California Public Employees' Retirement System

# 2025 CalPERS Experience Study and Review of Actuarial Assumptions

CalPERS

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## Executive Summary

The purpose of this experience study is to review actual experience of the system in relation to the current actuarial assumptions, and to recommend changes in actuarial assumptions for the rates of decrement, salary increase rates and economic assumptions, as may be indicated by the review.

The report presents the results of the experience study of the California Public Employees' Retirement System. The report is derived from data collected during fiscal years 2000 to 2023. The last study was completed in November of 2021 and reflected the experience between 2000 and 2019. This study reviewed retirement rates (service, industrial related disability and non-industrial related disability retirement), termination rates (vested terminations and refunds), mortality rates (pre- and post-retirement) and merit rate increase (increases of salary in excess of wage inflation) and recommends new assumptions for use in actuarial valuations of plans that participate in the California Public Employees' Retirement Fund (State, Schools and Public Agencies).

Significant outcomes of this study include:

- Due to the COVID-19 pandemic, there are no proposed changes to the male Post-Retirement Mortality base rates and only minor changes to the female Post-Retirement Mortality base rates. The elevated mortality rates during the study period do not reflect what we expect in future experience of this population. In this study, the MP-2021 mortality projection table will replace the MP-2020 mortality projection table.
- Some groups experienced slightly higher numbers of Service Retirements than expected, primarily in the PEPRA Safety groups. The Miscellaneous groups saw varying results and had very minor adjustments as needed.
- Wage inflations are generally higher than expected for all member categories except for State Safety members since our last 2021 study.
- State Miscellaneous members experienced higher merit increases across all service levels compared to the current assumptions. While Public Agency Miscellaneous experienced slightly higher than expected merit increases at low level of service. State Industrial members experienced a moderate increase in merit while Schools members experienced higher than expected merit increases primarily for services less than 10 years with entry ages less than 40
- A new set of assumptions for terminations with vested benefits is being proposed for all Miscellaneous groups and four of the Safety groups. The assumed retirement age for Miscellaneous members increased from 59 to 60, which necessitated new rates. The changes were minor and in varying directions.
- Credible data for the Non-Industrial Disability decrement is limited, particularly within the safety groups. In this study, thirteen distinct groups have been consolidated into three categories: Miscellaneous, State Industrial, and Safety. Rates are now determined based on the aggregated experience of these three broader categories.
- Mixed results for other assumptions (these are described in detail in this report).

# Introduction

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# Introduction

## Introduction

The purpose of this experience study was to review the actual experience of the system in relation to the current actuarial assumptions, and to recommend changes to the actuarial assumptions for rates of decrement, merit increase and economic factors as may be indicated by such a review. The report has been prepared in accordance with current board policy which requires that an actuarial experience study be performed every four years. The report presents findings of demographic assumptions of the plans that participate in the California Public Employees' Retirement Fund (State, Schools and Public Agencies) for the 23-year period from 2000 to 2023.

## Background

An experience study is a summarization of actual experience over a defined period of time. A study can be on past economic experience (such as past inflation, real rates of return on various asset classes, real salary growth, and payroll growth of the active population) and/or on past demographic experience (with an analysis of recent patterns of termination, death, disability, and retirement).

This study includes all the experience of the system for both demographic and economic experience except real rates of investment return. We consider the advancement of salaries due to seniority, merit, and promotion, independent of inflation as demographic experience for the purposes of this study.

Actuaries use the term decrement to describe the circumstances under which individuals leave a population under study. For example, an individual may decrement from the group of active members of the plan due to termination (vested or non-vested), death (industrial related or not), disability (industrial related or not), or service retirement. Exposure is the term used by actuaries to represent the length of time that an individual was exposed to the possibility of leaving the population due to the decrement being studied.

We first compute the raw rates of decrement and merit increases. The raw rate of decrement (for a given decrement and studied population) is defined as the total number of individuals that left the population due to that decrement divided by the total exposure to that decrement for the group. The raw rate of merit increase for a given group is the observed percentage change in salaries in excess of wage inflation for the group from one year to the next. The rates are tabulated based on length of service and/or entry age. They do not necessarily become new actuarial assumptions about patterns of behavior for the future due to two major reasons. First, the raw rates may represent only a sample of what might be a smooth underlying formula that anticipates future behavior; an actuary frequently will smooth or graduate the raw rates to approximate the smoother underlying formula. Second, and more importantly, the future does not necessarily repeat the past; the actuary must use professional judgment to estimate possible future outcomes based on past experiences as well as future expectations and select assumptions based upon application of that professional judgment.

# Introduction

## Purpose of the Report

The purpose of this experience study is to review the actual experience of the system against the current assumptions and to recommend new actuarial rates of decrement, merit increase (salary increase in excess of wage inflation) and economic assumptions (other than the discount rate) based on that experience.

## Scope of the Study

This study focused on demographic experience and economic assumptions. The study reviewed retirement rates (service, industrial related disability and non-industrial related disability retirement), termination rates (vested terminations and refunds), mortality rates (pre- and post- retirement), rates of merit increase (increases of salary in excess of inflation), the proportion of members who are married, and the age difference between a member and their spouse. The study did not investigate other demographic assumptions such as the amount of unused sick leave or the load to account for the use of Norris decision best factors.

## COVID-19 Implications

This study period excluded experience from fiscal years 2021-22 and 2022-23, since termination rates then were significantly higher than other time periods and were considered not to be reflective of most likely future experience. This time period aligned with a historically unique time for the broader U.S. labor market, where voluntary quits reached new highs due to the global pandemic.

# Introduction

## Actuarial Certification

It is our opinion that the Study has been performed in accordance with generally accepted actuarial principles as well as the applicable Standards of Practice promulgated by the Actuarial Standards Board. While this report is intended to be complete, our office is available to answer questions as needed. All of the undersigned are actuaries who satisfy the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* of the American Academy of Actuaries with regard to pensions.

**Actuarial Assumptions**

It is our opinion that the assumptions contained herein, as recommended by the Chief Actuary to be adopted by the CalPERS Board of Administration, are both internally consistent and reasonable.

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# Demographic Experience Methodology

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# Demographic Experience Methodology

## Demographic Experience Methodology

A general discussion of the methodology used follows. Additional details about the methods used are included in the description of the findings for each decrement.

### Data Source

The source of the data used in this study was the data stored in the actuarial valuation system. This data consists of a series of snapshots of the member data taken as of the end of each fiscal year.

The data for the experience study was extracted from the actuarial database in the form of 19 annual snapshots as of June 30th of the years 2000 to 2019. The data represents the participants in all the retirement plans included in the California Public Employees' Retirement System.

These consecutive snapshots were used to populate a stand-alone Oracle schema used exclusively for this purpose. Each individual member is tracked from the time they enter the study to the time that they exit or until the final year of data whichever applies. Those who exit are assigned an exit reason.

### Calculation of Exposures and Assignment of Decrements

In general, an individual's exposure to a particular decrement begins only after that individual is eligible to receive benefits should that decrement occur. To reflect this, the exposure of each individual in the study commenced at either the study start date (as outlined in each decrement section) or the eligibility date, whichever was later. Similarly, exposure ended at the study end date or the date at which the eligibility ceased, whichever was earlier. We excluded individuals who decremented before the study start date or were not eligible to receive a benefit by the study end date. The Balducci hypothesis was applied, so if the decrement under study occurred during the observation period, exposure continued to the end of the age and/or service interval in which the decrement occurred.

The calculation of exposures, decrements and rates was applied consistently for all assumptions and was consistent with the method used by the actuarial valuation software. For active members, decrement timing used for age was age nearest birthday on decrement date and the decrement timing used for service calculated as rounded beginning of year attained minus rounded CalPERS entry age, again consistent with the method used by the actuarial valuation software. For post-retirement mortality, exact ages were used for exposure calculations and results were tabulated by age last birthdate consistent with the valuation software.

### Rates Studied

As was specified in the methodology report, the following demographic assumptions were studied.

#### Retirement Rates

- Service Retirement
- Industrial Disability Retirement
- Non-Industrial Disability Retirement

# Demographic Experience Methodology

**Mortality Rates**

- Pre-retirement Mortality - Ordinary
- Pre-retirement Mortality - Industrial
- Post-retirement Mortality - Service Retiree
- Post-retirement Mortality - Non-Industrial Disability Retiree
- Post-retirement Mortality - Industrial Disability Retiree

**Termination Rates**

- Termination (with and without refund)

**Non-Decrement Rates**

- Merit Increases (due to factors other than wage inflation)

# Demographic Experience Methodology

## Grouping Factors

Actuarial assumptions are based on several factors, including, but not limited to age, gender, and service. For each decrement, different factors were examined for possible use in setting actuarial assumptions. The decision as to which factor to use was based on CalPERS actuaries' professional judgment.

The factors that were examined are documented in the methodology report. Possible factors included:

- Age nearest birthday on decrement date
- Service (Computed as rounded Attained Age – rounded Entry Age)
- Entry Age (Rounded CalPERS Attained Age)
- Age at Retirement
- Gender
- Retirement Formula
- Organization Category (State, Schools, or Public Agency)
- Membership Category (e.g., Miscellaneous, Industrial, Fire, Police)
- Employer Type (City, County, or Other)

Note that with the passage of Senate Bill 400 in 1999, State Miscellaneous Tier 2 and State Industrial Tier 2 members were given the option to convert their Tier 2 service to Tier 1 any time prior to retirement. Thus, the number of members being covered under Tier 2 plans continue to decrease year after year. Therefore, only Tier 1 assumptions were derived as part of this experience study. Tier 2 assumptions will remain unchanged.

## Graduation

Various methodologies were used to graduate the results depending on the decrement and the amount of data available ranging from a modified Whittaker-Henderson graduation formula, polynomial, a simple linear fit to a manual adjustment. Details are discussed in the sections dealing with the individual decrements and in the section dealing with the salary scale/merit increase.

## Margin

A margin is the difference between the assumption used for a calculation and the corresponding best estimate assumption. The actuarial assumptions recommended in this report represent our best estimate of future experience with no margins for adverse deviation except for the mortality contingency load for terminating plans.

# Demographic Experience Methodology

## Analysis

The analysis of the demographic experience for this study involved the following general steps:

1. First, the number of decrements and exposures for the decrement under study were calculated and tabulated.
2. Next, the number of members expected to decrement was calculated by multiplying the exposures by the expected rates of decrement (current assumptions).
3. Finally, the number of actual decrements was compared with the number of expected decrements over a given period. The comparison which was expressed as a percentage is called the actual to expected ratio (A/E Ratio).

If the actual experience, based on the A/E ratios differed significantly from the overall expected results, whether by a pattern based on visual graphs, R Squared statistic, or Confidence Intervals (CI), then new assumptions were considered using these tools including using credibility statistics, otherwise, no changes to current rates were recommended.

The findings for each decrement are presented in the tables in the following sections.

# Findings

**Service Retirement for Active Members**

**Service Retirement for Terminated Members**

**Non-Industrial Disability Retirement**

**Industrial Disability Retirement**

**Terminations with Vested Benefits and Terminations with Refund**

**Pre- Retirement Mortality (Non-Industrial and Industrial)**

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**Post-Retirement Mortality for Non-Industrial Related Disability**

**Post-Retirement Mortality for Industrial Related Disabled Retirees**

**Contingency Load for Terminating Plans**

**Salary/Merit Increase**

**Gender Blending for Optional Forms of Benefits**

**Percentage Married and Age Difference**

# Findings

## Findings

### Service Retirement for Active Members

**Summary**

The experience over the study period shows that, in general, there were both fewer and more retirements than expected based on the current retirement assumptions for most of the State, Schools Pool and Public Agency Miscellaneous plans.

For all plans, the recommendation is to revise the age and service based retirement assumptions which closely align with the actual retirement experience observed during the experience study period for each benefit formula.

For the following benefit formulas and/or member classifications the proposed assumptions predict lower numbers of expected retirements as compared with the current assumptions:

- Public Agency Miscellaneous members under the 1.5% at age 65, 2.5% at age 55, 2.7% at age 55, 3% at age 60 and 2% at age 62 formulas,
- Public Agency Police members under the 2% at age 57 and 2.7% at age 57 formulas,
- Public Agency Fire members under the 2% at age 55 and 3% at age 50 formulas,
- State plans Safety PEPRA members and POFF PEPRA members,
- Schools plan Classic members.

For the following benefit formulas and/or member classifications the proposed assumptions predict higher number of expected retirements as compared with the current assumptions:

- Public Agency Miscellaneous members under the 2% at age 55 and 2% at age 60 formulas,
- Public Agency Fire members under the 2% at age 50 formula,
- Public Agency Police members under the 2% at age 50, 3% at age 50 and 3% at age 55 formulas,
- State plans Miscellaneous PEPRA members, Industrial Classic members, Safety Classic members and CHP classic members,
- Schools plan PEPRA members.

For the following benefit formulas and/or member classifications the proposed assumptions predict a similar number of expected retirements as compared with the current assumptions, however with a different pattern of retirements:

- Public Agency Fire members under the 3% at age 55, 2% at age 57, 2.5% at age 57 and 2.7% at age 57 formulas
- Public Agency Police members under the 2% at age 55 and 2.5% at age 57 formulas,
- State plans Miscellaneous Classic members, Industrial PEPRA members, POFF Classic members and CHP Classic members.

All current and proposed assumptions are based on age and service. The age and service based retirement assumptions result in more accurate modeling of future retirements and associated liabilities

# Findings

**Method**

The retirement rates were based on data collected between June 30, 2011 to June 30, 2023. Other periods within the date range were also studied to identify the effects of certain events on retirement rates.

The data was initially grouped into the following groups: Public Agency Safety with the 3% at age 50 formula, Public Agency Safety all formulas except the 3% at age 50 formula, Public Agency Miscellaneous, each of the different State plans and the Schools pool. The individual formulas for Public Agencies had rates developed by shifting the curves based on the individual formulas data. For the State and Schools pools two sets of rates were generated for each plan, Classic and PEPRA, and they were adjusted based on their data. An active to expected (A/E) analysis was done based on the initial groupings and those A/E adjustments were applied to all sets of rates within the groupings. Lastly, since the 2% at 55 and 2% at 57 were significantly different from the rest of Public Agency Safety formulas, an adjustment was made to decrease their rates by one third. Since there is very limited data for the 1.5% at age 65 formula, the retirement rates were set at 85% of the 2% at age 60 rates.

Active and terminated members' retirement experience was studied separately. Transferred members records were excluded to prevent potential double counting of exposures and decrements. The proportion of transferred members who do not have an active record elsewhere in the system is so small that excluding such members will not compromise the results of the study. Since most transferred members are also active members with another CalPERS employer, the active retirement rates will be applied to the transferred members.

Factors used for grouping data:

- Age: The retirement rates display a strong pattern by age, due to influences such as the variance in benefit by age, traditional retirement ages, and eligibility for Social Security.
- Service: Retirement rates generally increase with service.
- Retirement Formula: More generous formulas lead to earlier retirements.
- Organization Category: State and Schools Pool were studied separately.
- Membership Category: Separate retirement rates were developed for Miscellaneous, Police and Fire members.
- Employment Status: Active and terminated were studied separately.

Factors studied but not used for grouping data:

Gender: The data indicated there has been somewhat different retirement experience between males and females over the experience study period. We have chosen not to develop separate retirement rates for males and females, this decision will be reevaluated in the next experience study.

County Peace Officers were studied separately from Public Agency Police, as in the previous study, and the results indicated that it is still appropriate to use the same assumptions for both groups.

Some public agencies may have mandatory retirement policies at certain ages for safety members. No data was available about these policies and it was not possible to identify or

# Findings

exclude the impact of these policies in this study. However, such policies would have affected the results.

## Results

The service retirement rates display a strong and consistent pattern by age. This can be attributed to a combination of the psychology of the membership and the structure of the benefits. It has long been observed that members tend to display a preference for retiring at ages divisible by 5, thus, retirement rates tend to be higher at ages 50, 55, and 60 or at the age when the benefit factors no longer increase. After age 55 the 2.5% at age 55 and 2.7% at age 55 benefit factors no longer increase. After age 60 the 3% at age 60 benefit factor no longer increases. In addition, retirement rates are also higher at age 62, when Social Security becomes available, age 65, when Medicare becomes available, and age 66, the current Social Security full retirement age.

For the current experience study, data from 2011-2023 was studied. The retirement rates were also studied by four year periods within the study window to try to isolate the impact certain events might have had on the retirement behavior. The four year period that included Covid resulted in higher retirements. However, since the study uses a 12 year period, the time period of 2007-2011 was removed, which also had higher rates of retirements.

### State and Schools Pool

For the Schools Pool classic members, State Safety PEPRA members, and POFF PEPRA members, the actual numbers of service retirements were lower than assumed during the study period. In general, the proposed retirement rates are lower than the current rates to reflect this experience.

For the Schools Pool PEPRA members, State Miscellaneous PEPRA members, State Industrial classic member, State Safety classic members and CHP classic members, the actual numbers of service retirements were generally greater than assumed during the study period. In general the proposed retirement rates are greater than the current rates to reflect this experience.

For State Miscellaneous classic members, State Industrial PEPRA members, POFF classic members and CHP PEPRA members, the total expected decrements did not change much, however the shapes of the curves changed. This means at some age and service combination the proposed rates are greater than the current rates and at some age and service combinations the proposed rates are lower than the current rates.

### Public Agency Miscellaneous

For the 2.5% at age 55, 2.7% at age 55, 3% at age 60 and 2% at age 62 formulas, the actual numbers of service retirements were lower than assumed during the study period. In general, the proposed retirement rates are lower than the current rates to reflect this experience.

For the 2% at age 60 and 2% at age 55 formulas, the actual numbers of service retirements were generally greater than assumed during the study period. In general the proposed retirement rates are greater than the current rates to reflect this experience.

# Findings

**Public Agency Safety Fire**

For the 2% at age 55 and 3% at age 50 formulas, the actual numbers of service retirements were lower than assumed during the study period. In general, the proposed retirement rates are lower than the current rates to reflect this experience.

For the 2% at age 50 formula, the actual numbers of service retirements were generally greater than assumed during the study period. In general the proposed retirement rates are greater than the current rates to reflect this experience.

For the 3% at age 55, 2% at age 57, 2.5% at age 57 and 2.7% at age 57 formulas, the total expected decrements did not change much, however the shapes of the curves changed. This means at some age and service combination the proposed rates are greater than the current rates and at some age and service combinations the proposed rates are lower than the current rates.

**Public Agency Safety Police**

For the 2% at age 57 and 2.7% at age 57 formulas, the actual numbers of service retirements were lower than assumed during the study period. In general, the proposed retirement rates are lower than the current rates to reflect this experience.

For the 2% at age 50, 3% at age 55 and 3% at age 50 formulas, the actual numbers of service retirements were generally greater than assumed during the study period. In general the proposed retirement rates are greater than the current rates to reflect this experience.

For the 2% at age 55 and 2.5% at age 57 formulas, the total expected decrements did not change much, however the shapes of the curves changed. This means at some age and service combinations the proposed rates are greater than the current rates and at some age and service combinations the proposed rates are lower than the current rates.

The table below compares the actual number of retirements due to service retirement with the expected number of such retirements under both the current and proposed assumptions for active members by plan for the State plans and by benefit formula for Public Agencies.

# Findings

**State and Schools**

| | Actual | Expected (Current) | A/E Ratio | Expected (Proposed) | A/E Ratio |
|---|---|---|---|---|---|
| **State** | | | | | |
| CHP - Classic | 2,468 | 2,454 | 101% | 2,486 | 99% |
| CHP - PEPRA | | | | | |
| Industrial - Classic | 4,265 | 4,197 | 102% | 4,263 | 100% |
| Industrial - PEPRA | 87 | 88 | 99% | 87 | 100% |
| Miscellaneous - Classic | 71,969 | 71,326 | 101% | 71,909 | 100% |
| Miscellaneous - PEPRA | 1,528 | 1,484 | 103% | 1,527 | 100% |
| POFF - Classic | 16,569 | 16,573 | 100% | 16,568 | 100% |
| POFF - PEPRA | 49 | 65 | 75% | 47 | 104% |
| Safety - Classic | 7,164 | 7,051 | 102% | 7,164 | 100% |
| Safety - PEPRA | 164 | 220 | 75% | 159 | 103% |
| **School** | | | | | |
| Miscellaneous - Classic | 103,937 | 106,244 | 98% | 103,905 | 100% |
| Miscellaneous - PEPRA | 2,131 | 1,975 | 108% | 2,119 | 100% |

# Findings

**Public Agency Miscellaneous**

| | Actual | Expected (Current) | A/E Ratio | Expected (Proposed) | A/E Ratio |
|---|---|---|---|---|---|
| 2% at Age 62 PEPRA | 2,057 | 2,074 | 99% | 1,917 | 107% |
| 1.5% at Age 65 | | | | | |
| 2% at Age 55 | 26,792 | 26,538 | 101% | 26,993 | 99% |
| 2% at Age 60 | 3,411 | 3,254 | 105% | 3,654 | 93% |
| 2.5% at Age 55 | 19,938 | 20,069 | 99% | 19,730 | 101% |
| 2.7% at Age 55 | 20,946 | 21,593 | 97% | 20,665 | 101% |
| 3% at Age 60 | 9,702 | 10,152 | 96% | 9,161 | 106% |

**Public Agency Fire**

| | Actual | Expected (Current) | A/E Ratio | Expected (Proposed) | A/E Ratio |
|---|---|---|---|---|---|
| 2% at Age 50 | 73 | 66 | 111% | 72 | 101% |
| 2% at Age 55 | 23 | 77 | 30% | 22 | 102% |
| 2% at Age 57 | 4 | 3 | 133% | 3 | 133% |
| 2.5% at Age 57 | | | | | |
| 2.7% at Age 57 | 19 | 19 | 100% | 19 | 100% |
| 3% at Age 50 | 3,698 | 3.867 | 96% | 3,705 | 100% |
| 3% at Age 55 | 971 | 950 | 102% | 954 | 102% |

**Public Agency Police**

| | Actual | Expected (Current) | A/E Ratio | Expected (Proposed) | A/E Ratio |
|---|---|---|---|---|---|
| 2% at Age 50 | 537 | 489 | 110% | 575 | 93% |
| 2% at Age 55 | 37 | 43 | 86% | 42 | 84% |
| 2% at Age 57 PEPRA | 3 | 3 | 100% | 2 | 150% |
| 2.5% at Age 57 PEPRA | | | | | |
| 2.7% at Age 57 PEPRA | 70 | 59 | 119% | 54 | 129% |
| 3% at Age 50 | 9,374 | 9,141 | 103% | 9,385 | 100% |
| 3% at Age 55 | 952 | 894 | 106% | 912 | 104% |

# Findings

## Service Retirement for Terminated Members

### Summary

For Vested Terminated members it is assumed that their benefits will commence at a single age (Currently 59 for Miscellaneous and 54 for Safety). Staff recommends no change to this assumption (single age) for all terminated members. The methodology is common practice for public retirement systems due, in part, to the relatively small liability associated with this decrement.

### Method

The development of the terminated member single average retirement age for Miscellaneous and Safety members was based on the actual number of service retirements by age and a weighted average of each plan's exposure.

### Results

The average retirement ages for terminated members are 60 and 54 for Miscellaneous and Safety members, respectively. Staff recommends updating the average retirement age for Miscellaneous terminated members to 60, and no change to the retirement assumption for Safety members in terminated status on the valuation date.

# Findings

## Non-Industrial Disability Retirement

### Summary

The recent non-industrial disability retirement decrement study has introduced a significant revision to the previous methodology. This change stems from the limited credibility of the data, as the relatively small number of decrements due to non-industrial disability retirement—particularly within the safety groups—was insufficient for accurate rate derivation. In earlier studies, rates were calculated based on the experience of thirteen distinct groups. However, in this updated analysis, those thirteen groups have been consolidated into three categories: miscellaneous, miscellaneous State Industrial and safety. Rates are now determined based on the aggregated experience of these three broader categories.

### Method

The decrement study analyzed non-industrial disability retirement (NIDR) experience over three distinct periods: (a) the 4-year periods from 2015 to 2019 and 2019 to 2023, (b) the 10-year period from 2009 to 2019, and (c) the 15-year period from 2008 to 2023. By examining these various timeframes, trends were identified, and inconsistencies revealed. Specifically, the analysis of the 10- and 15-year periods highlighted a consistent trend of lower-than-expected decrements due to NIDR. However, the 4-year period from 2019 to 2023 showed a significant decline in the number of decrements, which was deemed unreliable for rate setting. As a result, all rates have been determined based on the more stable and consistent experience observed during the 10-year period from 2009 to 2019.

Transferred members were excluded from the study of this decrement. Factors used for grouping data:

- Age: Rates displayed a strong and fairly consistent pattern by age.
- Gender: Male and Female groups have been combined due to:

    a) similar decrement pattern between groups

    b) inadequate data to appropriately set separate rates.

### Results

The consolidated experience revealed a clear pattern for both the miscellaneous and safety groups. A curve was fitted to the raw rates resulting in the proposed rates for both groups.

For the miscellaneous group, fitted rates initially increased until age 50, then steadily decreased until approximately age 60 and remained relatively consistent after that.

The State Industrial group had a similar shape to their fitted rates as the miscellaneous group. However, this group experienced a notably higher number of non-industrial disability retirements relative to their miscellaneous counterparts. Therefore, for the State Industrial group, miscellaneous rates were increased by a factor of three across all age groups.

The safety group demonstrated a gradual and steady increase in fitted rates until approximately age 55, at which point the rate of increase accelerated sharply compared to the earlier years. Due to the volatility of raw rates in later years, the rates were stabilized at age 65 and beyond.

The table below compares the actual number of NIDR with the expected number of such retirements under the proposed assumptions. The counts are for 2009-2019.

# Findings

**Non-Industrial Disability Retirement**

| | Actual | Expected (Proposed) | A/E Ratio |
|---|---|---|---|
| Miscellaneous All | 7317 | 7698 | 95% |
| State Industrial | 393 | 396 | 99% |
| Safety All | 826 | 818 | 101% |

# Findings

## Industrial Disability Retirement

### Summary

The proposed Industrial Disability Retirement (IDR) rates are being adjusted for eight of eleven groups.

Four groups - Public Agency Safety County Peace Officers (SCP), Public Agency Safety Fire (SFI), State California Highway Patrol (CHP), and State Peace Officers and Firefighters (POFF) - are being updated to better align with age-based trends.

Four smaller groups, previously set as percentages of the Public Agency Safety Police (SPO) rates – Public Agency Safety Sheriff (SSH), Public Agency Safety School Police (SSP), Public Agency Other Safety (SOS), and Public Agency Prosecutors (SPR) – are being updated to a percentage of the proposed County Peace Officer rates, to better align with age-based trends and rates of decrement.

Rates for State Industrial, State Safety, and Public Agency Police Officers (SPO) were not changed.

### Method

The decrement study reviewed the IDR experience over the 4-year periods[1] from (a) July 1, 2006 to June 30, 2010, (b) 2010 to 2014, (c) 2014 to 2018, and (d) 2018 to 2022, as well as the (e) 19-year period from 2004 to 2022.

For many of the larger groups, the analysis showed a continued trend of members retiring under Industrial Disability Retirement once eligible for Service Retirement. As such, adjusted groups were altered to better reflect their respective patterns of IDR retirements at service retirement eligible ages.

While the period from 2019 to 2023 showed potential for further increases in this trend for some groups, this period was determined to be too unreliable for rate setting due to concerns that COVID altered member behavior.

For example, the average State CHP exposures decreased by 10% from 2019 to 2022, while the A/E ratio for industrial disability retirements increased to 178% for the same period.

Rates were instead determined using the 2015 to 2019 period.

Transferred and terminated members were excluded from the study for the same reasons listed in the study of the service retirement decrement.

Factors used for grouping data:

- Age: Rates increase with age. There were very few decrements below age 30 while most groups had very high IDR rates close to or at service retirement eligibility ages.
- Employee Category: The IDR rates differed by employee category. Therefore, separate rates are used for State Industrial, State Safety, State POFF, State CHP, PA Fire, PA SPO, and PA CPO members. Rates for PA Sheriff, PA School Police, PA Prosecutors, and PA other Safety use a percentage of the proposed PA CPO.

# Findings

The data indicated there is a difference in IDR rates for male and female members. There are also indications that rates varied by length of service. However, there is not sufficient credible experience to produce male/female specific IDR rates on age and service.

Combining IDR groups was considered but was determined to be inappropriate due to significant variations between membership categories. Combining Non-Industrial Disability Retirement experience with IDR experience was also considered but was also determined to be inappropriate due to differences in the benefit structure and member eligibility.

1. Unless otherwise stated, all periods are from July 1 to June 30 of the years provided.

## Discussion

There are significant variations in the patterns of industrial related disability between the various membership categories. It is believed that these differences represent real underlying differences in the behavior of members.

Five groups (PA Police, POFF, CHP, State Safety, and PA Fire) show substantial increases in the rates of industrial disability at or shortly after age 50. PA Police, State POFF, and CHP peak at age 50. State Safety and PA Fire peak at age 54.

Four public agency groups – Sheriff, School Police, Prosecutors, and Other Safety – have much lower exposures than other public agency groups. Previously, these rates were set to a percentage of Safety Police. This no longer appears appropriate due to an increase in the rates of decrements and the development of Service Retirement Eligible age-based trends within the Public Agency Police group.

These four groups have been moved to a percentage of the County Peace Officer table, which has lower rates generally, and a more gradual increase in rates by age, particularly at age 50.

These differences between member categories are believed to be due to:

- differences in how strictly the disability criteria are enforced for the different groups, and
- differences in the service retirement formulas of active members within each group.

For example, as of the June 30, 2019 Annual Valuation, 56% of PA Police active members had the 3%@50 Classic Formula. Members in the 3%@50 Classic Formula receive a fixed benefit factor of 3% per year of service at all ages 50 and above, which encourages members to retire at or near age 50. Comparatively, 50% of State Safety active members had the 2.5%@55 Classic Formula, which increases from a benefit factor of 2% at age 50 to 2.5% at age 55 and above. Members in this formula are more likely to retire after 50 as to receive the higher benefit factors.

Furthermore, three groups – State Industrial, PA School Police, and PA Prosecutors – have lower IDR rates at all ages than the other groups. This is to reflect a believed difference in the nature of the work performed by these groups, as compared to other groups.

# Findings

## Results

The IDR rates for each group were adjusted as follows:

| Category | Rate Impact |
|---|---|
| **State** | |
| CHP | Age 50 to 53 rates increased by 20% to 100%<br>Age 55 to 61 rates reduced by 5% to 25% |
| POFF | Age 39 to 49 rates reduced by 2.5% to 30%<br>Age 50 to 65 rates increased by 5% to 60% |
| Industrial | No Changes |
| Safety | No Changes |
| **Public Agency** | |
| Police | No Changes |
| Fire | Age 45 to 51 rates, excluding age 50, reduced by 10%<br>Age 50 rate reduced by 30%<br>Ages 56 to 63 rates increased by 5% to 20% |
| County Peace Officer (SCP) | Age 33 to 53 rates increased by 5% to 20% |
| Sheriff | Moved from 100% of PA Police rates to 100% of proposed PA SCP rates |
| Prosecutors | Moved from 1% of PA Police rates to 1% of proposed PA SCP rates |
| School Police | Moved from 50% of PA Police rates to 80% of proposed PA SCP rates |
| Other Safety | Moved from 100% of PA Police rates to 100% of proposed PA SCP rates |

The basic IDR benefit is 50 percent of final compensation plus an annuity purchased pursuant to statute. If the employee is eligible for service retirement, the service retirement benefit is payable, if greater. The rates of IDR are highest over age 50. As many members are eligible for service retirement at this age, they receive the larger service retirement pension in the event of IDR. IDRs at these higher ages have minimal impact on pension costs.

Pension Reform legislation (PEPRA), effective January 1, 2013, added a provision for safety members who qualify for IDR under age 50. In some circumstances, an IDR pension larger than 50 percent of final compensation may be payable at ages less than 50. IDR experience will be monitored to see if the change in legislation has any impact on reporting of IDR events. The data available for this experience study did not contain enough credible data to examine the impact of the PEPRA legislation.

# Findings

The table below compares the actual number of IDR decrements with the expected number of such decrements under both the current and proposed assumptions for the period of 2015 to 2018.

**Industrial Related Disability Retirements**

| | Actual[1] | Expected (Current) | A/E Ratio (Current) | Expected (Proposed) | A/E Ratio (Proposed) |
|---|---|---|---|---|---|
| **State** | | | | | |
| Industrial | 7 | 7 | 100% | No Change | |
| Safety | 616 | 596 | 103% | No Change | |
| POFF | 1,227 | 1,158 | 106% | 1,237 | 99% |
| CHP | 213 | 201 | 106% | 217 | 98% |
| **Public Agency** | | | | | |
| Police | 1285 | 1262 | 102% | No Change | |
| Fire | 481 | 496 | 97% | 495 | 97% |
| CPO | 303 | 274 | 111% | 307 | 99% |
| Sheriff | 40 | 110 | 36% | 46 | 87% |
| Prosecutor | 0 | 0 | 0% | 0 | 0% |
| School Police | 17 | 26 | 65% | 17 | 100% |
| Other Safety | 4 | 10 | 40% | 4 | 100% |

1. Measured as of June 30, 2023. May reflect differences from the prior study due to data and system updates.

# Findings

## Terminations with Vested Benefits and Terminations with Refund

### Summary

A new set of assumptions for terminations with vested benefits is being proposed for all Miscellaneous groups and four of the Safety groups. An increase in their assumed retirement age necessitated new rates for all Miscellaneous groups. Actual versus expected decrement differences for the four Safety groups supported small changes in their terminations with vested benefits rates.

In addition, a new set of assumptions for terminations with refunds is being proposed for all groups. The actual versus expected ratios ranged from 90% to 108% (excluding POFF female members). After graduating the new assumptions, the actual versus expected ratios for the period of 2007 through 2021 ranged from 100% to 104%.

#### Method

Terminations with vested benefits and terminations with refunds were studied separately. All terminated members having less than 5 years of service at termination were considered refunds. Vested terminations are assumed to retire at age 60 (an increase from age 59 in the prior experience study) for Miscellaneous members and age 54 for Safety members. Decrements and exposures beyond the assumed retirement ages for vested terminations were excluded since they were assumed to retire. Additionally, vested termination rates beyond our retirement age assumption were set to zero. For simplicity and to avoid double counting, only data from active members was included in the study.

The study period was shortened to 14 years from 19 years to emphasize more recent experience. This study period excluded experience from fiscal years 2021-22 and 2022-23, since termination rates then were significantly higher than other time periods and were considered not to be reflective of most likely future experience. This time period aligned with a historically unique time for the broader U.S. labor market, where voluntary quits reached new highs due to the global pandemic.

Factors used for grouping data:

- Entry Age: Termination rates declined as age increased. Entry age was used as a grouping factor for State Miscellaneous, Schools and Public Agency Miscellaneous. However, Safety groups generally have less variance in the age at date of hire than do Miscellaneous groups. This results in a higher correlation with service and makes the entry age factor less useful in predicting terminations. Given this effect and the less amount of data available for safety groups, entry age was not used as a grouping factor for safety categories.
- Service: Termination rates declined as service increased. Service is used as a grouping factor in the current rates for all employee categories.
- Employee Category: Significant differences were observed in the termination rates applicable to different employee categories. Separate tables of termination rates were used for Miscellaneous, Police, Fire and County Peace Officer members.
- Gender: Significant differences were observed between males and females. Females generally terminate at higher rates than males. Separate rates were generally used for the different categories, except for State Industrial where we did not observe significant differences.

The raw rates were smoothed using the following methods or a combination of the methods: Whittaker-Henderson, polynomial, exponential and manual adjustment. For groups with multiple entry age groups,

# Findings

interpolation was used between bands. Some of the female Safety groups rates use male rates with an appropriate multiplier because of insufficient data.

For terminations with vested benefits and terminations with refunds, the analysis considered whether it was reasonable to combine or simplify assumption sets. For both assumptions, it was determined that the State Miscellaneous Tier 1 assumption sets would replace the separate assumption sets for State Miscellaneous Tier 2. This change was made because of the increasingly limited amount of data for fitting rates to Tier 2 of State Miscellaneous and the impact being immaterial. For terminations with refunds, entry age groups for some member categories (State Miscellaneous and Public Agency Miscellaneous) were combined because of minimal impact on overall results.

## Results

The proposed termination with vested benefits rates are close to those in the prior experience study. Four of the Safety groups below were updated because of differences between actual decrements versus expected decrements or poor fit of the current rates. Since there was an increase in the assumed age of retirement for separated and vested Miscellaneous members, all of the Miscellaneous groups had new rates fitted to them.

# Findings

The table below compares the actual versus expected number of terminations with vested benefits.

**Termination with Vested Benefits**

| | Actual | Expected (Current) | A/E Ratio (Current) | Expected (Proposed) | A/E Ratio (Proposed) |
|---|---|---|---|---|---|
| **State** | | | | | |
| Miscellaneous Tier 1 (Female)[1] | 11,779 | 11,878 | 99% | 11,852 | 99% |
| Miscellaneous Tier 1 (Male)[1] | 8,102 | 7,971 | 102% | 8,140 | 100% |
| Industrial (Male and Female) | 1,482 | 1,325 | 112% | 1,478 | 100% |
| Safety (Female) | 1,691 | 1,629 | 104% | No Change | |
| Safety (Male) | 1,069 | 1,010 | 106% | No Change | |
| POFF (Female) | 726 | 838 | 87% | 727 | 100% |
| POFF (Male) | 2,360 | 2,382 | 99% | No Change | |
| CHP (Female) | 31 | 50 | 63% | 30 | 102% |
| CHP (Male) | 364 | 337 | 108% | 353 | 103% |
| **School** | | | | | |
| Miscellaneous (Female) | 33,977 | 31,318 | 108% | 34,189 | 99% |
| Miscellaneous (Male) | 12,973 | 11,883 | 109% | 13,036 | 100% |
| **Public Agency** | | | | | |
| Miscellaneous (Female) | 20,724 | 20,566 | 101% | 20,822 | 100% |
| Miscellaneous (Male) | 14,908 | 14,195 | 105% | 14,942 | 100% |
| Fire (Female) | 79 | 69 | 115% | No Change | |
| Fire (Male) | 707 | 719 | 98% | No Change | |
| Police (Female) | 400 | 426 | 94% | 395 | 101% |
| Police (Male) | 2,130 | 2,062 | 103% | No Change | |
| CPO (Female) | 433 | 413 | 105% | No Change | |
| CPO (Male) | 805 | 782 | 103% | No Change | |

[1] Starting with this study, State Miscellaneous Tier 2 uses Tier 1 rates.

# Findings

The proposed termination with refunds rates were generally slightly lower than in the prior experience study.

The table below compares the actual versus expected number of terminations with refunds.

**Termination with Refunds**

| | Actual | Expected (Current) | A/E Ratio (Current) | Expected (Proposed) | A/E Ratio (Proposed) |
|---|---|---|---|---|---|
| **State** | | | | | |
| Miscellaneous Tier 1 (Female) | 27,143 | 28,364 | 96% | 26,350 | 103% |
| Miscellaneous Tier 1 (Male) | 22,095 | 22,839 | 97% | 21,579 | 102% |
| Industrial (Male and Female) | 2,810 | 2,637 | 107% | 2,808 | 100% |
| Safety (Female) | 6,258 | 6,314 | 99% | 6,255 | 100% |
| Safety (Male) | 4,077 | 3,895 | 105% | 4,072 | 100% |
| POFF (Female) | 1,111 | 1,442 | 77% | 1,108 | 100% |
| POFF (Male) | 6,435 | 7,008 | 92% | 6,435 | 100% |
| CHP (Female) | 10 | 11 | 91% | 10 | 100% |
| CHP (Male) | 213 | 223 | 95% | 204 | 104% |
| **School** | | | | | |
| Miscellaneous (Female) | 138,035 | 136,295 | 101% | 137,790 | 100% |
| Miscellaneous (Male) | 53,973 | 55,133 | 98% | 53,910 | 100% |
| **Public Agency** | | | | | |
| Miscellaneous (Female) | 55,612 | 58,777 | 95% | 54,730 | 102% |
| Miscellaneous (Male) | 39,297 | 40,811 | 96% | 38,689 | 102% |
| Fire (Female) | 103 | 96 | 108% | 100 | 103% |
| Fire (Male) | 1,686 | 1,614 | 104% | 1,658 | 102% |
| Police (Female) | 510 | 564 | 90% | 506 | 101% |
| Police (Male) | 3,358 | 3,403 | 99% | 3,300 | 102% |
| CPO (Female) | 803 | 863 | 93% | 793 | 101% |
| CPO (Male) | 1,606 | 1,708 | 94% | 1,596 | 101% |

# Findings

## Pre-Retirement Mortality (Non-Industrial and Industrial)

### Summary

Pre-Retirement mortality (Death from Active Status) assumptions have been developed for both Miscellaneous and Safety groups separately by gender. Unlike other active demographic assumptions, which rely solely on plan experience, for pre-retirement mortality standard mortality tables and projection scales developed by the Society of Actuaries serve as references for the development of CalPERS assumptions.

In 2019 the Retirement Plans Experience Committee (RPEC) of the Society of Actuaries (SOA) published an extensive mortality study1 and developed a new set of mortality tables for the U.S public pension plans. These Pub-2010 mortality tables are separated for teachers (PubT-2010), safety members (PubS-2010) and other general public employees (PubG-2010). The experience covered 35 public systems encompassing 78 plans with CalPERS also providing data for this study. It has been shown that salaries for active members are a significant predictor of mortality differences, separate tables were developed for Above-Median and Below-Median salary experience. Based on our review, CalPERS experience correlates more strongly with Above-Median Salary mortality tables [PubG-2010(a) & PubS-2010(a)]. We found that the tables matched well with CalPERS mortality experience. On May 6, 2025, the Society of Actuaries released the Pub-2016 Public Retirement Plans Mortality Tables, which reflects a review of mortality experience specific to public sector plans. With these tables being published after we were required to conclude our analysis, ACTO will consider these tables for our next study

In the current Experience Study, additional data for the period July 2019 to June 2023 was obtained. Data was subdivided based on Miscellaneous and Safety status, further subdivided into duty death and non-duty death, and by gender.

The 2 groups with largest number of decrements were the Non Duty Death Miscellaneous Female and Non Duty Death Miscellaneous Male. The number of pre-retirement decrements in general could not be considered fully credible. In general, more than a thousand decrements for each age are required to be fully credible. Data available in this experience study does not meet this threshold. In the tables below the total number of deaths for all ages is less than a thousand.

