VIA ACTUARIAL SOLUTIONS

Minnesota Legislative Commission on Pensions and Retirement

Review of July 1, 2019 – June 30, 2023 Experience Study and Proposed Actuarial Assumptions

Public Employees Retirement Association
Local Government Correctional Service Retirement Plan

June 19, 2025




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Minnesota Legislative Commission on Pensions and Retirement
Centennial Office Building, 1st Floor
658 Cedar St.
St. Paul, MN 55155

Attn: Susan Lenczewski, Executive Director

Re: Review of PERA LGCSRP 2019-2023 Actuarial Experience Study

Commission Members:

This report presents our review of the July 1, 2019 – June 30, 2023 actuarial experience study for the Public Employees Retirement Association – Local Government Correctional Service Retirement Plan (LGCSRP, or Plan).

This experience study was prepared by the Plan's retained actuary to develop assumptions for the July 1, 2025 actuarial valuation. The proposed assumptions are based on a review of the Plan's economic and demographic experience during the four-year period from July 1, 2019 through June 30, 2023.

The proposed assumptions were approved by PERA's Board and the Legislative Commission on Pensions and Retirement (LCPR, or Commission) as required by Minnesota Statutes Section 356.215 Subd. 18.

Based on our review of the experience study report, we agree that the proposed actuarial assumptions are reasonable. The basis for this conclusion is described in the rest of this report. We also encourage the LCPR to consider the actuarial methodology update recommended by the Plan's actuary, which would require legislative action.

Purpose of the Study

This study was prepared at the request of the LCPR for the benefit and use of the LCPR and the State of Minnesota. Its sole purpose is to review the experience study and proposed actuarial assumptions and methods used to value the Plan's actuarial liabilities. These liabilities are used to complete various computations for financial reporting and funding/contribution purposes.

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Data Used in the Analysis

The results and recommendations in this report are based on the July 1, 2019 – June 30, 2023 experience study report dated July 31, 2024. Although we have reviewed the experience study for reasonability, we have not audited the underlying data and are relying on its substantial accuracy. If any data supplied is not accurate or complete, our conclusions and recommendations may differ significantly.

Actuarial Certification

To the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices.

Upon receipt of the report, the LCPR should notify us if you disagree with any information contained in the report or if you are aware of any information that would affect the results that has not been communicated to us. The report will be deemed final and acceptable to the LCPR unless you immediately notify us otherwise.

The undersigned credentialed actuaries are members of the American Academy of Actuaries and meet the Academy's Qualification Standards to render the actuarial opinion contained herein. We are available to answer questions on the material contained in the report or to provide explanations or further detail, as may be appropriate. We are not aware of any financial interest or relationship that could create a conflict of interest or impair the objectivity of our work.

Signature redacted Signature redacted

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Executive Summary

Based on the available data and supporting information, we support the approval of the actuarial assumption changes requested by the Minnesota Public Employees Retirement Association (PERA) for the Local Government Correctional Service Retirement Plan (LGCSRP, or Plan), as required by Minnesota Statutes 356.215 Subd. 18. The proposed assumptions have already been approved by PERA's Board and the LCPR.

The proposed assumptions are based on a review of the Plan's recent experience (the four-year period from July 1, 2019 through June 30, 2023) prepared by the Plan's retained actuary. We believe that:

1. The methodology used to develop the assumptions is based on contemporary actuarial methods combined with a careful review of relevant reference data;
2. The recommended assumptions/methods are reasonable estimates of future experience; and
3. The recommended assumptions/methods are appropriate for determining the Plan's actuarial liabilities and calculating contribution rate sufficiency.

The Plan's retained actuary recommended a prescribed actuarial assumption update that we support. Note that this proposed change requires updates to the LCPR Standards.

Method or Assumption	Actuary's Notes
Delayed retirement assumption	**GRS recommendation:** Adjust the LCPR's Actuarial Standards section II.D.(4) so the actuary isn't required to assume members currently older than the 100% retirement decrement age (age 70 for this plan) delay retirement by exactly one year. **VIA comment:** We support GRS' recommendation.

The combined service annuity liability adjustments are currently based on the study completed in October 2016. A new study was completed in February 2025 and we recommend incorporating those updates into the next actuarial valuation.

