ACTUARIAL REVIEW OF THE 2019 ACTUARIAL VALUATION OF THE LOUISIANA STATE POLICE RETIREMENT SYSTEM

ACTUARIAL SERVICES

PRESENTED TO THE PUBLIC RETIREMENT SYSTEMS' ACTUARIAL COMMITTEE
DECEMBER 18, 2019

LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

December 2, 2019

Mr. Kevin Reed, Executive Director
Louisiana State Police Retirement System
9224 Jefferson Highway
Baton Rouge, Louisiana 70809

Re: Actuarial Review of the 2019 Actuarial Valuation

Dear Mr. Reed:

To fulfill the requirements of R.S. 11:127(C) to the Public Retirement Systems' Actuarial Committee (PRSAC) for 2019, the Louisiana Legislative Auditor (LLA) has conducted an Actuarial Review for the Louisiana State Police Retirement System (LSPRS).

The remainder of this letter contains the results of our Actuarial Review of your June 30, 2019, actuarial valuation (prepared by G.S. Curran & Company and dated September 30, 2019). More specifically, we have evaluated for appropriateness the actuarial assumptions and methods employed by the System and its actuary.

I would like to thank you, your staff, and the board's actuary for your cooperation and assistance with this review.

Sincerely,

Daryl G. Purpera, CPA, CFE
Legislative Auditor

DGP:LPG:JJR:ch

cc: G.S. Curran & Company

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Scope of Review

The 2019 actuarial valuation report for the Louisiana State Police Retirement System (LSPRS) for funding purposes was prepared by G.S. Curran & Company and dated September 30, 2019.

This Actuarial Review of that report was prepared jointly by Lowell Good, Actuary for the Louisiana Legislative Auditor (LLA), and James J. Rizzo, Senior Consultant and Actuary employed by Gabriel, Roeder, Smith and Company (GRS). This Actuarial Review includes evaluations of the appropriateness of key actuarial assumptions and methods. However, a full actuarial valuation replicating the actuary's results was not performed; nor was a full actuarial valuation performed using recommended assumptions and methods.

This Actuarial Review is limited to (1) recommendations for a more appropriate treatment of LSPRS' gain-sharing COLA benefits, (2) recommendations for a more appropriate investment return assumption, and (3) the actuary's use of acceptable mortality tables.

Our Findings

1. Gain-sharing Cost-of-Living Adjustments (COLAs).

COLA benefits derived from investment earnings above certain thresholds are commonly called "gain-sharing" COLAs. The term "gain-sharing" derives from plan provisions that "share" higher-than-usual investment gains with members rather than using them, as is typically done, to help pay (indirectly) for the employer's required contribution. However, there is a cost to that "sharing."

An Experience Account is maintained (on an internal accounting basis) by the System to hold funds which ultimately are used to provide COLA benefits. The Experience Account is replenished with investment gains that exceed certain thresholds, subject to a series of complex formulas and rules set forth in the statutes.

LSPRS does not currently include the value of future COLA-grants in its measurement of costs and liabilities. LSPRS does, however, recognize one fill-up of the Experience Account as an automatic benefit that would someday need to pay for a COLA. Beyond that one fill-up, no future COLA benefits are recognized.

The System's retirees are likely to receive future cost-of-living (COLA) benefit increases with some regularity. This likelihood comes from the workings of the relevant state statutes coupled with the tendency and history of board members and legislators voting to grant COLAs whenever permitted to do so in accordance with the statutory template. Consider the following internal and external forces at play, which tend to press board members, the legislature, and the Governor to recommend and approve COLAs when allowed:

a. While we have no personal knowledge of – or experience with – the LSPRS board, generally speaking, retirement board members often have a sense of duty to serve the

plan members. The LSPRS retirement board of trustees is composed of individuals who have a natural constituency to plan members. As a result, there may be a natural tendency to recommend COLAs when permitted.

b. Social Security gives a COLA almost every year. In any given future year, if LSPRS retirees have not had a COLA in a couple years, and since they are not generally covered by Social Security, there may be a natural tendency to want to recommend a COLA if permitted.

c. Furthermore, if other Louisiana retirement systems (such as LASERS, TRSL, and LSERS, or statewide systems) grant COLAs in a given year, LSPRS' board members, legislators, and the Governor may feel pressure to recommend a COLA if permitted.

d. Finally, if the funded ratio of the System continues to improve as it is expected to do, board members might feel like sharing that success with the plan members by recommending a COLA.

