MCGRATH, F.S.A.
MICHAEL A. MCMURRAY, F.C.A.S.
DOUGLAS MENNES, F.S.A.
STEVEN I. MIKRALO E.E.A.
DEL STEVEN I. MIKRALO E.E.A.

STEVEN J. MIKKALO F S A

STEVEN J. MIKKALO, F.S.A.
EDWARD P. MOHORIG, F.S.A.
DANIEL P. NICHOLS, F.S.A.
DAVID F. OSDEN, F.S.A.
RUCET, OSG, F.S.A.
ROBERT W. OMDAL, F.S.A.
RICHARD E. OSTUW, F.S.A.
PAUL J. PATTERSON, F.S.A.
MARGARET E. PEARSON, F.S.A.
MARGARET E. PEARSON, F.S.A.
MARGARET E. PEARSON, F.S.A.
MRISE, PETTERSON, F.S.A.

J LYNN PLABODY, F.S.A.
MARGARET E. PEARSON, F.S.A.
KRIS E. PETERSON, F.S.A.
KRIS E. PETERSON, F.S.A.
ROBERT A. PRYOR, F.S.A.
ROBERT A. PRYOR, F.S.A.
ROBERT A. PRYOR, F.S.A.
STANLEY A. ROBERTS, F.S.A.
STUART A. ROBERTSON, F.S.A.
WALTER S. RUGLAND, F.S.A.
PAULA S. SEDLACEK, F.S.A.
DONALD J. SEGAL, F.S.A.
T. THOMAS SIMESTER, F.S.A.
WILLIAM D. SMITH, F.S.A.
JOHN B. SNYDER, IT. F.S.A.
STEVEN D. SOMMER, F.S.A.
RAFEN I. STEFFEN, F.S.A.
DENIS J. SULLIVAN, F.S.A.
DOUGLAS G. TAYLOR, F.S.A.
WILLIAM S. THOMAS, F.S.A.
GERALD G. TOY, F.S.A.
STANLEY B. JULIN, F.S.A.
STANLEY B. JULIN, F.S.A.
GERALD G. TOY, F.S.A.
STANLEY B. JULIN, F.S.A. GERALD G. TOY, F.S.A.
STANLEY B. TULIN, F.S.A.
JAMES R. TYLER, F.S.A.
BRUCE N. VANDER ELS, F.S.A.
ANDREW B. WANG, F.S.A.
RICHARD E. WHITE, F.S.A.
RICHARD WINTERHOF, F.S.A.
BRUCE W. WINTERHOF, F.S.A.
BRUCE L. WORKMAN, F.C.A.
BRUCE L. WORKMAN, F.C.A.

WENDELL MILLIMAN, F.S.A. (1976) JAMES H. RIGGS, F.S. A. (1975)

or the state of the Contract

Section IV outlines the status of the retirement fund as reported to us by the Retirement Division and describes the adjustment used to spread unrealized gains and losses.

The final section of the report outlines our understanding of the benefit provisions embodied in the Connecticut statutes, as ammended through 1984.

In our opinion this report fairly presents the financial and actuarial position of the Connecticut State Employees Retirement System as of December 31, 1984, in accordance with generally accepted actuarial principles. We also certify that, to the best of our knowledge and belief, this report is both complete and accurate; a copy of our separate certification is attached to the report as Exhibit A.

Respectfully submitted,

James A. Gobes, F.S.A. Consulting Actuary

JAG/sf

### TABLE OF CONTENTS

	LETTER	rage
I	SUMMARY OF VALUATION	
	A Actuarial Balance Sheet B Projection of Normal Cost C Projection of Total Cost	1 2 3
II	Actuarial Method and Assumptions	
	A Funding Method B Actuarial Assumptions	4 6
III	Membership Data	
	A Active Members B Actives by Plan C Retired and Terminated Vested	9 10 12
IV	Retirement Fund	
	A 1984 Summary of Fund B December 31, 1984 Assets C Adjusted Cost Value	13 14 15
V	Summary of Plan Provisions	16
XHIBITS		
A.	Certification	
3.	Analysis by Age and Service	
2.	Retired Repefit Applysis	

### SUMMARY OF VALUATION A. Actuarial Balance Sheet

Based on the membership and asset information provided to us (and summarized in Sections III and IV), the actuarial method and assumptions described in Section II, and our understanding of the benefit provisions embodied in Connecticut statutes as summarized in Section VI, we have prepared the following valuation of assets and liabilities as of December 31, 1984:

ASSETS	Tier 0 and Tier 1	I Tier II	Total
Retirement Fund			
(Adjusted basis)	\$ 952,746,185	\$ 4,433,769	\$ 957,179,954
Present value of future Normal			
Cost contributions	1,145,401,492	92,719,234	1,238,120,726
0000 00.102.2040.00.10	1,113,101,152	3271234	1,230,120,720
Unfunded Accrued Liability	2,378,956,608	13,029,205	2,391,985,813
ACCRITO ELEGATOTY -ESS			
TOTAL ASSETS	\$4,477,104,285	\$110,182,208	\$4,587,286,493
LIABILITIES			
IIIABITITIES			
Present value of benefits			
Active Members	\$3,161,241,505	\$110,182,208	\$3,271,423,713
Retired Members	1 200 026 160	0	1 200 000 100
Retired Members	1,308,926,160	0	1,308,926,160
Terminated Vested Members	6,936,620	0	6,936,620
TOTAL LIABILITIES	\$4,477,104,285	\$110,182,208	\$4,587,286,493

### SECTION I

### B. Projection of Normal Costs

The valuation calculated Normal Costs as of January 1, 1985 based on the payroll as of that date. Payroll was projected to July 1, 1985 by assuming that 5% of the Tier O and Tier I payroll will terminate during the six month period and be replaced by Tier II employees at the same salary level; remaining Tier O and Tier I employees and all Tier II employees (including replacements of Tier II terminations) are assumed to receive pay increases by July 1 equal to 5%. This produced the following projected Normal Costs:

Tier	Plan	Estimated Payroll 1/1/85	Normal Cost Percentage	Projected Payroll 7/1/85	Normal Cost <u>7/1/85</u>
I I	HD B* C*	\$ 83,347,902 805,273,188 141,841,073	12.2955% 8.9285 <u>6.4392</u>	\$ 83,139,532 803,260,005 141,486,470	\$10,222,421 71,719,070 9,110,597
	Tier 0, Tier I	\$1,030,462,163		\$1,027,886,007	\$91,052,088
II	HD Other	\$ 7,319,303 98,715,984	10.2710% 6.8074	\$ 11,852,663 151,007,496	\$ 1,217,387 10,279,684
Total	Tier II	\$106,035,287		\$ 162,860,159	\$11,497,071
Grand	Total	\$1,136,497,450		\$1,190,746,166	\$102,549,159

<sup>\*</sup> Includes approximately \$2,000,000 of Tier 0 salaries.

