

August 31, 2023

Mr. Tom Causey  
*Executive Director*  
 State of North Carolina  
 Department of State Treasurer  
 Retirement Systems Division  
 3200 Atlantic Avenue  
 Raleigh, NC 27604

**Firefighters' and Rescue Squad Workers' Pension Fund  
 GASB 67 Disclosure for Fiscal Year Ending June 30, 2023  
 Based on Valuation Date of December 31, 2022**

Dear Mr. Causey:

We have prepared the required accounting information for Governmental Accounting Standards Board (GASB) Statement No. 67 for the North Carolina Firefighters' and Rescue Squad Workers' Pension Fund (FRSWPF) for fiscal year ending June 30, 2023 based on a valuation date of December 31, 2022.

**GASB Statement No. 67**

GASB Statement No. 67 set forth certain Items of information to be disclosed in the financial statements of the Plan.

1. One such item is a distribution of the number of employees by type of membership, as follows:

Number of Active and Retired Participants as of 12/31/2022	
Retired members and survivors of deceased members currently receiving benefits	15,014
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	111
Active members <sup>1</sup>	<u>43,268</u>
Total membership	58,393

<sup>1</sup> Includes all members who have not received a refund of contributions. This group includes 25,263 active members and 18,005 lapsed members who did not contribute or whose service did not increase during 2022.

2. Following is the schedule of changes in Net Pension Liability

Schedule of Changes in Net Pension Liability as of June 30, 2023		
<b>Total Pension Liability</b>		
Service Cost	\$	7,357,000
Interest		32,031,000
Changes in Benefit Terms		0
Differences between Expected and Actual Experience		(3,381,000)
Changes of Assumptions		0
Benefits Payments, including Refund of Member Contributions		<u>(30,876,000)</u>
Net Change in Total Pension Liability	\$	5,131,000
Total Pension Liability – Beginning of Year	\$	500,618,000
Total Pension Liability – End of Year	\$	505,749,000
<b>Plan Fiduciary Net Position</b>		
Employer Contributions	\$	19,702,000
Member Contributions		2,471,000
Net Investment Income		25,008,000
Benefit Payments, including Refund of Member Contributions		(30,876,000)
Administrative Expenses		(844,000)
Other		<u>23,000</u>
Net Change in Plan Fiduciary Net Position	\$	15,484,000
Plan Fiduciary Net Position – Beginning of Year	\$	480,956,000
Plan Fiduciary Net Position – End of Year	\$	496,440,000

Net Pension Liability (Asset)		
	June 30, 2023	June 30, 2022
Total Pension Liability	\$ 505,749,000	\$ 500,618,000
Plan Fiduciary Net Position	<u>496,440,000</u>	<u>480,956,000</u>
Net Pension Liability/(Asset)	\$ 9,309,000	\$ 19,662,000
Plan Fiduciary Net Pension as a Percentage of the Total Pension Liability (Asset)	98.16%	96.07%

3. Following is the sensitivity of the Net Pension liability to changes in the discount rate.

Sensitivity of the Net Pension Liability to Changes in Discount Rate			
	1% Decrease	Current	1% Increase
Discount Rate	5.50%	6.50%	7.50%
Net Pension Liability (Asset)	\$ 73,581,000	\$ 9,309,000	\$ (43,243,000)

4. The discount rate used to measure the total pension liability was 6.50%. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy, including "direct-rate smoothing" as adopted by the Board of Trustees on January 28, 2021. It is also assumed that for fiscal years ending 2023 through 2027, System contributions will follow the State Contribution Rate Stabilization Policy as adopted by the Board of Trustees on April 29, 2021. It is further assumed that for fiscal years 2028 and beyond, System contributions will be based on the actuarially determined contribution amounts. Investment earnings are based on actual returns through June 30, 2023, and on the assumed investment rate of return thereafter. In addition, future administrative expenses are assumed equal to actual expenses paid in the prior year, but no less than a flat rate per active and in-pay member equal to \$27 in 2022 and increased by 2.5% per year thereafter. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Please see Appendix A for additional detail.
5. Methods and assumptions used to calculate the actuarially determined contribution rate are as follows.

