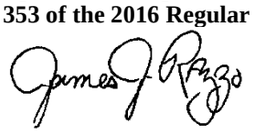
2019 REGULAR SESSION
ACTUARIAL NOTE HB 21

House Bill 21 HLS 19RS-218 Original **Author: Representative Pearson** **Date: March 29, 2019** **LLA Note HB 21.01** **Organizations Affected: Firefighters' Retirement System** **OR DECREASE FC LF EX**	**This Note has been prepared by the Actuarial Services Department of the Legislative Auditor with assistance from either the Fiscal Notes staff of the Legislative Auditor or staff of the Legislative Fiscal Office. The attachment of this Note provides compliance with the requirements of R.S. 24:521 as amended by Act 353 of the 2016 Regular Session.**  **James J. Rizzo, ASA, MAAA** **Senior Consultant & Actuary** **Gabriel, Roeder, Smith & Company, Actuary for the Legislative Auditor**

Bill Header: RETIREMENT/FIREFIGHTERS: Changes actuarial funding method for the Firefighters' Retirement System

Cost Summary:

The estimated net actuarial and fiscal impact of this proposed legislation on the retirement systems and their plan sponsors is summarized below. Net actuarial costs pertain to estimated changes in the ***net actuarial present value of future benefit payments and administrative expenses incurred by the retirement system***. Net fiscal costs or savings pertain to changes to all cash flows over the next five year period including retirement system cash flows, OPEB cash flows, or cash flows related to other government entities.

An increase in actuarial costs is denoted throughout the actuarial note by "Increase" or a positive number. Actuarial savings are denoted by "Decrease" or a negative number. An increase in expenditures or revenues (fiscal impact) is denoted by "Increase" or a positive number. A decrease in expenditures or revenues is denoted by "Decrease" or a negative number.

Estimated Actuarial Impact:

The top part of the following chart shows the estimated change in the ***net actuarial present value of future benefit payments and expenses***, if any, attributable to the proposed legislation. The bottom part shows the effect on cash flows (i.e., contributions, benefit payments, and administrative expenses).

Net Actuarial Costs (Liabilities) Pertaining to:		**Actuarial Cost**
The Retirement Systems		$0
Other Post-employment Benefits (OPEB)		0
Total		$0
Five Year Net Fiscal Cost Pertaining to:	**Expenditures**	**Revenues**
The Retirement Systems	Decrease	Decrease
Other Post-employment Benefits	0	0
Other Government Entities	0	0
Total	Decrease	Decrease

Bill Information

Current Law

Current law specifies that the Firefighters' Retirement System (FRS) is to be funded using the individual Entry Age Normal actuarial cost method. Under this method, the actuarially required contribution is a sum of each member's respective normal cost, an allowance for administrative expenses and a payment towards the amortization of various Unfunded Accrued Liability (UAL) bases established over time. Any emerging gains or losses are amortized over a period of fifteen years with level dollar amounts.

Proposed Law

HB 21 changes the actuarial cost method to a version of the Frozen Initial Liability actuarial cost method. With the exception of the unamortized merger bases, all outstanding balances of the UAL as of July 1, 2019 would be consolidated into a single base and amortized over 15 years using a pattern of payments decreasing by 1% per year.

Implications of the Proposed Changes

HB 21 would not change the overall cost of FRS, however it is expected to dampen the volatility of contribution requirements from year to year. If no change is made, the contributions for the years beginning 2020 through 2028 are expected to be five to ten percent of payroll higher than they are this year. Then in 2029 the contributions are expected to drop about twenty percent of payroll, followed by a series of smaller drops over the next few years. This volatility would be removed under the proposed legislation.

The effects of future gains and losses, assumption changes and plan benefit changes would be included in the calculation of the normal cost and spread over the future payroll of the active members. No new bases would be created due to emerging gains or losses.

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I. ACTUARIAL ANALYSIS SECTION

A. Analysis of Net Actuarial Costs
(Prepared by LLA)

This section of the actuarial note pertains to net actuarial costs or savings associated with the retirement systems and with OPEB.

1. Retirement Systems

The net actuarial cost or savings of the proposed legislation associated with the retirement systems is estimated to be $0. The actuary's analysis is summarized below.

The ultimate cost of a plan is determined by the benefits which are paid out and the investment earnings. This bill does not change the benefit terms for current or future members. The actuarial assumptions and actuarial cost method only affect the timing of the employer contributions.