### SECTION I

### C. Projection of Total Cost

The Unfunded Liability as of December 31, 1984 was brought forward to June 30, 1985 by adding interest and adding (six months of) the January 1, 1985 Normal Cost, with interest, and subtracting expected contributions, also with interest:

	Tier 0 & Tier I	Tier II	Total
Unfunded Accrued Liability,12-31-84	\$2,378,956,608	\$13,029,205	\$2,391,985,813
+ Interest	87,598,102	479,762	88,077,864
+ 6 months Normal Cost	43,896,476	3,593,123	47,489,599
+ Interest	668,763	54,741	723,504
- State Payments	96,582,162	3,603,416	100,185,578
- Federal Payments	16,608,431	619,649	17,228,080
- Employee Contributions	12,028,941	0	12,028,941
- Interest	1,907,720	64,338	1,972,058
Unfunded Accrued Liability,6-30-85	\$2,383,992,695	\$12,869,428	\$2,296,862,123
	*****	**	
Normal Cost	\$ 91,052,088	\$11,497,071	\$ 102,549,159
Amortization of Unfunded (over 40 years)	183,078,599	988,307	184,066,906
Total	\$ 274,130,687	\$12,485,378	\$ 286,616,065
Cost Percentage	95%	100%	
Adjusted Cost	\$ 260,424,153	\$12,485,378	\$ 272,909,531

### SECTION II

### ACTUARIAL METHOD AND ASSUMPTIONS

### A. Funding Method

- 1. The actuarial valuation method used in the cost calculations is the Entry Age Normal Cost Method. Recommended annual contributions until the accrued liability is completely funded will consist of two pieces: Normal Cost plus a payment towards the Unfunded Accrued Liability.
- 2. The Normal Cost is determined by calculating the present value of future benefits for present active Members that will become payable as the result of death, disability, retirement or termination. This cost is then spread as a level percentage of pay from entry age to termination as an Active Member.
- 3. If Normal Costs had been paid at this level for all prior years, a fund would have been accumulated. Because this fund represents the portion of benefits that would have been funded to date, it is termed the Accrued Liability. In fact, it is calculated by adding the present value of benefits for retired Members and Terminated Vested Members to the present value of benefits for active Members and subtracting the present value of future contributions.
- 4. The Unfunded Accrued Liability is the Accrued Liability less Current Assets.
- 5. Since the valuation was done as of January 1, costs have been projected to July 1 in order to correspond to the fiscal year as follows:
  - A. Normal costs were determined as a percentage of pay, by Tier, as of January 1. Payroll was projected to July 1, separately for each Tier because of the shifting Tier populations, and these were multiplied by the normal cost factors by Tier.

- B. The Unfunded Accrued Liability was determined as of January 1, and brought forward to July 1 by adding one-half of the January 1 Normal Cost plus interest and subtracting expected employee and State contributions, also with interest. This amount was amortized over 40 years.
- C. Normal Cost and Past Service Amortization payments were adjusted to reflect payment in twelve equal installments at the end of each month.

### SECTION II

### B. Actuarial Assumptions

Morta	li.	ty
Morta	TJ.	су

1971 Group Annuity Mortality Table with ages set back 6 years for females.

Investment Return

75% compounded annually.

Salary Scale

	Annual Rate of
<u>Age</u>	Increase
20	6.34%
25	6.26
30	6.10
35	5.90
40	5.58
45	5.22
50	4.95
55	4.83
60	4.66

Turnover

Estimated by excluding participants with less than one year of service and assuming that all other employees terminate at the following rates.

	Annual Rate of
<u>Age</u>	Withdrawal
20	5.44%
25	5.29
30	5.07
35	4.70
40	4.19
45	3.54
50	2.47
55	•94
60	Said Street

Retirement Ages

Hazardous Duty, Age 53 and 25 years of service.

All other, Tier 0 and Tier I: Age 61 and 10 years of service.

Tier II: Age 65 and 10 years of service or age 70 and 5 years of service, or for Hazardous Duty Members, 25 years of service.

Social Security Wage Base Increases

3½% compounded annually.

Disability

Annual Rate of Disability

	<b>-</b>
Age	(Per 1000 lives)
20	.06
25	.09
30	.11
35	.15
40	.22
45	.36
50	.61
55	1.01
60	- Starth-day-m

Service-connected are assumed to comprise 50% of total disabilities for Hazardous Duty and 20% for others.

Cost-of-Living Increases

3% per year for retirees on or after 1-1-80.  $4\frac{1}{2}$ % per year for retirees prior to 1-1-80.

Asset Valuation

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

### SECTION III

### MEMBERSHIP DATA

### A. Active Members

We received data on 46,661 State employees plus 1,263 employees of State aided institutions, for a total of 47,924 Members. The following analysis compares the current distribution with the December 31, 1983 data (see Exhibit B for distribution by age and service).

	12-31-83	12-31-84	Change	Per Cent Change
Total Employees	47,295	47,924	+ 629	+ 1.3%
Total Salary (millions)*	\$ 977.8	\$ 1,136.5	+\$ 158.7	+16.2%
Average Salary	20,674	23,725	+\$3,041	+14.7%
Average Age**	42.3	42.4	+ 0.1	N/A
Average Service**	9.9	9.7	- 0.2	N/A

- \* Salaries increased 1% to project from 10-1 to 12-31.
- \*\* Based on Members included in valuation.

Of the active records submitted to us, 1,036 were rejected due to missing or invalid dates of birth and/or hire. Cost calculations were done using the valid records and then adjusted proportionately for the rejected records, and for the higher salary reported on actual payment records.

For valuation purposes, an additional 1,024 Members were excluded because they had less than one year of service; thus the valuation was based on 45,864 Members.

