ACTUARIAL REVIEW OF THE
2018 ACTUARIAL VALUATION OF THE
MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL SERVICES
PRESENTED TO THE PUBLIC RETIREMENT SYSTEMS' ACTUARIAL COMMITTEE
FEBRUARY 25, 2019

February 4, 2019

Mr. Ben Huxen
Executive Director & General Counsel
Municipal Police Employees' Retirement System
7722 Office Park Boulevard, Suite 200
Baton Rouge, Louisiana 70809-7601

Re: Actuarial Review of the 2018 Actuarial Valuation

Dear Mr. Huxen:

To fulfill the requirements of R.S. 11:127(C) to the Public Retirement Systems' Actuarial Committee (PRSAC) for 2018, the Louisiana Legislative Auditor (LLA) has arranged for an Actuarial Review for the Municipal Police Employees' Retirement System (MPERS).

In lieu of a Comprehensive Actuarial Review or a Brief Actuarial Review as we have prepared for statewide retirement systems in the past, we are submitting herein an Actuarial Review (AR) for PRSAC's consideration. The scope of this Actuarial Review is less robust than a Comprehensive Actuarial Review, but provides more specific opinions and recommendations than previous Brief Actuarial Reviews prepared for other statewide retirement systems.

The remainder of this letter contains the results of our Actuarial Review of your June 30, 2018 actuarial valuation (prepared by G.S. Curran & Company and dated November 15, 2018). 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:JJR:ch

cc: G.S. Curran & Company

Scope of Review

The 2018 actuarial valuation report for the Municipal Police Employees' Retirement System (MPERS) for funding purposes was prepared by G.S. Curran & Company, and dated November 15, 2018.

This Actuarial Review of that report was prepared by the actuary for the Louisiana Legislative Auditor, Gabriel, Roeder, Smith & Company (under the supervision of Mr. James J. Rizzo), and includes evaluations for appropriateness of key actuarial assumptions and methods.

This Actuarial Review presents documented support for the opinions expressed herein concerning various assumptions and methods employed by the board and its actuary in the 2018 funding valuation. 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 discussion of (1) appropriate treatment of MPERS' gain-sharing COLA benefits, (2) appropriate inflation and investment return assumptions, (3) appropriate salary increase assumptions given recent reductions in the assumed rate of inflation and (4) the actuary's use of acceptable mortality tables.

Summary of Findings

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

   The cost of future COLAs is currently not included in the 2018 funding valuation, even though there is a high likelihood that they will be allowed and that they will be granted when allowed. Future COLAs are currently treated by the board and its actuary on a pay-as-you-go basis, recognizing them in the calculations of costs and liabilities only after they are granted.

   Pay-as-you-go funding is not generally acceptable in actuarial practice. The board and its actuary recognize all other future benefits promised by the plan using their respective likelihoods of eligibility and their projected amounts. But the board and its actuary do not recognize any future expected COLA benefits until after they occur.

   Generally speaking, permanent benefit increases (aka COLAs) to MPERS members are permitted under the statutes whenever the actual investment returns exceed the assumption, subject to certain timing and other conditions. Numerous statutory rules (return calculation methods, triggers, thresholds, caps, eligibilities, etc.) qualify the MPERS board's authority to grant COLAs. But these rules are all clearly set forth in the statutes, carry no discretion with them, and are calculated by the board's actuary every year to determine if the MPERS board is allowed to grant a COLA that year and, if so, how much may be granted.

   The likelihood of future gain-sharing COLAs being allowed is actuarially predictable and, in our opinion, should be recognized in the measurement of MPERS' costs and liabilities if material.

   Practically speaking, there are two types of gain-sharing COLAs outlined in statutes for MPERS:
   - R.S. 11:2225(A)(7) describes COLAs (called "*supplemental*" for this purpose) and
   - R.S. 11:246 describes "*additional*" cost-of-living adjustments.