Current law specifies that FRS is to be funded using the Entry Age Normal actuarial cost method. This method provides for a normal cost which is designed to be level as a different percent of pay for each individual. Assumptions are made about future experience, and over time the plan incurs gains and losses as actual experience differs from that anticipated by the assumptions. Additional liabilities are generated by these gains and losses, as well as by changes in benefits and assumptions. Additional liabilities are amortized over 15 years. These discrete 15 year amortization payments are projected to create volatility in contribution rates from year to year.

This proposed change in actuarial cost method from Entry Age Normal to Frozen Initial Liability cost method, while reducing certain types of volatility, is expected to decrease the required contributions over the next 15 years and increase them in the longer term. Refer to the graphs below. Both actuarial cost methods finance the system's obligation on a reasonable actuarial basis.

Table 1 illustrates the change in the pattern of contributions required for amortization payments under this proposed bill, those amounts are determined and presented as of the respective future valuation dates without regard for contribution timing or changes in assumptions (all amortization payments are determined using FRS' current 7.3% interest rate):

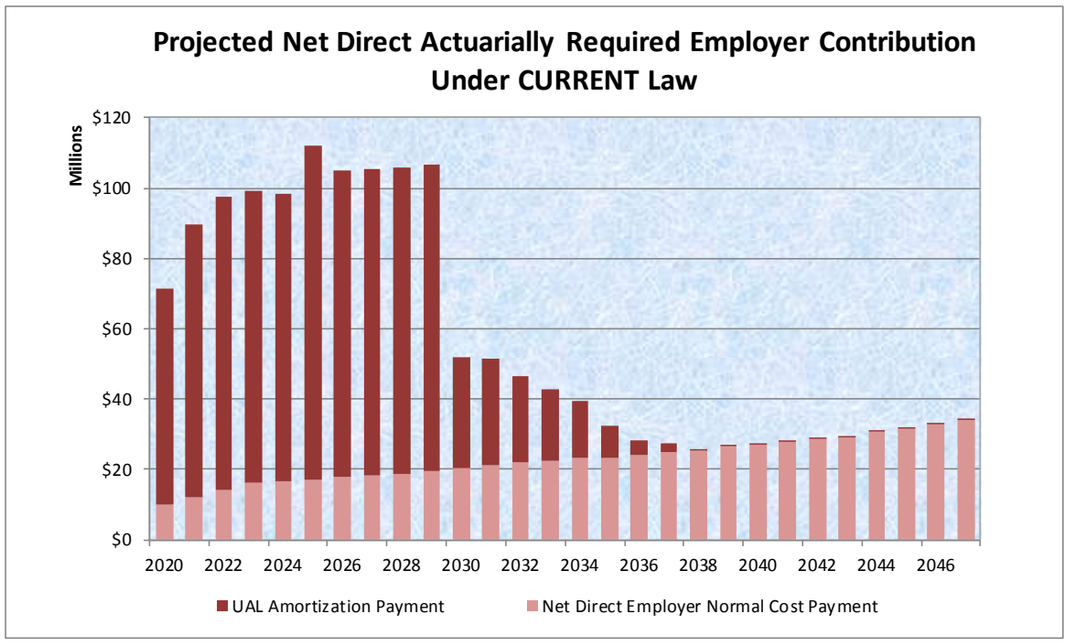
Table 1
Non-Merger Amortization Payments