The rest of the report shows our comments for each actuarial assumption proposed by PERA and their retained actuaries.

Assumption Selection Guidance

Guidance on selecting assumptions is provided by Actuarial Standard of Practice No. 27, Selection of Assumptions for Measuring Pension Obligations (ASOP 27)[1]. When considering relevant assumption data, ASOP 27 outlines a recommended process for identifying and selecting reasonable assumptions. It also describes what it means for an assumption to be "reasonable". This guidance is summarized below.

ASOP 27 Sections 3.2, 3.3, and 3.4 Assumption Selection Process, Identification, and General Considerations	ASOP 27 Section 3.5 Assessing Assumption Reasonability[2]
▪ Consider the purpose of the measurement, the plan provisions and characteristics of the obligations, the relevant benefit contingencies, and the characteristics of the covered group ▪ Evaluate relevant data and other information, including components of the assumption ▪ Consider whether to provide for adverse deviation and how to value provisions that are difficult to measure ▪ Consider the materiality of the assumption to the measurement ▪ Reflect other technical factors such as assumption format, rounding, and subsequent events	▪ Is it appropriate for the measurement's purpose? ▪ Does it consider historical and current data that is relevant as of the measurement date? ▪ Does it reflect expectations about future experience? ▪ Is the assumption significantly optimistic or pessimistic? If so, for what purpose? ▪ Does the assumption fall within a reasonable range, based on the actuary's professional judgement? ▪ Has the actuary considered the combined effect of assumptions?

Some of the most important assumption guidance is found in Section 3.4.1. It states that:

> *"The actuary should take into account the possibility that some historical data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying environment."*

This focus on forward-looking assumptions (instead of solely historical data) recognizes that current and future economic and demographic environments may be significantly different than they were several decades ago when many pension plans were established.

We support relying on forward-looking data instead of purely historical experience. The latter often represents the conditions of a particular time period (the selection of which is subjective) and may not adequately reflect future expectations. Although forward-looking expectations may also be subjective, we believe they provide an important consideration when selecting assumptions.

A final important ASOP 27 theme we'll highlight is that there are a range of reasonable assumptions, and "different actuaries will apply different professional judgment and may choose different reasonable assumptions."[3]

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[1] ASOP 27 was recently revised and effective for actuarial reports issues on or after January 1, 2025. The previous version of ASOP 27 only covered economic assumptions, while the former ASOP 35 covered non-economic (e.g., demographic) assumptions. Since the combined guidance of the prior ASOPs 27 and 35 is substantially similar to guidance in the newly consolidated ASOP 27, our commentary in this report simply refers to the new ASOP 27.

[2] The characteristics of a reasonable assumption in ASOP 27, Section 3.5 are paraphrased as questions here.

[3] ASOP 27, Section 3.5.2

Economic Assumptions

Economic assumptions play a significant role in determining both the estimated amount of projected retiree payments and the "present value" of those payments (i.e., the discounted actuarial liabilities).

Some of these assumptions are based on system-specific experience (e.g., salary merit increases), while others are based on general market expectations (e.g., price inflation). The most important economic assumption is the expected investment return, which is based on a set of capital market assumptions applied to a fund's specific investment mix.

The remainder of this section provides a summary of each recommended economic assumption, along with our review and commentary on these proposals. These assumptions include:

- Price inflation
- Wage inflation / payroll growth
- Pay increases for merit and seniority
- Investment return

Price Inflation, Wage Inflation, and Payroll Growth

Price inflation is a building block for several of the other economic assumptions. Relevant guidance includes:

- ASOP 27 states that *"The actuary should evaluate appropriate inflation data. These data may include consumer price indices, the implicit price deflator, forecasts of inflation, yields on government securities of various maturities, and yields on nominal and inflation-indexed debt".*
- The 2010 LCPR actuarial standards require assumed price inflation to be disclosed by the retained actuary and that it should be consistent among the assumptions for which it is a component.

The **wage inflation** assumption is developed by adding "real" wage inflation to price inflation. It is used as a building block for the overall salary increase assumption.

The **payroll growth** assumption is important because it is used to amortize the unfunded liability as a level percent of payroll. If the assumption is set too high, then actual contributions could be lower than expected and pension costs would be shifted to future generations of taxpayers.