Salary figures as of December 31, 1983 were based on the annualized September payroll figures projected to year-end. Salary figures as of December 31, 1984 were derived in the same way but were then increased by 5.7% to bring them up to the total actual payroll for July 1 to December 31, annualized and projected to December 31.

### SECTION III

### B. Actives By Plan

The following analysis is based on the total of 47,924 active Members including employees not in the valuation because they had less than one year of service or had incorrect birth and/or hire dates. Hazardous Duty Members include 346 Tier II Members

			Per Cent
12-31-83	12-31-84	Change	Change
3,192	3,270	+ 78	+ 2.4%
31,601	32,567	+ 966	+ 3.1
8,065	6,148	-1,917	-23.8
4,437	5,939	+1,502	+33.9
lions)			
\$ 70.1	\$ 90.7	+\$ 20.6	+ 29.4%
685.4	805.3	+ 119.9	+ 17.5
164.1	141.8	- 22.3	- 13.6
58.2	98.7	+ 40.5	+ 69.6
\$ 21,957	\$27 <b>,</b> 727	+\$5,770	+ 26.3%
21,699	24,727	+ 3,028	+ 14.0
20,350	23,071	+ 2,721	+ 13.4
13,130	16,622	+ 3,492	+ 26.6
	3,192 31,601 8,065 4,437  Lions) \$ 70.1 685.4 164.1 58.2  \$ 21,957 21,699 20,350	3,192 3,270 31,601 32,567 8,065 6,148 4,437 5,939  lions) \$ 70.1 \$ 90.7 685.4 805.3 164.1 141.8 58.2 98.7  \$ 21,957 \$27,727 21,699 24,727 20,350 23,071	3,192 3,270 + 78 31,601 32,567 + 966 8,065 6,148 -1,917 4,437 5,939 +1,502  lions) \$ 70.1 \$ 90.7 +\$ 20.6 685.4 805.3 + 119.9 164.1 141.8 - 22.3 58.2 98.7 + 40.5  \$ 21,957 \$27,727 +\$5,770 21,699 24,727 + 3,028 20,350 23,071 + 2,721

This analysis of age and service is based on Active Members included in the valuation. Therefore it excludes 1,024 employees with less than one year of service and the 1,036 records with incorrect birth dates or hire dates.

	12-31-83	12-31-84	Change
Average Age			
Hazardous Duty	38.9	38.7	- 0.2
Plan B	41.3	41.9	+ 0.6
Plan C	51.0	52.8	+ 1.8
Tier II	32.7	34.7	+ 2.0
Average Years of Se	ervice		
Hazardous Duty	11.0	10.4	- 0.6
Plan B	9.8	10.0	+ 0.2
Plan C	12.6	12.7	+ 0.1
Tier II	2.4	3.6	+ 1.2

### SECTION III

### C. Retired and Terminated Vested Members

The following compares the current retired data with the December 31, 1983 data. [See Exhibit C for analysis of retirees by age, year of retirement and type of retirement].

Pensioners	<u>1:</u>	2-31-83	<u>12</u>	2-31-84	Change	Per Cent Change
Number	10	6,376	16	5 <b>,</b> 930	+ 554	+ 3.4%
Total Annual Benefit*	\$	110.6	\$	121.1	+\$ 10.5	+ 9.5
Average Monthly Benefit	\$	563	\$	596	+\$ 33	+ 5.9
Beneficiaries  Number  Total Annual Benefit*  Average Monthly Benefit	\$ \$	504 2.6 428	\$ \$	607 3 <b>.</b> 5 481	+ 103 +\$ 0.9 +\$ 53	+20.4% +34.6 +12.4
Terminated Vested	Ÿ	420	Ý	401	<del>τ</del> γ 55	+12.4
Number		495		476	- 19	- 3.8%

<sup>\*</sup> Millions

### SECTION IV

### A. 1984 Summary of Fund

Market Value, January 1

\$801,667,094.88

### Contributions

State \$174,976,157.00

Federal 37,102,079.96 Employee 30,556,473.44

\$242,634,710.40

### Investment Income

Interest and Dividends \$ 72,207,782.93

Realized Gains 1,612,918.96

Change in Unrealized Gains 9,721,096.05

\$ 83,541,797.94

### Disbursements

Benefit payments \$120,284,134.09

Employee refunds 15,579,972.86

Expenses (Net) 76,384.00

\$135,940,490.95

Market Value, December 31 \$991,903,114.27

### SECTION IV

### December 31, 1984 Assets (Market Value Basis)

Cash

\$(12,621,953.54)

Accrued Interest

4,767,405.16

### Investments

Short Term	\$ 61,301,154.00
Fixed Income	332,703,395.57
Equity	361,934,890.00
Contract	11,297,520.00
Mortgage	131,015,803.08
Real Estate	101,504,900.00
TELL LISTER	

999,757,662.65

Total Market Value of Assets 12/31/84

\$991,903,114.27

SECTION IV

### C. Adjusted Cost Value

	Book Value	Market Value	Adjusted Cost Value
12-31-78	\$199,937,761	NA	\$200,036,795
12-31-79	271,219,899	\$260,210,421	269,097,231
12-31-80	363,951,995	362,983,337	362,060,129
12-31-81*	475,679,076	445,754,990	468,180,766
12-31-82	612,960,709	644,650,823	613,300,084
12-31-83	759,544,293	801,667,095	767,984,244
12-31-84	940,059,215	991,903,114	957,179,954

Including \$2,000,000 estimated interest accrued.

The derivation of the 1984 Adjusted Cost Value is shown below.

1.	Adjusted cost value, 12-31-83	\$767,984,244
2.	Net new money, all sources	180,514,920
3.	Preliminary value, 12-31-84, [(1) + (2)]	948,499,164
4.	Market value, 12-31-84	991,903,114
5.	Current adjustment, 20% [(4) - (3)]	8,680,790
6.	Adjusted Cost Value, 12-31-84, [(3) + (5)] [Must be within + 20% of (4)]	\$957,179,954

### SECTION V

### Summary of Plan Provisions

Effective Date

September 1, 1939

System Eligibility

Tier 0 and Tier I [Sec. 5-160]

Each state employee appointed to classified service shall become a member on the first day of the pay period following permanent appointment.

Each officer elected by the people and each appointee of such officer exempt from classified service may elect to become a member, effective on the first day of the pay period following receipt of such election.

Each other state employee exempt from classified service shall become a member on the first day of the pay period following six months of employment.