Furthermore, the statutes do not permit COLAs to be funded with the balance in a Funding Deposit Account, as with certain other statewide retirement systems. Thus, for MPERS if COLAs are to be granted, the only current mechanism is by way of "excess interest" (i.e., "gain-sharing") described above.

The actuary for the LLA created an actuarial model for measuring the likelihood of another statewide system's board (FRS) being allowed to grant a COLA and the maximum amounts allowed during each of the next 30 years, based on those statutory rules[1]. They were found to be expected frequently and found to be material.

The following table presents the summary results of that actuarial analysis for FRS, under R.S. 11:246 (*additional* COLAs) and R.S. 11:2260(A)(7) (*supplemental* COLAs):

Summary of Results (30-year Averages) for FRS			
	Supplemental COLA[a]	*Additional* COLA[b]	Total COLA[b]
Annual Probability of COLA allowed and granted	25.5%	20.0%	20.0%
COLA rate, given COLA is allowed and granted	2.3%	1.8%	4.1%
Single equivalent fixed annual COLA rate	0.62%	0.34%	0.96%

[a] For all eligible retirees

[b] For all eligible retirees over age 65

While MPERS assets, liabilities and demographics are not the same as FRS, it is instructive to see how likely it is for FRS' board to be allowed to grant gain-sharing COLAs from excess interest earnings. Given the similarities between MPERS' and FRS' gain-sharing COLA provisions, this may give MPERS' board sufficient reason to engage its actuary to undertake a similar study, specifically for MPERS.

The cost and liability for future expected COLA benefits can be approximated with this model and recognized in the regular annual valuation to improve the board's public representation of the system's costs and liabilities.

In such an actuarial projection model, it could be presumed that the MPERS board would grant a COLA whenever it is allowed to grant one according to the template. This is a reasonable presumption: (a) given the members are not in Social Security (where COLAs are routinely granted), (b) given the existence of a whole statutory mechanism for paying COLAs, (c) given the trustees' general desire to pay its members what they are allowed to pay, (d) especially if it has been a while since the previous COLA was granted to them (now over four years since the last COLA), and (e) especially when other retirement systems and Social Security have granted COLAs ("me too" pressure).

Traditional actuarial experience studies and valuations also measure the likelihood of the MPERS board being allowed to grant duty and nonduty disability benefits and their magnitude for each individual employee, the likelihood of death and survivor benefits at each future year for each member, and the likelihood and benefit amount for other plan benefits.

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[1] For results of the actuarial study prepared by the actuary for the LLA concerning the likelihood and amount of gain-sharing COLAs being paid by the Firefighters' Retirement System (FRS), please refer to the LLA's website for the Actuarial Review of the June 30, 2018 funding valuation for FRS.

It is sound and appropriate actuarial practice to measure the likelihood and magnitude of future expected COLA benefits whenever there are acceptable actuarial techniques to measure the likelihood and magnitude of material COLA benefits. In this case, there is a commonly accepted actuarial method (simulations) for modelling the likelihood and magnitude of future COLA benefits for MPERS.

The gain-sharing COLA frequency and magnitude were found to be material for FRS. We recommend that the MPERS board (a) engage its actuary to model the likelihood and dollar amounts of future cost-of-living increases funded with "excess" investment earnings, as permitted by the statutory template and (b) incorporate permitted future cost-of-living increases in the measurement of the plan's costs and liabilities to the extent they are also material for MPERS.

2. **Overly Optimistic Return Assumption**

An important building block component in the determination of a system's investment return assumption is the expected rate of future inflation. The board's inflation assumption for the 2018 funding valuation is 2.60% per year. This inflation assumption is an outlier and is higher than all eight professional *inflation forecasting organizations* researched[2] by the actuary for the LLA (representing the opinions of over a hundred inflation forecasting specialists). A consensus of the mainstream inflation assumptions (from these national reputable sources) would be approximately 2.25% for a 10-year horizon and 2.40% for a 30-year horizon.

