

North Carolina Firefighters' and Rescue Squad Workers Pension Fund

Statement of the Results of the Experience
Investigation and Recommended Revised
Tables for Adoption by the Board of Trustees
Prepared as of December 31, 2014





October 8, 2015

Board of Trustees
North Carolina Local Governmental
Employees' Retirement System
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Members of the Board:

An investigation of the mortality and disability of members and beneficiaries of the North Carolina Firefighters' and Rescue Squad Workers' Pension Fund (the "Fund") has been made. This investigation covers the five-year period from January 1, 2010 to December 31, 2014. As a result of the investigation, it is recommended that revised tables be adopted by the Board for future use.

Experience for Active Members

The disability rates of members of this Fund have been previously set based on a study of the firefighters and rescue squad workers participating in the Local Governmental Employees' Retirement System.

Based on the results of the investigation of the firefighters and rescue squad workers participating in the Local Governmental Employees' Retirement System, new disability tables have been developed that more closely reflect the actual experience of that membership.

Experience for Retired Members and Survivors of Deceased Members

The mortality rates of members of this Fund have been previously set based on a study of retired firefighters and rescue squad workers participating in the Local Governmental Employees' Retirement System and survivors of such deceased members. Based on the results of that investigation, we are recommending new mortality tables.

Summary

The table of contents outlines the material contained in this report. The recommended rates of disability from active service and other demographic assumptions are shown in the attached tables in Schedule A of this report. In the actuary's judgment, the rates recommended are suitable for use until further experience indicates that modifications are desirable.

We have also included, in Schedule A, the economic assumptions and funding methods related to the December 31, 2014 valuation of the Fund, but such economic assumptions and funding methods are not part of the scope of this experience investigation report.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Buck performed no analysis of the potential range of such future differences

Board of Trustees
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The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Respectfully submitted,


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Section 1: Post-Retirement Mortality

The Fund currently uses mortality tables that vary by age, gender and health status (i.e., disabled and healthy). The current mortality rates are based on published tables and based on studies that cover significant portions of the U.S. population. The healthy mortality rates also contain a provision to reflect future mortality improvements. The following table shows that, in total, the current mortality tables result in expected mortality rates significantly higher than the actual mortality rates. In addition, recent studies of the U.S. population have determined that the rates of mortality improvement in the U.S. have differed from those predicted by the projection scale currently in use (Scale AA). Further, the current mortality tables do not provide for mortality improvements for members disabled at retirement.

Therefore, we are recommending that the Board adopt a set of mortality tables that better reflect the experience of the Fund. The recommended mortality tables are also based on recent studies that cover significant portions of the U.S. population, allow for future mortality improvements based on recent studies (Scale MP-2014) and apply mortality improvement to all members, including those disabled at retirement. Scale MP-2014 includes a two-dimensional improvement assumption that is a function of both age and calendar year. The recommended mortality tables continue to vary by age, gender, and health status (i.e., disabled and healthy).

Section 2: Active Mortality

The Fund currently uses mortality tables that vary by age and gender. The current mortality rates are based on published tables and based on recent studies that cover significant portions of the U.S. population. The mortality rates also contain a provision to reflect future mortality improvements.

Therefore, we are recommending that the Board adopt a set of mortality tables consistent with the mortality experience of retirees. The recommended mortality tables are the corresponding active employee table to the post-retirement rates recommended. The recommended mortality tables continue to vary by age and gender.

Section 3: Disability Rates

Disability rates measure the probability that a member will become disabled and receive a disability retirement benefit. The Fund currently uses disability rates that vary by age and gender. The current rates also align with the disability rates used for firefighters and rescue squad workers in the North Carolina Local Government Employees' Retirement System. Based on the results of the investigation of the firefighters and rescue squad workers participating in the Local Governmental Employees' Retirement System, new disability tables have been developed that more closely reflect the actual experience of that membership. Therefore, we are recommending that the Board adopt a set of disability rates consistent with such rates.

