ACTUARIAL REVIEW OF THE 2021 ACTUARIAL VALUATION OF THE LOUISIANA STATE POLICE RETIREMENT SYSTEM

ACTUARIAL SERVICES

PRESENTED TO THE PUBLIC RETIREMENT SYSTEMS' ACTUARIAL COMMITTEE
ON DECEMBER 16, 2021

LOUISIANA LEGISLATIVE AUDITOR
MICHAEL J. "MIKE" WAGUESPACK, CPA

December 3, 2021

The Honorable Phillip DeVillier
Chairman, Public Retirement Systems' Actuarial Committee
Louisiana House of Representatives
Post Office Box 94062
Baton Rouge, LA 70804

Re: Actuarial Review of LSPRS' 2021 Actuarial Valuation

Dear Chairman DeVillier and PRSAC Members:

In accordance with La. R.S. 11:127(C) and 24:513(C)(1), the Louisiana Legislative Auditor has conducted an Actuarial Review for the Louisiana State Police Retirement System (LSPRS or System).

The following presents the results of our Actuarial Review of LSPRS' June 30, 2021 Actuarial Valuation (prepared by G.S. Curran & Company and dated October 7, 2021). In doing so, we have reviewed certain actuarial assumptions and methods employed by LSPRS and its actuary for appropriateness.

I would like to thank LSPRS' executive director, staff, and actuary for the cooperation and assistance provided for this review.

Sincerely,

Michael J. Waguespack, CPA
Legislative Auditor

MJW:JJR:ch

cc: Mr. Kevin Reed, Executive Director
Louisiana State Police Retirement System

Gregory Curran, FCA, MAAA, ASA
G.S. Curran & Company, LTD

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Executive Summary

The Louisiana Legislative Auditor (LLA) performed an Actuarial Review (AR or Review) of the Louisiana State Police Retirement System (LSPRS) June 30, 2021 Actuarial Valuation dated October 7, 2021.

This Review is a limited scope review intended to:

1. Evaluate the appropriateness of certain actuarial assumptions and methods adopted by LSPRS' board.
2. Identify potential improvements to these actuarial assumptions and methods.
3. Identify any actuarial assumption or method that clearly violates any relevant Actuarial Standard of Practice (ASOPs).

Summary of Conclusions

We did not identify any actuarial assumption or method that violates any ASOPs. Nevertheless, we offer the following recommendations for consideration by the LSPRS' board and by the Public Retirement Systems' Actuarial Committee:

1. *Gain-sharing and Cost-of-Living Adjustments (COLAs).* Currently, LSPRS' board and its actuary do not anticipate future COLAs in the actuarial valuations (only recognizing what is remaining to fill up the Experience Account once). By not including actuarially-expected future COLA benefits, the actuarial valuations (a) ignore the reasonable expectation that COLAs will be granted in the future with some frequency and (b) push the cost of providing those COLAs out to future generations of taxpayers.

   We recommend the LSPRS board engage its actuary to undertake a quantitative actuarial analysis of the operation of the current gain-sharing provisions, in order to be able to advise the board about the long-term costs and liabilities associated with all expected future gain-sharing COLAs.

   In addition, we believe stakeholders may wish to consider if the current statutory structure that indirectly finances COLAs is meeting the desired policy goals. A clearer connection between the contribution to the trust and the COLA(s) it is designed to fund is likely to be less confusing and increase accountability.

2. *Investment Return Assumption.* The System's assumption remains approximately 85 basis points higher than the investment return benchmark calculated by the LLA. We recommend the System continue to lower its investment return assumption and consider:

   - Incorporating conservatism in the assumption by consistently targeting a rate that is closer to a 60% probability of achieving the assumption over time; and
   - Reflecting the impact of cash flow timing on total expected returns.

Introduction

The Louisiana Legislative Auditor (LLA) performed an Actuarial Review (Review) of the Louisiana State Police Retirement System's (LSPRS or System) June 30, 2021 Actuarial Valuation dated October 7, 2021, as prepared by G.S. Curran & Company. This Review is being performed in accordance with La. R.S. 11:127(C) and 24:513(C)(1). This Review, in conjunction with the System's full actuarial valuation, is intended to fulfill the requirements of La. R.S. 11:127(C) to the Public Retirement Systems' Actuarial Committee (PRSAC).

