Employer Contribution Rate Stabilization Policy (ECRSP) for Local Governmental Employees' Retirement System (LGERS)

January 31, 2019

North Carolina Total Retirement Plans

State Treasurer of North Carolina
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Discussion Guide

- Background on ECRSP for LGERS, and evaluation to this point
- Proposed principles for “reset”
- Alternatives for consideration

ECRSP Background and Evaluation

- Established January 2016 for the six fiscal years 7/1/2016 through 6/30/2022
- Intention: Sufficient employer contributions, while protecting where possible against investment and assumption volatility
- Non-LEOs employer contribution set at 7.25 percent of pay for FY ending 2017, increasing to 8.50 percent by FY ending 2022, by 0.25 percent / year
  - LEO contribution 0.75 percent greater (8.00 percent increasing to 9.25 percent)
- Consulting actuary reports actuarially determined employer contribution (ADEC) rate each year
  - ADEC rate does not affect policy unless it varies by at least 50 percent from policy rate, in which case policy schedule is adjusted 50 basis points toward ADEC rate
- Benefit increases granted by the Board do not affect the ECRSP rates
- Policy schedule adjusted for any benefit increases granted by legislature

ECRSP Background and Evaluation

- When ECRSP was adopted, it was considered more likely than not that the policy contributions over six years would exceed the ADECs, but it was also understood that they might not
- FY 2017-2019 ECRSP contributions have exceeded ADECs (with no ECRSP)
- Without action to amend ECRSP:
  - FY 2020 contributions under ECRSP will be less than if there had been no ECRSP
  - FY 2021-2022 contributions projected to be significantly less than if there had been no ECRSP
  - Total contributions during the six years July 2016 – June 2022 projected to be less than if there had been no ECRSP, by approximately $250 million - $450 million in total (decrease in LGERS funded percentage of 0.5 to 1.5 percentage points)
- In retrospect, the allowable variation from the ADEC before triggering adjustment to the schedule (+/- 50 percent variation) was too wide to support the goals of the policy
- Policy required adjustment for benefit improvements granted by the legislature, but not for assumption changes made by Board
- Appendix contains further analysis on primary factors of projected shortfall
  - Actual investment return since 2016, changes to expected return assumption, actuarial transition

Estimates on this page were prepared by the Retirement Systems' in-house actuary.

Revision to Consulting Actuary's October 2018 Projections

- LGERS actuarial valuation report presented by consulting actuary at the October 2018 Board meeting included long-term projections of employer contribution rates and funded status
- Consulting actuary will be publishing revisions to October 2018 projections, correcting for an issue discovered in the days leading up to today's meeting
- **Material to be presented by the consulting actuary today (and referenced in this presentation) incorporates the correction**
- Some contribution rates in next five fiscal years are less than what might have been expected from the consulting actuary's original October 2018 projections

Projected Employer Contribution Rates Without Any Amendment to ECRSP (Assumes -1.5% Return for Calendar 2018, +7% Per Year Beginning 2019)

Fiscal Year	Non-LEOs	LEOs
July 2016 – June 2017: ECRSP	7.25%	8.00%
July 2017 – June 2018: ECRSP	7.50%	8.25%
July 2018 – June 2019: ECRSP	7.75%	8.50%
July 2019 – June 2020: ECRSP	8.00%	8.75%
July 2020 – June 2021: ECRSP	8.25%	9.00%
July 2021 – June 2022: ECRSP	8.50%	9.25%
July 2022 – June 2023: ADEC (From Consulting Actuary's Jan. 2019 Presentation Updating to Approx. -1.5% Return for Cal. Yr. 2018)	12.70%	14.42%

Already enacted by Board

May be revised

One-year increase more than 4 percent for non-LEOs, more than 5 percent for LEOs

ADECs may turn out to be significantly different from estimates because of investment return during 2019-2020 and the review of assumptions (including expected return) to be conducted in 2020

Under the assumption of 7 percent per year returns beginning in 2019, <u>if no action is taken to amend the ECRSP</u>, the Retirement Systems' in-house actuary estimates that the cumulative funding during the six years from July 2016 to June 2022 will be $250 million to $450 million <u>less</u> than if there had been no ECRSP, and the resulting funded percentage of LGERS will be <u>less</u> by 0.5 to 1.5 percentage points

Estimated Impact on Various LGERS Employers of Additional Employer Contribution Equal to 5 Percent of Pay ($ Millions)

