

North Carolina State Health Plan

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) Measured at June 30, 2019 In accordance with GASB Statement No. 74

REVISED

This report has been prepared at the request of the Committee on Actuarial Valuation of Retired Employees' Health Benefits (OPEB) to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Committee on Actuarial Valuation of Retired Employees' Health Benefits (OPEB) and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.



2727 Paces Ferry Road SE, Bldg. 1, Suite 1400, Atlanta, GA 30339-4053
T 678.306.3100 www.segalco.com

November 18, 2019

Committee on Actuarial Valuation of Retired Employees' Health Benefits (OPEB)
State of North Carolina
430 N. Salisbury St.
Raleigh, North Carolina 27603

Dear Board Members:

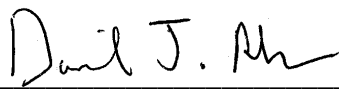
We are pleased to submit this revised Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2019 under Governmental Accounting Standards Board Statement No. 74. The report was revised as a result of a detailed management review of the prior version of our report, conducted by Charles Sceiford, ASA, Health and Benefits Actuary for the State Health Plan. His review and comments were greatly appreciated.

The report summarizes the actuarial data used in the valuation, discloses the Net OPEB Liability (NOL) measured as of June 30, 2019, and analyzes the preceding year's experience. This report was based on the census data provided by the Department of State Treasurer, the financial information prepared by the Department of State Treasurer, and the terms of the Plan. The actuarial calculations were completed under the supervision of David A. Berger, FCA, ASA, MAAA, EA, Vice President and Consulting Actuary, and Peter Wang, PhD, ASA, MAAA, Associate Actuary.

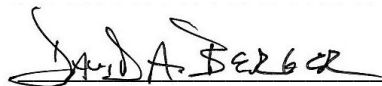
The actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. The demographic assumptions were prescribed by the OPEB Valuation Committee to be consistent with the TSERS Pension valuation. In our opinion, the assumptions used in this valuation and described in Section 3, Exhibit II are reasonably related to the experience of and the expectations for the Plan. The actuarial projections are based on these assumptions and the plan of benefits as summarized in Section 3, Exhibit III.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: 

Daniel J. Rhodes, FSA, MAAA
Vice President and Consulting Actuary



David A. Berger, FCA, ASA, MAAA, EA
Vice President and Consulting Actuary



Table of Contents

Section 1: Executive Summary

Exhibit A Important Information about Actuarial Valuations.....	4
Exhibit B Purpose.....	7
Exhibit C Highlights of the Valuation.....	7
Exhibit D Summary of Key Valuation Results.....	9
Exhibit E Actuarial Certification.....	10

Section 2: Valuation Results

Exhibit 1 General Information about the OPEB Plan.....	11
Exhibit 2 Net OPEB Liability.....	13
Exhibit 3 Sensitivity.....	15
Exhibit 4 Total OPEB Liability by Status and Payment Age.....	15
Exhibit 5 Schedule of Changes in Net OPEB Liability – Last Two Fiscal Years.....	16
Exhibit 6 Expected Net Benefit Payments and the Excise Tax.....	19
Exhibit 7 Schedule of Contributions – Last Ten Fiscal Years.....	21
Exhibit 8 Actuarially Determined Contribution.....	22
Exhibit 9 Statement of Fiduciary Net Position.....	23

Section 3: Supporting Information

Exhibit I Summary of Participant Data.....	24
Exhibit II Actuarial Assumptions and Methods.....	26
Exhibit III Summary of Plan.....	38
Exhibit IV Definition of Terms.....	45
Exhibit V Accounting Requirements.....	46
Exhibit VI GASB 74/75 Concepts.....	47

Section 1: Executive Summary

EXHIBIT A IMPORTANT INFORMATION ABOUT ACTUARIAL VALUATIONS

An actuarial valuation is a budgeting tool with respect to defining future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

Plan of benefits	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. For example, a plan may provide health benefits to post-65 retirees that coordinates with Medicare. If so, changes in the Medicare law or administration may change the plan’s costs without any change in the terms of the plan itself. It is important for the State to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant data	An actuarial valuation for a plan is based on data provided to the actuary by the plan. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is not necessary to have perfect data for an actuarial valuation: the valuation is an estimated forecast, not a prediction. The uncertainties in other factors are such that even perfect data does not produce a “perfect” result. Notwithstanding the above, it is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets	Part of the cost of a plan will be paid from existing assets – the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the auditor. Some plans include assets, such as private equity holdings, real estate, or hedge funds that are not subject to valuation by reference to transactions in the marketplace. A snapshot as of a single date may not be an appropriate value for determining a single year’s contribution requirement, especially in volatile markets. Plan sponsors often use an “actuarial value of assets” for purposes of determining the Actuarially Determined Contribution that differs from market value to reflect gradually year-to-year changes in the market value of assets in determining the contribution requirements.

Actuarial assumptions

In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid on behalf of existing plan participants for the rest of their lives and the lives of their beneficiaries. To determine the future costs of benefits, Segal collects claims, premiums, and enrollment data in order to establish a baseline cost for the valuation measurement, and then develops short-term and long-term health care cost trend rates to project increases in costs in future years. This forecast also requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan's benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan's assets or, if there are no assets, a rate of return based on a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model necessarily uses approximations and estimates that may lead to significant changes in our results but will have no impact on the actual cost of the plan. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared for use by the State finance officers. It includes information for compliance with accounting standards and for the plan's auditor. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- If the State is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Sections of this report include actuarial results that are not rounded, but that does not imply precision.
- Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in plan enrollment, emerging claims experience, health care trend, and investment losses, not just the current valuation results.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The State should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by the State upon delivery and review. The State should notify Segal immediately of any questions or concerns about the final content.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

EXHIBIT B PURPOSE

This report presents the results of our actuarial valuation of the North Carolina State OPEB plan measured as of June 30, 2019, required by Governmental Accounting Standards Board (GASB) Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*. The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here.

EXHIBIT C HIGHLIGHTS OF THE VALUATION

This is a revised report. A detailed management review of the assumptions and methods applied in this valuation was performed after the August 30, 2019 version of the report was issued, by the Department of State Treasurer. The review uncovered four items that are reflected here as assumption changes. The total change due to these four items to the Total OPEB Liability (TOL) was an increase of \$410 million, or 1.25%. A detailed description of the impact of each of these four changes on the TOL will be provided under separate cover.

Accounting and Financial Reporting

- The Net OPEB Liability (NOL) as of June 30, 2019 is \$31.64 billion, an increase of \$3.15 billion, from the prior valuation NOL of \$28.49 billion. The difference between actual and prior unfunded actuarial accrued liabilities was the net effect of several factors:
 - The expected NOL was \$30.02 billion.
 - An actuarial experience gain decreased the NOL by \$0.16 billion. This was the net result of gains and losses due to demographic changes and actual fiscal 2019 contributions and benefit payments that were different from expected. We have taken these actuarial gains and losses into account in reviewing our assumptions for the current valuation.
 - Valuation assumption changes increased the NOL by \$1.83 billion. The four components were, (1) a decrease in obligations due to lowering the valuation-year per capita health costs (\$1.81 billion), (2) an increase due to lowering the discount rate (\$1.82 billion), (3) an increase due to raising the future trend on medical claims costs (\$1.77 billion), and (4) an increase due to changes to the plan migration assumption (\$0.05 billion).
 - A plan change decreased the NOL by \$0.07 billion.
 - An investment loss increased the NOL by \$0.02 billion.

- For GASB 75 reporting as of June 30, 2020, the Net OPEB Liability (NOL) is measured as of June 30, 2019. The Plan's Fiduciary Net Position (plan assets) and the Total OPEB Liability (TOL) is valued as of the measurement date. Consistent with the provisions of GASB 75, the assets and liabilities measured as of June 30, 2019 are not adjusted or rolled forward to the June 30, 2020 reporting date.
- The current plan of benefits is summarized in Exhibit III of Section 3.
- As of June 30, 2019, the ratio of assets to the Total OPEB Liability (the funded ratio) is 4.40%. This is based on the market value of assets at this point in time.

EXHIBIT D
SUMMARY OF KEY VALUATION RESULTS

	June 30, 2019	June 30, 2018
Total OPEB Liability	\$33,095,182,920	\$29,798,358,029
Plan Fiduciary Net Position (Assets)	1,455,683,423	1,310,172,550
Net OPEB Liability	31,639,499,497	28,488,185,479
Plan Fiduciary Net Position as a percentage of Total OPEB Liability	4.40%	4.40%
	June 30, 2019	June 30, 2018
Service Cost at Beginning of Year	\$1,539,091,679	\$1,753,384,309
Covered Payroll ¹	17,622,000,000	16,838,000,000
	June 30, 2019	June 30, 2018
Actuarially Determined Contribution for Fiscal Year Ending	\$2,971,069,000	\$2,613,258,000
Actual Contribution for Fiscal Year Ending	1,104,901,608	1,018,692,515
Benefit Payments	1,030,956,211	977,176,114

¹Provided by the State.

EXHIBIT E ACTUARIAL CERTIFICATION

November 18, 2019


This is to certify that Segal Consulting, a Member of The Segal Group, Inc., has conducted an actuarial valuation of certain benefit obligations of North Carolina State Health Plan's other postemployment benefit programs, measured as of June 30, 2019, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statements 74 for the determination of the liability for postemployment benefits other than pensions.

The actuarial valuation is based on the plan of benefits verified by the State and reliance on participant, premium, claims and expense data provided by the State or from vendors employed by the State. Segal Consulting does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. Segal, however, does review the data for reasonableness and consistency.


The actuarial computations made are for purposes of fulfilling plan accounting and funding requirements. Determinations for purposes other than meeting financial accounting and funding requirements may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience or rates of return on assets differing from that anticipated by the assumptions; changes in 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); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. The scope of the assignment did not include performing an analysis of the potential change of such future measurements except where noted.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to comply with GASB Statement 74 with respect to the benefit obligations addressed. The signing actuaries are members of the Society of Actuaries, the American Academy of Actuaries, and other professional actuarial organizations and collectively meet the "General Qualification Standards for Statements of Actuarial Opinions" to render the actuarial opinion contained herein.