**Non Duty Death Miscellaneous Female**

| Period | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|
| Total All Ages | 350 | 383 | 495 | 503 | 397 |
| Total Change yoy | | 9.4% | 29.2% | 1.6% | -21.1% |

**Non Duty Death Miscellaneous Male**

| Period | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|
| Total All Ages | 400 | 414 | 611 | 580 | 468 |
| Total Change yoy | | 3.5% | 47.6% | -5.1% | -19.3% |

The large increase from 2019-20 to 2020-21 is attributable to COVID-19. The impact of COVID-19 continued into 2021-22. There was a decrease in the number of decrements in 2022-23.

# Findings

Due to the COVID-19 pandemic, no changes to the pre-retirement mortality base rates are being proposed. The elevated mortality rates during the study period do not reflect what we expect in future experience of this population. We believe this approach is consistent with that of the Society of Actuaries (SOA), which is not producing a new mortality projection table until sufficient post-pandemic experience can be collected. In this study, we are adopting the MP-2021 mortality projection table, which will replace the MP-2020 mortality projection table we used previously. We will also continue to use 80% of the mortality projection table, as it best represented the future expectations for the mortality improvement of the system in our last study. See below for a description of the methodology used to set the pre-retirement mortality base rates in the prior Experience Study.

## Methodology

This is a description of the methodology used in the CalPERS 2021 Experience Study. As discussed above, the data from the period July 1, 2019 to June 30, 2023 was not deemed useful for future rate setting.

Fifteen years of data for active members through June 30, 2019 was used in CalPERS 2021 Experience Study.

Factors used for grouping data:

- **Age**: Rates increase with age. Members at older ages have a higher probability of dying than younger members which is consistent with essentially all other mortality studies.
- **Gender**: Male mortality rates are higher than female mortality i.e. male members tend to have a higher probability of dying than their female counterparts. This is almost universally true in all mortality studies.
- **Membership Category**: It was found that for pre-retirement mortality, Safety members have comparatively lower rates of mortality than Miscellaneous members. It is a widely held belief that Safety mortality would be higher than Miscellaneous mortality but that is not borne out in the data. For males the difference in mortality rates from ages 18 to 34 is minimal but beyond age 35 the difference is demonstrable. Although the reason for this is unclear it may be due to the fact that Safety retirement benefit formulas allow for earlier retirement ages and that Safety members have higher rates of disability retirements from active service. In other words, Safety members who are less healthy than the general population may leave active employment sooner with the result that a comparatively healthier cohort remains in active service particularly at ages 50 and above when there is a higher probability of death. The effect is not seen in the female population. Here the Safety female mortality is slightly higher than the Miscellaneous female group up until age 50 and then the Miscellaneous mortality becomes higher. However, there is very little Safety female active deaths to draw a reliable conclusion.

The steps in our analysis are as follows:

1. Raw rates were developed using a Whitaker-Henderson fit.
2. Pub-2010 standard mortality tables that most closely matched the experience of the group were used for comparison.

# Findings

3. Adjust this standard table either fully or partially depending on the level of credibility for CalPERS experience. We use a credibility ratio of 5% which corresponds to a 90% probability of observed rates is within 5% of true rate. This 90% decrement credibility threshold would require 1082 deaths for full credibility.
4. For ages below 18 where no data was available, we used RPEC gender specific Juvenile mortality rates.
5. MP-2020 mortality improvement projection scale was applied to this adjusted table to create a 2017 base table.
6. Base 2017 table with 80% mortality Improvement using MP-2020 and generational mortality used for pension costing.

## Results

No changes are being made to the base mortality rates in this study.

# Findings

## Post-Retirement Mortality for Healthy Recipients

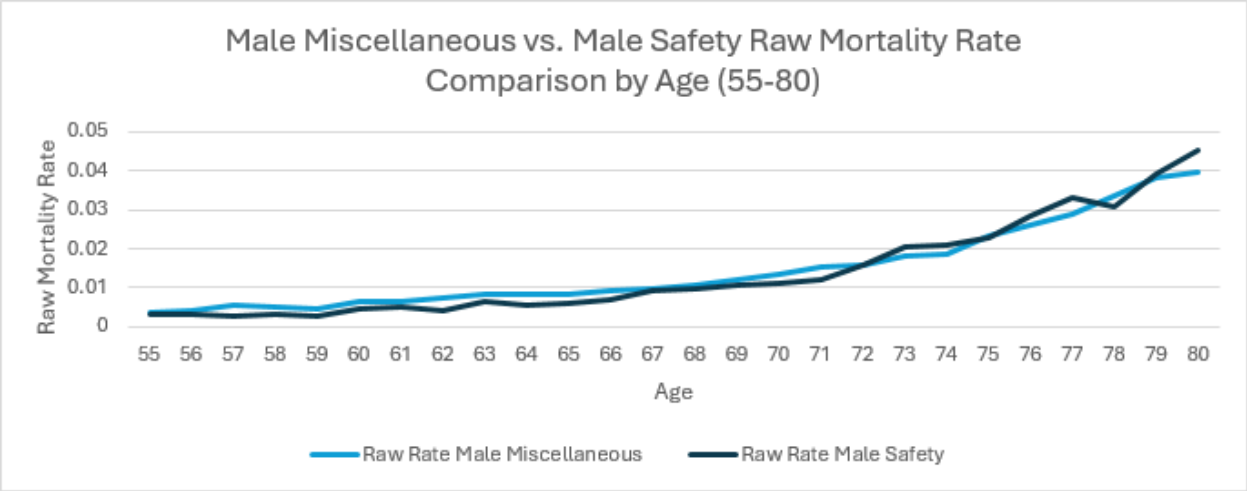
**Summary**

Due to the COVID-19 pandemic, no changes to the post-retirement mortality base rates are being proposed. The elevated mortality rates during the study period do not reflect what we expect in future experience of this population. We believe this approach is consistent with that of the Society of Actuaries (SOA), which is not producing a new mortality projection table until sufficient post-pandemic experience can be collected. In this study, we are adopting the MP-2021 mortality projection table, which will replace the MP-2020 mortality projection table we used previously. We will also continue to use 80% of the mortality projection table, as it best represented the future expectations for the mortality improvement of the system in our last study.

Life expectancy will remain very close to the previous study. There is no change in the life expectancy of 55-year-old male or female members.

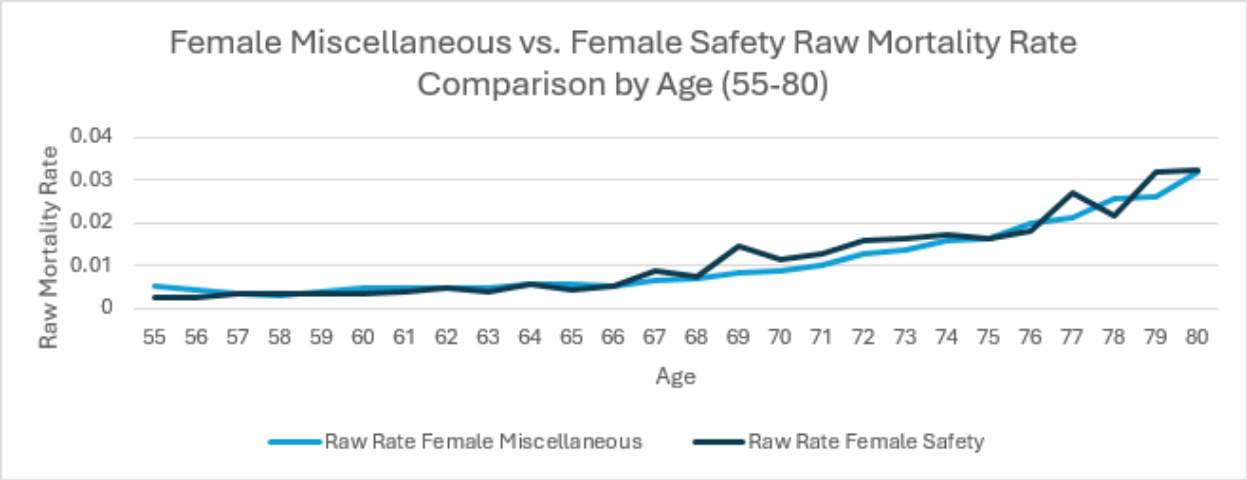
Previous studies have determined that there are no material differences in the post-retirement mortality rates between retirees from safety groups as compared to retirees from miscellaneous groups. The current study confirmed that there continues to be no significant differences in rates between the two groups.

Miscellaneous and Safety Raw Mortality Rate Comparison (2015-2019)



# Findings

Miscellaneous and Safety Raw Mortality Rate Comparison (2015-2019)




**Method**
Factors used for grouping data:

- Age
- Gender

We are utilizing the rates developed from the last study for males. For females, the Pub2010 rates for females were adjusted to base year 2017 using 50% of MP-2020. In this study, we are adjusting the rates to base year 2017 with 80% of MP-2020. Please see the previous experience study for a comprehensive description of how mortality rates for this population were developed.

Due to the COVID-19 pandemic, the SOA stopped publishing mortality improvement scales after MP-2021. This scale consists of an expected annual improvement in mortality that varies by age and gender. Scale MP-2021 was only a small change from MP-2020, which CalPERS adopted in the last experience study. It retains long-term improvement rates of 1.35% for ages 62 and younger, which decrease linearly to 1.10% at age 80, further decreasing linearly to 0.00% at age 115 (and thereafter).

## Results

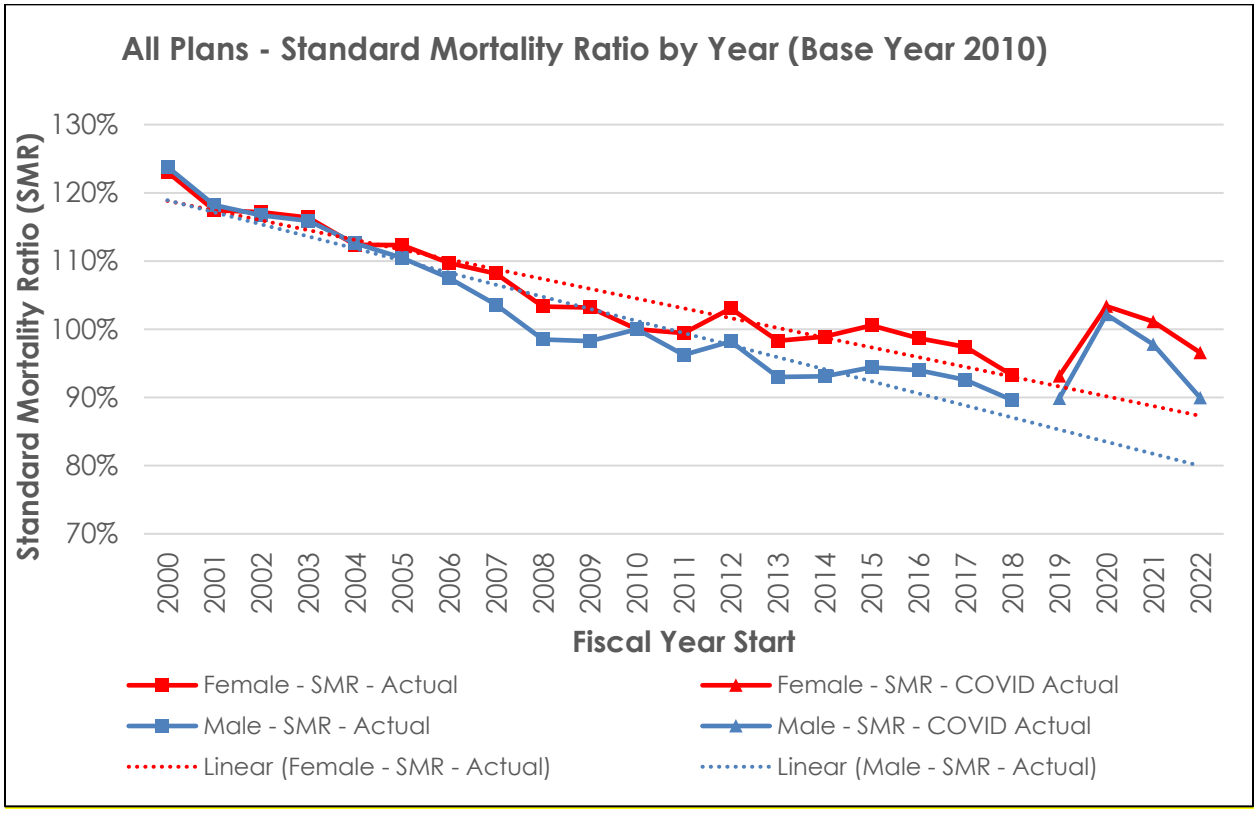
As referenced in the method section, a change to female base rates is being made in this study. This change does not have a material impact to plan costs. No other changes are being made to the base mortality rates in this study.

# Findings

**Standardized Mortality Ratio (SMR)**

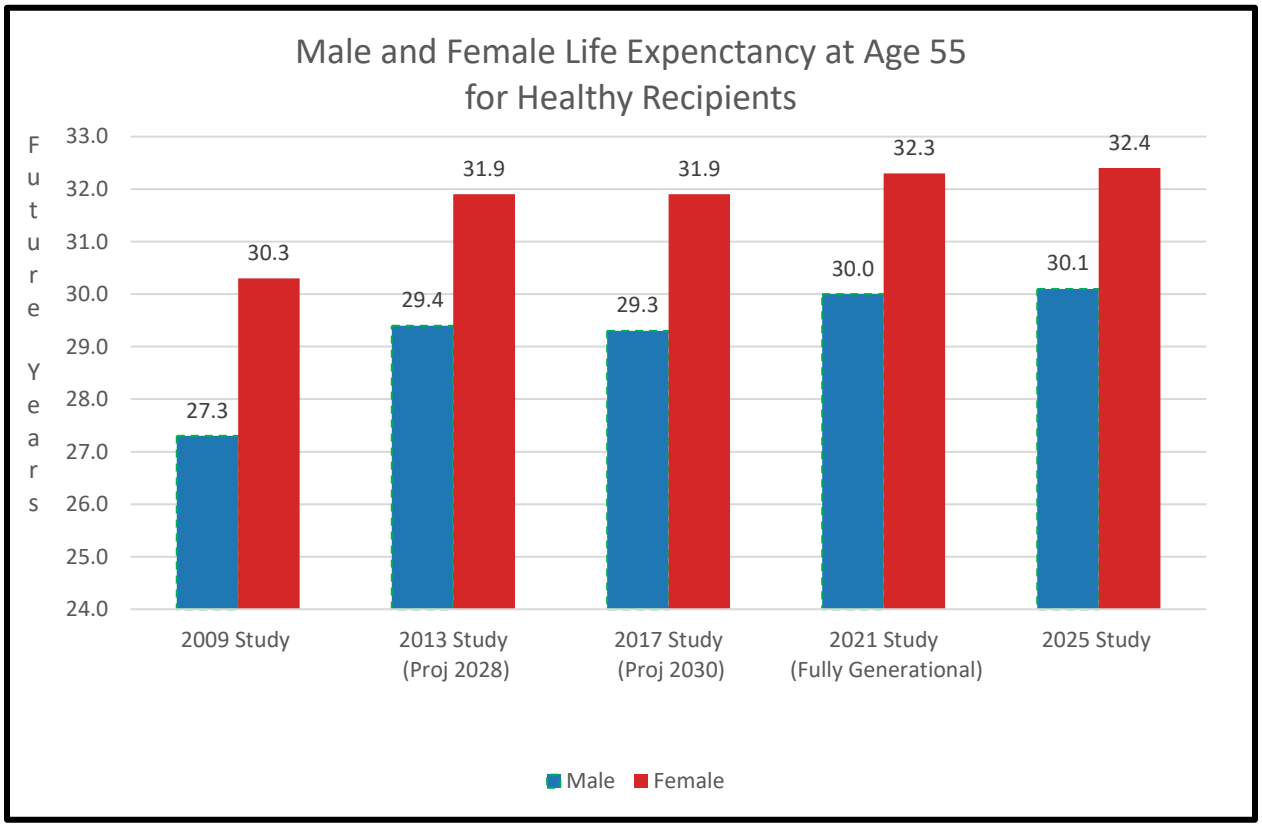
A very useful tool to analyze the trends in mortality is to calculate a Standardized Mortality Ratio (SMR). The SMR compares the actual deaths over a period of years using the same exposures for each year applied to the actual mortality rates by age for each year. This gives us a much better picture of the underlying mortality improvement trends over a longer period, and how the COVID-19 experience compares to those trends.

The SMR for each gender was developed using the exposures for the Fiscal Year ending 2010 as the base year. Using the 2010 exposures and the actual mortality rates for each year from 1998 through 2019, the following graph provides a comparison of the calculated deaths by year divided by the actual deaths in 2010 to illustrate the improvement in mortality from 1998 to 2019. We added the period of COVID-19 pandemic (FY 2019-20 to FY 2022-23) to this data and compared these values to the trendline from the preceding 20-year period. We can see that the SMR values for males and females exceed the dotted trendline for all years of the pandemic. This indicates that the data should not be included in our study.



**Life Expectancy**

Life expectancy is the average remaining number of years a member is expected to live if subjected the rest of their life to the current mortality assumptions. The chart below provides a comparison of life expectancy at age 55 for both male and female healthy recipients, based on prior CalPERS mortality experience. Life expectancy at age 55 remains at basically the same levels as the previous study for healthy recipients. This study continues to use fully generational mortality calculations and benefit weighted base rates (which were started in the 2021 Experience Study), whereas previous calculations used a fixed period of mortality improvement and headcount weighted base rates.




The table below provides a comparison of the life expectancy for males and females under current benefit weighted base rates with:

A. no mortality improvement,
B. generational mortality improvement using 80% of the MP-2020 table, and
C. generational mortality improvement using 80% of the MP-2021 table.

For example, here are the remaining life expectancies of age 50 male and female participants using the different assumptions:

- Male
  A. No mortality improvement: 33.5 additional years (total life expectancy of 83.5)
  B. 80% of MP-2020: 34.8 additional years (total life expectancy of 84.8)
  C. 80% of MP-2021: 34.9 additional years (total life expectancy of 84.9)
- Female
  A. No mortality improvement: 35.8 additional years (total life expectancy of 85.8)
  B. 80% of MP-2020: 37.1 additional years (total life expectancy of 87.1)
  C. 80% of MP-2021: 37.2 additional years (total life expectancy of 87.2)

**Remaining Life Expectancy (In Years) Healthy Recipients Based on Age and Gender**

| Attained Age | Benefit Weighted Base Rates with No Improvement (A) | | 2021 Study: Column A with Generational Mortality Improvement Using 80% of MP-2020 (B) | | 2025 Study: Column A with Generational Mortality Improvement Using 80% of MP-2021 (C) | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| 50 | 33.6 | 35.8 | 34.8 | 37.1 | 34.9 | 37.3 |
| 55 | 29.0 | 31.2 | 30.0 | 32.3 | 30.1 | 32.4 |
| 60 | 24.6 | 26.7 | 25.4 | 27.5 | 25.5 | 27.6 |
| 65 | 20.4 | 22.4 | 20.9 | 23.0 | 21.0 | 23.1 |
| 70 | 16.3 | 18.1 | 16.7 | 18.5 | 16.8 | 18.6 |

# Post-Retirement Mortality for Non-Industrial Related Disabled Retirees

## Summary

Due to the COVID-19 pandemic, no changes to the post-retirement mortality base rates are being proposed. The elevated mortality rates during the study period do not reflect what we expect in future experience of this population.

## Method

Factors used for grouping data:

- Age
- Gender

We are utilizing the rates developed from the last study for males. For females, the Pub2010 rates for females were adjusted to base year 2017 using 50% of MP-2020. In this study, we are adjusting the rates to base year 2017 with 80% of MP-2020. Please see the previous experience study for a comprehensive description of how mortality rates for this population were developed.

We are applying the same level of mortality improvement as healthy recipients, which is 80% of mortality improvement scale MP-2021.

## Results

As referenced in the method section, a change to female base rates is being made in this study. This change does not have a material impact to plan costs. No other changes are being made to the base mortality rates in this study.

# Post-Retirement Mortality for Industrial Related Disabled Retirees

## Summary

Due to the COVID-19 pandemic, no changes to the post-retirement mortality base rates are being proposed. The elevated mortality rates during the study period do not reflect what we expect in future experience of this population.

## Method

Factors used for grouping data:

- Age
- Gender

We are utilizing the rates developed from the last study for males. For females, the Pub2010 rates for females were adjusted to base year 2017 using 50% of MP-2020. In this study, we are adjusting the rates to base year 2017 with 80% of MP-2020. Please see the previous experience study for a comprehensive description of how mortality rates for this population were developed.

We are applying the same level of mortality improvement as healthy recipients, which is 80% of mortality improvement scale MP-2021.

## Results

As referenced in the method section, a change to female base rates is being made in this study. This change does not have a material impact to plan costs. No other changes are being made to the base mortality rates in this study.

# Unused Sick Leave—School Member, School Safety Member, or Local Member

## Summary

Government Code Section § 20963.5 allows a contracting agency to convert unused sick leave for retiring active members into pension service. For every eight hours of unused sick leave, the member will receive 0.004 years of service credit applied towards their pension benefit. This is an optional benefit for public agencies. If the agency is part of a risk pool, this benefit is mandatory.

## Method

To model Section § 20963.5, the Actuarial Office increases each member's active service by 1 percent. This has been the practice since the 2018 valuation. In valuations prior to 2018, the 1 percent increase was applied to the active liability rather than service. The 1 percent load was switched from liability to service to align with enterprise practice of adding sick leave to service.

Service can be used as a proxy for benefits since benefit amounts are directly proportional to service amounts.

For the analysis, all service retirements for agencies that provide Section § 20963.5 over the last 10 years were reviewed. For all members that retired, their service was aggregated with and without the addition of sick leave as service.

We reviewed 425,876 retirements. Overall, we found that members that retired with sick leave had 0.78% more service than if their sick leave was removed from the calculation. This percentage varied across Safety members, Miscellaneous members, PEPRA and Classic members in values ranging from 0.7%-1.0%. Despite these differences, the change to the liability and employer rates were negligible.

## Results

Based on the aggregate numbers, the 1% increase seems to be appropriate going forward.

# Salary/Merit Increase

## Summary

The proposed salary/merit assumptions are updated for all member categories and for all age and service groups. There are 10 different salary/merit increase assumption groups: 4 Miscellaneous groups (State Miscellaneous and Industrial, Schools Miscellaneous, and Public Agencies) and 6 Safety groups (State Safety, POFF, CHP and Public Agency Police, Fire and County Peace Officer). The study has shown that:

- Wage inflations are generally higher than expected for all member categories except for State Safety members since our last 2021 study.
- State Safety and CHP members experienced a slightly lower than expected wage inflations during the fiscal years 2019 to 2023, while Schools and State Industrial members experience the most increases in wage inflations during the same periods.
- State Industrial members experienced a moderate increase in merit primarily for services less than 10 years, while Schools members experienced higher than expected merit increases primarily for services less than 10 years with entry ages less than 40.
- Public Agency County Peace Officer, Fire and Police members experienced merit increases closely aligned with the current expectations.
- State Miscellaneous members experienced higher merit increases across all service levels compared to the current assumptions. While Public Agency Miscellaneous experienced slightly higher than expected merit increases at low level of service with entry ages less than 40.

## Assumptions and Methods

The study included data from continuing active members only. Factors used for grouping data:

- Entry Age: Employees with lower entry ages tend to get larger pay increases at the same amount of service.
- Service: Merit increases are generally higher for low-service individuals. Particularly from date of entry to 5-8 years of service depending on member category.
- Membership Category: Generally, Safety members have higher wage inflations and merit increases than Miscellaneous members especially in the first 8 years of service. Among the Safety categories, CHP has higher overall wage inflations compared to other Safety member categories.
- Periods Studied: Covering last 16 & 20 fiscal year periods beginning June 30, 2003.

Factors not used for grouping data:
Gender: Prior studies have indicated that merit increases for CalPERS members do not have material differences in gender.

Census data exclusions.
Schools experiences in fiscal year FY2011-12 are excluded from this study due to unexpected non-recurring economic events during the fiscal year.

## Sources of Salary Increases: Seniority, Merit, and Promotion (SMP) and Inflation

Salary increases can be thought of as the product of two distinct components: increases related to wage inflation and increases related to seniority, merit, and promotion. Salary increases due to wage inflation tend to be driven by global or local activities, although they can also be driven by industry specific trends as well. As such, these increases are best treated as an economic assumption and should be considered in conjunction with other economic assumptions such as wage inflation, productivity increases etc. The pattern of salary increases due to seniority, merit, and promotion tend to differ due to membership category, geographic location or employer specific factors and are best treated as demographic assumptions. In this study, only the seniority, merit, and promotion component of salary increases were studied. The merit increases assumptions recommended in this study should be combined with wage inflation assumption to derive the total expected salary increases.

As part of this study, the data for developing a new set of salary increase assumptions was studied using a closed group method. The closed group study method is described by McGill et al. (2005) in *Fundamentals of Private Pensions (8th ed., p.610)*. This method is the same as was used in the previous study.

Using this method, the way to construct a merit scale is to examine historical increases in compensation of various employees in each member category and entry ages and service group from the beginning of each fiscal year compared to compensation at the end of the fiscal year. For example, suppose in year 1 of the study period a member with entry age 30 and 5 years of service had a salary increase of 10% during the year and in the same fiscal year the total active population in the same category had an increase in average salary of 5%. Then, the merit increase for that member with entry age 30 and 5 years of service will be 4.76% (110%/105%). We used this method to calculate merit increases for each entry age and service cell and for each of the fiscal year from June 30, 2007 to June 30, 2023. Finally, merit increases for each separate entry age and service cell in the 16-year study period were weighted based on members' compensation in each cell per fiscal year. These average increases were then graphed and fitted using an exponential function splined at 6 to 9 years depending on the observed curve that resulted. Some curves were fitted using manual smoothing due to known discontinuities such as contractual longevity increases for CHP or observed periodic increases for Schools member category.

## Results

The current 10 assumption sets vary by service and entry age for all member groups except CHP, POFF & State Safety (depends on service only). The data continues to show merit increases for CHP are far more associated with service rather than entry age. This is true for all Safety groups. Combining all entry ages for each Safety group allows for greater credibility in the proposed assumptions. Consistent with last study, the proposed assumptions use service base merit rates for all State Safety categories.

As in the previous study, the data continues to show that members with high service continue to receive salary increases more than the increase in average salary in most fiscal years, particularly for Safety groups. The data is consistent from year to year and indicates that a significant number of members continue to receive merits and promotions after long years of service.

As in our last study, we are recommending small adjustments to the pattern of salary increases and continue to refine the merit assumptions for known or observed seniority pay increases.

Same as in our last study, analysis of recent wage inflation experienced by various CalPERS member groups indicates that the California Highway Patrol (CHP) members appear to have experienced a certain degree of higher wage inflation than other CalPERS groups over the study periods. While this may continue for some number of years, it is unlikely this or any other group could experience higher wage inflation for an extended period into the future. For that reason, we continue to increase the seniority, merit, and promotion rates for CHP by 0.50% to recognize a portion of this observed "excess" wage inflation. The rates below and in the appendices for CHP include this 0.50% adjustment.

**Current Assumptions Before Wage Inflation (Ultimate Only)**

| | Members with Entry Age 25 | Members with Entry Age 35 | Members with Entry Age 45 |
|---|---|---|---|
| **State** | | | |
| Miscellaneous | 0.65% | 0.52% | 0.44% |
| Industrial | 0.50% | 0.44% | 0.44% |
| Safety | 0.73% | 0.73% | 0.73% |
| POFF | 1.34% | 1.34% | 1.34% |
| CHP | 1.50% | 1.50% | 1.50% |
| **School** | | | |
| Miscellaneous | 0.74% | 0.53% | 0.19% |
| **Public Agency** | | | |
| Miscellaneous | 0.70% | 0.54% | 0.20% |
| Fire | 1.12% | 0.82% | 1.32% |
| Police | 1.78% | 1.36% | 1.78% |
| CPO | | | 0.77% |

**Proposed Assumptions Before Wage Inflation (Ultimate Only)**

| | Members with Entry Age 25 | Members with Entry Age 35 | Members with Entry Age 45 |
|---|---|---|---|
| **State** | | | |
| Miscellaneous | 0.94% | 0.68% | 0.37% |
| Industrial | 0.53% | 0.33% | 0.30% |
| Safety | 1.08% | 1.08% | 1.08% |
| POFF | 1.45% | 1.45% | 1.45% |
| CHP | 1.50% | 1.50% | 1.50% |
| **School** | | | |
| Miscellaneous | 0.54% | 0.51% | 0.26% |
| **Public Agency** | | | |
| Miscellaneous | 0.72% | 0.51% | 0.20% |
| Fire | 1.27% | 0.91% | 1.66% |
| Police | 1.78% | 1.18% | 1.19% |
| CPO | 1.51% | 0.89% | 0.54% |

# Gender Blending for Optional Forms of Benefits

## Summary

The purpose of this assumption is to determine the male/female mortality rate blending ratios used for developing unisex mortality tables for optional forms of benefits. Three categories of mortality are applicable in this analysis, Service Retirement (SR), Non-Industrial Disability (NIDR) and Industrial Disability (IDR) and two optional forms Single Life (SL) and Joint and Survivor (J&S).

## Method

In the 2021 experience study, the decision was made to use the benefit weighting method as it more accurately applies the corresponding benefit to the applicable mortality rate.

## Results

Under the three categories of mortality studied and two categories of optional forms, one change is recommended. Increase the male weighting portion under the Single Life Forms/Service Retirement by 5%.

Data on retirees (retired after 1997) receiving benefits as of June 30, 2014 through June 30, 2023 were tabulated.

**Benefit Payments - Single Life Forms (SL)**

| Benefits in $1,000 as of Valuation Date | Service Retirement (SR) | | Non-Industrial Disability (NIDR) | | Industrial Disability (IDR) | |
|---|---|---|---|---|---|---|
| | Tabulation | % Male | Tabulation | % Male | Tabulation | % Male |
| 06/30/2014 | 408,166 | 38.3% | 16,922 | 33.7% | 33,892 | 68.8% |
| 06/30/2015 | 445,637 | 38.2% | 17,926 | 33.5% | 37,211 | 68.6% |
| 06/30/2016 | 484,079 | 37.7% | 18,456 | 33.4% | 39,844 | 68.3% |
| 06/30/2017 | 526,579 | 37.6% | 19,099 | 33.3% | 42,519 | 68.1% |
| 06/30/2018 | 575,699 | 38.0% | 19,663 | 32.8% | 45,877 | 68.3% |
| 06/30/2019 | 630,357 | 38.0% | 20,335 | 32.5% | 49,643 | 68.4% |
| 06/30/2020 | 683,277 | 37.9% | 20,760 | 32.4% | 53,014 | 68.3% |
| 06/30/2021 | 744,547 | 38.0% | 21,043 | 32.2% | 56,202 | 68.2% |
| 06/30/2022 | 816,096 | 38.2% | 21,570 | 31.8% | 60,825 | 68.3% |
| 06/30/2023 | 878,479 | 38.3% | 22,071 | 31.7% | 65,031 | 68.3% |

**Benefit Payments - Joint and Survivor Forms (J&S)**

| Benefits in $1,000 as of Valuation Date | Service Retirement (SR) | | Non-Industrial Disability (NIDR) | | Industrial Disability (IDR) | |
|---|---|---|---|---|---|---|
| | Tabulation | % Male | Tabulation | % Male | Tabulation | % Male |
| 06/30/2014 | 632,628 | 72.3% | 9,462 | 58.1% | 58,691 | 91.5% |
| 06/30/2015 | 687,035 | 71.8% | 10,142 | 57.4% | 63,925 | 91.2% |
| 06/30/2016 | 737,720 | 71.2% | 10,588 | 57.0% | 68,100 | 91.0% |
| 06/30/2017 | 798,001 | 70.8% | 10,990 | 56.8% | 72,455 | 90.8% |
| 06/30/2018 | 869,672 | 70.5% | 11,284 | 56.6% | 77,805 | 90.7% |
| 06/30/2019 | 938,831 | 70.2% | 11,613 | 56.0% | 82,744 | 90.5% |
| 06/30/2020 | 999,735 | 69.8% | 11,866 | 55.1% | 87,513 | 90.5% |
| 06/30/2021 | 1,067,729 | 69.6% | 11,976 | 55.0% | 92,767 | 90.4% |
| 06/30/2022 | 1,145,631 | 69.3% | 12,250 | 54.2% | 99,372 | 90.4% |
| 06/30/2023 | 1,215,857 | 69.3% | 12,517 | 54.0% | 105,017 | 90.3% |

## Proposed Percentages

Based on the tabulations above, the following table summarizes the proposed male/female percentages.

**All Single Life Forms**

| | Weighting of Male Retirees | | Weighting of Male Beneficiaries | |
|---|---|---|---|---|
| | Current | Proposed | Current | Proposed |
| Service Retirement | 35% | 40% | n/a | n/a |
| Non-Industrial Disability | 30% | No Change | n/a | n/a |
| Industrial Disability | 70% | No Change | n/a | n/a |

**Joint and Survivor Forms**

| | Weighting of Male Retirees | | Weighting of Male Beneficiaries | |
|---|---|---|---|---|
| | Current | Proposed | Current | Proposed |
| Service Retirement | 70% | No Change | 30% | No Change |
| Non-Industrial Disability | 55% | No Change | 45% | No Change |
| Industrial Disability | 90% | No Change | 10% | No Change |

# Percentage Married and Age Difference

## Summary

The purpose of this assumption is to determine the percentage married and age difference between male and female spouses for purposes of valuing the likelihood of a member having a statutory spouse at retirement. Many plans at CalPERS have either 25 percent or 50 percent post-retirement survivor allowance benefit in their contract and this assumption serves to estimate the additional payment stream after the death of the member. The results show that the percentage married ranged from 70 percent to 85 percent depending on the member category. Generally, 70 percent of miscellaneous members are married while 80 to 85 percent of safety members are married. Males on average are three years older than their female spouses.

## Method

Data on retirees retired between 1997 and 2023 receiving benefits were tabulated. For the percentage married assumption, married members (including same gender marriages) were tabulated by member category with detail given below. The average age difference between male and female spouses in opposite gender marriages was calculated for each member category.

## Results

The tables below show the current and proposed assumptions for the percentage married along with the average percentage of accumulated members married in the 2021 and 2025 experience study.

**Summary Percentage Married**

| Employer and Member Category | Current | Proposed | Count | Raw Data (2021) | Raw Data (2025) |
|---|---|---|---|---|---|
| **State** | | | | | |
| Miscellaneous | 70% | 70% | 170,788 | 69.1% | 69.1% |
| Industrial | 70% | 70% | 11,606 | 66.3% | 66.1% |
| Safety | 70% | 70% | 25,210 | 69.3% | 69.2% |
| POFF | 80% | 80% | 42,567 | 78.2% | 78.0% |
| CHP | 85% | 85% | 6,785 | 85.2% | 85.0% |
| **School** | | | | | |
| Miscellaneous | 70% | 70% | 237,231 | 68.1% | 68.4% |
| School Police | 85% | 85% | 633 | 72.9% | 73.5% |
| **Public Agency** | | | | | |
| Miscellaneous | 70% | 70% | 191,074 | 67.6% | 68.2% |
| Police | 85% | 85% | 25,293 | 81.1% | 81.0% |
| Fire | 85% | 85% | 15,333 | 82.6% | 82.4% |
| Other Safety | 70% | 70% | 1,295 | 70.9% | 73.1% |
| CPO | 75% | 75% | 10,140 | 74.4% | 75.2% |

The assumptions were unchanged for all categories. For the purposes of this assumption, State Industrial, State Safety and Public Agency Other Safety (lifeguards, prosecutors, and sheriffs) were considered to behave more like Miscellaneous than Safety. School Police were considered to be more like Police than the raw data indicated.

For the age difference, count tabulations were done by member category, member gender, and spouse gender. The table below shows the tabulation. The weighted average was determined for each category.

| Employer and Member Category | Member Gender[1] | Count | Spouse Gender[1] | Average Difference | Weighted Average |
|---|---|---|---|---|---|
| **State** | | | | | |
| Miscellaneous | Female | 55,957 | Male | (2.24) | |
| | Male | 58,611 | Female | 3.47 | 2.87 |
| Industrial | Female | 5,621 | Male | (2.15) | |
| | Male | 1,892 | Female | 3.51 | 2.49 |
| Safety | Female | 6,272 | Male | (2.07) | |
| | Male | 10,749 | Female | 3.47 | 2.95 |
| POFF | Female | 5,041 | Male | (2.14) | |
| | Male | 27,505 | Female | 2.73 | 2.64 |
| CHP | Female | 323 | Male | (2.47) | |
| | Male | 5,283 | Female | 2.70 | 2.69 |
| **School** | | | | | |
| Miscellaneous | Female | 108,733 | Male | (2.20) | |
| | Male | 45,183 | Female | 3.08 | 2.46 |
| School Police | Female | 33 | Male | (3.66) | |
| | Male | 408 | Female | 3.68 | 3.68 |
| **Public Agency** | | | | | |
| Miscellaneous | Female | 53,339 | Male | (2.30) | |
| | Male | 71,677 | Female | 2.90 | 2.64 |
| Police | Female | 1,224 | Male | (2.41) | |
| | Male | 18,585 | Female | 2.88 | 2.85 |
| Fire | Female | 305 | Male | (2.05) | |
| | Male | 12,076 | Female | 2.59 | 2.58 |
| Other Safety | Female | 84 | Male | (1.29) | |
| | Male | 804 | Female | 2.81 | 2.67 |
| CPO | Female | 1,211 | Male | (2.19) | |
| | Male | 6,119 | Female | 2.90 | 2.78 |

(1) Same gender marriages were not studied due to limited data.

Rounding the weighted average to the nearest whole year for each category resulted in a value of three years with the exception of State Industrial, School Miscellaneous, and School Police. The data was less credible for School Police due to the small population. The State Industrial and School Miscellaneous age differences only saw minor changes since the last experience study (2.49 current vs 2.53 prior for State Industrial and 2.46 current vs 2.51 prior for School Miscellaneous), yet they rounded to a different whole age. Since there were no categories with significant differences, the proposed age difference was unchanged at three years.

## Eligible Survivor Percentage for 1959 Survivor Program

### Summary

The 1959 Survivor program provides pre-retirement death benefits for active members not covered by Social Security. The purpose of this assumption is to determine the probability of those active members having an eligible survivor at the date of death. This assumption serves to estimate the survivor benefit payment stream after the death of a member.

### Method

By observing deaths where a survivor death benefit is potentially payable, we calculated the percentage of deaths with an eligible survivor. We included deaths in the 1959 Survivor program. For a more comprehensive analysis, we also included deaths in the retirement system where a post-retirement survivor allowance death benefit is payable to an eligible survivor. Data on deaths after 2016 were tabulated.

### Results

The table below shows the average percentage of deaths with an eligible survivor along with the current and proposed assumptions. There were reductions to the assumed percentage of deaths with an eligible survivor at all ages. Here is a summary of the changes:

- Ages under 25 had the most significant reduction (20 to 40 percentage points)
- Ages between 25 and 59 had the smallest reduction (10 percentage points)
- Ages 60 and older had moderate reductions (15 percentage points)

### Summary Percentage with Eligible Survivor

| Age at Death | Death Count | Death with Eligible Survivor | Percentage with Eligible Survivor | Current Assumption | Proposed Assumption |
|---|---|---|---|---|---|
| Under 25 | 16 | 1 | 6% | 30%-50% | 10% |
| 25 – 29 | 108 | 61 | 56% | 70% | 60% |
| 30 – 39 | 960 | 769 | 80% | 90% | 80% |
| 40 – 49 | 3,560 | 2,974 | 84% | 95% | 85% |
| 50 – 54 | 22,537 | 17,840 | 79% | 90% | 80% |
| 55 – 59 | 44,942 | 32,553 | 72% | 85% | 75% |
| 60 and Older | 105,607 | 70,501 | 67% | 85% | 70% |

# Economic Study

**Price Inflation**

**Wage Inflation**

**Payroll Growth Assumption**

**Discount Rate**

# Economic Study

## Economic Study

To perform actuarial valuations, actuaries use certain economic assumptions to set required contributions. The economic assumptions used by the Actuarial Office to determine liabilities and set contribution requirements are price inflation, wage inflation, payroll growth and the discount rate assumption.

### Price Inflation

Price inflation is the increase in price over time of some standardized basket of goods and services. The annual increases in the Consumer Price Index for All Urban Consumers (CPI-U) as measured by the Bureau of Labor Statistics is the inflation measure referenced in the State Government Code for determining the annual cost-of-living adjustment (COLA) for CalPERS retirees, and this is the measure referred to in this report as "inflation", unless noted otherwise. Aside from being used to determine COLAs, the inflation assumption underlies most of the other economic assumptions used in an actuarial valuation, including the investment return, individual salary increases, and payroll growth. Changing the price inflation assumption would have an impact on employer contribution rates, service credit purchases, Optional Settlements at retirement and possibly employee contribution rates for PEPRA members.

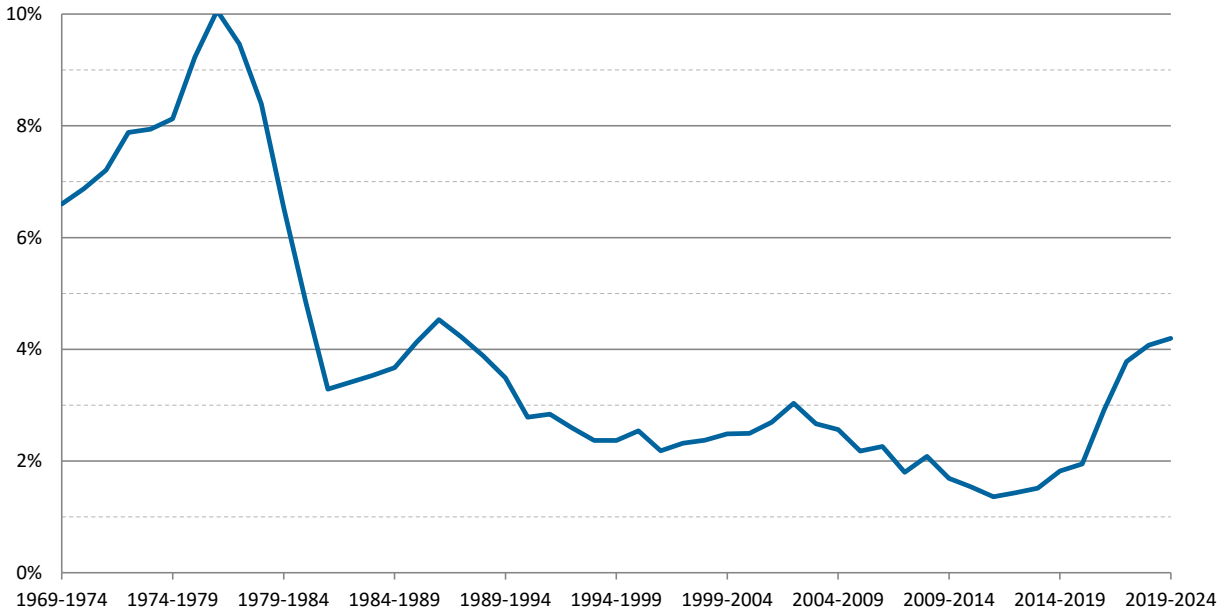
CalPERS currently assumes a 2.30% annual price inflation. The last time the inflation assumption was changed was in 2021 when the assumption was decreased from 2.50% to 2.30%. The following analysis considers historical price inflation, market expectations, forecasts of other economists, and a number of other factors.

