MEMORANDUM

TO:	Teachers' and State Employees' Retirement System and Local Governmental Employees' Retirement System Boards of Trustees
FROM:	Patrick Kinlaw, FSA, Director of Policy, Planning and Compliance
DATE:	October 25, 2018
SUBJECT:	Summary of Actuarial Services Transition

At the Boards' January 25, 2018, meeting, Cavanaugh Macdonald Consulting (CMC) was designated as the actuarial advisor to the Boards. As noted in updates presented to the Boards on April 26, 2018, and July 26, 2018, CMC has collaborated since this time with Retirement Systems Division (RSD) staff, with the assistance of the previous consultant (Conduent, now Buck), to establish CMC's programming for the North Carolina Retirement Systems. In actuarial transitions for systems of TSERS' or LGERS' complexity, variances in measurements between actuaries will arise, due to differences in processes, programming or interpretation.

At today's meeting, CMC is presenting the annual valuation reports for funding purposes as of December 31, 2017. In addition to valuation results for funding purposes, each report also includes information that CMC provided to staff in August 2018 and September 2018, for purposes of financial reporting under GASB Statements No. 67 and No. 74 as of June 30, 2018.

The transition results are within generally accepted standards previously communicated at the April and July Board meetings. That is to say, CMC has matched the previous actuaries' calculations within an acceptable tolerance. As expected, CMC has made small updates to several valuation approaches, in consultation with RSD staff and in accordance with CMC's methodological preferences. The remainder of this memo outlines the valuation updates that occurred during the transition, the effect of those updates on key valuation results and certain items that have been identified for further study before or during the next quinquennial assumption review scheduled in 2020.

Updates Implemented for Valuations as of December 31, 2017

Each update described below has an effect on employer contribution rates measured in the valuation as of December 31, 2017. Some also affect the Total Pension Liability (under GASB Statement No. 67) or Total OPEB Liability (under GASB Statement No. 74), called the "Total Liability" for purposes of this memo. Following the descriptions, **Table 1** shows approximate effects on Total Liability as of June 30, 2018, where those items are at least $1 million. (The effect of each item on the Actuarial Accrued Liability for funding purposes as of December 31, 2017, would be comparable.) **Table 1** includes approximate effects for TSERS, LGERS, the Disability Income Plan of North Carolina (DIPNC), the Consolidated Judicial Retirement System

(CJRS) and the Legislative Retirement System (LRS). **Table 2** shows approximate effects on actuarially determined employer contribution (ADEC) rates for TSERS and LGERS, prior to application of the ECRSPs, for the fiscal year ending June 30, 2020.

Valuation updates affecting both employer contribution rates and Total Liability:

1. ***Update to Employees' Estimated Pay Amounts in Year Following Valuation:*** The census information provided to the actuary as of each December 31 includes, for active employees, their pension-eligible compensation received during the prior calendar year. Previous valuations are consistent with estimating the current year's pay as an annual rate of pay on January 1, by applying one-half year of assumed salary increases to the prior calendar year's compensation. CMC's valuation will estimate the current year's pay as an amount to be received over the course of the coming year (or put another way, as an annual rate of pay on the upcoming July 1), by applying a full year of assumed increases to the prior calendar year's compensation. This aligns with the valuation's assumption that, on average, individuals retiring or terminating employment will do so halfway through a year.

2. ***Direct Measurement of Return of Contributions Provision:*** For the retirement systems that require contributions from members, if retirement benefits cease (due to the death of a retiree or survivor beneficiary, if applicable) before the member's own contributions with interest have been repaid as benefits, the retirement system will return the remaining contributions to other designated beneficiaries or the estate. Previous valuations did not explicitly include the value of this benefit. CMC's valuation will include a measurement of the liability for these payments.

3. ***Certain Benefits Valued on Actuarial Reserve Basis:*** Previous valuations have measured the liability associated with the LRS disability retirement benefit, and the CJRS death benefit for active employees, on a "term cost" or "pay-as-you-go" basis, meaning that liability for these provisions has been estimated as the cost of paying a year's benefits under the provisions. CMC's valuation will measure the liability as the present value of all expected payments under these provisions, similar to the valuation of other benefits under the retirement systems.

4. ***Cost of Medical Premiums Included in Short-Term DIPNC Reimbursement:*** DIPNC currently reimburses employers for costs associated with the second six months of short-term disability benefits, including income replacement benefits and health insurance premiums. Previous DIPNC valuations included the liability associated with reimbursing income benefits, but not health insurance premiums. CMC's valuation includes the estimated cost of health insurance premiums. Note, however, that under recent legislation, all such reimbursements from DIPNC, both income and health insurance, are repealed for disabilities on or after July 1, 2019, meaning the Retirement Systems will no longer reimburse employers for these benefits.

Valuation updates affecting employer contributions but not Total Liability:

5. ***Employer Contribution for New Hires' Benefits in Year Following Valuation:*** CMC's measurement of the ADEC, before application of any minimum or maximum under a funding policy such as the Employer Contribution Rate Stabilization Policy (ECRSP), will include an additional margin for the estimated cost of benefits that will be earned by employees who will be hired during the upcoming year. For example, in the current valuation, the additional contribution will fund benefits to be earned by

employees hired during 2018, who are not in the "snapshot" data as of December 31, 2017. The amount of the contribution will be estimated for each plan.

