

REPORT ON THE RESULTS OF
AN INVESTIGATION OF THE
MORTALITY, INVESTMENT, SERVICE AND
COMPENSATION EXPERIENCE OF THE
VERMONT STATE EMPLOYEES' RETIREMENT SYSTEM

Covering the period July 1, 1996 through June 30, 2001

July 5, 2002

Board of Trustees
Vermont State Employees' Retirement System
Montpelier, Vermont 05633

Dear Board Members:

Section 1942, subsection (m), of Title 16, Chapter 55, Vermont Statutes Annotated, provides in part that at least once in each five-year period, the actuary is to make an actuarial investigation into the mortality, service, and compensation experience of the members and beneficiaries of the System. In accordance with this provision, an investigation has been made for the period covering July 1, 1997 through June 30, 2002, and the results are described in this report, along with our recommendations for certain modifications in the present assumptions. We have also included a brief section discussing the financial impact of the recommended changes.

The Table of Contents, which immediately follows, outlines the information contained in this report.

Respectfully submitted,

David L. Driscoll, F.S.A.
Consulting Actuary

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VERMONT STATE EMPLOYEES' RETIREMENT SYSTEM
REPORT ON THE RESULTS OF AN INVESTIGATION
OF THE ACTUARIAL EXPERIENCE OF THE SYSTEM, 1996 - 2001.

I. INTRODUCTION

1. In order to accumulate funds to pay retirement benefits on a reasonable and relatively stable basis, the actuary prepares annual valuations of the System's assets and liabilities to measure the funded status and to ensure that the funding pace is adequate to meet the System's obligations.
2. The primary purpose of funding is to equitably allocate costs between generations of taxpayers and provide security to members, who view the funds set aside as assurance that their benefits will be paid.
3. While the ultimate cost of the System is not determinable until all benefits are paid and expenses provided for, each actuarial valuation attempts to estimate these costs based on assumptions of future events, which should be selected to predict, as accurately as possible, future experience.
4. Overly conservative or aggressive assumptions will result in actuarial gains or losses each year. When translated into contributions, this will result in decreasing or increasing contribution rates, which do not promote intergenerational equity.
5. To the extent that assumptions prove accurate, contribution rates will be stable.

6. The major actuarial assumptions are:
 - (a) Active service demographic assumptions,
 - (b) Compensation increase assumptions,
 - (c) Post-retirement mortality rates,
 - (d) Interest rate, and
 - (e) Cost-of-living adjustment rates.

7. Before presenting our analysis of VSERS experience and discussion of the proposed assumptions, it is important to outline considerations that should govern the selection of actuarial assumptions. The recommendations made by the American Academy of Actuaries may be summarized as follows:
 - (i) The actuarial assumptions selected should reflect the actuary's best judgement of future events. They should take into account actual experience to the extent possible, but they should also reflect long-term future trends and not give undue weight to recent past experience.
 - (ii) The actuary should consider the impact of inflation in selecting the actuarial assumptions to be used.
 - (iii) The actuary should give consideration to the reasonableness of each actuarial assumption independently, as well as to the combined impact of all the assumptions.
 - (iv) The actuary should give careful attention to changes in plan design that may significantly alter expected future experience. For example, a liberalization of

early retirement benefits may make a revision to the retirement assumption advisable.

- (v) In choosing assumptions, the actuary should take into account general or specific information available from other sources, including the plan sponsor, plan administrator, investment managers, accountants, economists, etc.

- 8. The purpose of this report is to provide the information necessary to decide on the appropriate assumptions to be used in future valuations. It should be noted that these decisions cannot be made "in a vacuum," but must reflect the present and expected situation within the State and the System.

The balance of this report deals in detail with the various assumptions. In each area we have made recommendations as to what we believe are appropriate assumptions. These recommendations reflect our "best estimate" of the likely VSERS experience based on:

- (a) the recent past experience;
- (b) the general economic views prevailing at this time; and
- (c) anticipated trends.

II. ACTIVE SERVICE DEMOGRAPHIC ASSUMPTIONS

A. General Comments

- 9. Following, we review the assumptions made in regard to:
 - (a) Termination
 - (b) Disability

(c) Death before retirement

(d) Retirement.

10. Our review of active service demographic assumptions is based on the actuarial valuation data for Groups A, D and F combined and separately for Group C.
11. The basis for analysis of the System's experience is a comparison of the actual number of separations from service under each contingency with those anticipated by assumptions currently in use.
12. The "expected" values are calculated by applying the various rates or probabilities to the individuals exposed to each respective event. For example, active members not yet eligible for early retirement would be exposed to the probabilities of withdrawal, death and disability. A member eligible for early retirement would be exposed to disability, death and early retirement. A member eligible for normal retirement would be exposed to disability, death and normal retirement.
13. The numerical summaries of the System's experience from July 1, 1996 through June 30, 2001 are presented in Appendix I. The tables show the ratios of the actual experience of the System as compared to that anticipated by the present actuarial assumptions. The results are shown separately by assumption and, where appropriate, by sex.

14. The ratios of actual to expected experience indicate the extent of deviation from the assumptions. A ratio of 1.0 would mean the experience has been exactly as anticipated.
15. As an aid to the Trustees in analyzing these results, we have also prepared a series of graphs, which present the statistical data summarized in Appendix I in visual form. Our comments will refer to the graphs, which immediately follow each of the following subsections.

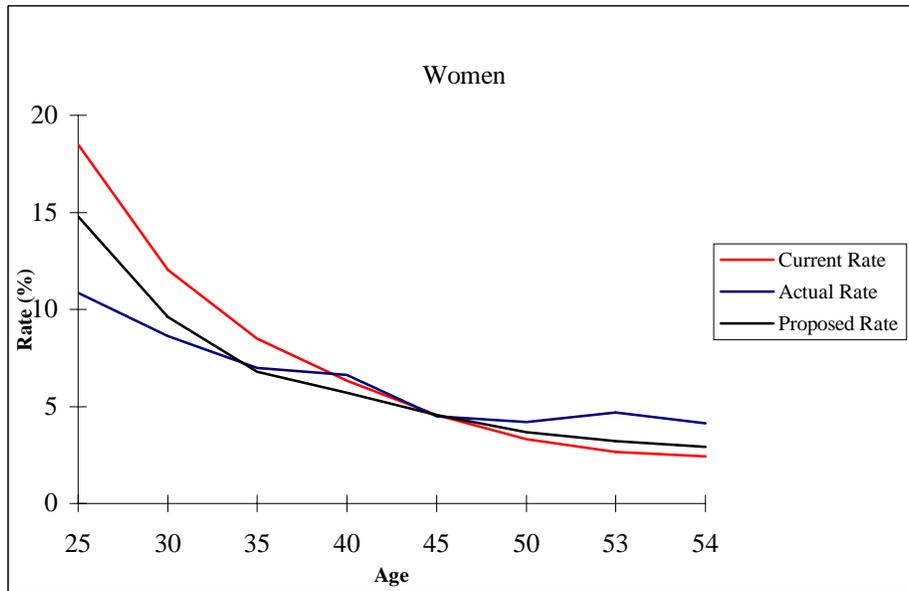
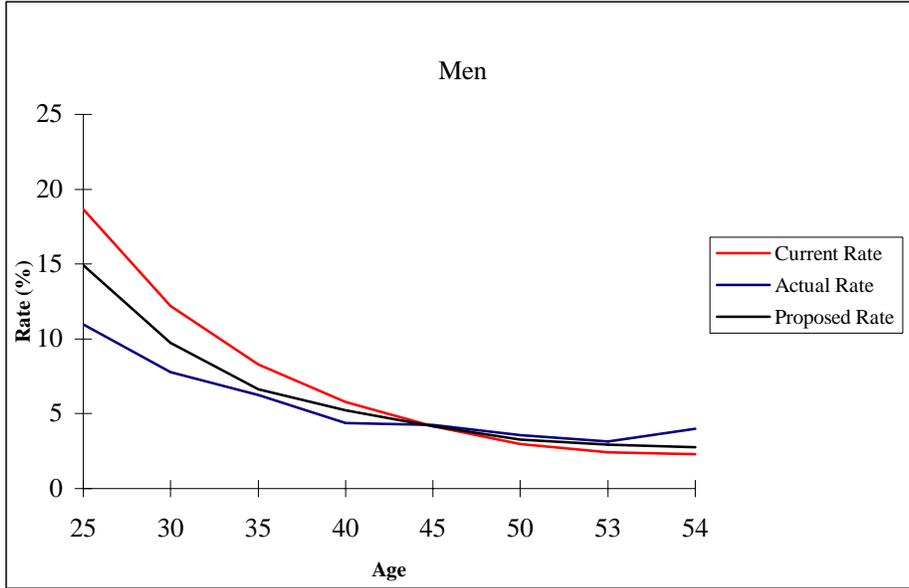
B. Termination