# Economic Study

## Historical Changes in the Consumer Price Index

The chart below shows the five-year average annual inflation (December to December) over the last fifty years:

**Average Annual Inflation (CPI-U), Five-Year Moving Average**




Source: Bureau of Labor Statistics, CPI-U, all items (series ID: CUUR0000SA0)

The five-year average as of December 2024 is 4.20%. The recent increase in the five-year average is due to a recent spike in inflation that reached its peak of 9.1% in June of 2022.

# Economic Study

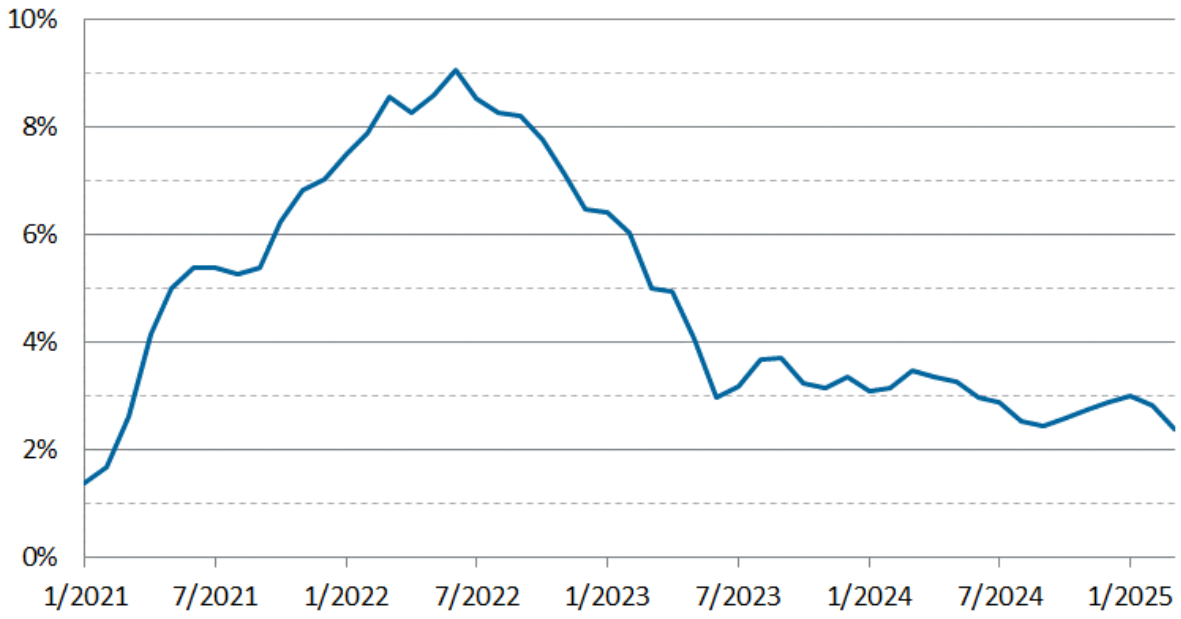
The table below shows the average inflation over various periods, ending December 31, 2024:

| Periods Ending December 2024 | U.S City Average Annual Increase in CPI-U |
|---|---|
| Last 5 years | 4.20% |
| Last 10 years | 3.00% |
| Last 15 years | 2.56% |
| Last 20 years | 2.56% |
| Last 25 years | 2.55% |
| Last 30 years | 2.52% |

Source: Bureau of Labor Statistics, CPI-U, all items (series ID: CUUR0000SA0)

The average annual inflation over the last 5, 10, 15, 20, 25 and 30 years are all higher than they were in our previous experience study and are higher than our current assumption. This is due, perhaps obviously, to the fact that inflation has been high since our most recent experience study. The following chart shows the year-over-year rate of inflation from January 2021 through March 2025.

**Recent Year-Over-Year Inflation (CPI-U)**




Source: Bureau of Labor Statistics, CPI-U, all items (series ID: CUUR0000SA0)

Historical inflation is only one consideration in developing an assumption for future inflation. The inflation assumption, like all actuarial assumptions, should reflect future expectations.

## Bond Market

Another source of information about future inflation is the market for US Treasury bonds. Comparing the yields for conventional Treasury securities and Treasury Inflation-Protected Securities (TIPS) can be used to measure the market's expectation of future inflation. Both conventional Treasury securities and

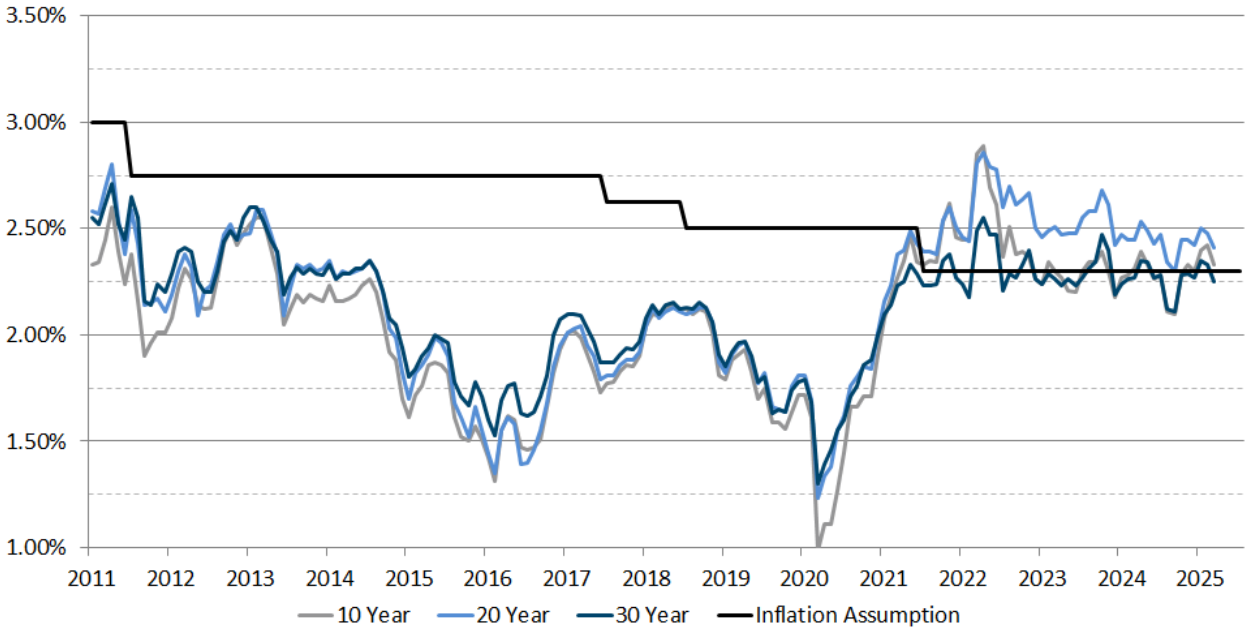
# Economic Study

TIPS provide investors with a fixed rate yield, but with TIPS the principal is adjusted to reflect the actual change in CPI-U, and the interest payment is calculated using the adjusted principal value of the bond. Since holders of TIPS will receive the yield and an increase in the principal, the yield on TIPS is lower than the yield on conventional securities. Assuming an efficient market, the difference in the yield is the market's inflation expectation, referred to as the "break-even" inflation rate.

For example, if the 20-year Treasury has a yield of 3% and the 20-year TIPS has a yield of 1%, the 20-year break-even inflation rate is 2% per year. An investor who takes a long position in TIPS and a short position in Treasuries will break even if the inflation rate turns out to be 2% per year. The yields themselves are determined by how much investors are willing to pay to take long positions and asking to receive to take short positions, so the break-even inflation rate is reflective of the average expected inflation rate of every market participant.

Below is a chart with the historical spread between 10, 20 and 30-year conventional and 10, 20 and 30-year inflation-protected Treasury bonds.

**Interest Rate Spread Conventional Treasuries versus TIPS**




Source: Federal Reserve Bank of St. Louis

As inflation rose in 2021, so too did the break-even inflation rate. The volatility of this measure makes it difficult to use it to set long-term assumptions, nevertheless, the March 2025, 10-year and 20-year break-even inflation rates are 2.33% and 2.41%, respectively.

The volatility of the break-even inflation rate can be compensated for by analyzing the moving average of the measure over various periods, but even so, most actuaries do not set the inflation assumption equal to the break-even inflation rate. The market spread between conventional and inflation-protected

# Economic Study

Treasuries includes other market factors aside from pure inflation expectations. The market also reflects inflation and liquidity premiums. More complex models have been developed to adjust for these other factors.

### Inflation Forecasts of Economists

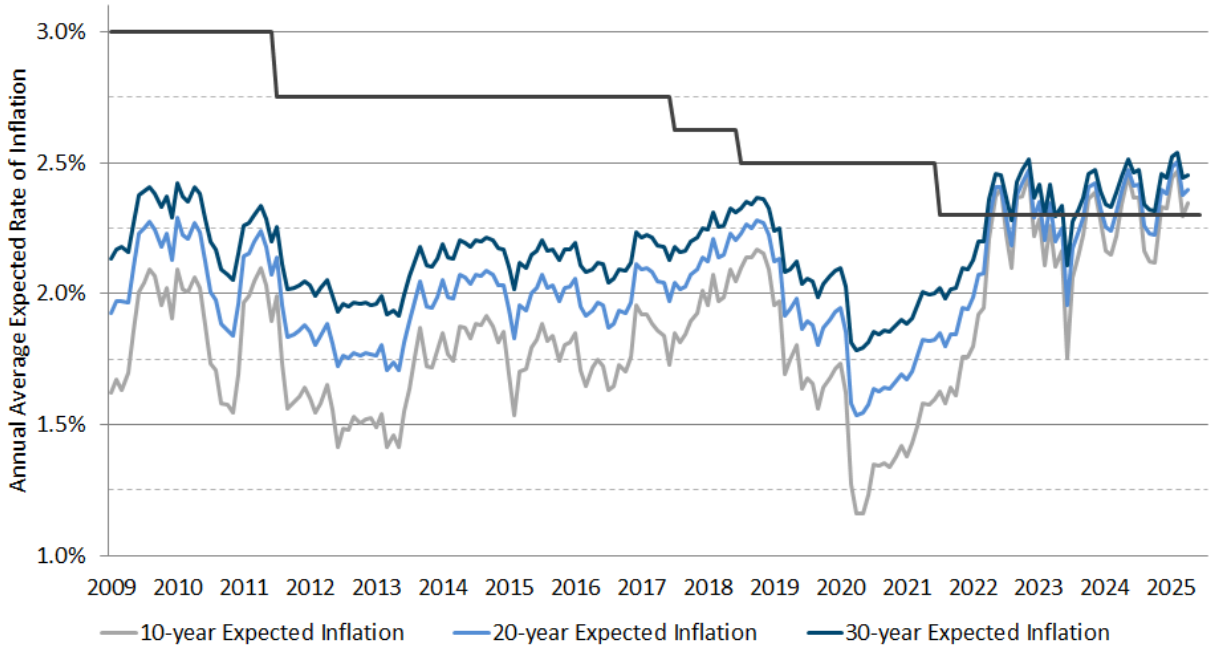
Inflation, specifically CPI-U, is an economic statistic, so it can be helpful to look to economists to gain insight into future expected inflation. The Philadelphia Federal Reserve conducts a quarterly survey of the Society of Professional Forecasters. The first quarter 2025 survey, released in February 2025, was for inflation over the next ten years to average 2.30%, roughly what is implied by the March 2025 10-year break-even inflation rate.

The Federal Reserve Bank of Cleveland has developed a model that combines information from inflation data, capital markets, and economic forecasters. Their inflation model uses historical CPI-U values, inflation swap data, Treasury yields from 1-month to 15 years, the Survey of Professional Forecasters and forecasts from Blue Chip Economic Indicators. In its March 2025 release, the Federal Reserve Bank of Cleveland reported a 20-year inflation expectation of 2.40%.

Below is a chart with the Federal Reserve Bank of Cleveland's expected inflation values from January 2011 through March 2025 for 10, 20 and 30 years.

# Economic Study

**Expected Annual Inflation 10, 20 and 30-year Time Horizons**




Source: Federal Reserve Bank of Cleveland

While the Federal Reserve Bank of Cleveland's model removes some of the more extreme volatility implied by the market spreads, the long-term expectations still vary between approximately 2.25% and 2.50%.

### Inflation Forecasts of Investment Professionals

The CalPERS Asset Liability Management (ALM) Cycle consists of two coordinated activities, a review of actuarial assumptions summarized in this report and an analysis of various investment strategies and expected returns performed by the Investment Office. To perform this analysis, the Investment Office relies on economic assumptions. The analysis in the 2025 ALM process used a long-run price inflation assumption of 2.4%-2.5% per year while acknowledging that there is evidence to suggest that inflation could be closer to 2.5% over the next 10 years.

### Inflation Assumptions of Other Actuaries

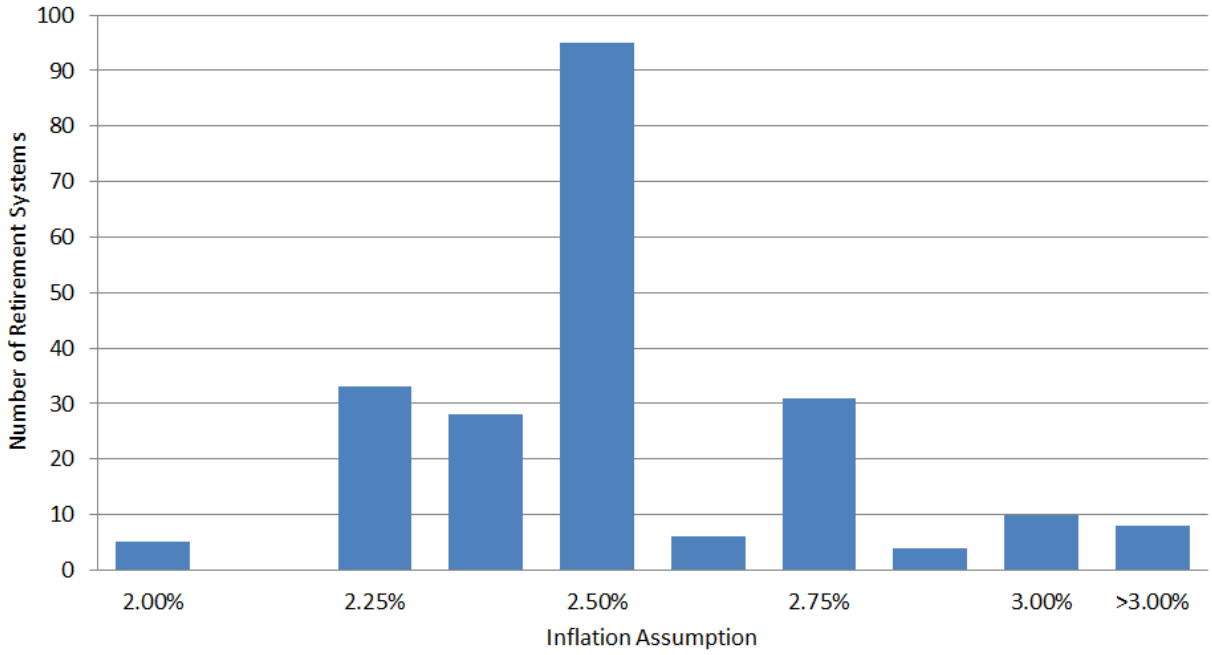
In the Social Security Administration's 2024 Trustees Report, the Office of the Chief Actuary was projecting annual inflation (CPI-W) at 2.76% for 2024, 2.32% for 2025 and 2.4% per year thereafter under the intermediate (best estimate) cost assumption. (The long-term inflation assumptions were 3.0% and 1.8% respectively in the low-cost and high-cost projection scenarios.)

Every pension fund needs an inflation assumption. One source of information about these inflation assumptions is the Public Plans Data that is compiled and maintained through a collaboration of the Center for State and Local Government Excellence (SLGE), the National Association of State Retirement Administrators (NASRA), and the Center for Retirement Research at Boston College. This

# Economic Study

data set includes the inflation assumption for U.S. public retirement systems from their financial reports for fiscal years 2001 through 2023, including the largest public funds covering state employees or teachers. The most recent data includes the inflation assumption in the 2023 financial reports for 220 public pension plans.

**Public Retirement System Inflation Assumptions as of 2023 Financial Reports**




As of the most recent data for 2023, the median inflation rate assumed for large public retirement systems in the U.S. was 2.50%. This was also the most common inflation assumption with 95 of 220 plans, or 43%, using an inflation assumption of 2.50%.

## Additional Considerations

Since 2012, the Federal Open Market Committee (FOMC) has employed a monetary policy strategy that targets an annual inflation rate of 2% (as measured by the annual change in the price index for personal consumption expenditures, or PCE, which is typically lower than the change in CPI-U). The FOMC has repeatedly stated that the 2% target is most consistent with the Federal Reserve's statutory objective for monetary policy of -- maximum employment, stable prices, and moderate long-term interest rates.

The FOMC keeps inflation expectations from going too high by raising short-term interest rates (the federal funds rate) and keeps inflation expectations from going too low by lowering rates. When inflation rose rapidly beginning in 2021 the FOMC responded by raising interest rates rapidly and were more or less successful in getting inflation under control as shown in the Recent Year-Over-Year Inflation chart above. While it is not possible to keep inflation fixed at 2% per year, there is still good reason to believe the FOMC will be successful in keeping the long-term average PCE inflation at approximately 2%

# Economic Study

per year. If so, the difference between the CalPERS inflation assumption and the FOMC 2% target should only be the difference between CPI-U inflation and PCE inflation.

### Inflation Volatility

In prior years, the Actuarial Office has only recommended an assumption for the long-term average annual price inflation without any analysis of the year-to-year volatility. This is because the model used to value liabilities assumes inflation is the same in every future year. This means that when contracting employers elect a higher COLA provision, the 3%, 4% and 5% provisions all have the same assumed cost, since the COLA provisions are all higher than the inflation assumption. This is not consistent with the fact that retirees with the higher provision sometimes receive higher COLAs. The Actuarial Office has developed an autoregressive inflation model and used stochastic analysis to assign higher expected costs to the higher provisions, but before it can be implemented, an assumption for the volatility of price inflation must be adopted.

The following table shows the observed volatility of inflation over various time periods.

| Time Period | Years | Historical Volatility |
|---|---|---|
| 1985-2024 | 40 | 1.5% |
| 1975-2024 | 50 | 2.8% |
| 1965-2024 | 60 | 2.7% |
| 1955-2024 | 70 | 2.7% |
| 1945-2024 | 80 | 3.0% |

### Recommendation

Based on the most current information, and the fact that higher than expected inflation is still a risk, the Actuarial Office recommends that the board increase the price inflation assumption from 2.30% to 2.50% per year. This would keep the assumption close to the levels expected in the financial markets and predicted by economic models. Furthermore, the Actuarial Office recommends that the board adopt volatility assumption for price inflation of 2.6% per year.

# Economic Study

## Wage Inflation

Wage inflation is the portion of a member's total pay increases attributable to price inflation and productivity increases as described below. The current wage inflation assumption is 2.80%.

An individual's total annual increase in salary can be divided into three categories.

> 1) Price inflation - If salary increases are not as least as much as price inflation, employees will experience a decrease in income in terms of "real" dollars, and a decrease in the standard of living they can afford. Although salaries may not keep pace with inflation over a short period of time, if an employer is to retain employees over the long-term it must allow its employees to at least maintain their standard of living.

Price inflation was discussed in the previous section and the recommendation is for CalPERS to increase its annual price inflation assumption from 2.30% to 2.50%.

> 2) Productivity increases - This component is so named, because it represents labor's share of the organization's productivity gains. The bulk of this increase is the result of economies of scales, which is why this component is typically higher with employers or industries that are new and experiencing high growth.

The current CalPERS productivity increase assumption is 0.50% per year and will be analyzed in this section.

> 3) Seniority, merit and promotion (SMP) increases - These increases result from step increases and other service-related increases as well as occasional promotions that individual members experience throughout their careers. These increases vary by employment category as well as age and service.

This component is a demographic assumption and is analyzed in the Findings Section of this report under the Salary Increase subsection.

## Productivity increases

In the Social Security Administration's 2024 Trustees Report, the Office of the Chief Actuary is projecting a long-term (beyond 10 years) average salary increase above inflation of 1.14% per year under the intermediate cost assumption. (The real-wage differential is 1.74% and 0.52% respectively in the low-cost and high-cost projection scenarios.)

The Bureau of Labor Statistics publishes an employment cost index, which analyzes wages and salaries for State and local government workers specifically. Shown below are the 5-, 10- and 15-year average annual increases in salary, in constant dollars (net of inflation), as of June 30, 2023, along with the same

# Economic Study

information for CalPERS members. The most current information from the Bureau of Labor Statistics, published in January 2025 is also shown.

**Average Annual Increase in Wages and Salaries for State and Local Government Workers**

| | Bureau of Labor Statistics through June 30, 2023 | CalPERS through June 30, 2023 | Bureau of Labor Statistics through December 31, 2024 |
|---|---|---|---|
| Last 5 years | (0.83%) | (0.54%) | (0.52%) |
| Last 10 years | (0.27%) | 0.16% | (0.04%) |
| Last 15 years | (0.18%) | (0.12%) | (0.21%) |

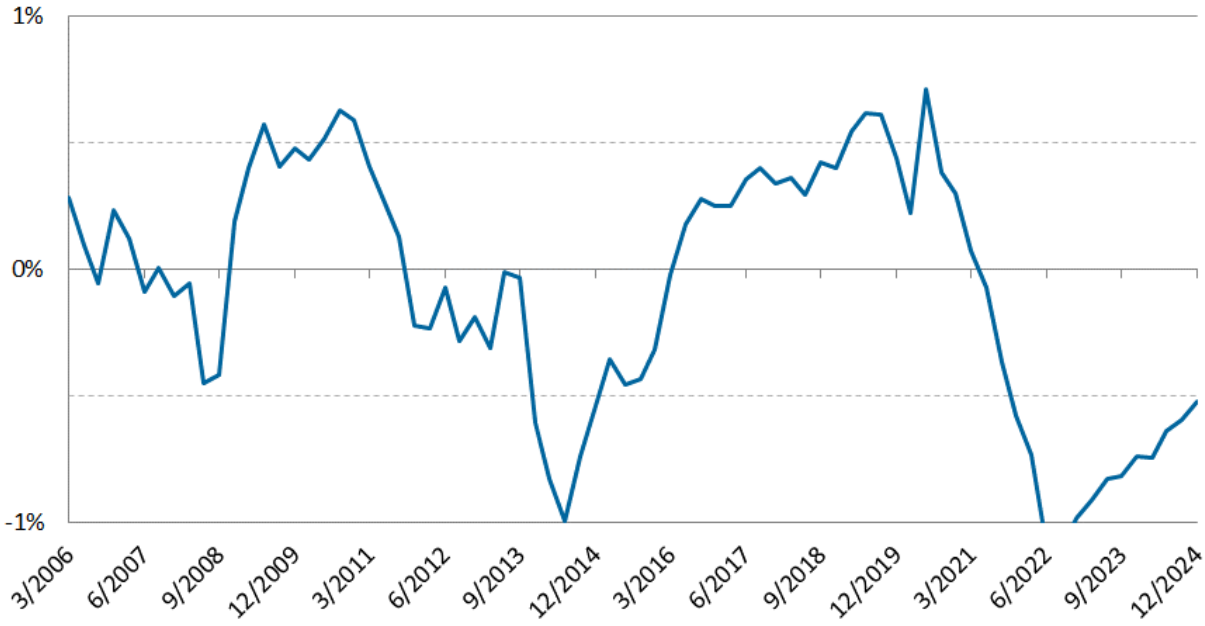
Source: Bureau of Labor Statistics and CalPERS

The negative values indicate that salary increases for state and local government workers have not kept up with inflation over the indicated periods. This is due, of course, to the high inflation we experienced in from mid-2021 through mid-2023, and the inability of employers to keep salaries ahead of inflation. This does not necessarily mean that salaries will not outpace inflation in the long run. It is more likely

# Economic Study

that it will just take more time, perhaps multiple bargaining cycles, for salaries to adjust. Looking at the 5-year average net salary increases for public sector workers may be more instructive.

**Average Annual Real Salary Increases for State and Local Government Workers, Five-Year Moving Average**




Although public sector salaries do lag inflation over some periods, it still appears that as bargaining cycles end and new ones begin, salaries do catch up and outpace inflation by roughly 0.5% per year.

## Recommendation

Based on this analysis the Actuarial Office recommends that the productivity component of the annual wage inflation assumption remain at 0.50%. Since an increase to the price inflation assumption is being recommended, this results in an increase in the wage inflation assumption from 2.80% to 3.00%. In addition, the Highway Patrol plan currently has an across-the-board increase to the seniority, merit and promotion assumption of 0.50%. The Actuarial Office recommends that the additional 0.50% in wage inflation for the Highway Patrol remain unchanged.

## Payroll Growth Assumption

The payroll growth assumption represents the expected rate of annual increase in the active payroll for an open plan (where the term “open” means that new active members enter the plan when hired, replacing members who terminate or retire). The payroll growth assumption is used in amortizing the portion of a plan’s Unfunded Accrued Liability (UAL) subject to the “level percent of payroll” amortization method. The “level percent of payroll” method was used exclusively for open plans until the board adopted a “level dollar” approach for UAL bases established on or after June 30, 2019. A

higher payroll growth assumption means a lower amortization payment today but a larger annual increase in amortization payments and ultimately higher amortization payments in the future as well as overall.

It is not uncommon for retirement systems to use the wage inflation assumption as the payroll growth assumption. However, there is a trend towards using a payroll growth assumption that is lower than the wage inflation assumption or simply using the price inflation assumption as the escalator for the amortization payments. This means a payroll growth assumption between 2.50% and 3.00% would be considered standard practice. Using a payroll growth assumption that is lower than the wage inflation assumption guards against contribution rate increases in the event that overall payroll does not increase as quickly as expected. Also, for CalPERS in particular, the limit on pensionable compensation for PEPRA members only increases with price inflation, so even if wages increase more than price inflation, the pensionable compensation for highly paid employees will not. The payroll growth assumption is used only to calculate annual amortization payments and has no effect on the measurement of the liabilities themselves, that is, the accrued liability, unfunded accrued liability, normal cost rate or PEPRA member contribution rates. The projected payroll within the valuation is expected to grow with the wage inflation assumption.

**Recommendation**

The Actuarial Office recommends the payroll growth assumption for amortization bases subject to the level percent of payroll method remain at 2.80%, which is equal to the recommended wage inflation assumption of 3.00% minus 0.20% as a margin against adverse experience.

## Discount Rate

The discount rate, although it is an economic actuarial assumption, is reviewed as part of the Asset Liability Management (ALM) process.

