# REPORT ON THE RESULTS OF AN EXPERIENCE STUDY OF THE VERMONT MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM

Covering the period July 1, 2003 – June 30, 2008



April 24, 2009

Board of Trustees Vermont Municipal Employees' Retirement System Montpelier, Vermont 05609

Dear Board Members:

Section 5062, subsection (k), of Title 24, Chapter 125, Vermont Statutes Annotated, provides that at least once in each five-year period the actuary is to make a study of the System's recent experience to assist in setting assumptions. In accordance with this provision, the results of our experience study covering the five-year period ending June 30, 2008, are described in this report, along with our recommendations for changes in the present assumptions.

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

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the Academy to render the actuarial opinions contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

David Drinel

David L. Driscoll, FSA, EA Principal and Consulting Actuary

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#### I. <u>INTRODUCTION</u>

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 funding is progressing at a rate that is adequate to meet the System's obligations.

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.

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 costs based on assumptions selected to predict, as accurately as possible, future experience in order to produce stable contribution rates.

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 and an inequitable allocation of costs.

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.

Before presenting our analysis of the System's experience and discussion of the proposed assumptions, it is important to outline considerations that should govern the selection of actuarial assumptions. The recommendations of the American Academy of Actuaries are 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 rather than 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 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 advisable a revision in the retirement assumption.
- (v) The actuary, in choosing assumptions, should take into account general or specific information available from other sources, including the plan sponsor, plan administrator, investment managers, accountants, economists, etc.

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 participating municipalities 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 future experience based on:

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

#### II. ACTIVE SERVICE DEMOGRAPHIC ASSUMPTIONS

The active service demographic assumptions include rates of:

- (a) Termination,
- (b) Disability,
- (c) Death before retirement, and
- (d) Retirement.

Our review of active service demographic assumptions is based on the actuarial valuation data for Groups A, B and C members of the System. Retirement rates for Group D were omitted from the study, as it is relatively new and to date has very few retired members.

The basis for analysis of the System's experience is a comparison of the actual number of separations from service resulting from each of these decrements with those expected based on the assumptions currently in use.

The "expected" values are calculated by applying the various rates or probabilities to the individuals exposed to each respective event. For example, active members <u>under</u> age 55 with less than 5 years of credited service would be exposed to the probabilities of withdrawal, death and disability. A member age 55 with five years of service would be exposed to disability, death and retirement decrements.

Numerical summaries of the System's experience from July 1, 2003, through June 30, 2008, are presented in Appendix I. The tables show the ratios of the actual separations from service resulting from each decrement to those predicted by the present actuarial assumptions. The results are shown separately by assumption and, where appropriate, by gender.

The ratios of actual to expected experience indicate the extent of deviation from the assumptions. A ratio of 1.0 would indicate that experience has been exactly as anticipated.

As an aid to the Trustees in analyzing these results, we have also prepared a series of graphs that present the statistical data summarized in Appendix I in visual form. Our comments will refer to these graphs, which immediately follow each of the following subsections.

#### *Termination*

The graphs that follow present the withdrawal and vesting experience separately for male and female municipal employees. Reviewing the withdrawal and vesting experience, it can be seen that the number of members leaving before retirement eligibility is greater than expected among both males and females

under the present assumptions, especially at lower ages. We also observed that there was a better correlation of termination rates on the basis of length of service, than age.

Accordingly, we recommend that the assumed rates of withdrawal on the basis of age be replaced with the proposed rates based on service set forth in Appendix II.

We recommend the continued use of separate assumptions for males and females. The graphs presented on pages 7 and 8 shows the current rate, the actual rate and the proposed rate separately for males and females.

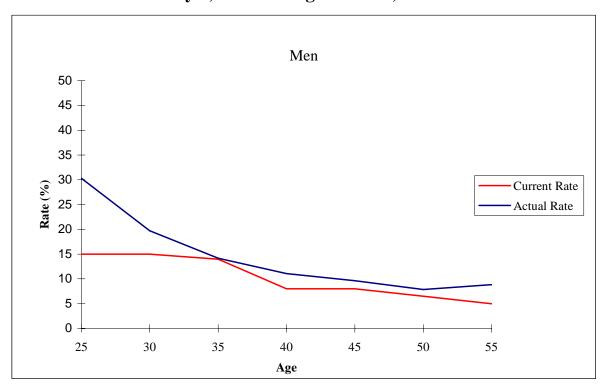
#### Disability and Death

The graphs that follow show the incidence of disability and 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 deaths and disabilities makes this experience susceptible to rather large fluctuations from year to year.