Relevant guidance includes:

- ASOP 27 recommends that *"the actuary should use an assumption that is consistent with but typically not identical to the compensation increase assumption. One approach to setting the payroll growth assumption may be to reduce the compensation increase assumption by the effect of any assumed merit adjustments".*
- The LCPR Actuarial Standards have no specific wage inflation or payroll growth guidance for the Plan, other than a payroll growth definition in section VI.B.(3).

Plan actuary's recommendation: Maintain price inflation assumption of 2.25% and current 3.00% wage inflation/payroll growth assumption.

Plan actuary's rationale: These assumptions were developed in the PERA General Employees Retirement Plan (GERP) experience study dated June 29, 2023.

VIA review of price inflation assumption / wage inflation / payroll growth assumption
We believe the recommended 2.25% price inflation assumption and the recommended 3.00% wage inflation / payroll growth assumption are still reasonable based on the supporting information provided by the Plan actuary. However, some of the price inflation reference data has increased since the prior analysis so we recommend monitoring these assumptions closely until the next experience study. Commentary and detailed analysis can be found in our report reviewing the experience study for PERA GERP dated February 16, 2024.

Pay Increases for Merit and Seniority

Pay increases for merit and seniority are in addition to price and wage inflation. It's an important assumption because members' projected benefits and associated Plan liabilities are based on final average salary at retirement or other termination of employment.

Assumed merit and seniority pay increases are much more system-specific than wage inflation assumptions. Relevant guidance includes:

- ASOP 27 Section 3.9.2 recommends that, when developing compensation increase assumptions, the actuary consider "the plan sponsor's current compensation practice and any contemplated changes" as well as competitive factors, collective bargaining, and compensation volatility.
- The 2010 LCPR actuarial standards section VI.B.(2) provides specific guidance on how overall compensation increases should be analyzed (e.g., only measuring salary changes for members who are active on consecutive valuation dates). The implied merit and seniority factors can then be determined by subtracting the wage inflation assumption from the overall salary increase results.

Plan actuary's recommendation: Adjust the merit and seniority pay increase table to reflect July 1, 2019 – June 30, 2023 experience. The proposed rates are generally lower over each member's career. The actuary also recommends moving from an age-based table to a service-based table.

Plan actuary's rationale: Proposed rates are adjusted from current rates to reflect observed experience. Actual and Expected gross salary increases over the period were reduced by the estimated actual wage inflation experience over the study period to calculate Net Actual and Net Expected merit/seniority rates.[4] These net rates are then compared for populations at different age and service levels to determine any recommended adjustments. It was found that salary increases are strongly related to service.

VIA review of merit and seniority pay increase assumption

We believe the recommended merit and seniority pay increase table is reasonable, based on the supporting information provided by the Plan actuary. The Plan actuary cites that the actual wage inflation component for the four years of the study was 4.00% (i.e., substantially higher than the assumed 3.00%). After adjusting for this difference, actual merit/seniority increases were less than the expected rates. The retained actuary's experience study contains a helpful chart on page B-4 illustrating the proposed adjustments. We also agree with the proposed change from an age-based table to a service-based table.

The Plan actuary makes an important observation that the results are very sensitive to the estimated wage inflation component. This is because the experience results can become "leveraged" since they are based on the relatively small difference between the Gross wage inflation and the estimated actual base wage inflation amount. The Plan should carefully monitor actual compensation increases relative to these assumptions.

We believe that the Plan actuary's development of the merit and seniority pay increase table meets the applicable Actuarial Standards of Practice. The analysis is also consistent with the processes specified in the LCPR's Actuarial Standards. **However, Appendix A to the LCPR's standards will need to be amended to reflect the recommended changes.**

[4] The retained actuary notes that this analysis is very sensitive to the estimated wage inflation component.

Investment Return

Review of the investment return assumption was outside the scope of the July 1, 2019 – June 30, 2023 experience study for the LGCSRP. Analysis and conclusions for this item can be found in the PERA GERP experience study dated June 29, 2023.

Commentary and detailed analysis can be found in our report reviewing the experience study for PERA GERP dated February 16, 2024.

