



NORTH CAROLINA STATE HEALTH PLAN FOR TEACHERS AND STATE EMPLOYEES

**Summary of GASB 45 OPEB Valuation
As of December 31, 2016**

OPEB Actuarial Valuation Committee Meeting

August 31, 2017



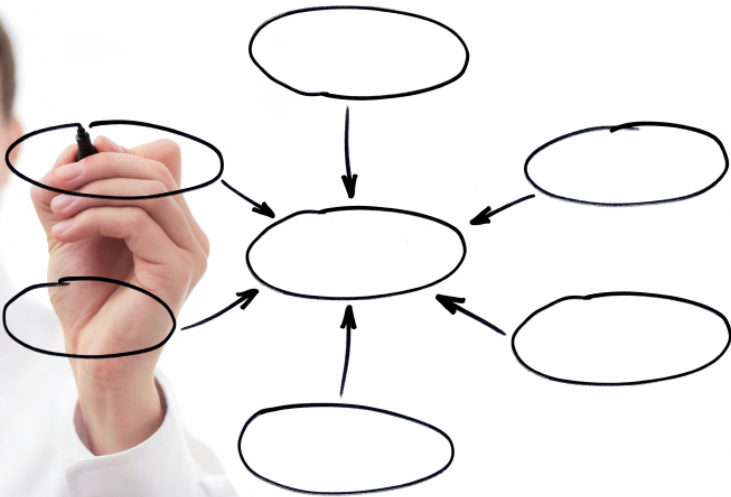
Presenting Today

Danny Rhodes

*Vice President and
Consulting Actuary*

David Berger

*Vice President and
Consulting Actuary*



Agenda

- Summary
- Purpose
- Process
- Data
- Plan Provisions
- Assumptions
- Results
- Projections
- GASB Statements 74 and 75
- Conclusions

Summary

- The Plan provides retiree medical benefits for retirees from State, UNC, community colleges, local school systems, and certain other entities including some local governments

SUMMARY OF VALUATION RESULTS (\$ in millions)	December 31, 2016	December 31, 2015
Actuarial Accrued Liability (AAL)	\$ 32,376	\$ 33,472
Actuarial Value of Assets (Market Value)	1,016	960
Unfunded Actuarial Accrued Liability	\$ 31,360	\$ 32,511
Funded Ratio	3.14%	2.87%
Annual Required Contribution (ARC) for Fiscal Year Ending:	June 30, 2017	June 30, 2016
Normal cost (beginning of year)	\$ 1,390	\$ 1,310
Amortization of the unfunded actuarial accrued liability	1,172	1,201
Total Annual Required Contribution	\$ 2,562	\$ 2,511
ARC as a percentage of pay	16.67%	16.00%
Annual OPEB Cost (AOC) for Fiscal Year Ending:	June 30, 2017	June 30, 2016
Total Annual OPEB Cost	\$ 2,652	\$ 2,599
AOC as a percent of pay	17.26%	16.56%
Expected Net Benefit Payments for the Upcoming Year	864	978
Total Participants (including spouses)	601,792	587,967
Covered payroll	\$ 15,363	\$ 15,692

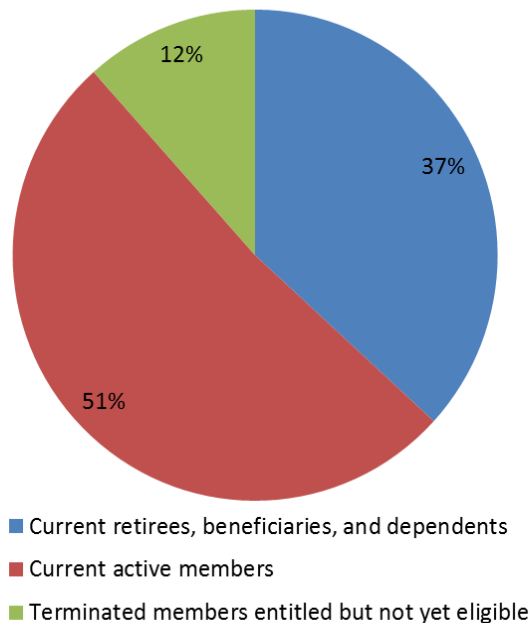
- Good claims experience, lower national trends, and a better deal with the Medicare Advantage Plans led to the lower costs
- The lower discount rate offset the savings to a great extent

Summary

Benefit Liabilities (millions)	Present Value of Benefits	Actuarial Accrued Liability
Current retirees and beneficiaries	\$11,918	\$11,918
Current active members	36,779	16,703
Terminated members entitled not yet eligible	<u>3,756</u>	<u>3,756</u>
Total as of December 31	\$52,453	\$32,377

Actuarial Accrued Liability (millions)	
Gross Benefits	\$42,584
Present Value of Retiree Contributions	<u>(10,207)</u>
Actuarial Accrued Liability as of December 31, 2016	\$32,377