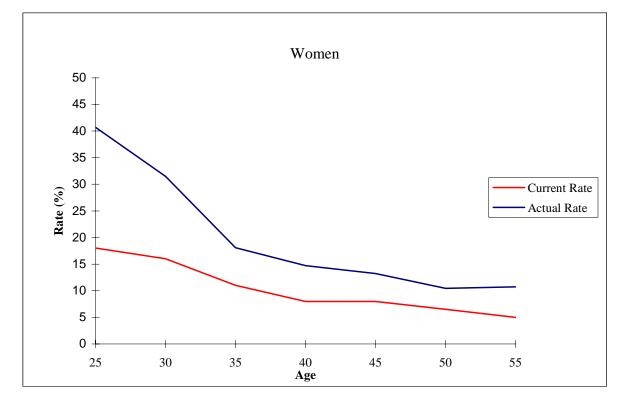
The present assumed rates of disability produce expected disabilities that are not substantially different than the actual number. We therefore recommend no changes to the disability rates.

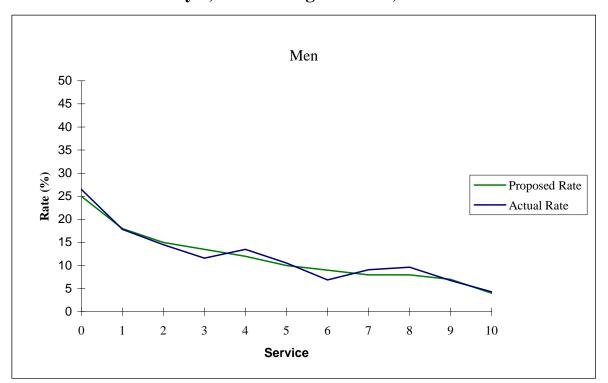
Overall active service mortality for both males and females is below that expected on the basis of the current tables, so it is possible to justify a decrease in the assumed death rates applied to active employees. We recommend that the Board consider the adoption of 70% of the 1995 George B. Buck Mortality Tables for Male and Female Employees for this purpose. This represents a 30% reduction in the current rates. The proposed rates are set forth in Appendix II. As noted above, because of the small

size of this decrement, the impact of the proposed change on the value of the System's benefits is minimal.

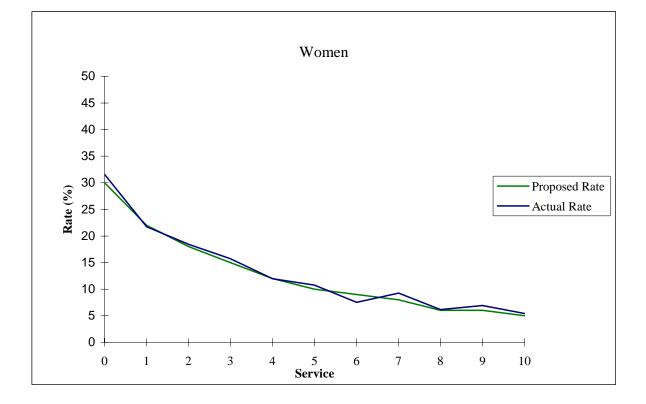


# Active Service Experience - Terminations July 1, 2003 through June 30, 2008

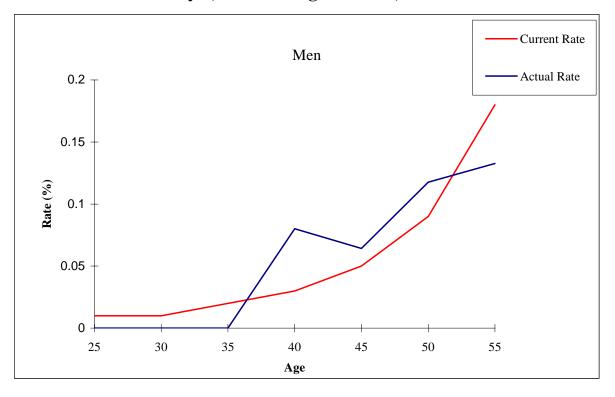




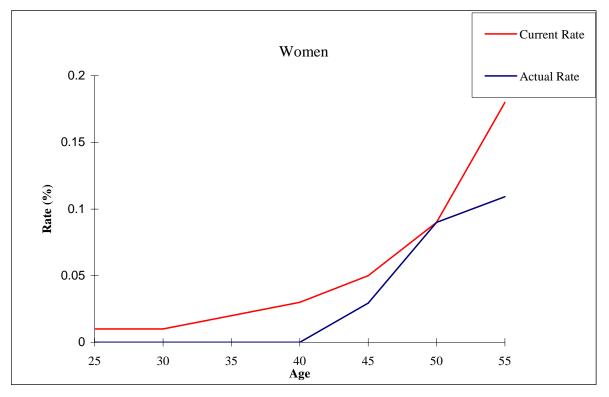
# Active Service Experience - Terminations July 1, 2003 through June 30, 2008

