ACTUARIAL REVIEW OF THE 2021 ACTUARIAL VALUATION OF THE MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL SERVICES

PRESENTED TO THE PUBLIC RETIREMENT SYSTEMS' ACTUARIAL COMMITTEE
ON FEBRUARY 23, 2022

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

January 24, 2022

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

Re: Actuarial Review of MERS' 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 Municipal Employees' Retirement System (MERS).

The following presents the results of our Actuarial Review of MERS' June 30, 2021 Actuarial Valuation (prepared by G.S. Curran & Company and dated December 3, 2021). In doing so, we have reviewed certain actuarial assumptions and methods employed by MERS and its actuary for appropriateness.

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

Sincerely,

Michael J. Waguespack, CPA
Legislative Auditor

MJW:KJH:ch

cc: Mr. Warren Ponder, Executive Director
Municipal Employees' Retirement System of Louisiana

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 Municipal Employees' Retirement System (MERS) June 30, 2021 Actuarial Valuation dated December 3, 2021.

This Review is a limited scope review intended to:

1. Evaluate the appropriateness of certain actuarial assumptions and methods adopted by MERS' 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 MERS' board and by the Public Retirement Systems' Actuarial Committee:

1. *Cost-of-Living Adjustments (COLAs).* Currently, MERS' board and its actuary do not anticipate future COLAs in the actuarial valuations. 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 MERS 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.

2. *Investment Return Assumption.* The System's assumption remains approximately 135 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 Municipal Employees' Retirement System (MERS or System) June 30, 2021 Actuarial Valuation dated December 3, 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 the MERS' 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 MERS 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 MERS board and by PRSAC:

1. Cost-of-Living Adjustments (COLAs)

La. R.S. 11:241, 11:243, 11:246, and 11:1761(A), outline the provisions for the funding and granting of COLAs. The board may grant ad-hoc COLAs subject to certain limitations. We are calling the ad-hoc COLAs outlined in statute a statutory "template" for granting COLAs.

Currently, MERS' board and its actuary do not anticipate future COLAs in the actuarial valuations. Future COLAs are recognized only after they are granted.

There are many rules for COLAs relating to how often and when they may be granted, minimum and maximum percentage and dollar increases granted, and who is eligible to receive the increases. However, there are basically two broad categories of COLAs available to MERS, defined by how the COLA is funded:

1. "Gain-sharing COLA." This is a COLA granted when the actuarial earnings exceed the actuarial assumption by a sufficient margin, and
2. "FDA COLA." This is a COLA granted and paid out of the balance accumulated in MERS' Funding Deposit Account (FDA).

Whether and how *future* COLAs should be recognized in annual actuarial valuations depends on whether the future COLAs expected are of the "Gain-sharing COLA" variety or the "FDA COLA" variety.

Actuarial Treatment of "Gain-sharing COLAs"

Currently, any Gain-sharing COLAs would be funded by an increase in the contribution rate after the COLA is granted. While the granting of this type of COLA is limited to "good" years (i.e. when actuarial earnings exceed the actuarial assumption), actuarial assumptions are generally developed such that these "excess investment earnings" are expected to finance current plan benefits. Therefore, when there is a reasonable expectation (not a guaranteed expectation) of Gain-sharing COLAs being granted in the future, an actuary should consider recognizing the likelihood and magnitude in the measurement of system costs and liabilities. This helps avoid pushing the cost of benefits out to future generations of taxpayers.

Actuarial Treatment of "FDA COLAs"

Alternatively, any FDA COLAs would have been pre-funded in the form of additional contributions made prior to granting the COLA. FDA COLAs may only be granted when there are sufficient assets available in the FDA to cover the full estimated cost of the increased benefits. The FDA can only be funded when the MERS' board elects to set the employer contribution rate higher than the actuarially required employer contribution rate. Excess contributions are set aside and not counted as plan assets in the valuation until used to fund an FDA COLA. Therefore, not

recognizing future FDA COLAs when developing the actuarially required contribution rate is reasonable.