Valuation Date	12/31/2022
Actuarial Cost Method	Entry Age
Amortization Method	Level dollar closed
Amortization Period	12-year closed period
Asset Valuation Method	Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period (not greater than 120% of market value and not less than 80% of market value)
Actuarial Assumptions:	
Investment Rate of Return <sup>1</sup>	6.50%
Projected Salary Increases	N/A
Cost-of-living Adjustments	N/A

<sup>1</sup> Includes inflation at 2.50%

The June 30, 2023 total pension liability was determined by an actuarial valuation as of December 31, 2022, based on the assumptions adopted by the Board of Trustees on January 28, 2021, which are based on the experience study prepared as of December 31, 2019, including a discount rate of 6.50%. The economic assumptions with respect to investment yield, salary increase, and inflation have been based upon a review of the existing portfolio structure as well as recent and anticipated experience.

The plan sponsor selected the assumptions used for the accounting results in this letter. We believe that these assumptions are reasonable and comply with the Actuarial Standards of Practice ("ASOPs") 27 and 35 and the requirements of GASB statement No. 67. We prepared this letter in accordance with the requirements of this standard.

ASOPs 27 and 35 ask the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. In the case of the plan sponsor's selection of expected return on assets ("EROA"), the signing actuaries have used economic information and tools provided by the Financial Risk Management ("FRM") practice at Buck, A Gallagher Company (Buck). A spreadsheet tool created by the FRM team converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions ("CMA") that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation and the percentiles generated by the spreadsheet described above, the actuary believes the EROA does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

The June 30, 2023 total pension liability is based on the same plan provisions as used in the previous valuation. To the extent there have been changes to FRSWPF provisions enacted by the legislature, they have been reviewed with staff of the Retirement Systems Division and were not considered material to the current valuation. To the extent the legislature enacts additional legislation that has a material impact on the valuation, revised GASB 67 disclosures may be required.

Full summaries of the plan provisions used in the previous valuation and for the June 30, 2023 total pension liability were provided in October 2022 in the "Report on the Actuarial Valuation of the North Carolina Firefighters' and Rescue Squad Workers' Pension Fund Prepared as of December 31, 2021".

The actuarial cost method used to develop the total pension liability is the Entry Age Normal Cost Method as required by GASB Statement No. 67.

The results of this letter are based upon participant data supplied by the Retirement Systems Division and unaudited financial data supplied by the Financial Operations Division. reviewed the data for reasonableness and consistency with data for the prior valuation but performed no audit of the data. The results of this letter are dependent on the accuracy of the data.

The primary purpose of this letter is to provide information that the Office of the State Controller (OSC) requires for its Comprehensive Annual Financial Report. This letter may also be used in conjunction with other materials for purposes of the pension plan audit. Use of this letter for any other purposes or by anyone other than OSC and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the letter for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask us to review any statement you wish to make on the results contained in this report. Buck will not accept any liability for any such statement made without prior review by Buck.

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 other than the sensitivity to changes in the discount rate required by GASB Statement No. 67.

Actuarial Standard of Practice No. 56 ("ASOP 56") provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the Plan using data and assumptions as of the measurement date under the accounting rules specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable accounting rules to the liabilities derived and other inputs, such as Plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other accounting outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. The review is performed by experts within the company who are familiar with applicable accounting rules as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked and reviewed by multiple experts within the company who are familiar with the details of the required changes.

Where presented, references to "net pension liability" and "fiduciary net position as a percentage of the total pension liability" may be appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the Fund if the Fund were to settle (i.e., purchase annuities to cover) any portion of its liabilities.

This report was prepared under our supervision and in accordance with all applicable Actuarial Standards of Practice. We are Fellows of the Society of Actuaries, Enrolled Actuaries, Members of the American Academy of Actuaries, and Fellows of the Conference of Consulting Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. We are available to discuss this report with you at your convenience.

Please let us know if you require additional information.

Sincerely,

Buck, A Gallagher Company



Michael A. Ribble, FSA, EA, MAAA, FCA  
Principal, Retirement Actuary



Elizabeth A. Wiley, FSA, EA, MAAA, FCA  
Senior Actuarial Consultant

## Appendix A Table 1 – Projection of Fiduciary Net Positions

(\$ in Thousands)