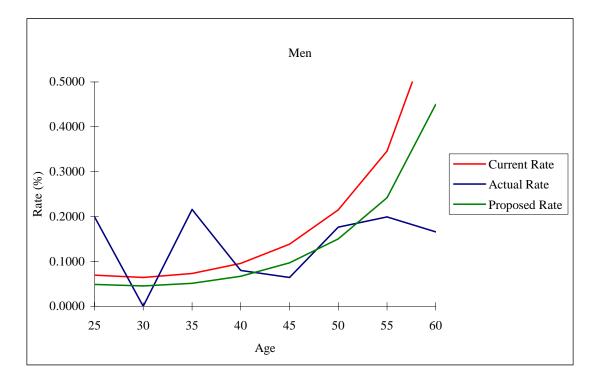


## Page 8

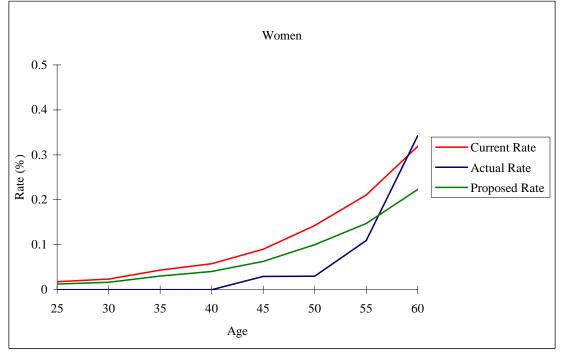


# Active Service Experience - Disability Retirement July 1, 2003 through June 30, 2008





# Active Service Experience - Deaths July 1, 2003 through June 30, 2008



#### <u>Retirement</u>

The experience with regard to retirement is shown on the following three graphs. Appendix II shows the current and proposed tables of service retirement probabilities. For Groups A, B and C, we are recommending that sex-distinct tables of retirement probabilities be used to refine the prediction of future retirements.

#### Group A Employees

In general, at ages below 62, the actual numbers of retirements among Group A employees over the past five years have been greater than the expected numbers of retirements, while at ages 62 and older the actual numbers have been less than expected. We recommend increases in the assumed service retirement rates ages under 62 for both males and females and decreased or constant assumed service retirement rates at ages 62 and older. The sole exception is at age 64 for females, at which we are recommending an increase in the assumed probability of retirement from 20% to 25%.

#### Group B Employees

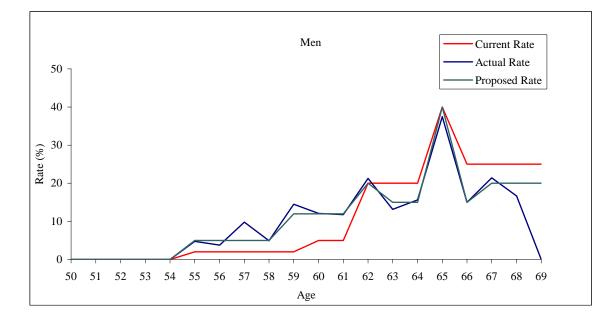
In general, at ages below 62, the actual numbers of retirements among Group B employees over the past five years have been greater than the expected numbers of retirements, while at ages 62 and older the actual numbers have been less than expected. We recommend increases in the assumed service retirement rates ages under 62 for both males and females and decreases in the service retirement rates at ages 62 through 65 for males and at ages 62 through 69 for females.

#### Group C Employees

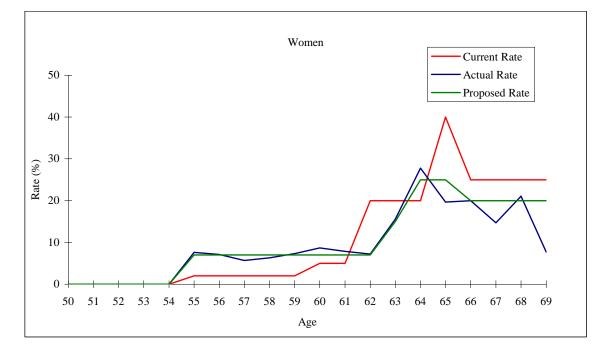
For males ages 55 through 64, the actual numbers of retirements of retirements among Group C employees over the past five years have generally been greater than the expected numbers of

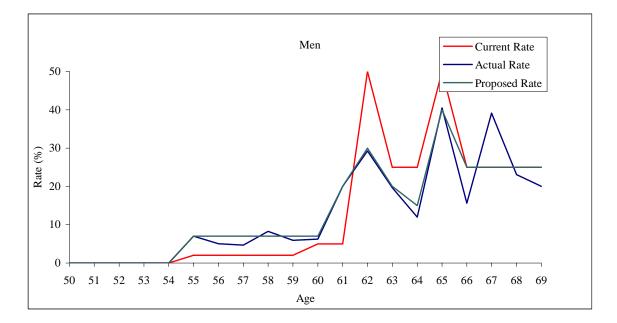
retirements. We are recommending a combination of increases and decreases in the assumed service retirement rates for male Group C employees at various ages between 55 and 64.

The actual numbers of retirements among Group C female employees have generally been less than the expected numbers. We are recommending decreases in the assumed service retirement rates for these members at most ages between 55 and 64.