Recognizing only one year's transfer to the Experience Account (and that no future COLA benefits would be granted) does not reflect the overwhelming likelihood that COLAs will be granted in the future.

The frequency and magnitude of the future transfers to the Experience Account can be modelled actuarially using well-accepted techniques. Assuming legislators will grant template-driven COLAs whenever permitted by the statutes, it is actuarially appropriate to recognize the frequency and magnitude of future COLAs when performing an annual actuarial valuation of the System's costs and liabilities.

Conclusion – By failing to recognize actuarially-expected future COLA benefits in the actuarial valuations, LSPRS is not advance-funding all the plan's benefits appropriately. The Actuary for the LLA recommends that the LSPRS board engage its actuary to undertake a quantitative actuarial analysis of the operation of the gain-sharing provisions, in order to be able to advise the board about the long-term costs and liabilities associated with future gain-sharing COLAs.

Last year, the Actuary for the LLA prepared a detailed analysis in his 2018 LSPRS Actuarial Valuation Report (dated December 20, 2018) concerning the costs and liabilities for future COLA benefits. The actuarial analysis concluded that LSPRS' future COLA benefits are actuarially equivalent to a fixed annual COLA of 0.60%. This is an actuarially reasonable approximation of the future workings of the actual statutory gain-sharing COLA template.

Refer to the Appendix for additional support and details concerning the actuarial appropriateness of recognizing all future expected COLAs in LSPRS actuarial valuations.

2. Overly-Optimistic Return Assumption

For this 2019 Actuarial Review, a detailed analysis of independent experts' current (2019) forecasts for LSPRS' current target portfolio was not undertaken. The last detailed analysis was prepared by the Actuary for the LLA last year - for the 2018 valuation report (presented in the 2018 LSPRS Actuarial Valuation Report dated December 20, 2018).

The LSPRS 2018 valuation report prepared by the board's actuary used a 7.0% return assumption. The 2018 Actuarial Valuation Report prepared by the Actuary for the LLA also used 7.0% for the 2018 return assumption. However, that 7.0% was at the top end of the LLA's range of reasonableness. The "most appropriate" return assumption was 6.50%, based on a consensus average of independent national investment forecasters.

The LSPRS board and its actuary did not lower the return assumption any further, retaining the same 7.0% return assumption for the 2019 valuation.

The pension fund's target asset allocation did not change between then and now, and the plan's expected benefit cash flow is not likely to have changed much either.

Future rates of inflation expected by professional *inflation forecasters* in the GRS Survey have come down from 2018 to 2019 by 8 basis points for the mid-term time horizon (10 year) and by 17 basis points for long-term (27-30 years) time horizons. However, the consensus average of the future rates investment returns by professional *investment forecasters* in the GRS Survey have come up from 2018 to 2019 by 10 to 30 basis points for balanced portfolios. On the other hand, early publications from some of these same professional investment forecasters indicate return expectations are coming back down significantly from 2019 to 2020.

An overly-optimistic return assumption, applied repeatedly, creates underfunding in a retirement system and undermines the actuarial promise to career public servants.

Furthermore, a return assumption that is an outlier compared the mainstream of professional forecasters is not a "best estimate", and obscures the fair representation of future costs and liabilities in public disclosures.

The appropriateness of a retirement system's investment return assumption for any given year's pension valuation is assessed as follows:

- In terms of the expected future inflation rates and future capital market assumptions for relevant asset classes;
- As forecasted by several reputable and independent professional forecasters, and applied to the pension fund's own asset allocation targets;
- Net of the pension fund's own expected investment-related expenses – both in-house or external, for passive management fee, for custodial and trade-execution fees, and for external investment consulting; and

- Adjusted for the pension plan's duration calculation (a proxy for adjustments due to projected benefit cash flows).