However, for accounting purposes, how the COLA is funded is not part of the consideration. The Governmental Accounting Standards Board (GASB) requires advance recognition of future COLAs when there is a reasonable pattern expected for granting future COLAs (whether they are FDA COLAs or otherwise), called "substantively automatic". GASB standards indicate factors such as the historical pattern, consistency in amounts or changes in the ability to continue to grant COLAs should be considered when making this determination. Therefore, GASB standards may require advance-recognition in the actuarial calculations of accounting costs and liabilities if a pattern of COLAs emerges and is expected to continue, regardless of the "type" of COLA that is granted or even if board or legislative action is ultimately required.

MERS' Statutory Template

The following exhibit illustrates the recent history of tests and rules relating to MERS' COLAs. While there are numerous trigger-points and moving parts in the statutory template mechanism, this exhibit illustrates the two primary statutory rules that govern how the statutes have not *permitted* the board of trustees in recent years to grant a gain-sharing COLA:

1. *The Window Rule*. This rule prevents a COLA from being permitted every year based on the funded ratio of the plan. The current funded ratio is 73.60% for Plan A and 76.83% for Plan B, as measured by the System's actuary using the Pension Benefit Obligation as the liability measure. Thus, COLA may be granted (provided other conditions are satisfied) as long as a COLA has not been granted in any of the three most recent fiscal years. The window is now "open" and would then "close" for a few years after a COLA is granted, then re-open. As the funded ratio improves in future years, the number of years the window remains closed becomes shorter, so that the window is open more frequently.

2. *The Sufficient Actuarial Return Rule*. A pension investment return assumption is a type of average return expected over the future, sometimes higher than the average and sometimes lower. After actuarially smoothing out the actual returns, an actual actuarial return is calculated for a given year. If the actuarially smoothed investment earnings for the year exceeds the assumed earnings, the Sufficient Actuarial Return Rule is satisfied.

   For example, the 2020 actuarial valuation assumed a 6.95% return. For the year ending June 30, 2021, the actuarially smoothed rate of return was 7.9% for Plan A and 7.7% for Plan B. This Rule was satisfied for the 2021 valuation, the first time in the last eight years.

   In the future, the fund's investment performance is fully expected to exceed the current 6.85% rate in some years, and fall short in other years. In years when the actual actuarial rate exceeds assumed actuarial rate, the Sufficient Actuarial Return Rule is satisfied.

Notice in the following exhibit, the Window Rule and the Sufficient Actuarial Return Rule must both be satisfied in a given year in order to be permitted to grant a COLA. For the years 2014 through 2020, the Window was open but the Actuarial Return was not sufficient, thus, no template COLA was *permitted*. For the year ending 2021, both rules are satisfied and the board appears to be permitted to grant a COLA (subject to legal review).

COLA History for the Municipal Employees' Retirement System										
	Statutory Conditions for Granting a COLA Under:		Authorizing Gain-sharing (G-s) COLAs Pct and Recipients[1]		Authorizing Funding Deposit Account COLAs					
Actuarial Measurement Date	The Window Rule[2] for any COLA	The Sufficient Actuarial Return Rule[3] for G-s COLAs	R.S. 11:1761(A) G-s COLA [Up to 2%, to All Elg]	R.S. 11:246 G-s COLA [2% or Nothing, to Elg Over 65]	Balance in the FDA	FDA Balance Used?	Amount Granted by Board	Date Approved by Board	Effective Date of COLA	Comments
6/30/2021	**Satisfied** (For YE 2022)	**Satisfied** (7.9% and 7.7% vs. 6.95%)	**≤2.0% Permitted** [To All Eligibles]	**2% Permitted for Plan A** [To Elg Over 65]	$10,695,893 (Plan A) and $1,869,690 (Plan B)	TBD	TBD	TBD	TBD	TBD
6/30/2020	**Satisfied** (For YE 2021)	Not Satisfied (2.9% and 3.0% vs. 7.0%)	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$10,000,835 (Plan A) and $1,748,191 (Plan B)	No	NA	NA	NA	None permitted: failed the Actuarial Return Rule
6/30/2019	**Satisfied** (For YE 2020)	Not Satisfied (1.7% and 1.9% vs. 7.275%)	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$9,346,575 (Plan A) and $1,633,823 (Plan B)	No	NA	NA	NA	None permitted: failed the Actuarial Return Rule
6/30/2018	**Satisfied** (For YE 2019)	Not Satisfied (2.8% and 2.7% vs. 7.4%)	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$8,930,139 (Plan A) and $1,523,023 (Plan B)	No	NA	NA	NA	None permitted: failed the Actuarial Return Rule
6/30/2017	**Satisfied** (For YE 2018)	Not Satisfied (2.3% and 2.2% vs. 7.5%)	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$8,112,406 (Plan A) and $3,286,730 (Plan B)	Yes, to pay off Frozen UAL for Plan B	NA	NA	NA	None permitted: failed the Actuarial Return Rule
6/30/2016	**Satisfied** (For YE 2017)	Not Satisfied (0.8% and 0.7% vs. 7.5%)	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$8,421,235 (Plan A) and $3,233,725 (Plan B)	Yes, to reduce ER contrib.	NA	NA	NA	None permitted: failed the Actuarial Return Rule
6/30/2015	**Satisfied** (For YE 2016)	Not Satisfied (3.7% and 3.5% vs. 7.75%)	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$7,833,707 (Plan A) and $3,008,116 (Plan B)	No	NA	NA	NA	None permitted: failed the Actuarial Return Rule
6/30/2014[4]	**Satisfied** (For YE 2015)	Not Satisfied (5.8% and 5.6% vs. 7.75%))	None Permitted [To All Eligibles]	None Permitted [To Elg Over 65]	$8,930,139 (Plan A) and $3,126,521 (Plan B)	Yes, to reduce ER contrib.	NA	NA	NA	None permitted for failure of Actuarial Return Rule