Actuarial Accrued Liability is \$32.4 billion



Normal Cost as a Percent of Pay	
Normal Cost	\$1,389,672,167
Compensation	\$15,363,077,578
Normal Cost as a Percent of Pay	9.0%

Participants	
Current retirees and beneficiaries	224,404
Current active participants	338,158
Terminated participants entitled not yet eligible	39,230
Total	601,792

Valuation Purpose

GASB 45

- Measure State Obligations to provide other postemployment benefits (OPEB)
- Determine the annual required contribution (ARC) and annual OPEB cost (AOC)
- Provide exhibits useful for preparing required financial statement recognition and disclosure items
- Provide exhibits useful for OPEB plan reporting (GASB 43)

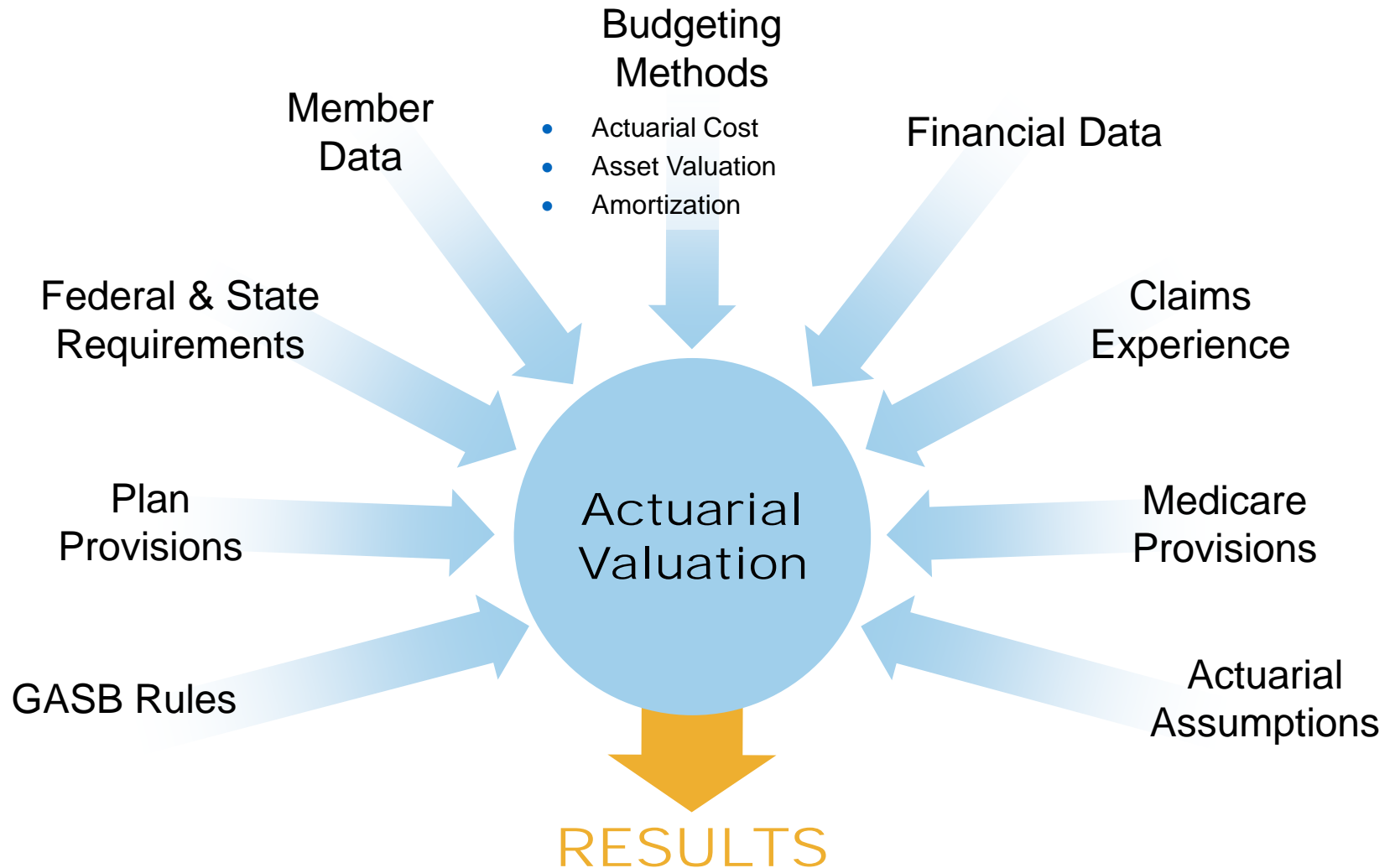


Financial Projections

- Project assets, obligations, benefit payments, contributions, ARC and AOC for up to ten future years

Valuation Process

OPEB VALUATION BASICS



Key Valuation Calculation Components

Budgeting Methods

- **Actuarial cost method**—Projected Unit Credit
- **Asset valuation method**—Market Value
- **Liability amortization method**—30-Year open level percent of pay