Actuarial Standards of Practice (ASOPs) are principles-based, rather than prescriptive, in nature, and therefore actuarial valuations involve significant use of an actuary's professional judgement when developing actuarial assumptions and methods. This can result in different actuaries utilizing different assumptions and methodologies when approaching similar, or even the same, benefit structures and legislative constraints.

This Review is a limited scope review intended to:

1. Evaluate the appropriateness of certain actuarial assumptions and methods adopted by LSPRS' board.
2. Identify potential improvements to these actuarial assumptions and methods.
3. Identify any actuarial assumption or method that clearly violates any relevant ASOPs.

We hope the recommendations help the LSPRS board in its decision-making process, as well as PRSAC in its "review and study" of the retirement systems.

As a limited scope review, we relied on previously-published LLA analyses and, where necessary, reasonable estimating techniques to advance the analysis to the current valuation date. We did not attempt to replicate the System actuary's results; perform a full actuarial valuation using alternative assumptions and methods developed by the LLA; nor did we perform a full and detailed analysis of any assumptions or methods.

Further, the discussion included in this Review is limited to (1) the treatment of future COLA benefits and (2) the investment return assumption. The limited discussion does not indicate that other assumptions and methods were not considered, nor that recommendations for improvement in other assumptions and methods will not be included in future reviews.

This Review was prepared by Kenneth J. Herbold, Director of Actuarial Services for the LLA; and by James J. Rizzo, Senior Consultant and Actuary, and Piotr Krekora, Senior Consultant and Actuary, both employed by Gabriel, Roeder, Smith & Company (GRS). GRS is under contract with the LLA to provide backup, research, calculations, actuarial services, and advice.

Our Recommendations

We did not identify any actuarial assumption or method that violates any ASOPs. Nevertheless, we offer the following recommendations for consideration by the LSPRS board and by PRSAC:

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

R.S. 11:1331.1 – 11.1332 outlines the provisions for the funding and granting of COLAs. The statute provides for a side fund referred to as the Experience Account. The Experience Account is automatically funded via gain-sharing (i.e., when investment returns exceed a specified threshold). In addition, the board, with the approval of the legislature, may grant ad-hoc COLAs subject to a number of limitations outlined in the statute. We are calling the combination of gain-sharing and ad-hoc COLAs outlined in statute a statutory "template" for granting COLAs.

LSPRS' Methodology

Currently, LSPRS' board and its actuary do not anticipate future COLAs in the actuarial valuations. Instead, the annual actuarial valuation recognizes one fill-up of the Experience Account as an automatic benefit that would someday be used to pay for a COLA. Beyond that one fill-up, no future COLA benefits are recognized in the valuations. This is a different treatment than is used by LASERS and TRSL, which do recognize future COLAs in their valuations.

Actuarially speaking, the current statutory template is reasonably likely to *permit* the granting of future COLAs with some regularity. Further, there is considerable pressure to grant COLAs when and if they are *permitted*, due to (a) the board and legislature responding to retirees' needs, (b) COLAs being granted by Social Security and other Louisiana retirement systems, and (c) a lack of COLAs granted for LSPRS members in the recent past. Since 2009, every time the statutes have *permitted* a COLA, the board and legislature have adopted one. In fact, the legislature has also granted COLAs even when the template did not otherwise permit one. This creates a pattern, leading to a reasonable expectation of future COLA being granted. Thus, when the situation *permits* template-based COLAs, it is reasonable to assume the board and legislature will grant them. To the extent the fact pattern has changed (such as an increase in costs), a decrease in the likelihood the board recommends and/or the legislature approves a COLA even when it is otherwise permitted can be reflected in the assumption.

Some view the granting of a COLA as a plan amendment adopted by the governing body which, therefore, should not be recognized until the COLA is granted. That view may have some appeal in situations where there is no clear pattern or reasonable likelihood. But where there is (as in this situation for LSPRS given the current statutory template and pattern of granting COLAs to the extent allowed by funds' availability), it is more appropriate and transparent to recognize the frequency and magnitude of all expected future COLAs in the actuarial valuation. To the extent the fact pattern has changed (such as increased employer contribution rates since) which decreases the likelihood the board recommends and/or the legislature grants a COLA even when permitted, the assumptions can be adjusted to reflect this change while still recognizing some COLAs are still reasonably likely.

By not recognizing *all* future COLA benefits that are reasonably likely to occur, the actuarial valuations (a) ignore the reasonable expectation that COLAs will be granted in the future with some frequency and (b) push the cost of providing those COLAs out to future generations of taxpayers.