16. The graphs that follow present the withdrawal and vesting experience separately for male and female employees. Presently, the assumed probabilities of withdrawal in active service are the same for male and female members.
17. Reviewing the withdrawal and vesting experience for Groups A, D and F, it can be seen that, overall, there are fewer members leaving before service retirement than expected for both males and females. Examination of experience in different age brackets reveals that the numbers of withdrawals have fallen short of expected levels prior to age 45 and have actually exceeded expected levels beyond age 45. The distribution of exposure by age results in the overall excess of expected withdrawals over actual withdrawals.
18. Since the numbers withdrawing without a benefit and the numbers of vested terminations are below those expected in Groups A, D and F, we recommend that the

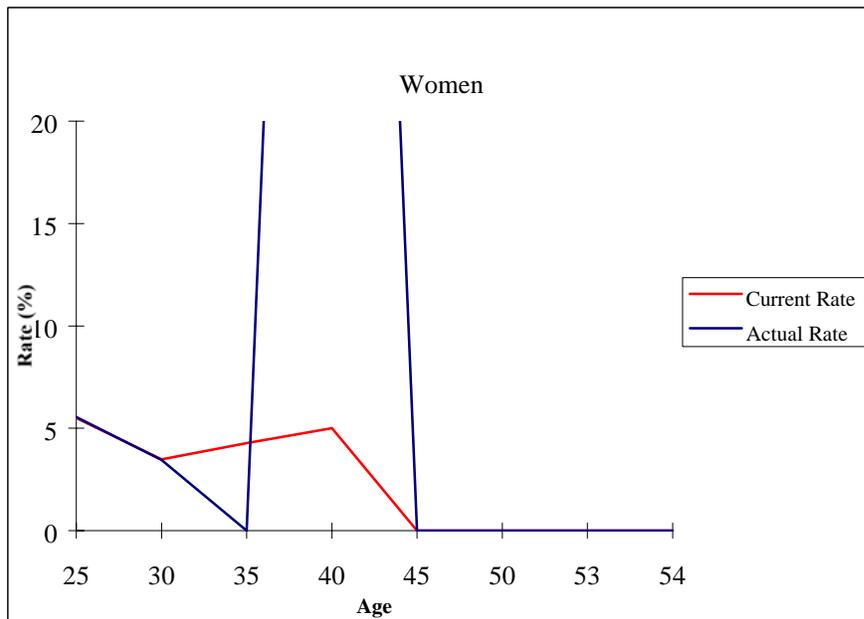
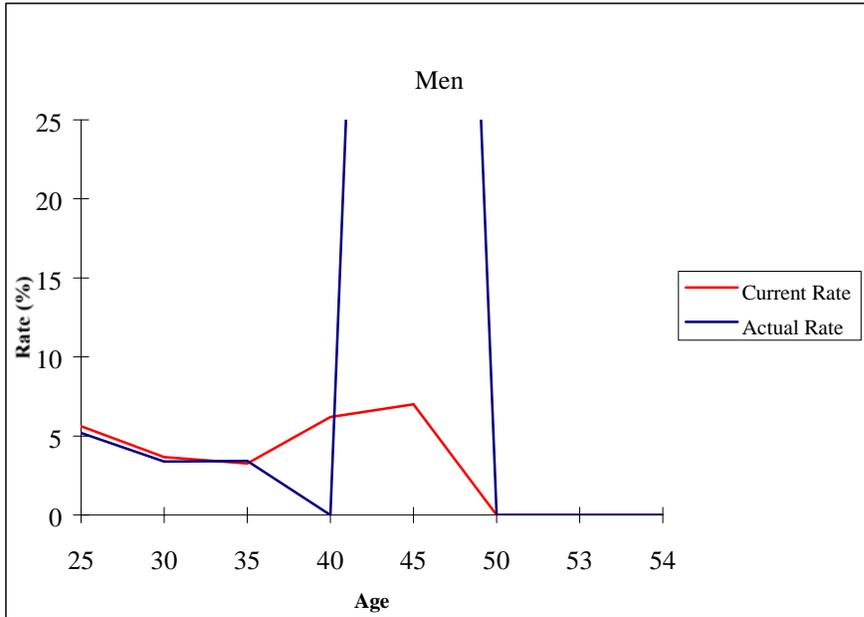
assumed rates of withdrawal for these groups be decreased modestly at ages below 45 and raised modestly at ages beyond 45.

19. We recommend the continued use of the same withdrawal assumption as are presently used for Group C. While the experience of the last five years indicates that there have been somewhat more terminations among Group C members than were expected under the present assumption, the limited exposure of this group makes it difficult to justify a change in the assumption on the basis of the present evidence.
20. We recommend the continued use of the same withdrawal assumption for males and females. The following graphs show the current rate, the actual rate and (where applicable) the proposed new rate separately for males and females. The proposed rates are set forth in detail in Appendix II.
21. In addition to varying by age, assumed rates of withdrawal are also adjusted for length of service. While we have recommended changes in the underlying rates used, we are not recommending a change in the service-based adjustment factors at this time.

**Vermont State Employees' Retirement System
Groups A, D and F
Active Service Experience - Terminations
July 1, 1996 through June 30, 2001**



**Vermont State Employees' Retirement System
Group C
Active Service Experience - Terminations
July 1, 1996 through June 30, 2001**