Data

- Census data provided by the Teachers' and State Employees' Retirement Systems (TSERS)
 - 338,158 active participants
 - 224,404 retirees and covered spouses (including surviving spouses)
 - 39,230 inactive vested participants
- Financial information provided by the Department of State Treasurer
 - \$1,016 million at December 31, 2016
- Claims and enrollment data from the State Health Plan and BCBS-NC



Plan Provisions

- **Eligibility:** Retirees from State, UNC, community colleges, local school systems, and certain other entities including some local governments
- **Retirees contribute** based on plan elected (and years of service for retirees hired after 10/1/2006)
- **Benefit types**
 - Pre-Medicare
 - Basic, Enhanced and CDHP
 - Wellness incentive credits for Enhanced and CDHP
 - Medicare eligible
 - Basic, Medicare Advantage Plans
- **Coverage duration:** Lifetime



Economic Assumptions

Per Capita Claims Cost Development

- Based on actual incurred claims between January 1, 2015 and December 31, 2016 paid through May 31, 2017
- Split between Medicare and non-Medicare participants
- Adjusted actuarially to incurred claims per adult
- Trended to valuation midpoint
- Actuarially adjusted to estimate individual retiree and spouse claims cost by age and gender
- Administrative expense costs based on Segal's FYE 2017 Q3 financial updates



Economic Assumptions

CLAIMS COST—Non Medicare

Age	Medical Traditional				Medical Enhanced			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	4,992	5,686	3,487	4,565	5,801	6,607	4,052	5,305
55	5,928	6,121	4,666	5,284	6,889	7,112	5,422	6,141
60	7,040	6,597	6,246	6,129	8,181	7,666	7,258	7,122
65	8,361	7,107	8,361	7,107	9,716	8,259	9,716	8,259
70	9,691	7,659	9,691	7,659	11,261	8,900	11,261	8,900
75	10,443	8,244	10,443	8,244	12,136	9,580	12,136	9,580
80	11,246	8,888	11,246	8,888	13,068	10,328	13,068	10,328

Age	Prescription Drug Traditional				Prescription Drug Enhanced			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	1,750	1,993	1,222	1,601	2,104	2,396	1,470	1,924
55	2,078	2,146	1,636	1,853	2,499	2,580	1,966	2,227
60	2,468	2,313	2,190	2,149	2,967	2,780	2,632	2,583
65	2,931	2,492	2,931	2,492	3,524	2,995	3,524	2,995
70	3,397	2,685	3,397	2,685	4,084	3,228	4,084	3,228
75	3,661	2,890	3,661	2,890	4,401	3,475	4,401	3,475
80	3,943	3,116	3,943	3,116	4,740	3,746	4,740	3,746

Economic Assumptions

CLAIMS COST—Medicare

Age	Medical Traditional				Prescription Drug			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	512	583	358	468	1,750	1,993	1,222	1,601
55	608	628	479	542	2,078	2,146	1,636	1,853
60	722	677	641	629	2,468	2,313	2,190	2,149
65	858	729	858	729	2,931	2,492	2,931	2,492
70	994	786	994	786	3,397	2,685	3,397	2,685
75	1,072	846	1,072	846	3,661	2,890	3,661	2,890
80	1,154	912	1,154	912	3,943	3,116	3,943	3,116

Age	Medicare Advantage (Base)				Medicare Advantage (Enhanced)			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	837	953	585	765	1,310	1,492	915	1,198
55	994	1,026	782	886	1,555	1,606	1,224	1,387
60	1,180	1,106	1,047	1,028	1,847	1,731	1,639	1,608
65	1,402	1,192	1,402	1,192	2,194	1,865	2,194	1,865
70	1,625	1,284	1,625	1,284	2,543	2,010	2,543	2,010
75	1,751	1,382	1,751	1,382	2,740	2,163	2,740	2,163
80	1,886	1,490	1,886	1,490	2,951	2,332	2,951	2,332

Economic Assumptions

Health Care Cost Trend Rates

Year Ending December 31,	Rate (%) Medical Non Medicare	Rate (%) Prescription Drug	Rate (%) Medical Medicare	Rate (%) Admin.
2017	6.50%	7.25%	4.00%	3.00%
2018	6.25%	7.00%	4.00%	3.00%
2019	6.00%	6.75%	4.00%	3.00%
2020	5.75%	6.50%	4.00%	3.00%
2021	5.50%	6.25%	5.00%	3.00%
2022	5.25%	6.00%	5.00%	3.00%
2023	5.00%	5.75%	5.00%	3.00%
2024	5.00%	5.50%	5.00%	3.00%
2025	5.00%	5.25%	5.00%	3.00%
2026 & Later	5.00%	5.00%	5.00%	3.00%