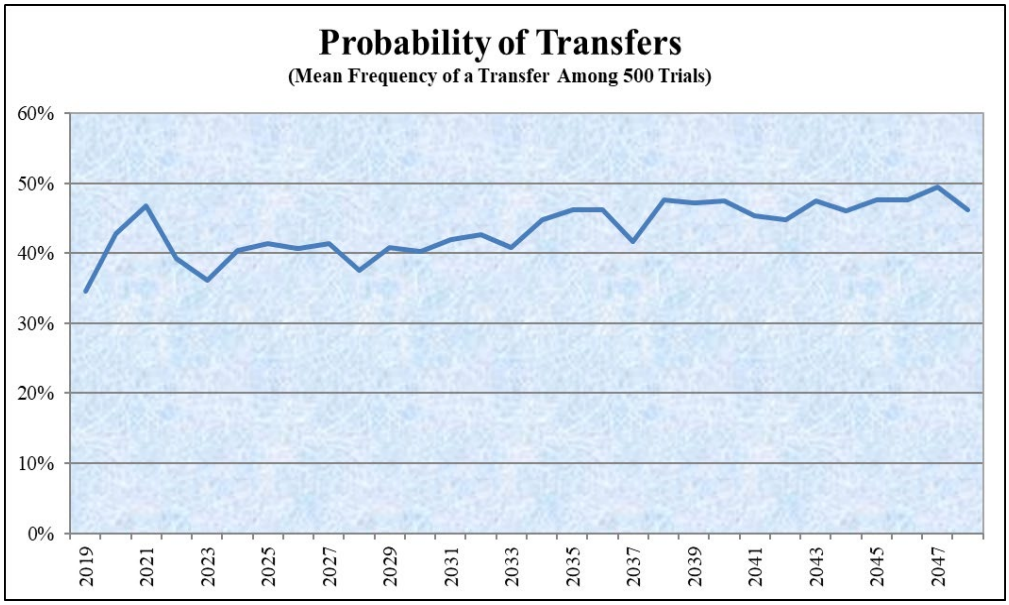
The frequency and magnitude of future transfers to the Experience Account can be actuarially modelled using well-accepted techniques. Assuming legislators will grant template-driven COLAs

when allowed by the statutes (either 100% of the time permitted or with less regularity), it is actuarially appropriate to recognize the frequency and magnitude of future COLAs when performing an annual actuarial valuation of LSPRS' costs and liabilities.

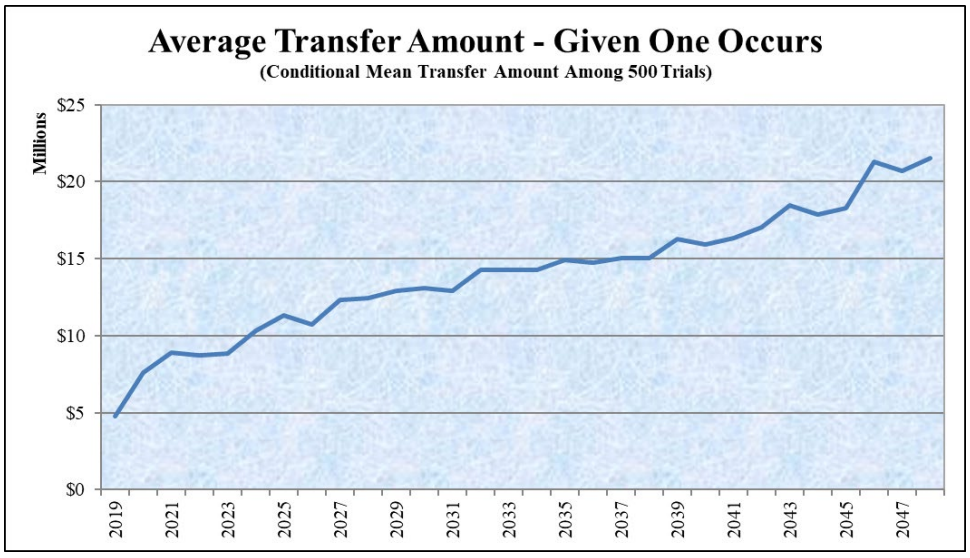
Modelling LSPRS' Current COLA Provisions

A full stochastic simulation of the statutory template for expected future COLA benefits was performed in the LLA's *2018 Actuarial Valuation Report on the Louisiana State Police Retirement System* (dated December 20, 2018).

