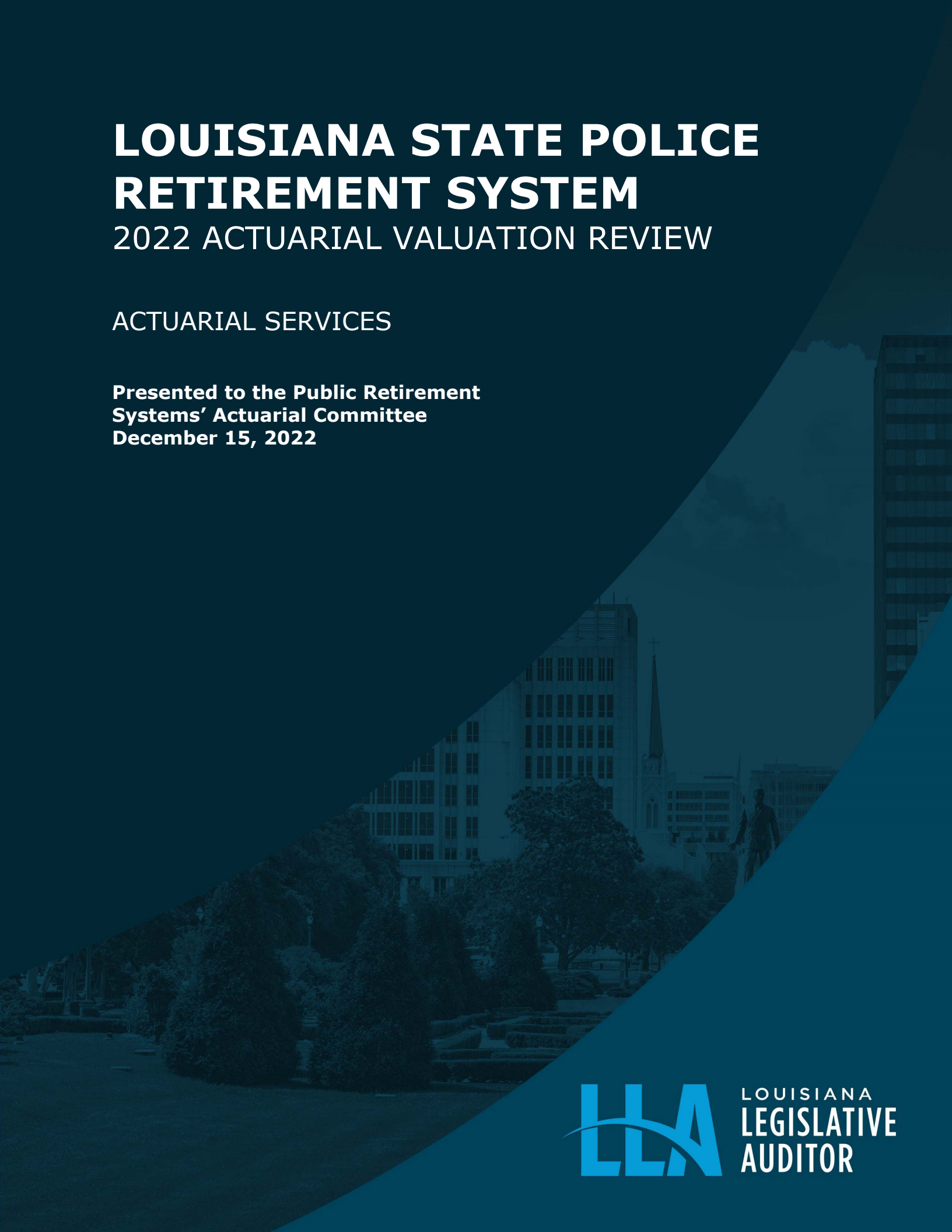
LOUISIANA STATE POLICE RETIREMENT SYSTEM

2022 ACTUARIAL VALUATION REVIEW

ACTUARIAL SERVICES

Presented to the Public Retirement Systems' Actuarial Committee
December 15, 2022



LOUISIANA LEGISLATIVE AUDITOR

LOUISIANA LEGISLATIVE AUDITOR

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

December 7, 2022

The Honorable Edward J. Price
Chairman, Public Retirement Systems' Actuarial Committee
Louisiana State Senate
Post Office Box 94183
Baton Rouge, Louisiana 70804

Re: Actuarial Review of LSPRS' 2022 Actuarial Valuation

Dear Chairman Price 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, 2022 Actuarial Valuation (prepared by Curran Actuarial Consulting, Ltd. and dated September 14, 2022). 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.