Demographic Assumptions

Demographic assumptions play a significant role in determining the likelihood of projected retiree payments; when they will start and end; and the resulting "present value" of those payments (i.e., the actuarial liabilities).

Some of these assumptions are based on system-specific experience (e.g., retirement rates) while others may be based on statistics for a larger group (e.g., mortality), especially when the system's data set over the study period isn't large enough to be "credible" on its own.

The remainder of this section provides a summary of each recommended demographic assumption, along with our review and commentary on these proposals. These assumptions include:

- Retirement rates
- Withdrawal (i.e., termination before retirement eligibility)
- Disability
- Mortality
- Miscellaneous and technical assumptions

Retirement

Retirement rates are a key assumption because they determine when members' benefits are expected to begin. This has a substantial effect on liabilities and recommended contributions.

Retirement rates are entirely system-specific and heavily influenced by plan provisions. Relevant guidance includes:

- ASOP 27 recommends the actuary consider job-related factors, plan design and incentives, social insurance programs like Social Security and Medicare, and the availability of other employer plans like savings plans and postretirement health coverage.
- Section II.C.(2) of the LCPR Actuarial Standards requires retirement rates to be based on gender, age and/or years of service, or duration of eligibility unless experience shows otherwise. Section II.D.(4) requires that members active beyond the latest assumed retirement age should be assumed to work one year beyond the valuation date and then retire.
- Section VI.C. of the LCPR Actuarial Standards specifies the process to be followed when the retained actuary evaluates demographic assumptions.

Plan actuary's recommendation:

- Amend the LCPR actuarial standards to remove the required assumption that active members currently at the 100% decrement age or older (age 70 for this plan) will delay retirement and retire one year after the valuation date. Instead, the actuary recommends that the Plan assume these members retire mid-year like other members.
- Increase the rate of assumed 'unreduced retirements' at many ages less than 70, with some isolated decreases at ages 63, 64, and 66.
- Increase reduced early retirement rates at several ages.

Plan actuary's rationale: The proposed rates are adjusted from current rates to reflect observed July 1, 2019 – June 30, 2023 experience. In general, proposed rates lie between current rates and observed experience with more weight given to the last three years of experience.

The measurements were prepared on a liability-weighted basis since retirement decisions are often correlated with the value of expected pension benefits.

The Plan actuary also recommends no change to the retirement assumption for terminated vested members[5]. They provide commentary that the effect of this assumption is relatively minor since benefits are approximately actuarially adjusted for any early retirements.

[5] Current assumption is that these members will choose a refund of employee contributions if greater than the actuarial value of a deferred annuity. Those expected to elect an annuity are assumed to defer receipt until normal retirement age.

VIA review of retirement rates

We believe the recommended retirement rates are reasonable based on the supporting information provided by the Plan actuary.

The Plan actuary has shown a thoughtful analysis of retirement rate experience. In addition, the proposed amendment to the LCPR Actuarial Standards for the delayed retirement assumption is reasonable.

We believe that the Plan actuary's development of proposed retirement rates meets the applicable Actuarial Standards of Practice and the LCPR Actuarial Standards. **However, the LCPR's Actuarial Standards section II.D.(4) will need to be amended to reflect the Plan actuary's proposed retirement assumption for active members currently over the 100% decrement age.**

Withdrawal (i.e., termination before retirement eligibility)

Withdrawal rates are an important assumption because they determine the extent to which members are expected to stay in covered employment and become eligible for benefits. This has a substantial effect on liabilities and contributions.

Withdrawal rates are heavily influenced by plan provisions. Relevant guidance includes:

- ASOP 27 recommends that, when developing withdrawal rates, the actuary consider plan provisions as well as job-related factors like occupation, employment practices, work environment, unionization, hazardous conditions, and location.
- Section II.C.(2) of the LCPR Actuarial Standards requires withdrawal rates to be based on gender, age and/or years of service unless experience shows otherwise.
- Section VI.C. of the LCPR Actuarial Standards specifies the process to be followed when the retained actuary evaluates demographic assumptions.

Plan actuary's recommendation: Generally increase withdrawal rates (both male and female tables) over a participant's career so that expected rates are more consistent with actual experience. The actuary also recommends moving from an age-based table to a service-based table.