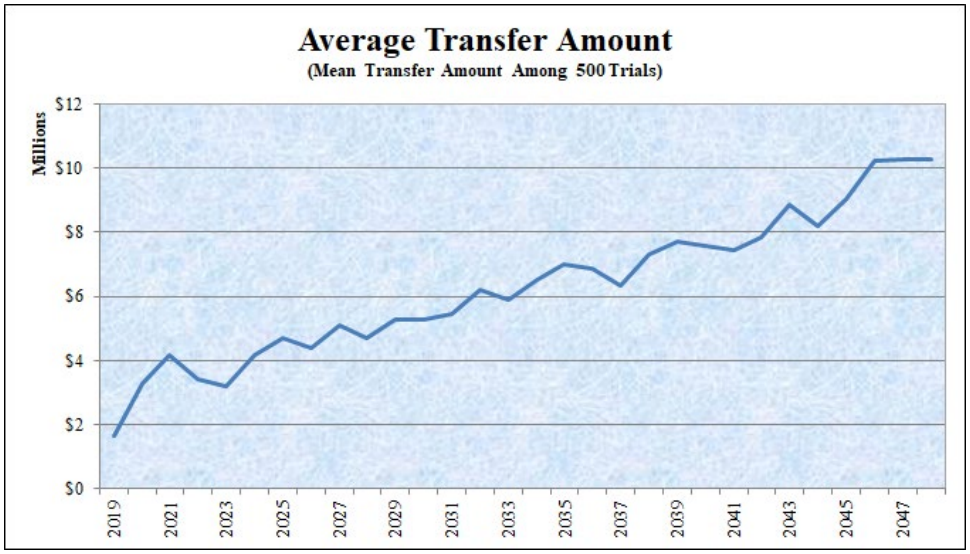
The following graphs present the results of those simulations of the frequency and magnitude of transfers out of the core pension fund (depleting funds available to pay for core benefits) to the Experience Account, where they are ultimately used to pay for COLA benefits.



Starting with the conditions in 2018, the probability of a transfer out of the core pension fund into LSPRS Experience Account was estimated at 35% to 50% for each of the following 30 years; that translates to approximately once in every two or three years. Current conditions and recent fund performance may change the results if re-estimated this year.



If a transfer does occur in any given year during the next 30 years, pursuant to the current statutory conditions, it was estimated to average between $5 million and $20 million.



Combining the frequency and magnitude of the expected transfers out of the core pension fund into the Experience Account for subsequent grants of COLAs, the average annual amount of transfers is expected to fall between $2 million and $10 million.

Recommended Actuarial Method

The following summarizes two explicit methods of recognizing expected future COLAs in advance, under the current statutory template for LSPRS. Both methods use the same type of Monte Carlo stochastic simulation.

1. *Single equivalent annual COLA assumption*. An open group forecast valuation simulation spins off information about the frequency and magnitude of each year's potential transfer to the Experience Account. The mean (average) transfer amount can be considered a benefit stream. Solving for *x*, an annual equivalent COLA having the same actuarial present value

over the next 30 years as the average simulated transfer amount can be determined. That single equivalent annual COLA becomes an actuarial assumption built into the usual actuarial valuation procedures.

2. *Single equivalent benefit load assumption.* Dividing that same mean (average) transfer stream for each year by its regular benefits payable for that year, as spun off from the open group forecast valuation simulation, provides an estimate of the "load" on regular benefits that approximates the average transfer amount. That load estimate becomes an actuarial assumption built into the usual actuarial valuation procedures.

In other words, method 1 assumes a small annual COLA is granted which is approximately equal to the present value of a semi-regular COLA granted less frequently than annually, while method 2 calculates how much the same present value would be as a percentage of the present value and then increases the total liability and normal cost by that percentage. Both methods 1 and 2 expect experience gains (in years when a COLA is not granted) and experience losses (in years when a COLA is granted) – but their volatility is dampened by recognizing both experience gains and losses which are expected to offset each other.

Using method 1 and the assumptions and caveats, the simulations depicted above estimated that the current statutory template for LSPRS would be *actuarially equivalent to an annual COLA of 0.60%.*

Additional Considerations

As noted above, current statute requires investment returns above a specified threshold be transferred to the Experience Account. Both the concept of gain-sharing and the use of a "side fund" designed to finance COLAs can be used in reasonable and responsible ways. However, the current statutory template design lacks transparency. The current method of financing COLAs obscures the anticipated cost to employers and makes it more difficult for members to understand the likelihood of receiving a COLA; while at the same time diverting investments gains which slows progress towards fully funding current benefits. A clearer connection between the contribution to the trust and the benefits they are designed to fund is less confusing, increases accountability, and serves to dampen contribution volatility.