Respectfully submitted,

Michael J. "Mike" Waguespack, CPA
Legislative Auditor

MJW:KH:lm

cc: Ms. Margaret Corley Michel, Executive Director
Louisiana State Police Retirement System

Mr. Gregory Curran, FCA, MAAA, ASA
Curran Actuarial Consulting, Ltd.

1600 NORTH 3RD STREET P.O. BOX 94397 BATON ROUGE, LA 70804-9397
PHONE 225-339-3800 | FAX 225-339-3870 | LLA.LA.GOV

Executive Summary

The Louisiana Legislative Auditor (LLA) performed an Actuarial Review (AR or Review) of the Louisiana State Police Retirement System's (LSPRS or System) June 30, 2022 Actuarial Valuation dated September 14, 2022.

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 Standards 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 liability beyond what is necessary to replenish the Experience Account one time. 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.* For 2022, recent changes in the asset allocation and a slight increase in both short-term return expectations and the imbedded inflation assumption resulted in a small increase in the benchmark assumption at the same time as the investment return assumption decreased, resulting in a 30 basis point difference. While we commend the system for lowering its investment return assumption, we recommend this continues, and consider:

   - Incorporating conservatism in the assumption by consistently targeting a rate that is closer to having a 60% probability of achieving the assumption over time; and
   - Reflecting the impact of cash flow timing on total expected returns, recognizing when distributions are larger than contributions some portion of current assets will necessarily be needed to pay benefits and will therefore not be invested for the long-term.

Introduction

The Louisiana Legislative Auditor (LLA) performed an Actuarial Review (Review) of the Louisiana State Police Retirement System's (LSPRS or System) June 30, 2022 Actuarial Valuation dated September 14, 2022 as prepared by Curran Actuarial Consulting, Ltd. 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.

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. Cost-of-Living Adjustments (COLAs)

La. 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 statute.

LSPRS' Methodology

Currently, LSPRS' board and its actuary do not anticipate future COLAs in the actuarial liability. Instead, the annual actuarial valuation recognizes the amount necessary to replenish the Experience Account one time. No additional future COLA benefits are recognized in the liability. This is a different treatment than is used by LASERS and TRSL, which do recognize future COLAs in their valuations.

Actuarially speaking, while the current statutory structure lacks both transparency and has only permitted COLAs infrequently in recent history, it is still reasonably likely to *permit* the granting of future COLAs in an actuarially measurable manner. Further, there is considerable pressure to grant COLAs when 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) the irregularity and lack of transparency of when that will actually occur. Since 2009, every time the statutes have *permitted* a COLA, the board and legislature have adopted one. This creates a pattern, leading to a reasonable expectation of future COLAs being granted. Thus, when the situation *permits* COLAs, it is reasonable to assume the board and legislature will grant them.

Additionally, 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 structure and pattern of granting COLAs to the extent allowed), 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 differs in the future, such as due to an increase in contribution rates, the reduction in the likelihood the board will recommend and/or the legislature will approve a COLA when it is otherwise permitted can be reflected in the assumption.

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 accepted techniques. Assuming legislators will grant COLAs when allowed by under current statutory guidelines (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.

Recommended Methods

The following summarizes two explicit methods of recognizing expected future COLAs. 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 liability and then increases the total liability by that percentage. Both methods 1 and 2 will generate experience gains (in years when a COLA is not granted) and experience losses (in years when a COLA is granted) – but the volatility is dampened because the gains and losses are expected to offset each other over time.

A full stochastic simulation of the current statutory design 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). Method 1 was estimated to 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 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 Employees' Retirement Plan* dated December 20, 2018 using forecasts published in 2018. Two significant changes have occurred since that analysis was completed: (i) professional investment forecasters have lowered their expectations and (ii) LSPRS made certain changes to its asset allocation.