Employer	Cal Yr 2018 Covered Pay*	Cal Yr 2018 Employer Contribution**	Cost of Additional 5 Percent Contribution***	Cost of Additional 5 Percent Contrib. Per $100 of FY 2017-2018 Property Values**** (Not in $ Millions)
Charlotte, City of	$413.8	$32.3	$20.69	$0.02
Davie County	$14.7	$1.1	$0.74	$0.02
Greene County	$5.9	$0.5	$0.30	$0.03
Greensboro, City of	$162.4	$12.7	$8.12	$0.03
Guilford County	$122.9	$9.4	$6.15	$0.01
Haywood County	$21.9	$1.7	$1.10	$0.01
Jacksonville, City of	$25.5	$2.0	$1.28	$0.03
Mars Hill, Town of	$0.8	$0.1	$0.04	$0.03
Mecklenburg County	$292.0	$22.5	$14.60	$0.01
North Wilkesboro, Town of	$3.0	$0.2	$0.15	$0.03
Orange County	$51.3	$3.9	$2.57	$0.01
Raleigh, City of	$246.3	$19.1	$12.32	$0.02
Tyrrell County	$2.2	$0.2	$0.11	$0.03
Wake County	$228.7	$17.7	$11.44	$0.01
Warrenton, Town of	$0.7	$0.1	$0.04	$0.05

* Compensation counted for retirement purposes, reported to LGERS for calendar year 2018.
** Employer contribution during calendar year 2018. Differs with respect to LEOs and non-LEOs, and with respect to FY 2018 (Jan-June) and FY 2019 (Jul-Dec).
*** Estimated additional cost if calendar 2018 contributions had been greater by 5 percent of pay (approx. gap between current and projected FY 2023 contributions).
**** FY 2017-2018 property values from reports on NC Department of Revenue website.

Proposed Principles for "Reset"

- Suggested principles in developing recommendation:

  1. Increase contribution rates by the end of the ECRSP term in June 2022, toward the rates expected for July 2022, so that the "jump" in July 2022 does not cause unacceptable shocks to employers
     - Most recent projection of employer contribution rate effective July 2022 is around 12.5-13.0 percent for non-LEOs and around 14.0-14.5 percent for LEOs

  2. Secondary goal: Provide cumulative contributions over the six-year ECRSP term that are near the ADECs had there been no ECRSP

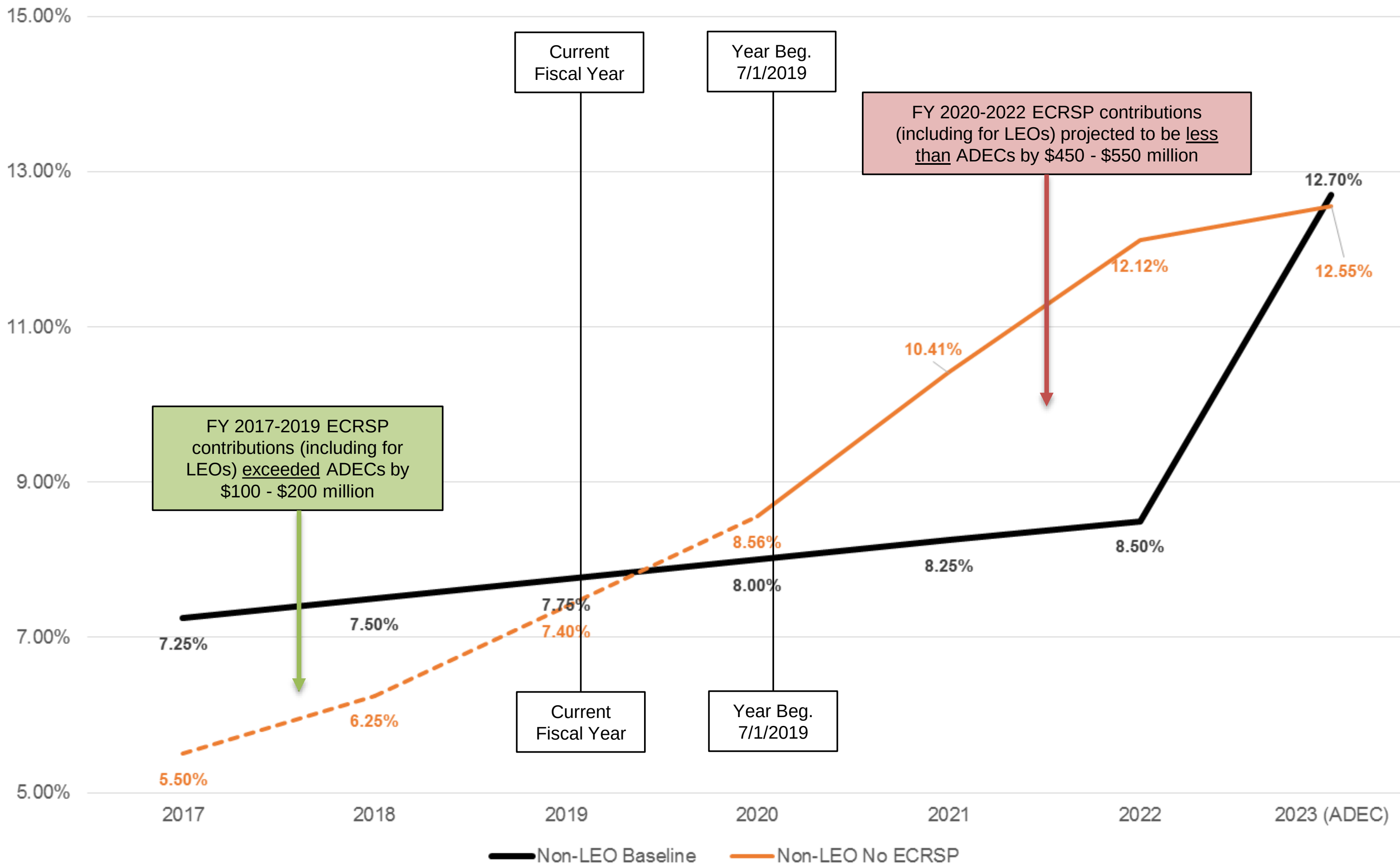
- Achievement of these goals may determine whether an ECRSP or similar policy will be advisable after FY 2022