[1] Per R.S. 11:1761(A), the Board is authorized to provide a COLA of up to 2% of the original benefit to all eligible pensioners. Additionally, per R.S. 11:246, the Board is authorized to provide an additional COLA of 2% to eligible pensioners over age 65. No COLA may be provided during any fiscal year until the lapse of at least one-half of the fiscal year.

[2] Per R.S. 107.1(D)(4)(b) and R.S. 11:243(G)(1) and (3), the Board may grant a benefit increase only if any of the following apply: (a) the system has a funded ratio of at least 90% and has not granted a benefit increase to retirees, survivors, or beneficiaries in the most recent fiscal year, (b) the system has a funded ratio of at least 80% and has not granted such an increase in any of the two most recent fiscal years, or (c) the system has a funded ratio of at least 70% and has not granted a benefit increase to retirees, survivors, or beneficiaries in any of the three most recent fiscal years. The funded ratio as of any fiscal year is the ratio of the actuarial value of assets to the actuarial accrued liability under the funding method prescribed by the office of the legislative auditor.

[3] Per R.S. 11:1761(A), the Board is authorized to use interest earnings on investments of the system in excess of normal requirements to provide a COLA of up to 2% of the original benefit to all eligible pensioners. Additionally, per R.S. 11:246, the Board has the authority to provide an additional COLA of 2% to eligible pensioners over age 65 if there is sufficient excess interest earnings to fund the entire 2% additional COLA.

[4] The 6/30/14 valuation date marks the first year that Act 170 applies, after the trustees elected to be covered under R.S. 11:243 by 12/31/13.

While the statutes permit COLAs to be funded with the funds accumulated in the FDA, it seems more likely that Gain-sharing COLAs would be granted when permitted. FDA COLAs may be granted in years without having "excess interest", provided other conditions are met. However, in the past, a portion of the FDA funds was used to offset the remaining balance of the frozen unfunded accrued liability for Plan B as of June 30, 2018, and to reduce employer contributions for the fiscal years ending June 30, 2015, and June 30, 2017. The board of trustees have exhibited a pattern of using the FDA balances for purposes other than granting COLAs.

Therefore, in our opinion it seems more likely to expect future COLAs to be of the *Gain-sharing* variety, rather than the *FDA* variety. That opinion could change based on future actions of the board.

Recommended Actuarial Method

The following summarizes two explicit methods of recognizing expected future COLAs in advance, under the current statutory template for MERS. 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 COLA. The mean (average) of aggregate COLA amounts granted to all eligible members can be considered a variable benefit stream. Solving for *x*, an annual equivalent COLA having the same actuarial present value over the next 30 years as the average simulated variable amount can be determined. That single equivalent annual COLA becomes an actuarial assumption built into the usual actuarial valuation procedures.