Professional independent investment forecasters (such as those included in the research for our 2018 valuation) are often more pessimistic about the next 10 years' returns. This is mostly driven by currently high stock price valuations and currently low yields and interest rates. They are not expecting the next 10 years' investment returns to be nearly as high as we have seen in many prior periods.

While experts' forecasts are not certain or guaranteed, in our opinion, they are the best sources for decision-makers to rely on - a consensus average of the collective expectations of independent subject matter experts applied to the System's own characteristics.

Conclusion – In the absence of conducting a detailed analysis using updated 2019 or 2020 expert forecasts and in the absence of applying them to LSPRS' own asset allocation and expected cash flow, the Actuary for the LLA recommends that the LSPRS' retirement board and actuary consider lowering the return assumption to be somewhere within a range from 6.00% to 6.50%.

A current 2019 return assumption of 7.0% might appear conservative compared to other pension funds, but it is not conservative compared to expert professional forecasters' 2019 expectations.

It is recommended that the LSPRS' board lower its return assumption again for the 2020 valuation and do so in larger steps (25, 50, or 75 basis points), in order to:

- Bring it into the mainstream of professional forecasters,
- Attain and maintain more actuarial integrity in the benefit promise, and
- Disclose a more appropriate and fair representation of the system's costs and liabilities.

Reductions of that magnitude (and more) are not uncommon among large pension funds around the country in the past several years.

3. Mortality Assumption

The 2019 Actuarial Valuation (page 44) states that the mortality assumption:

- For active member mortality is "110% of the RP2014 Total Dataset Employee Table for males and 105% of the RP2014 Total Dataset Employee Table for females, each with the full generational MP2017 scale" and
- For annuitant and beneficiary mortality is "110% of the RP2014 Total Dataset Healthy Annuitant Table for males and 105% of the RP2014 Total Dataset Healthy Annuitant Table for females, each with the full generational MP2017 scale."

These 2019 mortality rates are the same as used in the 2018 valuation.

To evaluate the reasonableness of the mortality assumption, we reviewed the base mortality (RP2014 Total Dataset) separately from the plan-specific adjustment factors (110% for males and 105% for females) and from the projection scale (MP2017).

Base Mortality Table

A detailed analysis of the LSPRS base mortality tables was undertaken by the Actuary for the LLA for the 2018 valuation report (presented in an Actuarial Valuation Report dated December 20, 2018). The conclusion for this year's 2019 valuation report is the same.

Additionally, we note that the Pub-2010 Mortality Tables, the most recently developed broad-based mortality tables, were issued by the Retirement Plans Experience Committee (RPEC) of the Society of Actuaries and published in January 2019. These tables constitute the most recent and reliable standard reference tables available for purposes of national estimates of mortality for public pension plans. However, we find the base tables (before adjustment for plan-specific experience and projection for future mortality) to be fully appropriate for the 2019 Actuarial Valuation.

Conclusion – The Actuary for the LLA considers the LSPRS' base tables for mortality rates to be reasonable.

LSPRS-derived Adjustment Factors

A detailed analysis of the LSPRS-derived adjustment factors (110% for males and 105% for females) was undertaken by the Actuary for the LLA for the 2018 valuation report (presented in an Actuarial Valuation Report dated December 20, 2018). The conclusion for this year's 2019 valuation report is the same.

Conclusion – The Actuary for the LLA considers the LSPRS-derived adjustment factors to be reasonable.

Mortality Improvement Scale

A detailed analysis of the mortality improvement scale was undertaken by the Actuary for the LLA for the 2018 valuation report (presented in an Actuarial Valuation Report dated December 20, 2018). The conclusion for this year's 2019 valuation report is the same.

Additionally, we note that projection scale MP2018 was the most recent projection scale available as of the valuation date. However, we find the projection scale MP2017 to be fully appropriate for the 2019 Actuarial Valuation.

