

November 29, 2011

Mr. William Spead
Regulatory Compliance Officer
New Hampshire Retirement System
54 Regional Drive
Concord, New Hampshire 03301

Re: LSR 12-2876.1 – Revised

Dear Mr. Spead:

Enclosed are the revised results of a supplemental actuarial valuation to measure the financial effects of LSR 12-2876.1, as requested.

Respectfully submitted,



David T. Kausch, FSA, EA, MAAA

DTK:bd
Enclosures

cc: Ms. Kim France (via email)
Mr. Larry Johansen (via email)
Mr. Randy Dziubek (GRS via email)
Ms. Heidi Barry (GRS via email)

NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1

REQUESTED BY: New Hampshire Retirement System

DATE: November 29, 2011

SUBMITTED BY: David T. Kausch, FSA, EA, MAAA
Randall J. Dziubek, ASA, EA, MAAA
Heidi G. Barry, ASA, MAAA
Gabriel, Roeder, Smith & Company

This report contains the results of a supplemental actuarial valuation of proposed system changes as described in LSR 12-2876.1. The proposed changes include:

- This bill establishes a defined contribution retirement plan for public employees and requires the issuance of a request for proposals for plan administration. Beginning November 1, 2012, all new hires by employers participating in the retirement system shall be enrolled in the public employee defined contribution plan.

Supplemental valuations do not predict the results of future actuarial valuations. (Future activities can affect future valuation results in an unpredictable manner). Rather, supplemental valuations give an indication of the probable effect of the **change only** on future valuations without comment on the complete end result of the future valuations.

The signing actuaries are independent of the plan sponsor, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The valuation was based upon data furnished by NHRS for the June 30, 2011 actuarial valuation as disclosed in our draft report issued November 1, 2011.

This includes economic assumptions adopted by the Board of:

- The assumed rate of interest of 7.75% and
- The assumed rate of wage inflation of 3.75%

The amortization period is a closed 26-year period beginning in FY 2014.

A brief summary of the data used in this valuation is presented on the next page.

**NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1**

AS OF JUNE 30, 2011

Valuation Group	Active Members	Valuation Payroll	Average		
			Age	Service	Pay
Employees:					
Male	9,821	\$ 487,016,910	48.6	11.1	\$49,589
Female	15,718	626,849,823	48.6	10.1	39,881
Total	25,539	1,113,866,733	48.6	10.5	43,614
Teachers:					
Male	4,119	244,851,420	45.7	13.3	59,444
Female	14,347	791,524,917	46.0	12.6	55,170
Total	18,466	1,036,376,337	45.9	12.7	56,123
Police:					
Male	3,606	230,141,091	39.1	11.0	63,822
Female	524	29,367,714	39.0	9.0	56,045
Total	4,130	259,508,805	39.1	10.8	62,835
Fire:					
Male	1,555	105,204,154	40.7	12.7	67,655
Female	48	2,823,441	39.2	9.4	58,822
Total	1,603	108,027,595	40.7	12.6	67,391
Total:					
Male	19,101	1,067,213,575	45.6	11.7	55,872
Female	30,637	1,450,565,895	47.2	11.2	47,347
Grand					
Total	49,738	\$2,517,779,470	46.6	11.4	\$50,621

NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1

New Provisions Under Consideration:

Employees, Teachers, permanent Policemen and permanent Firemen beginning service on or after November 1, 2012, shall as a condition of employment, participate in the public employee defined contribution plan.

Specific provisions of LSR 12-2876.1 are as follows:

Defined Contribution Members:

- Mandatory member contributions of 7.00% of compensation for Group I members, 11.80% for Group II Fire members, and 11.55% for Group II Police members
- Employer contributions (into members' individual accounts) of :
 - Group I – 10.00% of compensation minus the 7.00% member contribution and minus the cost of the premium for long term disability and life insurance
 - Group II – 16.00% of compensation minus the 11.80% or 11.55% member contribution and minus the cost of the premium for long term disability and life insurance
- Additional required employer contributions will be applied to the UAAL of the NHRS equal to the amount determined under RSA 100-A:16,II minus the employer contribution determined in the previous bullet
- Member DC balances attributable to employer contributions become 20% vested after 4 years, 40% vested after 5 years, 60% vested after 6 years, 80% vested after 7 years, and 100% vested after 8 years