Economic Assumptions

- **Retiree Contribution Increase Rate:** Retiree contributions for medical and prescription drugs were assumed to increase at the same blended trend rate as medical and prescription drug cost.
- **Administrative Expenses:**
An administrative expense load of \$301 per participant increasing at 3.0% per year was added to projected incurred claims cost in developing the benefit obligations.
- **Discount Rate:** 3.58%
- **Salary Increases:**
Vary by group and years of service
- **Payroll Inflation rate:** 2.75%



Demographic Assumptions

Plan Elections

- Received updated enrollment census as of 1/1/2017
- 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

NON-MEDICARE

Plan	2017	2018	2019	2020	2021
Traditional	43.70%	44.70%	44.00%	43.20%	42.50%
Enhanced	52.80%	55.30%	56.00%	56.80%	57.50%
CDHP	3.50%	0.00%	0.00%	0.00%	0.00%

MEDICARE

Plan	2017	2018	2019	2020	2021
Traditional	25.40%	24.40%	23.40%	22.40%	21.40%
MA Base	62.60%	63.60%	64.60%	65.60%	66.60%
MA Enhanced	12.00%	12.00%	12.00%	12.00%	12.00%

Spouses

- 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

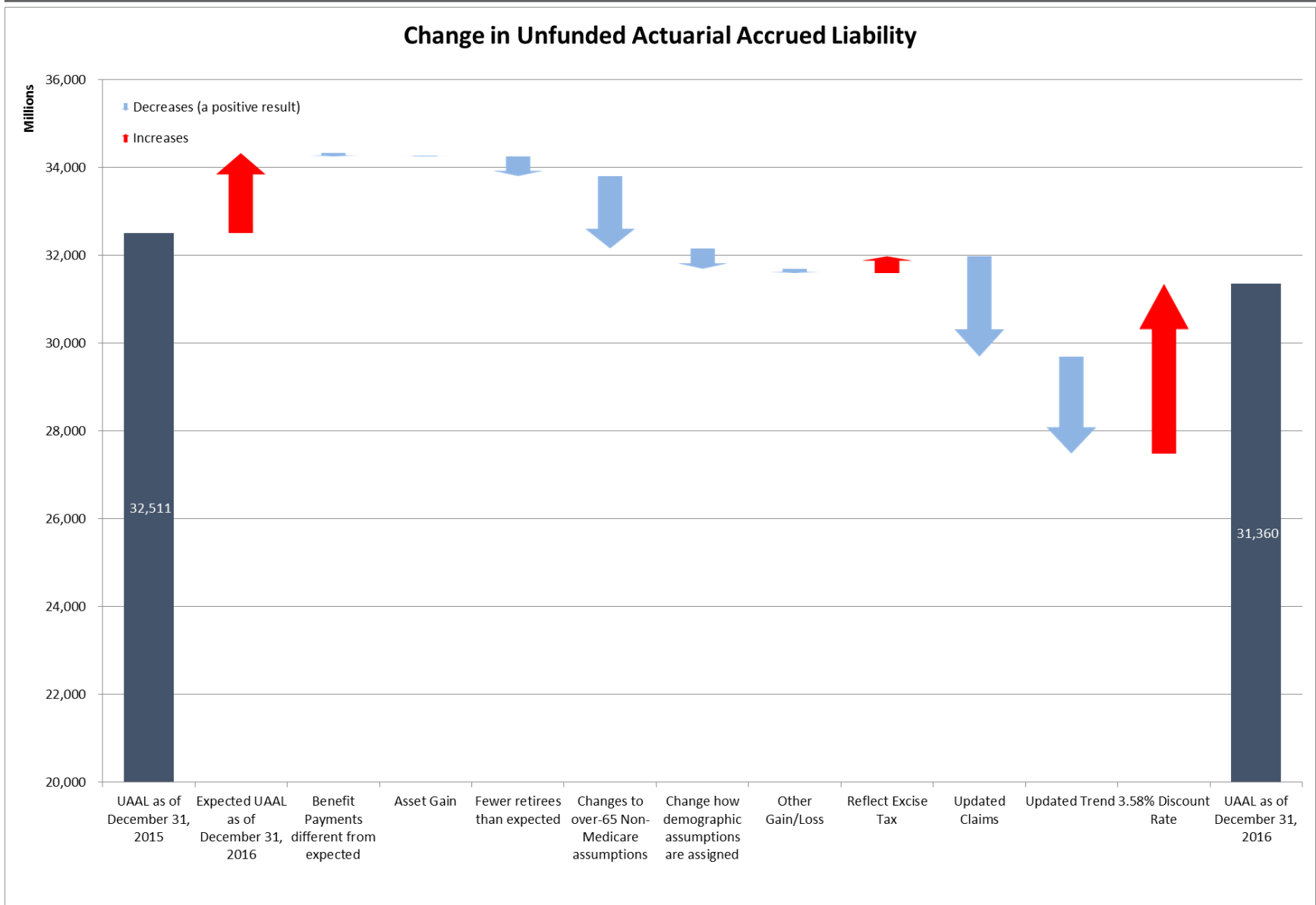
Pension Plan Assumptions

- Assumptions common between the OPEB and pension valuations should match where appropriate:
 - Mortality Rates
 - Affect benefit payment period and survivor benefits
 - Include projected improvements in mortality leading to longer benefit payment periods
 - Retirement Rates
 - Determine beginning of payout period
 - Earlier retirement means longer payouts and higher liabilities
 - Termination Rates
 - Estimate liabilities for future inactive vested participants
 - Disability Rates
 - Estimate liabilities for future disabled retirees
 - Determine applicability of shorter life expectancies
- Assumptions vary by age, gender, service, employment status (i.e., Teachers, Law Enforcement, etc.), and health (healthy vs. disabled).