Tier II [Sec. 23]

Each state employee becomes a member on the first day of employment.

### Plan Eligibility

Tier I [Sec. 6]

Except as noted below employees hired prior to January 1, 1984 may elect (no later than January 2, 1984) to be covered under either Plan B or Plan C. Employees under contracts with Union Independent and CSFA unions hired prior to October 1, 1982 have until October 1, 1984 to make such election.

Tier II [Sec. 23]

Employees hired on or after July 1, 1982 (or October 1, 1982 for Union Independent and CSE union members who are not in any other plan, and any other employees who have not previously been covered under any plan.

### Normal Retirement Date

State Police [Sec. 5-173 as amended by Sec. 17]

Age 47 and 20 years of service.

Tier 0 and Tier I [Sec. 5-162]

Age 55 and 25 years of service, age 60 and 10 years of service, or age 70.

Tier II [Sec. 28 & 30]

Age 65 and 10 years of service or age 70 and 5 years of service, except hazardous duty members may retire after 25 years.

### Normal Retirement Benefit

State Police [Sec. 5-173 as amended by Sec. 17]

50% of Final Average Earnings plus 2% for each year in excess of 20.

Tier 0 and Tier I, Plan B
Benefit [Sec. 5-162]
Minimum [Sec. 10]

Same as Plan C up to age 65; thereafter 1% of Final Average Earnings up to \$4,800 plus 2% of Final Average Earnings in excess of \$4,800 times years, reduced for retirement prior to age 65 with less than 25 years. Minimum benefit with 25 years, \$300 per month.

Tier 0 and Tier I, Plan C
Benefit [Sec. 5-162]
Minimum [Sec. 10]

2% of Final Average Earnings times years of service, reduced for retirement prior to age 65 with less than 25 years. Minimum with 25 years, \$300 per month.

Tier II

Hazardous Duty Members

[Sec. 30]

2% of Final Average Farnings times years of service. Minimum with 25 years, \$300 per month (or less if retirement before 7-1-87).

All Other [Sec. 28]

1 1/3% of Final Average Earnings plus % of Final Average Earnings in excess of the year's breakpoint\*, times years of service from 10-1-82. Minimum with 25 years, \$300 per month ( or less if retirement before 7-1-87).

<sup>\* \$10,700</sup> increased by 6% each year after 1982, rounded to the nearest \$100.

### Early Retirement

State Police

None.

Tier 0 and Tier I [Sec. 5-162] Age 55 and 10 years of service; Normal Retirement Benefit reduced additionally for retirement prior to age 60.

Tier II [Sec. 29]

Age 55 and 10 years of service; Normal Retirement Benefit reduced 1/8 for each month prior to age 65; Minimum benefit with 25 years, \$300 per month (or less if retirement prior to 7-1-87).

### Deferred Retirement

Tier 0 and Tier I [Sec. 5-162]

May be deferred but not beyond age 70.

Tier II [Sec. 28 (b) and (e)]

May be deferred but not beyond age 70.

Benefit is based on salary and service to actual retirement.

### Vesting

Tier 0 and Tier I

[Sec. 5-166 as amended in part by Sec. 13]

Ten years of service; actuarially reduced benefit payable at age 55; in addition employees are always fully vested in their own contributions (after 1-1-83, Tier I, contributions with 5% interest from 1-1-82).

Tier I, Hazardous Duty [Sec. 17]

As above, but may receive full benefits at age 47 if 20 years of service at termination.

Tier II [Sec. 31]

Ten years of service or age 70 and 5 years; benefit payable at age 65 or early retirement benefit payable at age 55; minimum benefit with 25 years, payable after age 55, \$300 per month (or less if retirement before 7-1-87).

### Employee Contributions

State Police, Hazardous Duty 5% of salary. [Sec. 5-161]

Plan C [Sec. 5-161]

5% of salary.

Plan B [Sec. 5-161]

2% of salary up to Social Security Taxable Wage Base plus 5% above that level.

Tier II [Sec. 37]

None.

### Cost of Living

[Sec. 5-162b, 5-162d, Sec. 9 & Sec. 35]

Annual adjustment each July 1 of up to 5% for retirements prior to 7-1-80; 3% for retirements after 7-1-80. members (or beneficiaries) not covered by Social Security and age 62 and over, the maximum increase is 6%.

If an actuarial surplus (as defined in the law) exists, the commission may further increase retired benefits.

### Death Benefits

State Police [Sec. 5-146]

Survivor benefits to spouse of \$550 per month plus \$250 to a surviving dependent child (or \$575 to surviving dependent children).

Tier 0 and Tier I
[Sec. 5-165a as amended by Sec. 12]

If eligible for early or normal retirement, spouse benefit equal to 50% of average of Life Benefit and 50% J&S benefit member would have received. If not eligible to retire but 25 years, same benefit calculated as though age 55 using service and earnings at death.

[Sec. 5-168 as amended by Sec. 13]

If not eligible for retirement, return of contributions (after 10-1-82, Tier I, with interest from 1-1-82 at 5%).

Tier II [Sec. 34]

If eligible for early or normal retirement, spouse benefit equal to 50% of member's benefit under a 50% J&S. If not eligible to retire but 25 years, same benefit calculated as though age 55 using service and earnings at death.

[Sec. 36]

If death is due to employment, a spouse with dependent child(ren) under 18 will be paid \$7,500 in not less than 60 installments while living and not remarried; also \$20 per month per child under 18. If no children under 18, spouse [or dependent parent(s), if no spouse] will be paid \$4,000 in not less than 60 installments.

### Disability Benefits

Tier 0, [Sec. 5-169]

For disabilities occurring prior to age 60 and after 5 years of service (or regardless of years, if disability is due to service); benefit is the same as Tier 1 below except maximum benefit is based on service to age 60.

Tier I [Sec. 16]

For non-service disabilities occurring prior to age 60 and after 5 years of service, benefit equals 3% times base salary times years of service (Maximum 1 2/3% times service to 65). disability occurs prior to age 60 and is due to service, benefit equals 2/3% of salary times service projected to 65 (maximum 30 years) and is payable regardless of length of service. Exception: State Police benefit is accrued benefit.

Maximum disability benefit is lesser 100% of salary less Workers of: Compensation and Social Security and less non-rehabilitation earnings or 80% of salary less Workers Compensation and Social Security. Social Security is primary plus family.