Conclusion

Currently, LSPRS' board and its actuary do not anticipate future COLAs in the actuarial valuations (only recognizing what is remaining to fill up the Experience Account once). By not including actuarially-expected future COLA benefits in the liabilities, LSPRS is not fully reflecting all significant plan benefits. We recommend 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 template COLAs.

In addition, we believe stakeholders may wish to consider if the current statutory structure that indirectly finances COLAs is meeting the desired policy goals. A clearer connection between the contribution to the trust and the COLA(s) it is designed to fund is likely to be less confusing and increase accountability.

2. Investment Return Assumption

The last comprehensive analysis of the investment return assumption was prepared and presented in the LLA's *2018 Actuarial Valuation Report on the Louisiana State Police Retirement Plan* dated December 20, 2018, using forecasts published in 2018. Since that analysis was completed, professional investment forecasters have continued lowering their expectations for the mid-term and longer-term.

For this Review, a detailed analysis of independent experts' 2021 forecasts for LSPRS' portfolio was not undertaken. Instead, we provide an estimate of the return assumption calculated using the same methodology as prior LLA analyses, for consistency and illustrative purposes. Those results can be found in the section below entitled *Benchmark Investment Return Assumption*. We also present observational commentary.

Selecting an Investment Return Assumption

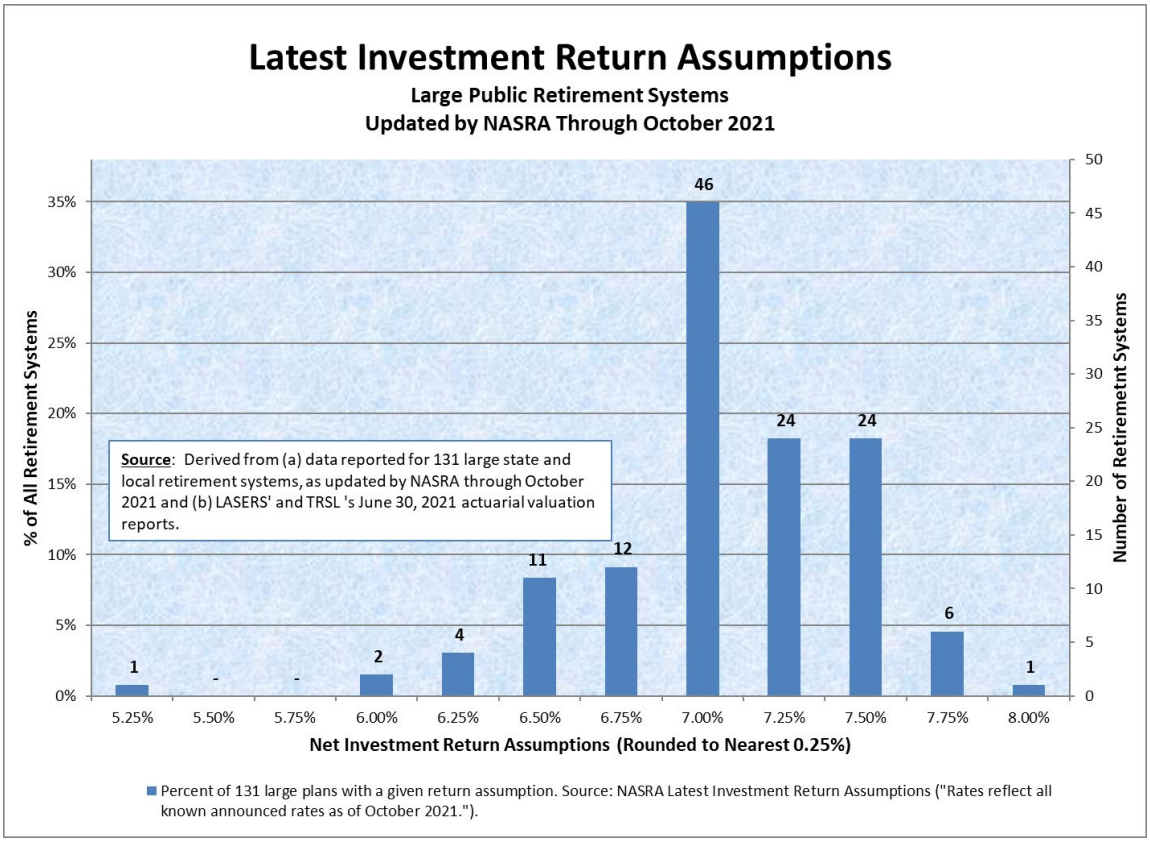
ASOP No. 27 provides guidance for selecting "reasonable" economic assumptions. The ASOP outlines multiple characteristics to define what constitutes a reasonable assumption, including that it "is expected to have no significant bias (i.e., it is not significantly optimistic or pessimistic)." However, the ASOP specifically allows assumptions to be adjusted for conservatism.