Defined Benefit (NHRS) Members:

- No changes to statutory contributions

**NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1**

**ACTUARIAL STATEMENT
PENSION RESULTS**

Effect of Proposal as Currently Written

Member Classification	Employees	Teachers	Police	Fire	Total*
Derivation of Estimated Employer DC Contribution					
(1) Rates Defined in RSA 100-E:5, I and E:5, II	10.00 %	10.00 %	16.00 %	16.00 %	10.89 %
(2) RSA 100-E:5, I(a) and E:5, II(a) (Member Contributions)	(7.00)%	(7.00)%	(11.55)%	(11.80)%	(7.69)%
(3) RSA 100-E:5, I(b) and E:5, II(b) (LTD and Life Insurance)	(0.39)%	(0.11)%	(1.03)%	(1.03)%	(0.38)%
(4) Employer DC Contribution Rate	2.61 %	2.89 %	3.42 %	3.17 %	2.82 %

Derivation of Employer Contribution Towards UAAL	2014-15	2014-15	2014-15	2014-15	2014-15
(5) RSA 100-A:16, II (Employer Pension Rate)	10.44 %	11.96 %	21.35 %	23.79 %	12.78 %
(6) RSA 100-E:5 (Employer DC Contribution Rate)	(2.61)%	(2.89)%	(3.42)%	(3.17)%	(2.82)%
(7) RSA 100-E:6 (Net Employer Contribution Rate to DB Plan)	7.83 %	9.07 %	17.93 %	20.62 %	9.96 %
(8) UAAL Rates For FY 2014 and Later	7.96 %	9.95 %	15.45 %	16.41 %	9.92 %
(9) Excess (Shortfall) in Contribution Rates	(0.13)%	(0.88)%	2.48 %	4.21 %	0.04 %

* Total rates will vary depending on actual DB and DC members.

Projected Impact on Employer Contributions (Total DB and DC)					
Member Classification	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
State Employees Pension	\$ -	\$ (47,091)	\$ (111,207)	\$ (268,242)	\$ (394,417)
State Police Pension	-	111,891	275,567	280,626	264,150
State Fire Pension	-	5,833	15,016	19,887	23,367
State Subtotal	-	70,633	179,376	32,271	(106,900)
Political Subd. Employees Pension	-	(51,083)	(120,634)	(290,981)	(427,851)
Political Subd. Teachers Pension	-	(529,502)	(1,306,652)	(2,532,268)	(3,538,554)
Political Subd. Police Pension	-	290,197	714,703	727,823	685,093
Political Subd. Fire Pension	-	162,719	418,928	554,804	651,900
Political Subd. Subtotal	-	(127,669)	(293,656)	(1,540,621)	(2,629,412)
Grand Total	-	(57,036)	(114,280)	(1,508,350)	(2,736,312)

Impact of Pension Funded Status		
As of June 30, 2011		
Member Classification	Present Value of Shortfall	Percent of Actuarial Liability
Employees	\$ (49,111,005)	(1.5)%
Teachers	(172,134,009)	(4.4)%
Police	(21,259,770)	(1.1)%
Fire	5,120,900	0.6%
Total	\$ (237,383,884)	(2.4)%

NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1

ACTUARIAL STATEMENT
PENSION RESULTS

Alternate Interpretation Without LTD and Life Insurance Adjustment
(See Comment 8)

Member Classification	Employees	Teachers	Police	Fire	Total
Derivation of Estimated Employer DC Contribution					
(1) Rates Defined in RSA 100-E:5, I and E:5, II	10.00 %	10.00 %	16.00 %	16.00 %	10.89 %
(2) RSA 100-E:5, I(a) and E:5, II(a) (Member Contributions)	(7.00)%	(7.00)%	(11.55)%	(11.80)%	(7.69)%
(3) RSA 100-E:5, I(b) and E:5, II(b) (LTD and Life Insurance)	(0.39)%	(0.11)%	(1.03)%	(1.03)%	(0.38)%
(4) Employer DC Contribution Rate	2.61 %	2.89 %	3.42 %	3.17 %	2.82 %