Tier II [Sec. 32]

Prior to age 65 and due to service or after 10 years of service, benefit is 1 1/3% of final average earnings, plus 1/3% excess earnings times service projected to 65 (maximum 30 years or service to Date of Disability if greater than 30 years). Same maximum as Tier I.

### Options

Tier 0 [Sec. 5-165]

Life [Normal Form]
Husband and Wife.

Tier I [Sec. 11]
Tier II [Sec. 33]

50% Qualified Joint and Survivor (CA)<sup>1</sup>.
50% or 100% Joint and Survivor (CA).
Ten years certain and life.
Twenty years certain and life.
Life<sup>2</sup>.

### Part-Time Employment

[Sec. 5-162g & Sec. 27]

Service treated as if full-time for eligibility. If consistent part-time for all periods, treat as full-time. If varying schedule or some part-time, some full-time, service and salary proportionately adjusted.

<sup>1</sup> Normal Form if married at least 12 months.

Normal Form if not married at least 12 months.

EXHIBIT A

CERTIFICATION

### MILLIMAN & ROBERTSON, INC.

Land to the Contraction of the Contraction

CONSULTING ACTUARIES

THREE CORPORATE PLACE
BLOOMFIELD, CONNECTICUT 06002
203/243-1138

March 26, 1985

### CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM

### Actuarial Valuation

This is to certify that we have prepared an actuarial valuation of the Connecticut State Employees Retirement System as of December 31, 1984.

The valuation was made with respect to the following Members:

- a. 17,537 pensioners (including 607 beneficiaries of deceased Members).
- b. 47,924 active Members with total annual salaries of \$1,136,497,450.
- c. 476 inactive employees with vested rights.

Based on the above data and the attached actuarial method and assumptions, we determined cost factors as of the valuation date as follows:

### 1. Accrued liability-

	<ul><li>a. Active Members</li><li>b. Retired Members and Beneficiaries</li><li>c. Vested former Members</li><li>d. Total</li></ul>	\$2,033,302,987 1,308,926,160 6,936,620 \$3,349,165,767
2.	Assets in fund (at adjusted cost value)	\$ 957,179,954
3.	Unfunded liability (Item 1d less Item 2)	\$2,391,985,813
4.	Present Value of Vested Benefits	\$2,336,431,955

40 000 000 007

Based on the valuation as of December 30, 1984, projected costs were developed for the fiscal year beginning July 1, 1985, as follows:

### 1. Employer Normal Cost

Tier 0 and Tier I	\$ 91,052,088
Tier II	11,497,071
Total	\$ 102,549,159

JONN P. COOKSON, E.S.A.
JAMES A. CURTIS, F.S.A.
THOMAS K. CUSTIS, F.S.A.
THOMAS K. CUSTIS, F.S.A.
GARY E. DAHLMAN, F.S.A.
DREW S. DAVIDOFF, F.S.A.
CHRISTIAN J. DESPOCHERS, F.S.A.
PHYLLIS A. DORAN, F.S.A.
POBERT I. DORAN, F.S.A.
JOHN S. ECKERT, F.S.A.
DONIEL J. FLAHERTY, F.C.A.S.
JOHN E. FOLEY, F.S.A.
CART D. FRANKLIN, F.S.A.
JAMES A. GOBES, F.S.A.
DENNIS L. GRAVES, F.S.A.
PERIOK J. GRAVES, F.S.A.
DENNIS L. GRAVES, F.S.A.
JAINET S. GRAVES, F.S.A.
VILLIAM A. HALVORSON, F.S.A.
RONALD, G. HARRIS, F.S.A.
RCX D. HEMME, F.S.A.
J.ALAN HERRINGTON, F.S.A.
DOUGLAS C. HOLDEN, F.S.A.
SLIVO INSUL, F.S.A.
FENTON R. ISAACSON, F.S.A.
HOWARD M. ITO, F.S.A.
ALREM W. JOHNSON, F.S.A.
HOWARD M. ITO, F.S.A.
MARKO, JOHNSON, F.S.A.
LUGGERG M. KALWARSKI, F.S.A.
LUGGERG M. KALWARSKI, F.S.A.
LUGGERG M. KALWARSKI, F.S.A.
LUGGERG M. KALWARSKI, F.S.A. MARK O. JOHNSON, E.S.A. EUGENE M. KALWARSKI, E.S.A EUGENE M. KALWARSKI, F.S.A.
JACQUELINE J. KEATING, F.S.A.
DOUGLAS F. KLINE, F.CA.S.
GERALD T. KOGER, F.C.A.
DAVID W. KRUEGER, F.S.A.
TIMOTHY D. LEE, F.S.A.
JUON M. LENSER, F.S.A.
LEONARD F. J. LEONG, F.S.A.
FREDERIC T. LHAMON, F.S.A.
MADLE F. LTOW F.S.A.
MADLE F. LTOW F.S.A.
MADLE F. LTOW F.S.A. LEONARD F. J. LEONG, F.S.A. FREDERICT, LHAMON, F.S.A. MARK E. LITOW, F.S.A. D. ALAN, LITTLE, F.S.A. MICHAEL J. MAHONEY, F.S.A. BRIAN J. MATTUE, F.S.A. DANIEL J. MCCARTHY, F.S.A. DANIEL J. MCCARTHY, F.S.A. MICHAEL A. MCGRATH, F.S.A. MICHAEL A. MCGRATH, F.S.A. MICHAEL A. MCGRATH, F.S.A. MICHAEL A. MCGRATH, F.S.A. STEVEN J. MIKKALO, F.S.A. STEVEN J. MIKKALO, F.S.A. DOWNEL F. NICHOLIS, F.S.A. DAVID F. OGGEN, F.S.A. ROBERT W. OMDALL F.S.A. ROBERT W. OMDALL F.S.A. ROBERT W. OMDALL F.S.A. GREGORY W. PARKER, F.S.A. PAUL J. PATTERSON, F. S.A.
J. LYNN PEABODY, F. S.A.
MARGARET E. PEARSON, F. S.A.
RAYMOND E. PINCZKOWSKI, F. S.A.
ROBERT A. PRYOR, F. S.A.
DONALD A. RHOLL, F. C.A.
STANLEY A. ROBERTSON, F. S.A.
WALTER S. RUGLAND, F. S.A.
JOHN P. SCHERINER, F. S.A. JOHN R SCHREINER, F. S.A. PAULA S. SEDLACEK, F. S.A. PAULA S. SEDLACEK, F. S.A.
DONALD J. SEGAL, F. S.A.
T. THOMAS SIMESTER, F. S.A.
JOSEPH D. SINTOV, F. S.A.
JUCHAN B. SMYDER, IE, F. S.A.
JUCHAN B. SMYDER, IE, F. S.A.
STEVEN D. SOMMER, F. S.A.
DENNIS L. STANLEY, F. S.A.
KAREN I. STEFFEN, F. S.A.
DONIGLAS G. TAYLOR, F. S.A.
DOLGLAS G. TAYLOR, F. S.A.
DOLGLAS G. TAYLOR, F. S.A.
F. S.A.
DOLGLAS G. TAYLOR, F. S.A.
DOLGLAS G. TAYLOR, F. S.A.
F DOUGLAS G. TAYLOR, F.S.A.
WILLIAM S., THOMAS, F.S.A.
GERALD G. TOY, F.S.A.
MARK A. TRIEB, F.S.A.
STANLEY B. TULIN, F.S.A.
JAMES R. TYLER, F.S.A.
BRUCE N. VANDER ELS, F.S.A.
ANDREW B. WANG, F.S.A.
RONALD R. WEGNER, F.S.A.
RICHARD E. WHITE, F.S.A.
RICHARD E. WHITE, F.S.A.
RICHARD WINNERWERDER, F.S.A.

