Actuarial Review of the 2020 Accounting Disclosures for the North Carolina Office of the State Auditor

March 2021

Review of GASB Statement Nos. 68 and 75 Schedules

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March 4, 2021

Ms. Amy Senogles, CPA
Financial Audit Supervisor
Office of the State Auditor
2 S. Salisbury St.
20601 Mail Service Center
Raleigh, North Carolina 27699-0600

Re: North Carolina Actuarial Review of 2020 Accounting Disclosures for GASB Statement Nos. 68 and 75

Dear Ms. Senogles:

Gabriel, Roeder, Smith & Company (GRS) is pleased to present this report of an Actuarial Review of the 2020 Accounting Disclosures related to the North Carolina Retirement System. We are grateful to the Office of the State Auditor for their responsiveness and assistance throughout the actuarial review process. In addition, we wish to thank the consultants of Cavanaugh Macdonald Consulting (CavMac) and Segal Consulting for their cooperation and assistance with this project.

This project is separated into two engagements. This is a report covering the work of the second engagement. A report covering the work of the first engagement was issued on November 20, 2020.

The second engagement is described as follows:

Evaluate the actuarial valuations of the following plans used in the State's financial statements for the period ended June 30, 2020:

- The Teachers and State Employees Retirement System of North Carolina (TSERS);
- The Local Governmental Employees Retirement System of North Carolina (LGERS);
- The Register of Deeds Supplemental Pension Fund of North Carolina (RODSPF);
- The North Carolina Retiree Health Benefits Plan (RHB); and
- The Disability Income Plan of North Carolina (DIPNC).

Specifically, this review will provide reasonable assurance regarding the accuracy of the following:

1. The employer allocation percentage for each participating employer as reported on the Schedules of Employer Allocations for each pension and OPEB plan.

2. The total for the following columns of the Schedule of Pension amounts by Employer for each pension plan:

   - Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments;
   - Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions;
   - Proportionate Share of Plan Pension Expense; and
   - Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions.

3. The total for the following columns of the Schedule of OPEB amounts by Employer for each OPEB plan:

   - Net Difference Between Projected and Actual Investment Earnings on OPEB Plan Investments;
   - Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions;
   - Proportionate Share of Plan OPEB Expense; and
   - Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions.

This report builds on the report we issued under Phase I, where we reviewed the assumptions, underlying valuation results and the schedules prepared for the GASB Statement Nos. 67 and 74.

The purpose of this report is to provide the results of our actuarial review, described above, including:

- An opinion regarding the reasonableness and accuracy of the actuarial assumptions, actuarial cost methods, procedures, and valuation results; and
- Certification that the plans' actuarial valuation was prepared in accordance with pronouncements issued by the Governmental Accounting Standards Board (GASB), principles and practices prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures.

This report was prepared at the request of the Office of the State Auditor of North Carolina (OSA) for the purposes stated above. It may not be suitable for other purposes. This report may be shared with parties other than the OSA, but only with the OSA's permission and only in its entirety. GRS is not responsible for unauthorized use of this report.

In our opinion, the methods and calculations used in the 2020 GASB Statement Nos. 68 and 75 calculations of the aforementioned plans are reasonable and comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 68 and 75 and comply with practices promulgated by the Actuarial Standards. The intended audience is the OSA. The authors of this report are available to answer questions.

Abra D. Hill and Jeffrey T. Tebeau are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing individuals are independent of the plan sponsor.

Respectfully submitted,

Kenneth G. Alberts, Project Manager

Abra D. Hill, ASA, FCA, MAAA

Jeffrey T. Tebeau, FSA, EA, MAAA

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EXECUTIVE SUMMARY

Executive Summary

Background

Gabriel, Roeder, Smith & Company (GRS) was engaged by the Office of the State Auditor to review calculations related to the 2020 disclosures the State will include in its Comprehensive Annual Financial Report (CAFR).

This report covers the work of the second engagement. A report covering the work of the first engagement was issued November 20, 2020. In that report we stated the following:

> *"In our opinion, the assumptions and methods used in the December 31, 2019 valuations of the aforementioned plans are reasonable and comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 74 and comply with practices promulgated by the Actuarial Standards.*
>
> *Based on our test lives review and our review of the funding and GASB reports, we certify that the plans' actuarial valuation was prepared in accordance with pronouncements issued by the Governmental Accounting Standards Board (GASB), principles and practices prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures (with the exception of the disclosure requirements discussed herein* [in our November 20, 2020 report])."