David A. Berger, FCA, ASA, MAAA, EA
Vice President and Consulting Actuary



Peter Wang, Ph.D, ASA, FCA, MAAA
Associate Actuary

Section 2: Valuation Results

EXHIBIT 1 GENERAL INFORMATION ABOUT THE OPEB PLAN

Plan Description

Plan administration. The State administers the OPEB plan—a multiple employer, cost-sharing OPEB plan that is used to provide postemployment benefits other than pensions for permanent full-time State employees. Management of the OPEB plan is governed by North Carolina General Statutes.

Plan membership. Plan membership consisted of the following:

	As of December 31, 2018	As of December 31, 2017
Number of retirees	205,490	201,052
Number of spouses	17,523	16,552
Number of surviving spouses	2,973	2,053
Number inactive vested	43,908	41,471
Number of actives	<u>346,173</u>	<u>344,411</u>
Total number of participants and spouses	616,067	605,539

Benefits provided. The Plan benefits employees and former employees of the State, the University of North Carolina System, community colleges, and certain other component units. In addition, Local Education Agencies (LEAs), charter schools, and some select local governments that are not part of the financial reporting entity also participate.

Health benefit programs and premium rates are determined by the State Treasurer upon approval of the Board of Trustees. Plan benefits received by retired employees and disabled employees are other postemployment benefits (OPEB). The healthcare benefits for retired and disabled employees who are not eligible for Medicare are the same as for active employees. The plan options change when former employees

become eligible for Medicare. Medicare retirees have the option of selecting one of two fully insured Medicare Advantage/Prescription Drug Plan (MA-PDP) options or the self-funded 70/30 Preferred Provider Organization (PPO) plan option that is also offered to non-Medicare members. If the 70/30 Plan is selected by a Medicare retiree, the self-funded State Health Plan coverage is secondary to Medicare.

State Contributions. The Plan is funded by both employer contributions and premiums charged to retirees and their spouses and dependents. A percent of pay is charged to each participating employer; the rate was 6.05% for fiscal 2018, and is 6.27% for fiscal 2019. Premiums are charged to retirees, and vary based on the coverage selected. The premiums for spouses are much higher than the premiums for retirees.

Clear Pricing Project. The Clear Pricing Project (CPP) sets the price of services equal to a fixed percentage above the price that Medicare pays for the same services. It applies to pre-65 medical costs. There have been issues surrounding the implementation of the CPP. If the CPP's provisions had been reflected as of the Measurement Date, the reduction to the Net OPEB Liability was estimated to be \$400 million, assuming that the pre-65 medical trend was 6% for one year, then 5% thereafter. The CPP has been modified after the June 30, 2019 Measurement Date. The effect on the Net OPEB Liability is unknown at this time, and we have therefore excluded its impact from the expected claim costs or trends in this valuation.

EXHIBIT 2 NET OPEB LIABILITY

Reporting Date for Employer under GASB 75	June 30, 2020	June 30, 2019
Measurement Date	June 30, 2019	June 30, 2018
Components of the Net OPEB Liability		
Total OPEB Liability	\$33,095,182,920	\$29,798,358,029
Plan Fiduciary Net Position	1,455,683,423	1,310,172,550
Net OPEB Liability	31,639,499,497	28,488,185,479
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	4.40%	4.40%

The Net OPEB Liability was measured as of June 30, 2019 and 2018. Plan Fiduciary Net Position (plan assets) was valued as of the measurement dates and the Total OPEB Liability was determined from actuarial valuations using data as of December 31, 2018 and 2017, respectively.

Actuarial assumptions. The Total OPEB Liability was measured by an actuarial valuation as of December 31, 2018 using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Inflation	3.00%
Salary increases based on service	Teachers: 7.55% grading down to 3.50% Law Enforcement Officers: 8.10% grading down to 3.50% General Employees: 5.50% grading down to 3.50%
Discount rate	3.50% for fiscal 2019, 3.87% for fiscal 2018
Healthcare cost trend rates	
Medical	6.50% grading down to 5.00% by 2024 for non-MA and MA coverage
Prescription drug	9.50% grading down to 5.00% by 2028
Administrative costs	3.00%
Post-Retirement Mortality Rates	RP-2014 Healthy Annuitant Mortality Table for males and females, adjusted for Collar for some Participants, further adjusted with scaling factors varying before and after age 78, and projected for mortality improvement using Scale MP-2015

The actuarial assumptions used in the June 30, 2019 measurement valuation were based on the results of an actuarial experience study performed by Buck (formerly known as Buck Consultants and Conduent HR Services) for the period ending December 31, 2014.

The Plan does not have a funding policy that covers both the Normal Cost and a payment toward the unfunded liability. The plan is funded based on contributions set each year to target the projected benefit payments for the year and investment returns and current plan assets do not fund a material portion of long-term projected benefits. As such, we have not created a blended discount rate.

Detailed information regarding all actuarial assumptions can be found in Section 3, Exhibit II.

EXHIBIT 3 SENSITIVITY

The following presents the NOL of State as well as what the State's NOL would be if it were calculated using a discount rate that is one-percentage-point lower (2.50%) or one-percentage-point higher (4.50%) than the current rate. Also, shown is the NOL as if it were calculated using healthcare cost trend rates that were one-percentage-point lower or one-percentage-point higher than the current healthcare trend rates.

	1% Increase in Discount Rate (4.50%)	Current Discount Rate (3.50%)	1% Decrease in Discount Rate (2.50%)
Net OPEB Liability (Asset)	\$26,867,565,630	\$31,639,499,497	\$37,599,165,191
	1% Increase in Health Care Cost Trend Rates	Current Health Care Cost Trend Rates	1% Decrease in Health Care Cost Trend Rates
Net OPEB Liability (Asset)	\$38,985,221,346	\$31,639,499,497	\$26,052,734,911

EXHIBIT 4 TOTAL OPEB LIABILITY BY STATUS AND PAYMENT AGE

Breakdown of Total OPEB Liability as of June 30, 2019 by Status and Payment Age.

Total OPEB Liability	<u>Pre-65</u>	<u>Post-65</u>	<u>Total</u>
Active	\$10,988,250,256	\$8,240,602,074	\$19,228,852,330
Vested	1,411,340,765	2,382,660,254	3,794,001,019
Retired	2,133,132,356	7,250,662,622	9,383,794,978
Beneficiary	4,456,943	1,340,760	5,797,703
Disabled	<u>255,876,057</u>	<u>426,860,833</u>	<u>682,736,890</u>
Total	\$14,793,056,377	\$18,302,126,543	\$33,095,182,920

EXHIBIT 5
SCHEDULE OF CHANGES IN NET OPEB LIABILITY – LAST TWO FISCAL YEARS

Reporting Date for Employer under GASB 75 Measurement Date	June 30, 2020 June 30, 2019	June 30, 2019 June 30, 2018
Total OPEB Liability		
• Service cost	\$ 1,539,091,679	\$ 1,753,384,309
• Interest	1,192,810,301	1,261,878,071
• Change of benefit terms	(72,358,137)	0
• Differences between expected and actual experience	(156,654,727)	(80,950,466)
• Changes of assumptions	1,824,891,986	(6,141,972,342)
• Benefit payments, including refunds of member contributions	<u>(1,030,956,211)</u>	<u>(977,176,114)</u>
Net change in Total OPEB Liability	\$ 3,296,824,891	\$ (4,184,836,542)
Total OPEB Liability – beginning	\$ 29,798,358,029	\$ 33,983,194,571
Total OPEB Liability – ending	<u>\$ 33,095,182,920</u>	<u>\$ 29,798,358,029</u>
Plan Fiduciary Net Position		
• Contributions – employer	\$ 1,104,901,608	\$ 1,018,692,515
• Contributions – employee	0	0
• Net investment income	71,780,132	72,383,854
• Benefit payments, including refunds of member contributions	(1,030,956,211)	(977,176,114)
• Administrative expense	<u>(214,656)</u>	<u>(297,812)</u>
Net change in Plan Fiduciary Net Position	\$ 145,510,873	\$ 113,602,443
Plan Fiduciary Net Position – beginning	\$ 1,310,172,550	\$ 1,196,570,107
Plan Fiduciary Net Position – ending	<u>\$ 1,455,683,423</u>	<u>\$ 1,310,172,550</u>
Net OPEB Liability – ending	<u>\$ 31,639,499,497</u>	<u>\$ 28,488,185,479</u>
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	4.40%	4.40%
Covered Payroll ⁽¹⁾	\$ 17,622,000,000	\$ 16,838,000,000
Plan Net OPEB Liability as a percentage of Covered Payroll	179.55%	169.19%

¹ Covered payroll is estimated for both 2018 and 2019.

Notes to Schedule:

Benefit Changes reflected in the June 30, 2019 Net OPEB Liability:

- OOP maximum for 80/20 Plan increased from \$4,350/\$10,300 (individual/family) for in-network and \$8,700/\$26,100 for out-of-network to \$4,890/\$14,670 for in-network and \$9,780/\$29,340 for out-of-network.
- In-network Specialist copay for the 80/20 Plan decreased from \$85 to \$80.
- For the 80/20 Plan, in-network inpatient hospitalization changed from \$450 plus deductible and coinsurance or \$0 plus deductible and coinsurance for designated Blue Options hospitals in 2018 to \$300 plus deductible and coinsurance for all hospitals in 2019.

Changes in assumptions reflected in the June 30, 2019 Net OPEB Liability:

- The discount rate changed from 3.87% to 3.50%, in accordance with the State's policy for determining the discount rate.
- Disability rates were adjusted to the non-grandfathered assumptions used in the TSERS pension valuation, to better align with anticipated incidence of disability.
- The medical and prescription drug claims cost were changed based on most recent experience.
- Medical and prescription drug trend rates were changed to the current schedule.
- Enrollment assumptions were updated to model expected migrations among plan options over the next four years.

Benefit Changes reflected in the June 30, 2018 Net OPEB Liability:

- Prior to the June 30, 2018 Measurement Date the eligibility for retirement for Law Enforcement Officers was amended to a reduced pension eligibility at 25 years of service, while the unreduced pension remains available at 30 years of service. At this time, the State has not decided to amend the early retirement assumption until the next time retirement is studied.