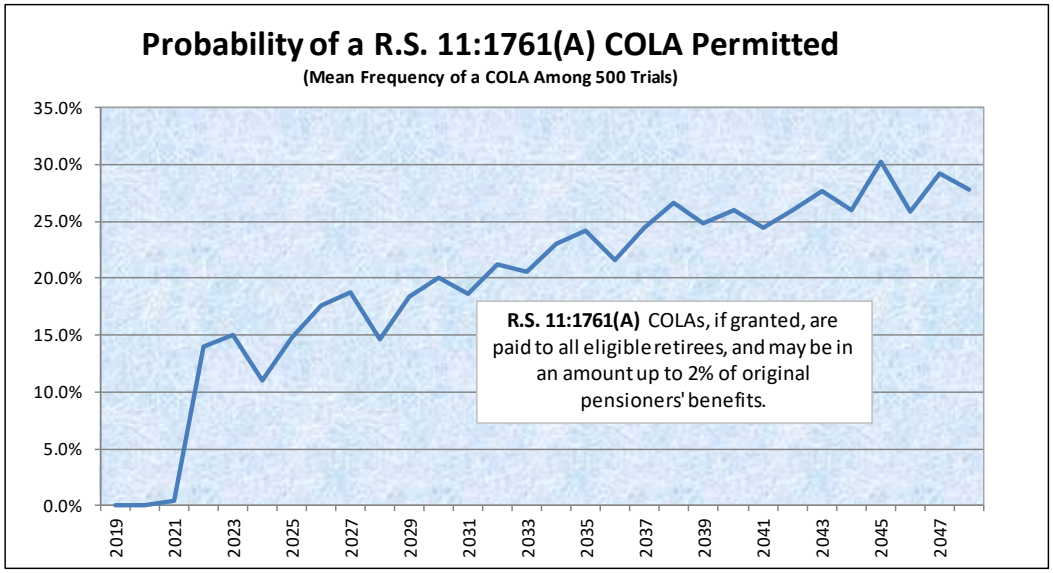
2. *Single equivalent benefit load assumption.* Dividing that same stream of mean (average) aggregate COLAs for each year by its regular benefits payable for that year, as spun off from the open group forecast valuation simulation, provides an estimate of the "load" on regular benefits that approximates the average COLA. 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.

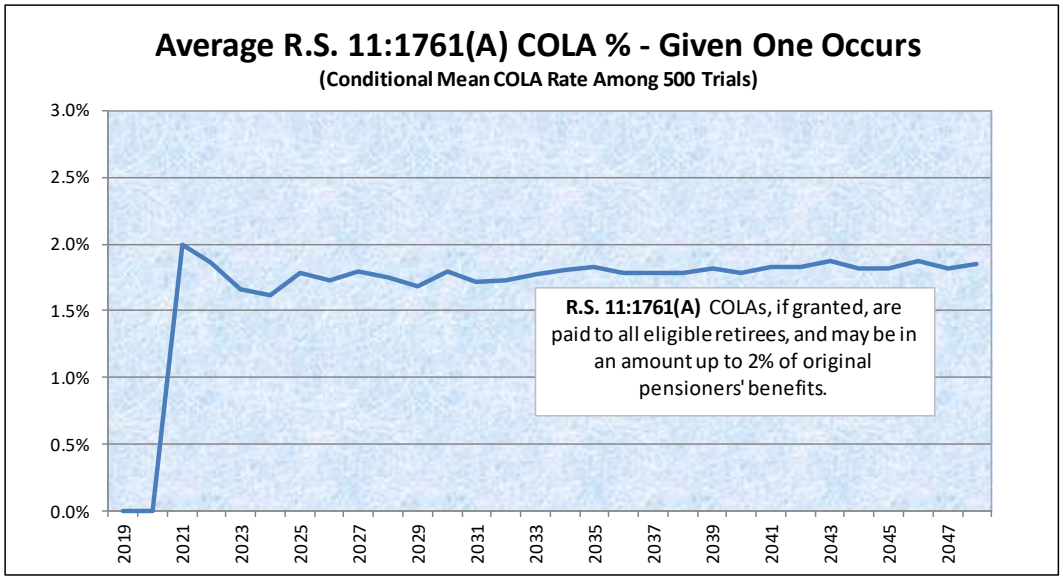
Modelling MERS' Current COLA Provisions

Method 1, above, was illustrated with a full stochastic simulation of the statutory template for expected future COLA benefits and was presented in the LLA's *2019 Actuarial Valuation Report on the Municipal Employees' Retirement System* (dated January 15, 2020).