ALLAN D. AFFLECK, F.S.A. DAVID V. AXENE, F.S.A. LARRY D. BABER, F.S.A. JAMES R. BEROUIST, F.C.A.S.

JAMES R. BEROUIST F. C.A.S.
GEORGE L. BERRY, F.S.A.
DAVID R. BICKERSTAFF, F.C.A.S.
JANET F. BLEAKNEY, F.S.A.
THOMAS P. BLEAKNEY, F.S.A.
BILLION F. BLUMM, F.S.A.
BRUND V. BOIN, F.S.A.
STEPHEN D. BRINK, F.S.A.
STEPHEN D. BRINK, F.S.A.
MILTON F. CHANDLER, F.S.A.
MILTON F. CHANDLER, F.S.A.
MILTON F. CHANDLER, F.S.A.
BARTON M. CLENNON, F.S.A.
BARTON M. CLENNON, F.S.A.
JAMES A CLISTIS, F.S.A.

WENDELL MILLIMAN, F.S.A. (1976) JAMES H. RIGGS, F.S.A. (1978)

BRUCE W. WINTERHOF, F. S.A. BRUCE L. WORKMAN, F. C.A. 2. Payment on Unfunded Liability\*

Tier 0 and Tier I	\$183,078,599
Tier II	988,307
Total	\$184,066,906

3. Total Employer Cost

Tier 0 and Tier I	\$274,130,687
Tier II	12,485,378
Total	\$286,616,065

\* Based on forty year amortization of the Unfunded Accrued Liability as of June 30, 1985.

In accordance with Connecticut statutes, the actual contribution for the fiscal year 1985-86 will be 95% of Tier 0 and Tier I costs and 100% of Tier II costs; the 95% will be increased to 100% for fiscal year 1986-87 and thereafter.

MILLIMAN & ROBERTSON, INC.

James A. Gobes, F.S.A. Consulting Actuary

### Actuarial Method and Assumptions

Funding Method

Entry Age Normal.

Mortality

1971 Group Annuity Mortality Table with ages set back 6 years for females.

Investment Return

71/2% compounded annually.

Salary	Scale
--------	-------

Age	Annual Rate of Increase
20 25 30 35 40 45 50 55 60	6.34% 6.26 6.10 5.90 5.58 5.22 4.95 4.83 4.66

Turnover

Estimated by excluding participants with less than one year of service and assuming that all other employees terminate at the following rates.

<u>Age</u>	Annual Rate of Withdrawal
20	5.44%
25	5.29
30	5.07
35	4.70
40	4.19
45	3.54
50	2.47
55	.94
60	

Retirement Ages

Hazardous Duty, Tier 0 and Tier I: Age 53 and 25 years of service.
All other, Tier 0 and Tier I: Age 61 and 10 years of service.
Tier II: Age 65 and 10 years of service or age 70 and 5 years of service, or for Hazardous Duty Members, 25 years of

Social Security Wage Base Increases

3½% compounded annually.

service.

### Disability

	Annual Rate
	of Disability
Age	(Per 1000)
20	.06
25	.09
30	.11
35	.15
40	.22
45	.36
50	.61
55	1.01
60	

Cost-of-Living Increases

Asset Valuation

Service-connected are assumed to comprise 50% of total disabilities for Hazardous Duty and 20% for others.

The second of the second

3% per year for retirees on or after 1-1-80. 4½% per year for retirees prior to 1-1-80.

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

EXHIBIT B

ANALYSIS BY AGE AND SERVICE

The Market Barren

# ANALYSIS BY AGE AND SERVICE - HAZARDOUS DUTY - TIER 0 & TIER I ACTIVE MEMBERS\*

der 20	OTALS 7	ն Մը 3	to 64 6		to 54 17	49		5 to 39 94 126	0 to 34 165 240	5 to 29 305 100	) to 24 92 3	nder 20	AGE UNDER 5 5 to 10	AN
	611	<b>ļ⊷i</b>	12	17	32	39	111	271	124	4			0 10 to 15	ANALYSIS BY AGE AND SERVICE - HAZARDOUS DUTY - TIER 0 & TIER I
AVEI	444	⊣	21	32	54	105	161	68	2				15 to 20	AND SERVICE
AVERAGE SALARIES*	308	<b>j</b> i	15	44	55	110	75	ω					YEARS OF 20 to 25	TCE - HAZARDOUS
ાર્જું	105	ω	12	19	33	32	6						F SERVICE	DUTY - TIE
	37		4	15	15	ω							30 to 35	R 0 & TIER
	7	2	σ										35 to 40	lΗ
	42	Н	ш	2									40 & Up	
	2,921	15	80	157	239	362	466	567	531	409	95		ALL YEARS	