Changes in assumptions reflected in the June 30, 2018 Net OPEB Liability:

- The discount rate changed from 3.58% to 3.87%, in accordance with the State's policy for determining the discount rate.
- The medical and prescription drug claims costs were changed based on most recent experience.
- Medical and prescription drug trend rates were changed.
- Enrollment assumptions were updated to model expected migrations among plan options over the next few years.
- Non-teacher education employees were valued using the "Other" demographic assumptions rather than the "Teacher" demographic assumptions.
- 2019 Medicare Advantage Premiums and Retiree Contribution changes were known as of the date the report was signed. These items have been reflected in our trend assumptions.
- The inflation rate was changed from 2.75% to 3.00%.
- The long-term rate of return was changed from 7.25% for measurement as of June 30, 2016 to 7.20% for measurement as of June 30, 2017, to 7.00% for measurement as of June 30, 2018.

Benefit changes reflected in the June 30, 2017 Net OPEB Liability:

Effective January 1, 2018

- The CDHP Plan was discontinued. This change was reflected in the “migration assumptions” in the June 30, 2017 measurement.

Changes in assumptions reflected in the June 30, 2017 Net OPEB Liability:

- There are three general groups of demographic assumptions. Which demographic assumptions applied to the individual were based on agency code in the prior valuation. This year we refined the process, and non-teachers at schools and universities are mapped to demographic assumptions by agency and job code. This better aligns with the pension valuations.
- This year the medical and prescription drug claims costs were changed based on most recent experience.
- Medical and prescription drug trend rates were updated.
- Enrollment assumptions were updated to model expected migrations among plan options over the next few years.
- 2018 contribution changes were known as of the June 30, 2017 measurement date. The 2018 contribution changes were reflected into the June 30, 2017 measurement assumptions.

EXHIBIT 6
EXPECTED NET BENEFIT PAYMENTS AND THE EXCISE TAX

The following table projects the pay-as-you-go cost as the Expected Payments by the State over the next hundred years.

Year Ending December 31	<u>(000's)</u>			Year Ending December 31	<u>(000's)</u>		
	Projected Net Claims	Projected Excise Tax	Expected Payments by the State		Projected Net Claims	Projected Excise Tax	Expected Payments by the State
2019	765,240	0	765,240	2044	2,920,015	252,037	3,172,052
2020	865,827	0	865,827	2045	2,994,623	264,041	3,258,664
2021	933,124	0	933,124	2046	3,045,310	272,326	3,317,636
2022	999,125	9,889	1,009,014	2047	3,078,755	277,985	3,356,740
2023	1,070,150	18,924	1,089,074	2048	3,104,323	283,275	3,387,598
2024	1,148,048	28,118	1,176,167	2049	3,116,135	286,005	3,402,140
2025	1,228,791	36,959	1,265,751	2050	3,096,690	280,765	3,377,455
2026	1,312,638	46,220	1,358,858	2051	3,061,858	271,842	3,333,700
2027	1,397,939	55,714	1,453,653	2052	3,012,448	259,930	3,272,377
2028	1,484,874	65,413	1,550,287	2053	2,950,430	244,981	3,195,411
2029	1,576,011	75,429	1,651,440	2054	2,867,466	225,547	3,093,013
2030	1,675,686	86,557	1,762,243	2055	2,761,389	199,827	2,961,216
2031	1,781,965	98,805	1,880,770	2056	2,642,744	169,800	2,812,544
2032	1,887,231	111,430	1,998,662	2057	2,526,017	139,360	2,665,377
2033	1,993,504	124,597	2,118,102	2058	2,412,080	108,683	2,520,764
2034	2,087,071	136,683	2,223,753	2059	2,294,412	75,593	2,370,005
2035	2,164,622	147,008	2,311,630	2060	2,184,544	43,474	2,228,018
2036	2,227,523	155,408	2,382,931	2061	2,107,103	20,275	2,127,378
2037	2,306,851	165,898	2,472,749	2062	2,070,885	10,016	2,080,901
2038	2,398,709	178,083	2,576,792	2063	2,048,981	5,157	2,054,138
2039	2,488,323	190,044	2,678,367	2064	2,028,582	2,137	2,030,719
2040	2,570,024	201,184	2,771,209	2065	2,008,537	726	2,009,263
2041	2,665,081	214,528	2,879,609	2066	1,986,459	328	1,986,788
2042	2,748,873	226,252	2,975,125	2067	1,959,588	152	1,959,740
2043	2,834,553	238,535	3,073,088	2068	1,927,346	43	1,927,389

Year Ending December 31	(000's)			Year Ending December 31	(000's)		
	Projected Net Claims	Projected Excise Tax	Expected Payments by the State		Projected Net Claims	Projected Excise Tax	Expected Payments by the State
2069	1,889,637	3	1,889,640	2094	196,971	0	196,971
2070	1,846,301	0	1,846,301	2095	158,896	0	158,896
2071	1,797,249	0	1,797,249	2096	125,937	0	125,937
2072	1,742,612	0	1,742,612	2097	97,926	0	97,926
2073	1,682,680	0	1,682,680	2098	74,590	0	74,590
2074	1,617,833	0	1,617,833	2099	55,565	0	55,565
2075	1,548,519	0	1,548,519	2100	40,415	0	40,415
2076	1,475,335	0	1,475,335	2101	28,648	0	28,648
2077	1,398,996	0	1,398,996	2102	19,753	0	19,753
2078	1,320,249	0	1,320,249	2103	13,223	0	13,223
2079	1,239,689	0	1,239,689	2104	8,577	0	8,577
2080	1,157,870	0	1,157,870	2105	5,380	0	5,380
2081	1,075,371	0	1,075,371	2106	3,257	0	3,257
2082	992,795	0	992,795	2107	1,900	0	1,900
2083	910,756	0	910,756	2108	1,067	0	1,067
2084	829,870	0	829,870	2109	577	0	577
2085	750,742	0	750,742	2110	301	0	301
2086	673,947	0	673,947	2111	151	0	151
2087	600,016	0	600,016	2112	74	0	74
2088	529,436	0	529,436	2113	35	0	35
2089	462,645	0	462,645	2114	16	0	16
2090	400,030	0	400,030	2115	7	0	7
2091	341,920	0	341,920	2116	2	0	2
2092	288,580	0	288,580	2117	1	0	1
2093	240,217	0	240,217	2118	0	0	0

EXHIBIT 7
SCHEDULE OF CONTRIBUTIONS – LAST TEN FISCAL YEARS

Year Ended June 30:	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
2010	\$3,001,667,000	\$678,769,000	\$2,322,898,000	\$15,083,756,000	4.50%
2011	2,926,070,000	743,659,000	2,182,411,000	15,176,714,000	4.90%
2012	2,371,490,000	710,027,000	1,661,463,000	14,200,540,000	5.00%
2013	2,072,951,000	813,223,000	1,259,728,000	15,343,830,000	5.30%
2014	2,226,586,000	815,157,000	1,411,429,000	15,095,500,000	5.40%
2015	2,211,436,000	854,383,000	1,357,053,000	15,562,532,000	5.49%
2016	2,516,706,000	880,847,000	1,635,859,000	15,729,411,000	5.60%
2017	2,728,064,000	950,812,690	1,777,251,310	16,365,112,000	5.81%
2018	2,613,258,000	1,018,692,516	1,594,565,484	16,838,000,000	6.05%
2019	2,971,069,000	1,104,901,608	1,866,167,392	17,622,000,000	6.27%

Notes to Schedule:

Methods and assumptions used to determine contribution rates for years ended June 30, 2017 and earlier:

Valuation date	December 31 prior to the fiscal year end
Actuarial cost method	Projected Unit Credit
Amortization method	Open 30-year level pay
Remaining amortization period	30 years
Asset valuation method	Market value
Discount rate	4.25%, except for 2017 which was 3.58%

**EXHIBIT 8
ACTUARIALLY DETERMINED CONTRIBUTION**

	July 1, 2018 - June 30, 2019	July 1, 2017 - June 30, 2018
Actuarial Accrued Liability as of preceding December 31	\$31,993,220,405	\$28,873,377,653
Assets as of preceding December 31	1,324,944,746	1,279,080,541
Unfunded Actuarial Accrued Liability as of preceding December 31	\$30,668,275,659	\$27,594,297,112
Normal Cost as of preceding December 31	\$1,824,174,672	\$1,539,091,679
Amortization of Unfunded Actuarial Accrued Liability	1,022,275,855	968,194,872
Timing and Payroll Adjustment	<u>124,618,473</u>	<u>105,971,449</u>
Total Actuarially Determined Contribution	\$ 2,971,069,000	\$2,613,258,000

Methods and assumptions used to determine contribution rates for the year ended June 30, 2018 and after:

Valuation date	December 31 prior to the fiscal year end
Actuarial cost method	Entry Age
Amortization method	Open 30-year level pay
Remaining amortization period	30 years
Asset valuation method	Market value
Discount rate	Discount Rate as of the Fiscal Year End
Timing and Payroll Adjustment	This includes interest, rounding, and an adjustment for the difference between valuation payroll and covered payroll
Payroll increase assumption	3.50%

EXHIBIT 9
STATEMENT OF FIDUCIARY NET POSITION

	June 30, 2019	June 30, 2018
Assets		
Cash and deposits	\$307,663,939	\$233,780,889
Receivables		
• Contributions	\$57,549,990	\$53,334,037
• Investment income	<u>465,942</u>	<u>277,667</u>
Total receivables	\$58,015,932	\$53,611,704
Investments:	\$1,090,003,552	\$1,022,779,957
Total Assets	\$1,455,683,423	\$1,310,172,550
Liabilities	\$0	\$0
Net position restricted for OPEB	\$1,455,683,423	\$1,310,172,550

Section 3: Supporting Information

EXHIBIT I SUMMARY OF PARTICIPANT DATA

	As of December 31, 2018	As of December 31, 2017
Number of retirees	205,490	201,052
Average age of retirees	70.7	70.3
Number of spouses	17,523	16,552
Average age of spouses	68.6	68.2
Number of surviving spouses	2,973	2,053
Average age	80.0	80.8
Number inactive vested	43,908	41,471
Average age	48.5	48.0
Number of actives	346,173	344,411
Average age	45.0	45.0
Average service	10.4	10.3