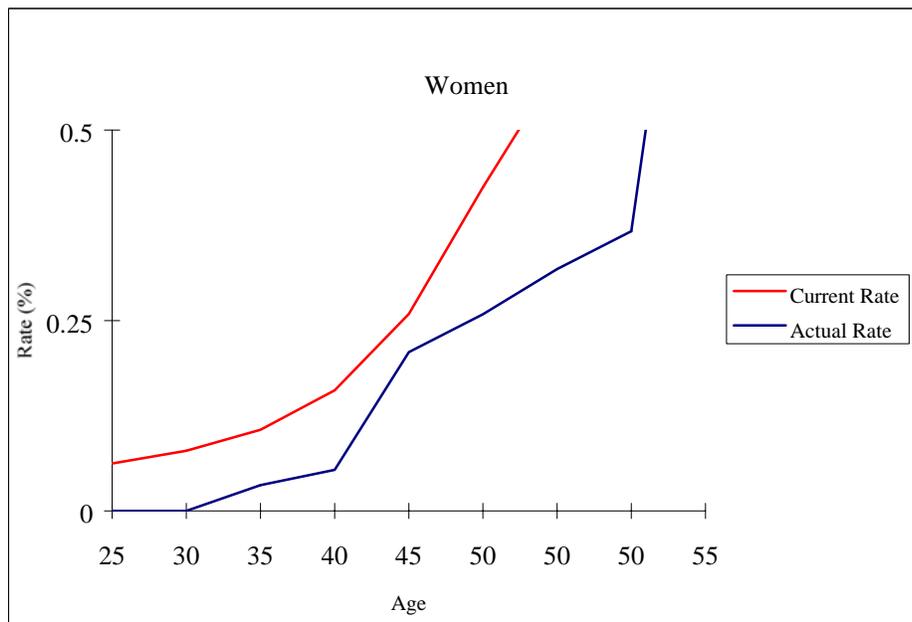
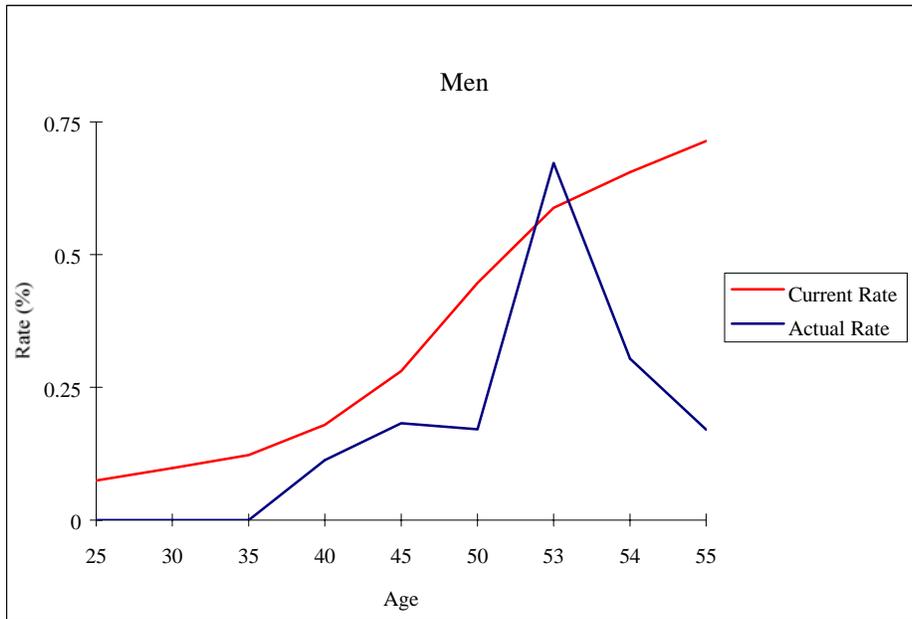
C. Disability and Death

22. The graphs that follow show the incidence of disability among employees and the incidence of active service mortality. The financial impact on the funding of the System as the result of this experience is relatively minor. It should be noted that the low incidence of actual disabilities makes this experience susceptible to rather large fluctuations from year to year.

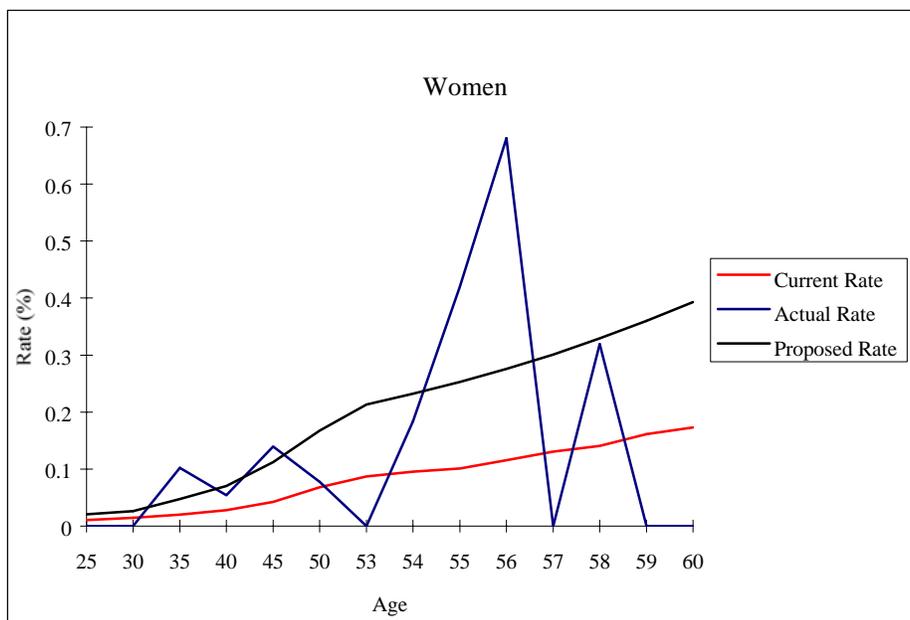
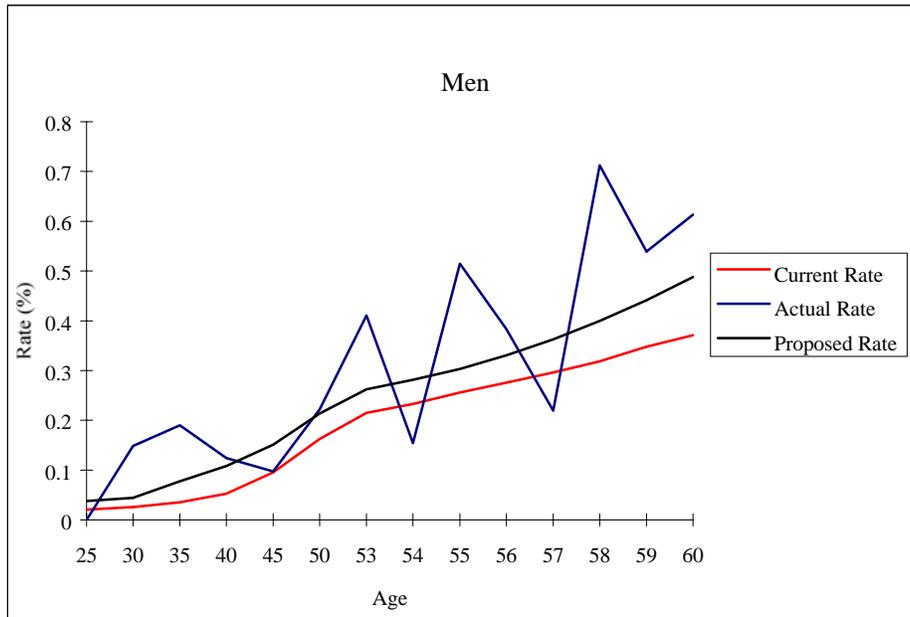
23. The expected rates of disability for males and females appear to be somewhat overstated but the variability noted in paragraph 22 leads us to conclude that no change should be recommended at this time.

24. Since the overall active service mortality for both males and females is above that expected on the basis of the current tables, it is possible to justify an increase in the assumed death rates applied to active employees. We recommend that the Board consider the adoption of the RP-2000 Mortality Tables for Male and Female Employees for this purpose. The proposed rates are set forth in Appendix II.