For this Review, a detailed analysis of independent experts' 2022 forecasts for LSPRS' portfolio was not undertaken. Instead, we provide an estimate of the return assumption calculated based on the methodology in 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 have lowered the investment return assumption over the past few years, from 7.00% as of June 30, 2020 to 6.95% for the June 30, 2021 valuation.

Benchmark Investment Return Assumption

In the supporting documentation for the discount rate and 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 designed to develop 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 have informed us in deriving the historical 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 benchmark assumptions since 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 2022), (c) changes in the System's asset allocation between 2018 and 2022, and (d) a slight increase in the expected rate of inflation embedded in return expectations (from 2018 to 2022). As outlined in the LLA's *2018 Actuarial Valuation Report,* the benchmark return falls closer to the mid-term (10 year) expectations than it does to the longer-term (20 and 30 year) expectations.

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

Actuarial Valuation Date	Investment Return Assumption	Benchmark	Difference
June 30, 2022	6.95%	6.25%	0.70%
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

For 2022, recent changes in the asset allocation and a slight increase in both short-term return expectations and the imbedded inflation assumption resulted in a small increase in the benchmark assumption. While recent market turmoil has potentially resulted in an increase in professional expectations of future investment performance since last year, long-term expectations are still down considerably from 2018. Therefore, 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 having a 60% probability of achieving the assumption over time; and
- Reflecting the impact of cash flow timing on total expected returns, recognizing when distributions are larger than contributions (i.e., negative non-investment cash flow) some portion of current assets will be invested for a shorter time horizon and will not be able to achieve the anticipated long-term investment return.

APPENDIX

Actuarial Disclosures

Intended Use

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 the System to collect the contributions necessary. A determination regarding whether or not the System is actually willing and able to do so in the future is outside our scope of expertise and was not performed.

Actuarial Data, Methods and Assumptions

The findings in this Actuarial Review are based on data and other information as of June 30, 2022, and forecasts published for 2022. This Actuarial Review was based upon information furnished by the System, 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.

For certain calculations that may be presented herein, we have utilized commercially available valuation software. We made a reasonable attempt to understand the intended purpose of, general operation of, major sensitivities and dependencies within, and key strengths and limitations of these models. In our professional judgment, the models have the capability to provide results that are consistent with the purposes of the analysis and have no material limitations or known weaknesses. Tests were performed to ensure that the model reasonably represents that which is intended to be modeled.

To the extent that this Actuarial Review relies on calculations performed by the Systems' actuaries, to the best of our knowledge, no material biases exist with respect to the data, methods or assumptions used to develop the analysis other than those specifically identified. We did not audit the information provided, but have reviewed

the information for reasonableness and consistency with other information provided by or for the affected retirement systems.

Conflict of Interest

There are no known conflicts that would compromise the ability to present an unbiased statement of actuarial opinion.

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 being reviewed.

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 at rates that differ from what was assumed, resulting in actual future accrued liability and contributions differing from expected.

The scope of this Actuarial Review 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 review. 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).

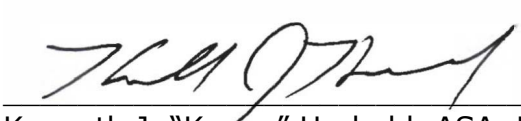
At the time of this writing, we consider the 2022 forecasts of the future inflation and capital market assumptions (including future investment returns) from the subject matter experts to be suitable for development of the benchmark return assumption for the 2022 actuarial valuation.

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.

Certification

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.

Kenneth J. Herbold is an Associate of the Society of Actuaries (ASA), a Member of the American Academy of Actuaries (MAAA), and an Enrolled Actuary (EA) under the Employees Retirement Income Security Act of 1974. Mr. Herbold meets the US Qualification Standards necessary to render the actuarial opinion contained herein.



Kenneth J. "Kenny" Herbold, ASA, EA, MAAA
Director of Actuarial Services
Louisiana Legislative Auditor

December 7, 2022
Date