- Based on December 31, 2014 study by Buck Consulting presented October 2015

Valuation Results

	December 31, 2016	December 31, 2015
Actuarial Accrued Liability (AAL)	\$32,376,514,963	\$33,472,003,961
Actuarial Value of Assets	1,016,174,872	\$960,978,135
Unfunded Actuarial Accrued Liability	\$31,360,340,091	\$32,511,025,826
Funded Ratio	3.14%	2.87%
Market Value of Assets	\$1,016,174,872	\$960,978,135
Annual Required Contribution (ARC) for Fiscal Year Ending:	June 30, 2017	June 30, 2016
Normal cost	\$1,389,672,167	\$1,309,854,672
Amortization of the unfunded actuarial accrued liability	<u>1,171,847,568</u>	<u>1,200,962,704</u>
Total Annual Required Contribution, including adjustment for timing	\$2,561,519,735	\$2,510,817,376
Covered payroll	\$15,363,077,578	\$15,691,814,745
ARC as a percentage of pay	16.67%	16.00%
Total Participants	590,823	579,313
Annual OPEB Cost (AOC) for Fiscal Year Ending:	June 30, 2017	June 30, 2016
Annual Required Contributions	\$2,561,519,735	\$2,510,817,376
Interest on Net OPEB Obligations	745,466,257	672,053,455
ARC Adjustments	<u>-655,434,684</u>	<u>-584,135,681</u>
Total Annual OPEB Cost	\$2,651,551,308	\$2,598,735,150
AOC as a percent of pay	17.26%	16.56%

Valuation Results



Valuation Results (Gain/Loss)

ACTUARIAL GAIN AND LOSS

Item	FY2017	FY2016
Expected ARC	\$2,620,899,342	\$2,273,292,656
Experience (gain)/loss	-163,204,804	26,253,157
Assumption changes	103,825,197	239,827,469
Plan changes	0	-28,555,906
Actual ARC	\$2,561,519,735	\$2,510,817,376

The lower discount rate offset the impact of the positive claims experience.

State Contributions

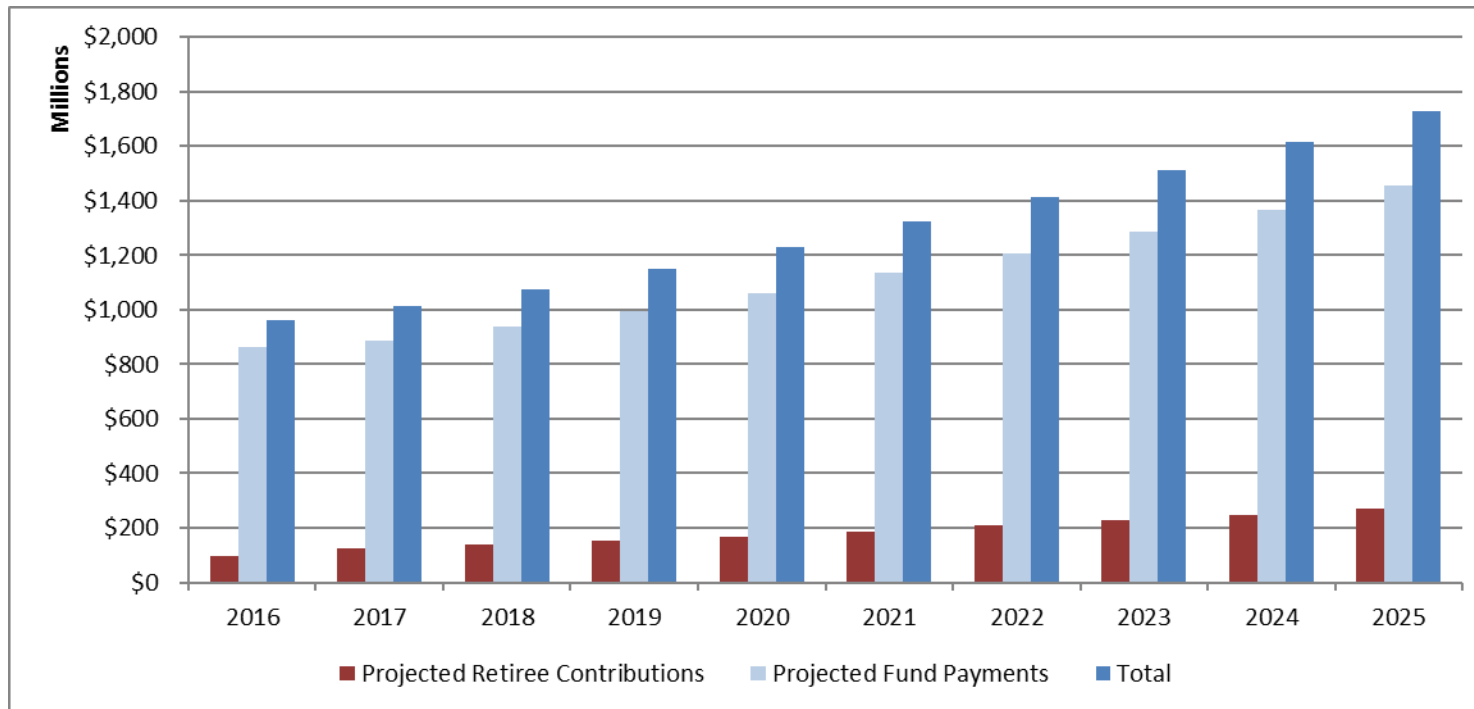
The **Annual OPEB Cost (AOC)** increased to \$2,651,551,308 for the year ending June 30, 2017. The AOC was \$2,598,735,150 for the year ending June 30, 2016. As a percentage of payroll, the AOC increased from 16.56% last year to 17.26% this year.