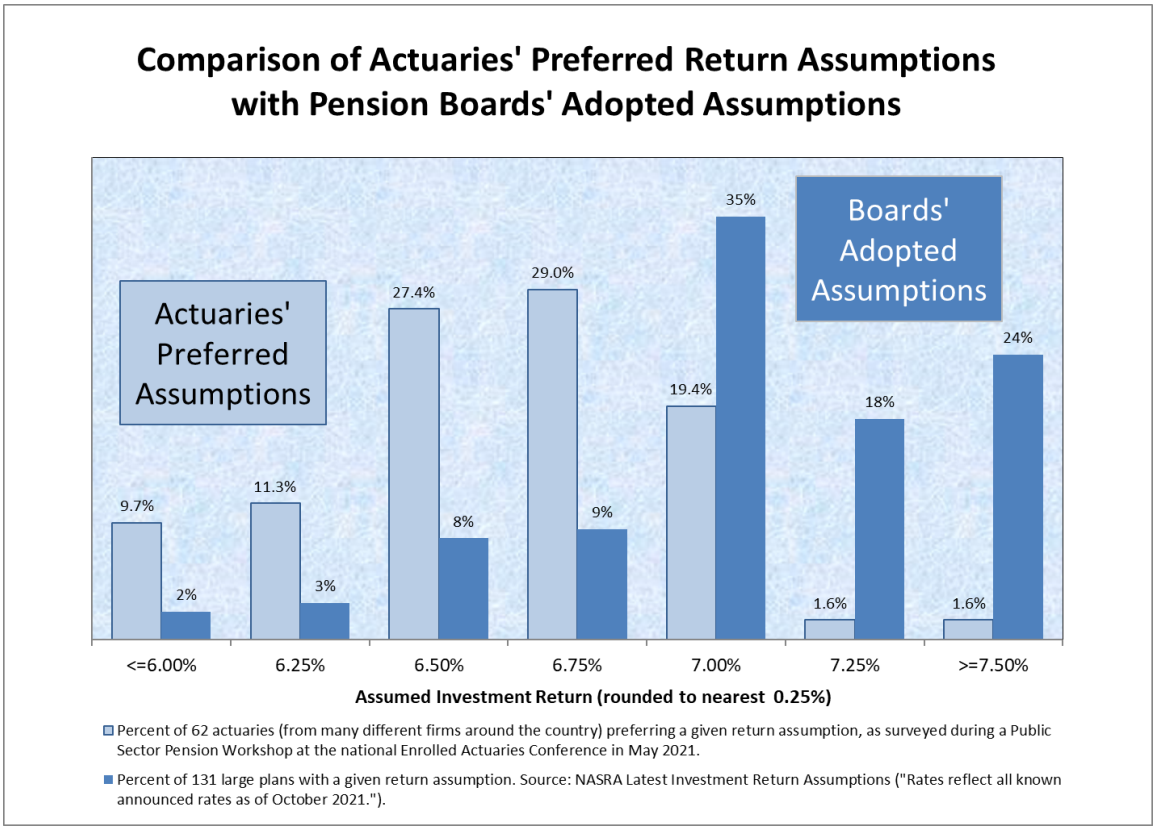
This is particularly important when considering an appropriate investment return assumption because the investment return assumption is tied directly to the discount rate, which has the single largest impact on the development of the liability. Small changes in the assumption can have a large impact, which is why an overly optimistic investment return assumption, applied repeatedly, can (a) create repeated actuarial losses, (b) cause underfunding by understating the required contribution, (c) impede the scheduled progress to pay off the unfunded liability and achieve full funding, and (d) undermine the actuarial integrity of the pension-promise.