Plan actuary's rationale: Proposed rates are adjusted from current rates to reflect observed July 1, 2019 – June 30, 2023 experience. In general, proposed rates lie between current rates and liability-weighted experience. The measurements were prepared on a liability-weighted basis since termination decisions are often correlated with the value of expected pension benefits. There is a note indicating some withdrawal pattern volatility during the study period, and for this reason some of the proposed withdrawal rates were not adjusted as much as they otherwise would have been.

VIA review of withdrawal rates

We believe the recommended withdrawal rates are reasonable based on the supporting information provided by the Plan actuary. The update to a service-based table is appropriate based on the data available.

The Plan actuary has shown a thoughtful analysis of withdrawal rate experience. We believe that the Plan actuary's development of proposed withdrawal rates meets the applicable Actuarial Standards of Practice and the LCPR Actuarial Standards.

Disability

According to the retained actuary, rates of disablement and disability recovery are not a significant assumption for this plan because disability incidence is generally low and its effect on liabilities and contributions is correspondingly small. Relevant guidance for disability rates includes:

- ASOP 27 recommends that, when developing disability rates, the actuary consider:
  - the plan's definition of disability, e.g. whether it's based on the Social Security definition or a less stringent standard, and
  - the potential for recovery. The probability of recovery may be reflected by assuming a lower incidence of disability than the actuary might otherwise assume.
- Section II.C.(2) of the LCPR Actuarial Standards requires disability rates to be based on gender, age and/or type of disability (occupational or not) unless experience shows otherwise. Specific disability rates are not included in Appendix A to the LCPR Actuarial Standards.
- Section VI.C. of the LCPR Actuarial Standards specifies the process to be followed when the retained actuaries evaluate demographic assumptions.

Plan actuary's recommendation: Update the expected disability rates for males across all ages and reduce the expected disability rates for females age 55 and older so that they are more consistent with recent actual experience.

Plan actuary's rationale: Proposed rates are adjusted from current rates to reflect observed July 1, 2019 – June 30, 2023 experience. In general, proposed rates lie between the current rates and observed experience.

VIA review of disability rates

We believe the recommended disability rates are reasonable, based on the supporting information provided by the Plan actuary. Their continued use of separate gender-specific tables is also appropriate based on the data available.

The Plan actuary has shown a thoughtful analysis of disability experience. We believe that the Plan actuary's development of proposed disability rates meets the applicable Actuarial Standards of Practice and the LCPR Actuarial Standards.

Mortality

Mortality rates are an important assumption because they determine how long members' benefits are expected to be paid. Depending on plan size, mortality experience may or may not be fully credible. Many systems choose to base their mortality assumption on a published table that is then adjusted to either partially or fully recognize the plan's own experience. Relevant guidance includes:

- ASOP 27 recommends that, when developing mortality rates, the actuary consider:
  - the possible use of different assumptions before and after retirement,
  - the use of a different assumption for disabled lives,
  - the use of different assumptions for participant subgroups and beneficiaries, and
  - the effect of mortality improvement both before and after the measurement date.
- Section II.C.(2) of the LCPR Actuarial Standard requires mortality rates (pre-retirement, post-retirement, and survivor) to be based on gender and age unless experience shows otherwise.
- Section VI.C. of the LCPR Actuarial Standards specifies the process to be followed when the retained actuaries evaluate demographic assumptions.

Plan actuary's recommendation: Plan experience is not considered credible for this Plan since there were so few deaths during the experience period. The Plan actuary recommends using the Pub-2010 Public Safety rates (without adjustment) and projection scale MP-2021 for all groups.

Plan actuary's rationale: Post-retirement mortality is presented on a benefit-weighted basis. This methodology reflects that longevity is often highly correlated with income. Active member measurements are liability-weighted like other demographic assumptions.

VIA review of mortality rates

We believe the recommended mortality rates are reasonable, based on the supporting information provided by the Plan actuary. The Plan actuary has shown a thorough analysis of mortality rate experience. The proposed rates appear reasonable based on the available data. We also support their recommended generational mortality improvement scale and use of benefit-weighted analysis.