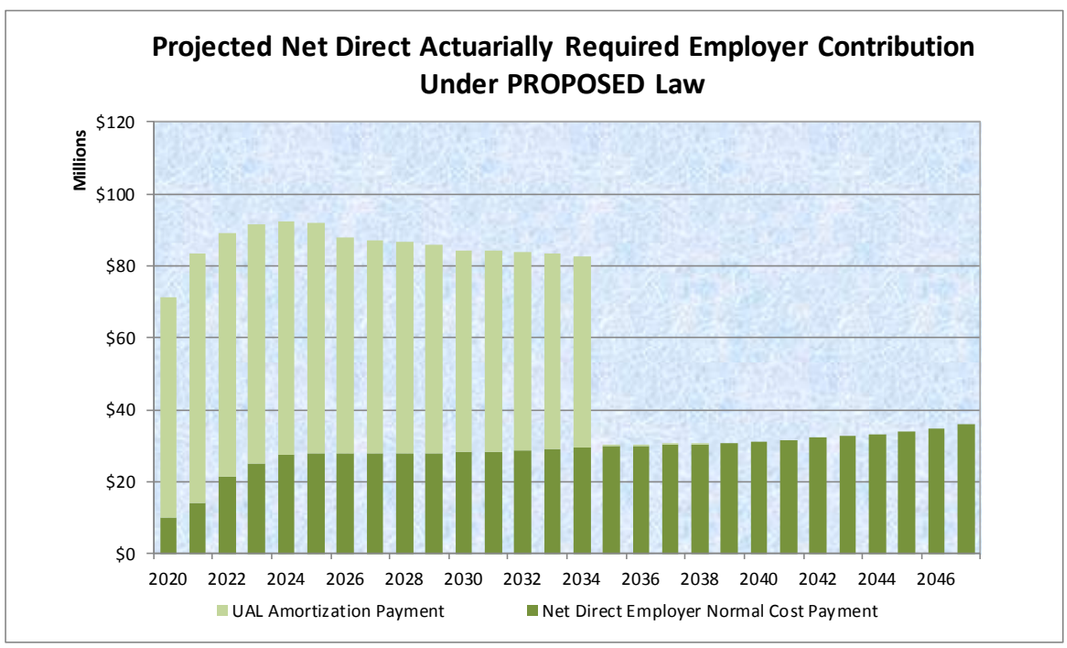
Valuation Date	Current Law Combined Payments towards existing non-merger bases	HB 21 Frozen UAL Payments (consolidated, decreasing at 1%)	Change in Amortization Payments
6/30/2019	50,110,558	53,107,490	2,996,932
6/30/2020	59,012,770	52,576,416	(6,436,354)
6/30/2021	60,349,468	52,050,651	(8,298,817)
6/30/2022	61,359,301	51,530,145	(9,829,156)
6/30/2023	59,079,902	51,014,843	(8,065,059)
6/30/2024	71,844,962	50,504,695	(21,340,267)
6/30/2025	67,878,471	49,999,648	(17,878,823)
6/30/2026	67,878,471	49,499,652	(18,378,819)
6/30/2027	67,878,471	49,004,655	(18,873,816)
6/30/2028	67,743,534	48,514,608	(19,228,926)
6/30/2029	14,882,445	48,029,462	33,147,017
6/30/2030	13,485,880	47,549,168	34,063,288
6/30/2031	8,056,797	47,073,676	39,016,879
6/30/2032	3,870,158	46,602,939	42,732,781
6/30/2033		46,136,910	46,136,910
Total	**673,431,188**	**743,194,959**	**69,763,771**
Present Value	**481,343,092**	**481,343,092**	**0**

In addition to consolidating non-merger bases, the change in the funding method introduced by HB 21 changes recognition of future gains and losses resulting from emerging experience or assumption changes. Under the Frozen Initial Liability actuarial cost method, as described in this bill, all such actuarial gains and losses will be spread over the future payroll of the active members and no new amortization bases will be created. As such, future volatility is expected to be dampened..

FRS' board adopted a series of changes in the assumed rate of return to be implemented over the next three years resulting in increases in the plan's liability. If future investment returns are expected to be lower than previously assumed, the future employer contributions increase to make up the difference over time. The effect of that assumption change on employer contributions differs between the current law and HB 21. Under current law, changes in assumptions require establishing new amortization bases to finance the increased liability. Under the proposed law, such changes are rolled into the normal cost and spread over future payroll.

The following charts illustrate the effect of this bill on the Net Direct Actuarially Required Employer Contribution representing a total of contributions required from all participating employers after deducting member contributions and expected Insurance Premium Taxes. Amounts graphed on the following charts reflect the scheduled changes in assumptions, recognition of deferred gains and losses on plan assets and continuous influx of new hires replacing terminating and retiring members.


Projected Net Direct Actuarially Required Employer Contribution
Under CURRENT Law
Millions
$120
$100
$80
$60
$40
$20
$0
2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046
UAL Amortization Payment
Net Direct Employer Normal Cost Payment