The second engagement builds on the first engagement and reviews the schedules used for GASB Statement Nos. 68 and 75. The second engagement is described as follows:

Evaluate the actuarial valuations of the following plans used in the State's financial statements for the period ended June 30, 2020:

- The Teachers and State Employees Retirement System of North Carolina (TSERS);
- The Local Governmental Employees Retirement System of North Carolina (LGERS);
- The Register of Deeds Supplemental Pension Fund of North Carolina (RODSPF);
- The North Carolina Retiree Health Benefits Plan (RHB); and
- The Disability Income Plan of North Carolina (DIPNC).

Specifically, this review will provide reasonable assurance regarding the accuracy of the following:

1. The employer allocation percentage for each participating employer as reported on the Schedules of Employer Allocations for each pension and OPEB plan.
2. The total for the following columns of the Schedule of Pension amounts by Employer for each pension plan:
    - Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments;
    - Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions;
    - Proportionate Share of Plan Pension Expense; and
    - Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions.

3. The total for the following columns of the Schedule of OPEB amounts by Employer for each OPEB plan:

    - Net Difference Between Projected and Actual Investment Earnings on OPEB Plan Investments;
    - Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions;
    - Proportionate Share of Plan OPEB Expense; and
    - Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions.

The balance of this report is organized by System/Plan:

Section 1 – TSERS
Section 2 – LGERS
Section 3 – RODSPF
Section 4 – RHB
Section 5 – DIPNC
Section 6 – Comments, Conclusions and Recommendations

Conclusion

In our opinion, the assumptions and methods used in the 2019 funding valuations (and 2020 GASB valuations) of the aforementioned plans are reasonable and comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 68 and 75 and the practices promulgated by the Actuarial Standards.

Based on our review of the actuarial valuations and GASB reports, we certify that the actuarial information provided for the employers' financial statements for compliance with GASB Statement Nos. 68 and 75 was prepared in accordance with pronouncements issued by the GASB, principles and practices prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures.

SECTION 1

TSERS

TSERS

Employer Allocation

We have reviewed the calculation of the Employer Allocation. For this portion of the project we received a spreadsheet that contained a row for each employer indicating the following:

- Employer ID;
- Employer Description; and
- Present Value of Future Salary.

We received a second spreadsheet containing the schedule of pension amounts by employer.

The employer allocation was performed based on the proportion of each employer's present value of future salary to the plan's total present value of future salary. Paragraph 48a of GASB Statement No. 68 states, in part:

> *The basis for the employer's proportion should be consistent with the manner in which contributions to the pension plan, excluding those to separately finance specific liabilities of an individual employer to the pension plan, are determined.*

We agree that the use of the present value of future pay to determine the employer allocation is reasonable under this paragraph.

We previously reviewed the underlying assumptions for the development of the present value of future pay during Phase I and found the assumptions to be reasonable. In addition, our test life review under Phase I confirmed the calculations to be reasonable.

We were able to replicate the proportionate share by employer, based on the data contained in the allocation spreadsheet.

Schedule of Pension Amounts by Employer

Using the two spreadsheets discussed above, we matched the employer proportion from the first spreadsheet and recalculated the numbers in the second spreadsheet. All the numbers we tested were within $1.

With the exception of rounding, we were able to match all the employer share amounts we tested. Note data was not sufficient to test the difference between the actual employer contribution and the employers' proportionate share from the prior year.

Other Comments

We reviewed all the other 2020 numbers in the GASB Statement No. 68 letter for consistency with the previous reports (used to review the Liability calculations under Phase I). We were able to confirm or reasonably replicate all of the current year numbers except one. Under the Pension Expense there is a number labeled “Other” that amounts to $(16,209,603). Page 35 of the TSERS valuation report (which details the GASB Statement No. 67 results) indicates the “Other” amount is $271,000. Since this is a number that comes from the financial statements and the financial statements were not provided for this engagement, we could not opine on which number we believe to be appropriate or why the numbers are different. Because the two amounts are different, the Net Pension Liability does not reconcile year over year by the difference between the two numbers. We understand that this difference arises from the change in the number of employers from year to year. We were able to reconcile the NPL from year to year after accounting for the differences in the “Other” category. See the reconciliation in the Appendix.

All the numbers in the development of the accounting schedule appear to be rounded to the nearest $1,000, except the “Other” category in the development of the Pension Expense (and the resulting Pension Expense). We recommend a consistent use of rounding in all calculations.

SECTION 2

LGERS

LGERS

Employer Allocation

We have reviewed the calculation of the Employer Allocation. For this portion of the project we received a spreadsheet that contained a row for each employer indicating the following:

- Employer ID;
- Employer Description; and
- Present Value of Future Salary.