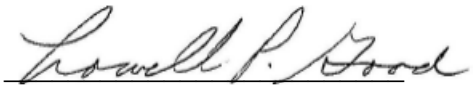
Conclusion – The Actuary for the LLA considers the mortality improvement scale to be reasonable.

Actuarial Certification

This Actuarial Review report constitutes a Statement of Actuarial Opinion. It has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents information it is purported to present. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Lowell P. Good and James J. Rizzo are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the Louisiana State Police Retirement System.



Lowell P. Good, ASA, EA, MAAA
Actuary for the Louisiana Legislative Auditor

November 19, 2019
Date

James J. Rizzo, ASA, EA, MAAA
Senior Consultant and Actuary
Gabriel, Roeder, Smith & Company

November 19, 2019
Date

Appendix

		Statutory Conditions Under:		Authorizing Statutes for COLAs (Permanent Benefit Increases) Pct and Recipients[1]		Actions or Inactions by Governing Authorities (Granted in Full Whenever Permitted)		
Actuarial Measurement Date	**Legislative Session**	**The Window Rule[2]**	**The Sufficient EA Balance Rule[3]**	**R.S. 11:1332(C) Base COLA [To All Elg]**	**R.S. 11:1332(F) Suppl. COLA [2% to Elg Over 65]**	**Amount Granted by Legislature and Signed by Governor**	**Effective Date of COLA**	**Comments**
6/30/2019	2020	**Satisfied**	Not Satisfied	Not Permitted	Not Permitted	NA	NA	None permitted for failure of Sufficient EA Balance Rule
6/30/2018	2019	Not Satisfied	Not Satisfied	Not Permitted	Not Permitted	NA	NA	None permitted for failure of Window Rule and Sufficient EA Balance Rule
6/30/2017	2018	**Satisfied**	**Satisfied**	**1.6% Permitted** [To All Elg]	None Permitted [To Elg Over 65]	**1.6% Base granted**	**7/1/18**	The 2018 Legislative Act 643 granted the 1.6% Base COLA but insufficient funds for Suppl.
6/30/2016	2017	Not Satisfied	Not Satisfied	Not Permitted	Not Permitted	NA	NA	None permitted for failure of Window Rule and Sufficient EA Balance Rule
6/30/2015	2016	**Satisfied**	**Satisfied**	**0.1% Permitted** [To All Elg]	**2.0% Permitted** [To Elg Over 65]	**2.0% Base plus 2.0% Suppl. granted**	**7/1/16**	The 2016 Legislative Act 93 over-rode the 0.1% Base (granting 2.0%) and granted a 2.0% Supplement
6/30/2014	2015	Not Satisfied	**Satisfied**	Not Permitted	Not Permitted	NA	NA	None permitted for failure of Window Rule
6/14/2013	2014	**Satisfied**	**Satisfied**	1.5% **Permitted** [To All Elg]	**2.0% Permitted** [To Elg Over 65]	**1.5% Base plus 2.0% Suppl. granted**	**7/1/14**	The 2014 Legislative Act 103 granted the 1.5% Base and a 2.0% Supplement

[1] Per R.S. 11:1332(B&C), a base COLA (aka Permanent Benefit Increase) to all eligible pensioners is authorized. Additionally, per R.S. 11:1332(F), a supplemental COLA to eligible pensioners over age 65 is authorized. Various factors and rules apply within those statutes, such as a recommendation from the board and approved by the legislature in a bill that is signed by the Governor, such as rules relating to additions and subtractions to the Experience Account (EA), such as relate to the CPI increase and the funded ratio of the system and the actuarial rate of return, and such as relate to commencement timing and the portion of benefits not subject to COLA, as well as other rules and conditions.

[2] We refer to another such rule as the "Window Rule". Per R.S. 11:1332(C)(1), no COLA may be granted if (a) the system is at less than 55% funded or if (b) the system is least 55% funded but less than 85% funded and a COLA was granted in the previous year. In other words, a window of opportunity for a COLA-granted is available.