**ACTIVE EMPLOYEES VALUED AS OF DECEMBER 31, 2018
COUNT AND AVERAGE PAY BY AGE AND SERVICE**

Age on 12/31/2018	Service										Total
	0	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	
Under 20	123	7	0	0	0	0	0	0	0	0	130
	\$16,198	\$25,766	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$16,713
20 - 24	6,466	4,856	8	1	1	1	0	0	0	0	11,333
	\$20,091	\$34,060	\$37,699	\$48,704	\$28,477	\$70,341	\$0	\$0	\$0	\$0	\$26,096
25 - 29	7,797	20,189	6,116	32	0	0	1	0	0	0	34,135
	\$21,732	\$37,568	\$42,688	\$42,482	\$0	\$0	\$68,800	\$0	\$0	\$0	\$34,874
30 - 34	5,693	14,190	12,812	5,143	22	0	0	0	0	0	37,860
	\$25,101	\$41,851	\$45,993	\$50,819	\$69,663	\$0	\$0	\$0	\$0	\$0	\$41,968
35 - 39	4,582	10,531	8,856	12,832	4,326	43	4	0	0	0	41,174
	\$26,492	\$46,994	\$52,057	\$53,940	\$57,205	\$89,422	\$138,674	\$0	\$0	\$0	\$49,092
40 - 44	3,887	9,531	6,967	10,488	8,516	3,250	38	2	1	1	42,681
	\$25,509	\$44,950	\$53,815	\$57,054	\$60,137	\$61,106	\$98,351	\$153,173	\$120,326	\$72,115	\$51,916
45 - 49	3,300	8,667	8,015	10,138	9,082	9,502	3,147	38	2	6	51,897
	\$24,013	\$43,861	\$50,205	\$55,444	\$59,750	\$62,836	\$65,294	\$86,418	\$141,017	\$171,668	\$53,446
50 - 54	3,079	7,011	6,376	9,839	8,000	6,019	5,606	619	12	4	46,565
	\$25,400	\$42,918	\$48,156	\$51,700	\$57,408	\$60,719	\$66,187	\$69,516	\$97,178	\$198,097	\$52,305
55 - 59	2,172	5,760	5,396	9,256	8,091	5,718	4,317	1,749	234	13	42,706
	\$23,903	\$42,920	\$47,972	\$49,549	\$53,277	\$57,624	\$66,507	\$71,053	\$71,552	\$132,163	\$51,679
60 - 64	878	3,515	3,793	5,777	5,051	3,837	1,947	1,080	463	150	26,491
	\$23,738	\$45,442	\$48,579	\$50,666	\$54,147	\$58,787	\$76,073	\$81,398	\$85,056	\$80,070	\$54,509
65 - 69	292	1,178	1,344	1,762	1,249	853	661	478	273	186	8,276
	\$20,976	\$46,615	\$51,192	\$56,421	\$63,535	\$69,389	\$88,422	\$102,840	\$117,656	\$97,722	\$63,521
70 & over	107	384	401	604	485	277	203	145	118	201	2,925
	\$19,117	\$40,318	\$48,527	\$52,116	\$56,136	\$70,998	\$91,178	\$100,672	\$117,565	\$124,082	\$64,026
Total	38,376	85,819	60,084	65,872	44,823	29,500	15,924	4,111	1,103	561	346,173
	\$23,534	\$41,944	\$48,722	\$53,229	\$57,431	\$60,982	\$68,643	\$78,462	\$94,003	\$104,705	\$48,784

EXHIBIT II

ACTUARIAL ASSUMPTIONS AND METHODS

Data:	Detailed census data, premium data and/or claim experience, and summary plan descriptions for OPEB were provided by the State.
Actuarial Cost Method:	Entry Age, Level Percentage of Pay. Decrements are assumed to occur mid-year.
Asset Valuation Method:	Market Value
Basis for Demographic Assumptions:	The demographic assumptions are based on a study performed by Buck (formerly known as Buck Consultants and Conduent HR Services) for the period ending December 31, 2014. The study was presented to the Board of Trustees for the Teachers' and State Employees' Retirement System of North Carolina in October 2015 and was approved for use. Participants in the Consolidated Judicial Retirement System, the Legislative Retirement System, the University Employees' Optional Retirement Program, and eligible local governments are valued using the General Employees' Assumptions. All demographic assumptions were prescribed by the OPEB Valuation Committee to be consistent with the TSERS pension valuation.
Census Valuation Date:	December 31, 2018. Employees that become participants after the valuation date are excluded. Participating employers for sake of the valuation are determined at the beginning of the fiscal year (i.e., included in the total OPEB liability). Allocations to employers are determined based on whether the employer has made contributions during the fiscal year and prior to the valuation date.
Measurement Date:	Liabilities were rolled forward to June 30, 2019. The Entry Age Actuarial Accrued Liability was adjusted from the Valuation Date to the Measurement Date using half the service cost, half the interest cost, and half the expected benefit payments. Financial data was collected as of this date.
Allocations to Employers:	Pro rata allocation of the NOL based on the Present Value of Future Salaries for Employers that made contributions to the Trust during the fiscal year.
Discount Rate:	3.50% - The discount rate is based on the Bond Buyer 20-year GO index as of June 30, 2019. The Plan does not have a funding policy that covers both the unfunded liability and the Plan is less than 5% funded. As such, a blended discount rate is not applicable.
Salary increases based on service:	Teachers: 7.55% grading down to 3.50% Law Enforcement Officers: 8.10% grading down to 3.50% General Employees: 5.50% grading down to 3.50%
Investment Return:	7.20% for the measurement as of June 30, 2017 and 7.00% for the measurements as of June 30, 2018 and June 30, 2019. This rate is provided by the State and the Building Blocks table used for GASB disclosures is provided by the Investment Management Division of the Department of the State Treasurer.
Pre- Retirement Mortality:	Teachers and other education employees use RP-2014 White Collar Employee. All other employees use the RP-2014 Employee table without adjustment.

Post-Disablement Mortality: RP-2014 Mortality tables for disabled annuitants multiplied by 103% for males and by 99% for females.

Post-Retirement Mortality:	Retirees	Adjustments to the RP-2014 Healthy Annuitant Base Table	
		Prior to Age 78	After Age 78
	Male General	108% of Male	124% of Male
	Female General	81% of Female	113% of Female
	Male Teachers	92% of White Collar Male	120% of White Collar Male
	Female Teachers	78% of White Collar Female	108% of White Collar Female
	Male Other	92% of White Collar Male	120% of White Collar Male
	Female Other	78% of White Collar Female	108% of White Collar Female
	Male Law Enforcement	100% of Male	100% of Male
	Female Law Enforcement	100% of Female	100% of Female
	Spouses	123% of the Male and Female Retiree Tables	

Mortality Projection Scale: MP-2015

Disability Rates:	Rate		
	Age	Male	Female
	20-24	0.000621	0.000779
	25-29	0.000684	0.000889
	30-34	0.000802	0.001186
	35-39	0.001045	0.001766
	40-44	0.001529	0.002309
	45-49	0.002649	0.003444
	50-54	0.004826	0.005307
	55-59	0.008551	0.007696
	60-64	0.012054	0.009040

These rates are the non-grandfathered rates used in the TSERS pension valuation. The number of members eligible for transitional disability coverage provisions under G.S. 135-112 ("grandfathered") is a relatively small group of individuals.

Turnover Rates:

Teachers - Male

Service

Age	0	1	2	3	4	≥5
<=24	0.190	0.160	0.140	0.120	0.095	0.080
25 to 29	0.190	0.160	0.140	0.120	0.095	0.080
30 to 34	0.190	0.160	0.140	0.120	0.095	0.070
35 to 39	0.190	0.160	0.140	0.120	0.095	0.045
40 to 44	0.190	0.160	0.140	0.120	0.095	0.035
45 to 49	0.190	0.160	0.140	0.120	0.095	0.0325
>=50	0.190	0.160	0.140	0.120	0.095	0.0325

Teachers - Female

Service

Age	0	1	2	3	4	≥5
<=24	0.170	0.145	0.135	0.120	0.100	0.090
25 to 29	0.170	0.145	0.135	0.120	0.100	0.090
30 to 34	0.170	0.145	0.135	0.120	0.100	0.075
35 to 39	0.170	0.145	0.135	0.120	0.100	0.045
40 to 44	0.170	0.145	0.135	0.120	0.100	0.034
45 to 49	0.170	0.145	0.135	0.120	0.100	0.0325
>=50	0.170	0.145	0.135	0.120	0.100	0.0325

General - Male

Service

Age	0	1	2	3	4	≥5
<=24	0.180	0.155	0.130	0.110	0.090	0.080
25 to 29	0.180	0.155	0.130	0.110	0.090	0.080
30 to 34	0.180	0.155	0.130	0.110	0.090	0.070
35 to 39	0.180	0.155	0.130	0.110	0.090	0.0525
40 to 44	0.180	0.155	0.130	0.110	0.090	0.040
45 to 49	0.180	0.155	0.130	0.110	0.090	0.035
>=50	0.180	0.155	0.130	0.110	0.090	0.035

General - Female

Service

Age	0	1	2	3	4	≥5
<=24	0.195	0.170	0.145	0.115	0.100	0.110
25 to 29	0.195	0.170	0.145	0.115	0.100	0.110
30 to 34	0.195	0.170	0.145	0.115	0.100	0.085
35 to 39	0.195	0.170	0.145	0.115	0.100	0.060
40 to 44	0.195	0.170	0.145	0.115	0.100	0.045
45 to 49	0.195	0.170	0.145	0.115	0.100	0.0375
>=50	0.195	0.170	0.145	0.115	0.100	0.0375

Other - Male

Service

Age	0	1	2	3	4	≥5
<=24	0.190	0.160	0.130	0.115	0.100	0.080
25 to 29	0.190	0.160	0.130	0.115	0.100	0.080
30 to 34	0.190	0.160	0.130	0.115	0.100	0.060
35 to 39	0.190	0.160	0.130	0.115	0.100	0.045
40 to 44	0.190	0.160	0.130	0.115	0.100	0.040
45 to 49	0.190	0.160	0.130	0.115	0.100	0.040
>=50	0.190	0.160	0.130	0.115	0.100	0.040