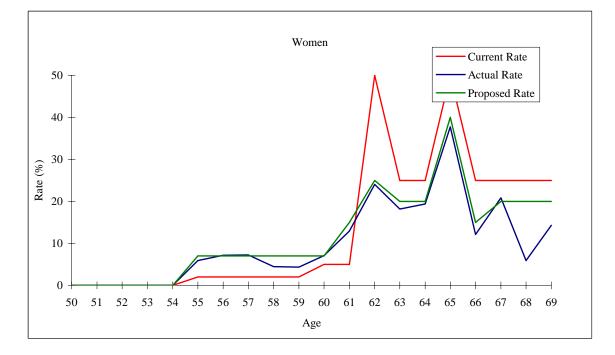


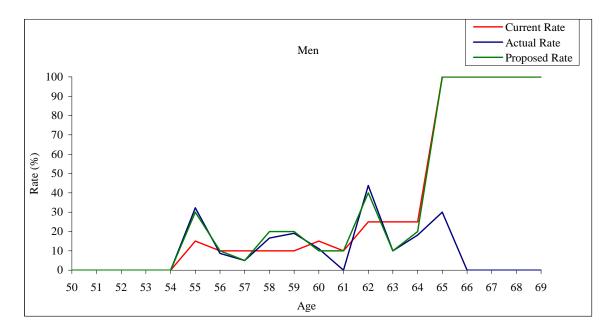
## Active Service Experience - Group A Service Retirements July 1, 2003 through June 30, 2008



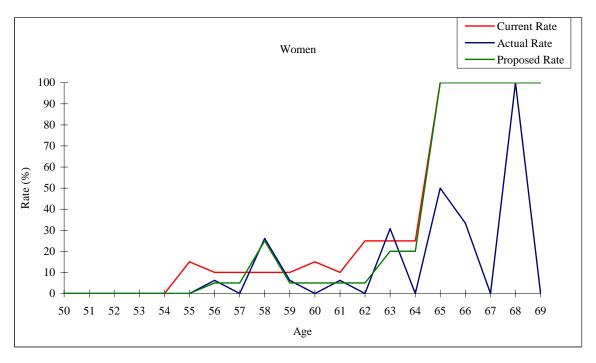


# Active Service Experience - Group B Service Retirements July 1, 2003 through June 30, 2008





# Active Service Experience - Group C Service Retirements July 1, 2003 through June 30, 2008



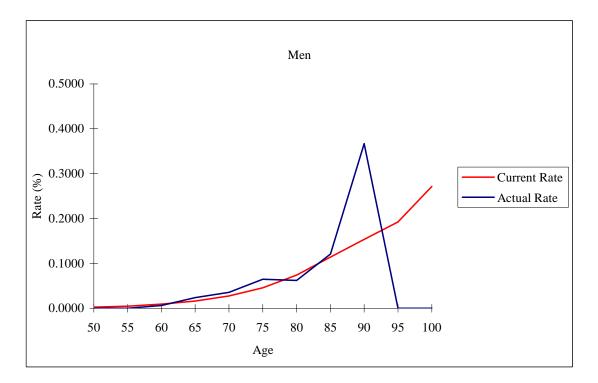
#### III. <u>POST-RETIREMENT MORTALITY RATES</u>

A review of the statistics with regard to post-retirement mortality for retired members reveals that retired individuals are not living longer than expected. The graphs presented on page 17 show the current rate and the actual rate separately for males and females. The current rates are summarized in Table 8 of Appendix I.

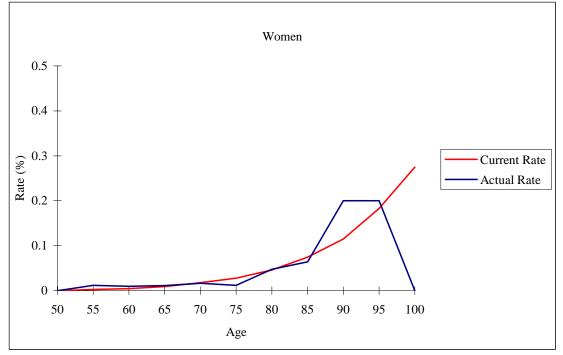
Based on this experience, we recommend that at this time the 1995 Buck Mortality Tables for Males and Females be retained as the post-retirement mortality assumption. Probabilities of death under these tables are shown in Appendix III.

## IV. <u>MEMBERS IN INACTIVE STATUS</u>

In the past, liabilities for members in inactive status have been maintained at 150% of their accumulated contributions with interest. An examination of the liability ultimately created by participants who ultimately move from inactive status to some other status leads us to recommend that the percentage of contributions with interest used to estimate the liability for these participants be raised from 150% to 200%.



# Post Retirement Experience - Deaths July 1, 2003 through June 30, 2008



#### V. ECONOMIC ASSUMPTIONS

Economic assumptions include:

- (a) rates of compensation increase,
- (b) investment income, and
- (c) post-retirement adjustment in benefits on account of inflation.