# Appendix A

## Summary of Proposed Rates

## Appendix A - Summary of Proposed Rates

**Service Retirement Rates**

**Non-Industrial Disability Retirement Rates**

**Industrial Disability Retirement Rates**

**Termination with Refund**

**Termination with Vested Benefits**

**Pre-Retirement Base Mortality Rates**

**Post-Retirement Mortality Rates**

**Merit Rates**

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates

### State Miscellaneous - Classic

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01200 | 0.01200 | 0.01100 | 0.01400 | 0.01300 | 0.01300 | 0.01400 |
| 51 | 0.01300 | 0.01200 | 0.01100 | 0.01400 | 0.01300 | 0.01300 | 0.01400 |
| 52 | 0.01400 | 0.01300 | 0.01200 | 0.01500 | 0.01500 | 0.01500 | 0.01500 |
| 53 | 0.01900 | 0.01700 | 0.01400 | 0.01700 | 0.01600 | 0.01500 | 0.01600 |
| 54 | 0.01300 | 0.01500 | 0.01600 | 0.02200 | 0.02400 | 0.02700 | 0.02900 |
| 55 | 0.02500 | 0.02700 | 0.02700 | 0.05700 | 0.08000 | 0.11400 | 0.18800 |
| 56 | 0.02900 | 0.03100 | 0.03100 | 0.06100 | 0.07900 | 0.11200 | 0.16800 |
| 57 | 0.02900 | 0.03000 | 0.03100 | 0.06200 | 0.07600 | 0.10500 | 0.16000 |
| 58 | 0.03100 | 0.03200 | 0.03400 | 0.06900 | 0.08600 | 0.11600 | 0.17200 |
| 59 | 0.02200 | 0.03900 | 0.04200 | 0.07600 | 0.08900 | 0.12200 | 0.18600 |
| 60 | 0.04500 | 0.05100 | 0.05500 | 0.09900 | 0.10800 | 0.14300 | 0.20600 |
| 61 | 0.05100 | 0.05400 | 0.06100 | 0.10600 | 0.11000 | 0.14800 | 0.20700 |
| 62 | 0.07500 | 0.09900 | 0.11000 | 0.18300 | 0.19100 | 0.23400 | 0.27700 |
| 63 | 0.08600 | 0.10500 | 0.12200 | 0.21300 | 0.22400 | 0.27500 | 0.31800 |
| 64 | 0.10100 | 0.11500 | 0.12300 | 0.21100 | 0.21200 | 0.24800 | 0.28300 |
| 65 | 0.15200 | 0.18100 | 0.16200 | 0.23900 | 0.21400 | 0.24300 | 0.25700 |
| 66 | 0.17900 | 0.23300 | 0.20800 | 0.31200 | 0.27500 | 0.28300 | 0.29900 |
| 67 | 0.15800 | 0.23600 | 0.21000 | 0.29900 | 0.26600 | 0.26600 | 0.27000 |
| 68 | 0.17400 | 0.20300 | 0.18000 | 0.26200 | 0.23400 | 0.25100 | 0.26400 |
| 69 | 0.19900 | 0.21900 | 0.18400 | 0.26000 | 0.22500 | 0.23600 | 0.24500 |
| 70 | 0.17700 | 0.28700 | 0.24900 | 0.31100 | 0.30100 | 0.25900 | 0.26800 |
| 71 | 0.14800 | 0.27000 | 0.23700 | 0.29700 | 0.23700 | 0.24700 | 0.24700 |
| 72 | 0.14900 | 0.25200 | 0.22500 | 0.28900 | 0.23000 | 0.24100 | 0.24100 |
| 73 | 0.11700 | 0.20900 | 0.19400 | 0.25600 | 0.20800 | 0.22000 | 0.22000 |
| 74 | 0.13100 | 0.22700 | 0.20700 | 0.26000 | 0.19300 | 0.19500 | 0.19500 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State Miscellaneous - PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 51 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 52 | 0.01500 | 0.01400 | 0.01200 | 0.01500 | 0.01500 | 0.01500 | 0.01500 |
| 53 | 0.02000 | 0.01700 | 0.01500 | 0.01800 | 0.01600 | 0.01600 | 0.01600 |
| 54 | 0.01300 | 0.01500 | 0.01600 | 0.02300 | 0.02400 | 0.02700 | 0.03000 |
| 55 | 0.02400 | 0.02600 | 0.02500 | 0.05400 | 0.07500 | 0.10700 | 0.17800 |
| 56 | 0.02400 | 0.02500 | 0.02600 | 0.05000 | 0.06500 | 0.09200 | 0.13800 |
| 57 | 0.02300 | 0.02400 | 0.02500 | 0.04900 | 0.06100 | 0.08400 | 0.12800 |
| 58 | 0.02700 | 0.02900 | 0.03000 | 0.06200 | 0.07600 | 0.10300 | 0.15300 |
| 59 | 0.01900 | 0.03500 | 0.03800 | 0.06800 | 0.07900 | 0.10900 | 0.16500 |
| 60 | 0.04000 | 0.04600 | 0.04900 | 0.08800 | 0.09600 | 0.12800 | 0.18400 |
| 61 | 0.04500 | 0.04800 | 0.05400 | 0.09500 | 0.09800 | 0.13100 | 0.18400 |
| 62 | 0.06200 | 0.08200 | 0.09100 | 0.15200 | 0.15800 | 0.19500 | 0.23000 |
| 63 | 0.07500 | 0.09100 | 0.10600 | 0.18600 | 0.19500 | 0.23900 | 0.27700 |
| 64 | 0.09600 | 0.10900 | 0.11700 | 0.20000 | 0.20200 | 0.23500 | 0.26900 |
| 65 | 0.14300 | 0.17100 | 0.15300 | 0.22500 | 0.20200 | 0.23000 | 0.24200 |
| 66 | 0.16500 | 0.21500 | 0.19100 | 0.28800 | 0.25400 | 0.26000 | 0.27600 |
| 67 | 0.14100 | 0.21000 | 0.18700 | 0.26700 | 0.23700 | 0.23600 | 0.24100 |
| 68 | 0.15900 | 0.18600 | 0.16400 | 0.23900 | 0.21300 | 0.22900 | 0.24100 |
| 69 | 0.18500 | 0.20300 | 0.17100 | 0.24100 | 0.20900 | 0.21900 | 0.22800 |
| 70 | 0.16900 | 0.27500 | 0.23800 | 0.29700 | 0.28800 | 0.24800 | 0.25700 |
| 71 | 0.14800 | 0.26900 | 0.23600 | 0.29600 | 0.23700 | 0.24600 | 0.24600 |
| 72 | 0.15600 | 0.26400 | 0.23600 | 0.30300 | 0.24000 | 0.25200 | 0.25200 |
| 73 | 0.12700 | 0.22700 | 0.21000 | 0.27700 | 0.22500 | 0.23800 | 0.23800 |
| 74 | 0.14400 | 0.25000 | 0.22800 | 0.28600 | 0.21200 | 0.21500 | 0.21500 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State Industrial - Classic**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00100 | 0.00700 | 0.01400 | 0.01700 | 0.02300 | 0.02400 | 0.02700 |
| 51 | 0.00800 | 0.01600 | 0.01600 | 0.01500 | 0.01700 | 0.01700 | 0.01800 |
| 52 | 0.00400 | 0.01300 | 0.01700 | 0.01700 | 0.02100 | 0.02200 | 0.02400 |
| 53 | 0.00400 | 0.01200 | 0.02000 | 0.02200 | 0.03000 | 0.03200 | 0.03500 |
| 54 | 0.00200 | 0.02100 | 0.03200 | 0.03500 | 0.04500 | 0.04800 | 0.05200 |
| 55 | 0.02200 | 0.03300 | 0.05800 | 0.12900 | 0.17800 | 0.20500 | 0.24200 |
| 56 | 0.00800 | 0.04200 | 0.05300 | 0.11100 | 0.15100 | 0.19100 | 0.24700 |
| 57 | 0.02600 | 0.03600 | 0.05900 | 0.12400 | 0.14800 | 0.16700 | 0.19700 |
| 58 | 0.04700 | 0.03400 | 0.05100 | 0.12800 | 0.16100 | 0.16300 | 0.18200 |
| 59 | 0.02400 | 0.05200 | 0.06900 | 0.13600 | 0.15200 | 0.16500 | 0.20600 |
| 60 | 0.02000 | 0.06700 | 0.08900 | 0.16900 | 0.18300 | 0.22900 | 0.25800 |
| 61 | 0.04400 | 0.07100 | 0.12900 | 0.21300 | 0.18700 | 0.21700 | 0.24000 |
| 62 | 0.07000 | 0.20600 | 0.24700 | 0.34100 | 0.29600 | 0.31800 | 0.32600 |
| 63 | 0.03300 | 0.13700 | 0.19400 | 0.23900 | 0.27700 | 0.27700 | 0.27700 |
| 64 | 0.24300 | 0.14000 | 0.12400 | 0.21600 | 0.31300 | 0.31300 | 0.31300 |
| 65 | 0.24600 | 0.21900 | 0.22800 | 0.24400 | 0.26900 | 0.26900 | 0.26900 |
| 66 | 0.34100 | 0.28700 | 0.29000 | 0.30500 | 0.33500 | 0.33500 | 0.33500 |
| 67 | 0.29800 | 0.29800 | 0.29800 | 0.29800 | 0.29800 | 0.29800 | 0.29800 |
| 68 | 0.20800 | 0.20800 | 0.20800 | 0.20800 | 0.20800 | 0.20800 | 0.20800 |
| 69 | 0.16900 | 0.16900 | 0.16900 | 0.16900 | 0.16900 | 0.16900 | 0.16900 |
| 70 | 0.24300 | 0.24300 | 0.24300 | 0.24300 | 0.24300 | 0.24300 | 0.24300 |
| 71 | 0.24200 | 0.24200 | 0.24200 | 0.24200 | 0.24200 | 0.24200 | 0.24200 |
| 72 | 0.22000 | 0.22000 | 0.22000 | 0.22000 | 0.22000 | 0.22000 | 0.22000 |
| 73 | 0.20200 | 0.20200 | 0.20200 | 0.20200 | 0.20200 | 0.20200 | 0.20200 |
| 74 | 0.25000 | 0.25000 | 0.25000 | 0.25000 | 0.25000 | 0.25000 | 0.25000 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State Industrial - PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 51 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 52 | 0.00300 | 0.01100 | 0.01400 | 0.01400 | 0.01800 | 0.01800 | 0.02000 |
| 53 | 0.00300 | 0.01100 | 0.01800 | 0.02000 | 0.02700 | 0.02900 | 0.03200 |
| 54 | 0.00200 | 0.01800 | 0.02700 | 0.02900 | 0.03800 | 0.04000 | 0.04400 |
| 55 | 0.01800 | 0.02700 | 0.04700 | 0.10500 | 0.14600 | 0.16800 | 0.19800 |
| 56 | 0.00600 | 0.02900 | 0.03700 | 0.07700 | 0.10500 | 0.13300 | 0.17200 |
| 57 | 0.01800 | 0.02500 | 0.04100 | 0.08500 | 0.10200 | 0.11500 | 0.13600 |
| 58 | 0.03800 | 0.02800 | 0.04200 | 0.10500 | 0.13200 | 0.13400 | 0.14900 |
| 59 | 0.01800 | 0.03900 | 0.05200 | 0.10200 | 0.11400 | 0.12300 | 0.15400 |
| 60 | 0.01500 | 0.05100 | 0.06700 | 0.12800 | 0.13800 | 0.17300 | 0.19500 |
| 61 | 0.03400 | 0.05400 | 0.09800 | 0.16200 | 0.14200 | 0.16500 | 0.18300 |
| 62 | 0.05300 | 0.15600 | 0.18700 | 0.25800 | 0.22500 | 0.24100 | 0.24700 |
| 63 | 0.02300 | 0.09400 | 0.13400 | 0.16500 | 0.19100 | 0.19100 | 0.19100 |
| 64 | 0.20000 | 0.11500 | 0.10200 | 0.17800 | 0.25700 | 0.25700 | 0.25700 |
| 65 | 0.20300 | 0.18100 | 0.18800 | 0.20100 | 0.22300 | 0.22300 | 0.22300 |
| 66 | 0.27400 | 0.23100 | 0.23400 | 0.24600 | 0.27000 | 0.27000 | 0.27000 |
| 67 | 0.22200 | 0.22200 | 0.22200 | 0.22200 | 0.22200 | 0.22200 | 0.22200 |
| 68 | 0.15800 | 0.15800 | 0.15800 | 0.15800 | 0.15800 | 0.15800 | 0.15800 |
| 69 | 0.14200 | 0.14200 | 0.14200 | 0.14200 | 0.14200 | 0.14200 | 0.14200 |
| 70 | 0.19100 | 0.19100 | 0.19100 | 0.19100 | 0.19100 | 0.19100 | 0.19100 |
| 71 | 0.20200 | 0.20200 | 0.20200 | 0.20200 | 0.20200 | 0.20200 | 0.20200 |
| 72 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 |
| 73 | 0.18400 | 0.18400 | 0.18400 | 0.18400 | 0.18400 | 0.18400 | 0.18400 |
| 74 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State CHP - Classic**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.07500 | 0.07500 | 0.07500 | 0.08500 | 0.19600 | 0.42500 | 0.55300 |
| 51 | 0.02500 | 0.02500 | 0.04300 | 0.07200 | 0.16400 | 0.27300 | 0.30300 |
| 52 | 0.02500 | 0.02500 | 0.04400 | 0.07400 | 0.16800 | 0.28000 | 0.31000 |
| 53 | 0.02300 | 0.02300 | 0.04000 | 0.06800 | 0.15400 | 0.25700 | 0.28500 |
| 54 | 0.02300 | 0.02300 | 0.04000 | 0.06800 | 0.15500 | 0.25800 | 0.28500 |
| 55 | 0.08900 | 0.08900 | 0.08900 | 0.13200 | 0.21700 | 0.30200 | 0.34400 |
| 56 | 0.12500 | 0.12500 | 0.12500 | 0.15800 | 0.22400 | 0.29000 | 0.32300 |
| 57 | 0.11300 | 0.11300 | 0.11300 | 0.14300 | 0.20200 | 0.26100 | 0.29100 |
| 58 | 0.14000 | 0.14000 | 0.14000 | 0.17700 | 0.25100 | 0.32500 | 0.36100 |
| 59 | 0.18500 | 0.18500 | 0.18500 | 0.23400 | 0.33200 | 0.42900 | 0.47800 |
| 60-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State CHP - PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.02200 | 0.02200 | 0.02200 | 0.02500 | 0.05800 | 0.12500 | 0.16300 |
| 51 | 0.00900 | 0.00900 | 0.01500 | 0.02600 | 0.05800 | 0.09700 | 0.10700 |
| 52 | 0.01600 | 0.01600 | 0.02800 | 0.04700 | 0.10600 | 0.17700 | 0.19600 |
| 53 | 0.01600 | 0.01600 | 0.02800 | 0.04700 | 0.10700 | 0.17800 | 0.19700 |
| 54 | 0.01300 | 0.01300 | 0.02300 | 0.03900 | 0.09000 | 0.15000 | 0.16500 |
| 55 | 0.05400 | 0.05400 | 0.05400 | 0.08000 | 0.13100 | 0.18200 | 0.20800 |
| 56 | 0.09500 | 0.09500 | 0.09500 | 0.12000 | 0.17000 | 0.22100 | 0.24600 |
| 57 | 0.11500 | 0.11500 | 0.11500 | 0.14500 | 0.20500 | 0.26500 | 0.29600 |
| 58 | 0.14200 | 0.14200 | 0.14200 | 0.18000 | 0.25500 | 0.33000 | 0.36600 |
| 59 | 0.16300 | 0.16300 | 0.16300 | 0.20700 | 0.29300 | 0.37900 | 0.42200 |
| 60-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State POFF - Classic**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.05500 | 0.03000 | 0.05200 | 0.15900 | 0.29600 | 0.39700 | 0.39700 |
| 51 | 0.03000 | 0.03000 | 0.04400 | 0.12500 | 0.21900 | 0.28200 | 0.28200 |
| 52 | 0.01100 | 0.02400 | 0.04500 | 0.11100 | 0.17800 | 0.23100 | 0.23100 |
| 53 | 0.02200 | 0.02300 | 0.04500 | 0.11000 | 0.18100 | 0.24100 | 0.24100 |
| 54 | 0.08600 | 0.02800 | 0.04300 | 0.11500 | 0.21800 | 0.22300 | 0.23100 |
| 55 | 0.01200 | 0.03200 | 0.05500 | 0.13700 | 0.22600 | 0.27800 | 0.30000 |
| 56 | 0.06500 | 0.04100 | 0.05800 | 0.14300 | 0.22500 | 0.27000 | 0.29200 |
| 57 | 0.05800 | 0.04000 | 0.05800 | 0.15000 | 0.24300 | 0.27400 | 0.28000 |
| 58 | 0.04800 | 0.04700 | 0.09300 | 0.19000 | 0.21800 | 0.23600 | 0.26000 |
| 59 | 0.02500 | 0.06100 | 0.10600 | 0.20500 | 0.23000 | 0.24600 | 0.26900 |
| 60 | 0.08400 | 0.08500 | 0.12100 | 0.22000 | 0.27200 | 0.27000 | 0.28900 |
| 61 | 0.01800 | 0.07000 | 0.13400 | 0.21900 | 0.25400 | 0.26800 | 0.29400 |
| 62 | 0.07700 | 0.11000 | 0.17300 | 0.25900 | 0.28600 | 0.29300 | 0.31700 |
| 63 | 0.09600 | 0.11900 | 0.17700 | 0.25800 | 0.28000 | 0.28400 | 0.30600 |
| 64 | 0.09200 | 0.10200 | 0.15300 | 0.27100 | 0.31500 | 0.29100 | 0.30200 |
| 65 | 0.19000 | 0.17800 | 0.22900 | 0.30500 | 0.31200 | 0.30200 | 0.32000 |
| 66 | 0.29000 | 0.29000 | 0.29000 | 0.29000 | 0.29000 | 0.29000 | 0.29000 |
| 67 | 0.28000 | 0.28000 | 0.28000 | 0.28000 | 0.28000 | 0.28000 | 0.28000 |
| 68 | 0.24000 | 0.24000 | 0.24000 | 0.24000 | 0.24000 | 0.24000 | 0.24000 |
| 69 | 0.29900 | 0.29900 | 0.29900 | 0.29900 | 0.29900 | 0.29900 | 0.29900 |
| 70 | 0.31300 | 0.31300 | 0.31300 | 0.31300 | 0.31300 | 0.31300 | 0.31300 |
| 71 | 0.27100 | 0.27100 | 0.27100 | 0.27100 | 0.27100 | 0.27100 | 0.27100 |
| 72 | 0.29800 | 0.29800 | 0.29800 | 0.29800 | 0.29800 | 0.29800 | 0.29800 |
| 73 | 0.28600 | 0.28600 | 0.28600 | 0.28600 | 0.28600 | 0.28600 | 0.28600 |
| 74 | 0.31300 | 0.31300 | 0.31300 | 0.31300 | 0.31300 | 0.31300 | 0.31300 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State POFF - PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01600 | 0.00900 | 0.01500 | 0.04600 | 0.08600 | 0.11600 | 0.11600 |
| 51 | 0.01100 | 0.01100 | 0.01500 | 0.04300 | 0.07600 | 0.09800 | 0.09800 |
| 52 | 0.00700 | 0.01400 | 0.02600 | 0.06500 | 0.10400 | 0.13500 | 0.13500 |
| 53 | 0.01400 | 0.01500 | 0.02900 | 0.07000 | 0.11500 | 0.15300 | 0.15300 |
| 54 | 0.04900 | 0.01600 | 0.02400 | 0.06500 | 0.12400 | 0.12700 | 0.13100 |
| 55 | 0.00700 | 0.01900 | 0.03200 | 0.08000 | 0.13300 | 0.16300 | 0.17600 |
| 56 | 0.04600 | 0.02900 | 0.04100 | 0.10100 | 0.15900 | 0.19100 | 0.20700 |
| 57 | 0.05200 | 0.03600 | 0.05200 | 0.13400 | 0.21700 | 0.24400 | 0.25000 |
| 58 | 0.04400 | 0.04300 | 0.08700 | 0.17600 | 0.20300 | 0.22000 | 0.24200 |
| 59 | 0.02100 | 0.05100 | 0.08800 | 0.17100 | 0.19200 | 0.20500 | 0.22400 |
| 60 | 0.06600 | 0.06700 | 0.09600 | 0.17400 | 0.21400 | 0.21300 | 0.22900 |
| 61 | 0.01400 | 0.05300 | 0.10100 | 0.16400 | 0.19100 | 0.20200 | 0.22100 |
| 62 | 0.05100 | 0.07200 | 0.11300 | 0.17000 | 0.18800 | 0.19200 | 0.20800 |
| 63 | 0.06500 | 0.08100 | 0.12100 | 0.17600 | 0.19100 | 0.19300 | 0.20800 |
| 64 | 0.07300 | 0.08100 | 0.12100 | 0.21600 | 0.25000 | 0.23200 | 0.24000 |
| 65 | 0.15700 | 0.14700 | 0.19000 | 0.25300 | 0.25800 | 0.25000 | 0.26500 |
| 66 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 |
| 67 | 0.17100 | 0.17100 | 0.17100 | 0.17100 | 0.17100 | 0.17100 | 0.17100 |
| 68 | 0.13500 | 0.13500 | 0.13500 | 0.13500 | 0.13500 | 0.13500 | 0.13500 |
| 69 | 0.17800 | 0.17800 | 0.17800 | 0.17800 | 0.17800 | 0.17800 | 0.17800 |
| 70 | 0.68200 | 0.68200 | 0.68200 | 0.68200 | 0.68200 | 0.68200 | 0.68200 |
| 71 | 0.64300 | 0.64300 | 0.64300 | 0.64300 | 0.64300 | 0.64300 | 0.64300 |
| 72 | 0.57700 | 0.57700 | 0.57700 | 0.57700 | 0.57700 | 0.57700 | 0.57700 |
| 73 | 0.78500 | 0.78500 | 0.78500 | 0.78500 | 0.78500 | 0.78500 | 0.78500 |
| 74 | 0.89600 | 0.89600 | 0.89600 | 0.89600 | 0.89600 | 0.89600 | 0.89600 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State Safety - Classic**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01900 | 0.01500 | 0.01800 | 0.03500 | 0.03300 | 0.03800 | 0.03800 |
| 51 | 0.00700 | 0.01100 | 0.01600 | 0.03100 | 0.02600 | 0.02900 | 0.02900 |
| 52 | 0.01700 | 0.01500 | 0.01800 | 0.03000 | 0.02300 | 0.02500 | 0.02500 |
| 53 | 0.01800 | 0.01700 | 0.02100 | 0.03500 | 0.02700 | 0.02900 | 0.02900 |
| 54 | 0.00800 | 0.01400 | 0.02300 | 0.04400 | 0.03800 | 0.04200 | 0.04200 |
| 55 | 0.01400 | 0.03200 | 0.04700 | 0.14100 | 0.21000 | 0.26900 | 0.31200 |
| 56 | 0.02100 | 0.03400 | 0.05100 | 0.12000 | 0.17400 | 0.21800 | 0.23800 |
| 57 | 0.02800 | 0.04100 | 0.05400 | 0.10800 | 0.15900 | 0.19000 | 0.19500 |
| 58 | 0.03200 | 0.04400 | 0.05500 | 0.11700 | 0.12800 | 0.16400 | 0.21100 |
| 59 | 0.02100 | 0.03600 | 0.07300 | 0.14600 | 0.16100 | 0.18200 | 0.20100 |
| 60 | 0.03400 | 0.05300 | 0.07100 | 0.14400 | 0.18100 | 0.21200 | 0.23500 |
| 61 | 0.04900 | 0.06100 | 0.08000 | 0.14700 | 0.17800 | 0.21400 | 0.23500 |
| 62 | 0.06100 | 0.09500 | 0.13000 | 0.20400 | 0.20500 | 0.23400 | 0.23400 |
| 63 | 0.08600 | 0.09800 | 0.11800 | 0.20600 | 0.23600 | 0.27700 | 0.27700 |
| 64 | 0.07700 | 0.10000 | 0.12500 | 0.22300 | 0.24000 | 0.26700 | 0.26700 |
| 65 | 0.16500 | 0.17500 | 0.22300 | 0.28900 | 0.23100 | 0.25100 | 0.25100 |
| 66 | 0.10400 | 0.19000 | 0.23800 | 0.27600 | 0.27600 | 0.27600 | 0.27600 |
| 67 | 0.16700 | 0.18800 | 0.22300 | 0.26700 | 0.26700 | 0.26700 | 0.26700 |
| 68 | 0.17200 | 0.19700 | 0.21600 | 0.24400 | 0.24400 | 0.24400 | 0.24400 |
| 69 | 0.20300 | 0.19700 | 0.21400 | 0.24900 | 0.24900 | 0.24900 | 0.24900 |
| 70 | 0.15800 | 0.22400 | 0.24200 | 0.25900 | 0.25900 | 0.25900 | 0.25900 |
| 71 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 |
| 72 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 |
| 73 | 0.21500 | 0.21500 | 0.21500 | 0.21500 | 0.21500 | 0.21500 | 0.21500 |
| 74 | 0.17500 | 0.17500 | 0.17500 | 0.17500 | 0.17500 | 0.17500 | 0.17500 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**State Safety - PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00600 | 0.00500 | 0.00600 | 0.01200 | 0.01100 | 0.01300 | 0.01300 |
| 51 | 0.00300 | 0.00400 | 0.00600 | 0.01200 | 0.01000 | 0.01100 | 0.01100 |
| 52 | 0.01200 | 0.01100 | 0.01300 | 0.02100 | 0.01700 | 0.01800 | 0.01800 |
| 53 | 0.01400 | 0.01300 | 0.01600 | 0.02600 | 0.02100 | 0.02200 | 0.02200 |
| 54 | 0.00500 | 0.00800 | 0.01300 | 0.02600 | 0.02200 | 0.02500 | 0.02500 |
| 55 | 0.00900 | 0.02100 | 0.03000 | 0.09000 | 0.13500 | 0.17200 | 0.20000 |
| 56 | 0.01600 | 0.02600 | 0.03900 | 0.09300 | 0.13500 | 0.16800 | 0.18400 |
| 57 | 0.02900 | 0.04200 | 0.05500 | 0.11000 | 0.16100 | 0.19300 | 0.19800 |
| 58 | 0.03100 | 0.04300 | 0.05400 | 0.11400 | 0.12500 | 0.16100 | 0.20600 |
| 59 | 0.01800 | 0.03100 | 0.06300 | 0.12600 | 0.13900 | 0.15800 | 0.17400 |
| 60 | 0.02800 | 0.04500 | 0.06000 | 0.12100 | 0.15200 | 0.17800 | 0.19700 |
| 61 | 0.03800 | 0.04700 | 0.06100 | 0.11200 | 0.13600 | 0.16300 | 0.18000 |
| 62 | 0.04400 | 0.06800 | 0.09400 | 0.14700 | 0.14700 | 0.16900 | 0.16900 |
| 63 | 0.06200 | 0.07200 | 0.08600 | 0.15000 | 0.17200 | 0.20200 | 0.20200 |
| 64 | 0.06700 | 0.08700 | 0.10900 | 0.19400 | 0.20800 | 0.23200 | 0.23200 |
| 65 | 0.16000 | 0.17000 | 0.21600 | 0.28000 | 0.22400 | 0.24400 | 0.24400 |
| 66 | 0.08000 | 0.14800 | 0.18500 | 0.21400 | 0.21400 | 0.21400 | 0.21400 |
| 67 | 0.11100 | 0.12400 | 0.14800 | 0.17700 | 0.17700 | 0.17700 | 0.17700 |
| 68 | 0.10900 | 0.12400 | 0.13700 | 0.15400 | 0.15400 | 0.15400 | 0.15400 |
| 69 | 0.13100 | 0.12700 | 0.13800 | 0.16100 | 0.16100 | 0.16100 | 0.16100 |
| 70 | 0.11800 | 0.16700 | 0.18000 | 0.19300 | 0.19300 | 0.19300 | 0.19300 |
| 71 | 0.14100 | 0.14100 | 0.14100 | 0.14100 | 0.14100 | 0.14100 | 0.14100 |
| 72 | 0.12900 | 0.12900 | 0.12900 | 0.12900 | 0.12900 | 0.12900 | 0.12900 |
| 73 | 0.18100 | 0.18100 | 0.18100 | 0.18100 | 0.18100 | 0.18100 | 0.18100 |
| 74 | 0.17000 | 0.17000 | 0.17000 | 0.17000 | 0.17000 | 0.17000 | 0.17000 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**School Miscellaneous - Classic**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00300 | 0.00400 | 0.00500 | 0.00700 | 0.00900 | 0.00900 | 0.01000 |
| 51 | 0.00200 | 0.00500 | 0.00700 | 0.00800 | 0.00900 | 0.01000 | 0.01100 |
| 52 | 0.00600 | 0.00600 | 0.00800 | 0.00900 | 0.01100 | 0.01200 | 0.01300 |
| 53 | 0.00600 | 0.00800 | 0.01100 | 0.01100 | 0.01400 | 0.01400 | 0.01500 |
| 54 | 0.00700 | 0.00900 | 0.01200 | 0.01500 | 0.01800 | 0.02000 | 0.02200 |
| 55 | 0.01100 | 0.02100 | 0.03200 | 0.04900 | 0.06400 | 0.08400 | 0.11900 |
| 56 | 0.01100 | 0.02300 | 0.03400 | 0.05000 | 0.06700 | 0.08900 | 0.10900 |
| 57 | 0.01500 | 0.02300 | 0.03500 | 0.05100 | 0.06100 | 0.08000 | 0.10000 |
| 58 | 0.02100 | 0.02900 | 0.03900 | 0.05500 | 0.07300 | 0.09600 | 0.12000 |
| 59 | 0.02800 | 0.03400 | 0.04400 | 0.06400 | 0.08100 | 0.10100 | 0.12900 |
| 60 | 0.02100 | 0.04200 | 0.05900 | 0.08500 | 0.10500 | 0.13500 | 0.16000 |
| 61 | 0.02900 | 0.04900 | 0.06700 | 0.09400 | 0.11500 | 0.14800 | 0.17000 |
| 62 | 0.06500 | 0.09500 | 0.12000 | 0.16500 | 0.19300 | 0.23800 | 0.24500 |
| 63 | 0.06100 | 0.10100 | 0.13300 | 0.18300 | 0.21100 | 0.26000 | 0.28900 |
| 64 | 0.08600 | 0.10900 | 0.12900 | 0.17100 | 0.18900 | 0.22600 | 0.23600 |
| 65 | 0.17200 | 0.16600 | 0.19900 | 0.22800 | 0.25100 | 0.27600 | 0.29200 |
| 66 | 0.21400 | 0.20400 | 0.24200 | 0.27700 | 0.30200 | 0.31900 | 0.33400 |
| 67 | 0.15800 | 0.17600 | 0.23000 | 0.26800 | 0.28900 | 0.29400 | 0.29700 |
| 68 | 0.16900 | 0.16300 | 0.19600 | 0.22500 | 0.24800 | 0.26300 | 0.27600 |
| 69 | 0.14800 | 0.16100 | 0.20000 | 0.23000 | 0.24100 | 0.23400 | 0.23700 |
| 70 | 0.16200 | 0.19700 | 0.25200 | 0.30000 | 0.27400 | 0.28300 | 0.28700 |
| 71 | 0.10900 | 0.16200 | 0.23000 | 0.27000 | 0.24800 | 0.26400 | 0.26400 |
| 72 | 0.14700 | 0.16800 | 0.21400 | 0.24700 | 0.22400 | 0.23500 | 0.23500 |
| 73 | 0.13900 | 0.16000 | 0.19700 | 0.22300 | 0.20200 | 0.21000 | 0.21000 |
| 74 | 0.13700 | 0.16600 | 0.21200 | 0.24700 | 0.23000 | 0.24100 | 0.24100 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**School Miscellaneous - PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 51 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 52 | 0.00600 | 0.00600 | 0.00700 | 0.00800 | 0.01000 | 0.01000 | 0.01100 |
| 53 | 0.00500 | 0.00700 | 0.00900 | 0.01000 | 0.01200 | 0.01200 | 0.01300 |
| 54 | 0.00600 | 0.00700 | 0.01000 | 0.01200 | 0.01500 | 0.01700 | 0.01800 |
| 55 | 0.00900 | 0.01700 | 0.02700 | 0.04100 | 0.05300 | 0.06900 | 0.09800 |
| 56 | 0.00900 | 0.02000 | 0.03000 | 0.04300 | 0.05800 | 0.07700 | 0.09600 |
| 57 | 0.01300 | 0.02000 | 0.03000 | 0.04400 | 0.05200 | 0.06900 | 0.08700 |
| 58 | 0.01700 | 0.02400 | 0.03200 | 0.04500 | 0.05900 | 0.07800 | 0.09800 |
| 59 | 0.02400 | 0.03000 | 0.03900 | 0.05600 | 0.07100 | 0.08900 | 0.11300 |
| 60 | 0.01900 | 0.03800 | 0.05300 | 0.07600 | 0.09300 | 0.12000 | 0.14200 |
| 61 | 0.02500 | 0.04200 | 0.05800 | 0.08100 | 0.09900 | 0.12800 | 0.14700 |
| 62 | 0.05800 | 0.08400 | 0.10700 | 0.14700 | 0.17200 | 0.21200 | 0.21800 |
| 63 | 0.05200 | 0.08700 | 0.11500 | 0.15800 | 0.18200 | 0.22400 | 0.24900 |
| 64 | 0.07800 | 0.09800 | 0.11600 | 0.15400 | 0.17000 | 0.20400 | 0.21300 |
| 65 | 0.16500 | 0.15900 | 0.19100 | 0.21900 | 0.24100 | 0.26500 | 0.28000 |
| 66 | 0.22000 | 0.21000 | 0.24900 | 0.28500 | 0.31100 | 0.32800 | 0.34300 |
| 67 | 0.17800 | 0.19900 | 0.25900 | 0.30200 | 0.32600 | 0.33100 | 0.33400 |
| 68 | 0.18800 | 0.18200 | 0.21800 | 0.25100 | 0.27600 | 0.29200 | 0.30700 |
| 69 | 0.15200 | 0.16500 | 0.20500 | 0.23700 | 0.24800 | 0.24100 | 0.24400 |
| 70 | 0.17000 | 0.20700 | 0.26500 | 0.31600 | 0.28800 | 0.29700 | 0.30100 |
| 71 | 0.12300 | 0.18400 | 0.26100 | 0.30500 | 0.28100 | 0.29900 | 0.29900 |
| 72 | 0.16200 | 0.18500 | 0.23500 | 0.27200 | 0.24700 | 0.25900 | 0.25900 |
| 73 | 0.13300 | 0.15300 | 0.18800 | 0.21300 | 0.19300 | 0.20000 | 0.20000 |
| 74 | 0.11400 | 0.13800 | 0.17600 | 0.20600 | 0.19100 | 0.20100 | 0.20100 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 2% at Age 62 PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 51 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 52 | 0.00800 | 0.01300 | 0.01500 | 0.01900 | 0.02300 | 0.02300 | 0.02300 |
| 53 | 0.00900 | 0.01400 | 0.01600 | 0.02300 | 0.02600 | 0.02600 | 0.02600 |
| 54 | 0.01200 | 0.01500 | 0.01900 | 0.02600 | 0.03300 | 0.03300 | 0.03300 |
| 55 | 0.01300 | 0.02500 | 0.03700 | 0.06600 | 0.09200 | 0.09200 | 0.09200 |
| 56 | 0.01600 | 0.02500 | 0.03600 | 0.06000 | 0.08000 | 0.08000 | 0.08000 |
| 57 | 0.01800 | 0.02700 | 0.03700 | 0.05900 | 0.07700 | 0.07700 | 0.07700 |
| 58 | 0.02300 | 0.02800 | 0.03600 | 0.05900 | 0.07700 | 0.07700 | 0.07700 |
| 59 | 0.02300 | 0.03300 | 0.04200 | 0.06300 | 0.08300 | 0.08300 | 0.08300 |
| 60 | 0.03500 | 0.04100 | 0.05000 | 0.07400 | 0.09000 | 0.10700 | 0.12300 |
| 61 | 0.03700 | 0.05300 | 0.07000 | 0.09000 | 0.11300 | 0.13700 | 0.15100 |
| 62 | 0.05500 | 0.07600 | 0.09100 | 0.10900 | 0.12700 | 0.13600 | 0.14200 |
| 63 | 0.07100 | 0.09100 | 0.10500 | 0.12600 | 0.14000 | 0.15800 | 0.17600 |
| 64 | 0.07000 | 0.09700 | 0.10700 | 0.13200 | 0.15300 | 0.16500 | 0.17300 |
| 65 | 0.10200 | 0.13300 | 0.15300 | 0.18100 | 0.20100 | 0.21000 | 0.21200 |
| 66 | 0.13900 | 0.17600 | 0.18500 | 0.20700 | 0.21500 | 0.21200 | 0.21200 |
| 67 | 0.14500 | 0.19200 | 0.20100 | 0.21600 | 0.21600 | 0.21600 | 0.21600 |
| 68 | 0.15800 | 0.19100 | 0.19200 | 0.20700 | 0.20700 | 0.20700 | 0.20700 |
| 69 | 0.13800 | 0.18000 | 0.18900 | 0.20300 | 0.20300 | 0.20300 | 0.20300 |
| 70 | 0.21200 | 0.21200 | 0.21200 | 0.21200 | 0.21200 | 0.21200 | 0.21200 |
| 71 | 0.19600 | 0.19600 | 0.19600 | 0.19600 | 0.19600 | 0.19600 | 0.19600 |
| 72 | 0.17600 | 0.17600 | 0.17600 | 0.17600 | 0.17600 | 0.17600 | 0.17600 |
| 73 | 0.15500 | 0.15500 | 0.15500 | 0.15500 | 0.15500 | 0.15500 | 0.15500 |
| 74 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 1.5% at Age 65**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00500 | 0.01200 | 0.01400 | 0.02000 | 0.02300 | 0.02300 | 0.02300 |
| 51 | 0.01200 | 0.01400 | 0.01400 | 0.01800 | 0.02000 | 0.02000 | 0.02000 |
| 52 | 0.00900 | 0.01200 | 0.01400 | 0.01900 | 0.02100 | 0.02100 | 0.02100 |
| 53 | 0.00900 | 0.01200 | 0.01400 | 0.02000 | 0.02400 | 0.02400 | 0.02400 |
| 54 | 0.01100 | 0.01400 | 0.01700 | 0.02500 | 0.03000 | 0.03000 | 0.03000 |
| 55 | 0.01200 | 0.02300 | 0.03300 | 0.06000 | 0.08400 | 0.08400 | 0.08400 |
| 56 | 0.01400 | 0.02200 | 0.03200 | 0.05300 | 0.07100 | 0.07100 | 0.07100 |
| 57 | 0.01600 | 0.02500 | 0.03300 | 0.05300 | 0.07000 | 0.07000 | 0.07000 |
| 58 | 0.02200 | 0.02600 | 0.03600 | 0.05700 | 0.07400 | 0.07400 | 0.07400 |
| 59 | 0.02300 | 0.03500 | 0.04400 | 0.06500 | 0.08600 | 0.08600 | 0.08600 |
| 60 | 0.03700 | 0.04300 | 0.05400 | 0.07800 | 0.09500 | 0.11400 | 0.13100 |
| 61 | 0.03800 | 0.05500 | 0.07300 | 0.09300 | 0.11600 | 0.13900 | 0.15500 |
| 62 | 0.05500 | 0.07600 | 0.09000 | 0.11000 | 0.12700 | 0.13600 | 0.14200 |
| 63 | 0.07500 | 0.09700 | 0.11200 | 0.13300 | 0.14900 | 0.16700 | 0.18700 |
| 64 | 0.07600 | 0.10400 | 0.11400 | 0.14200 | 0.16300 | 0.17600 | 0.18400 |
| 65 | 0.10300 | 0.13500 | 0.15400 | 0.18400 | 0.20200 | 0.21100 | 0.21400 |
| 66 | 0.13300 | 0.17000 | 0.17900 | 0.19800 | 0.20700 | 0.20300 | 0.20300 |
| 67 | 0.13700 | 0.18100 | 0.19000 | 0.20300 | 0.20300 | 0.20300 | 0.20300 |
| 68 | 0.14600 | 0.17600 | 0.17800 | 0.19100 | 0.19100 | 0.19100 | 0.19100 |
| 69 | 0.12400 | 0.16300 | 0.17100 | 0.18400 | 0.18400 | 0.18400 | 0.18400 |
| 70 | 0.19700 | 0.19700 | 0.19700 | 0.19700 | 0.19700 | 0.19700 | 0.19700 |
| 71 | 0.18400 | 0.18400 | 0.18400 | 0.18400 | 0.18400 | 0.18400 | 0.18400 |
| 72 | 0.16400 | 0.16400 | 0.16400 | 0.16400 | 0.16400 | 0.16400 | 0.16400 |
| 73 | 0.14500 | 0.14500 | 0.14500 | 0.14500 | 0.14500 | 0.14500 | 0.14500 |
| 74 | 0.15200 | 0.15200 | 0.15200 | 0.15200 | 0.15200 | 0.15200 | 0.15200 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 2% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00700 | 0.01400 | 0.01700 | 0.02300 | 0.02800 | 0.02800 | 0.02800 |
| 51 | 0.01500 | 0.01600 | 0.01800 | 0.02100 | 0.02400 | 0.02400 | 0.02400 |
| 52 | 0.01000 | 0.01500 | 0.01700 | 0.02200 | 0.02500 | 0.02500 | 0.02500 |
| 53 | 0.01000 | 0.01600 | 0.01900 | 0.02600 | 0.03000 | 0.03000 | 0.03000 |
| 54 | 0.01400 | 0.01900 | 0.02300 | 0.03300 | 0.04100 | 0.04100 | 0.04100 |
| 55 | 0.01600 | 0.03100 | 0.04600 | 0.08300 | 0.11600 | 0.11600 | 0.11600 |
| 56 | 0.02300 | 0.03400 | 0.04900 | 0.08100 | 0.10700 | 0.10700 | 0.10700 |
| 57 | 0.02500 | 0.03900 | 0.05300 | 0.08300 | 0.10900 | 0.10900 | 0.10900 |
| 58 | 0.03200 | 0.04000 | 0.05300 | 0.08500 | 0.11200 | 0.11200 | 0.11200 |
| 59 | 0.03400 | 0.05000 | 0.06400 | 0.09500 | 0.12600 | 0.12600 | 0.12600 |
| 60 | 0.05600 | 0.06500 | 0.08300 | 0.11800 | 0.14500 | 0.17300 | 0.19800 |
| 61 | 0.04600 | 0.06600 | 0.08800 | 0.11300 | 0.14000 | 0.17000 | 0.18800 |
| 62 | 0.09500 | 0.12900 | 0.15500 | 0.18600 | 0.21600 | 0.23200 | 0.24200 |
| 63 | 0.11500 | 0.14900 | 0.17100 | 0.20400 | 0.22600 | 0.25600 | 0.28600 |
| 64 | 0.10100 | 0.13700 | 0.15100 | 0.18700 | 0.21600 | 0.23300 | 0.24300 |
| 65 | 0.14900 | 0.19500 | 0.22300 | 0.26500 | 0.29300 | 0.30700 | 0.31100 |
| 66 | 0.21200 | 0.26800 | 0.28200 | 0.31500 | 0.32900 | 0.32300 | 0.32400 |
| 67 | 0.18800 | 0.24900 | 0.26000 | 0.27900 | 0.27900 | 0.27900 | 0.27900 |
| 68 | 0.20300 | 0.24300 | 0.24500 | 0.26400 | 0.26400 | 0.26400 | 0.26400 |
| 69 | 0.16100 | 0.21100 | 0.22100 | 0.23800 | 0.23800 | 0.23800 | 0.23800 |
| 70 | 0.27500 | 0.27500 | 0.27500 | 0.27500 | 0.27500 | 0.27500 | 0.27500 |
| 71 | 0.25400 | 0.25400 | 0.25400 | 0.25400 | 0.25400 | 0.25400 | 0.25400 |
| 72 | 0.22700 | 0.22700 | 0.22700 | 0.22700 | 0.22700 | 0.22700 | 0.22700 |
| 73 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 | 0.20000 |
| 74 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 2% at Age 60**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00600 | 0.01400 | 0.01600 | 0.02300 | 0.02700 | 0.02700 | 0.02700 |
| 51 | 0.01400 | 0.01600 | 0.01700 | 0.02100 | 0.02300 | 0.02300 | 0.02300 |
| 52 | 0.01000 | 0.01400 | 0.01700 | 0.02200 | 0.02500 | 0.02500 | 0.02500 |
| 53 | 0.01000 | 0.01400 | 0.01700 | 0.02300 | 0.02800 | 0.02800 | 0.02800 |
| 54 | 0.01300 | 0.01600 | 0.02000 | 0.02900 | 0.03500 | 0.03500 | 0.03500 |
| 55 | 0.01400 | 0.02700 | 0.03900 | 0.07100 | 0.09900 | 0.09900 | 0.09900 |
| 56 | 0.01700 | 0.02600 | 0.03800 | 0.06200 | 0.08300 | 0.08300 | 0.08300 |
| 57 | 0.01900 | 0.02900 | 0.03900 | 0.06200 | 0.08200 | 0.08200 | 0.08200 |
| 58 | 0.02600 | 0.03100 | 0.04200 | 0.06700 | 0.08700 | 0.08700 | 0.08700 |
| 59 | 0.02700 | 0.04100 | 0.05200 | 0.07700 | 0.10100 | 0.10100 | 0.10100 |
| 60 | 0.04400 | 0.05000 | 0.06400 | 0.09200 | 0.11200 | 0.13400 | 0.15400 |
| 61 | 0.04500 | 0.06500 | 0.08600 | 0.10900 | 0.13600 | 0.16400 | 0.18200 |
| 62 | 0.06500 | 0.08900 | 0.10600 | 0.12900 | 0.14900 | 0.16000 | 0.16700 |
| 63 | 0.08800 | 0.11400 | 0.13200 | 0.15700 | 0.17500 | 0.19700 | 0.22000 |
| 64 | 0.08900 | 0.12200 | 0.13400 | 0.16700 | 0.19200 | 0.20700 | 0.21600 |
| 65 | 0.12100 | 0.15900 | 0.18100 | 0.21600 | 0.23800 | 0.24800 | 0.25200 |
| 66 | 0.15700 | 0.20000 | 0.21000 | 0.23300 | 0.24400 | 0.23900 | 0.23900 |
| 67 | 0.16100 | 0.21300 | 0.22300 | 0.23900 | 0.23900 | 0.23900 | 0.23900 |
| 68 | 0.17200 | 0.20700 | 0.20900 | 0.22500 | 0.22500 | 0.22500 | 0.22500 |
| 69 | 0.14600 | 0.19200 | 0.20100 | 0.21600 | 0.21600 | 0.21600 | 0.21600 |
| 70 | 0.23200 | 0.23200 | 0.23200 | 0.23200 | 0.23200 | 0.23200 | 0.23200 |
| 71 | 0.21600 | 0.21600 | 0.21600 | 0.21600 | 0.21600 | 0.21600 | 0.21600 |
| 72 | 0.19300 | 0.19300 | 0.19300 | 0.19300 | 0.19300 | 0.19300 | 0.19300 |
| 73 | 0.17000 | 0.17000 | 0.17000 | 0.17000 | 0.17000 | 0.17000 | 0.17000 |
| 74 | 0.17900 | 0.17900 | 0.17900 | 0.17900 | 0.17900 | 0.17900 | 0.17900 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 2.5% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00900 | 0.01800 | 0.02300 | 0.03100 | 0.03700 | 0.03700 | 0.03700 |
| 51 | 0.01900 | 0.02100 | 0.02300 | 0.02700 | 0.03100 | 0.03100 | 0.03100 |
| 52 | 0.01200 | 0.01800 | 0.02300 | 0.02800 | 0.03300 | 0.03300 | 0.03300 |
| 53 | 0.01400 | 0.02000 | 0.02600 | 0.03500 | 0.04100 | 0.04100 | 0.04100 |
| 54 | 0.01700 | 0.02300 | 0.02900 | 0.04100 | 0.05000 | 0.05000 | 0.05000 |
| 55 | 0.02400 | 0.04900 | 0.07100 | 0.12800 | 0.17900 | 0.17900 | 0.17900 |
| 56 | 0.03000 | 0.04600 | 0.06800 | 0.11100 | 0.14600 | 0.14600 | 0.14600 |
| 57 | 0.03100 | 0.04800 | 0.06600 | 0.10400 | 0.13800 | 0.13800 | 0.13800 |
| 58 | 0.04000 | 0.04900 | 0.06400 | 0.10300 | 0.13500 | 0.13500 | 0.13500 |
| 59 | 0.03900 | 0.05900 | 0.07500 | 0.11000 | 0.14500 | 0.14500 | 0.14500 |
| 60 | 0.06000 | 0.06900 | 0.08700 | 0.12600 | 0.15300 | 0.18300 | 0.21100 |
| 61 | 0.05000 | 0.07200 | 0.09500 | 0.12100 | 0.15100 | 0.18200 | 0.20200 |
| 62 | 0.09600 | 0.13100 | 0.15700 | 0.18900 | 0.22000 | 0.23600 | 0.24600 |
| 63 | 0.09900 | 0.12900 | 0.14900 | 0.17700 | 0.19700 | 0.22200 | 0.24800 |
| 64 | 0.09900 | 0.13400 | 0.14900 | 0.18400 | 0.21200 | 0.22900 | 0.23900 |
| 65 | 0.13100 | 0.17200 | 0.19600 | 0.23300 | 0.25800 | 0.26900 | 0.27200 |
| 66 | 0.21000 | 0.26600 | 0.27900 | 0.31200 | 0.32600 | 0.31900 | 0.32000 |
| 67 | 0.18300 | 0.24200 | 0.25300 | 0.27200 | 0.27200 | 0.27200 | 0.27200 |
| 68 | 0.18400 | 0.22000 | 0.22200 | 0.24000 | 0.24000 | 0.24000 | 0.24000 |
| 69 | 0.15800 | 0.20700 | 0.21700 | 0.23400 | 0.23400 | 0.23400 | 0.23400 |
| 70 | 0.26700 | 0.26700 | 0.26700 | 0.26700 | 0.26700 | 0.26700 | 0.26700 |
| 71 | 0.24700 | 0.24700 | 0.24700 | 0.24700 | 0.24700 | 0.24700 | 0.24700 |
| 72 | 0.22100 | 0.22100 | 0.22100 | 0.22100 | 0.22100 | 0.22100 | 0.22100 |
| 73 | 0.19500 | 0.19500 | 0.19500 | 0.19500 | 0.19500 | 0.19500 | 0.19500 |
| 74 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 2.7% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00800 | 0.01600 | 0.02000 | 0.02700 | 0.03300 | 0.03300 | 0.03300 |
| 51 | 0.01700 | 0.01900 | 0.02100 | 0.02600 | 0.02900 | 0.02900 | 0.02900 |
| 52 | 0.01200 | 0.01800 | 0.02300 | 0.02800 | 0.03300 | 0.03300 | 0.03300 |
| 53 | 0.01300 | 0.01900 | 0.02500 | 0.03400 | 0.03900 | 0.03900 | 0.03900 |
| 54 | 0.01800 | 0.02500 | 0.03100 | 0.04400 | 0.05300 | 0.05300 | 0.05300 |
| 55 | 0.03000 | 0.06000 | 0.08800 | 0.15800 | 0.22100 | 0.22100 | 0.22100 |
| 56 | 0.03600 | 0.05400 | 0.08000 | 0.13100 | 0.17400 | 0.17400 | 0.17400 |
| 57 | 0.03400 | 0.05200 | 0.07000 | 0.11100 | 0.14700 | 0.14700 | 0.14700 |
| 58 | 0.04600 | 0.05500 | 0.07400 | 0.11900 | 0.15700 | 0.15700 | 0.15700 |
| 59 | 0.04200 | 0.06200 | 0.07900 | 0.11700 | 0.15400 | 0.15400 | 0.15400 |
| 60 | 0.06600 | 0.07700 | 0.09600 | 0.13900 | 0.17000 | 0.20200 | 0.23200 |
| 61 | 0.05300 | 0.07700 | 0.10200 | 0.13200 | 0.16400 | 0.19900 | 0.22000 |
| 62 | 0.09300 | 0.12700 | 0.15200 | 0.18400 | 0.21300 | 0.22800 | 0.23800 |
| 63 | 0.10400 | 0.13400 | 0.15500 | 0.18400 | 0.20500 | 0.23100 | 0.25900 |
| 64 | 0.09600 | 0.13000 | 0.14400 | 0.17800 | 0.20500 | 0.22100 | 0.23200 |
| 65 | 0.15500 | 0.20200 | 0.23100 | 0.27500 | 0.30400 | 0.31800 | 0.32200 |
| 66 | 0.19900 | 0.25200 | 0.26500 | 0.29600 | 0.30900 | 0.30300 | 0.30400 |
| 67 | 0.17600 | 0.23300 | 0.24400 | 0.26200 | 0.26200 | 0.26200 | 0.26200 |
| 68 | 0.18800 | 0.22500 | 0.22700 | 0.24500 | 0.24500 | 0.24500 | 0.24500 |
| 69 | 0.16500 | 0.21600 | 0.22700 | 0.24400 | 0.24400 | 0.24400 | 0.24400 |
| 70 | 0.25600 | 0.25600 | 0.25600 | 0.25600 | 0.25600 | 0.25600 | 0.25600 |
| 71 | 0.23700 | 0.23700 | 0.23700 | 0.23700 | 0.23700 | 0.23700 | 0.23700 |
| 72 | 0.21200 | 0.21200 | 0.21200 | 0.21200 | 0.21200 | 0.21200 | 0.21200 |
| 73 | 0.18600 | 0.18600 | 0.18600 | 0.18600 | 0.18600 | 0.18600 | 0.18600 |
| 74 | 0.19600 | 0.19600 | 0.19600 | 0.19600 | 0.19600 | 0.19600 | 0.19600 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Miscellaneous 3% at Age 60**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00900 | 0.01900 | 0.02300 | 0.03100 | 0.03700 | 0.03700 | 0.03700 |
| 51 | 0.02100 | 0.02300 | 0.02500 | 0.03000 | 0.03400 | 0.03400 | 0.03400 |
| 52 | 0.01300 | 0.01800 | 0.02300 | 0.02900 | 0.03300 | 0.03300 | 0.03300 |
| 53 | 0.01300 | 0.01900 | 0.02500 | 0.03400 | 0.03900 | 0.03900 | 0.03900 |
| 54 | 0.01600 | 0.02200 | 0.02800 | 0.04000 | 0.04800 | 0.04800 | 0.04800 |
| 55 | 0.01500 | 0.03100 | 0.04500 | 0.08100 | 0.11400 | 0.11400 | 0.11400 |
| 56 | 0.02200 | 0.03300 | 0.04800 | 0.08000 | 0.10500 | 0.10500 | 0.10500 |
| 57 | 0.02400 | 0.03800 | 0.05200 | 0.08200 | 0.10800 | 0.10800 | 0.10800 |
| 58 | 0.03400 | 0.04100 | 0.05500 | 0.08900 | 0.11600 | 0.11600 | 0.11600 |
| 59 | 0.03200 | 0.04900 | 0.06200 | 0.09300 | 0.12100 | 0.12100 | 0.12100 |
| 60 | 0.09600 | 0.11200 | 0.14100 | 0.20400 | 0.24900 | 0.29500 | 0.34000 |
| 61 | 0.05800 | 0.08500 | 0.11200 | 0.14300 | 0.17900 | 0.21600 | 0.24000 |
| 62 | 0.10400 | 0.14100 | 0.16900 | 0.20300 | 0.23700 | 0.25400 | 0.26400 |
| 63 | 0.10600 | 0.13800 | 0.15800 | 0.18800 | 0.21000 | 0.23600 | 0.26500 |
| 64 | 0.10000 | 0.13600 | 0.15100 | 0.18700 | 0.21500 | 0.23200 | 0.24300 |
| 65 | 0.16100 | 0.21100 | 0.24100 | 0.28700 | 0.31700 | 0.33200 | 0.33600 |
| 66 | 0.22000 | 0.27800 | 0.29200 | 0.32700 | 0.34100 | 0.33400 | 0.33500 |
| 67 | 0.18500 | 0.24500 | 0.25600 | 0.27500 | 0.27500 | 0.27500 | 0.27500 |
| 68 | 0.19100 | 0.22900 | 0.23100 | 0.24900 | 0.24900 | 0.24900 | 0.24900 |
| 69 | 0.16300 | 0.21400 | 0.22400 | 0.24100 | 0.24100 | 0.24100 | 0.24100 |
| 70 | 0.27800 | 0.27800 | 0.27800 | 0.27800 | 0.27800 | 0.27800 | 0.27800 |
| 71 | 0.25700 | 0.25700 | 0.25700 | 0.25700 | 0.25700 | 0.25700 | 0.25700 |
| 72 | 0.23000 | 0.23000 | 0.23000 | 0.23000 | 0.23000 | 0.23000 | 0.23000 |
| 73 | 0.20300 | 0.20300 | 0.20300 | 0.20300 | 0.20300 | 0.20300 | 0.20300 |
| 74 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 |
| 75-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 2% at Age 50**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01000 | 0.01400 | 0.02100 | 0.02500 | 0.03700 | 0.04000 | 0.04400 |
| 51 | 0.00500 | 0.02300 | 0.03000 | 0.02800 | 0.03900 | 0.05300 | 0.06600 |
| 52 | 0.05100 | 0.02300 | 0.03000 | 0.03500 | 0.05000 | 0.05400 | 0.05900 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10600 | 0.11700 |
| 54 | 0.10700 | 0.04900 | 0.06000 | 0.06500 | 0.12200 | 0.17300 | 0.20400 |
| 55 | 0.03600 | 0.04600 | 0.08300 | 0.14000 | 0.18400 | 0.22500 | 0.25000 |
| 56 | 0.05000 | 0.06800 | 0.08900 | 0.13500 | 0.16800 | 0.19800 | 0.21700 |
| 57 | 0.11000 | 0.11300 | 0.14000 | 0.19000 | 0.21500 | 0.21500 | 0.21500 |
| 58 | 0.10500 | 0.08000 | 0.08900 | 0.11600 | 0.12900 | 0.12900 | 0.12900 |
| 59 | 0.18300 | 0.11400 | 0.11500 | 0.14000 | 0.15400 | 0.15400 | 0.15400 |
| 60 | 0.10100 | 0.13100 | 0.14200 | 0.17500 | 0.19100 | 0.19100 | 0.19100 |
| 61 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 |
| 62 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 63 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 |
| 64 | 0.24600 | 0.24600 | 0.24600 | 0.24600 | 0.24600 | 0.24600 | 0.24600 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 2% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00700 | 0.00900 | 0.01400 | 0.01700 | 0.02500 | 0.02700 | 0.02900 |
| 51 | 0.00300 | 0.01500 | 0.02000 | 0.01900 | 0.02600 | 0.03500 | 0.04400 |
| 52 | 0.03400 | 0.01500 | 0.02000 | 0.02300 | 0.03300 | 0.03600 | 0.03900 |
| 53 | 0.01400 | 0.01400 | 0.03000 | 0.04000 | 0.06200 | 0.07100 | 0.07800 |
| 54 | 0.07100 | 0.03300 | 0.04000 | 0.04300 | 0.08100 | 0.11500 | 0.13600 |
| 55 | 0.02400 | 0.03100 | 0.05500 | 0.09300 | 0.12300 | 0.15100 | 0.16700 |
| 56 | 0.03300 | 0.04500 | 0.06000 | 0.09000 | 0.11300 | 0.13300 | 0.14500 |
| 57 | 0.07500 | 0.07500 | 0.09300 | 0.12700 | 0.14300 | 0.14300 | 0.14300 |
| 58 | 0.07000 | 0.05300 | 0.05900 | 0.07700 | 0.08600 | 0.08600 | 0.08600 |
| 59 | 0.12200 | 0.07600 | 0.07700 | 0.09400 | 0.10300 | 0.10300 | 0.10300 |
| 60 | 0.06700 | 0.08700 | 0.09500 | 0.11600 | 0.12700 | 0.12700 | 0.12700 |
| 61 | 0.12100 | 0.12100 | 0.12100 | 0.12100 | 0.12100 | 0.12100 | 0.12100 |
| 62 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 |
| 63 | 0.13600 | 0.13600 | 0.13600 | 0.13600 | 0.13600 | 0.13600 | 0.13600 |
| 64 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 2% at Age 57**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.00700 | 0.00900 | 0.01400 | 0.01700 | 0.02500 | 0.02700 | 0.02900 |
| 51 | 0.00300 | 0.01500 | 0.02000 | 0.01900 | 0.02600 | 0.03500 | 0.04400 |
| 52 | 0.03400 | 0.01500 | 0.02000 | 0.02300 | 0.03300 | 0.03600 | 0.03900 |
| 53 | 0.01400 | 0.01400 | 0.03000 | 0.04000 | 0.06200 | 0.07100 | 0.07800 |
| 54 | 0.07100 | 0.03300 | 0.04000 | 0.04300 | 0.08100 | 0.11500 | 0.13600 |
| 55 | 0.02400 | 0.03100 | 0.05500 | 0.09300 | 0.12300 | 0.15100 | 0.16700 |
| 56 | 0.03300 | 0.04500 | 0.06000 | 0.09000 | 0.11300 | 0.13300 | 0.14500 |
| 57 | 0.07300 | 0.07500 | 0.09300 | 0.12700 | 0.14300 | 0.14300 | 0.14300 |
| 58 | 0.07000 | 0.05300 | 0.05900 | 0.07700 | 0.08600 | 0.08600 | 0.08600 |
| 59 | 0.12200 | 0.07600 | 0.07700 | 0.09400 | 0.10300 | 0.10300 | 0.10300 |
| 60 | 0.06700 | 0.08700 | 0.09500 | 0.11600 | 0.12700 | 0.12700 | 0.12700 |
| 61 | 0.12100 | 0.12100 | 0.12100 | 0.12100 | 0.12100 | 0.12100 | 0.12100 |
| 62 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 |
| 63 | 0.13600 | 0.13600 | 0.13600 | 0.13600 | 0.13600 | 0.13600 | 0.13600 |
| 64 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 | 0.16300 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 2.5% at Age 57**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01000 | 0.01400 | 0.02100 | 0.02500 | 0.03700 | 0.04000 | 0.04400 |
| 51 | 0.00500 | 0.02300 | 0.03000 | 0.02800 | 0.03900 | 0.05300 | 0.06600 |
| 52 | 0.05100 | 0.02300 | 0.03000 | 0.03500 | 0.05000 | 0.05400 | 0.05900 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10600 | 0.11700 |
| 54 | 0.10700 | 0.04900 | 0.06000 | 0.06500 | 0.12200 | 0.17300 | 0.20400 |
| 55 | 0.03600 | 0.04600 | 0.08400 | 0.14100 | 0.18600 | 0.22700 | 0.25100 |
| 56 | 0.05000 | 0.06900 | 0.09000 | 0.13600 | 0.17000 | 0.20000 | 0.21800 |
| 57 | 0.11200 | 0.11400 | 0.14000 | 0.19100 | 0.21700 | 0.21700 | 0.21700 |
| 58 | 0.10600 | 0.08000 | 0.09000 | 0.11600 | 0.13000 | 0.13000 | 0.13000 |
| 59 | 0.18400 | 0.11400 | 0.11600 | 0.14200 | 0.15500 | 0.15500 | 0.15500 |
| 60 | 0.10000 | 0.13100 | 0.14200 | 0.17400 | 0.19000 | 0.19000 | 0.19000 |
| 61 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 |
| 62 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 63 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 |
| 64 | 0.24500 | 0.24500 | 0.24500 | 0.24500 | 0.24500 | 0.24500 | 0.24500 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 2.7% at Age 57**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01000 | 0.01400 | 0.02100 | 0.02500 | 0.03700 | 0.04000 | 0.04400 |
| 51 | 0.00500 | 0.02300 | 0.03000 | 0.02800 | 0.03900 | 0.05300 | 0.06600 |
| 52 | 0.05100 | 0.02300 | 0.03000 | 0.03500 | 0.05000 | 0.05400 | 0.05900 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10600 | 0.11700 |
| 54 | 0.10700 | 0.04900 | 0.06000 | 0.06500 | 0.12200 | 0.17300 | 0.20400 |
| 55 | 0.03600 | 0.04600 | 0.08400 | 0.14100 | 0.18600 | 0.22700 | 0.25100 |
| 56 | 0.05000 | 0.06900 | 0.09000 | 0.13600 | 0.17000 | 0.20000 | 0.21800 |
| 57 | 0.11200 | 0.11400 | 0.14000 | 0.19100 | 0.21700 | 0.21700 | 0.21700 |
| 58 | 0.10600 | 0.08000 | 0.09000 | 0.11600 | 0.13000 | 0.13000 | 0.13000 |
| 59 | 0.18400 | 0.11400 | 0.11600 | 0.14200 | 0.15500 | 0.15500 | 0.15500 |
| 60 | 0.10000 | 0.13100 | 0.14200 | 0.17400 | 0.19000 | 0.19000 | 0.19000 |
| 61 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 |
| 62 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 63 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 | 0.20400 |
| 64 | 0.24500 | 0.24500 | 0.24500 | 0.24500 | 0.24500 | 0.24500 | 0.24500 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 3% at Age 50**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.04100 | 0.03700 | 0.06500 | 0.09400 | 0.12700 | 0.15900 | 0.17600 |
| 51 | 0.03300 | 0.03100 | 0.05500 | 0.08100 | 0.10900 | 0.13700 | 0.15100 |
| 52 | 0.02400 | 0.04200 | 0.06000 | 0.08200 | 0.10700 | 0.13200 | 0.14400 |
| 53 | 0.01000 | 0.02600 | 0.05600 | 0.08600 | 0.11900 | 0.15200 | 0.16900 |
| 54 | 0.04100 | 0.04700 | 0.05800 | 0.07300 | 0.12100 | 0.19200 | 0.22700 |
| 55 | 0.02900 | 0.03800 | 0.06800 | 0.11400 | 0.15100 | 0.18400 | 0.20300 |
| 56 | 0.05000 | 0.06800 | 0.08900 | 0.13400 | 0.16800 | 0.19800 | 0.21600 |
| 57 | 0.08500 | 0.08700 | 0.10800 | 0.14700 | 0.16600 | 0.16600 | 0.16600 |
| 58 | 0.16900 | 0.12800 | 0.14400 | 0.18600 | 0.20700 | 0.20700 | 0.20700 |
| 59 | 0.22500 | 0.14000 | 0.14200 | 0.17300 | 0.18900 | 0.18900 | 0.18900 |
| 60 | 0.11200 | 0.14600 | 0.15800 | 0.19500 | 0.21200 | 0.21200 | 0.21200 |
| 61 | 0.21900 | 0.21900 | 0.21900 | 0.21900 | 0.21900 | 0.21900 | 0.21900 |
| 62 | 0.23800 | 0.23800 | 0.23800 | 0.23800 | 0.23800 | 0.23800 | 0.23800 |
| 63 | 0.22900 | 0.22900 | 0.22900 | 0.22900 | 0.22900 | 0.22900 | 0.22900 |
| 64 | 0.19500 | 0.19500 | 0.19500 | 0.19500 | 0.19500 | 0.19500 | 0.19500 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Fire 3% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01000 | 0.01400 | 0.02000 | 0.02500 | 0.03700 | 0.04000 | 0.04400 |
| 51 | 0.00500 | 0.02300 | 0.03000 | 0.02800 | 0.03900 | 0.05200 | 0.06500 |
| 52 | 0.05000 | 0.02300 | 0.03000 | 0.03400 | 0.05000 | 0.05300 | 0.05800 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10500 | 0.11700 |
| 54 | 0.10700 | 0.04900 | 0.06000 | 0.06500 | 0.12300 | 0.17400 | 0.20500 |
| 55 | 0.03700 | 0.04600 | 0.08400 | 0.14200 | 0.18700 | 0.22800 | 0.25300 |
| 56 | 0.05000 | 0.06900 | 0.09100 | 0.13700 | 0.17100 | 0.20100 | 0.22000 |
| 57 | 0.11300 | 0.11500 | 0.14100 | 0.19200 | 0.21800 | 0.21800 | 0.21800 |
| 58 | 0.10500 | 0.08000 | 0.08900 | 0.11600 | 0.12900 | 0.12900 | 0.12900 |
| 59 | 0.18300 | 0.11400 | 0.11500 | 0.14100 | 0.15400 | 0.15400 | 0.15400 |
| 60 | 0.10100 | 0.13100 | 0.14300 | 0.17500 | 0.19100 | 0.19100 | 0.19100 |
| 61 | 0.18300 | 0.18300 | 0.18300 | 0.18300 | 0.18300 | 0.18300 | 0.18300 |
| 62 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 |
| 63 | 0.20300 | 0.20300 | 0.20300 | 0.20300 | 0.20300 | 0.20300 | 0.20300 |
| 64 | 0.24800 | 0.24800 | 0.24800 | 0.24800 | 0.24800 | 0.24800 | 0.24800 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 2% at Age 50**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.02300 | 0.03000 | 0.04600 | 0.05500 | 0.08100 | 0.09000 | 0.09800 |
| 51 | 0.00900 | 0.04000 | 0.05100 | 0.04700 | 0.06700 | 0.09000 | 0.11200 |
| 52 | 0.08300 | 0.03800 | 0.04900 | 0.05600 | 0.08200 | 0.08800 | 0.09600 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10600 | 0.11700 |
| 54 | 0.09600 | 0.04300 | 0.05400 | 0.05800 | 0.10900 | 0.15400 | 0.18100 |
| 55 | 0.04600 | 0.05900 | 0.10500 | 0.17700 | 0.23400 | 0.28600 | 0.31500 |
| 56 | 0.05600 | 0.07700 | 0.10100 | 0.15200 | 0.19000 | 0.22400 | 0.24500 |
| 57 | 0.09200 | 0.09300 | 0.11600 | 0.15700 | 0.17800 | 0.17800 | 0.17800 |
| 58 | 0.13700 | 0.10400 | 0.11700 | 0.15100 | 0.16800 | 0.16800 | 0.16800 |
| 59 | 0.20100 | 0.12500 | 0.12600 | 0.15500 | 0.16900 | 0.16900 | 0.16900 |
| 60 | 0.09900 | 0.13000 | 0.14100 | 0.17300 | 0.18900 | 0.18900 | 0.18900 |
| 61 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 |
| 62 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 63 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 |
| 64 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 2% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01500 | 0.02000 | 0.03100 | 0.03700 | 0.05400 | 0.06000 | 0.06500 |
| 51 | 0.00600 | 0.02700 | 0.03400 | 0.03100 | 0.04500 | 0.06000 | 0.07500 |
| 52 | 0.05500 | 0.02500 | 0.03300 | 0.03700 | 0.05500 | 0.05900 | 0.06400 |
| 53 | 0.01400 | 0.01400 | 0.03000 | 0.04000 | 0.06200 | 0.07100 | 0.07800 |
| 54 | 0.06400 | 0.02900 | 0.03600 | 0.03900 | 0.07300 | 0.10300 | 0.12100 |
| 55 | 0.03100 | 0.03900 | 0.07000 | 0.11800 | 0.15600 | 0.19100 | 0.21100 |
| 56 | 0.03700 | 0.05100 | 0.06800 | 0.10100 | 0.12700 | 0.15000 | 0.16300 |
| 57 | 0.06100 | 0.06300 | 0.07700 | 0.10500 | 0.11900 | 0.11900 | 0.11900 |
| 58 | 0.09100 | 0.07000 | 0.07800 | 0.10100 | 0.11200 | 0.11200 | 0.11200 |
| 59 | 0.13500 | 0.08300 | 0.08400 | 0.10300 | 0.11300 | 0.11300 | 0.11300 |
| 60 | 0.06600 | 0.08600 | 0.09400 | 0.11500 | 0.12600 | 0.12600 | 0.12600 |
| 61 | 0.12000 | 0.12000 | 0.12000 | 0.12000 | 0.12000 | 0.12000 | 0.12000 |
| 62 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 |
| 63 | 0.15000 | 0.15000 | 0.15000 | 0.15000 | 0.15000 | 0.15000 | 0.15000 |
| 64 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 2% at Age 57 PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.01500 | 0.02000 | 0.03100 | 0.03700 | 0.05500 | 0.06000 | 0.06500 |
| 51 | 0.00600 | 0.02700 | 0.03400 | 0.03100 | 0.04500 | 0.06000 | 0.07500 |
| 52 | 0.05500 | 0.02500 | 0.03300 | 0.03700 | 0.05500 | 0.05900 | 0.06400 |
| 53 | 0.01400 | 0.01400 | 0.03000 | 0.04000 | 0.06200 | 0.07100 | 0.07800 |
| 54 | 0.06400 | 0.02900 | 0.03600 | 0.03900 | 0.07300 | 0.10300 | 0.12100 |
| 55 | 0.03100 | 0.03900 | 0.07000 | 0.11800 | 0.15600 | 0.19100 | 0.21100 |
| 56 | 0.03700 | 0.05100 | 0.06800 | 0.10100 | 0.12700 | 0.15000 | 0.16300 |
| 57 | 0.06100 | 0.06300 | 0.07700 | 0.10500 | 0.11900 | 0.11900 | 0.11900 |
| 58 | 0.09100 | 0.07000 | 0.07800 | 0.10100 | 0.11200 | 0.11200 | 0.11200 |
| 59 | 0.13500 | 0.08300 | 0.08400 | 0.10300 | 0.11300 | 0.11300 | 0.11300 |
| 60 | 0.06600 | 0.08600 | 0.09400 | 0.11500 | 0.12600 | 0.12600 | 0.12600 |
| 61 | 0.12000 | 0.12000 | 0.12000 | 0.12000 | 0.12000 | 0.12000 | 0.12000 |
| 62 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 |
| 63 | 0.15000 | 0.15000 | 0.15000 | 0.15000 | 0.15000 | 0.15000 | 0.15000 |
| 64 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 | 0.14000 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 2.5% at Age 57 PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.02300 | 0.03000 | 0.04600 | 0.05500 | 0.08200 | 0.09000 | 0.09800 |
| 51 | 0.00900 | 0.04000 | 0.05100 | 0.04700 | 0.06700 | 0.09000 | 0.11200 |
| 52 | 0.08300 | 0.03800 | 0.04900 | 0.05600 | 0.08200 | 0.08800 | 0.09600 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10600 | 0.11700 |
| 54 | 0.09600 | 0.04300 | 0.05400 | 0.05800 | 0.10900 | 0.15400 | 0.18100 |
| 55 | 0.04600 | 0.05900 | 0.10700 | 0.17800 | 0.23600 | 0.28700 | 0.31800 |
| 56 | 0.05700 | 0.07800 | 0.10200 | 0.15300 | 0.19100 | 0.22600 | 0.24700 |
| 57 | 0.09200 | 0.09400 | 0.11700 | 0.15800 | 0.17900 | 0.17900 | 0.17900 |
| 58 | 0.13800 | 0.10500 | 0.11800 | 0.15200 | 0.16900 | 0.16900 | 0.16900 |
| 59 | 0.20300 | 0.12500 | 0.12700 | 0.15600 | 0.17000 | 0.17000 | 0.17000 |
| 60 | 0.09900 | 0.12900 | 0.14100 | 0.17300 | 0.18900 | 0.18900 | 0.18900 |
| 61 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 |
| 62 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 63 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 |
| 64 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 2.7% at Age 57 PEPRA**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.02300 | 0.03000 | 0.04600 | 0.05500 | 0.08200 | 0.09000 | 0.09800 |
| 51 | 0.00900 | 0.04000 | 0.05100 | 0.04700 | 0.06700 | 0.09000 | 0.11200 |
| 52 | 0.08300 | 0.03800 | 0.04900 | 0.05600 | 0.08200 | 0.08800 | 0.09600 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.06000 | 0.09300 | 0.10600 | 0.11700 |
| 54 | 0.09600 | 0.04300 | 0.05400 | 0.05800 | 0.10900 | 0.15400 | 0.18100 |
| 55 | 0.04600 | 0.05900 | 0.10700 | 0.17800 | 0.23600 | 0.28700 | 0.31800 |
| 56 | 0.05700 | 0.07800 | 0.10200 | 0.15300 | 0.19100 | 0.22600 | 0.24700 |
| 57 | 0.09200 | 0.09400 | 0.11700 | 0.15800 | 0.17900 | 0.17900 | 0.17900 |
| 58 | 0.13800 | 0.10500 | 0.11800 | 0.15200 | 0.16900 | 0.16900 | 0.16900 |
| 59 | 0.20300 | 0.12500 | 0.12700 | 0.15600 | 0.17000 | 0.17000 | 0.17000 |
| 60 | 0.09900 | 0.12900 | 0.14100 | 0.17300 | 0.18900 | 0.18900 | 0.18900 |
| 61 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 | 0.18000 |
| 62 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 63 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 | 0.22600 |
| 64 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 | 0.21000 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 3% at Age 50**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.08200 | 0.07500 | 0.13100 | 0.19000 | 0.25600 | 0.32200 | 0.35500 |
| 51 | 0.06100 | 0.05800 | 0.10200 | 0.14900 | 0.20200 | 0.25400 | 0.28000 |
| 52 | 0.03900 | 0.07100 | 0.10100 | 0.13900 | 0.18100 | 0.22200 | 0.24400 |
| 53 | 0.01600 | 0.04000 | 0.08600 | 0.13300 | 0.18400 | 0.23500 | 0.26100 |
| 54 | 0.05900 | 0.06800 | 0.08400 | 0.10500 | 0.17500 | 0.28000 | 0.33000 |
| 55 | 0.04300 | 0.05500 | 0.09800 | 0.16500 | 0.21800 | 0.26600 | 0.29500 |
| 56 | 0.06500 | 0.08800 | 0.11700 | 0.17500 | 0.22000 | 0.25900 | 0.28200 |
| 57 | 0.11000 | 0.11100 | 0.13700 | 0.18700 | 0.21200 | 0.21200 | 0.21200 |
| 58 | 0.17700 | 0.13500 | 0.15100 | 0.19600 | 0.21800 | 0.21800 | 0.21800 |
| 59 | 0.27900 | 0.17400 | 0.17600 | 0.21600 | 0.23500 | 0.23500 | 0.23500 |
| 60 | 0.12100 | 0.15800 | 0.17200 | 0.21100 | 0.23000 | 0.23000 | 0.23000 |
| 61 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 | 0.20500 |
| 62 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 | 0.21100 |
| 63 | 0.20800 | 0.20800 | 0.20800 | 0.20800 | 0.20800 | 0.20800 | 0.20800 |
| 64 | 0.24600 | 0.24600 | 0.24600 | 0.24600 | 0.24600 | 0.24600 | 0.24600 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Service Retirement Rates (continued)