Calendar Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
2023	\$ 473,505	\$ 2,697	\$ 19,877	\$ 33,531	\$ 1,013	\$ 43,485	\$ 505,020
2024	505,020	2,622	20,227	32,883	1,052	32,471	526,405
2025	526,405	2,479	20,577	33,533	1,052	33,848	548,724
2026	548,724	2,344	20,927	34,144	1,053	35,287	572,085
2027	572,085	2,199	10,907	34,601	1,053	36,465	586,002
2028	586,002	2,065	577	35,000	1,053	37,022	589,613
2029	589,613	1,918	221	35,445	1,053	37,226	592,480
2030	592,480	1,789	0	35,835	1,053	37,389	594,770
2031	594,770	1,666	0	36,124	1,053	37,525	596,784
2032	596,784	1,536	0	36,417	1,053	37,642	598,492
2033	598,492	1,420	0	36,595	1,053	37,743	600,007
2034	600,007	1,286	0	36,844	1,053	37,831	601,227
2035	601,227	1,163	0	36,982	1,053	37,900	602,255
2036	602,255	1,045	0	37,201	1,053	37,956	603,002
2037	603,002	927	0	37,498	1,053	37,991	603,369
2038	603,369	798	0	37,817	1,053	38,002	603,299
2039	603,299	663	0	38,131	1,053	37,982	602,760
2040	602,760	532	0	38,535	1,053	37,930	601,634
2041	601,634	411	0	38,928	1,053	37,841	599,905
2042	599,905	293	0	39,288	1,053	37,713	597,570
2043	597,570	73	0	39,710	1,053	37,541	594,421
2044	594,421	10	0	40,177	1,054	37,319	590,519
2045	590,519	4	0	40,415	1,091	37,057	586,074
2046	586,074	2	0	40,517	1,127	36,762	581,194
2047	581,194	1	0	40,564	1,161	36,443	575,913
2048	575,913	0	0	40,539	1,195	36,100	570,279
2049	570,279	0	0	40,406	1,227	35,737	564,383
2050	564,383	0	0	40,289	1,259	35,356	558,191
2051	558,191	0	0	40,178	1,293	34,955	551,675
2052	551,675	0	0	40,016	1,327	34,537	544,869
2053	544,869	0	0	39,643	1,354	34,105	537,977
2054	537,977	0	0	39,252	1,381	33,669	531,013
2055	531,013	0	0	38,739	1,403	33,232	524,103
2056	524,103	0	0	38,113	1,421	32,802	517,371
2057	517,371	0	0	37,435	1,437	32,385	510,884
2058	510,884	0	0	36,559	1,444	31,992	504,873
2059	504,873	0	0	35,464	1,442	31,636	499,603
2060	499,603	0	0	34,236	1,432	31,334	495,269
2061	495,269	0	0	33,007	1,421	31,091	491,932
2062	491,932	0	0	31,788	1,408	30,913	489,649
2063	489,649	0	0	30,580	1,394	30,804	488,479
2064	488,479	0	0	29,383	1,378	30,767	488,485
2065	488,485	0	0	28,197	1,361	30,806	489,733
2066	489,733	0	0	27,023	1,342	30,924	492,292
2067	492,292	0	0	25,862	1,322	31,130	496,238
2068	496,238	0	0	24,712	1,299	31,423	501,650
2069	501,650	0	0	23,575	1,275	31,812	508,612
2070	508,612	0	0	22,450	1,249	32,302	517,215
2071	517,215	0	0	21,339	1,221	32,897	527,552
2072	527,552	0	0	20,241	1,192	33,606	539,725

## Appendix A

### Table 1 – Projection of Fiduciary Net Positions (continued)

(\$ in Thousands)