#### **Inflation**

The System provides annual cost-of-living adjustments (COLAs). For the Group A, the annual adjustment is equal to one-half of the percentage increase in the CPI-U, but not more than 2%. For Groups B, C and D, the adjustment equals one-half of the percentage increase in the CPI-U, limited to 3%.

With regard to the inflation assumption for COLAs, the U.S. Consumer Price Index (CPI-U) indicates that the inflation rate has averaged slightly above 3% annually since July 1, 2003.

Other economic data presently available (e.g., recent yields on inflation-indexed bonds, the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters) suggest that the financial markets anticipate a long-term average rate of inflation of about 2.5% to 3.0%. Current economic assumptions used in the valuation of the System are based on an inflation rate of approximately 3% per year. We recommend that this assumption be retained.

Currently, we assume a 1.5% annual adjustment in pensions for Group A and a 1.8% annual adjustment in pensions for Groups B, C and D. We recommend no changes in these percentages.

#### Merit-Promotion Salary Increases

Currently, salaries are assumed to increase at 5.6% annually. Overall, actual salary increases fell short of this percentage over the five-year period covered by this experience study, rising in the aggregate at the rate of 4.2% annually in this period. While we do not want to give undue weight to recent past experience, given the long-term nature of this assumption, a reduction in the assumed annual increase from its present level seems warranted in terms of both short- and long-term economic prospects. We recommend a reduction in the salary increase assumption to 5.0% per year.

If the salary increase experience of the System is analyzed by age or by service group, it is possible to detect some variation from group to group; salaries of younger members and those with relatively small amounts of service tend to rise somewhat faster than those of older and long-serving members. This is consistent with the usual pattern of salary increases over an archetypal worker's career. However, some of the observed pattern is also due to the difficulty that has generally been encountered in the accurate extrapolation of annual rates of pay from data on new entrants, who are typically younger workers. Because the variations among age groups are not significant at ages at which much exposure exists, no adjustment is needed.

## Interest Rate

Year Ending June 30	Rate of Return Based on Actuarial Asset Value	Rate of Return Based on Market Asset Value
2004	1.07%	12.54%
2005	7.77%	7.68%
2006	8.44%	10.58%
2007	10.11%	15.69%
2008	7.41%	-5.66%
2004-2008	6.91%	7.90%

The estimated total rates of return earned by the VMERS' assets are shown below.

The rate of return on the market value of assets has averaged approximately 7.90% annually during the past five years. With the support of the Board's investment consultant, New England Pension Consultants, we recommend retention of the current assumed interest rate of 8.0%.

# <u>APPENDIX I</u>

# ACTUAL AND EXPECTED EXPERIENCE

## COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS FROM ACTIVE SERVICE

## TERMINATIONS

Central		Men		Women			
Age of Group	Age of		ActualExpectedRatio of		Expected	Ratio of Actual To	
			Expected			Expected	
Under 23	41	18.8	2.187	68	29.9	2.276	
25 30	163 152	80.7 114.6	1.884 1.212	403 301	175.6 149.1	2.294 2.019	
35	139	130.6	1.064	289	175.9	1.643	
40	142	111.1	1.278	351	198.4	1.769	
45	156	126.6	1.233	450	265.4	1.695	
50	137	113.4	1.208	349	217.0	1.608	
55 and over	167	64.8	2.577	312	110.4	2.827	
Total	1,097	761	1.442	2,523	1,322	1.909	

## COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS FROM ACTIVE SERVICE

## **DISABILITY RETIREMENTS**

Central		Men		Women			
Age of Group	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	
Under 23 25 30 35 40 45 50 55 and over	0 0 0 1 1 2 5	0.01 0.05 0.10 0.17 0.40 0.82 1.64 6.47	0.000 0.000 0.000 2.500 1.220 1.220 0.773	0 0 0 0 1 3 5	0.02 0.13 0.20 0.57 1.29 2.91 5.05 12.57	0.000 0.000 0.000 0.344	
Total	9	9.66	0.932	9	22.74	0.396	

## COMPARISON OF ACTUAL AND EXPECTED SEPARATIONS FROM ACTIVE SERVICE

#### DEATHS

Central		Men		Women			
Age of Group	Actual	Expected	Ratio ofActual ToExpected		Expected	Ratio of Actual To Expected	
Under 23	0	0.08	0.000	0	0.03	0.000	
25	1	0.35	2.857	0	0.17	0.000	
30	0	0.46	0.000	0	0.24	0.000	
35	2	0.68	2.941	0	0.70	0.000	
40	1	1.21	0.826	0	1.41	0.000	
45	1	2.19	0.457	1	3.11	0.322	
50	3	3.69	0.813	1	4.77	0.210	
55	3	5.26	0.570	3	5.76	0.521	
60	2	7.70	0.260	7	6.50	1.077	
65 and over	2	7.68	0.260	4	5.64	0.709	
Total	15	29.30	0.512	16	28.33	0.565	