LSPRS' board and actuary lowered the investment return assumption from 7.00% as of June 30, 2020 to 6.95% for the June 30, 2021 valuation.

Comparison to Peers

The following two charts present the distribution of current return assumptions for large retirement systems using the latest NASRA Survey and from a survey of actuaries' generally-preferred assumptions, as compared to the current LSPRS return assumption of 6.95%.


Latest Investment Return Assumptions
Large Public Retirement Systems
Updated by NASRA Through October 2021
% of All Retirement Systems
Number of Retiremetnt Systems
Source: Derived from (a) data reported for 131 large state and local retirement systems, as updated by NASRA through October 2021 and (b) LASERS' and TRSL 's June 30, 2021 actuarial valuation reports.
1
-
-
2
4
11
12
46
24
24
6
1
5.25%
5.50%
5.75%
6.00%
6.25%
6.50%
6.75%
7.00%
7.25%
7.50%
7.75%
8.00%
Net Investment Return Assumptions (Rounded to Nearest 0.25%)
Percent of 131 large plans with a given return assumption. Source: NASRA Latest Investment Return Assumptions ("Rates reflect all known announced rates as of October 2021.").


Comparison of Actuaries' Preferred Return Assumptions with Pension Boards' Adopted Assumptions
Actuaries' Preferred Assumptions
Boards' Adopted Assumptions
9.7%
2%
11.3%
3%
27.4%
8%
29.0%
9%
19.4%
35%
1.6%
18%
1.6%
24%
<=6.00%
6.25%
6.50%
6.75%
7.00%
7.25%
>=7.50%
Assumed Investment Return (rounded to nearest 0.25%)
Percent of 62 actuaries (from many different firms around the country) preferring a given return assumption, as surveyed during a Public Sector Pension Workshop at the national Enrolled Actuaries Conference in May 2021.
Percent of 131 large plans with a given return assumption. Source: NASRA Latest Investment Return Assumptions ("Rates reflect all known announced rates as of October 2021.").

However, comparing return assumptions across peers is not the most appropriate way to assess the reasonableness or the degree of conservatism of LSPRS' return assumption, but it can still be informative and provide context when reviewing the assumption. It is important to note that many retirement systems only review their investment return assumption once every five years, so the survey data may not fully reflect changes in capital market assumptions over the past several years.

A better comparison benchmark for a system's return assumption is to apply the robust and disciplined methodology discussed below, comparing the return assumption derived from the capital market assumptions of several nationally respected investment forecasters.

Benchmark Investment Return Assumption

In the supporting documentation for the investment return assumption, LSPRS' actuary used the long-term (20-30 years) capital market assumptions from various investment consulting firms. However, we believe an assumed rate of return that falls between the mid-term and long-term expectations is more appropriate for LSPRS and for most other mature retirement systems. This more accurately reflects the inherent drag on total returns that results when distributions are larger than contributions (i.e., negative non-investment cash flow), and therefore some portion of current assets will be invested for a shorter time horizon.

The LLA has historically developed an investment return assumption from a consensus average expected return based on the capital market assumptions of several respected and independent professional investment forecasters, as applied to a plan's own asset allocation and its own expected benefit cash flow. Relying on *several* such firms ensures the result does not represent just one firm's opinion, but reflects the mainstream of thought leaders.

Following are the professional investment forecasters whose capital market assumptions inform us in deriving a consensus average.

Participating Professional Investment Forecasters			
Aon/Hewitt	Blackrock	BNY/Mellon	Callan
Cambridge	J.P. Morgan	Meketa	Mercer
RVK	NEPC	Verus	Wilshire

For this Review, an *estimate* of the benchmark return assumption was developed based on (a) the most recent comprehensive analyses for LSPRS (2018), (b) our general understanding of the direction and change-magnitude of forecasters' expectations in recent years (from 2018 to 2021) applied to LSPRS' asset allocation, and (c) a slight decrease in the expected rate of inflation embedded in return expectations (from 2018 to 2021). As outlined in the LLA's 2018 Actuarial Valuation Report, the benchmark return falls between the mid-term (10 year) expectations and the longer-term (20 and 30 year) expectations.