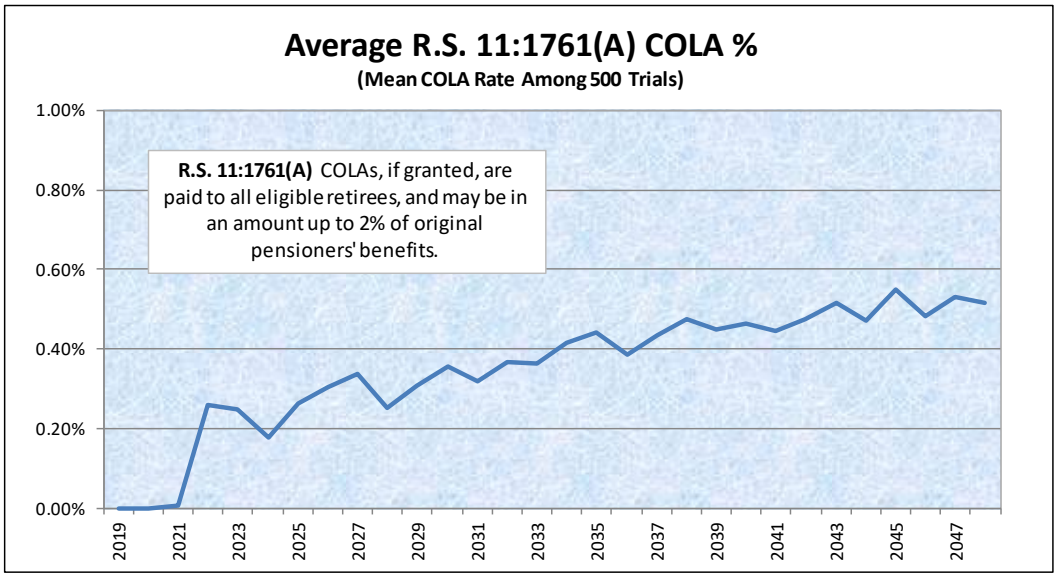
The following graphs present the results of those simulations of the frequency and magnitude of base COLAs, granted under provisions of La. R.S. 11:1761(A).



Starting with the conditions in 2018, the probability of a base La. R.S. 11: 1761(A) COLA paid from excess investment earnings was estimated to be between 15% and 20% in the first 10 years, and lie mostly between 20% and 30% in years 11-30; that translates to approximately one out of every four to five years. Current conditions may change the results if re-estimated this year.



If a base COLA does occur in any given year during the next 30 years, pursuant to La. R.S. 11:1761(A), it was estimated to average between 1.7% and 2.0%.



Combining the frequency and magnitude of the expected La. R.S. 11:1761(A) base COLAs, the average annual rate of increases is expected to fall between 0.30% and 0.50%.

A similar analysis was performed for *additional* COLA governed by La. R.S. 11:246 which may be paid to all eligible members over age 65. This similar simulation analysis was performed assuming the base COLA is granted first from a year's "excess earnings" and, if sufficient "excess earnings" remain, an *additional* COLA may be granted. This is a second type of gain-sharing COLA available to MERS that may be granted *in addition* to COLAs described in La. R.S. 11:1761(A) which may be paid to all eligible members regardless of age.

The following table summarizes the results of the 2019 simulations. The template-driven conditions are sufficiently likely for advance recognition in annual valuations. Current conditions may change the results if re-estimated this year.