**Public Agency Police 3% at Age 55**

| Attained Age | Years of Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | 0.02100 | 0.02900 | 0.04500 | 0.05400 | 0.08100 | 0.08900 | 0.09700 |
| 51 | 0.00900 | 0.03900 | 0.05100 | 0.04700 | 0.06600 | 0.08800 | 0.11100 |
| 52 | 0.08200 | 0.03700 | 0.04900 | 0.05500 | 0.08100 | 0.08800 | 0.09600 |
| 53 | 0.02100 | 0.02100 | 0.04500 | 0.05900 | 0.09300 | 0.10500 | 0.11700 |
| 54 | 0.09600 | 0.04300 | 0.05400 | 0.05800 | 0.11000 | 0.15500 | 0.18200 |
| 55 | 0.04600 | 0.05900 | 0.10700 | 0.17900 | 0.23700 | 0.28900 | 0.32000 |
| 56 | 0.05700 | 0.07800 | 0.10300 | 0.15400 | 0.19300 | 0.22700 | 0.24800 |
| 57 | 0.09300 | 0.09600 | 0.11800 | 0.16000 | 0.18100 | 0.18100 | 0.18100 |
| 58 | 0.13700 | 0.10500 | 0.11700 | 0.15200 | 0.16800 | 0.16800 | 0.16800 |
| 59 | 0.20200 | 0.12500 | 0.12600 | 0.15500 | 0.16900 | 0.16900 | 0.16900 |
| 60 | 0.10000 | 0.13000 | 0.14200 | 0.17400 | 0.19000 | 0.19000 | 0.19000 |
| 61 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 | 0.18200 |
| 62 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 |
| 63 | 0.22400 | 0.22400 | 0.22400 | 0.22400 | 0.22400 | 0.22400 | 0.22400 |
| 64 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 | 0.21300 |
| 65-90 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Non-Industrial Disability Retirement Rates as Varying Ages

| | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
|---|---|---|---|---|---|---|---|
| All Misc | 0.00005 | 0.00029 | 0.00097 | 0.00250 | 0.00171 | 0.00170 | 0.00170 |
| State Industrial | 0.00015 | 0.00086 | 0.00290 | 0.00751 | 0.00512 | 0.00511 | 0.00511 |
| All Safety | 0.00003 | 0.00029 | 0.00045 | 0.00077 | 0.00282 | 0.00522 | 0.00522 |

# Appendix A - Summary of Proposed Rates

## Industrial Disability Retirement Rates at Varying Ages

| | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
|---|---|---|---|---|---|---|---|
| **State** | | | | | | | |
| CHP | 0.00016 | 0.00068 | 0.00202 | 0.02428 | 0.16345 | 0.27551 | 0.27773 |
| POFF | 0.00039 | 0.00167 | 0.00441 | 0.01592 | 0.02163 | 0.03403 | 0.05474 |
| **Public Agency** | | | | | | | |
| Fire | 0.00005 | 0.00056 | 0.00225 | 0.01455 | 0.05031 | 0.08221 | 0.14219 |
| CPO | 0.00042 | 0.00249 | 0.00616 | 0.01057 | 0.01740 | 0.02624 | 0.07621 |
| Sheriff | 0.00042 | 0.00249 | 0.00616 | 0.01057 | 0.01740 | 0.02624 | 0.07621 |
| Prosecutor | 0.00000 | 0.00003 | 0.00006 | 0.00011 | 0.00017 | 0.00026 | 0.00076 |
| School Police | 0.00034 | 0.00199 | 0.00493 | 0.00846 | 0.01392 | 0.02099 | 0.06097 |
| Other Safety | 0.00042 | 0.00249 | 0.00616 | 0.01057 | 0.01740 | 0.02624 | 0.07621 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund

### State Miscellaneous Tier 1 (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.157857 | 0.134388 | 0.105051 |
| 5 | 0.041666 | 0.034602 | 0.025772 |
| 10 | 0.008254 | 0.006795 | 0.004972 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### State Miscellaneous Tier 1 (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.159533 | 0.137420 | 0.109778 |
| 5 | 0.040633 | 0.033514 | 0.024615 |
| 10 | 0.006884 | 0.005385 | 0.003511 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

State Miscellaneous Tier 2 termination and refunds rates use Tier 1 rates.

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### State Industrial (Male and Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.077720 | 0.077720 | 0.077720 |
| 5 | 0.030197 | 0.030197 | 0.030197 |
| 10 | 0.004345 | 0.004345 | 0.004345 |
| 15 | 0.003342 | 0.003342 | 0.003342 |
| 20 | 0.001234 | 0.001234 | 0.001234 |
| 25 | 0.000840 | 0.000840 | 0.000840 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### State Safety (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.142049 | 0.142049 | 0.142049 |
| 5 | 0.028631 | 0.028631 | 0.028631 |
| 10 | 0.005822 | 0.005822 | 0.005822 |
| 15 | 0.003301 | 0.003301 | 0.003301 |
| 20 | 0.002576 | 0.002576 | 0.002576 |
| 25 | 0.001288 | 0.001288 | 0.001288 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### State Safety (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.121602 | 0.121602 | 0.121602 |
| 5 | 0.022142 | 0.022142 | 0.022142 |
| 10 | 0.004699 | 0.004699 | 0.004699 |
| 15 | 0.002409 | 0.002409 | 0.002409 |
| 20 | 0.001568 | 0.001568 | 0.001568 |
| 25 | 0.001107 | 0.001107 | 0.001107 |
| 30 | 0.000646 | 0.000646 | 0.000646 |
| 35 | 0.000184 | 0.000184 | 0.000184 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### State POFF (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.083151 | 0.083151 | 0.083151 |
| 5 | 0.020445 | 0.020445 | 0.020445 |
| 10 | 0.003458 | 0.003458 | 0.003458 |
| 15 | 0.001705 | 0.001705 | 0.001705 |
| 20 | 0.000608 | 0.000608 | 0.000608 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### State POFF (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.098575 | 0.098575 | 0.098575 |
| 5 | 0.019993 | 0.019993 | 0.019993 |
| 10 | 0.003518 | 0.003518 | 0.003518 |
| 15 | 0.001537 | 0.001537 | 0.001537 |
| 20 | 0.000590 | 0.000590 | 0.000590 |
| 25 | 0.000293 | 0.000293 | 0.000293 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### State CHP (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.080000 | 0.080000 | 0.080000 |
| 5 | 0.002386 | 0.002386 | 0.002386 |
| 10 | 0.000000 | 0.000000 | 0.000000 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### State CHP (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.034460 | 0.034460 | 0.034460 |
| 5 | 0.002512 | 0.002512 | 0.002512 |
| 10 | 0.000000 | 0.000000 | 0.000000 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### Schools Miscellaneous (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.204723 | 0.161514 | 0.116703 |
| 5 | 0.101045 | 0.072822 | 0.049110 |
| 10 | 0.024755 | 0.017355 | 0.010289 |
| 15 | 0.013600 | 0.008752 | 0.004403 |
| 20 | 0.006995 | 0.004177 | 0.001208 |
| 25 | 0.003903 | 0.002342 | 0.000683 |
| 30 | 0.001911 | 0.001328 | 0.000482 |
| 35 | 0.000956 | 0.000664 | 0.000241 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### Schools Miscellaneous (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.193099 | 0.160413 | 0.134044 |
| 5 | 0.080871 | 0.058238 | 0.038437 |
| 10 | 0.020487 | 0.014997 | 0.008879 |
| 15 | 0.009590 | 0.007103 | 0.003965 |
| 20 | 0.005467 | 0.003267 | 0.000946 |
| 25 | 0.002544 | 0.001676 | 0.000567 |
| 30 | 0.001200 | 0.001300 | 0.000681 |
| 35 | 0.000600 | 0.000650 | 0.000341 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### Public Agency Miscellaneous (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.180896 | 0.172860 | 0.162815 |
| 5 | 0.049494 | 0.042104 | 0.032866 |
| 10 | 0.012030 | 0.009881 | 0.007194 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### Public Agency Miscellaneous (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.175687 | 0.160002 | 0.140395 |
| 5 | 0.043208 | 0.034692 | 0.024047 |
| 10 | 0.009587 | 0.007390 | 0.004644 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### Public Agency Fire (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.143018 | 0.143018 | 0.143018 |
| 5 | 0.021534 | 0.021534 | 0.021534 |
| 10 | 0.000000 | 0.000000 | 0.000000 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### Public Agency Fire (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.111166 | 0.111166 | 0.111166 |
| 5 | 0.008717 | 0.008717 | 0.008717 |
| 10 | 0.001687 | 0.001687 | 0.001687 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### Public Agency Police (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.130068 | 0.130068 | 0.130068 |
| 5 | 0.010083 | 0.010083 | 0.010083 |
| 10 | 0.003370 | 0.003370 | 0.003370 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### Public Agency Police (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.129786 | 0.129786 | 0.129786 |
| 5 | 0.009757 | 0.009757 | 0.009757 |
| 10 | 0.003141 | 0.003141 | 0.003141 |
| 15 | 0.000000 | 0.000000 | 0.000000 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Refund (continued)

### Public Agency CPO (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.130151 | 0.130151 | 0.130151 |
| 5 | 0.023009 | 0.023009 | 0.023009 |
| 10 | 0.003459 | 0.003459 | 0.003459 |
| 15 | 0.002770 | 0.002770 | 0.002770 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### Public Agency CPO (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.107742 | 0.107742 | 0.107742 |
| 5 | 0.016320 | 0.016320 | 0.016320 |
| 10 | 0.003930 | 0.003930 | 0.003930 |
| 15 | 0.001965 | 0.001965 | 0.001965 |
| 20 | 0.000000 | 0.000000 | 0.000000 |
| 25 | 0.000000 | 0.000000 | 0.000000 |
| 30 | 0.000000 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

State Miscellaneous Tier 2 termination and refunds rates use Tier 1 rates.

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits

### State Miscellaneous Tier 1 (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.045822 | 0.040836 | 0.030232 |
| 10 | 0.029102 | 0.025604 | 0.017154 |
| 15 | 0.017890 | 0.014514 | 0.009159 |
| 20 | 0.011641 | 0.008681 | 0.000000 |
| 25 | 0.006542 | 0.005029 | 0.000000 |
| 30 | 0.003242 | 0.000000 | 0.000000 |
| 35 | 0.002031 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### State Miscellaneous Tier 1 (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.039517 | 0.035509 | 0.027184 |
| 10 | 0.024231 | 0.022232 | 0.015367 |
| 15 | 0.015317 | 0.013035 | 0.007688 |
| 20 | 0.010094 | 0.007641 | 0.000000 |
| 25 | 0.005105 | 0.004375 | 0.000000 |
| 30 | 0.002636 | 0.000000 | 0.000000 |
| 35 | 0.002292 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

State Miscellaneous Tier 2 termination and refunds rates use Tier 1 rates.

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

### State Industrial (Male and Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.025079 | 0.025079 | 0.025079 |
| 10 | 0.018813 | 0.018813 | 0.018813 |
| 15 | 0.014114 | 0.014114 | 0.014114 |
| 20 | 0.010588 | 0.010588 | 0.000000 |
| 25 | 0.007943 | 0.007943 | 0.000000 |
| 30 | 0.005958 | 0.000000 | 0.000000 |
| 35 | 0.003375 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

***State Safety (Female)**

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.030058 | 0.030058 | 0.030058 |
| 10 | 0.022537 | 0.022537 | 0.022537 |
| 15 | 0.016897 | 0.016897 | 0.000000 |
| 20 | 0.012669 | 0.012669 | 0.000000 |
| 25 | 0.009499 | 0.000000 | 0.000000 |
| 30 | 0.007122 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

***State Safety (Male)**

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.022843 | 0.022843 | 0.022843 |
| 10 | 0.016805 | 0.016805 | 0.016805 |
| 15 | 0.012363 | 0.012363 | 0.000000 |
| 20 | 0.009095 | 0.009095 | 0.000000 |
| 25 | 0.006691 | 0.000000 | 0.000000 |
| 30 | 0.004922 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

### State POFF (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.019667 | 0.019667 | 0.019667 |
| 10 | 0.013631 | 0.013631 | 0.013631 |
| 15 | 0.009448 | 0.009448 | 0.000000 |
| 20 | 0.006549 | 0.006549 | 0.000000 |
| 25 | 0.004539 | 0.000000 | 0.000000 |
| 30 | 0.003146 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### *State POFF (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.011093 | 0.011093 | 0.011093 |
| 10 | 0.008953 | 0.008953 | 0.008953 |
| 15 | 0.006994 | 0.006994 | 0.000000 |
| 20 | 0.005218 | 0.005218 | 0.000000 |
| 25 | 0.003624 | 0.000000 | 0.000000 |
| 30 | 0.002212 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

### State CHP (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.009788 | 0.009788 | 0.009788 |
| 10 | 0.006997 | 0.006997 | 0.006997 |
| 15 | 0.005002 | 0.005002 | 0.000000 |
| 20 | 0.003576 | 0.003576 | 0.000000 |
| 25 | 0.002557 | 0.000000 | 0.000000 |
| 30 | 0.000977 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### State CHP (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.008511 | 0.008511 | 0.008511 |
| 10 | 0.006085 | 0.006085 | 0.006085 |
| 15 | 0.004350 | 0.004350 | 0.000000 |
| 20 | 0.003110 | 0.003110 | 0.000000 |
| 25 | 0.002223 | 0.000000 | 0.000000 |
| 30 | 0.000850 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

### School Miscellaneous (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.049429 | 0.041189 | 0.028542 |
| 10 | 0.043797 | 0.035277 | 0.024088 |
| 15 | 0.028056 | 0.023355 | 0.015678 |
| 20 | 0.019827 | 0.015561 | 0.000000 |
| 25 | 0.013432 | 0.010665 | 0.000000 |
| 30 | 0.007386 | 0.000000 | 0.000000 |
| 35 | 0.004954 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### School Miscellaneous (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.038499 | 0.036429 | 0.029690 |
| 10 | 0.032619 | 0.028115 | 0.019937 |
| 15 | 0.022158 | 0.018931 | 0.012839 |
| 20 | 0.016241 | 0.012466 | 0.000000 |
| 25 | 0.009434 | 0.007896 | 0.000000 |
| 30 | 0.006133 | 0.000000 | 0.000000 |
| 35 | 0.003745 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

### Public Agency Miscellaneous (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.050501 | 0.044675 | 0.037518 |
| 10 | 0.034811 | 0.032573 | 0.023964 |
| 15 | 0.025110 | 0.021684 | 0.013979 |
| 20 | 0.018340 | 0.013781 | 0.000000 |
| 25 | 0.011210 | 0.008062 | 0.000000 |
| 30 | 0.005950 | 0.000000 | 0.000000 |
| 35 | 0.004781 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### Public Agency Miscellaneous (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.039334 | 0.037617 | 0.031665 |
| 10 | 0.027041 | 0.025635 | 0.019943 |
| 15 | 0.018664 | 0.017158 | 0.012481 |
| 20 | 0.014661 | 0.011469 | 0.000000 |
| 25 | 0.008559 | 0.006878 | 0.000000 |
| 30 | 0.005433 | 0.000000 | 0.000000 |
| 35 | 0.003506 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

***Public Agency Fire (Female)**

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.022351 | 0.022351 | 0.022351 |
| 10 | 0.016399 | 0.016399 | 0.016399 |
| 15 | 0.012032 | 0.012032 | 0.000000 |
| 20 | 0.008827 | 0.008827 | 0.000000 |
| 25 | 0.006108 | 0.000000 | 0.000000 |
| 30 | 0.003054 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

***Public Agency Fire (Male)**

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.008940 | 0.008940 | 0.008940 |
| 10 | 0.006559 | 0.006559 | 0.006559 |
| 15 | 0.004813 | 0.004813 | 0.000000 |
| 20 | 0.003531 | 0.003531 | 0.000000 |
| 25 | 0.002443 | 0.000000 | 0.000000 |
| 30 | 0.001222 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

### Public Agency Police (Female)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.025681 | 0.025681 | 0.025681 |
| 10 | 0.018374 | 0.018374 | 0.018374 |
| 15 | 0.013146 | 0.013146 | 0.000000 |
| 20 | 0.009405 | 0.009405 | 0.000000 |
| 25 | 0.006729 | 0.000000 | 0.000000 |
| 30 | 0.003364 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

### *Public Agency Police (Male)

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.015566 | 0.015566 | 0.015566 |
| 10 | 0.011329 | 0.011329 | 0.011329 |
| 15 | 0.008246 | 0.008246 | 0.000000 |
| 20 | 0.006002 | 0.006002 | 0.000000 |
| 25 | 0.004174 | 0.000000 | 0.000000 |
| 30 | 0.002087 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Termination with Vested Benefits (continued)

***Public Agency CPO (Female)**

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.026560 | 0.026560 | 0.026560 |
| 10 | 0.018855 | 0.018855 | 0.018855 |
| 15 | 0.013385 | 0.013385 | 0.000000 |
| 20 | 0.009502 | 0.009502 | 0.000000 |
| 25 | 0.006267 | 0.000000 | 0.000000 |
| 30 | 0.003133 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

***Public Agency CPO (Male)**

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 5 | 0.017706 | 0.017706 | 0.017706 |
| 10 | 0.012570 | 0.012570 | 0.012570 |
| 15 | 0.008924 | 0.008924 | 0.000000 |
| 20 | 0.006335 | 0.006335 | 0.000000 |
| 25 | 0.004178 | 0.000000 | 0.000000 |
| 30 | 0.002089 | 0.000000 | 0.000000 |
| 35 | 0.000000 | 0.000000 | 0.000000 |
| 40 | 0.000000 | 0.000000 | 0.000000 |
| 45 | 0.000000 | 0.000000 | 0.000000 |
| 50 | 0.000000 | 0.000000 | 0.000000 |

# Appendix A - Summary of Proposed Rates

## Pre-Retirement Base Mortality Rates

### Miscellaneous Non-Duty Death

| Age | Female | Male |
|---|---|---|
| 20 | 0.00014 | 0.00039 |
| 30 | 0.00019 | 0.00044 |
| 40 | 0.00039 | 0.00075 |
| 50 | 0.00081 | 0.00134 |
| 60 | 0.00179 | 0.00287 |
| 70 | 0.00404 | 0.00594 |

### Safety Non-Duty Death

| Age | Female | Male |
|---|---|---|
| 20 | 0.00014 | 0.00038 |
| 30 | 0.00025 | 0.00042 |
| 40 | 0.00042 | 0.00055 |
| 50 | 0.00073 | 0.00092 |
| 60 | 0.00151 | 0.00221 |
| 70 | 0.00358 | 0.00606 |

# Appendix A - Summary of Proposed Rates

## Pre-Retirement Mortality Rates (continued)

### Miscellaneous Duty Death

| Age | Female | Male |
|---|---|---|
| 20 | 0.00000 | 0.00000 |
| 30 | 0.00000 | 0.00000 |
| 40 | 0.00000 | 0.00001 |
| 50 | 0.00001 | 0.00001 |
| 60 | 0.00002 | 0.00003 |
| 70 | 0.00004 | 0.00006 |

### Safety Duty Death

| Age | Female | Male |
|---|---|---|
| 20 | 0.00002 | 0.00004 |
| 30 | 0.00003 | 0.00005 |
| 40 | 0.00005 | 0.00006 |
| 50 | 0.00008 | 0.00010 |
| 60 | 0.00017 | 0.00025 |
| 70 | 0.00040 | 0.00067 |
| 80 | 0.00157 | 0.00225 |

# Appendix A - Summary of Proposed Rates

## Post-Retirement Mortality Rates

### Healthy Post-Ret Mortality

| Age | Female | Male |
|---|---|---|
| 20 | 0.00014 | 0.00039 |
| 25 | 0.00013 | 0.00033 |
| 30 | 0.00019 | 0.00044 |
| 35 | 0.00029 | 0.00058 |
| 40 | 0.00039 | 0.00075 |
| 45 | 0.00054 | 0.00093 |
| 50 | 0.00197 | 0.00266 |
| 55 | 0.00328 | 0.00390 |
| 60 | 0.00458 | 0.00578 |
| 65 | 0.00608 | 0.00857 |
| 70 | 0.00989 | 0.01333 |
| 75 | 0.01777 | 0.02391 |
| 80 | 0.03401 | 0.04371 |
| 85 | 0.06166 | 0.08274 |
| 90 | 0.11086 | 0.14539 |
| 95 | 0.20364 | 0.24664 |
| 100 | 0.31582 | 0.36198 |
| 105 | 0.44679 | 0.52229 |
| 110 | 1.00000 | 1.00000 |
| 115 | 1.00000 | 1.00000 |
| 120 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Post-Retirement Mortality Rates (continued)

### Non-Duty Disabled Post-Ret Mortality

| Age | Female | Male |
|---|---|---|
| 20 | 0.00240 | 0.00411 |
| 25 | 0.00197 | 0.00346 |
| 30 | 0.00319 | 0.00482 |
| 35 | 0.00520 | 0.00644 |
| 40 | 0.00729 | 0.00807 |
| 45 | 0.01001 | 0.01114 |
| 50 | 0.01424 | 0.01701 |
| 55 | 0.01753 | 0.02210 |
| 60 | 0.01983 | 0.02708 |
| 65 | 0.02252 | 0.03334 |
| 70 | 0.02854 | 0.04001 |
| 75 | 0.04099 | 0.05376 |
| 80 | 0.06051 | 0.07936 |
| 85 | 0.09312 | 0.11561 |
| 90 | 0.14301 | 0.16608 |
| 95 | 0.20364 | 0.24664 |
| 100 | 0.31582 | 0.36198 |
| 105 | 0.44679 | 0.52229 |
| 110 | 1.00000 | 1.00000 |
| 115 | 1.00000 | 1.00000 |
| 120 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Post-Retirement Mortality Rates (continued)

### Duty Disabled Post-Ret Mortality

| Age | Female | Male |
|---|---|---|
| 20 | 0.00055 | 0.00146 |
| 25 | 0.00072 | 0.00159 |
| 30 | 0.00105 | 0.00194 |
| 35 | 0.00141 | 0.00223 |
| 40 | 0.00176 | 0.00252 |
| 45 | 0.00222 | 0.00313 |
| 50 | 0.00308 | 0.00430 |
| 55 | 0.00556 | 0.00621 |
| 60 | 0.00878 | 0.00944 |
| 65 | 0.01176 | 0.01394 |
| 70 | 0.01819 | 0.02163 |
| 75 | 0.03078 | 0.03446 |
| 80 | 0.05121 | 0.05853 |
| 85 | 0.07977 | 0.10137 |
| 90 | 0.12331 | 0.16584 |
| 95 | 0.20364 | 0.24664 |
| 100 | 0.31582 | 0.36198 |
| 105 | 0.44679 | 0.52229 |
| 110 | 1.00000 | 1.00000 |
| 115 | 1.00000 | 1.00000 |
| 120 | 1.00000 | 1.00000 |

# Appendix A - Summary of Proposed Rates

## Merit Rates

The following tables list the proposed Seniority, Merit, and Promotion increases. 3.00% of wage inflation assumption will be added to become salary increases.