Vermont State Employees' Retirement System
Groups A, D and F
Active Service Experience - Disability Retirements
July 1, 1996 through June 30, 2001



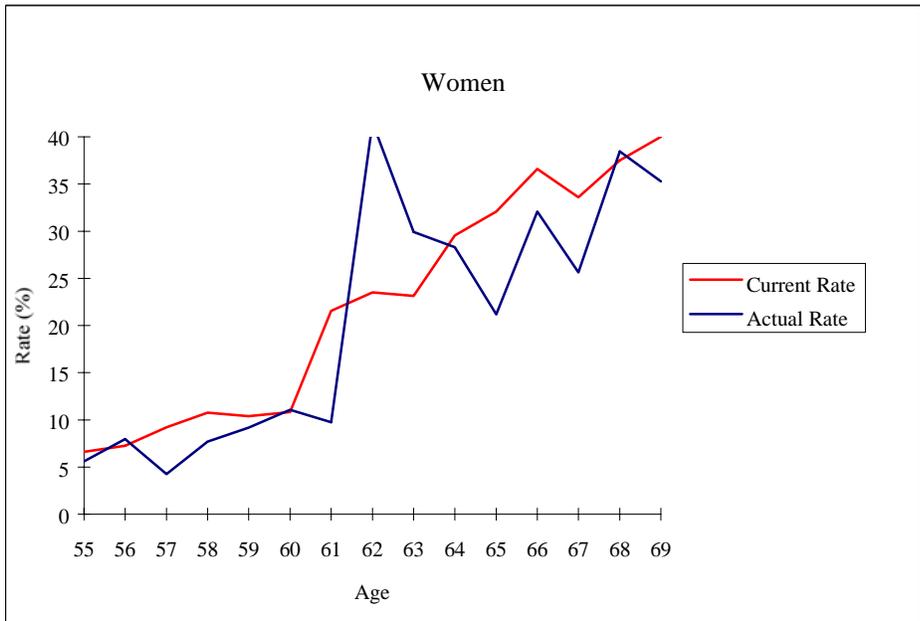
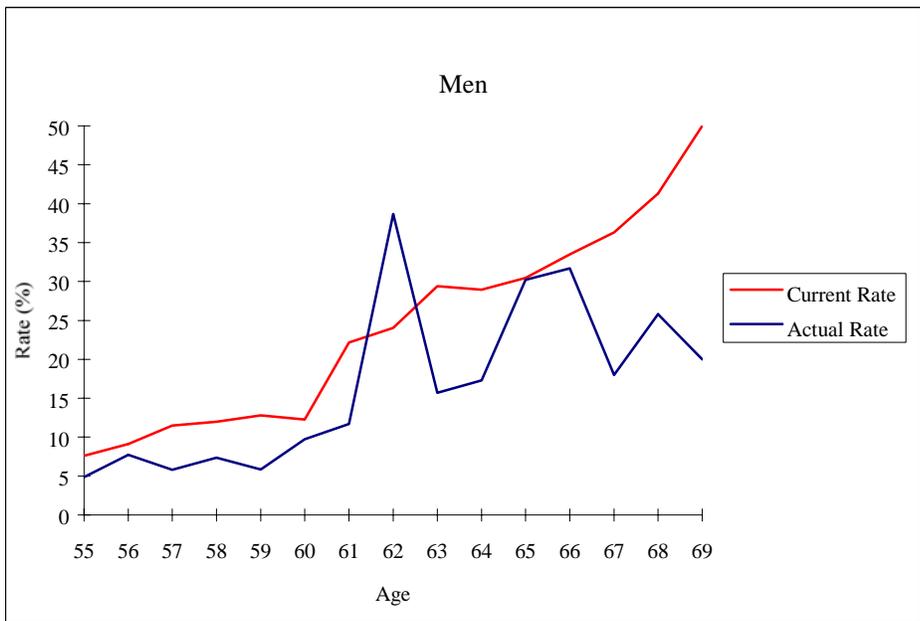
Vermont State Employees' Retirement System
Groups A, D and F
Active Service Experience - Deaths
July 1, 1996 through June 30, 2001



D. Service Retirement

25. In general, there have been somewhat fewer retirements than expected; however, the difference is not significant enough to warrant a change in our assumptions.

**Vermont State Employees' Retirement System
Groups A, D and F
Active Service Experience - Service Retirements
July 1, 1996 through June 30, 2001**



III. POST-RETIREMENT MORTALITY RATES

26. A review of the statistics with regard to post-retirement mortality for all retired members, which are summarized in Tables 7, 8 and 9 of Appendix I, shows that actual mortality fairly reflects that expected, except for dependents of deceased members. The variance from expectations observed with this group might be attributable to its small size of the group. We feel that the experience of the past five years does not suggest a need to change the post-retirement mortality assumption for this group or either of the other groups of retired members. However, if the Board wishes to update this assumption to reflect more recent studies of longevity among pension plan participants, it may wish to consider the adoption of the RP-2000 Mortality Tables for this purpose. The probabilities of death at each age under these tables are set forth in Appendix III.

IV. ECONOMIC ASSUMPTIONS

27. Economic assumptions include rates of compensation increase, investment income and post-retirement adjustment in benefits on account of inflation. These assumptions have been analyzed by their components; i.e., the inflation level reflected in each assumption and the merit-promotion component of the compensation increase rates or the real rate of investment income component of the total return rate.

A. Inflation/Cost-of-Living (COL)

28. Since inflation impacts each of the economic assumptions, a symmetric relationship among the economic assumptions should be maintained. For example, the COL

assumption should be included as the inflation component of the compensation increase and investment return assumptions.

29. With regard to the inflation assumption, the U.S. Consumer Price Index indicates that the inflation rate has been as follows since January 1, 1997 (annual average):

Calendar Year	Increase*
1997	2.3%
1998	1.6%
1999	2.2%
2000	3.4%
2001	2.8%

* Based on CPI-U

These increases are equivalent to an annual rate of about 2.5%.

30. We suggest that the inflation component of the economic assumptions would be appropriately set at a level of 2.5% to 3.0%. This is below what is currently assumed.
31. In setting the anticipated annual cost-of-living increase assumption, statutory limitations must be taken into account. The annual adjustment is equal to the increase in the CPI-U, but not more than 5%.

32. Currently, we assume a 4½% annual adjustment in pensions for Groups A and D, a 4½% annual adjustment for Group C and a 2¼% annual adjustment for Group F members. During the past five years, this has generally resulted in experience gains. We recommend that the assumed annual adjustment for retired members of Groups A, C and D be changed to 3.0%, and that the assumed annual adjustment for retired members of Group F be changed to 1.50%.

B. Merit-Promotion Salary Increases

33. Currently a single compensation scale is used for both male and female members. The overall pattern of compensation increases appears to be generally consistent between males and females. The average annual pay increase produced by the current scale is as follows:

Age at Entry	Average Annual Increase to Age 62
25	6.3%
35	5.9%
45	5.4%
55	4.9%

Assuming an inflation component of 2.5%, the average annual merit-promotion component of the current assumption is about 2.4% - 3.8%.