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

#### GROUP A SERVICE RETIREMENTS

		Men			Women	
Age	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
50	0	0.00	0.000	0	0.00	0.000
51	0	0.00	0.000	0	0.00	0.000
52	0	0.00	0.000	0	0.00	0.000
53	0	0.00	0.000	0	0.00	0.000
54	0	0.00	0.000	0	0.00	0.000
55	3	1.18	2.542	15	3.74	4.011
56	2	0.96	2.083	13	3.42	3.801
57	2 5 3	0.98	5.102	10	3.28	3.049
58		1.16	2.586	12	3.58	3.352
59	9	1.22	7.377	13	3.30	3.939
60	7	2.75	2.545	13	7.05	1.844
61	6	2.40	2.500	10	6.05	1.653
62	10	8.80	1.136	8	20.60	0.388
63	5	7.00	0.714	14	17.20	0.814
64	5	6.40	0.781	20	13.60	1.471
65	9	9.60	0.938	11	20.80	0.529
66	3	4.25	0.706	9	10.50	0.857
67	3 3 2	3.50	0.857	5	8.00	0.625
68		2.75	0.727	4	4.75	0.842
69	0	2.00	0.000	1	3.25	0.308
70 and over	15	30.00	0.500	16	59.00	0.271
Total	87	84.95	1.024	174	188.12	0.925

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

		Men		Women			
Age	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	
50	0	0.00	0.000	0	0.00	0.000	
51	0	0.00	0.000	0	0.00	0.000	
52	0	0.00	0.000	0	0.00		
53	0	0.00	0.000	0	0.00		
54	0	0.00	0.000	0	0.00		
55	8	2.10	3.810	10	3.18	3.145	
56	6	2.32	2.586	12	3.20	3.750	
57	5	2.10	2.381	11	2.94	3.741	
58	9	2.06	4.369	7	2.90	2.414	
59	6	1.92	3.125	6	2.72	2.206	
60	6	4.60	1.304	9	6.10	1.475	
61	18	4.30	4.186	15	5.50	2.727	
62	24	39.50	0.608	25	48.00	0.521	
63	12	14.75	0.814	14	17.75	0.789	
64	6	12.25	0.490	12	15.00	0.800	
65	17	20.00	0.850	20	25.00	0.800	
66	5	7.25	0.690	4	7.75	0.516	
67	9	5.50	1.636	5	5.75	0.870	
68	3	3.25	0.923	1	4.00	0.250	
69	2	2.25	0.889	2	3.50	0.571	
70 and over	9	30.00	0.300	12	48.00	0.250	
Total	145	154.15	0.941	165	201.29	0.820	

#### **GROUP B SERVICE RETIREMENTS**

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

#### GROUP C SERVICE RETIREMENTS

		Men		Women			
Age	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	
50	0	0.00	0.000	0	0.00	0.000	
50 51	0 0	0.00	0.000	0	0.00		
51	-	0.00	0.000	0	0.00	0.000	
52 53	0 0	0.00	0.000	0	0.00		
53 54	0	0.00	0.000	0	0.00		
54 55	10	0.00 4.50	2.222	0	1.35		
55 56	10	4.30 2.30	0.870	0	1.55		
57	2	2.30 1.90	0.870	1	1.30		
58	4	2.40	1.667	0 6	2.20		
58 59		2.40 1.90	2.105	0	2.20 1.60	0.625	
59 60	4	2.70	0.741	1	2.40		
60 61	20	2.70 1.50	0.741	1	2.40 1.60		
62	7	4.00	1.750	1	3.75	0.023	
62 63	1	4.00 2.50	0.400	0 4	3.75	1.231	
63 64		2.30	0.400	4	5.23 2.50		
65	2 3	2.73	0.727	0 4	2.30		
66	0	6.00	0.300	4	3.00		
67	0	5.00	0.000	1	3.00 1.00		
68	0	5.00	0.000	1	1.00		
68 69	0	3.00 3.00	0.000	1 0	0.00	0.000	
70 and over	0			0			
/U and over	1	3.00	0.333	0	0.00	0.000	
					0.1.5-	0	
Total	37	58.45	0.633	19	34.85	0.545	

## COMPARISON OF ACTUAL AND EXPECTED ANNUAL SALARIES OF MEMBERS

	Annual Salaries (Salaries shown in 1,000s)					
Age	Actual	Expected	Ratio of Actual To Expected			
Under 25	3,866	3,835	1.008			
25-29	21,002	21,402	0.981			
30-34	32,405	32,658	0.992			
35-39	57,085	57,506	0.992			
40-44	82,536	83,749	0.986			
45-49	113,038	114,210	0.990			
50-54	124,985	126,680	0.987			
55-59	109,029	110,621	0.986			
60-64	79,598	80,933	0.984			
65 and over	33,499	34,043	0.984			
Total	657,043	665,637	0.987			