REQUIRED SUPPLEMENTARY INFORMATION— SCHEDULE OF EMPLOYER CONTRIBUTIONS GASB 45

Fiscal Year Ended June 30	Annual OPEB Cost	Actual Contributions	Percentage Contributed
2012	2,535,167,544	852,358,729	33.62%
2013	2,085,390,268	844,452,283	40.49%
2014	2,295,163,705	798,401,569	34.79%
2015	2,302,617,504	803,893,302	34.91%
2016	2,598,735,150	871,375,087	33.53%
2017	2,651,551,308	950,812,690	35.86%

Cash Flow Projections

The ARC generally exceeds the current pay-as-you-go (“paygo”) cost of an OPEB plan. Over time the paygo cost will tend to grow and may even eventually exceed the ARC in a well funded plan. The following graph projects the paygo cost as the projected net fund payment over the next ten years.



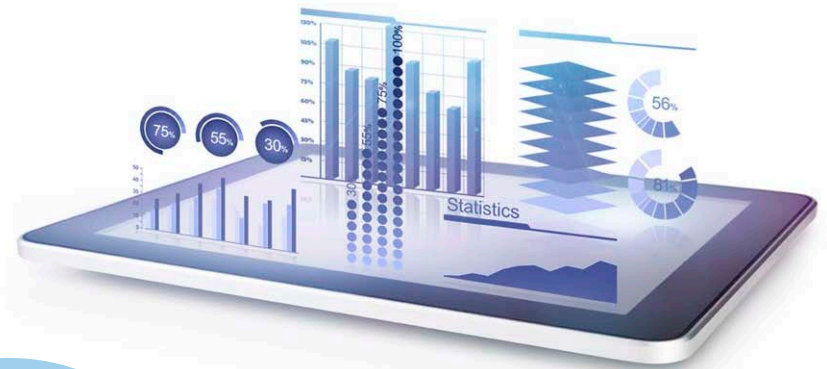
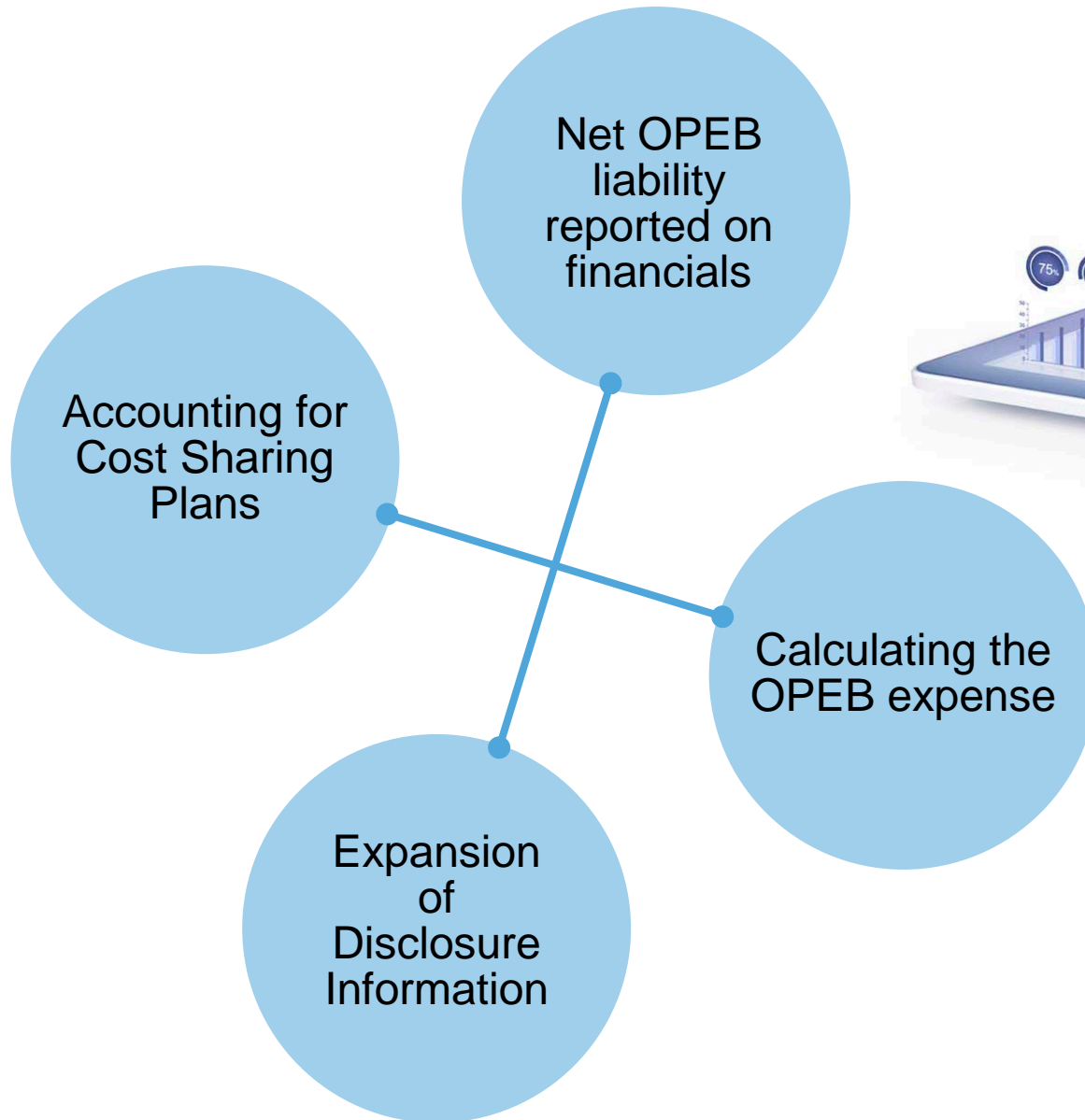
* Total projected benefit payments less projected retiree contributions.

GASB Statements 74 and 75

On **June 2, 2015**, GASB approved two Statements related to Other Postemployment Benefits (OPEB)

- *GASB Statement No. 75 Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*
 - Supersedes the requirements of GASB Statements No. 45 and No. 57
 - Deals with employer reporting
 - Effective for fiscal years beginning **after June 15, 2017**
- *GASB Statement No. 74 Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*
 - Replaces the requirements of GASB Statements No. 43 and No. 57
 - Also includes requirements for defined contribution OPEB plans that would replace the requirements for these plans in GASB Statements No. 25, No. 43, and No. 50
 - Defines new standards for financial reporting for OPEB plans
 - Effective for fiscal years beginning **after June 15, 2016**

Major Components



Discount Rate

GASB 45

- “Estimated long-term investment yield on the investments that are expected to be used to finance the payment of benefits...”
- Use return on assets of the employer if no plan assets
- Changed from 4.25% for fiscal 2016 to 3.58% for fiscal 2017