The investment return assumption used in the board's 2018 funding valuation is 7.20% per year. This investment return assumption is also an outlier and outside the mainstream of 12 professional *investment forecasting organizations* obtained by the LLA's actuary. It is overly optimistic considering MPERS's: (a) own asset allocation and (b) its own expected cash flow. Note this is not just the opinion of actuary for the LLA, but is the consensus opinion of 12 major national and independent investment consultants and investment managers, whose capital market assumptions were applied with full transparency and understanding to MPERS's own asset allocation and expected cash flow.

Considering the fund's own asset allocation, a more appropriate net return assumption would be 6.2% per year for the next 10 years or 6.8% per year for the next 27 years[3].
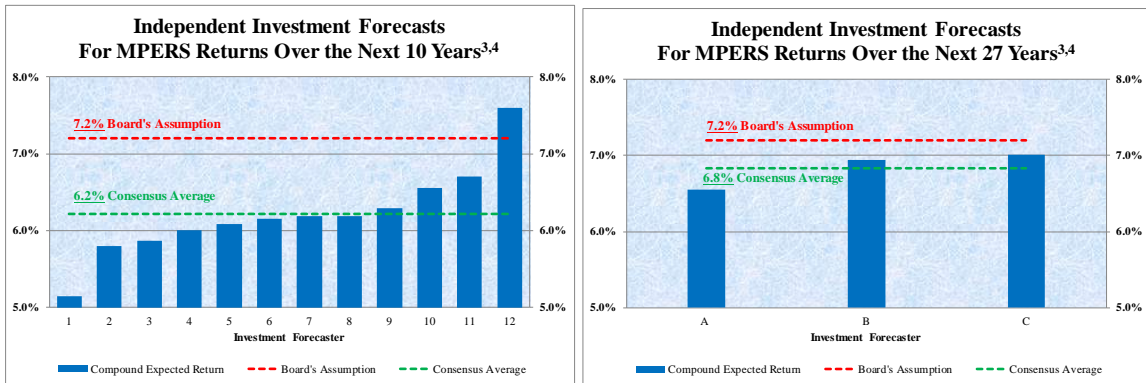
Considering, further, MPERS' own expected cash flow would put the most appropriate assumption at approximately 6.5% - in between the 6.2% expectation for a 10-year horizon and the 6.8% expectation for a 27-year horizon.

This is 70 basis points lower than the board's 2018 assumption. The board lowered the return assumption from 7.5% to 7.325% to 7.2% (2016 to 2017 to 2018 funding valuations, respectively) with a stated goal of reaching 7.125% in 2019. However, the current 7.2% is still overly optimistic compared to subject matter experts' opinions this year. All valuation assumptions need to stand on their own each year.

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[2] For the backup research supporting this assertion, please refer to the Appendix "*Basis for Inflation Assumption*" in each of the 2018 valuation reports for the four Louisiana state retirement systems, as prepared by the actuary for the LLA.
[3] For the backup research supporting this assertion, please refer to the Joint Board presentation to the Firefighters' Retirement System, Municipal Employees' Retirement System and Municipal Police Employees' Retirement System on July 10, 2018 by the actuary for the LLA.

Even considering a reasonable range around the 6.5% most appropriate rate (e.g., 50 basis points above and below), the current 7.2% is still overly optimistic.

We recommend the board lower its return assumption significantly more than its current policy of ramping down to 7.125% for 2019. A significant reduction is needed in order to (a) bring it into the mainstream of professional forecasters and (b) produce a more appropriate representation of the system's costs and liabilities.

3. **Salary Scale Inconsistency**

The assumed rate of inflation is also an important building block in a pension valuation's assumption concerning salary increases for individual members.