We received a second spreadsheet containing the schedule of pension amounts by employer.

The employer allocation was performed based on the proportion of each employer's present value of future salary to the plan's total present value of future salary. Paragraph 48a of GASB Statement No. 68 states, in part:

> *The basis for the employer's proportion should be consistent with the manner in which contributions to the pension plan, excluding those to separately finance specific liabilities of an individual employer to the pension plan, are determined.*

We agree that the use of the present value of future pay to determine the employer allocation is reasonable under this paragraph.

We previously reviewed the underlying assumptions for the development of the present value of future pay during Phase I and found the assumptions to be reasonable. In addition, our test life review under Phase I confirmed the calculations to be reasonable.

We were able to replicate the proportionate share by employer, based on the data contained in the allocation spreadsheet.

Schedule of Pension Amounts by Employer

Using the two spreadsheets discussed above, we matched the employer proportion from the first spreadsheet and recalculated the numbers in the second spreadsheet. All the numbers we tested were within $1.

With the exception of rounding, we were able to match all the employer share amounts we tested. Note data was not sufficient to test the difference between the actual employer contribution and the employers' proportionate share from the prior year.

Other Comments

We reviewed all the other 2020 numbers in the GASB Statement No. 68 letter for consistency with the previous reports (used to review the Liability calculations under Phase I). We were able to confirm or reasonably replicate all of the current year numbers except one. Under the Pension Expense there is a number labeled “Other” that amounts to $(15,910,000). Page 40 of the LGERS valuation report (which details the GASB Statement No. 67 results) indicates the “Other” amount is $2,061,000. Since this is a number that comes from the financial statements and the financial statements were not provided for this engagement, we could not opine on which number we believe to be appropriate or why the numbers are different. Because the two amounts are different, the Net Pension Liability does not reconcile year over year. We understand that this difference arises from changes in the number employers from year to year. We were able to reconcile the NPL from year to year after accounting for the differences in the “Other” category. See the reconciliation in the Appendix.

SECTION 3

RODSPF

RODSPF

Employer Allocation

We have reviewed the calculation of the Employer Allocation. For this portion of the project we received a spreadsheet that contained a row for each employer indicating the following:

- Employer Description; and
- Fiscal Year Contributions.

We received a second spreadsheet containing the schedule of pension amounts by employer.

The employer allocation was performed based on the proportion of each employer's fiscal year contribution to the plan's total fiscal year contribution. Paragraph 48a of GASB Statement No. 68 states, in part:

> *The basis for the employer's proportion should be consistent with the manner in which contributions to the pension plan, excluding those to separately finance specific liabilities of an individual employer to the pension plan, are determined.*

We agree that the use of the current contributions to determine the employer allocation is reasonable under this paragraph.

We were able to replicate the proportionate share by employer, based on the data contained in the allocation spreadsheet.

Schedule of Pension Amounts by Employer

Using the two spreadsheets discussed above, we matched the employer proportion from the first spreadsheet and recalculated the numbers in the second spreadsheet. All the numbers we tested were within $1.

With the exception of rounding, we were able to match all the employer share amounts we tested. Rounding in the share amounts for this plan does not appear to be consistent with the rounding in the other plans. While this is not a material issue, we recommend changing the rounding to be consistent with the other plans.

Other Comments

We reviewed all the other 2020 numbers in the GASB Statement No. 68 letter for consistency with the previous reports (used to review the Liability calculations under Phase I). We were able to confirm or reasonably replicate all of the current year numbers and reconcile the NPL from year to year. See the reconciliation in the Appendix.

SECTION 4

RHB

RHB

Employer Allocation

We have reviewed the calculation of the Employer Allocation. For this portion of the project we received a spreadsheet that contained a row for each employer indicating the following:

- Employer ID;
- Employer Description;
- Present Value of Future Salary; and
- Allocation.

We received a second spreadsheet containing the schedule of OPEB amounts by employer.

The employer allocation was performed based on the proportion of each employer's present value of future salary to the plan's total present value of future salary. Paragraph 59a of GASB Statement No. 75 states, in part:

> *The basis for the employer's proportion should be consistent with the manner in which contributions to the OPEB plan, excluding those associated with separately financed specific liabilities of an individual employer to the OPEB plan, are determined. The use of the employer's projected long-term contribution effort to the OPEB plan (including that of nonemployer contributing entities that provide support for the employer but that are not in a special funding situation) as compared to the total projected long-term contribution effort of all employers and all nonemployer contributing entities to determine the employer's proportion is encouraged.*

We agree that the use of the present value of future pay to determine the employer allocation is reasonable under this paragraph.