Other - Female

Service

Age	0	1	2	3	4	≥5
<=24	0.165	0.135	0.120	0.100	0.085	0.120
25 to 29	0.165	0.135	0.120	0.100	0.085	0.120
30 to 34	0.165	0.135	0.120	0.100	0.085	0.070
35 to 39	0.165	0.135	0.120	0.100	0.085	0.045
40 to 44	0.165	0.135	0.120	0.100	0.085	0.040
45 to 49	0.165	0.135	0.120	0.100	0.085	0.0375
>=50	0.165	0.135	0.120	0.100	0.085	0.0375

Law Enforcement - Male and Female

Service

Age	0	1	2	3	4	≥5
<=24	0.130	0.100	0.090	0.060	0.060	0.040
25 to 29	0.130	0.100	0.090	0.060	0.060	0.040
30 to 34	0.130	0.100	0.090	0.060	0.060	0.035
35 to 39	0.130	0.100	0.090	0.060	0.060	0.030
40 to 44	0.130	0.100	0.090	0.060	0.060	0.030
45 to 49	0.130	0.100	0.090	0.060	0.060	0.040
>=50	0.130	0.100	0.090	0.060	0.060	0.040

Active Retirement Rates:

General - Male Service											
Age	<=3	4	5	6 to 19	20 to 23	24	25	26 to 28	29	30	>=31
<=48	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.325	0.350	0.200
50	0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.080	0.350	0.350	0.200
51	0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.080	0.350	0.350	0.200
52	0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.080	0.250	0.250	0.200
53	0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.080	0.250	0.300	0.200
54	0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.080	0.300	0.300	0.150
55	0.000	0.000	0.000	0.000	0.050	0.050	0.100	0.100	0.325	0.350	0.200
56	0.000	0.000	0.000	0.000	0.050	0.050	0.100	0.100	0.300	0.275	0.175
57	0.000	0.000	0.000	0.000	0.050	0.050	0.100	0.100	0.225	0.275	0.200
58	0.000	0.000	0.000	0.000	0.050	0.050	0.100	0.100	0.275	0.275	0.200
59	0.000	0.000	0.000	0.000	0.050	0.050	0.100	0.100	0.275	0.275	0.200
60	0.000	0.000	0.085	0.085	0.085	0.225	0.275	0.275	0.350	0.300	0.225
61	0.000	0.000	0.135	0.135	0.135	0.250	0.300	0.275	0.275	0.275	0.275
62	0.000	0.000	0.260	0.260	0.260	0.350	0.350	0.350	0.350	0.350	0.350
63	0.000	0.000	0.195	0.195	0.195	0.275	0.275	0.275	0.275	0.275	0.275
64	0.000	0.000	0.195	0.195	0.195	0.200	0.200	0.275	0.275	0.275	0.275
65	0.000	0.200	0.250	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
66	0.000	0.175	0.325	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
67	0.000	0.175	0.325	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
68	0.000	0.175	0.325	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
69 to 74	0.000	0.175	0.325	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

General - Female Service											
Age	<=3	4	5	6 to 19	20 to 23	24	25	26 to 28	29	30	>=31
<=48	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.275	0.350	0.300
50	0.000	0.000	0.000	0.000	0.035	0.035	0.060	0.060	0.275	0.400	0.300
51	0.000	0.000	0.000	0.000	0.035	0.035	0.060	0.060	0.275	0.300	0.225
52	0.000	0.000	0.000	0.000	0.035	0.035	0.060	0.060	0.250	0.275	0.225
53	0.000	0.000	0.000	0.000	0.035	0.035	0.060	0.060	0.250	0.275	0.225
54	0.000	0.000	0.000	0.000	0.035	0.035	0.060	0.060	0.250	0.275	0.225
55 to 59	0.000	0.000	0.000	0.000	0.050	0.050	0.080	0.080	0.300	0.325	0.225
60	0.000	0.000	0.095	0.095	0.095	0.250	0.250	0.325	0.450	0.300	0.200
61	0.000	0.000	0.120	0.120	0.120	0.275	0.275	0.250	0.250	0.250	0.250
62	0.000	0.000	0.215	0.215	0.215	0.425	0.425	0.400	0.400	0.400	0.400
63	0.000	0.000	0.180	0.180	0.180	0.275	0.375	0.275	0.275	0.275	0.275
64	0.000	0.000	0.195	0.195	0.195	0.325	0.325	0.250	0.250	0.250	0.250
65	0.000	0.150	0.400	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
66	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
67	0.000	0.150	0.400	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
68	0.000	0.150	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
69	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
70 to 74	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
>=75	0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**Active Retirement Rates
(continued):**

Age	Teachers - Male										
	Service										
	<=3	4	5	6 to 19	20 to 23	24	25	26 to 28	29	30	>=31
<=48	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.300	0.300	0.300
50	0.000	0.000	0.000	0.000	0.025	0.025	0.065	0.065	0.300	0.300	0.300
51	0.000	0.000	0.000	0.000	0.025	0.025	0.065	0.065	0.300	0.300	0.300
52	0.000	0.000	0.000	0.000	0.025	0.025	0.065	0.065	0.325	0.325	0.250
53	0.000	0.000	0.000	0.000	0.025	0.025	0.065	0.065	0.325	0.325	0.250
54	0.000	0.000	0.000	0.000	0.025	0.025	0.065	0.065	0.325	0.325	0.250
55	0.000	0.000	0.000	0.000	0.045	0.045	0.090	0.090	0.325	0.325	0.250
56	0.000	0.000	0.000	0.000	0.045	0.045	0.090	0.090	0.325	0.325	0.250
57	0.000	0.000	0.000	0.000	0.045	0.045	0.090	0.090	0.325	0.325	0.250
58	0.000	0.000	0.000	0.000	0.045	0.045	0.090	0.090	0.325	0.325	0.250
59	0.000	0.000	0.000	0.000	0.045	0.045	0.090	0.090	0.350	0.300	0.250
60	0.000	0.000	0.120	0.120	0.120	0.300	0.300	0.300	0.400	0.250	0.250
61	0.000	0.000	0.140	0.140	0.140	0.250	0.250	0.250	0.250	0.250	0.250
62	0.000	0.000	0.225	0.225	0.225	0.400	0.350	0.350	0.350	0.350	0.350
63	0.000	0.000	0.180	0.180	0.180	0.500	0.250	0.250	0.250	0.250	0.250
64	0.000	0.000	0.210	0.210	0.210	0.400	0.250	0.150	0.150	0.150	0.150
65	0.000	0.300	0.300	0.325	0.325	0.325	0.200	0.200	0.200	0.200	0.200
66	0.000	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
67	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
68	0.000	0.225	0.250	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
69 to 74	0.000	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Age	Teachers - Female										
	Service										
	<=3	4	5	6 to 19	20 to 23	24	25	26 to 28	29	30	>=31
<=48	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.275	0.275	0.275
50	0.000	0.000	0.000	0.000	0.035	0.035	0.055	0.055	0.275	0.275	0.275
51	0.000	0.000	0.000	0.000	0.035	0.035	0.055	0.055	0.275	0.275	0.275
52	0.000	0.000	0.000	0.000	0.035	0.035	0.055	0.055	0.325	0.400	0.250
53	0.000	0.000	0.000	0.000	0.035	0.035	0.055	0.055	0.325	0.350	0.250
54	0.000	0.000	0.000	0.000	0.035	0.035	0.055	0.055	0.325	0.400	0.300
55	0.000	0.000	0.000	0.000	0.060	0.060	0.095	0.095	0.325	0.400	0.300
56	0.000	0.000	0.000	0.000	0.060	0.060	0.095	0.095	0.325	0.400	0.275
57	0.000	0.000	0.000	0.000	0.060	0.060	0.095	0.095	0.325	0.450	0.300
58	0.000	0.000	0.000	0.000	0.060	0.060	0.095	0.095	0.325	0.450	0.325
59	0.000	0.000	0.000	0.000	0.060	0.060	0.095	0.095	0.450	0.375	0.300
60	0.000	0.000	0.135	0.135	0.135	0.300	0.450	0.450	0.450	0.500	0.325
61	0.000	0.000	0.150	0.150	0.150	0.300	0.400	0.350	0.350	0.350	0.350
62	0.000	0.000	0.250	0.250	0.250	0.500	0.500	0.425	0.425	0.425	0.425
63	0.000	0.000	0.190	0.190	0.190	0.500	0.500	0.325	0.325	0.325	0.325
64	0.000	0.000	0.225	0.225	0.225	0.500	0.500	0.325	0.325	0.325	0.325
65	0.000	0.150	0.350	0.375	0.375	0.375	0.350	0.350	0.350	0.350	0.350
66	0.000	0.150	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375
67	0.000	0.150	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
68	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
69	0.000	0.150	0.325	0.325	0.325	0.325	0.325	0.325	0.325	0.325	0.325
70 to 74	0.000	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

**Active Retirement Rates
(continued):**

		Other - Male									
		Service									
Age		<=3	4	5	6 to 19	20 to 23	24	25 to 28	29	30	>=31
<=48		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.300	0.300	0.150
50		0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.300	0.300	0.150
51		0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.300	0.300	0.150
52		0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.250	0.250	0.175
53		0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.250	0.250	0.200
54		0.000	0.000	0.000	0.000	0.035	0.035	0.080	0.150	0.250	0.200
55		0.000	0.000	0.000	0.000	0.040	0.040	0.100	0.250	0.250	0.200
56		0.000	0.000	0.000	0.000	0.040	0.040	0.100	0.250	0.250	0.150
57		0.000	0.000	0.000	0.000	0.040	0.040	0.100	0.250	0.250	0.200
58		0.000	0.000	0.000	0.000	0.040	0.040	0.100	0.250	0.250	0.250
59		0.000	0.000	0.000	0.000	0.040	0.040	0.100	0.250	0.250	0.200
60		0.000	0.000	0.090	0.090	0.090	0.225	0.225	0.250	0.250	0.250
61		0.000	0.000	0.125	0.125	0.125	0.225	0.225	0.225	0.225	0.225
62		0.000	0.000	0.280	0.280	0.280	0.400	0.400	0.400	0.400	0.400
63		0.000	0.000	0.220	0.220	0.220	0.300	0.300	0.300	0.300	0.300
64		0.000	0.000	0.190	0.190	0.190	0.300	0.300	0.300	0.300	0.300
65		0.000	0.150	0.275	0.300	0.300	0.300	0.275	0.275	0.275	0.275
66		0.000	0.150	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
67		0.000	0.150	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
68		0.000	0.150	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
69		0.000	0.150	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
70 to 74		0.000	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
>=75		0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