In each of the two most recent funding valuation reports (2017 and 2018), the board's assumption for inflation dropped by 0.175% and 0.10% from the prior year, respectively. However, the salary increase assumption did not drop by similar levels. No parallel change was made in tandem to the salary increase assumptions. This makes the salary increase assumption inconsistent with the embedded inflation assumption.[4]

Valuation June 30:	2016	2017	2018
Return Assumption	7.50%	7.325%	7.20%
Reduction in Return Assumption from Prior Year	NA	**0.175%**	**0.125%**
Inflation Assumption	2.875%	2.7%	2.6%
Reduction in Return Assumption from Prior Year	NA	**0.175%**	**0.10%**
Salary Increase Assumption	1 -2 YOS: 9.75% 3-23 YOS: 4.75% 24&Up: 4.25%	1 -2 YOS: 9.75% 3-23 YOS: 4.75% 24&Up: 4.25%	1 -2 YOS: 9.75% 3-23 YOS: 4.75% 24&Up: 4.25%
Reduction in Salary Increase Assumption From Prior Year	NA	**None**	**None**

If the board had lowered the salary increase assumption to be consistent with lowering the inflation assumption for the 2017 and 2018 valuations (decreasing effects), these would have been perfect opportunities to partially offset the effects of even lower and more mainstream return assumptions for 2017 and 2018 (increasing effects). This way, the return assumption could be lower than 7.2% by now, with less impact on the contribution and liability levels.

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[4] Actuarial Standard of Practice (ASOP) No. 27, section 3.12 states:
Consistency among Economic Assumptions Selected by the Actuary for a Particular Measurement—With respect to any particular measurement, each economic assumption selected by the actuary should be consistent with every other economic assumption selected by the actuary for the measurement period, unless the assumption, considered individually, is not material, as provided in section 3.5.2. A number of factors may ASOP No. 27—September 2013 14 interact with one another and may be components of other economic assumptions, such as inflation, economic growth, and risk premiums. In some circumstances, consistency may be achieved by using the same inflation, economic growth, and other relevant components in each of the economic assumptions selected by the actuary. Consistency is not necessarily achieved by maintaining a constant difference between one economic assumption and another. For each measurement date, the actuary should reevaluate the individual assumptions and the relationships among them, and make appropriate adjustments.

4. **Mortality Assumption**

The 2018 Actuarial Valuation (page 41) states that the mortality assumption for annuitant and beneficiary mortality is the "RP 2000 Combined Healthy with Blue Collar Adjustment Sex Distinct Tables Projected to 2029 using Scale AA for males with no set back and Projected to 2029 using scale AA for females with a one year set back."

To evaluate the reasonableness of the mortality assumption, we reviewed the base mortality (RP2000 with Blue Collar Adjustments) separately from the projection scale (Scale AA). We believe the use of the RP2000 with Blue Collar Adjustments as the base mortality table to be reasonable. Therefore, we find the base table (before projection for future mortality) to be fully appropriate for the 2018 Actuarial Valuation.

Once the base table was found to be reasonable, we then reviewed the projection scale used in the mortality assumption (projection Scale AA). We believe the actuary's use of Scale AA projected to 2029 is not unreasonable.

A more current approach to estimating mortality rates for valuation purposes would be to use either: (a) RP2000 projected generationally by Scale BB or (b) RP2014 loaded with 120% (for CDC data) and adjusted for partially credible plan-specific experience, then projecting generationally using MP2017 or MP 2018. Blue Collar adjustment would also be reasonable for each. While either of these two approaches would be more current and preferable methodologies, we do not find the mortality tables used in the MPERS 2018 actuarial funding valuation report to be unreasonable.

Actuarial Certification

This report is considered to be a Statement of Actuarial Opinion. We therefore make the following certification:

> This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. 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.
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> We, James J. Rizzo and Piotr Krekora, are Consultants and Actuaries with Gabriel, Roeder, Smith & Company, the current actuary for the Louisiana Legislative Auditor. We are members of the American Academy of Actuaries, Associates in the Society of Actuaries, and Enrolled Actuaries, and we meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein.

_____   February 1, 2019
James J. Rizzo, ASA, MAAA   Date

_____   February 1, 2019
Piotr Krekora, ASA, MAAA, PhD   Date