Projected Net Direct Actuarially Required Employer Contribution
Under PROPOSED Law
Millions
$120
$100
$80
$60
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$20
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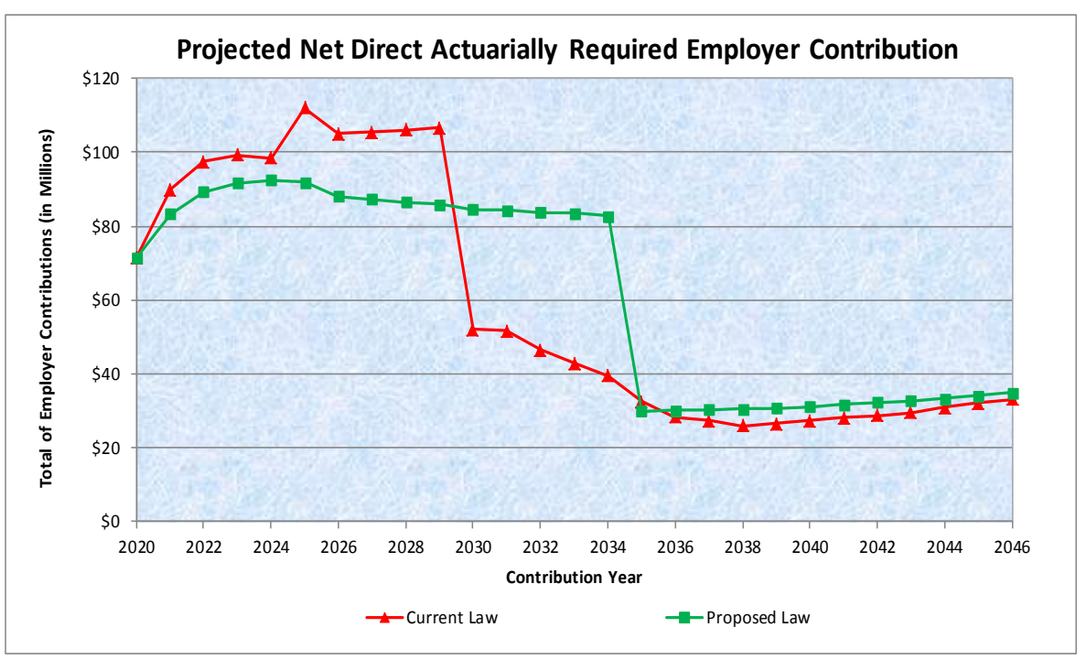
2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046
UAL Amortization Payment
Net Direct Employer Normal Cost Payment


Projected Net Direct Actuarially Required Employer Contribution
Total of Employer Contributions (in Millions)
$120
$100
$80
$60
$40
$20
$0
2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046
Contribution Year
Current Law
Proposed Law

2. Other Post-employment Benefits (OPEB)

The net actuarial cost or savings of the proposed legislation associated with OPEB, including retiree health insurance premiums, is estimated to be $0. The actuary's analysis is summarized below.

This bill does not change the benefit terms including members' eligibility for retirement and as such there is no impact on the future Other Post-employment Benefits.

B. Actuarial Data, Methods and Assumptions
(Prepared by LLA)

Unless indicated otherwise, this Actuarial Note for the proposed legislation was prepared using actuarial data, methods, and assumptions as disclosed in the most recent actuarial valuation report adopted by the Public Retirement Systems' Actuarial Committee (PRSAC). The data, methods and assumptions are being used to provide consistency with the actuary for the retirement system who may also be providing testimony to the Senate and House retirement committees. With certain exceptions, the actuary for the LLA finds the assumptions used by the retirement system and PRSAC to be reasonable.

Projections presented within this Actuarial Note were prepared using actuarial data, methods, and assumptions as disclosed in the most recent actuarial valuation report adopted by PRSAC subject to the following exceptions.

1. The discount rates used in our projections of future contributions were selected to match the retirement board's plan to continue lowering the expected return on assets from the current 7.3% until 7.0% is reached:
   - 7.3% used in the June 30, 2018 valuation (for determining the contribution for the 2020 year),
   - 7.2% expected to be used in the June 30, 2019 valuation (for determining the contribution for the 2021 year),
   - 7.1% expected to be used in the June 30, 2020 valuation (for determining the contribution for the 2022 year) and
   - 7.0% expected to be used in the June 30, 2021 valuation (for determining the contribution for the 2023 year) and all subsequent years.

   The emerging investment returns were projected to match the assumed rates above.

2. New entrant profiles are based on statistical characteristics of employees hired within the last two years. Starting salaries for future hires replacing terminating and retiring employees were derived from salaries reported for new entrants during the last two years and are projected to increase at a rate of 2.75% year over year.

C. Actuarial Caveat
(Prepared by LLA)

There is nothing in the proposed legislation that will compromise the signing actuary's ability to present an unbiased statement of actuarial opinion.

II. FISCAL ANALYSIS SECTION

This section of the actuarial note pertains to fiscal (annual) costs or savings associated with the retirement systems (Table A), with OPEB (Table B), and with other fiscal costs or savings incurred by other government entities (Table C). Fiscal costs or savings in Table A include benefit-related actuarial costs and administrative costs incurred by the retirement systems. The total effect of HB 21 on fiscal costs, fiscal savings, or cash flows is presented in Table D.