We previously reviewed the underlying assumptions for the development of the present value of future pay during Phase I and found the assumptions to be reasonable. In addition, our test life review under Phase I confirmed the calculations to be reasonable. However, there was an additional assumption employed in the GASB Statement No. 75 calculations related to the expected rate of return on fund assets. Since this differs from the discount rate, it was not reviewed in Phase I. We understand the assets of the RHB are invested similarly to the assets of TSERS. We reviewed the investment return of TSERS and determined it to be reasonable at 7.00%, as applicable for the period beginning July 1, 2019 (during our 2019/20 review). We, therefore, believe it to be reasonable and appropriate for use in this report.

We were able to replicate the proportionate share by employer, based on the data contained in the allocation spreadsheet.

Schedule of OPEB Amounts by Employer

Using the two spreadsheets discussed on the prior page, we matched the employer proportion from the first spreadsheet and recalculated the numbers in the second spreadsheet. All the numbers we tested, except for one employer were within 1%. We believe the difference is attributable to rounding. The one employer that showed a larger difference was employer number 18640 (NC Board of Opticians). While our numbers for this employer were approximately 3% to 4% different, this employer has a very small share of 0.00013%. We tested the difference and believe that they are also attributable to rounding (it appears that Segal used 0.000134% in their computations for this employer).

With the exception of rounding, we were able to match all the employer share amounts we tested. Note data was not sufficient to test the difference between the actual employer contribution and the employers' proportionate share from the prior year.

We recommend that Segal use rounded proportions when performing these calculations.

Other Comments

We reviewed all the other 2020 numbers in the GASB Statement No. 75 letter for consistency with the previous reports (used to review the Liability calculations under Phase I). We were able to reconcile the NOL from year to year within $8 after adjusting for the Non-Employer contributions reported in the Assets. See the reconciliation in the Appendix.

SECTION 5

DIPNC

DIPNC

We have reviewed the calculation of the Employer Allocation. For this portion of the project we received a spreadsheet that contained a row for each employer indicating the following:

- Employer ID;
- Employer Description;
- Present Value of Future Salary; and
- Allocation.

We received a second spreadsheet containing the schedule of OPEB amounts by employer.

The employer allocation was performed based on the proportion of each employer's present value of future salary to the plan's total present value of future salary. Paragraph 59a of GASB Statement No. 75 states, in part:

> *The basis for the employer's proportion should be consistent with the manner in which contributions to the OPEB plan, excluding those associated with separately financed specific liabilities of an individual employer to the OPEB plan, are determined. The use of the employer's projected long-term contribution effort to the OPEB plan (including that of nonemployer contributing entities that provide support for the employer but that are not in a special funding situation) as compared to the total projected long-term contribution effort of all employers and all nonemployer contributing entities to determine the employer's proportion is encouraged.*

We agree that the use of the present value of future pay to determine the employer allocation is reasonable under this paragraph.

We previously reviewed the underlying assumptions for the development of the present value of future pay during Phase I and found the assumptions to be reasonable. In addition, our test life review under Phase I confirmed the calculations to be reasonable.

We were able to replicate the proportionate share by employer, based on the data contained in the allocation spreadsheet.

Schedule of OPEB Amounts by Employer

Using the two spreadsheets discussed above, we matched the employer proportion from the first spreadsheet and recalculated the numbers in the second spreadsheet. All the numbers we tested were within $1.

With the exception of rounding, we were able to match all the employer share amounts we tested. Note data was not sufficient to test the difference between the actual employer contribution and the employers' proportionate share from the prior year.

Other Comments

We reviewed all the other 2020 numbers in the GASB Statement No. 75 letter for consistency with the previous reports (used to review the Liability calculations under Phase I). We were able to confirm or reasonably replicate all of the current year numbers except one. Under the OPEB Expense there is a number labeled “Other” that amounts to $11,000. Page 10 of the DIPNC valuation report (which details the GASB Statement No. 74 results) indicates the “Other” amount is $(20,000). Since this is a number that comes from the financial statements and the financial statements were not provided for this engagement, we could not opine on which number we believe to be appropriate or why the numbers are different. Because the two amounts are different, the Net OPEB Liability does not reconcile year over year. However, after adjusting for these two differences, the NOL reconciled within $1,000. See the reconciliation in the Appendix.

SECTION 6

COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Comments

We would like to thank Segal and CavMac for their cooperation in the completion of this review.