Calendar Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
2073	\$ 539,725	\$ 0	\$ 0	\$ 19,157	\$ 1,160	\$ 34,432	\$ 553,840
2074	553,840	0	0	18,089	1,126	35,385	570,010
2075	570,010	0	0	17,036	1,091	36,471	588,354
2076	588,354	0	0	16,002	1,053	37,697	608,996
2077	608,996	0	0	14,986	1,014	39,073	632,069
2078	632,069	0	0	13,991	973	40,606	657,711
2079	657,711	0	0	13,018	931	42,305	686,067
2080	686,067	0	0	12,070	887	44,181	717,291
2081	717,291	0	0	11,147	842	46,241	751,543
2082	751,543	0	0	10,254	795	48,497	788,991
2083	788,991	0	0	9,390	748	50,960	829,813
2084	829,813	0	0	8,560	700	53,641	874,194
2085	874,194	0	0	7,764	652	56,553	922,331
2086	922,331	0	0	7,005	604	59,707	974,429
2087	974,429	0	0	6,285	556	63,118	1,030,706
2088	1,030,706	0	0	5,606	509	66,801	1,091,392
2089	1,091,392	0	0	4,968	463	70,766	1,156,727
2090	1,156,727	0	0	4,373	418	75,035	1,226,971
2091	1,226,971	0	0	3,822	375	79,619	1,302,393
2092	1,302,393	0	0	3,315	333	84,539	1,383,284
2093	1,383,284	0	0	2,852	294	89,812	1,469,950
2094	1,469,950	0	0	2,433	257	95,460	1,562,720
2095	1,562,720	0	0	2,057	223	101,504	1,661,944
2096	1,661,944	0	0	1,722	191	107,965	1,767,996
2097	1,767,996	0	0	1,427	162	114,870	1,881,277
2098	1,881,277	0	0	1,168	136	122,241	2,002,214
2099	2,002,214	0	0	944	112	130,109	2,131,267
2100	2,131,267	0	0	753	92	138,506	2,268,928
2101	2,268,928	0	0	591	74	147,458	2,415,721
2102	2,415,721	0	0	457	58	157,005	2,572,211
2103	2,572,211	0	0	347	46	167,182	2,739,000
2104	2,739,000	0	0	259	35	178,026	2,916,732
2105	2,916,732	0	0	189	26	189,581	3,106,098
2106	3,106,098	0	0	135	19	201,891	3,307,835
2107	3,307,835	0	0	94	14	215,006	3,522,733
2108	3,522,733	0	0	64	10	228,975	3,751,634
2109	3,751,634	0	0	43	7	243,855	3,995,439
2110	3,995,439	0	0	28	4	259,703	4,255,110
2111	4,255,110	0	0	17	3	276,581	4,531,671
2112	4,531,671	0	0	11	2	294,559	4,826,217
2113	4,826,217	0	0	6	1	313,703	5,139,913
2114	5,139,913	0	0	4	1	334,095	5,474,003
2115	5,474,003	0	0	2	0	355,809	5,829,810
2116	5,829,810	0	0	1	0	378,938	6,208,747
2117	6,208,747	0	0	1	0	403,569	6,612,315
2118	6,612,315	0	0	0	0	429,800	7,042,115
2119	7,042,115	0	0	0	0	457,737	7,499,852
2120	7,499,852	0	0	0	0	487,490	7,987,342
2121	7,987,342	0	0	0	0	519,178	8,506,520
2122	8,506,520	0	0	0	0	552,923	9,059,443



## Appendix A

**Table 2 – Actuarial Present Values of Projected Benefit Payments**  
(\$ in Thousands)

Calendar Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Funded Payments at 6.50%	Unfunded Payments at 3.65%	Using Single Discount Rate of 6.50%
2023	\$ 473,505	\$ 33,531	\$ 33,531	\$ 0	\$ 32,492	\$ 0	\$ 32,492
2024	505,020	32,883	32,883	0	29,919	0	29,919
2025	526,405	33,533	33,533	0	28,648	0	28,648
2026	548,724	34,144	34,144	0	27,390	0	27,390
2027	572,085	34,601	34,601	0	26,062	0	26,062
2028	586,002	35,000	35,000	0	24,754	0	24,754
2029	589,613	35,445	35,445	0	23,539	0	23,539
2030	592,480	35,835	35,835	0	22,345	0	22,345
2031	594,770	36,124	36,124	0	21,151	0	21,151
2032	596,784	36,417	36,417	0	20,021	0	20,021
2033	598,492	36,595	36,595	0	18,891	0	18,891
2034	600,007	36,844	36,844	0	17,859	0	17,859
2035	601,227	36,982	36,982	0	16,831	0	16,831
2036	602,255	37,201	37,201	0	15,898	0	15,898
2037	603,002	37,498	37,498	0	15,047	0	15,047
2038	603,369	37,817	37,817	0	14,248	0	14,248
2039	603,299	38,131	38,131	0	13,490	0	13,490
2040	602,760	38,535	38,535	0	12,801	0	12,801
2041	601,634	38,928	38,928	0	12,142	0	12,142
2042	599,905	39,288	39,288	0	11,506	0	11,506
2043	597,570	39,710	39,710	0	10,920	0	10,920
2044	594,421	40,177	40,177	0	10,374	0	10,374
2045	590,519	40,415	40,415	0	9,799	0	9,799
2046	586,074	40,517	40,517	0	9,224	0	9,224
2047	581,194	40,564	40,564	0	8,671	0	8,671
2048	575,913	40,539	40,539	0	8,137	0	8,137
2049	570,279	40,406	40,406	0	7,615	0	7,615
2050	564,383	40,289	40,289	0	7,130	0	7,130
2051	558,191	40,178	40,178	0	6,676	0	6,676
2052	551,675	40,016	40,016	0	6,243	0	6,243
2053	544,869	39,643	39,643	0	5,808	0	5,808
2054	537,977	39,252	39,252	0	5,399	0	5,399
2055	531,013	38,739	38,739	0	5,004	0	5,004
2056	524,103	38,113	38,113	0	4,622	0	4,622
2057	517,371	37,435	37,435	0	4,263	0	4,263
2058	510,884	36,559	36,559	0	3,909	0	3,909
2059	504,873	35,464	35,464	0	3,561	0	3,561
2060	499,603	34,236	34,236	0	3,228	0	3,228
2061	495,269	33,007	33,007	0	2,922	0	2,922
2062	491,932	31,788	31,788	0	2,642	0	2,642
2063	489,649	30,580	30,580	0	2,387	0	2,387
2064	488,479	29,383	29,383	0	2,153	0	2,153
2065	488,485	28,197	28,197	0	1,940	0	1,940
2066	489,733	27,023	27,023	0	1,746	0	1,746
2067	492,292	25,862	25,862	0	1,569	0	1,569
2068	496,238	24,712	24,712	0	1,408	0	1,408
2069	501,650	23,575	23,575	0	1,261	0	1,261
2070	508,612	22,450	22,450	0	1,127	0	1,127
2071	517,215	21,339	21,339	0	1,006	0	1,006
2072	527,552	20,241	20,241	0	896	0	896