GASB 75

- Blended discount rate based on fund projection
- “The long-term expected rate of return on OPEB plan investments that are expected to be used to finance the payment of benefits...”
- “A yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher...”
- Recent Bond Buyer 20-Bond GO Index rates
 - 12/31/2015: 3.57%
 - 03/31/2016: 3.38%
 - 06/30/2016: 2.85%
 - 09/30/2016: 3.06%
 - 12/31/2016: 3.78%
 - 03/31/2017: 3.86%
 - 06/30/2017: 3.58%



Discount Rate – Investment Rate Applicability

GASB 75

- Blended discount rate based on fund projection
- Need to show that the employer has a funding policy which includes:
 - The Normal Cost, and an Amortization of the Unfunded Actuarial Accrued Liability
 - Similar to the current ARC calculations
 - Would require cash contributions well in excess of the current benefit payments

Calculating OPEB Expense

Current OPEB Expense

- Based on the Annual Required Contribution (ARC)
 - Normal Cost plus
 - Amortization of the UAAL
 - Period of not greater than 30 years
 - Closed or open amortization period
 - Level dollar or level percent of payroll amortization
 - Can be based on any of six actuarial cost methods
- Annual OPEB Cost (AOC)
 - ARC plus
 - Interest on Net OPEB Obligation
 - Adjustment to the ARC

New OPEB Expense

- The change in Net OPEB Liability each year, with deferred recognition of certain elements
- Components of new OPEB expense
 - Service Cost
 - Interest on the total OPEB liability
 - Projected investment returns
 - Differences between expected and actual experience (about 6 year amortization)
 - Changes in assumptions (about 6 year amortization)
 - Differences between actual and projected investment return (5 year amortization)
 - Employee contributions
 - Other changes in plan net position

GASB specifically states that the new standards are for accounting purposes only and are not for the purpose of establishing funding standards.