						,				
\$26,963	\$31,060	\$26,546	\$34,470	\$29,497	\$30,938	\$28,882	\$27,373	\$26,418	\$23,679	TOTALS
27,220	37,490	29,394		29,657	38,682	23,100	24,692	21,763	23,761	dn ∞ P
26,665	28,892	\$25,407	32,914	29,547	25,854	24,764	28,183	26,873	22,921	to 64
28,701	\$28,929		37,244	27,190	29,149	27,894	25,296	27,377	27,620	9 to 59
29,236			32,885	32,443	31,188	28,155	29,048	25,373	24,793	0 to 54
29,636			30,752	28,089	32,396	29,999	28,112	27,883	24,611	5 to 49
27,952				\$27,923	30,810	29,157	27,615	25,803	23,389	0 to 44
26,557					\$28,757	28,991	27,560	25,519	23,110	5 to 39
25,940						\$26,013	26,543	26,800	24,234	j) to 34
24,490							\$20,625	26,741	23,807	5 to 29
\$22,342								\$23,765	\$22,296	) to 24
										**************************************

The state of the s

4

## NNALYSIS BY AGE AND SERVICE - HAZANDOUS DUTY - TIER II ACTIVE MEMBERS\*

AGE	UNDER 5	5 to 10	10 to 15	15 to 20	20 to 25	OF SERVICE— 25 to 30	30 to 35	35 to 40	40 & Up	ALL YFARS
nder 20	⊷									<b></b>
) to 24	85	2								87
5 to 29	94	6								100
) to 34	57	9	υī							71
5 to 39	26	Մ	2	2						35
ψ to 44	12	2	ω	ហ	<b>₽</b>	<b>~</b>				24
*** to 49	4	Н		2	2					9
) to 54	σ	1		₽	⊣					9
5 to 59	2	ω			₩	↦				7
) to 64										
of R Lp	2				ட					ω
STATO	289	29	10	10	6	2				346
				AVE	AVERAGE SALARIES*	ES*				
nder 20	\$21,620									\$21,620
to 24	18,545	\$25,352								18,701
ρ to 29	20,050	20,671								20,087
to 34	20,061	22,757	\$20,888							20,461
το 39	20,022	19,084	21,366	\$28,110						20,427
to 44	20,418	21,350	23,403	23,200	\$23,338	\$23,338	\$21,366			21,610
5 to 49	20,245	34,330		19,486	22,799	22,799				22,209
to 54	21,141	21,366		23,354	23,354	23,354				21,658
5 to 59	14,754	19,775			21,366	21,366	21,366	·		18,795
ු to 64										
dn 38	15,315				23,354	23,354				\$17,995
IOTALS	\$19,583	\$21,817	\$21,738	\$23,454	\$22,835	\$22,835	\$21,366			\$20,011
2										

Based on Members included in valuation.

### ANALYSIS BY AGE AND SERVICE - PLAN B ACTIVE MEMBERS\*

			- 1			OF SE				
AGE	UNDER 5	0.T O.T.	70 to 15	15 to 20	20 to 25		30 to 35	35 to 40	40 & Up	ALL YEARS
Jnder 20	20									20
20 to 24	1,049	168								1,217
25 to 29	1,862	1,969	73							3,904
30 to 34	1,367	2,721	849	64						5,001
35 to 39	1,013	2,053	1,154	662	80					4,962
10 to 44	765	1,509	739	826	441	58				4,338
15 to 49	525	1,189	559	619	425	335	67			3,719
30 to 54	422	1,053	490	611	372	314	212	43		3,517
35 to 59	313	859	473	602	355	255	163	67	18	3,105
50 to 64	145	460	278	386	274	160	70	66	25	1,864
55 & <b>U</b> p	71	165	88	120	87	41	25	14	8	619
TOTALS	7,552	12,146	4,703	3,890	2,034	1,163	537	190	51	32,266
t *										
inder 20	\$13,086			AVE	AVERAGE SALARIES*	ES*				\$3,086
20 to 24	15,167	\$15,635								15,232
15 to 29	17,741	18,825	\$19,532							18,321
30 to 34	19,182	22,192	23,083	\$22,515						21,524
5 to 39	19,736	23,974	26,138	25,967	\$25,024					23,895
0 to 44	19,712	24,222	26,259	27,426	27,589	\$27,099				24,764
5 to 49	20,329	25,116	25,585	27,373	28,450	28,246	\$29,564			25,629
<sub>3</sub> 0 to 54	19,236	25,523	25,145	26,889	27,876	28,472	27,922	\$30,186		25,667
55 to 59	20,207	26,489	25,253	24,942	26,497	29,614	30,542	29,228	\$33,268	25,936
10 to 64	20,181	27,265	24,902	24,171	27,755	27,129	30,942	34,911	34,321	26,285
5 & Up	21,574	28,795	26,674	26,408	26,249	27,452	30,618	32,241	29,409	26,915
TOTALS	\$18,548	\$23,269	\$25,182	\$26,265	\$27,495	\$28,368	\$29,441	\$31,641	\$33,179	\$23,422
Based on	Based on Members included in valuation.	luded in val	uation.							

### ANALYSIS BY AGE AND SERVICE - PLAN C ACTIVE MEMBERS\*

Under 20 20 to 24 20 to 29 25 to 29 30 to 34 40 to 44 45 to 49 50 to 54 50 to 64 65 & Up	nder 20 0 to 24 0 to 29 10 to 34 10 to 44 15 to 49 55 to 54 50 to 64 65 & Up
\$12,772 15,761 18,057 18,295 18,166 18,218 18,562 19,186 18,282 19,381 22,633 \$18,537	UNDER 5  1 32 71 58 74 58 87 107 105 64 22
\$17,528 18,785 20,327 22,389 21,481 19,579 20,399 20,399 20,277 21,912 22,253 \$20,759	20 149 181 135 159 193 303 379 352 145 2,016
\$20,617 20,812 23,505 23,344 21,740 21,507 20,868 21,136 22,415 \$21,601	10 179 179 86 78 108 108 186 264 324 147
\$20,341 21,158 22,875 23,569 22,191 22,354 21,669 26,915 \$22,867	11 62 71 68 136 248 327 172
AVERAGE SALARIES* \$19,466 22,171 \$14 24,306 24 24,123 21 23,137 2 23,580 2 23,580 2 23,910 3 \$23,542 \$2	5 19 24 51 84 142 74
\$14,942 24,928 25,276 24,757 24,966 37,602 \$26,492	2 31 52 49 67 29
\$21,158 24,081 27,250 29,766 27,236 \$26,801	9 53 44 55 28
\$21,611 25,762 26,765 28,945 \$26,018	16 30 42 16
\$27,716 27,789 27,259 \$27,519	8 27 34
\$12,772 16,441 18,640 20,086 21,540 21,623 20,944 21,481 21,476 22,443 24,979 \$21,825	1 52 230 329 362 387 520 904 1,211 1,400 667 6,063