### State Miscellaneous

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.068637 | 0.045671 | 0.039567 |
| 3 | 0.055979 | 0.037419 | 0.029027 |
| 5 | 0.048865 | 0.032764 | 0.023611 |
| 10 | 0.031017 | 0.021547 | 0.013469 |
| 15 | 0.020906 | 0.013680 | 0.009042 |
| 20 | 0.016006 | 0.010818 | 0.006706 |
| 25 | 0.012254 | 0.008555 | 0.004974 |
| 30 | 0.009382 | 0.006765 | 0.003689 |

### State Industrial

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.062324 | 0.058760 | 0.049639 |
| 3 | 0.050798 | 0.043182 | 0.032859 |
| 5 | 0.044324 | 0.035166 | 0.024958 |
| 10 | 0.029509 | 0.017342 | 0.009302 |
| 15 | 0.019009 | 0.011464 | 0.005706 |
| 20 | 0.012457 | 0.007578 | 0.004586 |
| 25 | 0.008163 | 0.005009 | 0.003687 |
| 30 | 0.005349 | 0.003311 | 0.002964 |

### State Safety

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.051236 | 0.051236 | 0.051236 |
| 3 | 0.034093 | 0.034093 | 0.034093 |
| 5 | 0.024675 | 0.024675 | 0.024675 |
| 10 | 0.012185 | 0.012185 | 0.012185 |
| 15 | 0.011826 | 0.011826 | 0.011826 |
| 20 | 0.011477 | 0.011477 | 0.011477 |
| 25 | 0.011138 | 0.011138 | 0.011138 |
| 30 | 0.010810 | 0.010810 | 0.010810 |

# Appendix A - Summary of Proposed Rates

## Merit Rates (continued)

### State POFF

| Service | Entry Age | | |
|---|---|---|---|
| | 20 | 30 | 40 |
| 0 | 0.112500 | 0.112500 | 0.112500 |
| 3 | 0.072884 | 0.072884 | 0.072884 |
| 5 | 0.047701 | 0.047701 | 0.047701 |
| 10 | 0.016529 | 0.016529 | 0.016529 |
| 15 | 0.012869 | 0.012869 | 0.012869 |
| 20 | 0.013388 | 0.013388 | 0.013388 |
| 25 | 0.013928 | 0.013928 | 0.013928 |
| 30 | 0.014489 | 0.014489 | 0.014489 |

### State CHP

| Service | Entry Age | | |
|---|---|---|---|
| | 20 | 30 | 40 |
| 0 | 0.127646 | 0.127646 | 0.127646 |
| 3 | 0.056410 | 0.056410 | 0.056410 |
| 5 | 0.028696 | 0.028696 | 0.028696 |
| 10 | 0.012367 | 0.012367 | 0.012367 |
| 15 | 0.014073 | 0.014073 | 0.014073 |
| 20 | 0.022500 | 0.022500 | 0.022500 |
| 25 | 0.020000 | 0.020000 | 0.020000 |
| 30 | 0.017500 | 0.017500 | 0.017500 |

### Schools Miscellaneous

| Service | Entry Age | | |
|---|---|---|---|
| | 20 | 30 | 40 |
| 0 | 0.000000 | 0.000000 | 0.000000 |
| 3 | 0.043125 | 0.036525 | 0.028181 |
| 5 | 0.036625 | 0.029025 | 0.020681 |
| 10 | 0.026877 | 0.017551 | 0.013621 |
| 15 | 0.020615 | 0.014407 | 0.010828 |
| 20 | 0.014790 | 0.010326 | 0.007951 |
| 25 | 0.011327 | 0.009215 | 0.006661 |
| 30 | 0.005397 | 0.005074 | 0.002571 |

# Appendix A - Summary of Proposed Rates

## Merit Rates (continued)

### Public Agency Miscellaneous

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.071547 | 0.057810 | 0.044324 |
| 3 | 0.051380 | 0.039055 | 0.027944 |
| 5 | 0.041203 | 0.030070 | 0.020545 |
| 10 | 0.023729 | 0.015641 | 0.009524 |
| 15 | 0.016585 | 0.010577 | 0.007570 |
| 20 | 0.012549 | 0.008292 | 0.004863 |
| 25 | 0.009495 | 0.006500 | 0.003123 |
| 30 | 0.007184 | 0.005096 | 0.002006 |

### Public Agency Fire

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.157425 | 0.155052 | 0.068200 |
| 3 | 0.077728 | 0.065107 | 0.036671 |
| 5 | 0.048556 | 0.036509 | 0.024249 |
| 10 | 0.020470 | 0.015289 | 0.008692 |
| 15 | 0.018166 | 0.013428 | 0.010211 |
| 20 | 0.016121 | 0.011793 | 0.011995 |
| 25 | 0.014306 | 0.010358 | 0.014092 |
| 30 | 0.012696 | 0.009097 | 0.016555 |

### Public Agency Police

| | Entry Age | | |
|---|---|---|---|
| Service | 20 | 30 | 40 |
| 0 | 0.122803 | 0.103024 | 0.062144 |
| 3 | 0.061463 | 0.049847 | 0.034601 |
| 5 | 0.038745 | 0.030721 | 0.023417 |
| 10 | 0.019361 | 0.016295 | 0.013362 |
| 15 | 0.018953 | 0.015021 | 0.012980 |
| 20 | 0.018554 | 0.013847 | 0.012609 |
| 25 | 0.018163 | 0.012765 | 0.012248 |
| 30 | 0.017780 | 0.011768 | 0.011898 |

# Appendix A - Summary of Proposed Rates

## Merit Rates (continued)

### Public Agency CPO

| Service | Entry Age | | |
|---|---|---|---|
| | 20 | 30 | 40 |
| 0 | 0.109570 | 0.098006 | 0.075409 |
| 3 | 0.059143 | 0.051110 | 0.036908 |
| 5 | 0.039208 | 0.033113 | 0.022922 |
| 10 | 0.016741 | 0.014200 | 0.007116 |
| 15 | 0.016315 | 0.012623 | 0.006634 |
| 20 | 0.015900 | 0.011220 | 0.006184 |
| 25 | 0.015495 | 0.009974 | 0.005765 |
| 30 | 0.015101 | 0.008866 | 0.005375 |

# Appendix B

## Summary Comparison of Assumptions

## Appendix B - Summary Comparison of Assumptions

**Industrial Disability Retirement**

**Non-Industrial Disability Rates**

**Post Retirement Mortality**

**Pre-Retirement Mortality**

**Merit Rates**

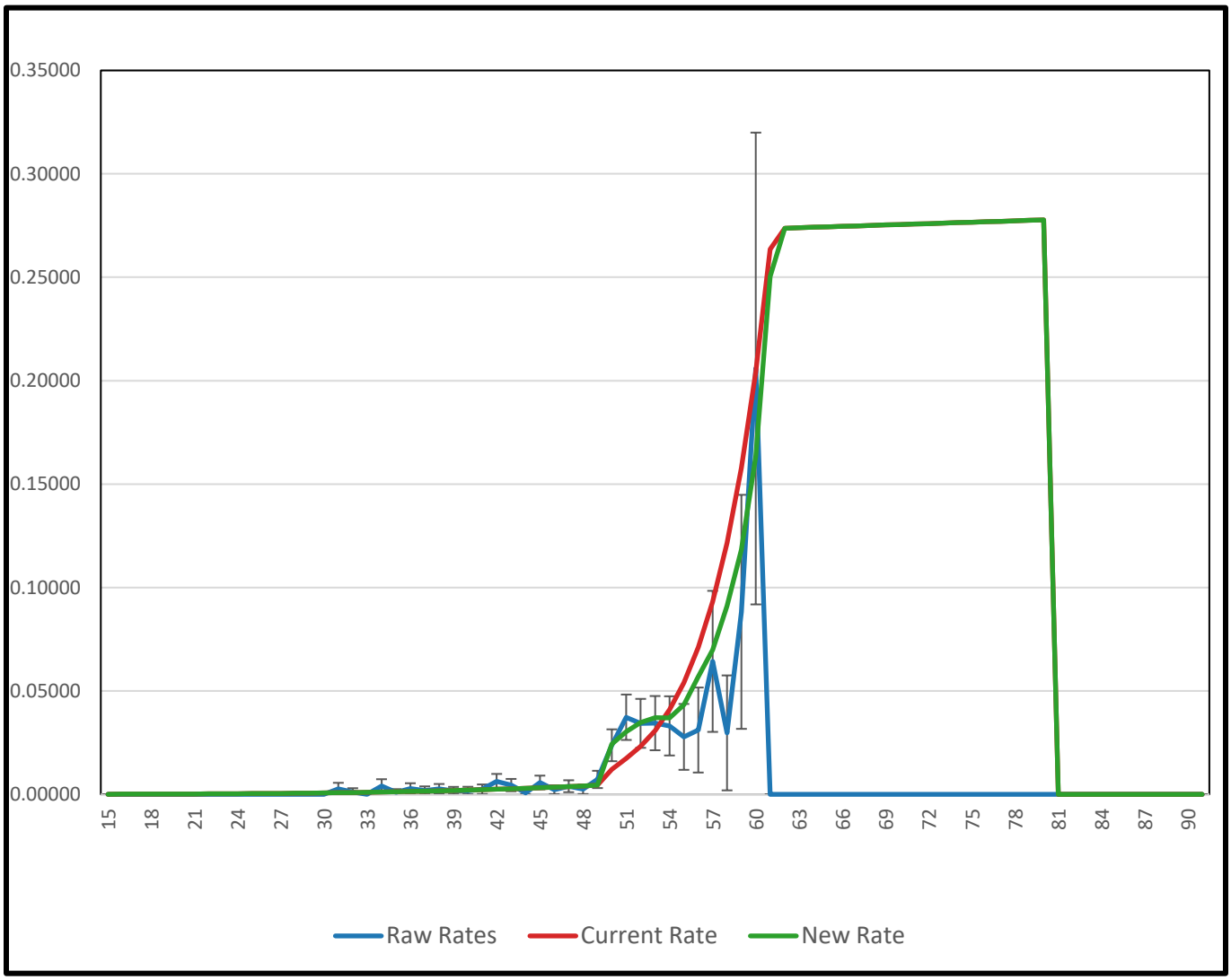
**Service Retirement**

**Term Refund**

**Terminated and Vested**

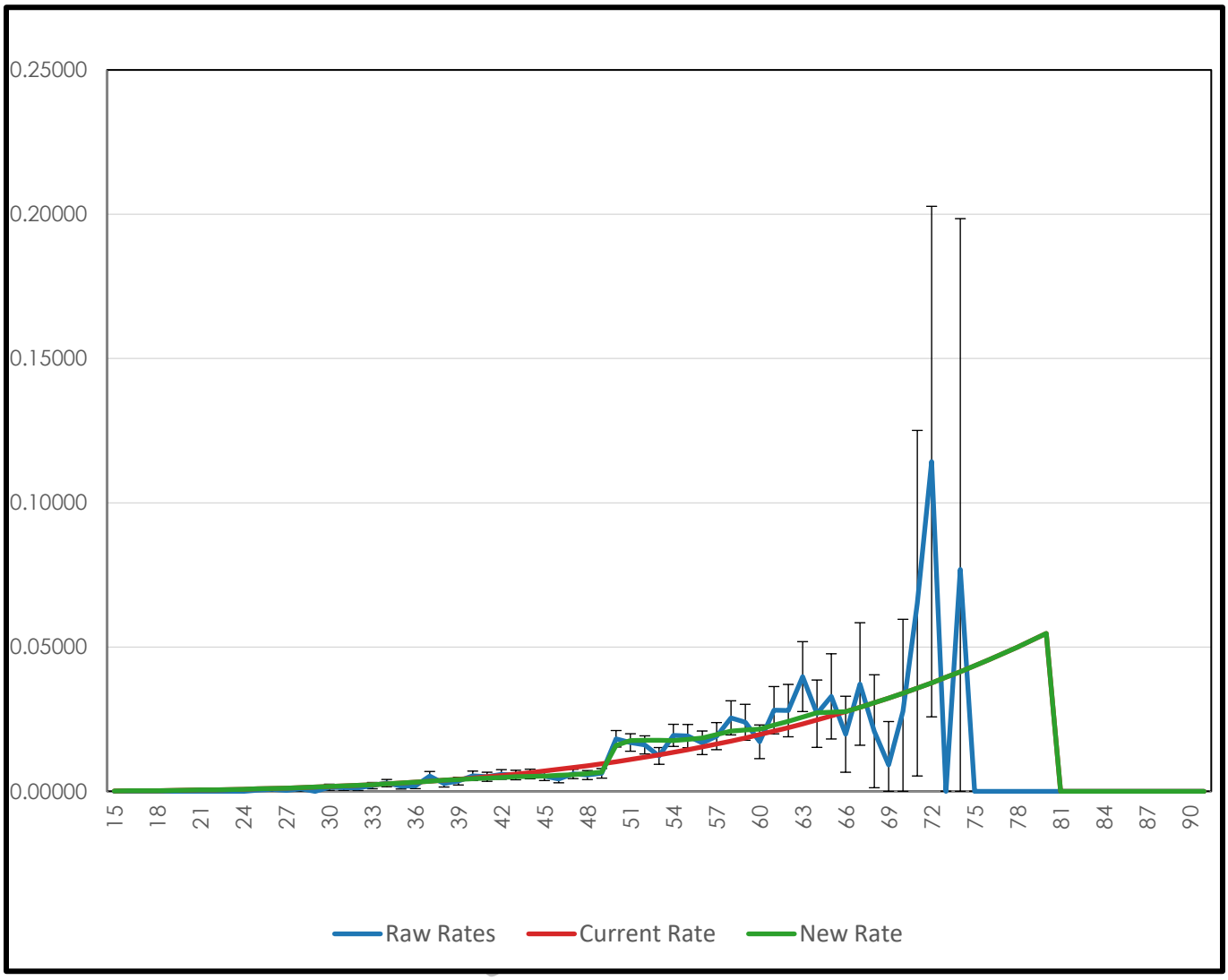
## Industrial Disability Retirement

### State CHP



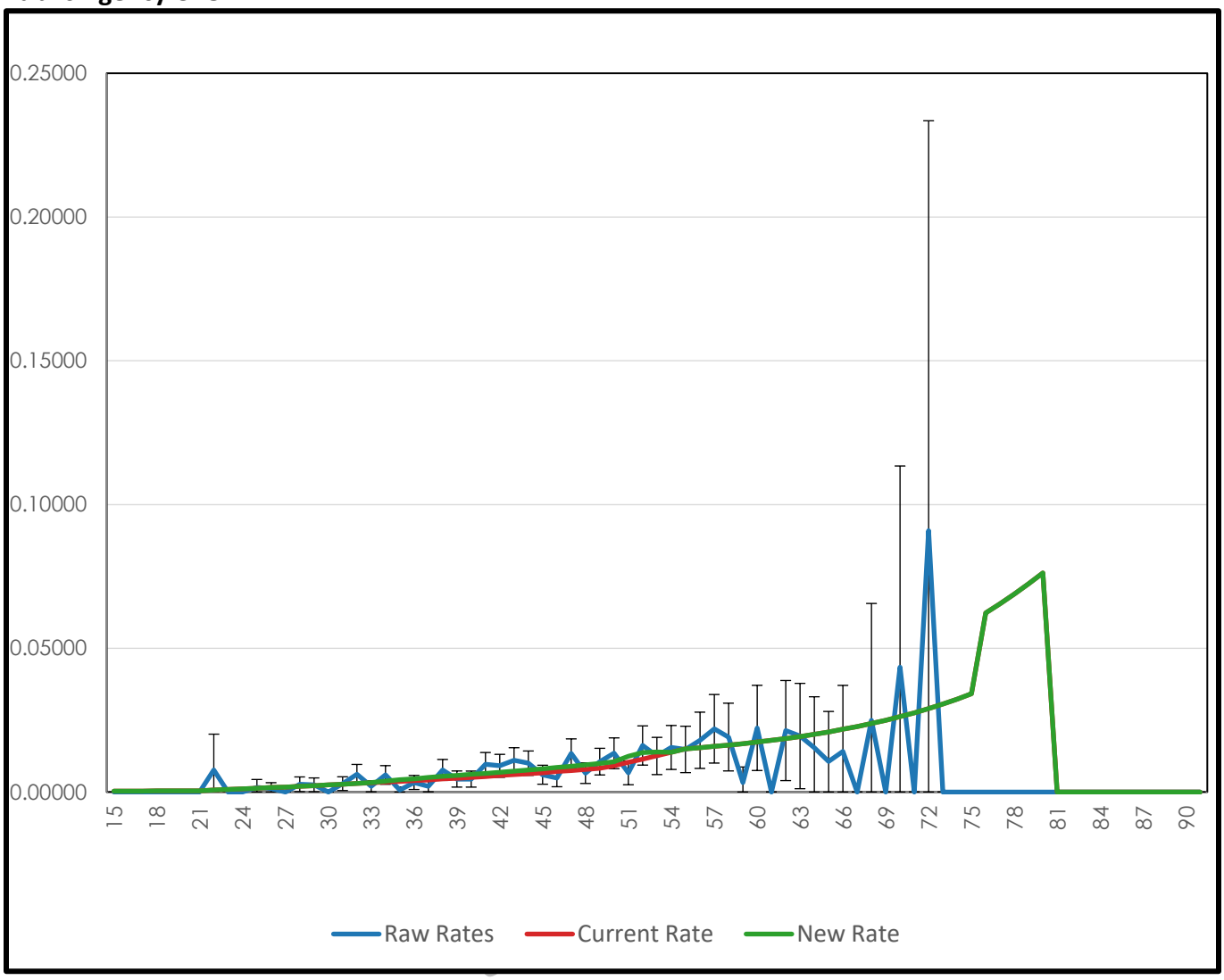
## Industrial Disability Retirement (continued)

### State POFF



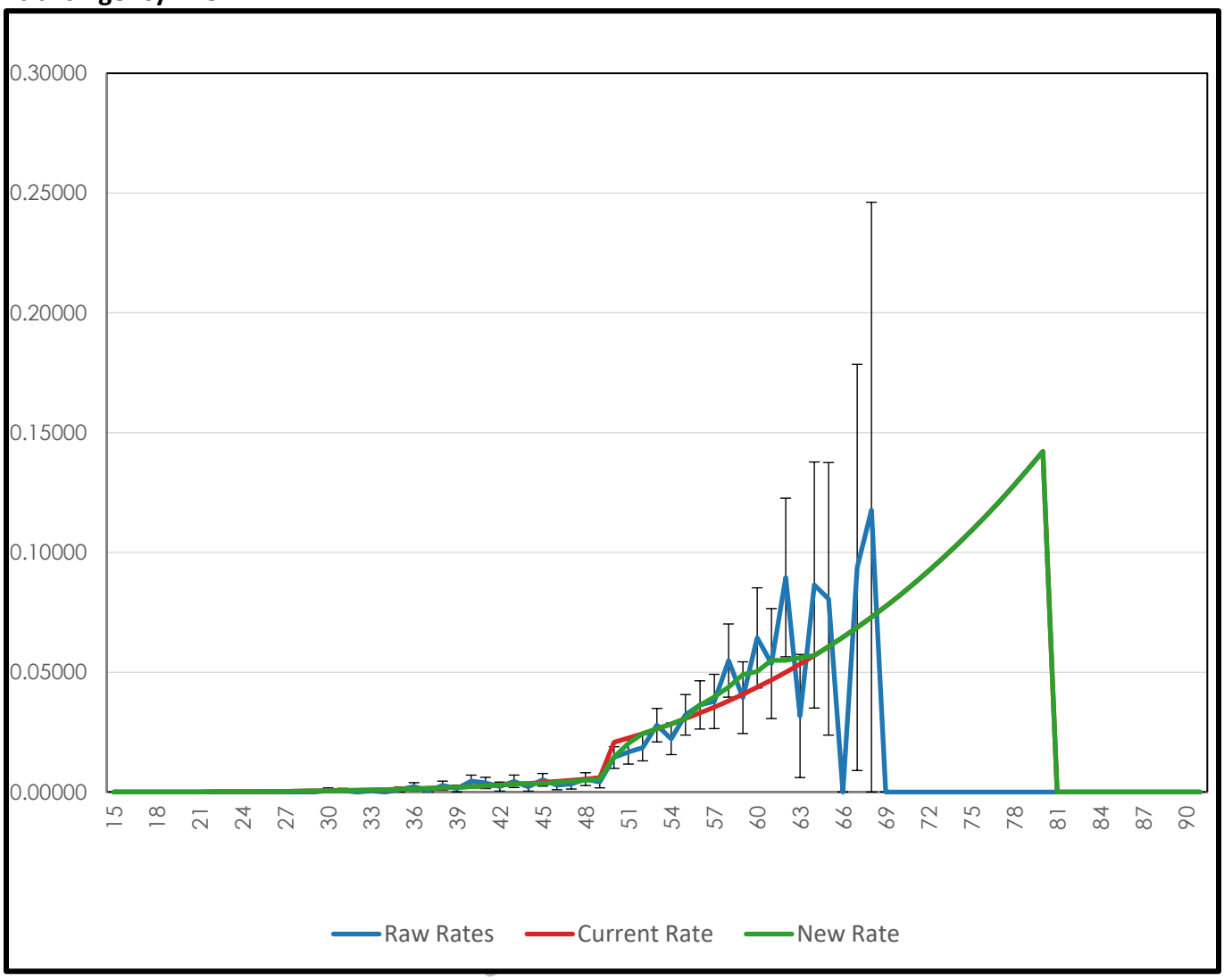
## Industrial Disability Retirement (continued)

### Public Agency CPO



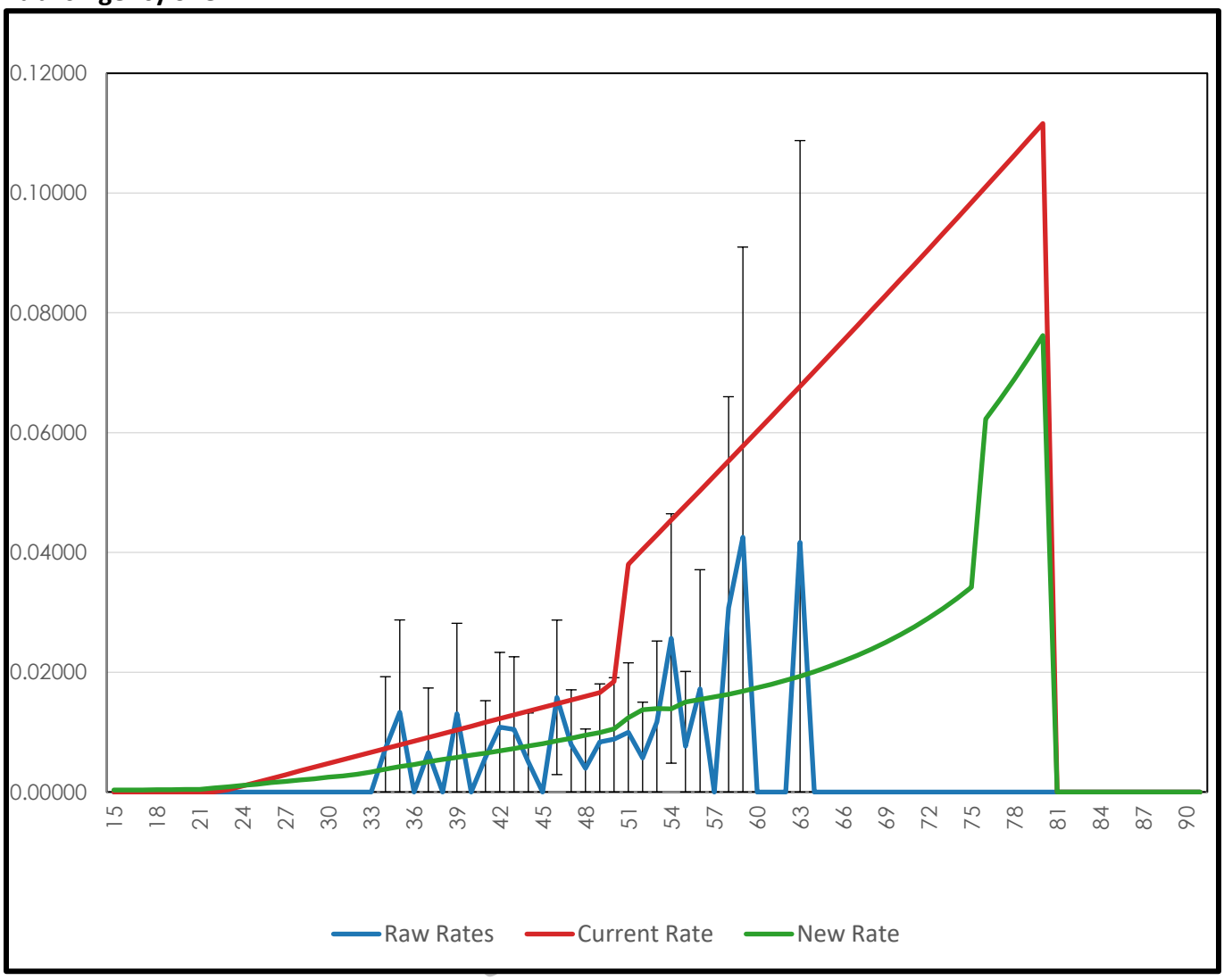
## Industrial Disability Retirement (continued)

### Public Agency Fire



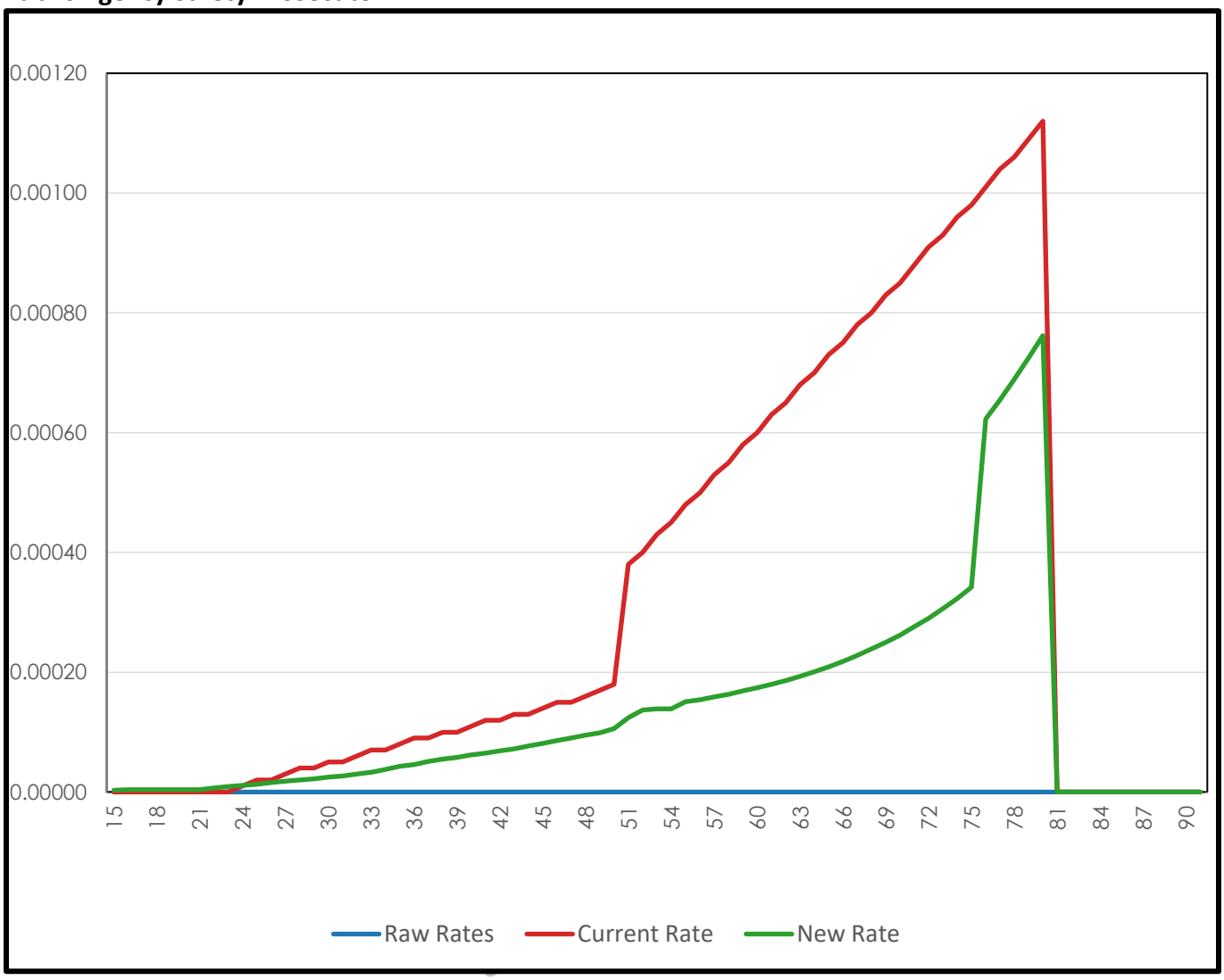
## Industrial Disability Retirement (continued)

### Public Agency Sheriff



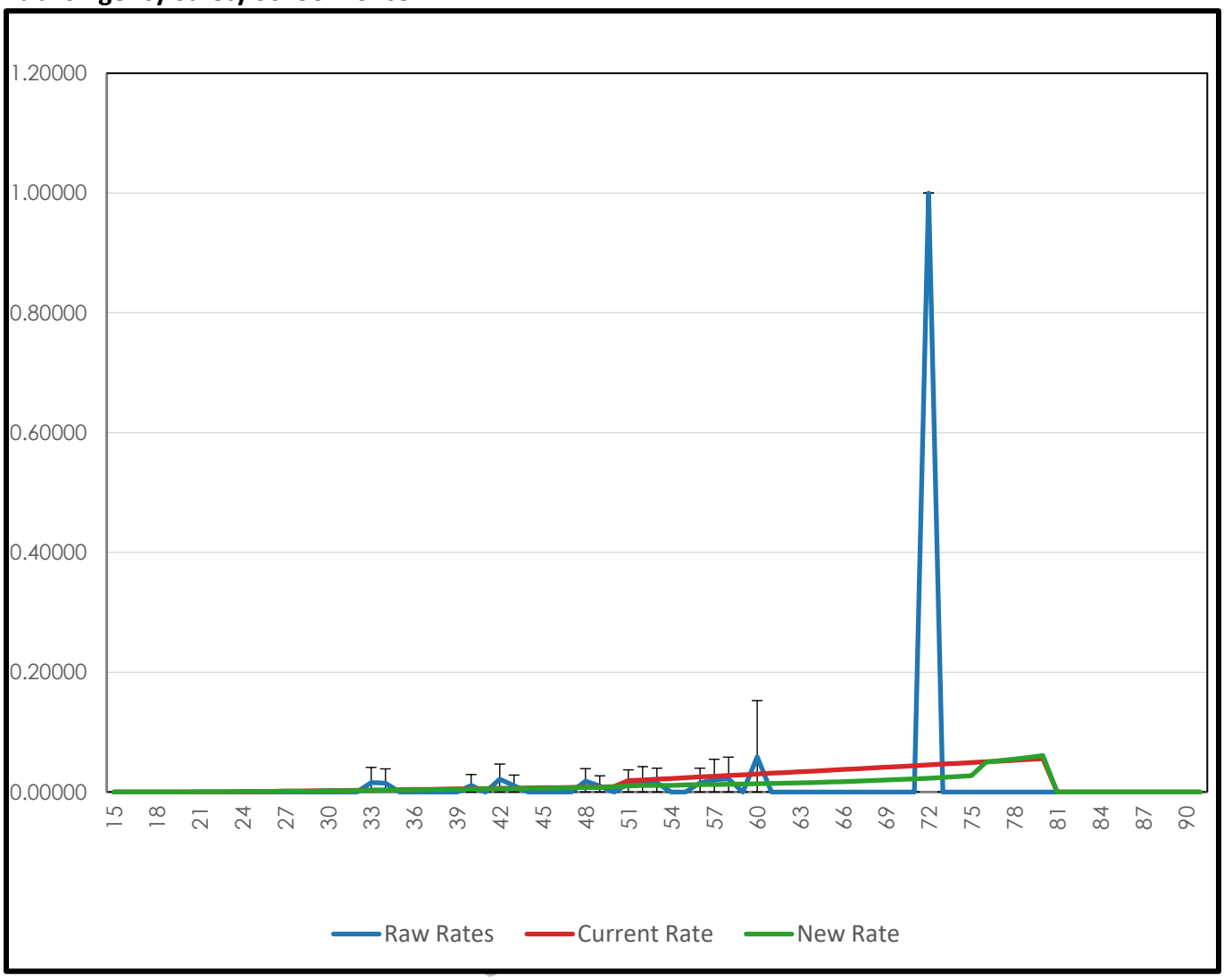
## Industrial Disability Retirement (continued)

### Public Agency Safety Prosecutor



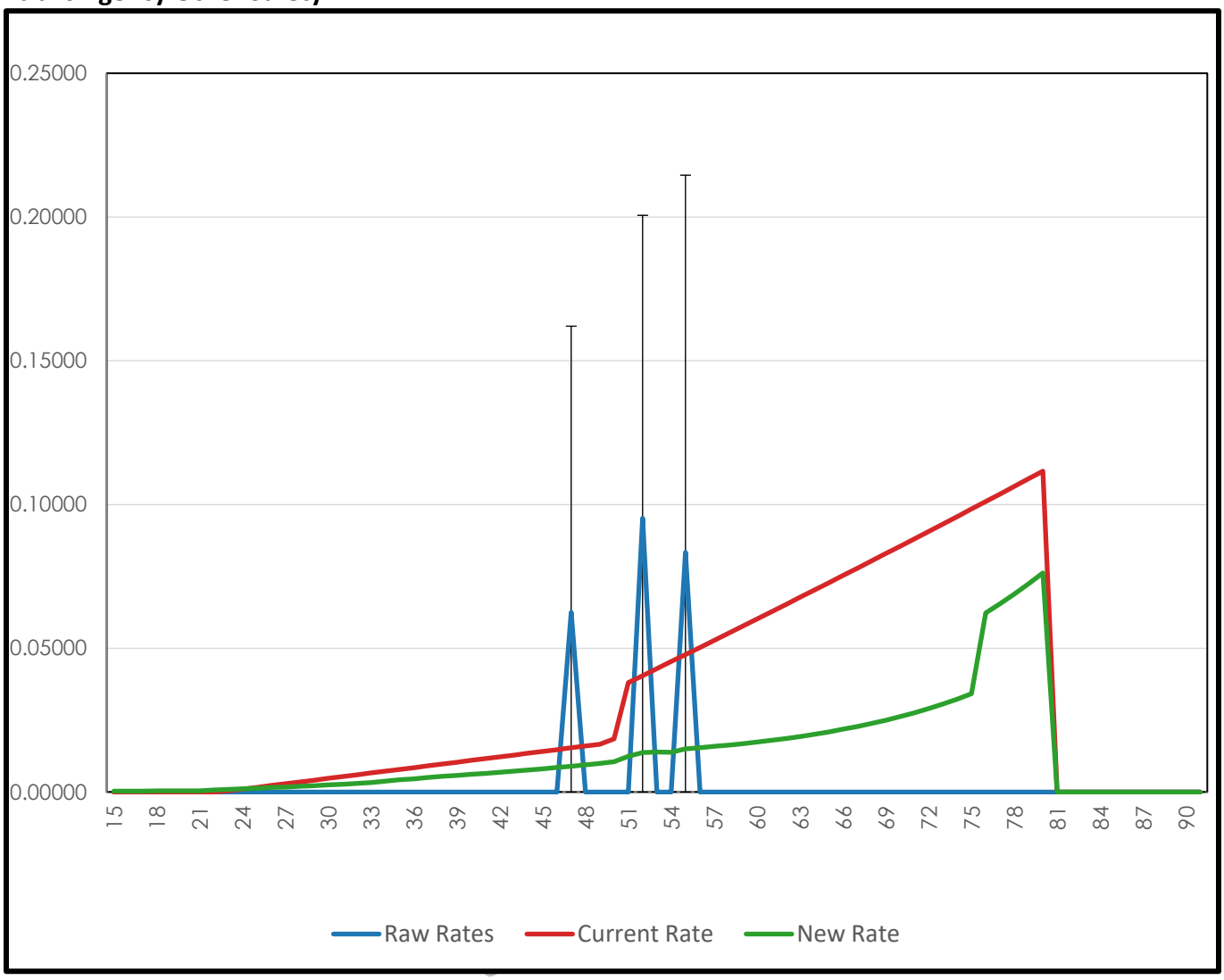
## Industrial Disability Retirement (continued)

### Public Agency Safety School Police



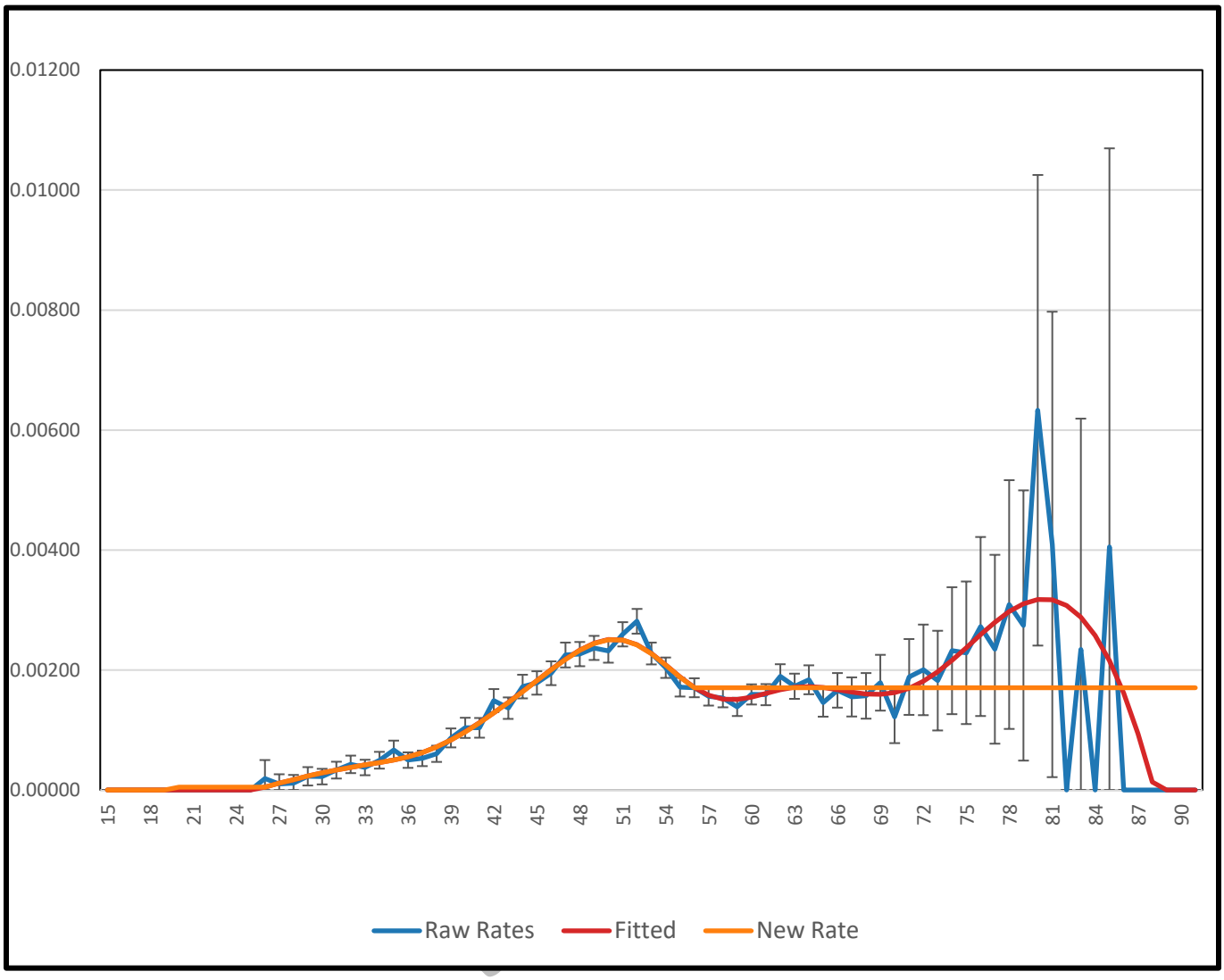
## Industrial Disability Retirement (continued)