## SUMMARY OF MORTALITY EXPERIENCE OF PENSIONERS

		Men			Women			Total	
Group	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected	Actual	Expected	Ratio of Actual To Expected
Service Retirees	105	76.23	1.377	68	62.18	1.094	173	138.41	1.250
Disability Retirees	14	7.57	1.849	11	12.11	0.908	8	2.27	3.524
Dependants of Deceased Members	12	2.49	4.819	25	7.7	3.247	37	10.19	3.631
Total	131	86.29	1.518	104	81.99	1.268	218	150.87	1.445

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APPENDIX II

RECOMMENDED ACTIVE SERVICE TABLES

## RECOMMENDED SEPARATIONS FROM ACTIVE SERVICE

## TERMINATIONS

Central Age	Men	Female
of Group	Recommended	Recommended
0	25.0%	30.00%
1	18.0%	22.00%
2	15.0%	18.00%
3	13.5%	15.00%
4	12.0%	12.00%
5	10.0%	10.00%
6	9.0%	9.00%
7	8.0%	8.00%
8	8.0%	6.00%
9	7.0%	6.00%
10	4.0%	5.00%

## COMPARISON OF CURRENT AND RECOMMENDED SEPARATIONS FROM ACTIVE SERVICE

Central Age	Men		Women		
of Group	Current	Recommended	Current	Recommended	
55	2.00%	5.00%	2.00%	7.00%	
56	2.00%	5.00%	2.00%	7.00%	
57	2.00%	5.00%	2.00%	7.00%	
58	2.00%	5.00%	2.00%	7.00%	
59	2.00%	12.00%	2.00%	7.00%	
60	5.00%	12.00%	5.00%	7.00%	
61	5.00%	12.00%	5.00%	7.00%	
62	20.00%	20.00%	20.00%	7.00%	
63	20.00%	15.00%	20.00%	15.00%	
64	20.00%	15.00%	20.00%	25.00%	
65	40.00%	40.00%	40.00%	25.00%	
66	25.00%	15.00%	25.00%	20.00%	
67	25.00%	20.00%	25.00%	20.00%	
68	25.00%	20.00%	25.00%	20.00%	
69	25.00%	20.00%	25.00%	20.00%	
70	100.00%	100.00%	100.00%	100.00%	

## **GROUP A SERVICE RETIREMENTS**

## COMPARISON OF CURRENT AND RECOMMENDED SEPARATIONS FROM ACTIVE SERVICE

## **GROUP B SERVICE RETIREMENTS**

Central Age	Men		Women		
of Group	Current	Recommended	Current	Recommended	
55	2.00%	7.00%	2.00%	7.00%	
56	2.00%	7.00%	2.00%	7.00%	
57	2.00%	7.00%	2.00%	7.00%	
58	2.00%	7.00%	2.00%	7.00%	
59	2.00%	7.00%	2.00%	7.00%	
60	5.00%	7.00%	5.00%	7.00%	
61	5.00%	20.00%	5.00%	15.00%	
62	50.00%	30.00%	50.00%	25.00%	
63	25.00%	20.00%	25.00%	20.00%	
64	25.00%	15.00%	25.00%	20.00%	
65	50.00%	40.00%	50.00%	40.00%	
66	25.00%	25.00%	25.00%	15.00%	
67	25.00%	25.00%	25.00%	20.00%	
68	25.00%	25.00%	25.00%	20.00%	
69	25.00%	25.00%	25.00%	20.00%	
70	100.00%	100.00%	100.00%	100.00%	

## COMPARISON OF CURRENT AND RECOMMENDED SEPARATIONS FROM ACTIVE SERVICE

Central Age	Men		Women		
of Group	Current	Recommended	Current	Recommended	
55	15.00%	30.00%	15.00%	0.00%	
56	10.00%	10.00%	10.00%	5.00%	
57	10.00%	5.00%	10.00%	5.00%	
58	10.00%	20.00%	10.00%	25.00%	
59	10.00%	20.00%	10.00%	5.00%	
60	15.00%	10.00%	15.00%	5.00%	
61	10.00%	10.00%	10.00%	5.00%	
62	25.00%	40.00%	25.00%	5.00%	
63	25.00%	10.00%	25.00%	20.00%	
64	25.00%	20.00%	25.00%	20.00%	
65	100.00%	100.00%	100.00%	100.00%	
66	100.00%	100.00%	100.00%	100.00%	
67	100.00%	100.00%	100.00%	100.00%	
68	100.00%	100.00%	100.00%	100.00%	
69	100.00%	100.00%	100.00%	100.00%	
70	100.00%	100.00%	100.00%	100.00%	