ESCHOLOGICAL PROPERTY OF THE P

## ANALYSIS BY AGE AND SERVICE - TIER II - ALL OTHERS ACTIVE MEMBERS\*

\$16,295	\$18,698	\$15,567 \$	\$18,113	\$15,519	\$20,849	\$20,581 :	\$17,202	\$15,768	TOTALS
14,132				14,753	15,964	18,910	15,098	12,585	65 & Up
17,394	16,040		20,694	17,833	18,098	18,877	19,310	16,219	60 to 64
17,625	\$21,356	<b>.</b> * * * * * * * * * * * * * * * * * * *	17,432	16,043	16,615	18,482	17,411	17,684	55 to 59
18,404		\$15,567	14,955	15,765	22,827	18,340	20,982	17,603	50 to 54
17,953			\$18,917	17,432	23,729	20,440	17,498	17,352	45 to 49
17,939				\$13,742	25,020	24,021	17,941	16,960	40 to 44
18,395					20,367	23,509	17,986	17,618	35 to 39
15,922					\$16,661	\$17,314	17,236	15,594	30 to 34
16,053						\$15,247	16,105	16,047	25 to 29
13,534							\$12,401	13,562	20 to 24
\$11,434			₩ *	AVERAGE SALARIES*	AVER			\$11,434	Jnder 20
5,291	2	2	10	25	122	243	681	4,206	TOTALS
67				ω	6	ហ	18	35	55 & <b>Up</b>
135	ш		ω	4	9	18	24	76	50 to 64
176	⊢		⊣	4	12	15	23	120	55 to 59
252		2	ω	6	20	26	30	165	50 to 54
317			ω	⊷	16	25	45	227	45 to 49
466				7	19	35	80	325	40 to 44
649					29	66	97	457	35 to 39
1,170					11	49	175	935	30 to 34
1,118						4	168	946	25 to 29
885							21	864	20 to 24
56								56	Under 20
40 & Up ALL YEARS	35 to 40	30 to 35	25 to 30	20 to 25	15 to 20	10 to 15	5 to 10	UNDER 5	AGE
			1	1					

<sup>\*</sup> Based on Members included in valuation.

EXHIBIT C

RETIRED BENEFIT ANALYSIS

### ANALYSIS OF RETIRED MEMBERS BY YEAR OF RETIREMENT

1980 1981 1982 1983 1984	1975 1976 1977 1978 1979	1970 1971 1972 1973 1973	1965 1966 1967 1968 1969	1960 1961 1962 1963 1964	1955 1956 1957 1958 1959	Pre-1955	YEAR OF RETIREMENT
1,026 819 709 727 929	910 987 809 830 1,549	403 574 683 750 590	161 187 192 259 408	67 87 133 146 145	35 49 44 44	100	SERVICE
17 23 16 15 22	50 16 13 10	12 19 31 30 27	7 10 8 13 14	7 3 11 8 13	ストワワム	<u>⊢</u>	NUMBER OF DISABILITY
41 40 40 47 47	87 64 32 47 53	63 86 90 67	22 22 34 35	5 9 13 17	7477	သ	RETIREES  1 DISABILITY <sup>2</sup>
35 53 37 48 63	21 28 16 27 27	3 6 27 23 24	12101	1 2 L 3 2	61441	U	HAZARDOUS DUIY
6,550 7,226 7,510 8,711 9,139	7,919 6,972 6,720 6,631 6,895	7,067 7,406 7,678 7,883 7,191	5,418 5,407 5,147 5,888 6,575	4,722 5,211 5,400 5,452 4,621	5,526 4,810 5,495 4,524 4,819	\$5,121	SERVICE
5,305 6,839 7,190 9,129 12,290	7,851 6,902 5,098 5,960 7,330	5,314 7,254 6,974 8,411 8,593	4,873 4,604 4,127 5,304 5,820	3,430 5,218 4,198 4,577 6,019	3,113 4,679 5,140 4,357 4,210	\$3,289	DISABILITY
4,893 5,140 5,988 7,158 7,465	7,017 6,350 5,762 4,853 4,967	5,816 5,908 6,374 6,726 6,944	5,074 4,423 4,900 4,246 5,614	3,852 4,028 3,876 4,565 4,307	3,549 4,727 4,920 4,146 4,517	\$3,371	BENEFIT———— DISABILITY <sup>2</sup>
13,432 13,616 14,509 15,510 16,220	15,161 12,940 12,193 13,954 13,466	7,063 10,011 11,556 12,435 14,086	9,556 0 9,470 6,268 5,943	7,257 6,534 6,651 6,349 6,855	4,874 5,329 5,469 6,724 7,077	\$5,113	HAZARDOUS DUIY

<sup>1</sup> Service Connected Non-Service Connected

ANALYSIS OF RETIRED MEMBERS
BY CURRENT AGE

			-					
AGE	SERVICE	DIS SERVICE CONNECTED	NUMBER OF RETIREES DISABILITY ERVICE NON-SERVICE NNECTED CONNECTED	HAZARDOUS	SERVICE	AVERAGE DISA SERVICE CONNECTED	-AVERAGE BENEFIT— DISABILITY  KVICE NON-SERVICE NECTED CONNECTED	HAZARDOUS
less than 40		24	83			\$7,437	\$5,437	
40-44 45-49		33	21	27		7,870	6,105	\$15,349
50-54 55-59	15	56	104	92 133	\$10,251	6,739	7,379	14,820
60-64 65-69	2,285	57	219 153	106 72	8,343	5,897 6,082	5,419	13,916 12,254
70-74 75-79	3,337	45 34	171	36 25	6,963	6,679	6,300 5,510	10,196
80-84 85-89	1,237	11	77 22	m	6,218 4,904	3,972	4,630 3,656	6,236
90-94	180 33	m	്ന ന		3,635	1,881	4,738	
TOTALS	14,435	437	1,130	494	\$7,122	\$6,817	\$5,833	\$13,387