		Other - Female										
		Service										
Age		<=3	4	5	6 to 19	20 to 23	24	25	26 to 28	29	30	>=31
<=48		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.175	0.325	0.225
50		0.000	0.000	0.000	0.000	0.040	0.040	0.055	0.055	0.175	0.325	0.225
51		0.000	0.000	0.000	0.000	0.040	0.040	0.055	0.055	0.175	0.325	0.225
52		0.000	0.000	0.000	0.000	0.040	0.040	0.055	0.055	0.225	0.225	0.225
53		0.000	0.000	0.000	0.000	0.040	0.040	0.055	0.055	0.150	0.300	0.225
54		0.000	0.000	0.000	0.000	0.040	0.040	0.055	0.055	0.225	0.225	0.225
55		0.000	0.000	0.000	0.000	0.050	0.050	0.090	0.090	0.225	0.225	0.225
56 to 59		0.000	0.000	0.000	0.000	0.050	0.050	0.090	0.090	0.250	0.250	0.250
60		0.000	0.000	0.110	0.110	0.110	0.200	0.250	0.275	0.250	0.250	0.250
61		0.000	0.000	0.150	0.150	0.150	0.275	0.275	0.275	0.275	0.275	0.275
62		0.000	0.000	0.270	0.270	0.270	0.375	0.400	0.400	0.400	0.400	0.400
63		0.000	0.000	0.175	0.175	0.175	0.375	0.400	0.300	0.300	0.300	0.300
64		0.000	0.000	0.195	0.195	0.195	0.375	0.400	0.300	0.300	0.300	0.300
65		0.000	0.150	0.250	0.275	0.275	0.275	0.350	0.350	0.350	0.350	0.350
66		0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
67		0.000	0.150	0.200	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225
68		0.000	0.150	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
69		0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
70 to 74		0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
>=75		0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Active Retirement Rates (continued):	Law Enforcement - Male and Female						
	Age	Service					
		<=3	4	5 to 14	15 to 28	29	>=30
<=48	0.000	0.000	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.750	0.600	
50 to 54	0.000	0.000	0.000	0.090	0.750	0.600	
55	0.000	0.500	0.500	0.500	0.750	0.500	
56 to 59	0.000	0.150	0.175	0.175	0.750	0.500	
60 to 64	0.000	0.200	0.200	0.200	0.750	0.500	
65	0.000	0.250	0.250	0.250	0.250	0.250	
66 to 74	0.000	0.300	0.300	0.300	0.300	0.300	
>=75	0.000	1.000	1.000	1.000	1.000	1.000	

The eligibility for retirement is determined as of the timing of the assumed decrement (middle of the year), rather than as of the anniversary of the Valuation Date (the beginning of the year). This creates assumed retirements for participants with 4.5, 24.5, and 29.5 years of service as of the anniversary of the Valuation Date.

Inactive Vested Retirement Expected Enrollment Age: Age 55 with 20 or more years of service; age 63 with 5 or more years of service, but less than 20 years of service.

Missing Participant Data: Actives and terminated vested who do not have plan code are assumed to be enrolled in plans based on enrollment assumptions.
Missing date of birth or invalid date of birth are assumed an average value of the group. Invalid gender codes are replaced with the default of male.
Any other missing census item for a given participant was assumed to equal the average value of that item over all other participants of the same status for whom the item is known.

Participation and Coverage Election: 100% of employees eligible to retire and receive subsidized postretirement welfare coverage were assumed to elect medical and prescription drug coverage. All participants are assumed to be enrolled in plans based on enrollment assumptions.

Dependents: Demographic data was available for spouses of current retirees. For future retirees, husbands were assumed to be four years older than their wives. 10% of future retirees who elect to continue their health coverage at retirement were assumed to have an eligible spouse who also opts for health coverage at that time.

Payroll Increases: 3.50%.

Data Adjustments: Since child records under split contract were reported as subscribers, we assumed retirees under age 27 were children.

Matching spouses of retirees to retirees when they were covered under split contracts (one Medicare eligible and the other not) was problematic. Additionally, surviving spouses who are not receiving survivor benefits under the retirement plan were not readily distinguishable from retirees. We believe that there are spouses of retirees that we have valued as retirees without paying the spouse premium. No adjustment has been made to the valuation liabilities.

Per Capita Cost Development: *Medical and Prescription Drug:* Per capita claims costs were based on actual incurred claim experience for the periods January 1, 2017 through December 31, 2018. Claims were separated by Medicare and Non-Medicare participants, then adjusted as follows:

- > total claims were divided by the number of adult members to yield a per capita claim,
- > the per capita claim was trended to the midpoint of the valuation year at assumed trend rates, and the per capita claim was adjusted for the effect of any plan changes
- > Actuarial factors were then applied to the per capita claims to estimate individual retiree and spouse costs by age and by gender.
- > Medicare Advantage plans were valued by actuarially adjusting the insured premium rates by age and gender.

Administrative Expenses: Administrative expenses were based on a recent quarterly projection prepared by Segal.

Per Capita Health Costs:	70/30 Plan	Medical				Prescription Drug			
		Retiree		Spouse		Retiree		Spouse	
	Age	Male	Female	Male	Female	Male	Female	Male	Female
Non-Medicare	40	\$3,838	\$4,936	\$2,386	\$3,965	\$1,166	\$1,500	\$725	\$1,205
	45	4,564	5,725	2,831	4,273	1,387	1,739	860	1,298
	50	5,417	6,170	3,783	4,954	1,646	1,875	1,150	1,505
	55	6,433	6,641	5,063	5,734	1,955	2,018	1,538	1,742
	60	7,639	7,159	6,777	6,650	2,321	2,175	2,059	2,021
	65	9,073	7,712	9,073	7,712	2,757	2,343	2,757	2,343
	70	10,515	8,311	10,515	8,311	3,195	2,525	3,195	2,525
	75	11,332	8,946	11,332	8,946	3,443	2,718	3,443	2,718
	80	12,203	9,644	12,203	9,644	3,708	2,930	3,708	2,930

**Per Capita Health Costs
Non-Medicare (continued):**

80/20 Plan	Medical				Prescription Drug			
	Retiree		Spouse		Retiree		Spouse	
	Age	Male	Female	Male	Female	Male	Female	Male
40	\$4,969	\$6,390	\$3,089	\$5,133	\$1,512	\$1,945	\$940	\$1,562
45	5,908	7,412	3,665	5,532	1,798	2,256	1,115	1,684
50	7,012	7,987	4,898	6,413	2,134	2,431	1,491	1,952
55	8,328	8,598	6,554	7,423	2,535	2,617	1,995	2,259
60	9,890	9,268	8,774	8,610	3,010	2,821	2,670	2,620
65	11,746	9,984	11,746	9,984	3,575	3,039	3,575	3,039
70	13,614	10,759	13,614	10,759	4,143	3,275	4,143	3,275
75	14,671	11,581	14,671	11,581	4,465	3,525	4,465	3,525
80	15,798	12,486	15,798	12,486	4,808	3,800	4,808	3,800

**Medicare – Non Medicare
Advantage**

70/30 Plan	Medical				Prescription Drug			
	Retiree		Spouse		Retiree		Spouse	
	Age	Male	Female	Male	Female	Male	Female	Male
40	\$397	\$511	\$247	\$410	\$1,166	\$1,500	\$725	\$1,205
45	472	592	293	442	1,387	1,739	860	1,298
50	560	638	391	512	1,646	1,875	1,150	1,505
55	665	687	524	593	1,955	2,018	1,538	1,742
60	790	740	701	688	2,321	2,175	2,059	2,021
65	938	798	938	798	2,757	2,343	2,757	2,343
70	1,088	860	1,088	860	3,195	2,525	3,195	2,525
75	1,172	925	1,172	925	3,443	2,718	3,443	2,718
80	1,262	998	1,262	998	3,708	2,930	3,708	2,930

Per Capita Health Costs (continued): Medicare – Medicare Advantage	Medicare Advantage (Basic)				Medicare Advantage (Enhanced)				
		Retiree		Spouse		Retiree		Spouse	
	Age	Male	Female	Male	Female	Male	Female	Male	Female
40	\$417	\$536	\$259	\$430	\$736	\$947	\$458	\$761	
45	495	621	307	464	876	1,098	543	820	
50	588	670	411	538	1,039	1,184	726	950	
55	698	721	549	622	1,234	1,274	971	1,100	
60	829	777	736	722	1,466	1,373	1,300	1,276	
65	985	837	985	837	1,741	1,480	1,741	1,480	
70	1,141	902	1,141	902	2,017	1,594	2,017	1,594	
75	1,230	971	1,230	971	2,174	1,716	2,174	1,716	
80	1,324	1,047	1,324	1,047	2,341	1,850	2,341	1,850	

Health Care Cost Trend Rates:

Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. The rates shown below are “net” and are applied to the net per capita costs shown above. The trend shown for a particular plan year is the rate that is applied to that year’s cost to yield the next year’s projected cost.

Year Ending June 30	Rate (%)			
	Medical Non-Medicare	Prescription Drug	Medicare Advantage	Admin.
2019	6.50%	9.50%	Varied ¹	3.00%
2020	6.50%	9.00%	6.50%	3.00%
2021	6.00%	8.50%	6.00%	3.00%
2022	6.00%	8.00%	6.00%	3.00%
2023	5.50%	7.50%	5.50%	3.00%
2024	5.00%	7.00%	5.00%	3.00%
2025	5.00%	6.50%	5.00%	3.00%
2026	5.00%	6.00%	5.00%	3.00%
2027	5.00%	5.50%	5.00%	3.00%
2028 & later ²	5.00%	5.00%	5.00%	3.00%

¹The Health Insurance Tax was estimated at \$26 per month for 2020 and added to the expected claims.