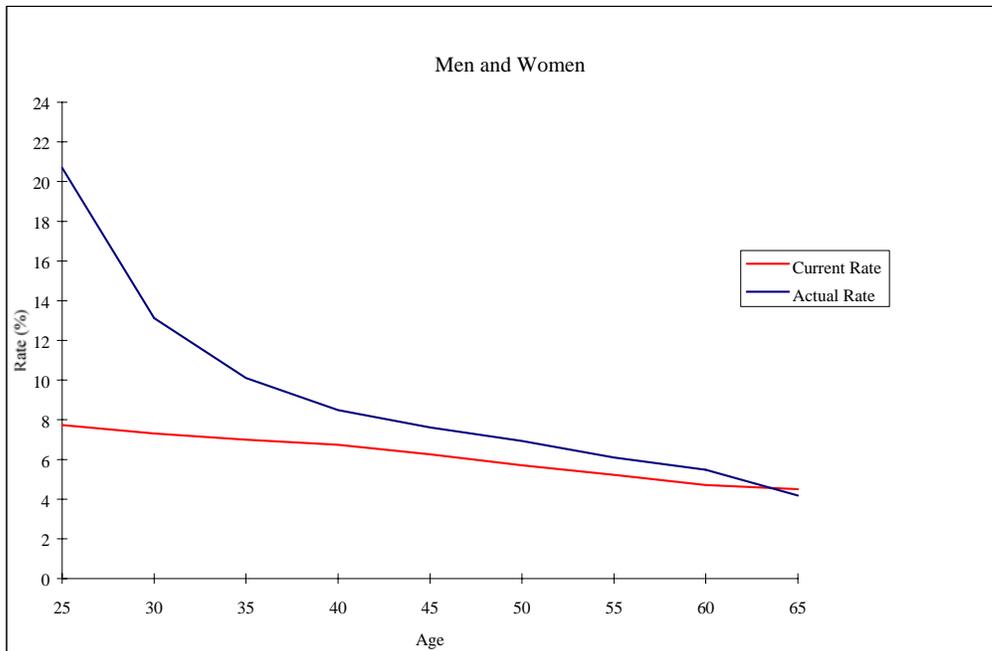
34. The graphs on pages 18 depict the levels of total compensation increase during the five-year period. These results include both merit-promotion increases and inflationary increases. Experience shows that total pay has increased by about 2% annually over the average annual increases currently assumed. The statistics are summarized in Tables 5 and 6 of Appendix I.

35. In three of the past five years, salary increases have been such as to raise the normal cost percentage of the system. In the most recent year, salary experience resulted in a lowering of the percentage. In general, the outlook is for lower future rates of compensation increase.

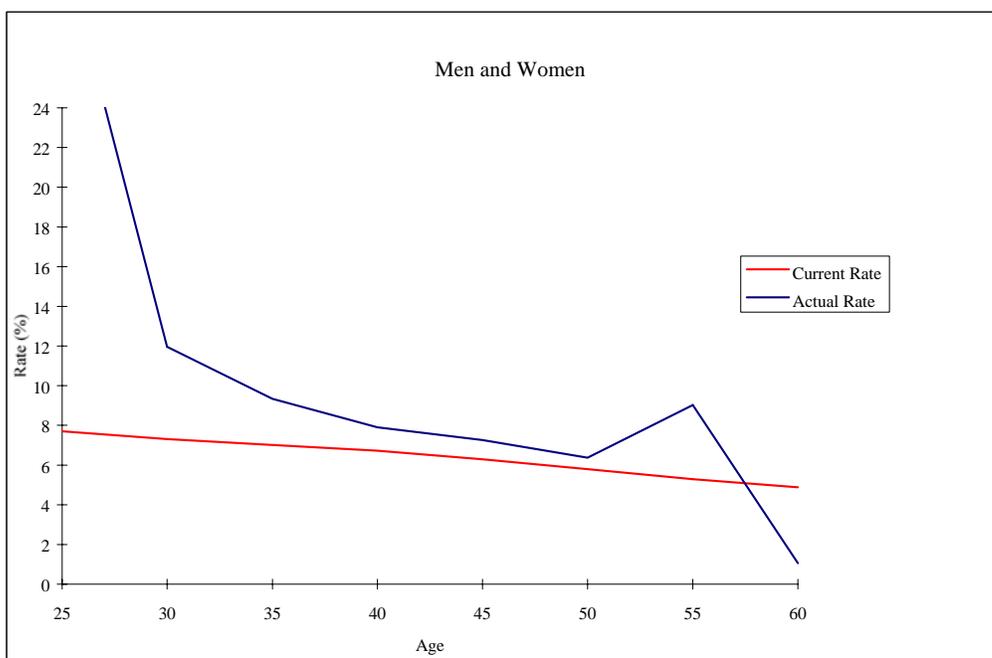
36. The overall increase produced by the current assumption is about 6%. Based solely on the most recent 5 years' experience, the scale could be increased so that it would average about 8%.

37. Although experience indicates an increase, we recommend that the current pay increase assumption not be changed in expectation that lower prospective pay increases will eliminate the level of unanticipated pay increases noted in paragraph 34. We also feel that some of the excess of observed rates of salary increase over those assumed is due to imperfect annualization of partial years' pay reported for new entrants, and that a salary-related experience losses could be reduced through a review of the process used for annualization.

Groups A, D and F
Active Service Experience - Salary Experience
July 1, 1996 through June 30, 2001



Group C
Active Service Experience - Salary Experience
July 1, 1996 through June 30, 2001



C. Interest Rate

38. The total rates of return earned by the VSERS assets are shown below. The third column indicates the annual inflation levels based on the Consumer Price Index each year. The last column represents the theoretical real rate of return.

Year Ending June 30	Rate of Return Based on Actuarial Asset Value	Cost of Living Increase	Theoretical Real Rate of Return
1997	15.4%	2.3%	12.8%
1998	16.3	1.6	14.5
1999	14.7	2.2	12.2
2000	14.3	3.4	10.5
2001	8.7	2.8	5.7
1997-2001	13.8%	2.5%	11.0%

The theoretical real rate of return has been about 11.0% annually during the past five years. Based on an expected inflation component of 2.5% this would indicate an investment return assumption as high as 13.8%.

39. Although the above experience suggests that the current investment return of 8.5% could be increased, we advise against doing so at this time due to the trend toward lower returns during the last two years and the expectation of lower future returns. Indeed, the Board may wish to consider lowering the assumed rate of investment return to 8.00% per year. The effect of this change is reflected in the cost analyses presented subsequently.

V. COST ANALYSIS AND CONCLUSION

40. It should be noted that we are setting both the investment return and pay increase assumptions at levels lower than those that could be justified solely by the past five years' experience. In this instance, we feel that the two assumptions should be adjusted in a consistent manner and the most recent trend and outlook toward lower rates should not be ignored.
41. To assist the Board in selecting and approving the final package of valuation assumptions to be used prospectively from June 30, 2002, we have prepared a valuation of the System as of June 30, 2001 to reflect the potential impact of the revised assumptions.
42. Based on the assumptions recommended in this report, the total contribution rate as of June 30, 2001 would have decreased from 3.34% to 2.54%. These results are summarized in Appendix IV.
43. This report discusses actuarial assumptions only. Methods such as the five-year average asset valuation procedure and amortization period for unfunded accrued liability also affect the costs of VSERS. These methods are not reviewed because they are not amenable to five-year experience analysis. We should note, however, that we have not observed reasons to change any of the methods currently employed.