We believe that the Plan actuary's development of proposed mortality rates meets the applicable Actuarial Standards of Practice and the LCPR Actuarial Standards. **Appendix A to the LCPR's standards will need to be amended to reflect the new recommendations.**

Miscellaneous and Technical Assumptions

There are several other demographic assumptions used to calculate the actuarial liabilities, but they have less effect on costs than the assumptions previously discussed. The proposed changes to these assumptions have a relatively small effect on liabilities and the recommendations are well supported. **We believe the recommended updates are reasonable based on the supporting information provided by the Plan actuary.** These assumptions and recommended actions are summarized in the table below.

Miscellaneous and Technical Assumptions	Recommendation
Post-retirement benefit increases	No change[6]
Marital status	No change for males; update for females
Beneficiary age	Update
Payment form	Update
Actuarial equivalence factors	Update
Missing participant data	Update
Miscellaneous assumptions	
Benefit service calculation	No change
Decrement operation	No change
Decrement timing	No change
Eligibility testing	No change
Forfeitures/contribution refunds	No change
Contribution timing	No change
Combined service annuity liability adjustments	No change
Pay increase timing	No change
Service credit accruals	No change

The combined service annuity liability adjustments are currently based on the study completed in October 2016. A new study was completed in February 2025 and we recommend incorporating those updates into the next actuarial valuation.

[6] We note that this assumption is very sensitive to the underlying 2.25% inflation assumption, so actual inflation and COLA experience should be monitored closely.

Actuarial Methods

The calculation of recommended contributions relies on several actuarial methods for determining the unfunded liability as well as developing an actuarial contribution that is intended to pay down (i.e., "amortize") the unfunded liability. They include:

- Asset valuation method
- Actuarial funding method
- Unfunded liability amortization period and method
- Post-retirement benefit increases
- Projected payroll

Most of these methods are prescribed by State Statute or the LCPR's Actuarial Standards. Selecting some of these methods is also influenced by ASOPs or other guidance, including:

- ASOP 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions
- ASOP 44, Selection and Use of Asset Valuation Methods for Pension Valuations
- The Society of Actuaries Report of the Blue Ribbon Panel on Public Pension Plan Funding
- Conference of Consulting Actuaries Public Plans Community - Actuarial Funding Policies and Practices for Public Pension Plans

Although the latter two documents are non-binding for the actuarial profession, they provide useful considerations when selecting actuarial funding methods.

Review of the actuarial methods was outside the scope of the July 1, 2019 – June 30, 2023 experience study for the LGCSRP. Analysis and conclusions for these items can be found in the PERA GERP experience study dated June 29, 2023.

Commentary and detailed analysis can be found in our report reviewing the experience study for PERA GERP dated February 16, 2024.

Cost Impact

Section VI.E. of the LCPR's Actuarial Standards specifies that the systems must measure the cost impact of any assumption change. The measurement must present the change in "*the dollar amount of the UAAL, the change in the Actuarial Liability Funded Ratio, the change in the normal cost rate and the change in the UAAL contribution rate.*"

The Standards specify that the assumption changes should be measured in the following order:

1. Mortality
2. Retirement
3. Termination of employment
4. Disability
5. Salary increases
6. Interest rate/investment return assumption
7. Other
8. Payroll growth

PERA provided an assumption request letter to the LCPR dated December 17, 2024 which lists the proposed assumption changes. They also provided a separate letter from the retained actuary dated June 10, 2024 which summarized the required cost impact measurements.

The cost calculations contained all the required items (e.g., change in funded ratio and normal cost rate) and were presented in the following order:

- Mortality assumption
- Retirement rates, withdrawal rates, disability rates and miscellaneous assumptions (e.g., marriage, spouse age difference, form of payment, and missing participant data)
- Merit/seniority pay increases

The recommended assumption changes are expected to slightly decrease Plan liability measurements, increase funded status, and increase contribution sufficiency.

We note that the cost calculations reflected two deviations from the requirements of Section VI.E. of the LCPR's Actuarial Standards:

- The cost impact of items 2 through 4 and 6 through 8 above were measured in aggregate instead of presented separately; and
- The cost impact of item 5 above (salary increases) was measured last instead of in the prescribed order.

We do not believe this deviation is meaningful since the overall contribution rate, accrued liability, and funded status changes from the aggregated assumption changes are relatively minor. However, we encourage providing the additional cost impact details in future actuarial experience study reports.