### Public Agency Other Safety



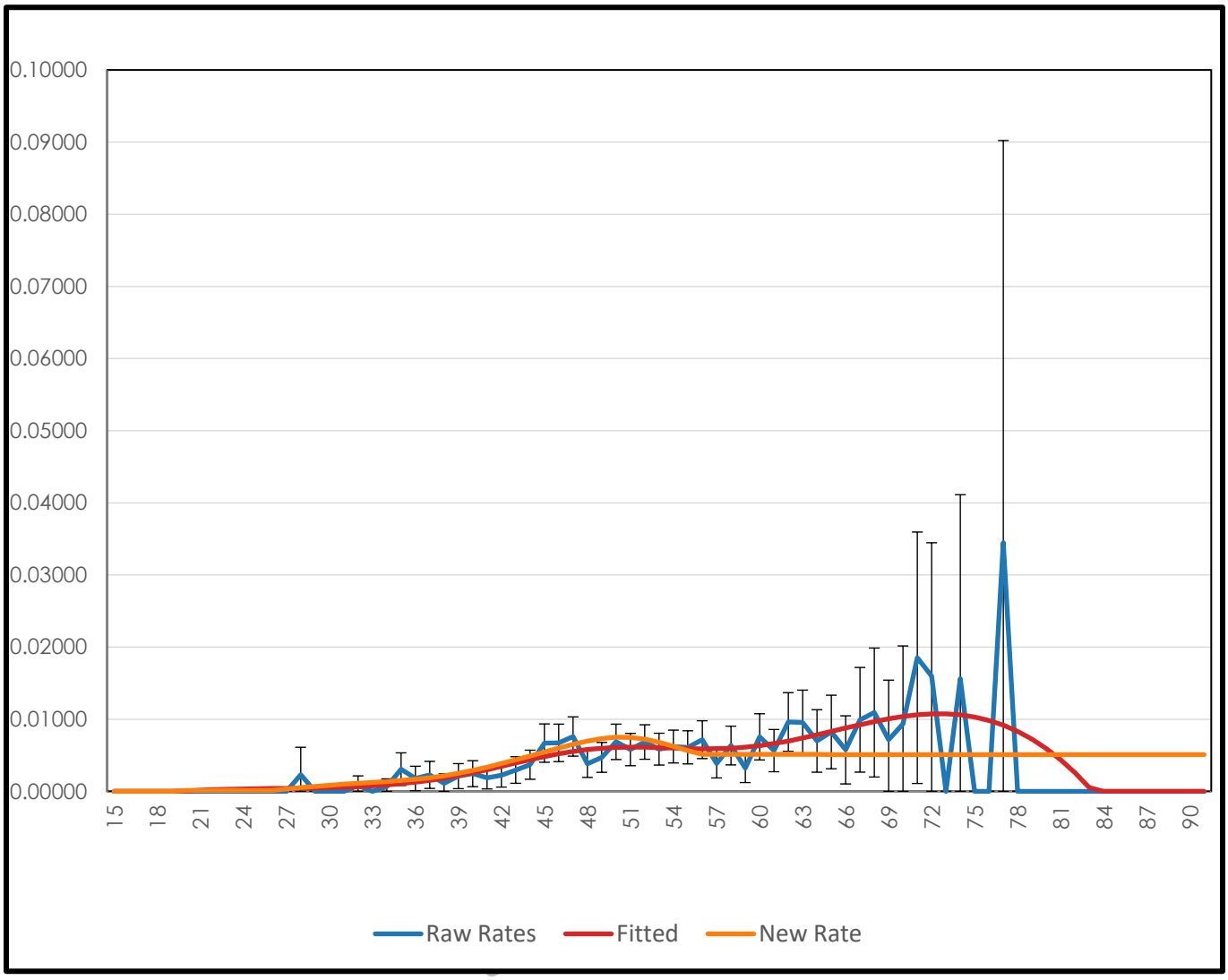
## Non-Industrial Disability Rates

### Miscellaneous All



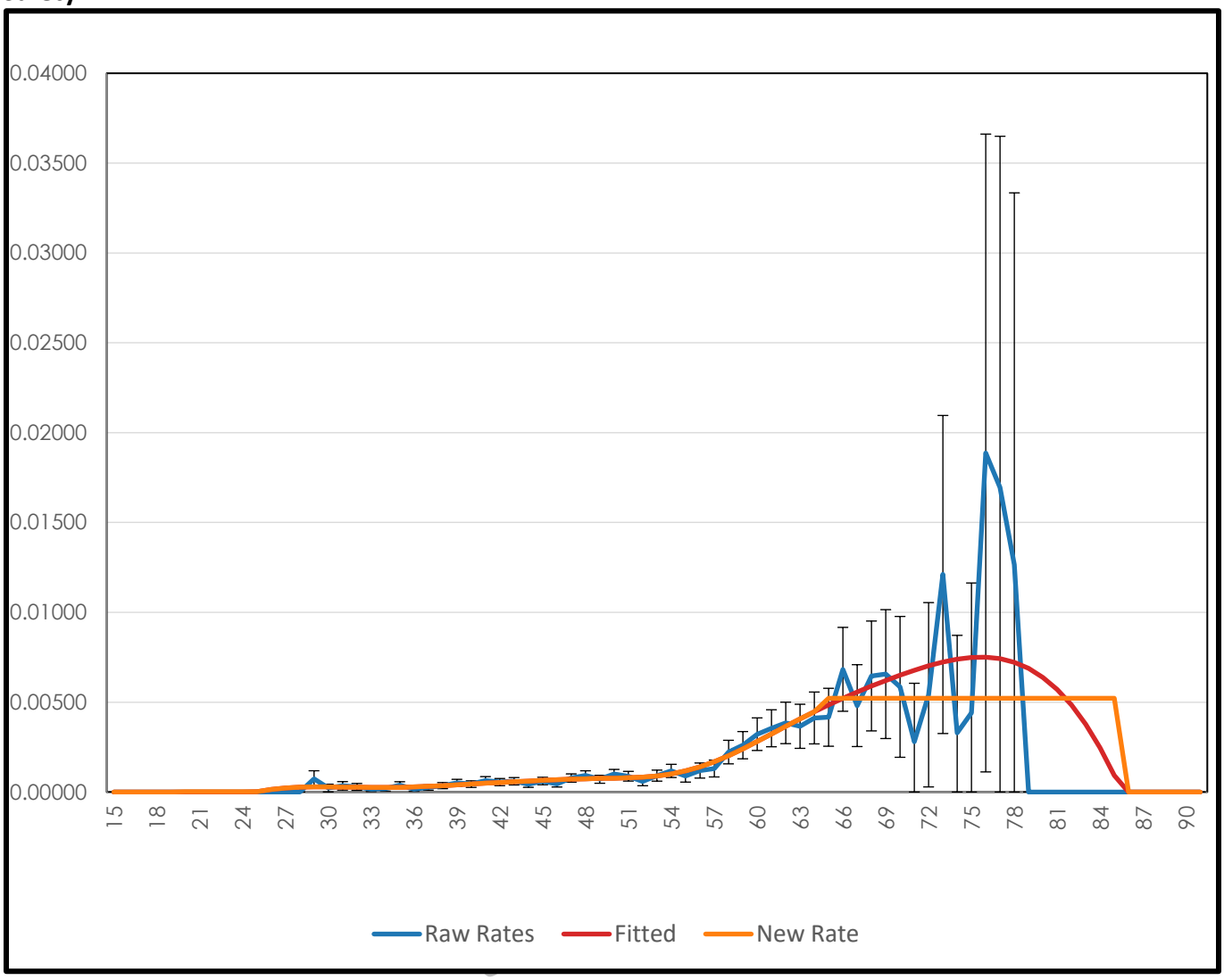
## Non-Industrial Disability Retirement (continued)

### State Industrial



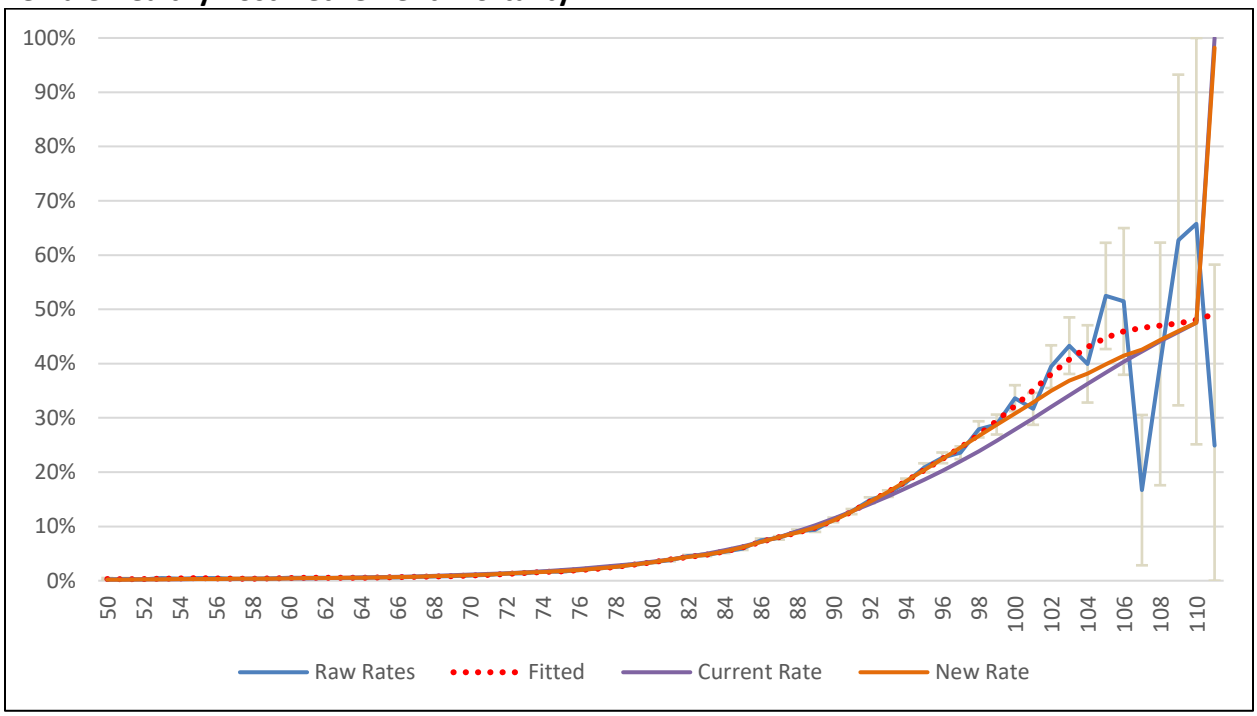
## Non-Industrial Disability Retirement (continued)

### Safety All



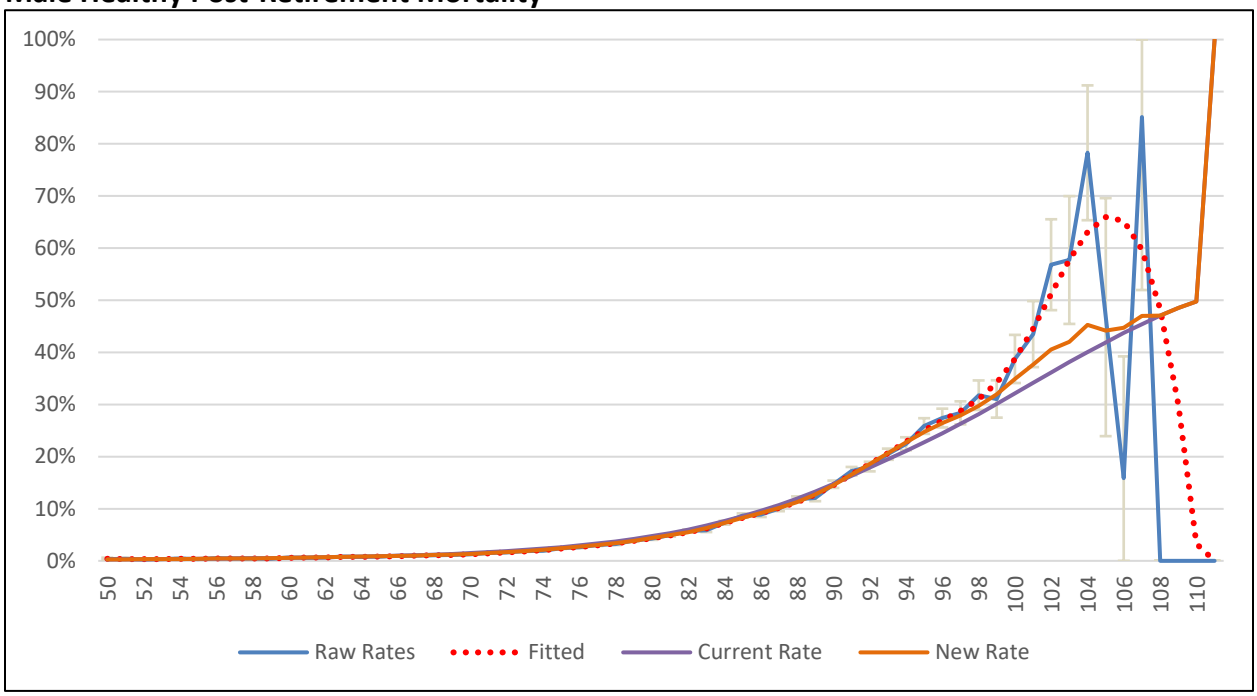
## Post Retirement Mortality

### Female Healthy Post-Retirement Mortality



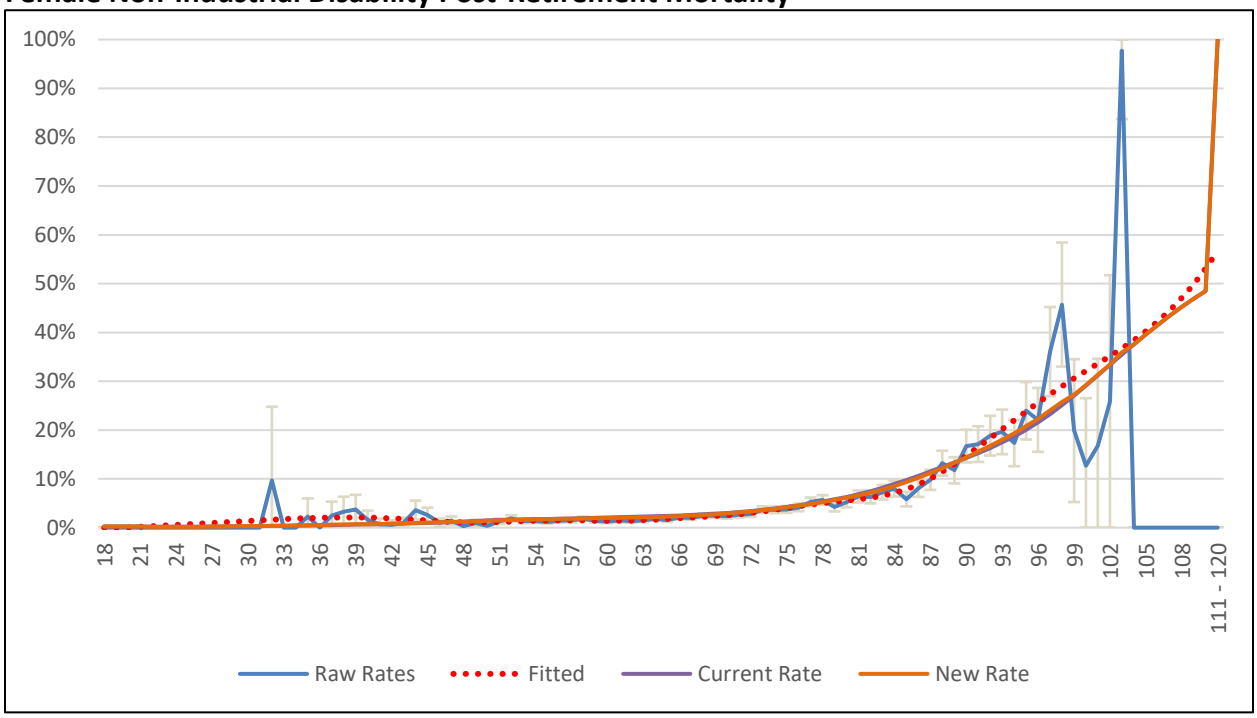
## Post-Retirement Mortality (continued)

### Male Healthy Post-Retirement Mortality



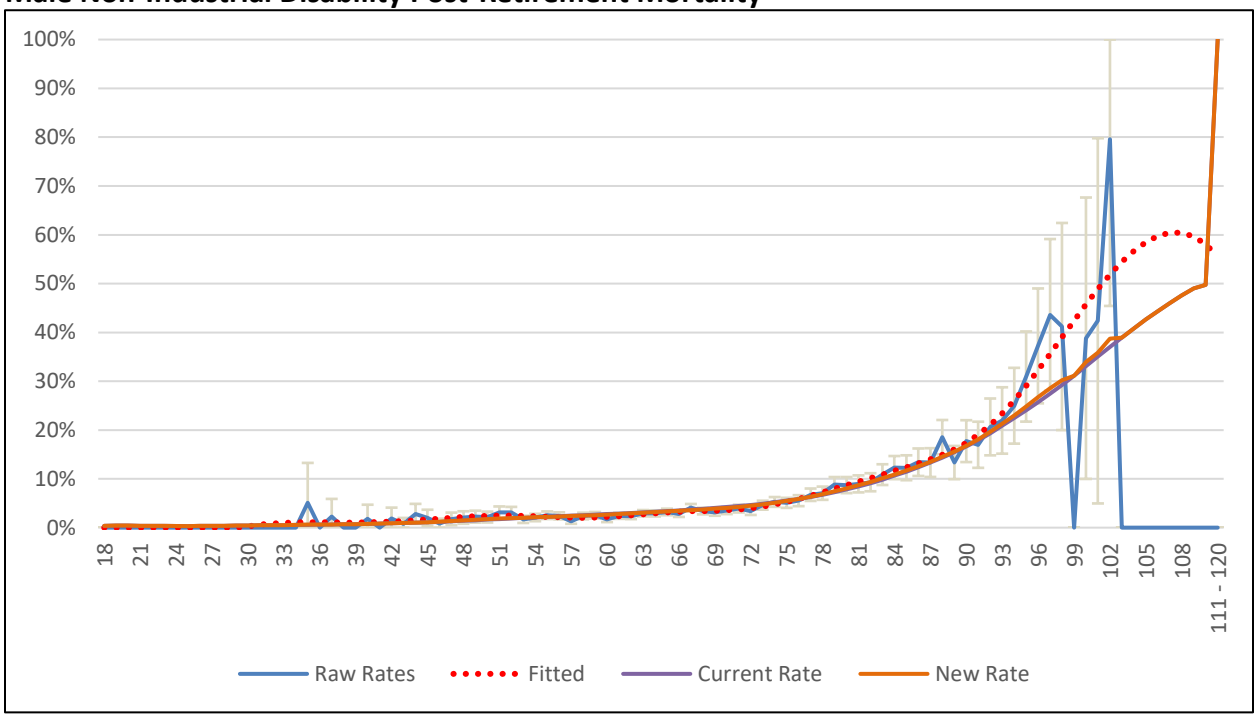
## Post-Retirement Mortality (continued)

### Female Non-Industrial Disability Post-Retirement Mortality

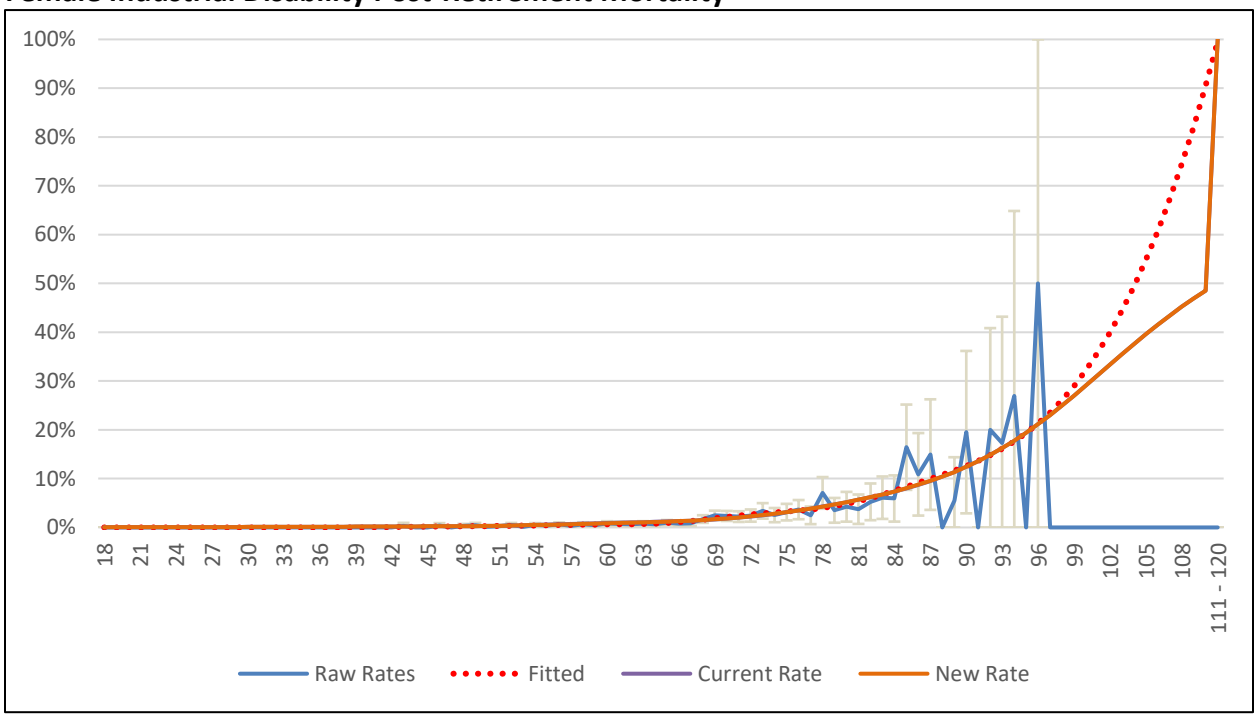


## Post-Retirement Mortality (continued)

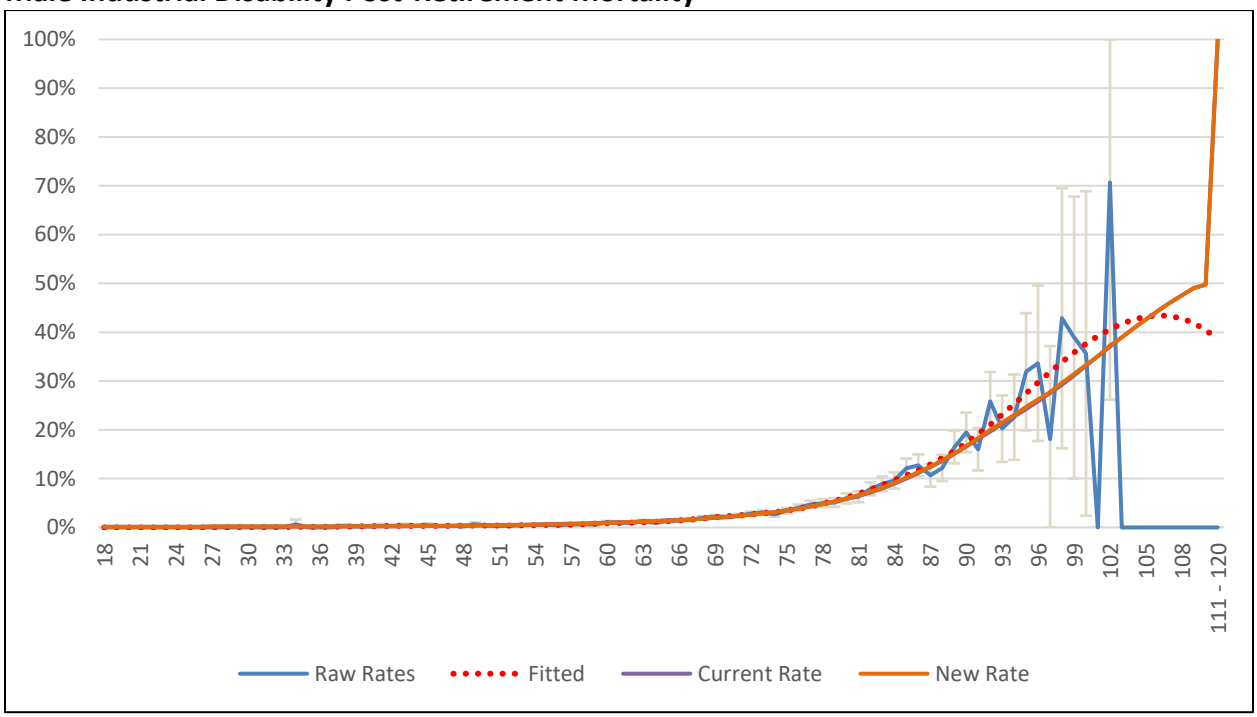
### Male Non-Industrial Disability Post-Retirement Mortality



**Female Industrial Disability Post-Retirement Mortality**

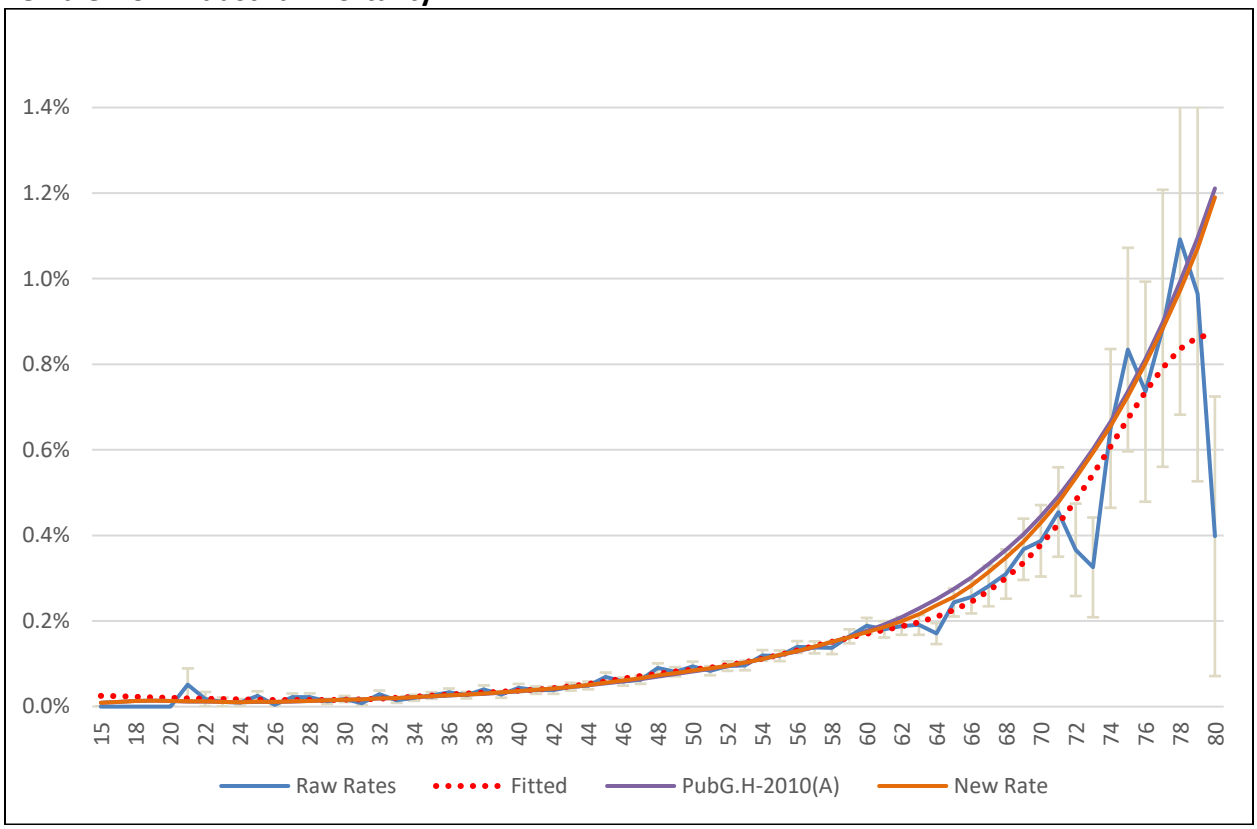


**Male Industrial Disability Post-Retirement Mortality**



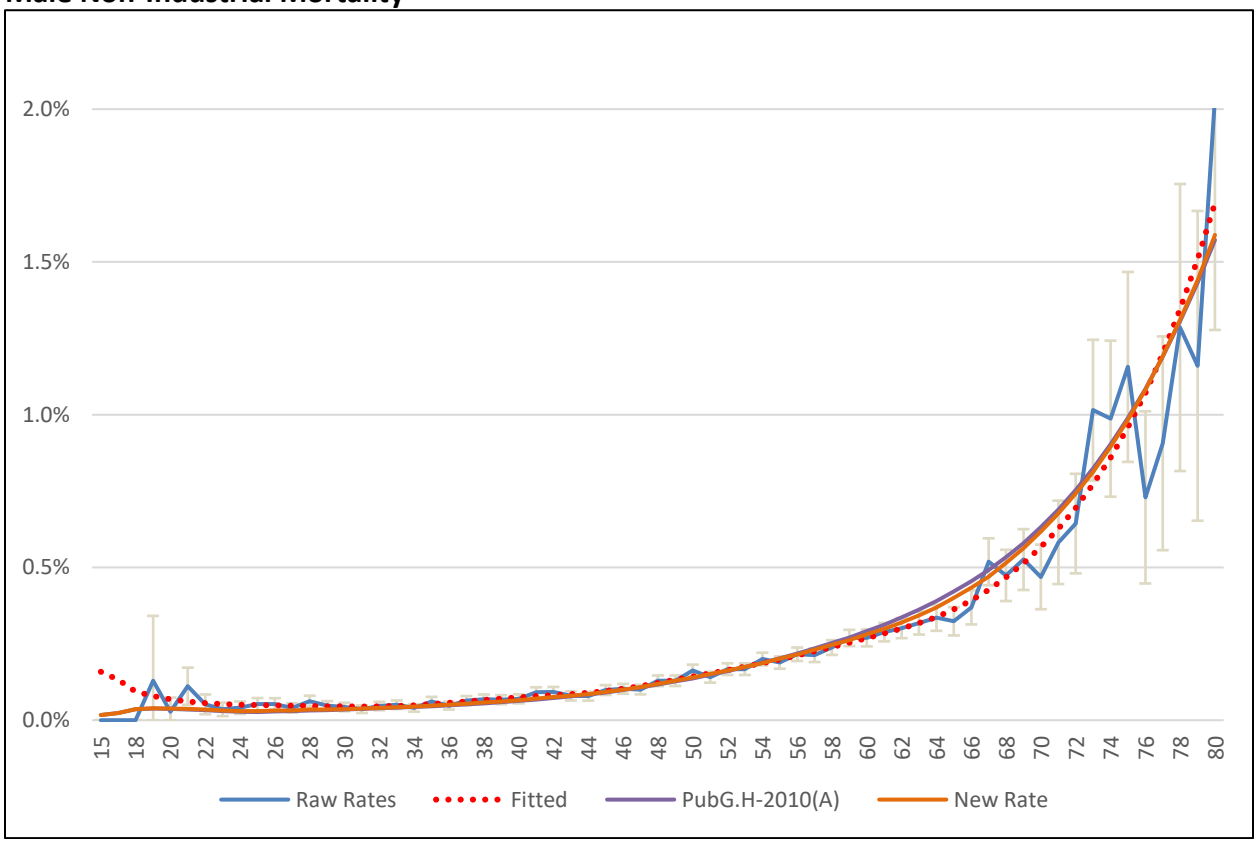
## Pre-Retirement Mortality

### Female Non-Industrial Mortality



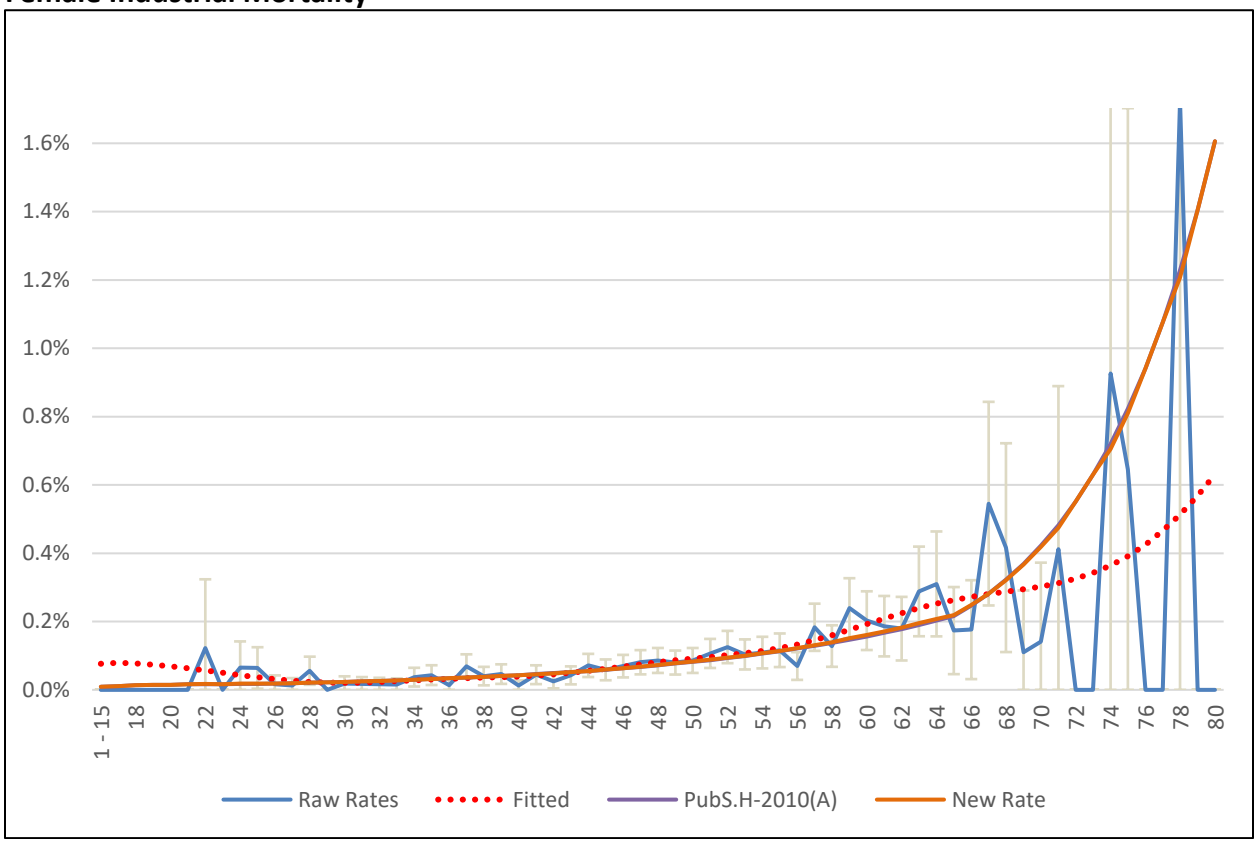
## Pre-Retirement Mortality (continued)

### Male Non-Industrial Mortality



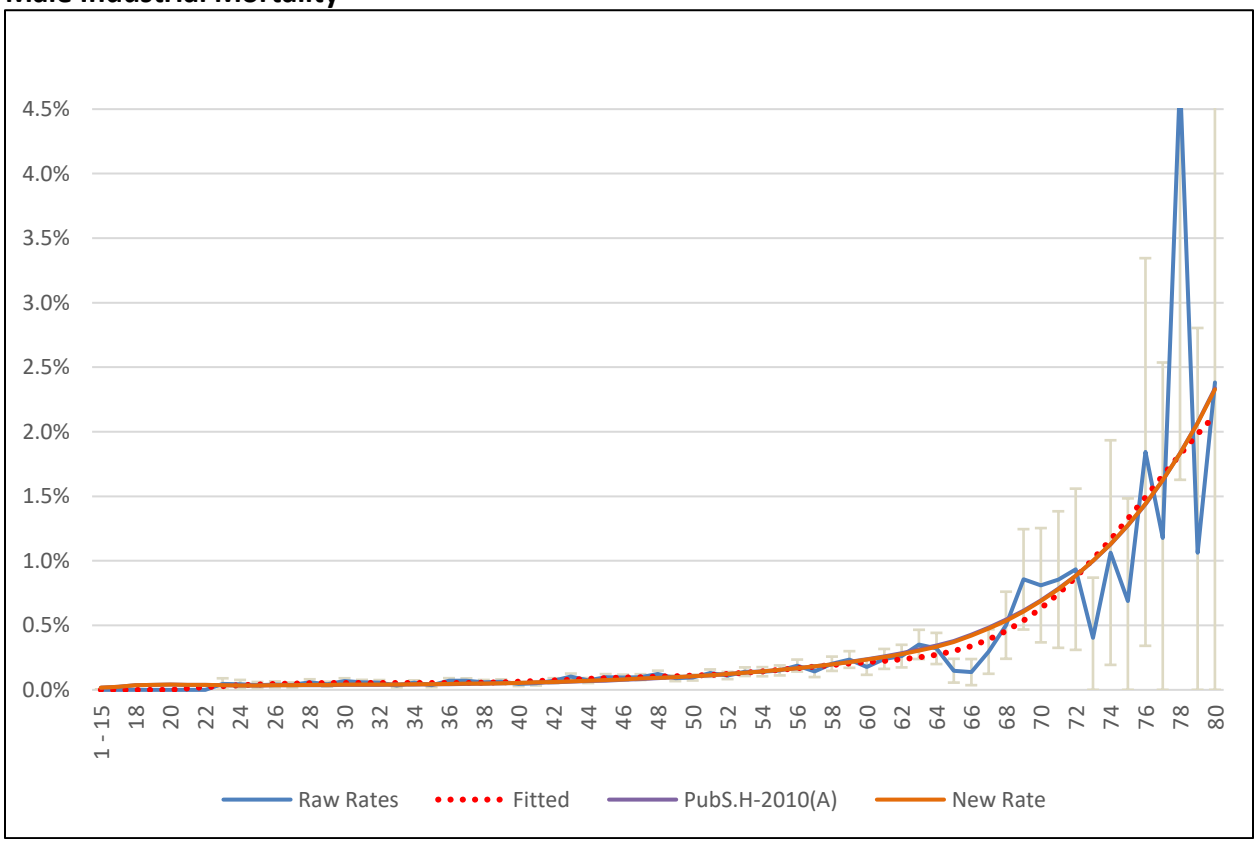
## Pre-Retirement Mortality (continued)

### Female Industrial Mortality



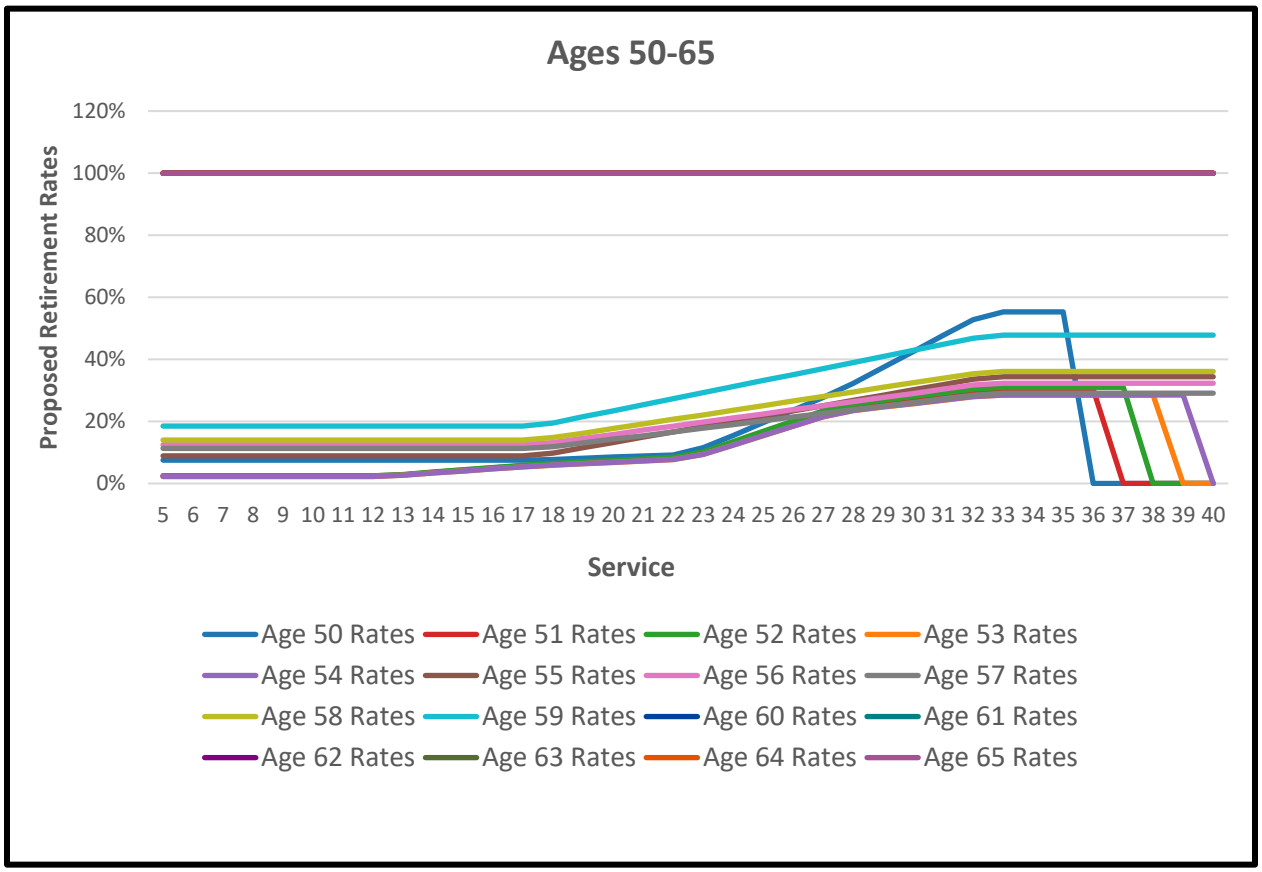
## Pre-Retirement Mortality (continued)