[3] We refer to another such rule as the "Sufficient Experience Account (EA) Balance Rule". Per R.S. 11:1332(A)(2)(c), if the present value of the designated full amount of a permitted base COLA exceeds the EA balance, the base COLA may not be granted unless a narrow set of conditions is met. The same is true of an R.S. 11:1332(F) supplemental COLA, after having debited the EA with the present value of an R.S. 11:1332(C) base COLA granted.

During the last seven (7) years, a COLA was permitted by the statutory template three (3) times. In all 3-out-of-3 times that the statutory template permitted a COLA, the legislature and Governor granted them. Conversely, there were no cases in the last seven years when a template-COLA was permitted but the legislature or Governor failed to grant it. This evidence leads us to conclude – based on the historical pattern inherent in the data – that a COLA was granted every year that the statutory template permitted one.

In Act 93, the 2016 Legislature decided that the statutory template did not allow *enough* of an increase even though it permitted 0.1%. As a result, it granted *a higher COLA*, outside the established statutory template for COLAs. The main point is that the pattern that emerges from the application of the statutory template has been "to grant a template-COLA whenever the template permitted it, and possibly to grant a non-template-COLA even when the standard statutory template would not permit it."

We do not find a sufficient pattern of non-template-COLAs being granted (1-out-of-7), but do find a sufficient pattern for template-driven COLAs (3-out-of-3).

In Act 399, the 2014 Legislature included a limit on the frequency of granting COLAs so that a permanent benefit increase may not be granted more often than every other year, until the System is at least 85% funded. The statutory mechanism and this feature are additional reasonable evidence of an intention by the legislature to grant COLAs with some regularity (an argument for including reasonably expected COLA benefits in actuarial valuations).

In addition, legislators may be inclined to approve COLAs whenever permitted by the statutory template since they have often been told they have already been funded with the balance in the Experience Account.

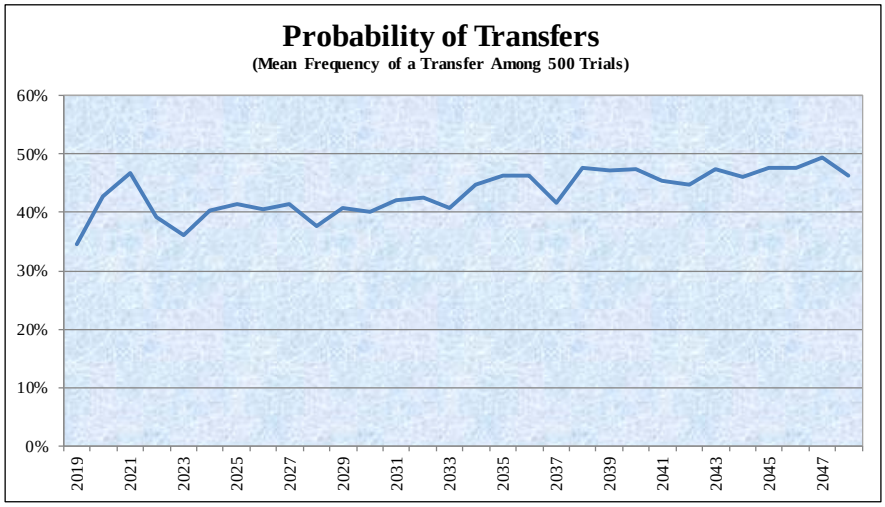
It is clear that recognizing only one year's transfer to the Experience Account (and that no future COLA benefits would be granted thereafter) does not reflect the clear and reasonable likelihood that COLAs will be granted in the future. Thus, the Actuary for the LLA recommends that all actuarially expected and permitted future COLA benefits be assumed granted in accordance with the statutory template. This is a change in the actuarial assumptions from the previous PRSAC-adopted valuations.

The mathematical and logical rules set forth in the statutory template lend themselves to actuarial modeling. The frequency and magnitude of the future transfers to the Experience Account and future permissions to grant COLAs can be modelled actuarially using well-accepted techniques.