Derivation of Employer Contribution Towards UAAL	2014-15	2014-15	2014-15	2014-15	2014-15
(5) RSA 100-A:16, II (Employer Pension Rate)	10.44 %	11.96 %	21.35 %	23.79 %	12.78 %
(6) RSA 100-E:5 (Employer DC Contribution Rate) (3) + (4)	(3.00)%	(3.00)%	(4.45)%	(4.20)%	(3.20)%
(7) RSA 100-E:6 (Net Employer Contribution Rate to DB Plan)	7.44 %	8.96 %	16.90 %	19.59 %	9.58 %
(8) UAAL Rates For FY 2014 and Later	7.96 %	9.95 %	15.45 %	16.41 %	9.92 %
(9) Shortfall in Contribution Rates	(0.52)%	(0.99)%	1.45 %	3.18 %	(0.34)%

Projected Impact on Employer Contributions (Total DB and DC)					
Member Classification	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
State Employees Pension	\$ -	\$ (188,363)	\$ (444,830)	\$ (846,091)	\$ (1,160,344)
State Police Pension	-	65,420	161,118	103,177	36,540
State Fire Pension	-	4,406	11,343	13,957	15,495
State Subtotal	-	(118,537)	(272,369)	(728,957)	(1,108,309)
Political Subd. Employees Pension	-	(204,331)	(482,537)	(917,814)	(1,258,707)
Political Subd. Teachers Pension	-	(595,690)	(1,469,984)	(2,790,477)	(3,870,267)
Political Subd. Police Pension	-	169,672	417,870	267,597	94,768
Political Subd. Fire Pension	-	122,909	316,435	389,379	432,273
Political Subd. Subtotal	-	(507,440)	(1,218,216)	(3,051,315)	(4,601,933)
Grand Total	-	(625,977)	(1,490,585)	(3,780,272)	(5,710,242)

Impact of Pension Funded Status		
As of June 30, 2011		
Member Classification	Present Value of Shortfall	Percent of Actuarial Liability
Employees	\$ (120,948,221)	(3.6)%
Teachers	(184,182,008)	(4.7)%
Police	(49,783,560)	(2.7)%
Fire	(5,845,443)	(0.7)%
Total	\$ (360,759,232)	(3.6)%

NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1

Comment 1: The proposal includes a provision for participating employers to continue funding the NHRS on the payroll for members of both the defined benefit plan and the defined contribution plan (i.e., an open group). Despite the fact that the annual contribution toward the unfunded actuarial accrued liability will be made on an open group, we believe the current rules under GASB 25/27 do not allow for continued use of a level percent of payroll amortization approach in the determination of the Annual Required Contribution (ARC). For purposes of determining the ARC we believe the System will be required to use a level dollar method or a method that reflects the declining payroll of the closed active population of the System. To the extent future actual contributions (based on a level percent of pay amortization) are lower than the calculated ARC (based on a level dollar approach), the System will report contribution less than 100% of the ARC. As an example, for NHRS in total, the ARC would increase from 12.78% of payroll to 16.90% resulting in employer contributions of 76% of the ARC. However, if the proposed changes in the Exposure Draft for GASB 25/27 are formally adopted by GASB (currently expected by FY 2014), the calculation of the ARC will be eliminated but the issue remains.

Comment 2: As shown on page 4, under the proposed changes, the estimated employer contribution toward the UAAL is lower for Group I members than the result calculated in the most recent actuarial valuation as the amount necessary to amortize the UAAL over a 26-year period (the reverse is true for Group II). This implies that the UAAL for Group I would not be expected to be fully paid off over the desired 26-year period (whereas Group II would be expected to be paid off earlier). In addition, future valuation results of the System could change over time as the demographics of the population changes. This would result in changes to the calculated employer payment toward the UAAL which could further exacerbate the situation. The estimated present value of the shortfall of contributions as of June 30, 2011 is \$237 million for NHRS in total as shown in the table at the bottom of page 4. This shortfall will be made up with increasing employer DB contribution rates over time. Given that the employer contribution rates for NHRS are set through biennial valuations, it would be more consistent with NHRS' funding objectives to define the employers' contribution to NHRS on the payroll of defined contribution members as the amount established to amortize the UAAL under RSA 100-A:16.