A. Estimated Fiscal Impact – Retirement Systems
(Prepared by LLA)

1. Narrative

Table A shows the estimated fiscal impact of the proposed legislation on the retirement systems and the government entities that sponsor them. A fiscal cost is denoted by "Increase" or a positive number. Fiscal savings are denoted by "Decrease" or a negative number. A revenue increase is denoted by "Increase" or a positive number. A revenue decrease is denoted by "Decrease" or a negative number.

Retirement System Fiscal Cost: Table A

EXPENDITURES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	0	0	0	0	0
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	Decrease	Decrease	Decrease	Decrease	Decrease
Annual Total	$ 0	Decrease	Decrease	Decrease	Decrease	Decrease

REVENUES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	Decrease	Decrease	Decrease	Decrease	Decrease
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	0	0	0	0	0
Annual Total	$ 0	Decrease	Decrease	Decrease	Decrease	Decrease

The proposed legislation will have the following effects on retirement related fiscal costs and revenues during the five year measurement period.

2. Expenditures:

Local Funds Expenditures are expected to decrease over the five year period because employer contribution requirements are expected to be lower.

3. Revenues:

FRS revenues (Agy Self-Generated) are expected to decrease over the five year period as employer contributions decrease.

B. <u>Estimated Fiscal Impact – OPEB</u>
(Prepared by LLA)

1. Narrative

Table B shows the estimated fiscal impact of the proposed legislation on actuarial benefit and administrative costs or savings associated with OPEB and the government entities that sponsor these benefit programs. A fiscal cost is denoted by "Increase" or a positive number. Fiscal savings are denoted by "Decrease" or a negative number. A revenue increase is denoted by "Increase" or a positive number. A revenue decrease is denoted by "Decrease" or a negative number.

OPEB Fiscal Cost: Table B

EXPENDITURES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	0	0	0	0	0
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	0	0	0	0	0
Annual Total	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

REVENUES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	0	0	0	0	0
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	0	0	0	0	0
Annual Total	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

The proposed legislation will have the following effects on OPEB related fiscal costs and revenues during the five year measurement period.

2. Expenditures:

No measurable effects.

3. Revenues:

No measurable effects.

C. Estimated Fiscal Impact: Other Government Entities (other than the retirement systems or OPEB)
(Prepared by Bradley Cryer, Director of Local Government Services, LLA)

1. Narrative

From time to time, legislation is proposed that has an indirect effect on cash flows associated with other government entities (other than the retirement systems or OPEB). Table C shows the estimated fiscal impact of the proposed legislation on such government entities. A fiscal cost is denoted by "Increase" or a positive number. Fiscal savings are denoted by "Decrease" or a negative number.

Fiscal Costs for Other Government Entities: Table C

EXPENDITURES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	0	0	0	0	0
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	0	0	0	0	0
Annual Total	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

REVENUES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	0	0	0	0	0
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	0	0	0	0	0
Annual Total	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

The proposed legislation will have the following effects on fiscal costs and revenues related to other government entities during the five year measurement period.

2. Expenditures:

No measurable effects.

3. Revenues:

No measurable effects.

D. Estimated Fiscal Impact − All Retirement Systems, OPEB, and All Government Entities
(Prepared by LLA)

1. Narrative

Table D shows the estimated fiscal impact of the proposed legislation on all government entities within the state of Louisiana. Cell values in Table D are the sum of the respective cell values in Table A, table B, and Table C. A fiscal cost is denoted by "Increase" or a positive number. Fiscal savings are denoted by "Decrease" or a negative number. A revenue increase is denoted by "Increase" or a positive number. A revenue decrease is denoted by "Decrease" or a negative number.

Total Fiscal Cost: Table D (Cumulative Costs from Tables A, B, & C)

EXPENDITURES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	0	0	0	0	0
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	Decrease	Decrease	Decrease	Decrease	Decrease
Annual Total	$ 0	Decrease	Decrease	Decrease	Decrease	Decrease

REVENUES	2019-20	2020-21	2021-22	2022-23	2023-24	5 Year Total
State General Fund	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Agy Self Generated	0	Decrease	Decrease	Decrease	Decrease	Decrease
Stat Deds/Other	0	0	0	0	0	0
Federal Funds	0	0	0	0	0	0
Local Funds	0	0	0	0	0	0
Annual Total	$ 0	Decrease	Decrease	Decrease	Decrease	Decrease

Credentials of the Signatory Staff:

James J. Rizzo is a Senior Consultant and Actuary with Gabriel, Roeder, Smith & Company, which is currently serving as the actuary for the Louisiana Legislative Auditor. He is an Enrolled Actuary, a member of the American Academy of Actuaries, an Associate of the Society of Actuaries and has met the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein.