Alternatives for Consideration

- **“Baseline”** reflects the ECRSP adopted January 2016.
- **“Blue Option”** would make no change to contributions effective 7/1/2019. It would increase the non-LEO contribution rate by 2.00 percent of pay over schedule effective July 2020, and 4.00 percent effective July 2021, allowing better preparation for July 2022 in case of experience or assumption changes. LEO spread would remain at 0.75 percent.
- **“Red Option”** would increase the non-LEO contribution over the current schedule by 0.95 percent of pay effective July 2019, by 1.90 percent effective July 2020, and by 2.85 percent effective July 2021. LEO spread would remain 0.75 percent.
- **“No ECRSP”** would replace the FY 2021-2022 scheduled rates with ADECs calculated each year by consulting actuary.

“Baseline” and “No ECRSP” Contribution Rate Schedules for Non-LEOs (Rate for Fiscal Year Ending June 30, Beginning July 1 of Prior Year)

- See prior pages for further description of the alternatives. Projected ADEC rates are based on an assumption of 7 percent per year investment returns beginning with calendar year 2019.



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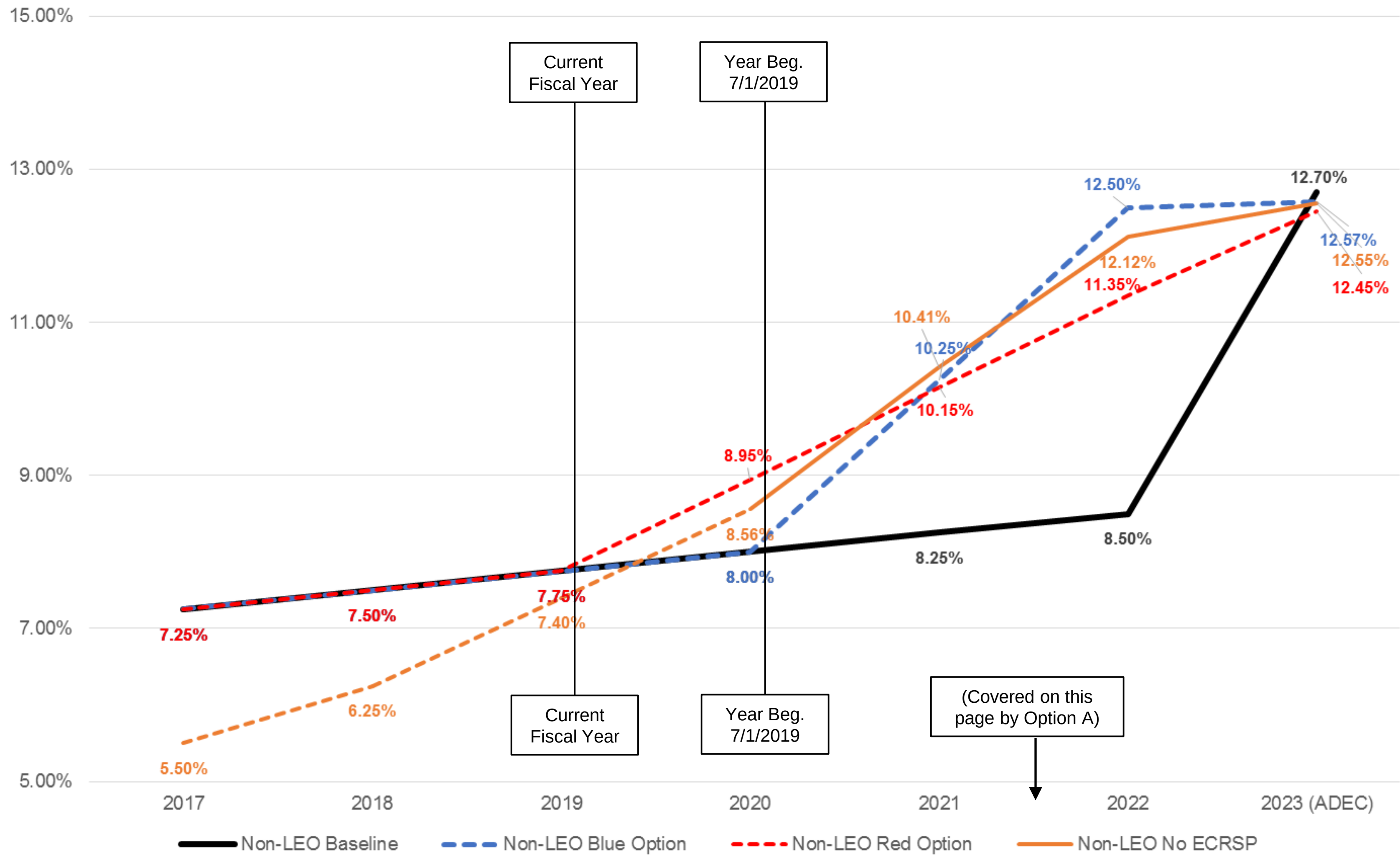
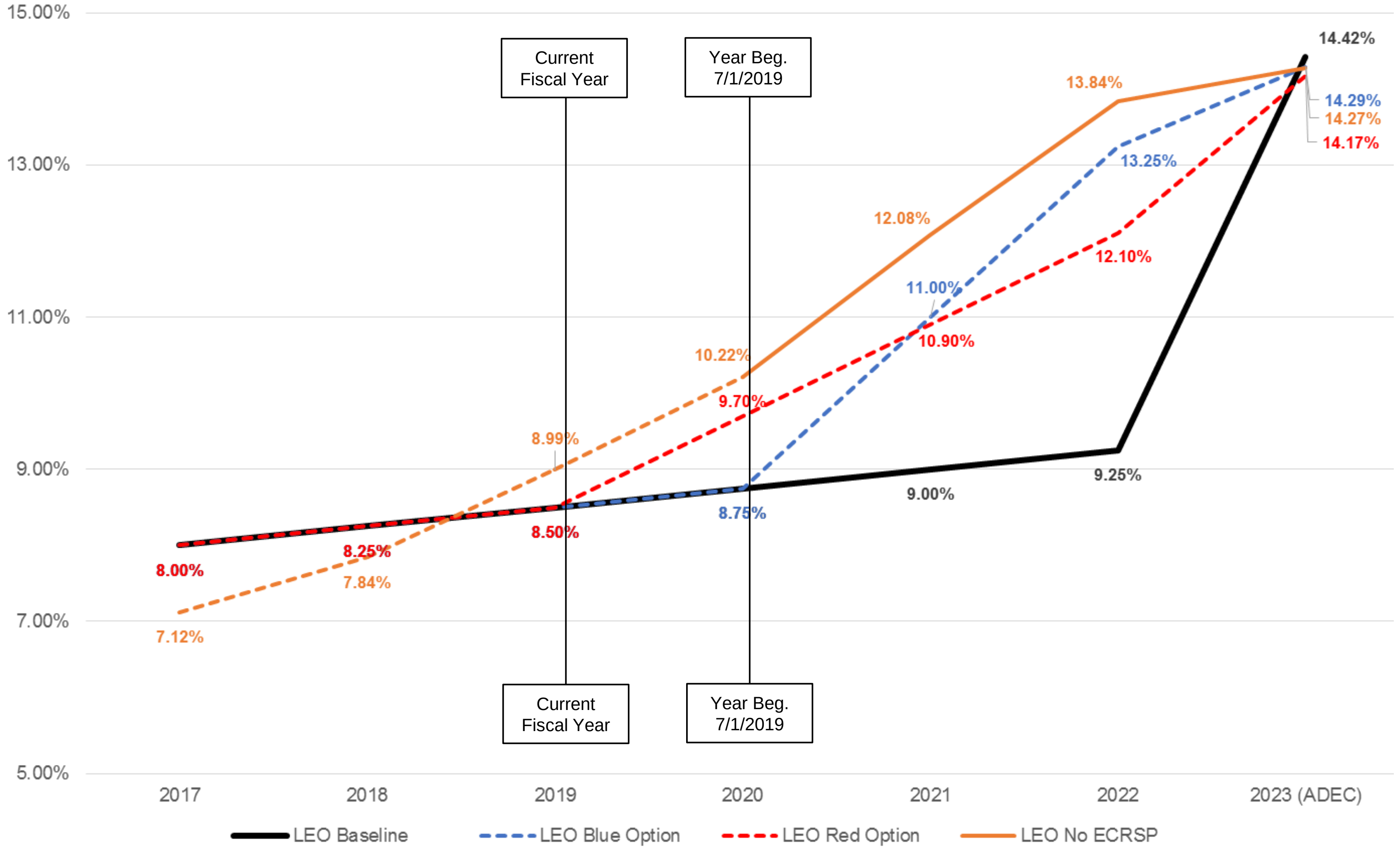
Alternative Employer Contribution Rate Schedules for Non-LEOs (Rate for Fiscal Year Ending June 30, Beginning July 1 of Prior Year)

- See prior pages for further description of the alternatives. Projected ADEC rates are based on an assumption of 7 percent per year investment returns beginning with calendar year 2019.