## Appendix A

**Table 2 – Actuarial Present Values of Projected Benefit Payments (continued)**  
(\$ in Thousands)

Calendar Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments		
					Funded Payments at 6.50%	Unfunded Payments at 3.65%	Using Single Discount Rate of 6.50%
2073	\$ 539,725	\$ 19,157	\$ 19,157	\$ 0	\$ 796	\$ 0	\$ 796
2074	553,840	18,089	18,089	0	706	0	706
2075	570,010	17,036	17,036	0	624	0	624
2076	588,354	16,002	16,002	0	551	0	551
2077	608,996	14,986	14,986	0	484	0	484
2078	632,069	13,991	13,991	0	425	0	425
2079	657,711	13,018	13,018	0	371	0	371
2080	686,067	12,070	12,070	0	323	0	323
2081	717,291	11,147	11,147	0	280	0	280
2082	751,543	10,254	10,254	0	242	0	242
2083	788,991	9,390	9,390	0	208	0	208
2084	829,813	8,560	8,560	0	178	0	178
2085	874,194	7,764	7,764	0	152	0	152
2086	922,331	7,005	7,005	0	128	0	128
2087	974,429	6,285	6,285	0	108	0	108
2088	1,030,706	5,606	5,606	0	91	0	91
2089	1,091,392	4,968	4,968	0	75	0	75
2090	1,156,727	4,373	4,373	0	62	0	62
2091	1,226,971	3,822	3,822	0	51	0	51
2092	1,302,393	3,315	3,315	0	42	0	42
2093	1,383,284	2,852	2,852	0	34	0	34
2094	1,469,950	2,433	2,433	0	27	0	27
2095	1,562,720	2,057	2,057	0	21	0	21
2096	1,661,944	1,722	1,722	0	17	0	17
2097	1,767,996	1,427	1,427	0	13	0	13
2098	1,881,277	1,168	1,168	0	10	0	10
2099	2,002,214	944	944	0	8	0	8
2100	2,131,267	753	753	0	6	0	6
2101	2,268,928	591	591	0	4	0	4
2102	2,415,721	457	457	0	3	0	3
2103	2,572,211	347	347	0	2	0	2
2104	2,739,000	259	259	0	2	0	2
2105	2,916,732	189	189	0	1	0	1
2106	3,106,098	135	135	0	1	0	1
2107	3,307,835	94	94	0	0	0	0
2108	3,522,733	64	64	0	0	0	0
2109	3,751,634	43	43	0	0	0	0
2110	3,995,439	28	28	0	0	0	0
2111	4,255,110	17	17	0	0	0	0
2112	4,531,671	11	11	0	0	0	0
2113	4,826,217	6	6	0	0	0	0
2114	5,139,913	4	4	0	0	0	0
2115	5,474,003	2	2	0	0	0	0
2116	5,829,810	1	1	0	0	0	0
2117	6,208,747	1	1	0	0	0	0
2118	6,612,315	0	0	0	0	0	0
2119	7,042,115	0	0	0	0	0	0
2120	7,499,852	0	0	0	0	0	0
2121	7,987,342	0	0	0	0	0	0
2122	8,506,520	0	0	0	0	0	0