Draft GASB 75 Results

Net OPEB Liability

Reporting Date for Employer under GASB 75	June 30, 2018	June 30, 2017
Measurement Date for Employer under GASB 75	June 30, 2017	June 30, 2016
Valuation Date for Employer under GASB 75	December 31, 2016	December 31, 2015
The components of the Net OPEB Liability (in millions) are as follows:		
Total OPEB Liability	\$33,983,194,571	\$44,577,535,234
Plan Fiduciary Net Position	1,196,570,107	1,074,136,233
Net OPEB Liability	\$32,786,624,464	\$43,503,399,001
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	3.52%	2.41%

GASB 74 Results

Reporting Date for Employer under GASB 74	June 30, 2017	June 30, 2016
Measurement Date for Employer under GASB 74	June 30, 2017	June 30, 2016
Valuation Date for Employer under GASB 74	December 31, 2016	December 31, 2015
Total OPEB Liability		
Service cost	\$2,650,983,801	\$1,730,233,169
Interest	1,332,873,995	1,349,102,482
Change of benefit terms	0	(482,796,535)
Differences between expected and actual experience	(2,821,033,540)	(119,874,189)
Changes of assumptions	(10,835,144,027)	8,760,448,396
Benefit payments, including refunds of member contributions	(922,020,892)	(880,612,500)
Net change in Total OPEB Liability	\$(10,594,340,663)	\$10,373,029,701
Total OPEB Liability – beginning	\$44,577,535,234	\$34,204,505,533
(a) Total OPEB Liability – ending	\$33,983,194,571	\$44,577,535,234
Plan Fiduciary Net Position		
Contributions – employer	\$950,812,690	\$880,612,500
Contributions – employee	0	0
Net investment income	94,131,980	7,879,692
Benefit payments, including refunds of member contributions	(922,020,892)	(864,083,622)
Administrative expense	(489,904)	(518,980)
Other	0	234,210
Net change in Plan Fiduciary Net Position	\$122,433,874	\$24,123,800
Plan Fiduciary Net Position – beginning	\$1,074,136,233	\$1,050,012,433
(b) Plan Fiduciary Net Position – ending	\$1,196,570,107	\$1,074,136,233
Net OPEB Liability – end of year (a) – (b)	\$32,786,624,464	\$43,503,399,001
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	3.52%	2.41%
Covered employee payroll	\$15,363,077,578	\$15,691,814,745
Plan Net OPEB Liability as percentage of covered employee payroll	213.41%	277.24%

Conclusions

- Recent claims experience continues to be positive
- Total cash requirements are expected to increase by 70% over the next 10 years
- GASB 75 will need to be reflected in the CAFR for fiscal year beginning July 1, 2017
- As discussions continue on the federal level about healthcare, Plan sponsors continue to show concern over the impact federal plans have on their liabilities
- Medical trend and discount rate changes produce great volatility in the results



Daniel J. Rhodes, FSA, MAAA, FCA, and Peter Wang, PhD, ASA, MAAA, EA are the actuaries responsible for these calculations. For details regarding data methods, assumptions and results, please see the complete actuarial report entitled: “**North Carolina State Health Plan Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of December 31, 2016 in Accordance with GASB Statement No. 45.**”

Thank you

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UNDERSTANDING GASB 74/75

Some Acronyms and Nomenclature

AAL - Actuarial Accrued Liability – Pre-GASB 74/75

ADC - Actuarially Determined Contribution - GASB 74/75 (replaces the ARC)

AOC - Annual OPEB Cost – Pre-GASB 74/75

ARC - Annual Required Contribution – Pre-GASB 74/75

CAFR - Comprehensive Annual Financial Report

GASB - Governmental Accounting Standards Board

NOL - Net OPEB Liability/Asset - GASB 74/75 (replaces the NOO)

NOO - Net OPEB Obligation/Asset – Pre-GASB 74/75

OPEB - Other Postemployment Benefits

OPEB Expense - Annual income statement item – GASB 74/75 (replaces the AOC)

Plan Fiduciary Net Position - Market Value of Assets – GASB 74/75 (replaces the Actuarial Value of Assets)

RSI - Required Supplementary Information – GASB 74/75

Service Cost - Value of benefits expected to accrue in the upcoming year – GASB 74/75 (replaces Normal Cost)

TOL - Total OPEB Liability – GASB 74/75 (replaces AAL)

UAAL - Unfunded Actuarial Accrued Liability – Pre-GASB 74/75