Alternative Employer Contribution Rate Schedules for LEOs (Rate for Fiscal Year Ending June 30, Beginning July 1 of Prior Year)

- See prior pages for further description of the alternatives. Projected ADEC rates are based on an assumption of 7 percent per year investment returns beginning with calendar year 2019.



Effect of Alternatives on Plan Funding

- See previous pages for further description of alternatives. Dollar impacts in the last column are based on an assumption of 7 percent per year investment returns starting in calendar year 2019.

Employer Contribution Rate	Non-LEO Rates				LEO Rates				Cumulative FY 2017-2022	Approx. Impact to Funded
for FY Ending 6/30:	2020	2021	2022	2023*	2020	2021	2022	2023*	Contributions vs. No ECRSP**	Percentage vs. No ECRSP**
Alternative:										
Baseline	8.00%	8.25%	8.50%	12.70%	8.75%	9.00%	9.25%	14.42%	-$450 million to -$250 million	-1.5% to -0.5%
No ECRSP	8.00%	10.41%	12.12%	12.55%	8.75%	12.08%	13.84%	14.27%	-$50 million to +$150 million	-0.25% to +0.75%
Blue Option	8.00%	10.25%	12.50%	12.57%	8.75%	11.00%	13.25%	14.29%	-$50 million to +$150 million	-0.25% to +0.75%
Red Option	8.95%	10.15%	11.35%	12.45%	9.70%	10.90%	12.10%	14.17%	-$100 million to +$100 million	-0.50% to +0.50%

* 2023 ADEC rate for "Baseline" scenario provided by consulting actuary. 2023 ADEC for other scenarios estimated by Retirement Systems' in-house actuary based on reducing the "Baseline" rate for contributions above current ECRSP made by 12/31/2020.

** Estimated by Retirement Systems' in-house actuary; disregards investment returns.

Alternatives for Consideration:
Key Risks That Could Affect Rate Effective 7/1/2022

Risk: Actual Investment Returns in 2019-2020

- Forecast ADEC effective 7/1/2022 assumes 7 percent / year return in calendar 2019-2020
- Study conducted for Department of State Treasurer in 2016 projected annual compound returns over a ten-year horizon equal to 5.9 percent as a median estimate, with a 5th-95th percentile range of 0.2 to 11.5 percent (shorter horizon would be more variable)
- Retirement Systems' in-house actuary estimates:

Actual Investment Return for Cal. Yrs. 2019-2020	Effect on Rate Eff. 7/1/2022 (vs. 7% Assumption)
+6% in each year	+0.30% to +0.40% of pay
+3% in each year	+1.20% to +1.60% of pay
0% in each year	+2.10% to +2.80% of pay

Risk: 2020 Experience Study / Expected Return Assumption

- For example, reduction of 0.25 percent per year in the assumed rate of return could increase the employer contribution rate by 2-3 percent of pay, which could increase the rate effective 7/1/2022 by 0.40-0.60 percent of pay if phased in over a five-year period

Risk: 2020 Experience Study / Other Assumptions and Methods

- Further adjustment to the rate may be called for, based on trends in mortality, retirement rates, pay increases, or other assumptions and methods

Staff Recommendation

- Primary recommendation is that <u>action should be taken</u> to avoid an adjustment in July 2022 that would potentially be very difficult
- Any of the alternatives shown (and others not shown) would be an improvement over the "Baseline" with the following key decision drivers:

Option	Primary Advantage(s)	Primary Disadvantage(s)
Blue	Highest contribution level by June 2022; better prepared for changes July 2022	Large step-ups (2.25 percent of pay) in each of July 2020 and July 2021
Red	Earlier start / more gradual; reasonably well prepared for July 2022	Shorter notice of significant change effective July 2019

- Total funding over six-year ECRSP period under both Blue and Red Options would be close to current projected ADECs if there had been no ECRSP
- Revisit ECRSP as part of experience review in 2020, including:
  - Spread between LEO and non-LEO contribution rates
  - Adjustments when ADECs vary significantly from scheduled rates
  - Adding automatic adjustment for the effect of assumption changes

Appendix

Non-LEO 6-Year History from Consulting Actuary's October 2018 Report

Table 15: Actuarially Determined Employer Contribution Rates for General Employees and Firefighters

Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2017	7/1/2019	8.56%	N/A	N/A	N/A
12/31/2016	7/1/2018	7.40%	0.00%	7.40%	7.75%
12/31/2015	7/1/2017	6.25%	0.00%	6.25%	7.50%
12/31/2014	7/1/2016	6.39%	-0.89%	5.50%	7.25%
12/31/2013	7/1/2015	6.52%	0.15%	6.67%	6.67%
12/31/2012	7/1/2014	6.94%	0.01%	6.95%	7.07%

*The change due to legislation for the contribution in effect at 7/1/2016 includes a 0.92% decrease in the ADEC due to the experience study and a 0.03% increase in the ADEC due to the cost-of-living adjustment at 7/1/2016.

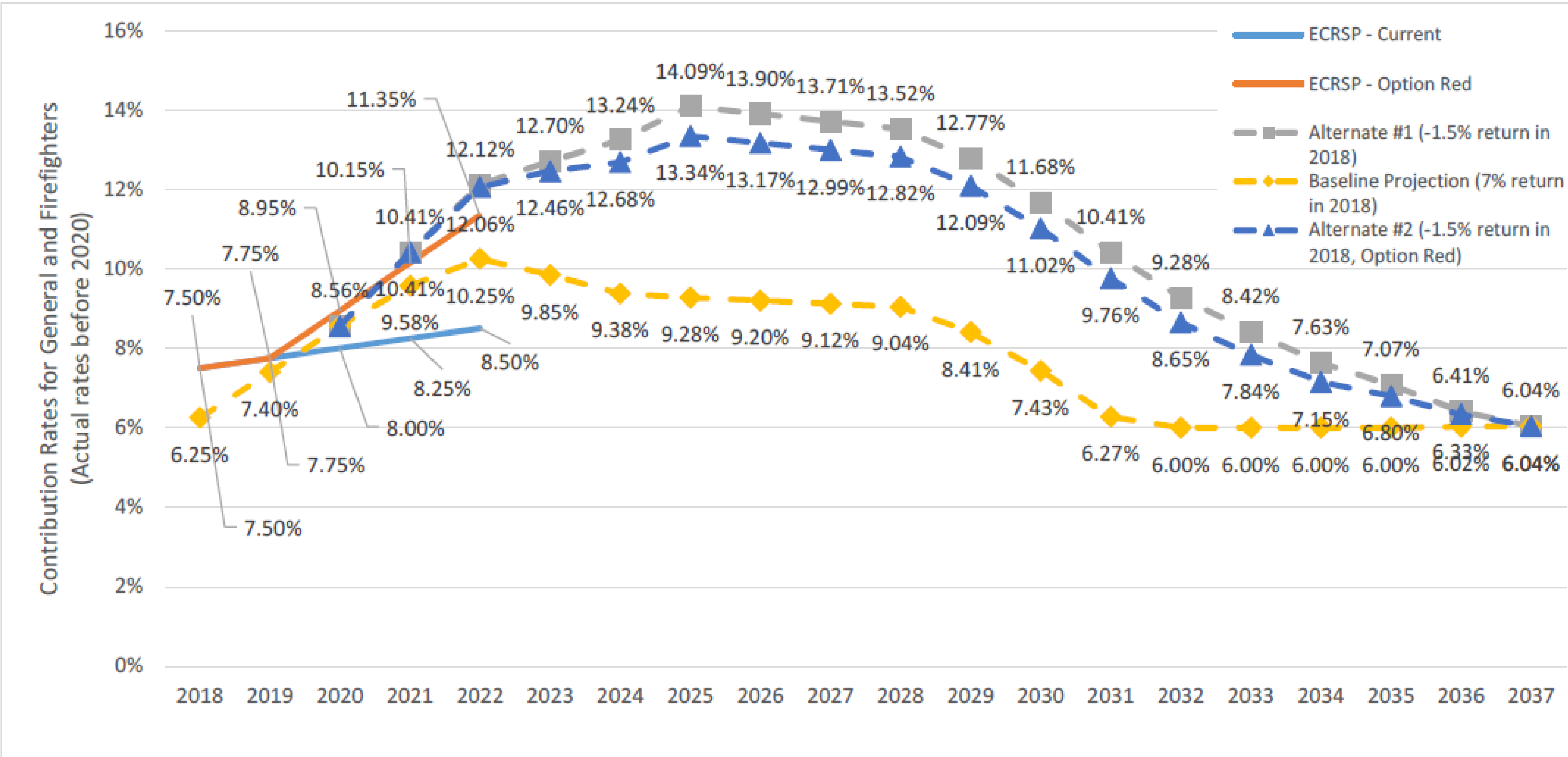
LEO 6-Year History from Consulting Actuary’s October 2018 Report

Table 16: Actuarially Determined Employer Contribution Rates for Law Enforcement Officers

Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2017	7/1/2019	10.22%	N/A	N/A	N/A
12/31/2016	7/1/2018	8.99%	0.00%	8.99%	8.50%
12/31/2015	7/1/2017	7.84%	0.00%	7.84%	8.25%
12/31/2014	7/1/2016	6.87%	0.25%	7.12%	8.00%
12/31/2013	7/1/2015	7.00%	0.15%	7.15%	7.15%
12/31/2012	7/1/2014	7.42%	0.01%	7.43%	7.55%

*The change due to legislation for the contribution in effect at 7/1/2016 includes a 0.22% increase in the ADEC due to the experience study and a 0.03% increase in the ADEC due to the cost-of-living adjustment at 7/1/2016.

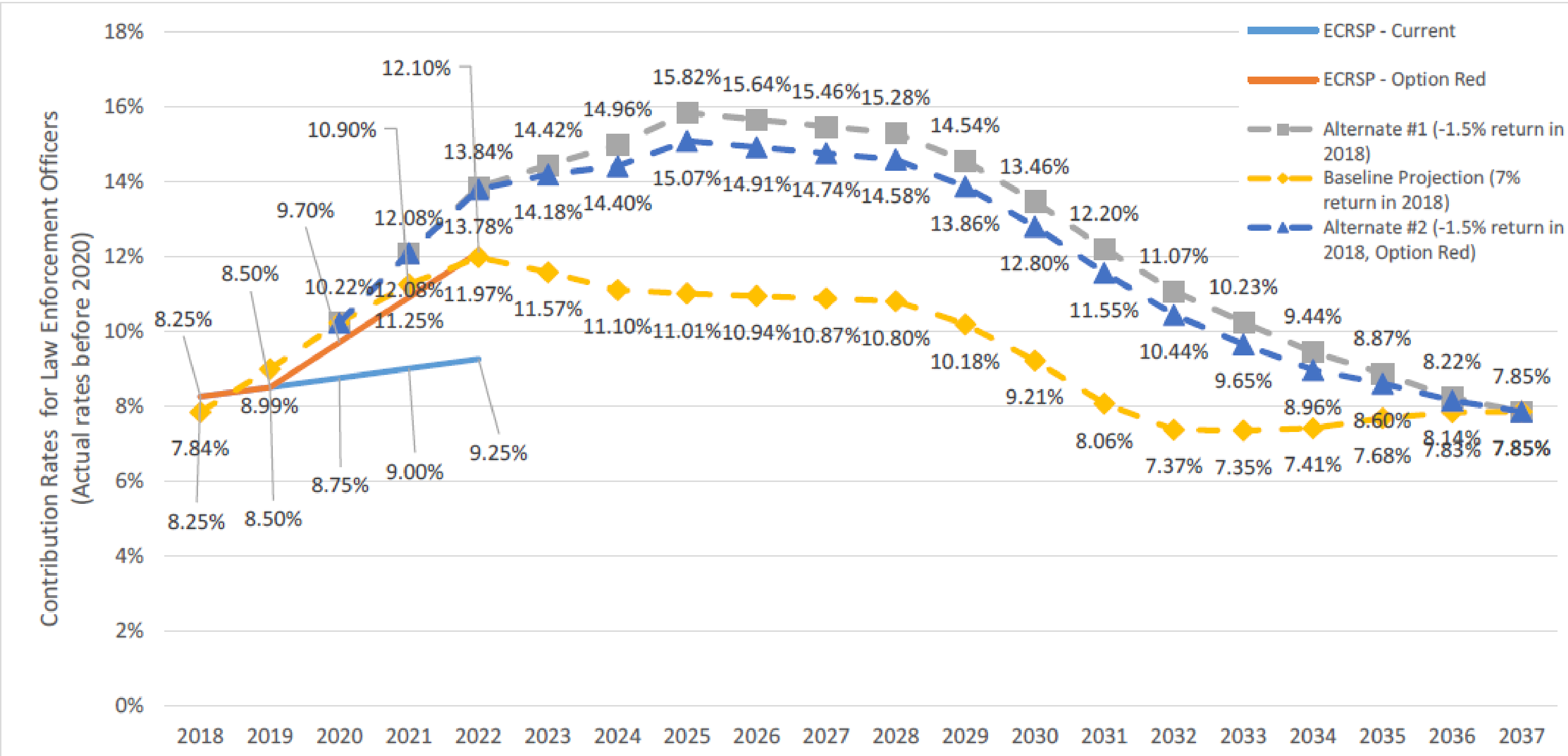
Non-LEO Projection from Consulting Actuary (Jan. 2019)



Estimated returns were 8.5% lower than expected. As a result we are projecting that the unfunded actuarial accrued liability will be higher resulting in a higher employer contribution rates under Alternate #1.