We note that Segal makes an adjustment to the employer contributions in the OPEB Expense for those employers that no longer get a proportionate share. We suspect that the unreconciled amounts from the CavMac reports (which equal their "Other" category in their development of the Pension/OPEB expense) are related to a similar issue. We suggest that CavMac footnote the "Other" category in their Pension/OPEB Expense to explain why it is different than the "Other Income" shown in the reconciliation the assets shown in the valuation reports.

Conclusions

In our opinion, the assumptions and methods used in the 2019 funding valuations (and 2020 GASB valuations) of the aforementioned plans are reasonable and comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 68 and 75 and comply with practices promulgated by the Actuarial Standards.

We certify that the plans' actuarial valuation was prepared in accordance with pronouncements issued by the Governmental Accounting Standards Board (GASB), principles and practices prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures.

Recommendations for Future Years

We have the following recommendations for future valuations:

- Evaluate whether or not the closure of the RHB should result in a different process for determining the employer allocation.
- Determine if the difference in the "Other" category for TSERS, LGERS, and DIPNC is material enough to be further scrutinized. Ensure that the Net Pension/OPEB Liability reconciles year over year (see reconciliation in the Appendix).
- See recommendations from the Phase I report (issued November 20, 2020).
- Review the method for dealing with employers that no longer have a proportionate share to determine if it should be consistent between the plans. CavMac and Segal appear to deal with this situation slightly differently. CavMac appears to add an "other" amount to the development of the Pension Expense/OPEB Expense, whereas, Segal modifies the employer contributions in the development of the NOL. The reconciliation in the appendix shows how these different approaches affect the traditional method of reconciling the NPL/NOL from year to year.

APPENDIX

NPL/NOL RECONCILIATION

NPL/NOL Reconciliation

	Beginning of year	TSERS	LGERS	RODSPF	RHB	DIPNC
1)	Net Pension Liability (NPL)/Net OPEB Liability (NOL)	$ 10,366,957,000	$ 2,730,922,000	$ (19,742,000)	$ 31,639,499,497	$ (43,150,000)
2)	Deferred inflows and outflows (Deferrals)	$ 2,149,790,000	$ 979,309,000	$ (750,000)	$ (9,565,437,017)	$ 52,653,000
3)	NPL/OL net of deferrals: (1) - (2)	$ 8,217,167,000	$ 1,751,613,000	$ (18,992,000)	$ 41,204,936,514	$ (95,803,000)
	During Year					
4)	Pension Expense (PE)/OPEB Expense (OE)	$ 3,492,613,000	$ 1,228,875,000	$ (540,000)	$ (783,003,255)	$ 37,193,000
5)	Employer Contributions during year	$ 2,055,075,000	$ 640,969,000	$ 958,000	$ 1,163,115,169	$ 17,848,000
	End of year					
6)	**Expected NPL/NOL, net of deferrals: (3) + (4) - (5)**	**$ 9,654,705,000**	**$ 2,339,519,000**	**$ (20,490,000)**	**$ 39,258,818,090**	**$ (76,458,000)**
7)	Actual NPL/NOL	$ 12,081,997,000	$ 3,573,426,000	$ (22,918,000)	$ 27,740,851,234	$ (49,194,000)
8)	Deferrals	$ 2,411,353,000	$ 1,220,058,000	$ (2,428,000)	$ (11,042,766,874)	$ 27,254,000
9)	**Actual NPL/NOL net of Deferrals: (7) - (8)**	**$ 9,670,644,000**	**$ 2,353,368,000**	**$ (20,490,000)**	**$ 38,783,618,108**	**$ (76,448,000)**
10)	**Difference: (9) - (6)**	**$ 15,939,000**	**$ 13,849,000**	**$ -**	**$ (475,199,982)**	**$ 10,000**
11)	Other amount included in PE/OE	$ (16,210,000)	$ (15,910,000)	$ -		$ 11,000
12)	Other Income included in Assets	$ 271,000	$ 2,061,000	$ -		$ (20,000)
13)	Net amortizations from changes in proportional amounts in OE	$ -	$ -	$ -	$ (26)	$ -
14)	Non Employer Contributions in Assets	$ -	$ -	$ -	$ 475,200,000	$ -
15)	Total Other: (11) + (12) + (13) + (14)	$ (15,939,000)	$ (13,849,000)	$ -	$ 475,199,974	$ (9,000)
16)	**Unexplained Difference: (10) + (15)**	**$ -**	**$ -**	**$ -**	**$ (8)**	**$ 1,000**

The (non-calculated) numbers shown above are taken from the CavMac and Segal GASB reports that were provided for this review.