APPENDIX I

TABLES SHOWING ACTUAL AND EXPECTED EXPERIENCE

TABLE 1
COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS
FROM ACTIVE SERVICE

TERMINATIONS

Central Age of Group	Men			Women		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
25	98	166.39	0.589	120	204.36	0.587
30	157	246.56	0.637	191	266.82	0.716
35	165	218.45	0.755	205	249.89	0.820
40	141	187.01	0.754	245	234.12	1.046
45	175	171.55	1.020	193	196.41	0.983
50	155	128.08	1.210	158	125.22	1.262
53 and 54	42	28.10	1.495	49	28.29	1.732
55 and over	96	32.77	2.930	107	30.17	3.547
Total	1,029	1178.91	0.873	1,268	1,335.28	0.950
Grand Total Including Group C	1,061	1,208.44	0.878	1,271	1,338.10	0.950

TABLE 2
COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS
FROM ACTIVE SERVICE
DISABILITY RETIREMENTS

Central Age of Group	Men			Women		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
25	0	0.55	0.000	0	0.68	0.000
30	0	1.57	0.000	0	1.72	0.000
35	0	2.77	0.000	1	3.09	0.324
40	4	5.05	0.792	2	5.81	0.344
45	8	10.59	0.755	9	10.99	0.819
50	8	19.19	0.417	10	16.41	0.609
53 and 54	7	8.36	0.837	4	7.14	0.560
55 and over	24	42.16	0.569	28	34.23	0.818
Total	51	90.24	0.565	54	80.07	0.674
Grand Total Including Group C	55	97.34	0.565	57	80.41	0.709

TABLE 3
COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS
FROM ACTIVE SERVICE

DEATHS

Central Age of Group	Men			Women		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
25	0	0.18	0.000	0	0.12	0.000
30	3	0.52	5.769	0	0.32	0.000
35	5	0.93	5.376	3	0.59	5.085
40	4	1.70	2.353	2	1.04	1.923
45	4	3.93	1.018	6	1.83	3.279
50	10	7.34	1.362	3	2.64	1.136
53	3	1.57	1.911	0	0.55	0.000
54	1	1.51	0.662	1	0.52	1.923
55	3	1.49	2.013	2	0.48	4.167
56	2	1.44	1.389	3	0.51	5.882
57	1	1.35	0.741	0	0.48	0.000
58	3	1.34	2.239	1	0.44	2.273
59	2	1.29	1.550	0	0.45	0.000
60	2	1.21	1.653	0	0.44	0.000
61	2	1.22	1.639	1	0.47	2.128
62	0	1.09	0.000	1	0.40	2.500
63	1	0.81	1.235	0	0.29	0.000
64	4	0.78	5.128	0	0.26	0.000
65 and over	8	3.08	2.597	7	1.30	5.385
Total	58	32.78	1.769	30	13.13	2.285
Grand Total Including Group C	58	34.74	1.670	30	13.13	2.285

TABLE 4

**COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS
FROM ACTIVE SERVICE**

SERVICE RETIREMENTS

Central Age of Group	Men			Women		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
50	38	2.10	18.095	33	0.89	37.079
53	13	2.85	4.561	3	0.96	3.125
54	14	3.96	3.535	13	2.36	5.508
55	25	38.90	0.643	23	27.20	0.846
56	35	41.22	0.849	30	27.32	1.098
57	23	45.40	0.507	13	28.24	0.460
58	27	43.95	0.614	20	27.95	0.716
59	19	41.40	0.459	21	23.80	0.882
60	27	34.10	0.792	24	23.50	1.021
61	30	57.00	0.526	20	44.20	0.452
62	92	57.20	1.608	76	43.00	1.767
63	24	45.00	0.533	38	29.40	1.293
64	23	38.50	0.597	28	29.25	0.957
65	29	29.25	0.991	18	27.25	0.661
66	19	20.10	0.945	17	19.40	0.876
67	9	18.15	0.496	10	13.10	0.763
68	8	12.80	0.625	10	9.75	1.026
69	6	15.00	0.400	6	6.80	0.882
70 and over	16	74.00	0.216	56	81.00	0.691
Total	477	620.88	0.768	459	465.37	0.986
Grand Total Including Group C	520	628.88	0.827	466	465.37	1.001

TABLE 5
COMPARISON OF ACTUAL AND EXPECTED
ANNUAL SALARIES OF MEMBERS

GROUPS A, D and F

Central Age of Group	Men			Women		
	Annual Salaries			Annual Salaries		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
25	18,585,992	16,768,344	1.108	18,610,278	16,432,458	1.133
30	51,538,265	48,862,085	1.055	46,610,639	44,247,681	1.053
35	73,907,875	71,808,846	1.029	69,381,018	67,433,697	1.029
40	100,256,536	98,873,011	1.014	95,429,814	93,634,025	1.019
45	140,651,570	139,510,518	1.008	122,959,803	120,773,824	1.018
50	171,027,281	169,715,487	1.008	118,460,831	116,476,548	1.017
55	113,118,129	112,284,853	1.007	72,369,976	71,669,101	1.010
60	55,331,278	54,975,184	1.006	31,961,538	31,681,346	1.009
65	13,756,157	13,771,973	0.999	9,347,675	9,403,378	0.994
Total	738,173,083	726,570,301	1.016	585,131,572	571,752,058	1.023

TABLE 6
COMPARISON OF ACTUAL AND EXPECTED
ANNUAL SALARIES OF MEMBERS

GROUP C

Central Age of Group	Men			Women		
	Annual Salaries			Annual Salaries		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
25	4,854,286	3,918,349	1.239	611,186	529,024	1.155
30	16,696,806	15,991,378	1.044	1,271,656	1,232,775	1.032
35	15,697,198	15,441,371	1.017	1,007,660	909,054	1.108
40	17,677,111	17,484,517	1.011	822,025	814,364	1.009
45	15,714,537	15,582,032	1.009	538,483	524,949	1.026
50	7,106,910	7,079,049	1.004	178,800	167,309	1.069
55	810,709	782,955	1.035	-	-	0.000
60	87,248	90,548	0.964	-	-	0.000
65	-	-	0.000	-	-	0.000
Total	78,644,805	76,370,199	1.030	4,429,810	4,177,475	1.060

TABLE 7
SUMMARY OF MORTALITY EXPERIENCE
OF PENSIONERS

SERVICE RETIREES

Central Age of Group	Men			Women			Total		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
< 48	0	0.00	0.000	0	0.00	0.000	0	0.00	0.000
50	0	0.35	0.000	0	0.08	0.000	0	0.42	0.000
55	3	1.65	1.818	0	0.34	0.000	3	1.99	1.504
60	2	4.91	0.408	0	1.72	0.000	2	6.62	0.302
65	12	12.39	0.968	10	5.39	1.856	22	17.78	1.237
70	29	20.88	1.389	4	8.45	0.474	33	29.33	1.125
75	33	27.45	1.202	15	16.10	0.931	48	43.55	1.102
80	42	36.98	1.136	22	22.75	0.967	64	59.74	1.071
85	44	30.77	1.430	22	23.69	0.929	66	54.46	1.212
90	22	14.33	1.536	20	19.70	1.015	42	34.03	1.234
92 +	8	7.21	1.109	12	9.40	1.277	20	16.61	1.204
Total	195	156.92	1.243	105	107.62	0.976	300	264.54	1.134

TABLE 8
SUMMARY OF MORTALITY EXPERIENCE
OF PENSIONERS
DISABILITY RETIREES

Central Age of Group	Men			Women			Total		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
< 48	1	2.98	0.336	4	1.41	2.833	5	4.39	1.140
50	4	3.50	1.143	1	0.70	1.421	5	4.20	1.189
55	1	3.70	0.270	4	2.07	1.935	5	5.77	0.867
60	3	4.20	0.714	1	2.28	0.439	4	6.48	0.618
65	3	3.03	0.992	3	2.79	1.074	6	5.82	1.031
70	4	3.80	1.053	2	1.63	1.230	6	5.43	1.106
75	4	2.71	1.474	0	2.27	0.000	4	4.98	0.803
80	3	1.96	1.531	1	2.92	0.342	4	4.88	0.819
85	1	1.05	0.957	0	2.90	0.000	1	3.95	0.253
90	1	0.29	3.451	0	0.47	0.000	1	0.76	1.319
92 +	0	0.00	0.000	0	0.00	0.000	0	0.00	0.000
Total	25	27.21	0.919	16	19.44	0.823	41	46.65	0.879