Option Red provides for less contribution disruption when the ECRSP expires in anticipation of new assumptions being adopted for FY 2023 rates.

LEO Projection from Consulting Actuary (Jan. 2019)



Estimated returns were 8.5% lower than expected. As a result we are projecting that the unfunded actuarial accrued liability will be higher resulting in a higher employer contribution rates under Alternate #1.

Alternate #2 provides for less contribution disruption when the ECRSP expires in anticipation of new assumptions being adopted for FY 2023 rates.

Main Reasons for Projected Contribution Increases

A few areas of experience, since the January 2016 adoption of the ECRSP, have led to increases in contribution rates. These are the major items (not exhaustive).

1. *Actual investment returns for calendar years 2016-2018*
   – Assuming -1.5 percent return for 2018, the compounded return over the three years has been about 18.7 percent (5.9 percent CAGR), versus 23.4 percent (7.25 percent CAGR) assumed at the time
   – Based on consulting actuary's October 2018 projections, cumulative investment returns missing the expectation by 5 percent would increase employer contribution rates by 2.50 to 3.00 percent of pay by the end of the five-year phase-in period for actual returns

2. *Changes to forward-looking return assumption*
   – In 2017, the Board reduced its return assumption from 7.25 to 7.20 percent, which increased ADECs by approximately 0.40-0.50 percent of pay
   – In 2018, the Board further reduced the assumption from 7.20 to 7.00 percent, increasing the ADECs by approximately 1.60-1.80 percent of pay (recognized gradually over three years)

3. *Actuarial transition*
   – Measurement effects of the transition to the new consulting actuary increased the ADECs by about 0.50 percent of pay effective with the 12/31/2017 actuarial valuation

Total of above effects is an increase in ADECs of 5.00 to 5.80 percent of pay after appropriate phase-in periods.

Appendix: Certification by Retirement Systems' In-House Actuary

Except where specifically noted otherwise, this presentation is based on census data, actuarial assumptions, methods, and plan provisions as outlined in Cavanaugh Macdonald Consulting's actuarial valuation report for the North Carolina Local Governmental Employees' Retirement System as of 12/31/2017, published in October 2018. The actuarial assumptions, methods, and plan provisions are subject to periodic review or legislated changes, and actual experience will differ from assumptions.

The presentation relies on "baseline" contribution rate projections presented by Cavanaugh Macdonald at the January 31, 2019 Board of Trustees meeting.

To the extent that this presentation refers to a "funded ratio" or an "unfunded actuarial accrued liability" for the Retirement Systems, those measurements use an actuarial value of assets. If market value were used, the measurements would differ. The funded ratio is appropriate for evaluating the need for, and level of, future contributions, but is not intended to assess the sufficiency of the plan to settle any or all of its liabilities, for example through lump-sum buyouts or purchases of annuities.

The inclusion of any assumption sensitivity results in this presentation should not be interpreted as a recommendation to change the valuation assumption. However, if the assumptions underlying these sensitivity results were to materialize, then the use of assumptions equivalent to the sensitivity assumptions might lead to other possible changes to be considered. For example, if an assumed expected rate of return "sensitivity" scenario materialized: (1) It might be appropriate to reduce the valuation assumption immediately to the new expectation, and (2) associated changes in inflation assumptions, salary increase rates, and the like should be considered.

The actuarial cost method, amortization method, amortization period, and asset valuation method are meant to recognize pension costs in an orderly fashion through contributions to the plans over a period of years. In some cases, the methods have the effect of deferring increases or decreases in contributions into later years. If assumptions are not met over a long period of time, the use of these methods will lead to deferred gains or losses.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for measurements (such as the end of an amortization period), changes in assumptions, changes in methods, changes in plan provisions, or changes in applicable law. Such changes in law may include additional costs resulting from future benefit improvements or cost-of-living pension increases or supplements, which are not anticipated in the actuarial valuation.

In particular, the use of actuarial assumptions, while necessary in actuarial valuations, carries a risk that actual facts will deviate from the assumptions. Such deviation may result in greater or lesser costs in later years than would have been anticipated by the actuarial valuation. With regard to the potential risk inherent in other actuarial assumptions, contribution rates will increase if members and their surviving beneficiaries live longer than expected; if current employees' future salary increases are greater than expected; if more employees work until retirement eligibility than expected; if more employees (once reaching retirement eligibility) retire at earlier ages than expected; or if any benefit enhancements or cost-of-living increases or supplements are granted in the future.

In performing the actuarial valuations, the actuary may approximate the effect of certain plan benefit provisions, or may deem certain plan benefit provisions insignificant and not explicitly include them in the valuation. The actuary may also make assumptions necessary to interpret plan member census data that is imperfect.

The actuary named below meets the U.S. Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The presentation is prepared in accordance with all applicable Actuarial Standards of Practice promulgated by the Actuarial Standards Board.

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