² The ultimate trend rate was used to roll claims backward from the valuation date for purposes of the Entry Age Normal Cost Method

Health Care Cost Trend Rates: (continued)	<p>The trend rate assumptions were based on the trends consistent with the Quarterly Financial Projections, and were developed using Segal’s internal guidelines. The guidelines are established each year using data sources such as the 2019 Segal Health Trend Survey, internal client results, trends from other published surveys prepared by the S&P Dow Jones Indices, consulting firms and brokers, and CPI statistics published by the Bureau of Labor Statistics.</p> <table border="1"> <thead> <tr> <th>Annual Expected MA Premiums</th> <th>Basic</th> <th>Enhanced</th> </tr> </thead> <tbody> <tr> <td>2019</td> <td>\$985</td> <td>\$1,741</td> </tr> <tr> <td>2020</td> <td>\$1,297</td> <td>\$2,053</td> </tr> <tr> <td>2021</td> <td>\$1,381</td> <td>\$2,186</td> </tr> </tbody> </table>	Annual Expected MA Premiums	Basic	Enhanced	2019	\$985	\$1,741	2020	\$1,297	\$2,053	2021	\$1,381	\$2,186
Annual Expected MA Premiums	Basic	Enhanced											
2019	\$985	\$1,741											
2020	\$1,297	\$2,053											
2021	\$1,381	\$2,186											
Medicare Part D Subsidy Assumption:	<p>GASB guidelines prohibit the offset of OPEB obligations by the future value of Medicare Part D subsidies. Therefore, these calculations do not include an estimate for retiree prescription drug plan federal subsidies that the North Carolina State Health Plan may be eligible to receive.</p>												
Retiree Contribution Increase Rate:	<p>Retiree contributions for medical and prescription drugs were assumed to increase at the same blended trend rate as medical and prescription drug cost. 2019 trend on contributions was adjusted to expected 2020 contribution rates, including anticipated wellness credits and enrollment migration.</p>												
Assumption for Tobacco Attestation	<p>The percentage of participants in the 80/20 Plan that complete a Tobacco Attestation is assumed to be 98.5% in all years.</p>												
Administrative Expenses:	<p>Administrative expense loads of \$342 per participant (retiree and spouse) for Non-Medicare retiree and of \$81 for Medicare retirees (blended MA & non-MA), increasing at 3.0% per year thereafter were added to projected incurred claims cost in developing the benefit obligations.</p>												
Plan Design:	<p>Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit II.</p>												
Maximum Benefits:	<p>There are no annual or lifetime maximum benefits assumed.</p>												

Plan Enrollment Assumptions	Based on most recent financial report: Plan Enrollment Assumptions are valued by adjusting the trend for 2019-2022 for enrollment migration.																																										
	<table border="1"> <thead> <tr> <th><i>Non-Medicare Retiree</i></th> <th>2019</th> <th>2020</th> <th>2021</th> <th>2022</th> <th>2023</th> </tr> </thead> <tbody> <tr> <td>70/30 Plan</td> <td>47.627%</td> <td>48.220%</td> <td>48.813%</td> <td>49.407%</td> <td>50.000%</td> </tr> <tr> <td>80/20 Plan</td> <td>52.373%</td> <td>51.780%</td> <td>51.187%</td> <td>50.593%</td> <td>50.000%</td> </tr> <tr> <th><i>Med Retiree</i></th> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>70/30 Plan</td> <td>14.207%</td> <td>13.655%</td> <td>13.103%</td> <td>12.552%</td> <td>12.000%</td> </tr> <tr> <td>MA Base</td> <td>74.043%</td> <td>74.783%</td> <td>75.522%</td> <td>76.261%</td> <td>77.000%</td> </tr> <tr> <td>MA Enhanced</td> <td>11.750%</td> <td>11.562%</td> <td>11.375%</td> <td>11.187%</td> <td>11.000%</td> </tr> </tbody> </table>	<i>Non-Medicare Retiree</i>	2019	2020	2021	2022	2023	70/30 Plan	47.627%	48.220%	48.813%	49.407%	50.000%	80/20 Plan	52.373%	51.780%	51.187%	50.593%	50.000%	<i>Med Retiree</i>						70/30 Plan	14.207%	13.655%	13.103%	12.552%	12.000%	MA Base	74.043%	74.783%	75.522%	76.261%	77.000%	MA Enhanced	11.750%	11.562%	11.375%	11.187%	11.000%
<i>Non-Medicare Retiree</i>	2019	2020	2021	2022	2023																																						
70/30 Plan	47.627%	48.220%	48.813%	49.407%	50.000%																																						
80/20 Plan	52.373%	51.780%	51.187%	50.593%	50.000%																																						
<i>Med Retiree</i>																																											
70/30 Plan	14.207%	13.655%	13.103%	12.552%	12.000%																																						
MA Base	74.043%	74.783%	75.522%	76.261%	77.000%																																						
MA Enhanced	11.750%	11.562%	11.375%	11.187%	11.000%																																						
Health Care Reform Assumption:	This valuation does not include the potential impact of any future changes due to the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 other than the excise tax on high cost health plans beginning in 2022 (reflected with this valuation) and those previously adopted as of the valuation date.																																										
Assumption Changes since Prior Valuation:	<ul style="list-style-type: none"> ➤ The discount rate was updated, changing from 3.87% to 3.50%, in accordance with the State's policy for determining the discount rate. ➤ Disability rates were adjusted to the non-grandfathered assumptions used in the TSERS pension valuation, to better align with anticipated incidence of disability. ➤ The medical and prescription drug claims cost were changed based on most recent experience. ➤ Medical and prescription drug trend rates were changed to current schedule. ➤ Enrollment assumptions were updated to model expected migrations among plan options over the next four years. 																																										

EXHIBIT III SUMMARY OF PLAN

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plans as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Eligibility:	<p>Participants in the North Carolina State Health Plan for Teachers and State Employees who retire from the State, the University of North Carolina System, community colleges, local school systems, and certain other component units are eligible to continue to participate in the State Health Plan in retirement if they meet certain criteria. Former employees who are eligible to receive medical benefits are long-term disability beneficiaries of the Disability Income Plan of North Carolina (DIPNC) and retirees of the Teachers' and State Employees' Retirement System (TSERS), the Consolidated Judicial Retirement system (CJRS), the Legislative Retirement System (LRS), the University Employees' Optional Retirement Program (UEORP), and a small number of local governments. General retirement requirements are as follows:</p> <p>Law Enforcement Officer:</p> <ul style="list-style-type: none"> • age 50 and 15 years of service; • age 55 and 5 years of service; or • any age with 25 or more years of service. <p>All Others:</p> <ul style="list-style-type: none"> • age 50 and 20 years of service; • age 60 and 5 years of service; or • any age with 30 or more years of service. <p>Members achieve vesting at any age with 5 years of service. Members who separate from service after becoming vested and do not withdraw their contributions from the Retirement System may later retire (and enroll in the plan) once they have attained the retirement eligibility age.</p>
Benefit Types:	70/30 and 80/20 Plans are offered to non-Medicare participants, and the 70/30 Plan, Medicare Advantage Base (MA Base) and Medicare Advantage Enhanced (MA Enhanced) plans are offered to Medicare eligible participants.
Duration of Coverage:	Lifetime for retirees and dependents
Dependent Benefits:	Same as retirees

Retiree Contributions:

Monthly contributions, effective January 1, 2019, are shown below.

For Retirees hired prior to October 1, 2006 (February 1, 2007 for legislators):

	Non-Medicare			Medicare		
	70/30 Plan	80/20 Plan		70/30 Plan	MA Base	MA Enhanced
		Tobacco Attest. Not Complete	Tobacco Attest. Complete			
Retiree	\$0.00	\$110.00	\$50.00	\$0.00	\$0.00	\$63.00
Spouse	\$590.00	\$650.00		\$425.00	\$89.00	\$152.00

For Retirees hired on or after October 1, 2006 (February 1, 2007 for legislators), contributions are defined as a percentage of the total premium costs based on the following service based schedule:

Years of Service at Retirement	Retiree Contribution Percentage	Spouse Contribution Percentage
5 – 9.99	100%	100%
10 – 19.99	50%	100%
20 or more	0%	100%

100% and 50% of the total premium costs are shown below:

	Non-Medicare			Medicare		
	70/30 Plan	80/20 Plan		70/30 Plan	MA Base	MA Enhanced
		Tobacco Attest. Not Complete	Tobacco Attest. Complete			
Retiree 100% of Premium	\$518.64	\$628.64	\$568.64	\$403.06	\$89.00	\$152.00
Retiree 50% of Premium	\$259.32	\$369.32	\$309.32	\$201.53	\$89.00	\$152.00
Spouse	\$590.00	\$650.00		\$425.00	\$89.00	\$152.00

Benefit Descriptions (as of January 1, 2019): PPO 70/30 Plan	PPO 70/30 Plan	In-Network	Out-Of-Network
	Medical		
<i>Annual Deductible</i>		\$1,080/\$3,240	\$2,160/\$6,480
<i>Coinsurance</i>		70%	50%
<i>Coinsurance Maximum</i>		\$4,388/\$13,164	\$8,776/\$26,328
<i>Lifetime Maximum</i>		Unlimited	Unlimited
<i>Office Visit copay</i>			
<i>Primary Care</i>		\$40	Ded. & coins.
<i>Specialist</i>		\$94	Ded. & coins.
<i>Urgent Care</i>		\$100	\$100
<i>Inpatient Hospitalization</i>		\$337 + ded. & coins.	\$337 + ded. & coins.
<i>Outpatient Hospitalization</i>		ded. & coins.	ded. & coins.
<i>Emergency Room</i>		\$337 + ded. & coins.	same as In-Network
<i>Chiropractic</i>		\$72	Ded. & coins.
<i>Physical, Occupational or Speech Therapy</i>		\$72	Ded. & coins.
<i>Outpatient Mental Health, Chemical Dependency</i>		\$40	Coinsurance

**Benefit Descriptions
(as of January 1, 2019): PPO 70/30 Plan
(continued)**

Prescription Drugs (up to 30 day supply)	
<i>Tier 1</i>	\$16
<i>Tier 2</i>	\$47
<i>Tier 3</i>	\$74
<i>Tier 4 - Generic Specialty</i>	10% coins., \$100 max.
<i>Tier 5 - Preferred Specialty</i>	25% coins., \$103 max.
<i>Tier 6 - Non-Preferred Specialty</i>	25% coins., \$133 max.
<i>Brand drug with a generic equivalent</i>	Tier 1 copay plus the difference in the cost to the Plan between the generic and brand name drug, not to exceed \$100 per 30-day supply of the brand name medication.
<i>Preferred diabetic testing supplies</i>	\$10
<i>Non-Preferred diabetic testing supplies</i>	\$74
<i>Out-of-Pocket Maximum</i>	\$3,360 (Individual) / \$10,080 (Family)

Coverage becomes secondary when former employees become eligible for Medicare.