	Base R.S. 11:1761(A) COLA (up to 2% to all eligible)	**Additional R.S. 11:246 COLA (2% to all eligible over age 65)**
Expected Frequency (or Likelihood) over next 30 years	Approximately, once every four to five years	Approximately once every four to 10 years when a Base COLA is granted first
Actuarially Equivalent Annual COLA (approximating the irregular pattern from the template COLA provisions)	Approximately, 0.45% COLA granted every year	Approximately, 0.20% COLA granted every year

Refer to the LLA's *2019 Actuarial Valuation Report on the Municipal Employees' Retirement System* dated January 15, 2020 for additional illustrations and discussion.

These are actuarially reasonable approximations of the future workings of the actual statutory gain-sharing COLA template, and can be easily integrated into the System's annual actuarial valuation to recognize MERS' COLA provisions in advance.

Conclusion

Currently, MERS' board and its actuary do not anticipate future COLAs in the actuarial valuations. By not including actuarially-expected future COLA benefits in the liabilities, MERS is not fully reflecting all significant plan benefits. We recommend the MERS 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.

2. Investment Return Assumption

The last comprehensive analysis of the investment return assumption was prepared and presented in the LLA's *2019 Actuarial Valuation Report on the Municipal Employees' Retirement System* dated January 15, 2020, using forecasts published in 2019. 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 MERS' 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.

MERS' board and actuary have consistently lowered the investment return assumption over the past few years, from 7.275% as of June 30, 2018 to 6.85% for the June 30, 2021 valuation. We commend MERS for lowering its investment return assumption.

Benchmark Investment Return Assumption

In the supporting documentation for the investment return assumption, MERS' actuary used the long-term (20-30 years) capital market assumptions from various investment consulting firms.

The LLA has historically developed an investment return assumption that falls between the mid-term (10 years) and long-term expectations. The consensus average expected return is based on the capital market assumptions of several respected and independent professional investment forecasters, each of which was applied to a plan's own asset allocation and its own expected benefit cash flow. 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 MERS (2019), (b) our general understanding of the direction and change-magnitude of forecasters' expectations in recent years (from 2019 to 2021) applied to MERS' asset allocation, and (c) a slight decrease in the expected rate of inflation embedded in return expectations (from 2019 to 2021). As outlined in the LLA's 2019 Actuarial Valuation Report, the benchmark return falls between the mid-term (10 years) expectations and the longer-term (20-30 years) expectations.

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

Actuarial Valuation Date	Investment Return Assumption	Benchmark	Difference
June 30, 2021	6.85%	5.50%	1.35%
June 30, 2020	6.95%	5.75%	1.20%
June 30, 2019	7.00%	6.40%	0.60%
June 30, 2018	7.275%	5.80%	1.475%

Conclusion

The System's assumption remains approximately 135 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:

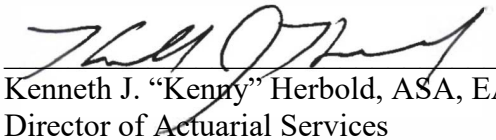
- Incorporating conservatism in the assumption by consistently targeting a rate that is closer to a 60% probability of achieving the assumption over time; and
- Reflecting the impact of cash flow timing on total expected returns.

Actuarial Certification

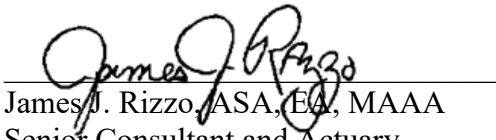
This Actuarial Review constitutes a Statement of Actuarial Opinion. It has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents information it is purported 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 U.S. Qualification Standards necessary to render the actuarial opinions contained herein.

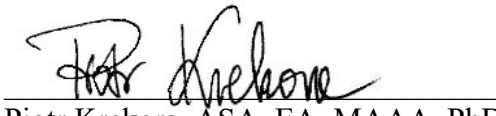
The signing actuaries are independent of the Municipal Employees' Retirement System.



January 24, 2022
Kenneth J. "Kenny" Herbold, ASA, EA, MAAA — Date
Director of Actuarial Services
Louisiana Legislative Auditor



January 24, 2022
James J. Rizzo, ASA, EA, MAAA — Date
Senior Consultant and Actuary
Gabriel, Roeder, Smith & Company



January 24, 2022
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 MERS to collect the contributions necessary to fund this Plan. A determination regarding whether or not MERS 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. This Actuarial Review was based upon information furnished by MERS, 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.