The following table shows the comparison the System's investment return assumption and the LLA developed benchmark:

Actuarial Valuation Date	Investment Return Assumption	Benchmark	Difference
June 30, 2021	6.95%	6.00%	0.95%
June 30, 2020	7.00%	6.30%	0.70%
June 30, 2019	7.00%	N/A	N/A
June 30, 2018	7.00%	6.50%	0.50%

Conclusion

In 2018, the System's assumption was only 50 basis points higher than the investment return benchmark calculated by the LLA. Currently, however, the System's assumption is 95 basis points higher than the investment return benchmark calculated by the LLA. Professional expectations of future investment performance have dropped considerably since 2018, while the System's return assumption has only dropped by 5 basis points since 2018. We recommend the System continue to lower its investment return assumption, and consider:

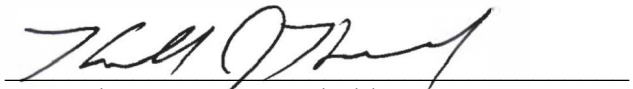
- Incorporating conservatism in the assumption by consistently targeting a rate that is closer to a 60% probability of achieving the assumption over time; and
- Reflecting the impact of cash flow timing on total expected returns.

Actuarial Certification

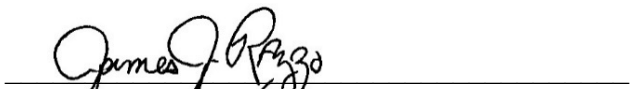
This Actuarial Review constitutes a Statement of Actuarial Opinion. It has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents information it is purported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

Kenneth J. Herbold, James J. Rizzo, and Piotr Krekora are members of the American Academy of Actuaries and meet the US Qualification Standards necessary to render the actuarial opinions contained herein.

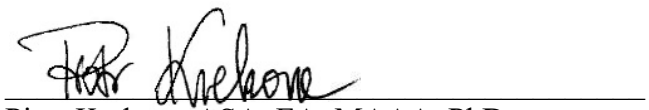
The signing actuaries are independent of the Louisiana State Police Retirement System.



December 3, 2021
Kenneth J. "Kenny" Herbold, ASA, EA, MAAA — Date
Director of Actuarial Services
Louisiana Legislative Auditor



December 3, 2021
James J. Rizzo, ASA, EA, MAAA — Date
Senior Consultant and Actuary
Gabriel, Roeder, Smith & Company



December 3, 2021
Piotr Krekora, ASA, EA, MAAA, PhD — Date
Senior Consultant and Actuary
Gabriel, Roeder, Smith & Company

Appendix

Qualifications and Caveats

This Actuarial Review was prepared in accordance with La. R.S. 11:127(C) and 24:513(C)(1). This Review, in conjunction with the System's full actuarial valuation, is intended to fulfill the requirements of La. R.S. 11:127(C) to the Public Retirement Systems' Actuarial Committee (PRSAC) for 2021 and is intended for use by PRSAC and those designated or approved by PRSAC. This Actuarial Review may be provided to parties other than PRSAC only in its entirety and only with the permission of PRSAC. The Louisiana Legislative Auditor is not responsible for unauthorized use of this Actuarial Review.

This Actuarial Review should not be construed as providing tax advice, legal advice, or investment advice. It should not be relied on for any purpose other than the purposes described herein. This Actuarial Review assumes the continuing ability of LSPRS to collect the contributions necessary to fund this Plan. A determination regarding whether or not LSPRS is actually willing and able to do so in the future is outside our scope of expertise and was not performed.

The findings in this Actuarial Review are based on data and other information as of June 30, 2021, and forecasts published for 2021. The COLA modelling graphs and 2018 investment return benchmark presented in this Actuarial Review were developed for the LLA's *2018 Actuarial Valuation Report on the Louisiana State Police Retirement System* (dated December 20, 2018). Refer to that report for details of the model, assumptions and methods. This Actuarial Review was based upon information furnished by LSPRS, the System's investment consultant, the System's actuary, and by numerous external inflation and investment forecasters. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by outside parties.

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 and with applicable statutes.

At the time of this writing, we consider the 2021 forecasts of the future inflation and capital market assumptions (including future investment returns) from the subject matter experts to be suitable for development of the benchmark return assumption for the 2021 actuarial valuation. All actuarial projections have a degree of uncertainty because they are based on the probability of occurrence of future contingent events. Accordingly, actual results will be different from the results contained in the analysis to the extent actual future experience varies from the experience implied by the assumptions.

This Actuarial Review was prepared using GRS proprietary capital market asset model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of this report and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled. We are relying on the GRS actuaries and Internal Software, Training, and Processes Team who developed and maintain the model.