It is fundamental in actuarial valuations to recognize the costs and liabilities for all reasonably expected future benefits of the retirement plan. Assuming that legislators will grant template-driven COLAs whenever permitted by the statutes, it is actuarially appropriate to recognize the frequency and magnitude of future COLAs when performing an annual actuarial valuation of the System's costs and liabilities.

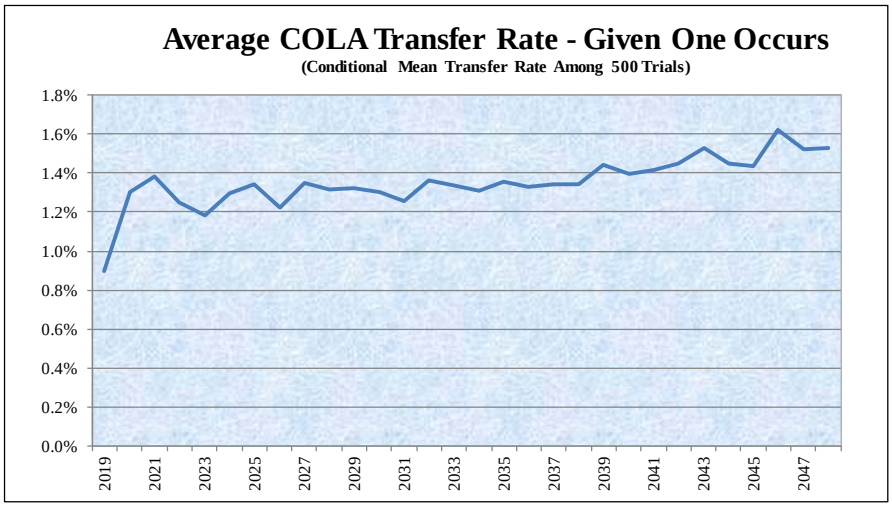
Actuarial Simulations

Consider the following graphs taken from the LSPRS 2018 Actuarial Valuation Report prepared by the Actuary for the LLA. These illustrate the results (Experience Account transfers) of the simulations in the stochastic actuarial projection model of LSPRS' gain-sharing COLA program. Refer to that actuarial valuation report for details of assumptions and methods.



Based on the graph above, during each of the next 30 years there is a 35% to 50% chance of a transfer of excess actuarial earnings to the Experience Account. In other words, such transfers to the Experience Account are expected to occur approximately once every 2 or 3 years. That is actuarially reasonable, frequent, and material.

Once a transfer occurs, it may not be used for anything other than future COLAs; although there may be a slight shift in timing. Therefore, measuring the transfer frequency and amounts is the same as measuring the future COLAs. Given such a transfer occurs, the graph below illustrates the average percent-amount transferred into the Experience Account. These transfer amounts represent a drain on the core benefit fund and represent the granting of a future COLA that must be recognized in actuarial valuations for funding and for accounting purposes.



The following graph illustrates the average COLA transfer rate (considering the likelihood of transfers and the magnitude of the amount of transfer). This presents the expected transfer rate. Over time that expected transfer rate is approximately 0.60% per year – on average.

If this simulation were updated for 2019 census and financial, it is not expected to produce a materially different result. If it were updated for the Act 214 of the 2018 Legislative Session which increased the limit on the permissible balance in the Experience Account to accommodate accumulation of assets for funding supplemental COLAs, the new result is expected to increase the estimate somewhat during the next several years – all the more reason to include all reasonably expected future COLAs into the System's actuarial valuations (for funding and accounting) rather than excluding them.

Because every transfer into the Experience Account results in a future COLA granted (as of the July 1 in the following one to three years), this graph represents the single equivalent annual fixed COLA that has the same expected present value as the stochastically simulated model of LSPRS' complex COLA program.

This actuarial simulation and its results (a 0.60% fixed annual COLA):

- Provides a simplified approximation that can easily be incorporated into annual actuarial valuations,

- Has the benefit of providing decision- makers (trustees and legislators) with useful information about how much COLA the current legislative framework (template) is expected to produce, and

- Are recommended to be included in each actuarial valuation and updated every few years, for funding and accounting.