TABLE 9
SUMMARY OF MORTALITY EXPERIENCE
OF PENSIONERS
DEPENDENTS OF DECEASED MEMBERS

Central Age of Group	Men			Women			Total		
	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
< 48	0	2.01	0.000	0	0.03	0.000	0	2.04	0.000
50	0	0.02	0.000	0	0.05	0.000	0	0.07	0.000
55	0	0.05	0.000	0	0.15	0.000	0	0.19	0.000
60	0	0.07	0.000	0	0.22	0.000	0	0.29	0.000
65	1	0.11	9.099	0	0.78	0.000	1	0.89	1.127
70	0	0.61	0.000	4	1.45	2.757	4	2.06	1.945
75	1	0.73	1.379	1	3.05	0.327	2	3.78	0.529
80	0	1.24	0.000	3	6.51	0.461	3	7.74	0.388
85	2	3.45	0.580	7	6.46	1.084	9	9.91	0.908
90	2	5.75	0.348	3	3.08	0.973	5	8.83	0.566
92 +	3	8.28	0.362	2	3.79	0.528	5	12.07	0.414
Total	9	22.30	0.404	20	25.56	0.782	29	47.86	0.606

APPENDIX II

RECOMMENDED ACTIVE SERVICE TABLES

APPENDIX II

GROUPS A, D AND F

ACTIVE SERVICE TABLE

MALE EMPLOYEES

RECOMMENDED ASSUMED RATES OF:			RECOMMENDED ASSUMED RATES OF:		
AGE	Termination	Death	AGE	Termination	Death
19	0.069	0.00033	46	0.028	0.00162
20	0.069	0.00035	47	0.027	0.00173
21	0.065	0.00036	48	0.026	0.00186
22	0.061	0.00037	49	0.025	0.00200
23	0.058	0.00037	50	0.024	0.00214
24	0.055	0.00038	51	0.023	0.00229
25	0.052	0.00038	52	0.022	0.00245
26	0.050	0.00038	53	0.021	0.00262
27	0.048	0.00038	54	0.020	0.00281
28	0.046	0.00039	55	0.020	0.00303
29	0.044	0.00041	56	0.020	0.00331
30	0.042	0.00044	57	0.019	0.00363
31	0.040	0.00050	58	0.019	0.00400
32	0.039	0.00056	59	0.019	0.00441
33	0.038	0.00063	60	0.019	0.00488
34	0.036	0.00070	61	0.019	0.00538
35	0.035	0.00077	62	0.019	0.00592
36	0.034	0.00084	63	0.019	0.00647
37	0.034	0.00090	64	0.019	0.00703
38	0.033	0.00096	65	0.019	0.00757
39	0.033	0.00102	66	0.019	0.00810
40	0.032	0.00108	67	0.019	0.00860
41	0.032	0.00114	68	0.019	0.00907
42	0.031	0.00122	69	0.019	0.00951
43	0.031	0.00130	70	0.019	0.00992
44	0.029	0.00140			
45	0.029	0.00151			

APPENDIX II

GROUPS A, D AND F

ACTIVE SERVICE TABLE

FEMALE EMPLOYEES

RECOMMENDED ASSUMED RATES OF:			RECOMMENDED ASSUMED RATES OF:		
AGE	Termination	Death	AGE	Termination	Death
19	0.069	0.00019	46	0.028	0.00122
20	0.069	0.00019	47	0.027	0.00133
21	0.065	0.00019	48	0.026	0.00143
22	0.061	0.00019	49	0.025	0.00155
23	0.058	0.00020	50	0.024	0.00168
24	0.055	0.00020	51	0.023	0.00181
25	0.052	0.00021	52	0.022	0.00197
26	0.050	0.00021	53	0.021	0.00213
27	0.048	0.00022	54	0.020	0.00232
28	0.046	0.00023	55	0.020	0.00253
29	0.044	0.00025	56	0.020	0.00276
30	0.042	0.00026	57	0.019	0.00301
31	0.040	0.00031	58	0.019	0.00329
32	0.039	0.00035	59	0.019	0.00360
33	0.038	0.00039	60	0.019	0.00393
34	0.036	0.00043	61	0.019	0.00428
35	0.035	0.00048	62	0.019	0.00466
36	0.034	0.00051	63	0.019	0.00504
37	0.034	0.00055	64	0.019	0.00543
38	0.033	0.00060	65	0.019	0.00582
39	0.033	0.00065	66	0.019	0.00621
40	0.032	0.00071	67	0.019	0.00658
41	0.032	0.00077	68	0.019	0.00695
42	0.031	0.00085	69	0.019	0.00729
43	0.031	0.00094	70	0.019	0.00761
44	0.029	0.00103			
45	0.029	0.00112			

APPENDIX II

GROUP C

ACTIVE SERVICE TABLE

MALE EMPLOYEES

RECOMMENDED RATES OF:		RECOMMENDED RATES OF:	
AGE	Death	AGE	Death
19	0.00033	46	0.00162
20	0.00035	47	0.00173
21	0.00036	48	0.00186
22	0.00037	49	0.00200
23	0.00037	50	0.00214
24	0.00038	51	0.00229
25	0.00038	52	0.00245
26	0.00038	53	0.00262
27	0.00038	54	0.00281
28	0.00039	55	0.00303
29	0.00041	56	0.00331
30	0.00044	57	0.00363
31	0.00050	58	0.00400
32	0.00056	59	0.00441
33	0.00063	60	0.00488
34	0.00070	61	0.00538
35	0.00077	62	0.00592
36	0.00084	63	0.00647
37	0.00090	64	0.00703
38	0.00096	65	0.00757
39	0.00102	66	0.00810
40	0.00108	67	0.00860
41	0.00114	68	0.00907
42	0.00122	69	0.00951
43	0.00130	70	0.00992
44	0.00140		
45	0.00151		

APPENDIX II

GROUP C

ACTIVE SERVICE TABLE

FEMALE EMPLOYEES

RECOMMENDED ASSUMED RATES OF:		RECOMMENDED ASSUMED RATES OF:	
AGE	Death	AGE	Death
19	0.00019	46	0.00122
20	0.00019	47	0.00133
21	0.00019	48	0.00143
22	0.00019	49	0.00155
23	0.00020	50	0.00168
24	0.00020	51	0.00181
25	0.00021	52	0.00197
26	0.00021	53	0.00213
27	0.00022	54	0.00232
28	0.00023	55	0.00253
29	0.00025	56	0.00276
30	0.00026	57	0.00301
31	0.00031	58	0.00329
32	0.00035	59	0.00360
33	0.00039	60	0.00393
34	0.00043	61	0.00428
35	0.00048	62	0.00466
36	0.00051	63	0.00504
37	0.00055	64	0.00543
38	0.00060	65	0.00582
39	0.00065	66	0.00621
40	0.00071	67	0.00658
41	0.00077	68	0.00695
42	0.00085	69	0.00729
43	0.00094	70	0.00761
44	0.00103		
45	0.00112		