Actuarial Disclosure: Prescribed Assumptions and Methods Set By Another Party

This Actuarial Note is an actuarial communication, and is required to include certain disclosures in compliance with Actuarial Standards of Practice (ASOP). We relied on assumptions and methods which were adopted by the Public Retirement Systems' Actuarial Committee (PRSAC) inherent in its acceptance of the retirement system's 2018 actuarial valuation report. In order to limit this Actuarial Note to a discussion of the immediate impact of HB 21 and in reference to the official actuarial valuation of the system's costs and liabilities, we prepared our projections using investment return assumptions expected to be employed by the retirement system.

As required by ASOP Nos. 4, 27 and 41: In the professional judgement of the actuary for the Legislative Auditor, the investment return assumptions (and discount rates) significantly conflict with what would be reasonable for the purposes.

Actuarial Disclosure: Risks Associated with Measuring Costs

This Actuarial Note is an actuarial communication, and is required to include certain disclosures in compliance with Actuarial Standards of Practice (ASOP) No. 51.

A full actuarial determination of the retirement system's costs, actuarially determined contributions and accrued liability require the use of assumptions regarding future economic and demographic events. The assumptions used to determine the retirement system's contribution requirement and accrued liability are summarized in the system's most recent Actuarial Valuation Report accepted by the respective retirement board and by the Public Retirement Systems' Actuarial Committee (PRSAC).

The actual emerging future experience, such as a retirement fund's future investment returns, may differ from the assumptions. To the extent that emerging future experience differs from the assumptions, the resulting shortfalls (or gains) must be recognized in future years by future taxpayers. Future actuarial measurements may also differ significantly from the current measurements due to other factors: changes in economic or demographic 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; or additional cost or contribution requirements based on the system's funded status); and changes in plan provisions or applicable law.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns (assumptions);
2. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
3. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
4. Longevity and life expectancy risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
5. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed, resulting in actual future accrued liability and contributions differing from expected.

The scope of an Actuarial Note prepared for the Louisiana Legislature does not include an analysis of the potential range of such future measurements or a quantitative measurement of the future risks of not achieving the assumptions. In certain circumstances,

detailed or quantitative assessments of one or more of these risks as well as various plan maturity measures and historical actuarial measurements may be requested from the actuary. Additional risk assessments are generally outside the scope of an Actuarial Note. Additional assessments may include stress tests, scenario tests, sensitivity tests, stochastic modeling, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

However, the general cost-effects of emerging experience deviating from assumptions can be known. For example, the investment return since the most recent actuarial valuation may be less (or more) than the assumed rate, or a cost-of-living adjustment may be more (or less) than the assumed rate, or life expectancy may be improving (or worsening) compared to what is assumed. In each of these situations, the cost of the plan can be expected to increase (or decrease).

The use of reasonable assumptions and the timely receipt of the actuarially determined contributions are critical to support the financial health of the plan. However, employer contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Information Pertaining to Article (10)(29(F) of the Louisiana Constitution

☐ HB 21 contains a retirement system benefit provision having an actuarial cost.

No member of FRS will receive a larger benefit with the enactment of HB 21 than what he would have received without HB 21.

Dual Referral Relative to Total Fiscal Costs or Total Cash Flows:

The information presented below is based on information contained in Table D for the first three years following the 2019 regular session.

Senate

☐ 13.5.1 Applies to Senate or House Instruments.

If an annual fiscal cost ≥ $100,000, then bill is dual referred to:
Dual Referral: Senate Finance

☐ 13.5.2 Applies to Senate or House Instruments.

If an annual tax or fee change ≥ $500,000, then the bill is dual referred to:

Dual Referral: Revenue and Fiscal Affairs

House

☐ 6.8F Applies to Senate or House Instruments.

If an annual General Fund fiscal cost ≥ $100,000, then the bill is dual referred to:
Dual Referral to Appropriations

☐ 6.8G Applies to Senate Instruments only.

If a net fee decrease occurs or if an increase in annual fees and taxes ≥ $500,000, then the bill is dual referred to:
Dual Referral: Ways and Means