Comment 3: The proposed DC plan contains a vesting schedule as described on page 3. At this time we believe the treatment of forfeitures has yet to be addressed. The estimated costs of the proposed DC plan shown on page 4 (Item #4) were determined as if forfeitures are allocated to the accounts of remaining members. To the extent forfeitures will be used to reduce future employer contributions into members' DC accounts, the cost of the DC plan may be lower than the estimates shown. We have assumed that the employer contributions to NHRS would not be reduced by any DC forfeitures.

Comment 4: Adding a Defined Contribution Plan for new hires after a certain date effectively would close NHRS to new hires. GRS is neither for nor against the proposed change.

Comment 5: The proposal does not address the funding of the medical subsidy benefits. We have assumed that employer contributions for the medical subsidy benefits would be assessed to both DB and DC member payroll. If the intent is to only assess DB payroll, the current method of contributing the minimum amount necessary to fund medical subsidy benefits will be insufficient since the last dollar of DB payroll will be paid before the last medical subsidy benefit.

NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1

Comment 6: Under the proposed changes, employers may be required to make continued payments toward unfunded DB benefits long after they have any DB members left. A reasonable rule of thumb for the total population is that 10 years after the change half of the workforce will be in the defined contribution plan. Different employers will reach a point of having no DB members at different times, however it is possible that many of them will reach that point before the scheduled amortization of the UAAL is complete.

Comment 7: The proposed LTD and life insurance benefits and their corresponding premiums under RSA 100-E:5, I(b) and II(b) are unknown at this time. For purposes of our actuarial analysis, we estimated the cost of providing these benefits as the normal cost of disability and death-in-service benefits provided to current NHRS members. The actual cost of these benefits will depend on the final provisions and premiums which are not part of the scope of our analysis and may vary considerably from the amounts shown.

Comment 8: The proposed base DC percentages of 10% for Group I and 16% for Group II were selected without the benefit of knowing the expected cost of the DB plan provisions for new hires. Based on the information shown below, it is estimated that the employer costs for the proposed DC plan will be higher over the long run than the costs of the current DB benefits for new hires. A reasonable comparison of the long-term cost of the DB to the DC plan is a comparison of the DB employer normal cost to the employer DC cost.

Member Classification	Employees	Teachers	Police	Fire	Total
Ultimate Normal Cost For Newly Hired Members of DB Plan					
Total	8.38%	7.14%	12.34%	13.13%	8.41%
Member Contributions	(7.00)%	(7.00)%	(11.55)%	(11.80)%	(7.69)%
Ultimate Employer DB Normal Cost	1.38%	0.14%	0.79%	1.33%	0.72%
Estimated Employer DC Cost (from page 3)	<u>2.61%</u>	<u>2.89%</u>	<u>3.42%</u>	<u>3.17%</u>	<u>2.82%</u>
DC Cost in Excess of DB	1.23%	2.75%	2.63%	1.84%	2.10%

Estimated Employer DC Cost shown here does not include the cost of providing long-term disability or life insurance whereas the ultimate Employer DB Normal Cost does reflect the cost of disability and death benefits provided through NHRS.

Comment 9: We have based certain results shown on page 4 on a literal reading of LSR 12-2876.1 with regard to the estimate of required employer contributions needed to fund the unfunded actuarial accrued liability (UAAL). Under our interpretation it appears the UAAL contribution will contain a component equal to the cost of premium contributions for long term disability and life insurance. We believe this may not be the intention. Results determined under the alternate interpretation that the premium cost for disability and life insurance should not be included in the UAAL payment are shown on page 5. Note, this interpretation increases the present value of the shortfall in the employer UAAL contribution discussed in Comment 2 to \$361 million as of June 30, 2011.

NHRS
SUPPLEMENTAL ACTUARIAL VALUATION
LSR 12-2876.1

Comment 10: Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

Comment 11: This calculation is based upon present and proposed plan provisions that are outlined in the report. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the authors of this report prior to relying on information in the report. Also, in the event that more than one plan change is being considered, it is very important to remember that the results of separate actuarial valuations cannot generally be added together to produce a correct estimate of the combined effect of all of the changes. The total can be considerably greater than the sum of the parts due to the interaction of various plan provisions with each other, and with the assumptions that must be used.