**Benefit Descriptions
(as of January 1, 2019): PPO 80/20 Plan**

PPO 80/20 Plan	In-Network	Out-Of-Network
Medical		
<i>Annual Deductible</i>	\$1,250/\$3,750	\$2,500/\$7,500
<i>Coinsurance</i>	80%	60%
<i>Out-of-Pocket Maximum</i>	\$4,890/\$14,670	\$9,780/\$29,340
<i>Lifetime Maximum</i>	Unlimited	Unlimited
<i>Office Visit copay</i>		
<i>Primary Care</i>	\$25 / \$10 Non-Designated/Designated	Ded. & coins.
<i>Specialist</i>	\$80	Ded. & coins.
<i>Urgent Care</i>	\$70	\$70
<i>Inpatient Hospitalization</i>	\$300 + ded. & coins.	\$450 + ded. & coins.
<i>Outpatient Hospitalization</i>	ded. & coins.	ded. & coins.
<i>Emergency Room</i>	\$300 + ded. & coins.	same as In-Network
<i>Chiropractic</i>	\$52	Ded. & coins.
<i>Physical, Occupational or Speech Therapy</i>	\$52	Ded. & coins.
<i>Outpatient Mental Health, Chemical Dependency</i>	\$25	Coinsurance

**Benefit Descriptions
(as of January 1, 2019): PPO 80/20 Plan
(continued)**

Prescription Drugs (up to 30 day supply)	
<i>Tier 1</i>	\$5
<i>Tier 2</i>	\$30
<i>Tier 3</i>	Ded. & coins.
<i>Tier 4 - Generic Specialty</i>	\$100
<i>Tier 5 - Preferred Specialty</i>	\$250
<i>Tier 6 - Non-Preferred Specialty Brand drug with a generic equivalent</i>	Ded. & coins. Tier 1 copay plus the difference in the cost to the Plan between the generic and brand name drug, not to exceed \$100 per 30-day supply of the brand name medication.
<i>Preferred diabetic testing supplies</i>	\$5
<i>Non-Preferred testing supplies</i>	Ded. & coins.

Coverage becomes secondary when former employees become eligible for Medicare.

(as of January 1, 2019): Medicare Advantage Plans

Medicare Advantage	MA-PDP Basic (MA Base)	MA-PDP Enhanced (MA Enhanced)
Medical		
<i>Annual Deductible</i>	\$0	\$0
<i>Coinsurance</i>	80%	80%
<i>Coinsurance Maximum</i>	\$4,000	\$3,300
<i>Lifetime Maximum</i>	Unlimited	Unlimited
<i>Office Visit copay</i>		
<i>Primary Care</i>	\$20	\$15
<i>Specialist</i>	\$40	\$35
<i>Preventive Care</i>	\$0	\$0
<i>Emergency Room</i>	\$65	\$65

**Benefit Descriptions
(as of January 1, 2019): Medicare
Advantage Plans (continued)**

Prescription Drugs	MA-PDP Basic	MA-PDP Enhanced
<i>Retail (up to 31 day supply)</i>		
<i>Tier 1</i>	\$10	\$10
<i>Tier 2</i>	\$40	\$35
<i>Tier 3</i>	\$64	\$50
<i>Tier 4</i>	25% coins., \$100 max.	25% coins., \$100 max.
<i>Out-of-Pocket Maximum</i>	\$2,500	\$2,500
<i>Mail Order (up to 90 day supply)</i>		
<i>Tier 1</i>	\$24	\$20
<i>Tier 2</i>	\$80	\$70
<i>Tier 3</i>	\$128	\$100
<i>Tier 4</i>	25% coins., \$300 max.	25% coins., \$200 max.
<i>Out-of-Pocket Maximum (individual)</i>	\$2,500	\$2,500

Plan Changes

Effective January 1, 2019:

- OOP maximum for 80/20 Plan increased from \$4,350/\$10,300 (individual/family) for in-network and \$8,700/\$26,100 for out-of-network to \$4,890/\$14,670 for in-network and \$9,780/\$29,340 for out-of-network.
- In-network Specialist copay for the 80/20 Plan decreased from \$85/\$45 to \$80.
- For the 80/20 Plan, in-network inpatient hospitalization changed from a) \$450 plus deductible and coinsurance or \$0 plus deductible and coinsurance for designated Blue Options hospitals in 2018; to b) \$300 plus deductible and coinsurance for all hospitals in 2019.

Plan Changes effective January 1, 2020 were known as of the time this report was drafted, and are expected to be cost neutral. They were not used in the development of the expected costs.

EXHIBIT IV DEFINITION OF TERMS

Assumptions or Actuarial Assumptions:	The estimates on which the cost of the Plan is calculated including: (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future; (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates; (c) Retirement rates — the rate or probability of retirement at a given age; (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Total OPEB Liability:	Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.
Service Cost:	The amount of contributions required to fund the benefit allocated to the current year of service.
Actuarially Determined Contribution:	A target or recommended contribution to an OPEB plan for the reporting period based on the most recent measurement available.
Valuation Date:	The date at which the actuarial valuation is performed
Covered Payroll:	The payroll on which contributions to an OPEB plan are based. [GASBS 85, ¶13]
Discount Rate:	The single rate of return, that when applied to all projected benefit payments results in an actuarial present value that is the sum of the following: (1) the actuarial present value of projected benefit payments projected to be funded by plan assets using a long term rate of return, and (2) the actuarial present value of projected benefit payments that are not included in (1) using a yield or index rate for 20 year tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher
Entry Age Actuarial Cost Method:	An actuarial cost method where the present value of the projected benefits for an individual is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age
Healthcare Cost Trend Rates:	The rate of change in per capita health costs over time
Net OPEB Liability:	The Total OPEB Liability less the Plan Fiduciary Net Position
Plan Fiduciary Net Position:	Market Value of Assets
Real Rate of Return:	The rate of return on an investment after removing inflation

EXHIBIT V ACCOUNTING REQUIREMENTS

The Governmental Accounting Standards Board (GASB) issued Statement Number 74 – Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans, and Statement Number 75 – Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions. Under these statements, all state and local government entities that provide other post-employment benefits are required to report the cost of these benefits on their financial statements. The accounting standards supplement cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (i.e., a pay-as-you-go basis).

The statements cover postemployment benefits of medical, prescription drugs, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are *not* offered as part of a pension plan; and long-term disability insurance for employees. The benefits valued in this report are limited to those described in Exhibit III of Section 3, which are based on those provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the employer and plan members. The projection of benefits is not limited by legal or contractual limits on funding the plan unless those limits clearly translate into benefit limits on the substantive plan being valued.

The new standards prescribe an accrual-basis accounting requirement, thereby recognizing the employer cost of postemployment benefits over an employee’s career. The standards also prescribe a consistent accounting requirement for both pension and non-pension benefits.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. These assumptions are summarized in Exhibit II of Section 3. This amount is then discounted to determine the Total OPEB Liability. The Net OPEB Liability (NOL) is the difference between the Total OPEB Liability and market value of assets in the Plan, called the Plan Fiduciary Net Position.

Once the NOL is determined, the Annual OPEB Expense is determined as the change in NOL from the prior year with deferred recognition of certain elements. In addition, Required Supplementary Information (RSI) must be reported, including historical information about the Net OPEB Liability and the contributions made to the Plan. Exhibits IV and VI of Section 3 contain a definition of terms as well as more information about GASB 74/75 concepts.

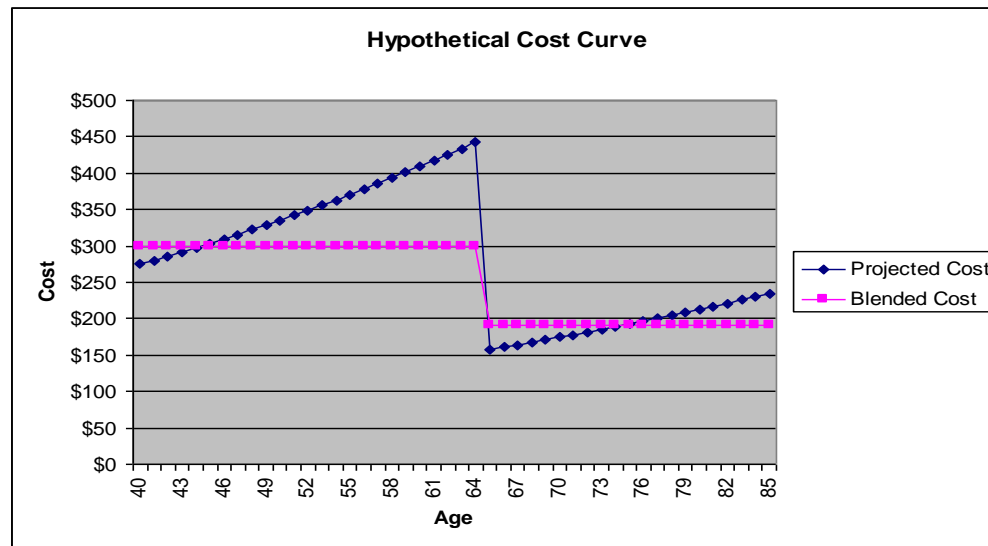
The calculation of an accounting obligation does not, in and of itself, imply that there is any legal liability to provide the benefits valued, nor is there any implication that the Employer is required to implement a funding policy to satisfy the projected expense.

Actuarial calculations reflect a long-term perspective, and the methods and assumptions use techniques designed to reduce short-term volatility in accrued liabilities and the actuarial value of assets, if any.

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

EXHIBIT VI GASB 74/75 CONCEPTS

The following graph illustrates why a significant accounting obligation may exist even though the retiree contributes most or all of the blended premium cost of the plan. The average cost for retirees is likely to exceed the average cost for the whole group, leading to an implicit subsidy for these retirees. The accounting standard requires the employer to identify and account for this implicit subsidy as well as any explicit subsidies the employer may provide.



8949261v24/13399.066