APPENDIX III

RECOMMENDED POST-RETIREMENT MORTALITY TABLES

APPENDIX III

POST RETIREMENT MORTALITY TABLES
SERVICE PENSIONERS AND BENEFICIARIES

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.00033	0.00019	70	0.02221	0.01674
20	0.00035	0.00019	71	0.02457	0.01858
21	0.00036	0.00019	72	0.02728	0.02067
22	0.00037	0.00019	73	0.03039	0.02297
23	0.00037	0.00020	74	0.03390	0.02546
24	0.00038	0.00020	75	0.03783	0.02811
25	0.00038	0.00021	76	0.04217	0.03097
26	0.00038	0.00021	77	0.04691	0.03411
27	0.00038	0.00022	78	0.05212	0.03760
28	0.00039	0.00024	79	0.05793	0.04151
29	0.00041	0.00025	80	0.06437	0.04588
30	0.00044	0.00026	81	0.07204	0.05078
31	0.00050	0.00031	82	0.08049	0.05629
32	0.00056	0.00035	83	0.08972	0.06251
33	0.00063	0.00039	84	0.09978	0.06952
34	0.00070	0.00044	85	0.11076	0.07745
35	0.00077	0.00048	86	0.12280	0.08638
36	0.00084	0.00051	87	0.13604	0.09634
37	0.00090	0.00055	88	0.15059	0.10730
38	0.00096	0.00060	89	0.16642	0.11915
39	0.00102	0.00065	90	0.18341	0.13168
40	0.00108	0.00071	91	0.19977	0.14460
41	0.00114	0.00077	92	0.21661	0.15762
42	0.00122	0.00085	93	0.23366	0.17043
43	0.00130	0.00094	94	0.25069	0.18280
44	0.00140	0.00103	95	0.26749	0.19451
45	0.00151	0.00112	96	0.28391	0.20538
46	0.00162	0.00122	97	0.29985	0.21524
47	0.00173	0.00133	98	0.31530	0.22395
48	0.00186	0.00143	99	0.33021	0.23139
49	0.00200	0.00155	100	0.34456	0.23747
50	0.00535	0.00234	101	0.35863	0.24483
51	0.00553	0.00246	102	0.37169	0.25450
52	0.00564	0.00265	103	0.38304	0.26644
53	0.00572	0.00290	104	0.39200	0.27906
54	0.00580	0.00319	105	0.39789	0.29312
55	0.00591	0.00353	106	0.40000	0.30781
56	0.00612	0.00393	107	0.40000	0.32273
57	0.00644	0.00439	108	0.40000	0.33744
58	0.00690	0.00492	109	0.40000	0.35154
59	0.00749	0.00553	110	0.40000	0.36462
60	0.00820	0.00620	111	0.40000	0.37625
61	0.00900	0.00692	112	0.40000	0.38602
62	0.00992	0.00769	113	0.40000	0.39351
63	0.01095	0.00851	114	0.40000	0.39831
64	0.01212	0.00940	115	0.40000	0.40000
65	0.01342	0.01036	116	0.40000	0.40000
66	0.01487	0.01141	117	0.40000	0.40000
67	0.01646	0.01254	118	0.40000	0.40000
68	0.01820	0.01377	119	0.40000	0.40000
69	0.02011	0.01515	120	1.00000	1.00000

APPENDIX III

POST RETIREMENT MORTALITY TABLES
DISABILITY PENSIONERS

AGE	MALES	FEMALES	AGE	MALES	FEMALES
21	0.02257	0.00745	71	0.06584	0.04014
22	0.02257	0.00745	72	0.06941	0.04285
23	0.02257	0.00745	73	0.07329	0.04577
24	0.02257	0.00745	74	0.07751	0.04890
25	0.02257	0.00745	75	0.08207	0.05223
26	0.02257	0.00745	76	0.08695	0.05578
27	0.02257	0.00745	77	0.09215	0.05955
28	0.02257	0.00745	78	0.09764	0.06355
29	0.02257	0.00745	79	0.10339	0.06779
30	0.02257	0.00745	80	0.10937	0.07231
31	0.02257	0.00745	81	0.11554	0.07714
32	0.02257	0.00745	82	0.12188	0.08230
33	0.02257	0.00745	83	0.12834	0.08784
34	0.02257	0.00745	84	0.13492	0.09379
35	0.02257	0.00745	85	0.14163	0.10020
36	0.02257	0.00745	86	0.14837	0.10710
37	0.02257	0.00745	87	0.15524	0.11451
38	0.02257	0.00745	88	0.16219	0.12246
39	0.02257	0.00745	89	0.16923	0.13097
40	0.02257	0.00745	90	0.18341	0.14005
41	0.02257	0.00745	91	0.19977	0.14970
42	0.02257	0.00745	92	0.21661	0.15992
43	0.02257	0.00745	93	0.23366	0.17043
44	0.02257	0.00745	94	0.25069	0.18280
45	0.02257	0.00745	95	0.26749	0.19451
46	0.02385	0.00818	96	0.28391	0.20538
47	0.02512	0.00896	97	0.29985	0.21524
48	0.02640	0.00978	98	0.31530	0.22395
49	0.02769	0.01063	99	0.33021	0.23139
50	0.02898	0.01154	100	0.34456	0.23747
51	0.03027	0.01248	101	0.35863	0.24483
52	0.03156	0.01346	102	0.37169	0.25450
53	0.03286	0.01447	103	0.38304	0.26604
54	0.03415	0.01550	104	0.39200	0.27906
55	0.03544	0.01654	105	0.39789	0.29312
56	0.03673	0.01760	106	0.40000	0.30781
57	0.03803	0.01865	107	0.40000	0.32273
58	0.03933	0.01971	108	0.40000	0.33744
59	0.04067	0.02077	109	0.40000	0.35154
60	0.04204	0.02184	110	0.40000	0.36462
61	0.04347	0.02294	111	0.40000	0.37625
62	0.04498	0.02408	112	0.40000	0.38602
63	0.04658	0.02529	113	0.40000	0.39351
64	0.04831	0.02660	114	0.40000	0.39831
65	0.05017	0.02803	115	0.40000	0.40000
66	0.05221	0.02959	116	0.40000	0.40000
67	0.05445	0.03133	117	0.40000	0.40000
68	0.05691	0.03323	118	0.40000	0.40000
69	0.05961	0.03534	119	0.40000	0.40000
70	0.06258	0.03764	120	1.00000	1.00000

APPENDIX IV

COMPARATIVE VALUATION BALANCE SHEET

APPENDIX IV

RESULTS FOR THE ACTUARIAL VALUATION
 PREPARED AS OF JUNE 30, 2001 ON
 CURRENT AND RECOMMENDED ASSUMPTIONS

Item	Current Assumptions	Recommended Assumptions
1. Liabilities:		
Active and Inactive Members	\$ 715,452,077	\$ 724,308,353
Retired Members	\$ 436,590,340	\$ 401,265,979
Total	\$ 1,152,042,417	\$ 1,125,574,332
2. Assets	\$ 954,821,086	\$ 954,821,086
3. Present Value of Future Member Contributions	\$ 93,222,480	\$ 97,959,224
4. Unfunded Accrued Liability	\$ 72,171,779	\$ 24,947,310
5. Present Value of Future Normal Contributions = (1) - (2) - (3) - (4)	\$ 31,827,072	\$ 47,846,712
6. Present Value of Future Salaries	\$ 2,581,066,500	\$ 2,713,911,600
7. Normal Contribution Rate	1.23%	1.76%
8. Annual Compensation	\$ 278,506,824	\$ 278,506,824
9. Normal Contribution = (7) x (8)	\$ 3,425,634	\$ 4,901,720
10. Accrued Liability Contribution	\$ 5,867,477	\$ 2,168,491
11. Total Contribution = (9) + (10)	\$ 9,293,111	\$ 7,070,211