## **GROUP C SERVICE RETIREMENTS**

#### COMPARISON OF CURRENT AND RECOMMENDED SEPARATIONS FROM ACTIVE SERVICE

#### DEATHS

Central Age	Men		Women		
of Group	Current	Recommended	Current	Recommended	
25	0.069%	0.049%	0.018%	0.013%	
26	0.068%	0.048%	0.018%	0.013%	
27	0.067%	0.047%	0.019%	0.013%	
28	0.065%	0.046%	0.020%	0.014%	
29	0.065%	0.045%	0.021%	0.015%	
30	0.065%	0.045%	0.024%	0.017%	
31	0.065%	0.046%	0.027%	0.019%	
32	0.066%	0.046%	0.031%	0.022%	
33	0.068%	0.048%	0.036%	0.025%	
34	0.070%	0.049%	0.040%	0.028%	
35	0.073%	0.051%	0.044%	0.031%	
36	0.076%	0.054%	0.047%	0.033%	
37	0.080%	0.056%	0.050%	0.035%	
38	0.085%	0.060%	0.052%	0.037%	
39	0.090%	0.063%	0.055%	0.038%	
40	0.096%	0.067%	0.058%	0.041%	
41	0.102%	0.072%	0.062%	0.044%	
42	0.109%	0.077%	0.067%	0.047%	
43	0.118%	0.083%	0.074%	0.052%	
44	0.127%	0.089%	0.082%	0.057%	
45	0.138%	0.097% 0.090%		0.063%	
46	0.151%	0.106%	0.099%	0.069%	
47	0.165%	0.115%	0.109%	0.076%	
48	0.180%	0.126%	0.119%	0.083%	
49	0.197%	0.138%	0.131%	0.091%	
50	0.215%	0.150%	0.143%	0.100%	
51	0.235%	0.164%	0.155%	0.109%	
52	0.257%	0.180%	0.169%	0.118%	
53	0.283%	0.198%	0.183%	0.128%	
54	0.312%	0.218%	0.196%	0.138%	

Current: 1995 Buck Mortality Tables for Males and Females. Recommended: 70% of 1995 Buck Mortality Tables for Males and Females.

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# <u>APPENDIX III</u>

## RECOMMENDED POST-RETIREMENT MORTALITY

# POST-RETIREMENT MORTALITY RATES

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.00064	0.00019	67	0.01590	0.00913
20	0.00068	0.00019	68	0.01787	0.01062
21	0.00070	0.00019	69	0.02001	0.01222
22	0.00071	0.00019	70	0.02233	0.01389
23	0.00071	0.00019	71	0.02485	0.01562
24	0.00071	0.00018	72	0.02760	0.01740
25	0.00070	0.00018	73	0.03062	0.01927
26	0.00068	0.00018	74	0.03397	0.02124
27	0.00067	0.00019	75	0.03767	0.02335
28	0.00066	0.00020	76	0.04176	0.02566
29	0.00065	0.00021	77	0.04629	0.02821
30	0.00065	0.00024	78	0.05129	0.03106
31	0.00065	0.00027	79	0.05678	0.03427
32	0.00066	0.00031	80	0.06280	0.03789
33	0.00068	0.00036	81	0.06934	0.04195
34	0.00070	0.00040	82	0.07634	0.04649
35	0.00073	0.00044	83	0.08378	0.05152
36	0.00076	0.00047	84	0.09160	0.05710
37	0.00080	0.00050	85	0.09971	0.06329
38	0.00085	0.00052	86	0.10800	0.07012
39	0.00090	0.00055	87	0.11636	0.07758
40	0.00096	0.00058	88	0.12474	0.08568
41	0.00102	0.00062	89	0.13320	0.09425
42	0.00110	0.00067	90	0.14184	0.10316
43	0.00118	0.00074	91	0.15083	0.11249
44	0.00127	0.00082	92	0.16026	0.12230
45	0.00138	0.00090	93	0.17028	0.13267
46	0.00151	0.00099	94	0.18102	0.14370
47	0.00165	0.00109	95	0.19261	0.15548
48	0.00180	0.00119	96	0.20526	0.16809
49	0.00197	0.00131	97	0.21918	0.18168
50	0.00215	0.00143	98	0.23464	0.19640
51	0.00235	0.00155	99	0.25195	0.21246
52	0.00257	0.00169	100	0.27147	0.23013
53	0.00283	0.00183	101	0.29353	0.24979
54	0.00312	0.00196	102	0.31847	0.27189
55	0.00346	0.00211	103	0.34656	0.29697
56	0.00387	0.00226	104	0.37804	0.32556
57	0.00436	0.00242	105	0.41312	0.35819
58	0.00495	0.00262	106	0.45193	0.39528
59	0.00563	0.00287	107	0.49453	0.43713
60	0.00643	0.00319	108	0.54086	0.48387
61	0.00735	0.00360	109	0.59071	0.53538
62	0.00840	0.00413	110	0.64374	0.59129
63	0.00959	0.00479	111	0.69941	0.65094
64	0.01094	0.00562	112	0.75705	0.71342
65	0.01243	0.00661	113	0.81591	0.77769
66	0.01243	0.00779	114	0.87527	0.84269
. ~	0.01100	0.00777	115	1.00000	1.00000

Basis: 1995 Buck Mortality Tables for Males and Females.