Section 4: Summary and Cost of Changes

As a result of the experience investigation, we are recommending revised rates of mortality and disability for active members, and revised rates of mortality for retired members and survivors of deceased members.

Based on the results of the December 31, 2014 valuation, and these proposed demographic assumptions, the accrued liability of the Fund will increase from \$418,915,121 to \$454,302,576 and the required contribution will increase from \$12,830,706 to \$18,161,830.

Note: The cost impacts listed above only apply to demographic-type assumptions. Economic assumptions including investment return, real rate of return, general and wage inflation and real wage growth are not included in this report. Additionally, funding methods such as asset valuation method, actuarial cost method and amortization method are not included in this report.

Appendix A: Statement of Actuarial Assumptions and Methods

INTEREST RATE: 7.25% per annum, compounded annually.

INFLATION: General inflation is assumed to be 3.00% per annum.

ADMINISTRATIVE EXPENSES: Equal to prior year's actual administrative expenses.

ACTUARIAL COST METHOD: Entry age normal cost method. Entry age is established on an individual basis. Gains and losses are reflected in the unfunded accrued liability.

ASSET VALUATION METHOD: Actuarial value. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. The actuarial value of assets is not allowed to be greater than 120% of the market value of assets or less than 80% of the market value of assets.

TIMING OF ASSUMPTIONS: All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal and vesting, and retirement are as follows:

Service	Annual Rates of				
	Withdrawal		Age	Retirement*	
	Firefighters	Rescue Squad Workers		Firefighters	Rescue Squad Workers
0	.030	.05	55+	1.00	1.00
1	.030	.05			
2	.030	.05			
3	.030	.05			
4	.030	.05			
5+	.015	.02			

* These rates apply only after 20 years of membership in the system.

DEATHS AFTER RETIREMENT (NON-DISABLED): According to the RP-2014 Mortality tables for retirees. The active employee rates of RP-2014 are used for ages less than 50.

DEATH AFTER DISABILITY: RP-2014 Mortality tables for disabled annuitants.

DEATHS PRIOR TO RETIREMENT: According to the RP-2014 Mortality tables for active employees.

MORTALITY PROJECTION (NON-DISABLED): All mortality rates are projected from 2014 using Scale MP-2014.

Appendix A: Statement of Actuarial Assumptions and Methods

FRSWPF Disability Rates

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
15	0.00100	0.00060	41	0.00500	0.00400
16	0.00100	0.00060	42	0.00550	0.00420
17	0.00100	0.00060	43	0.00550	0.00440
18	0.00100	0.00060	44	0.00550	0.00460
19	0.00100	0.00060	45	0.00550	0.00480
20	0.00100	0.00060	46	0.00550	0.00500
21	0.00100	0.00060	47	0.00750	0.00520
22	0.00100	0.00060	48	0.00750	0.00540
23	0.00100	0.00060	49	0.00750	0.00560
24	0.00100	0.00060	50	0.01000	0.00760
25	0.00100	0.00060	51	0.01100	0.00960
26	0.00100	0.00060	52	0.01200	0.01160
27	0.00100	0.00060	53	0.01300	0.01360
28	0.00100	0.00060	54	0.01400	0.01560
29	0.00100	0.00060	55	0.01500	0.01760
30	0.00100	0.00090	56	0.01500	0.01960
31	0.00100	0.00120	57	0.01500	0.02160
32	0.00100	0.00150	58	0.01500	0.02360
33	0.00150	0.00180	59	0.01500	0.02560
34	0.00150	0.00210	60	0.01500	0.02760
35	0.00150	0.00240	61	0.01500	0.02960
36	0.00150	0.00270	62	0.01500	0.00300
37	0.00150	0.00300	63	0.01500	0.03000
38	0.00200	0.00330	64	0.01500	0.03000
39	0.00300	0.00360	>=65	0.00000	0.00000
40	0.00400	0.00380			