6. ***Accrued Liability ("Amortization") Rate Adjusted for Projected Payroll:*** The employer contribution typically consists of a normal contribution rate intended to fund benefits that employees are earning during the year, and an accrued liability contribution rate intended to amortize existing unfunded liabilities. In determining the accrued liability contribution rate, past valuations have divided the dollar amount of the amortization by a payroll figure for the current year. Since the contribution rate is not put into effect until the fiscal year beginning 18 months after the valuation date, CMC's valuation will project the payroll figure, in the denominator of this rate, to the fiscal year over which the contributions will actually be collected.

7. ***Employer Contribution for DIPNC Administrative Expenses:*** CMC's valuation will add 0.01 percent of covered payroll to the employer contribution rate for DIPNC for estimated administrative expenses.

Table 1: Approximate Effect of Updates on Total Liability (TL) as of June 30, 2018 ($ Millions)

		Retirement System / Plan*				
#	**Update**	TSERS	DIPNC	CJRS	LRS	LGERS
1	Pay in valuation year	$490	$0	$5	< $1	$213
2	Return of contributions	$96	$0	< $1	< $1	$51
3	Actuarial reserve basis	$0	$0	$1	< $1	$0
4	Short-term premiums	$0	$7	$0	$0	$0
	Other transition effects	$24	$16	($5)	(< $1)	$14
	Total transition	$610	$23	$1	< $1	$278
	Total Liability as of 6/30/2018	$80,383	$358	$692	$31	$28,355
	"Other transition effects" as % of TL	**0.0%**	**4.5%**	**(0.7%)**	**(0.3%)**	**0.0%**
	Total transition as % of TL	0.8%	6.4%	0.1%	1.0%	1.0%

* Measurements for the Firefighters' and Rescue Squad Workers' Pension Fund, North Carolina National Guard Pension Fund, Registers of Deeds' Supplemental Pension Fund and Retirees' Contributory Death Benefit Plan are not shown in this table.

Table 2: Approximate Effect of Updates on TSERS and LGERS ADEC Rates Before Application of ECRSPs for Fiscal Year Ending June 30, 2020 (Percent of Covered Payroll)

#	Update	Retirement System / Plan		
		TSERS	LGERS LEOs**	LGERS Non-LEOs**
1	Pay in valuation year	0.33%	0.32%	0.32%
2	Return of contributions	0.12%	0.13%	0.15%
3	Actuarial reserve basis*	0.00%	0.00%	0.00%
4	Short-term premiums*	0.00%	0.00%	0.00%
5	Contribution for new hires	0.15%	0.12%	0.14%
6	Amort. / projected payroll	(0.34%)	(0.10%)	(0.10%)
7	DIPNC admin. expenses*	0.00%	0.00%	0.00%
	Other transition effects	0.00%	0.05%	(0.05%)
	Total transition	0.26%	0.52%	0.46%
	Est. FY 2020 payroll ($M)	$15,600	$1,200	$5,500
	Est. FY 2020 increase ($M)	$41	$6	$25

* Item 3 increased the employer contribution rate for CJRS by about 0.1 percent of covered payroll and for LRS by about 0.6 percent of covered payroll. Item 4 increased the employer contribution rate for DIPNC by 0.01 percent of covered payroll. Item 7 increased the employer contribution rate for DIPNC by 0.01 percent of covered payroll.

** It is expected that the LGERS employer contributions during FY 2020 will not be directly affected by the actuarial transition, due to the terms of the ECRSP. The amounts shown above are the approximate increases in the ADEC rates before applying the ECRSP.

Items Identified for Further Study

During the course of the transition, certain items were identified for future study, which may result in valuation refinements before or during the 2020 experience study. These include:

8. ***North Carolina National Guard Pension Fund Census Data:*** The National Guard provides certain census data to RSD, as required by statute. Staff will consider whether additional data might be available that could assist in refining the valuation, such as data for members with fewer than seven years of service.

9. ***2009 Change to Registers of Deeds' Supplemental Pension Fund:*** Session Law 2009-576 amended the benefit for Registers of Deeds who began serving September 10, 2009, or later, to be 75 percent of compensation <u>less</u> the LGERS benefit, rather than merely 75 percent of compensation. (The benefit cannot exceed $1,500 per month in any case.) This amendment may have reduced the benefits that some currently serving Registers of Deeds may be paid from the plan, but it has not yet been incorporated into the actuarial valuation, likely due to perceived immateriality. Past valuations have been slightly conservative – that is, liability and cost measurements have been greater than they would have been otherwise – because this provision was not incorporated.

10. ***Valuation of Terminated Vested Members:*** The valuation assumes that TSERS and LGERS members who have separated from service, but not yet commenced pension benefits, have a liability equal to two times the value of their own contributions with interest. RSD staff will consider whether information is available that may improve the precision of the valuation. This may include studying the extent to which such members tend to withdraw their contributions from the system, rather than leaving their contributions in the system until retiring at a later date.