### Male Industrial Mortality



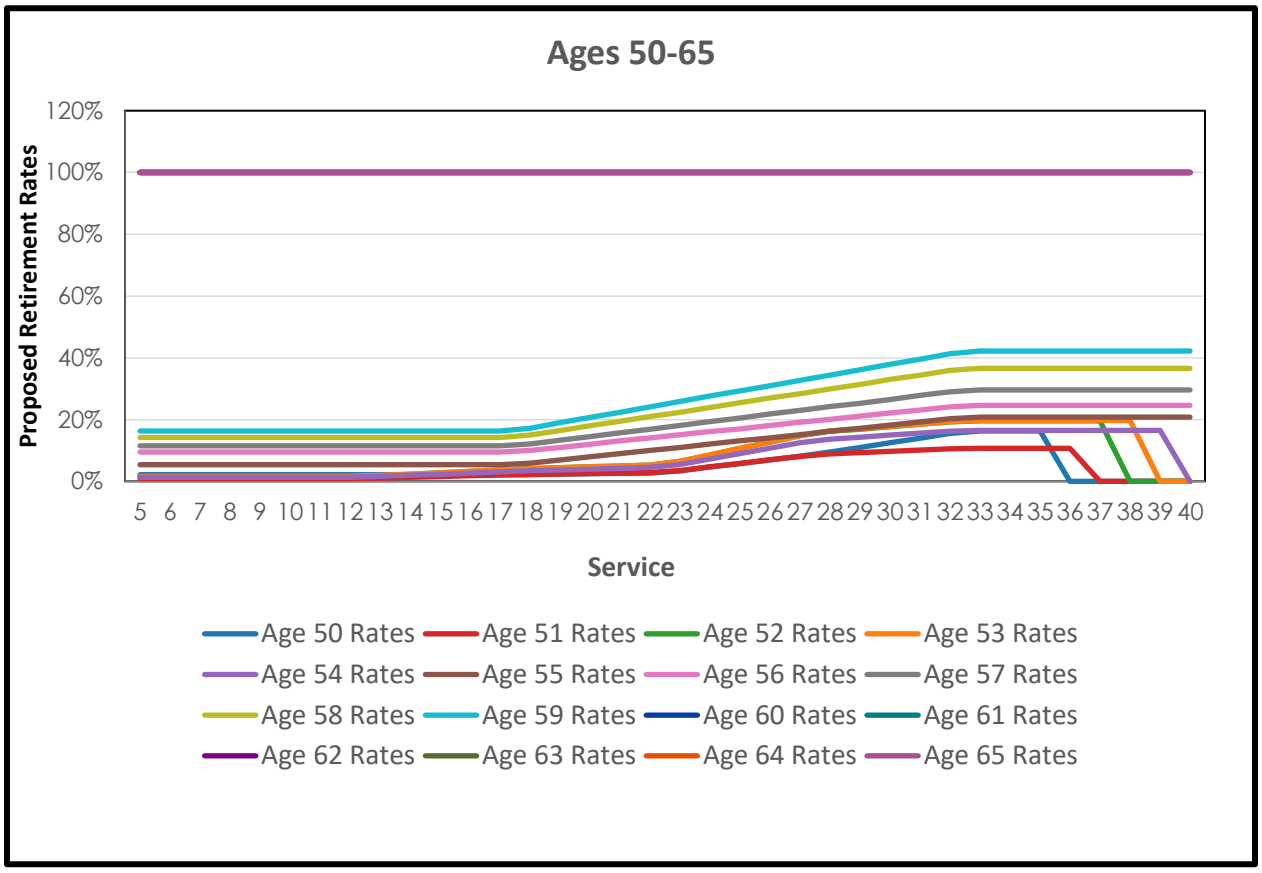
## Service Retirement

### State CHP - Classic



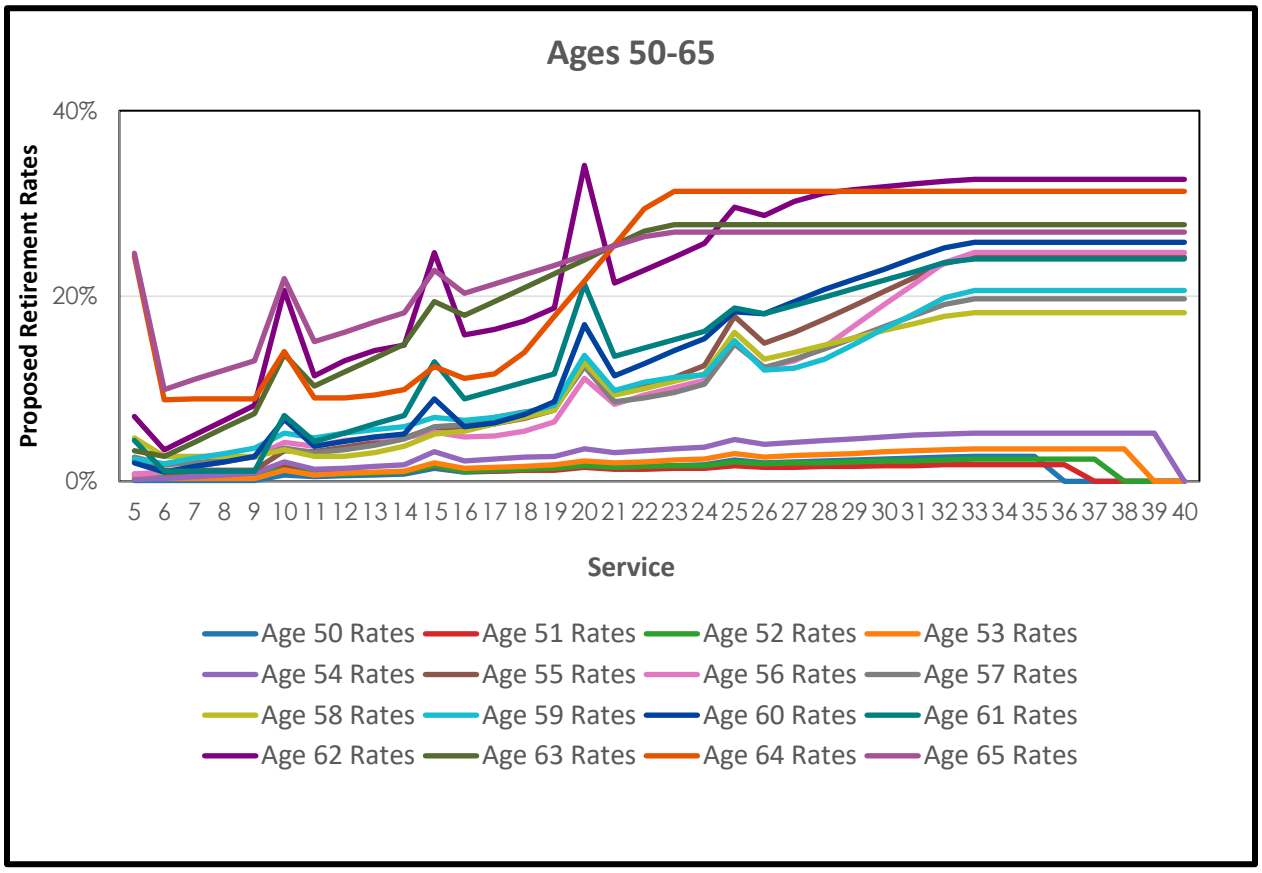
## Service Retirement (continued)

### State CHP - PEPRA



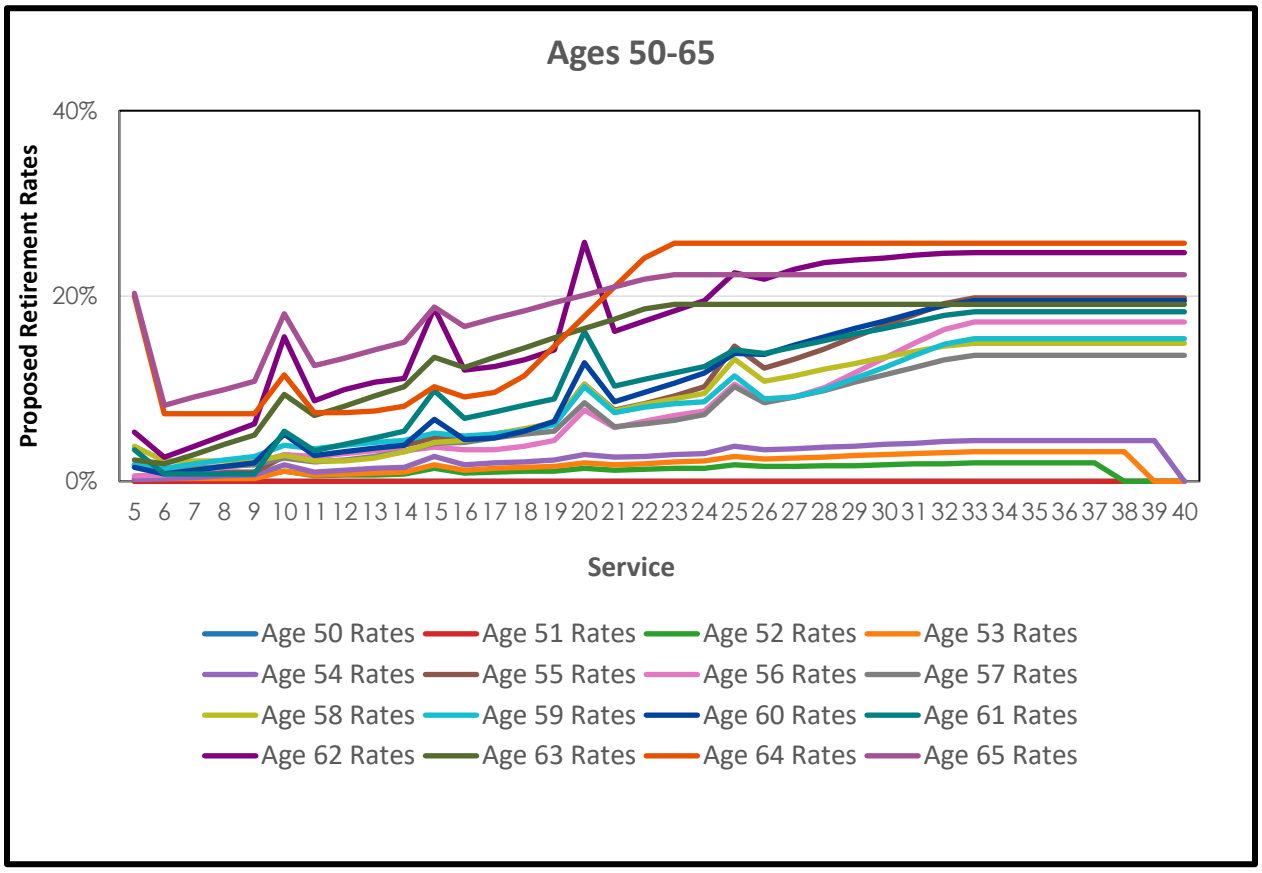
## Service Retirement (continued)

### State Industrial - Classic



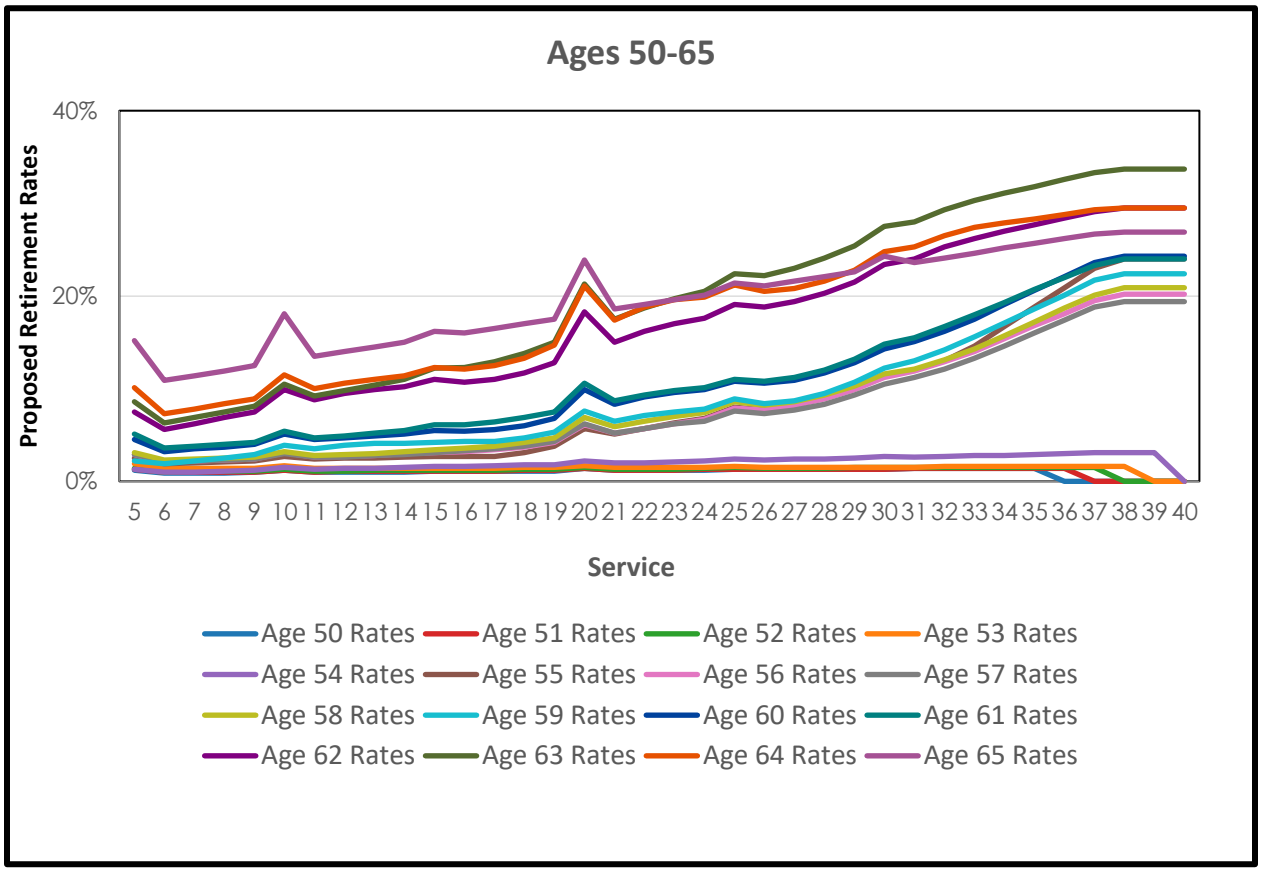
## Service Retirement (continued)

### State Industrial - PEPRA



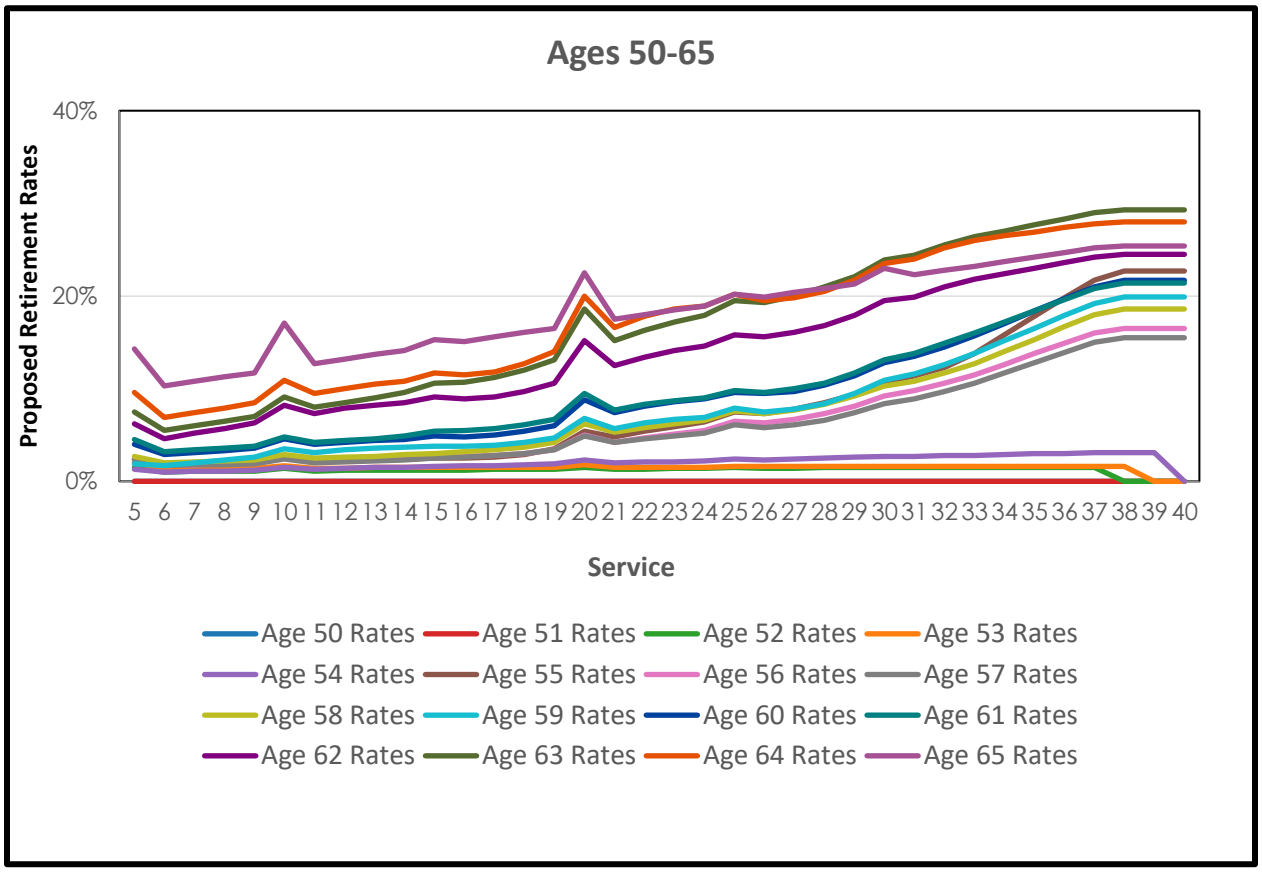
## Service Retirement (continued)

### State Miscellaneous - Classic



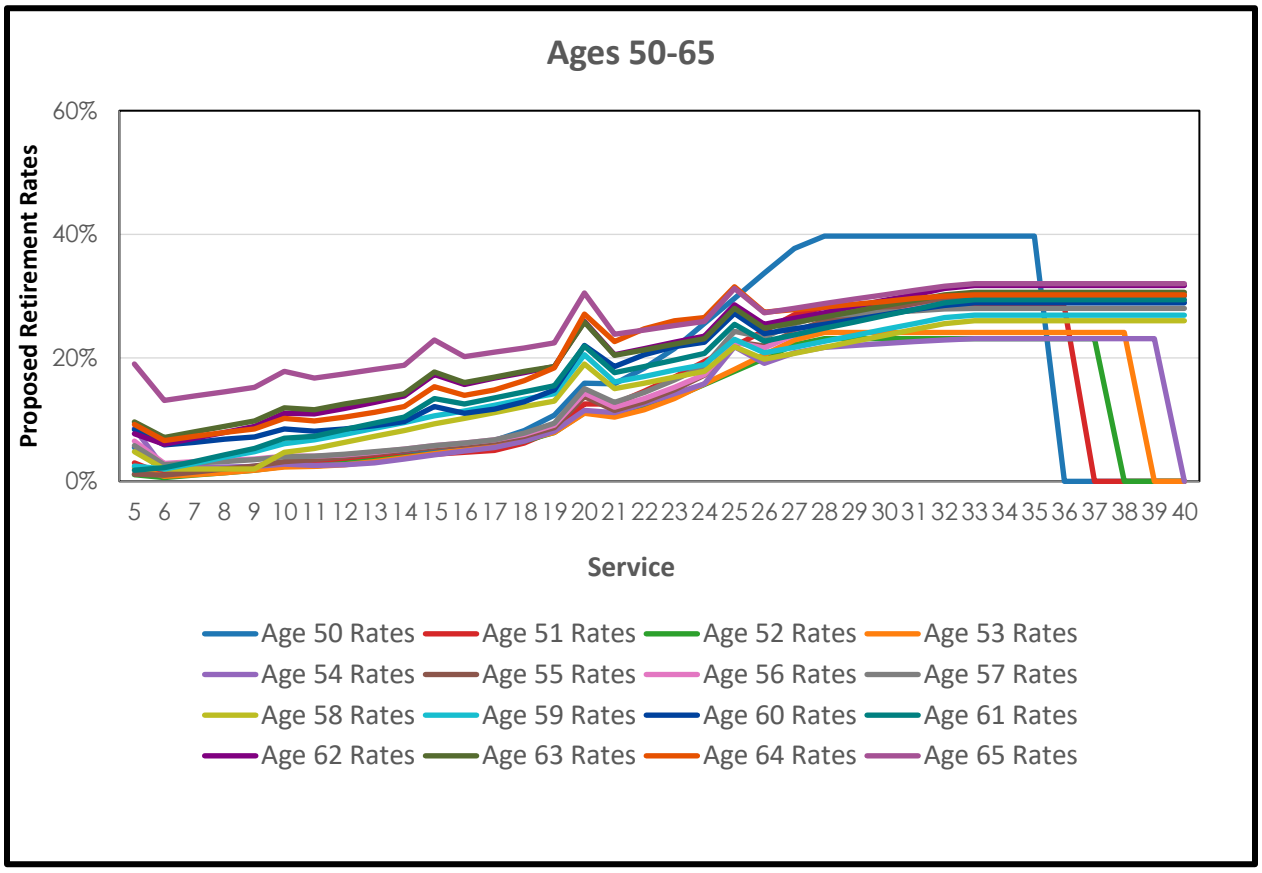
## Service Retirement (continued)

### State Miscellaneous - PEPRA



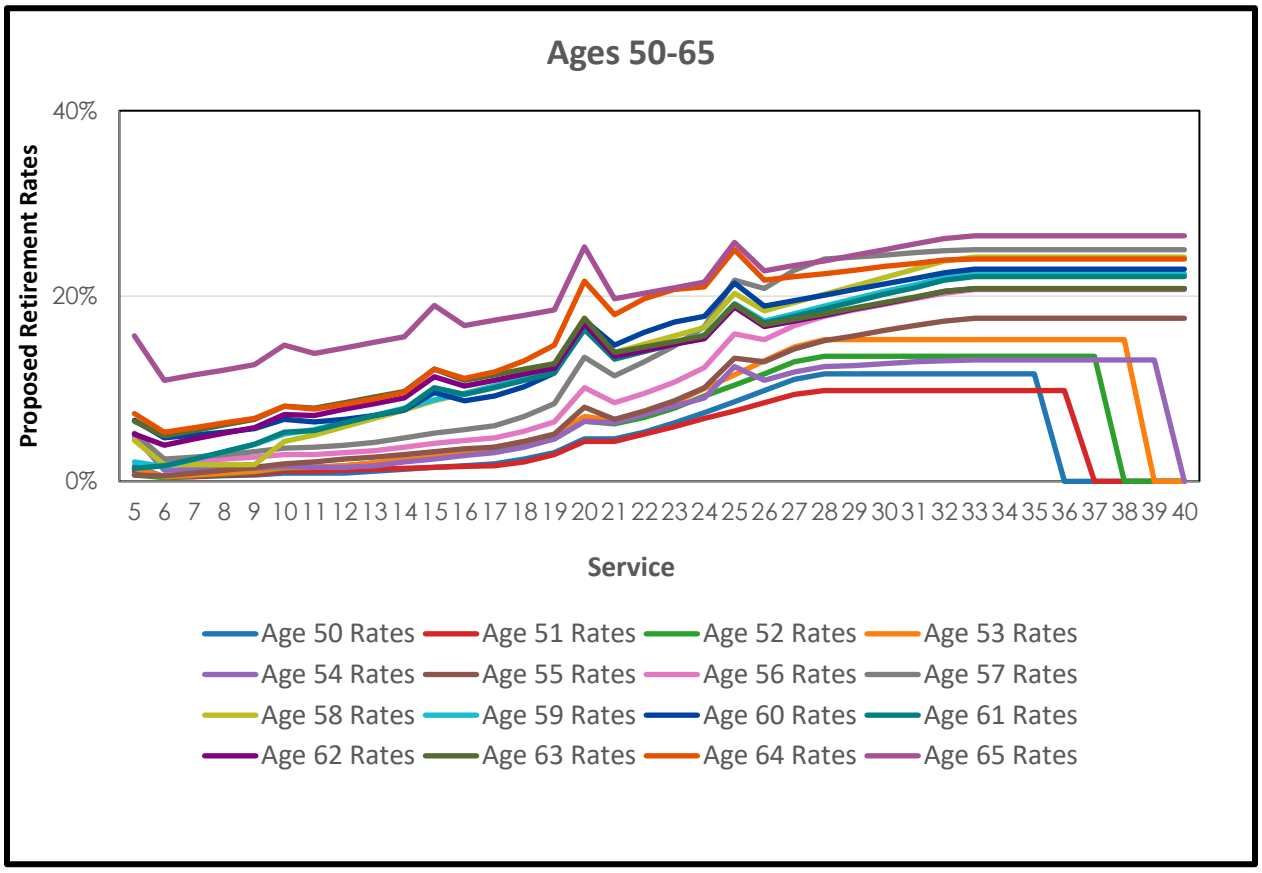
## Service Retirement (continued)

### State POFF - Classic



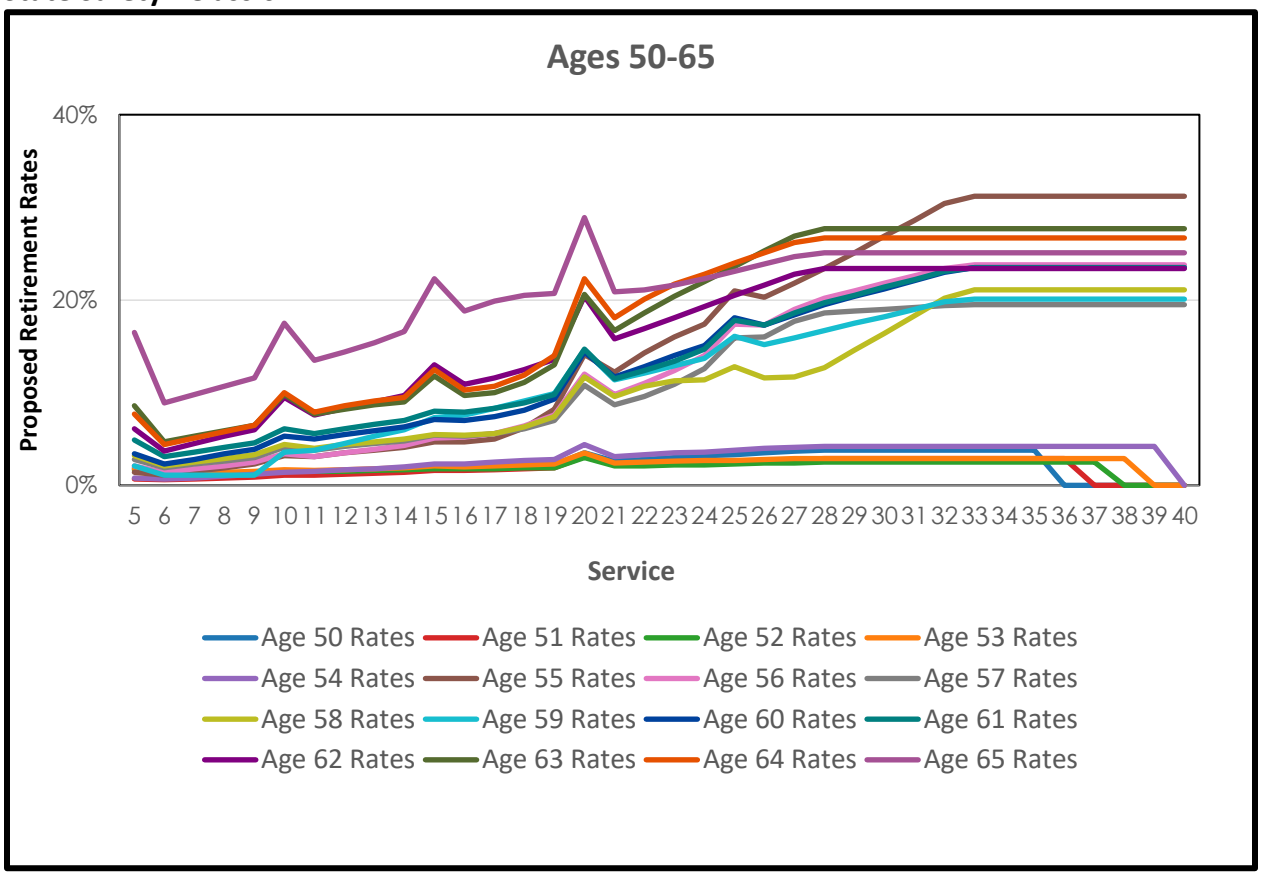
## Service Retirement (continued)

### State POFF - PEPRA



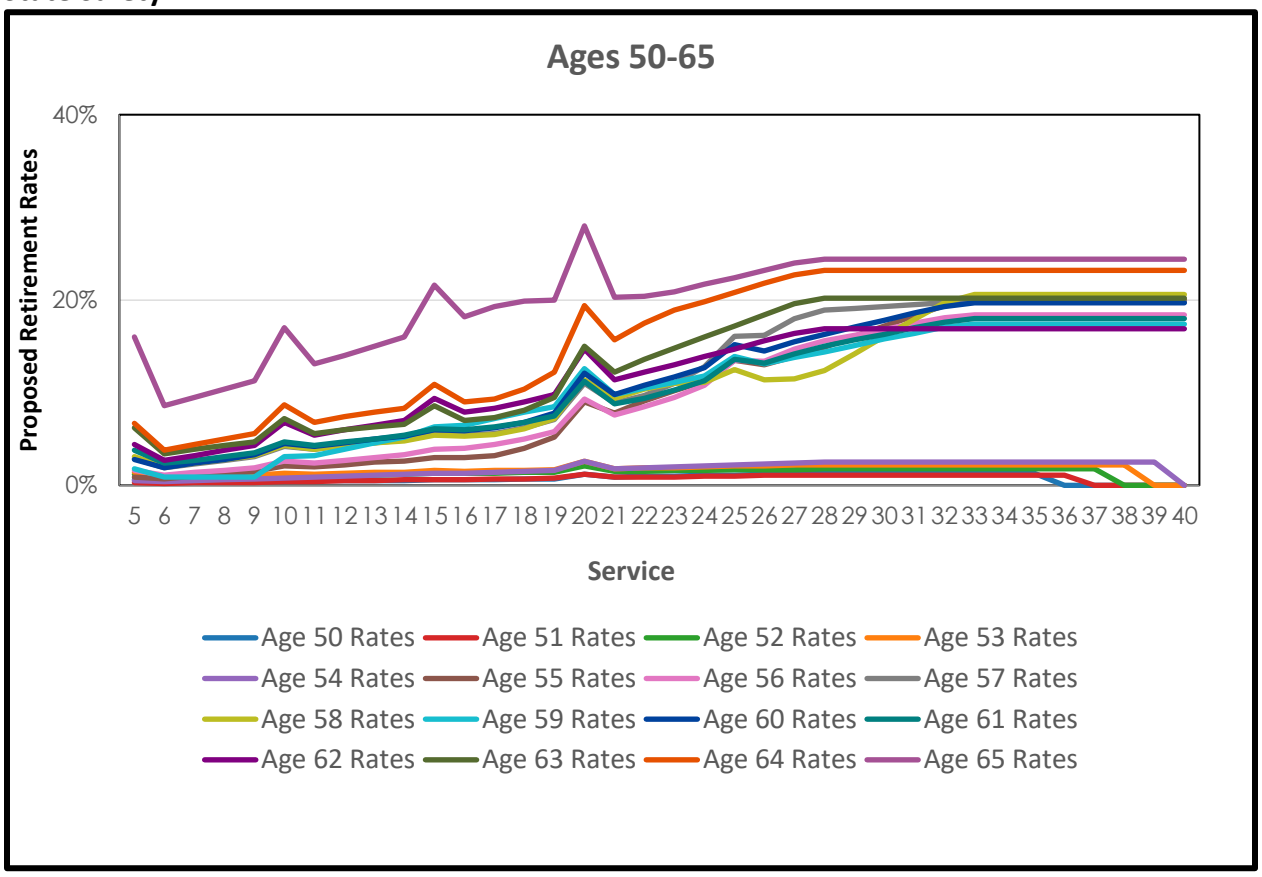
## Service Retirement (continued)

### State Safety - Classic



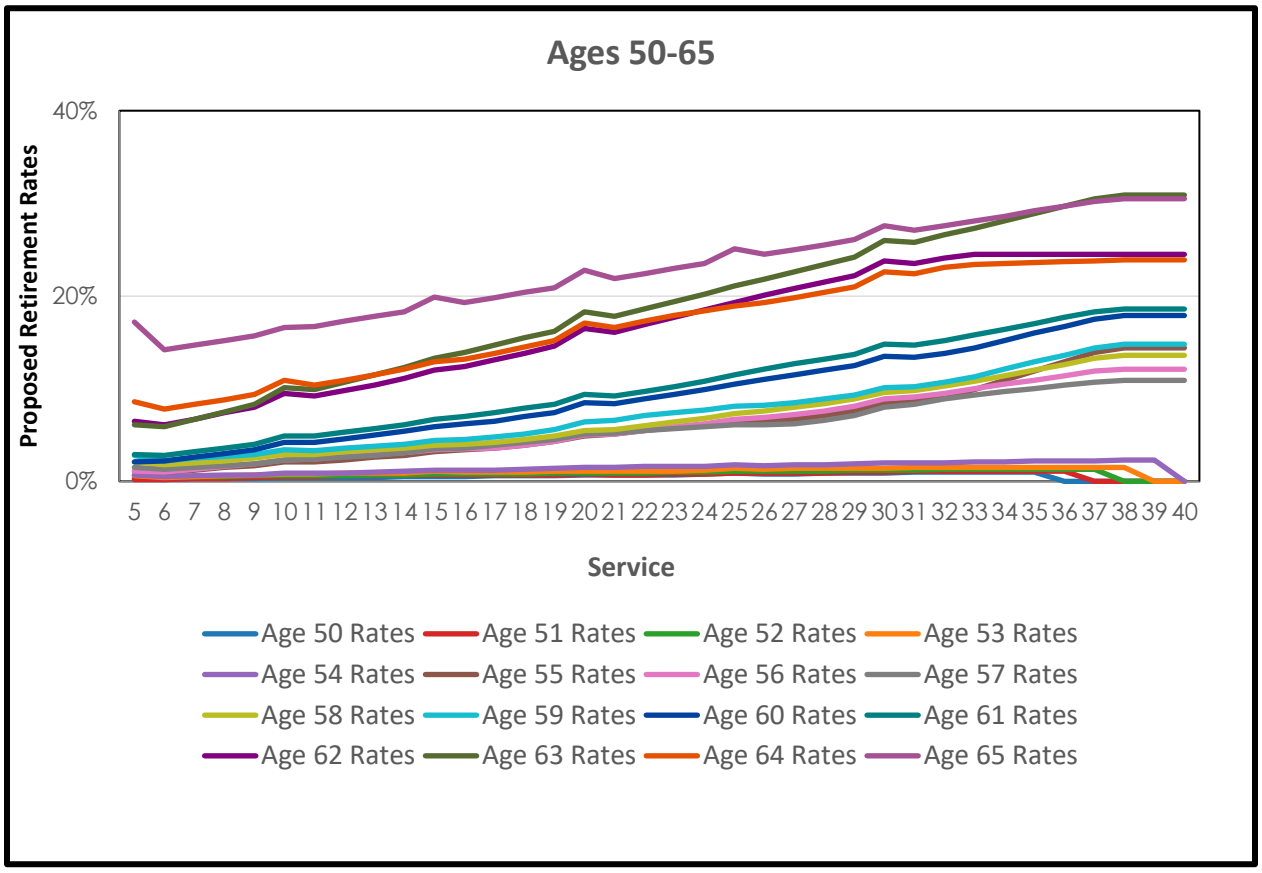
## Service Retirement (continued)

### State Safety - PEPRA



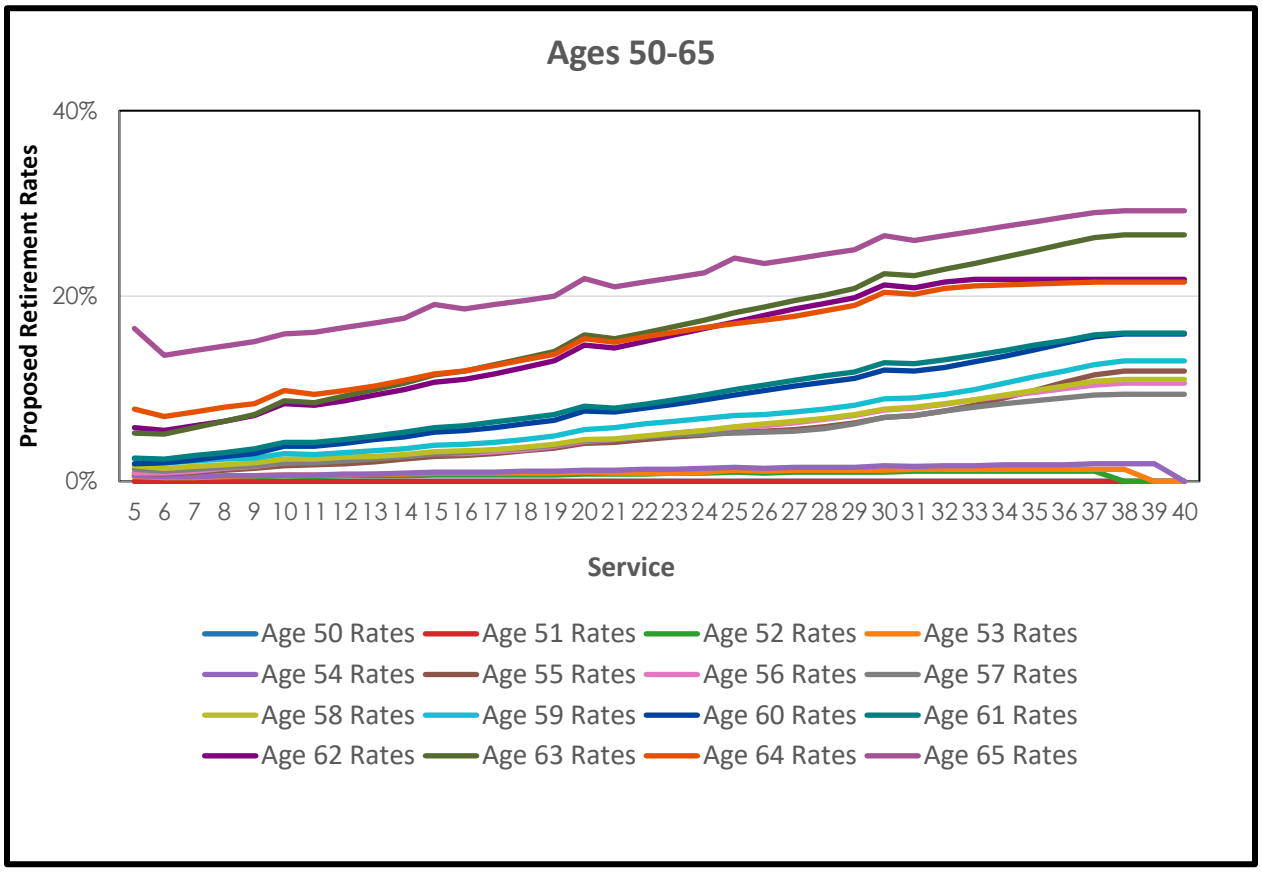
## Service Retirement (continued)

### School Miscellaneous - Classic



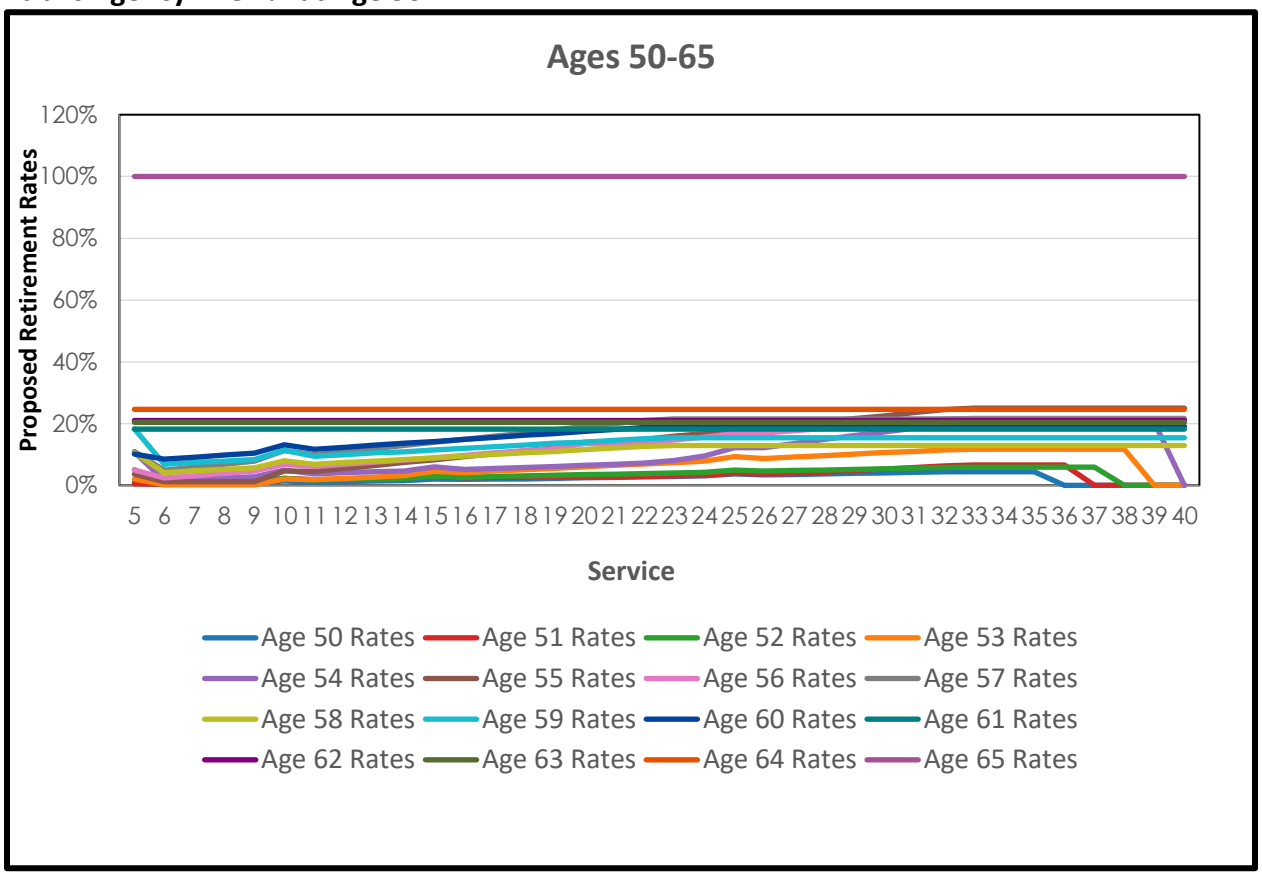
## Service Retirement (continued)

### School Miscellaneous - PEPRA



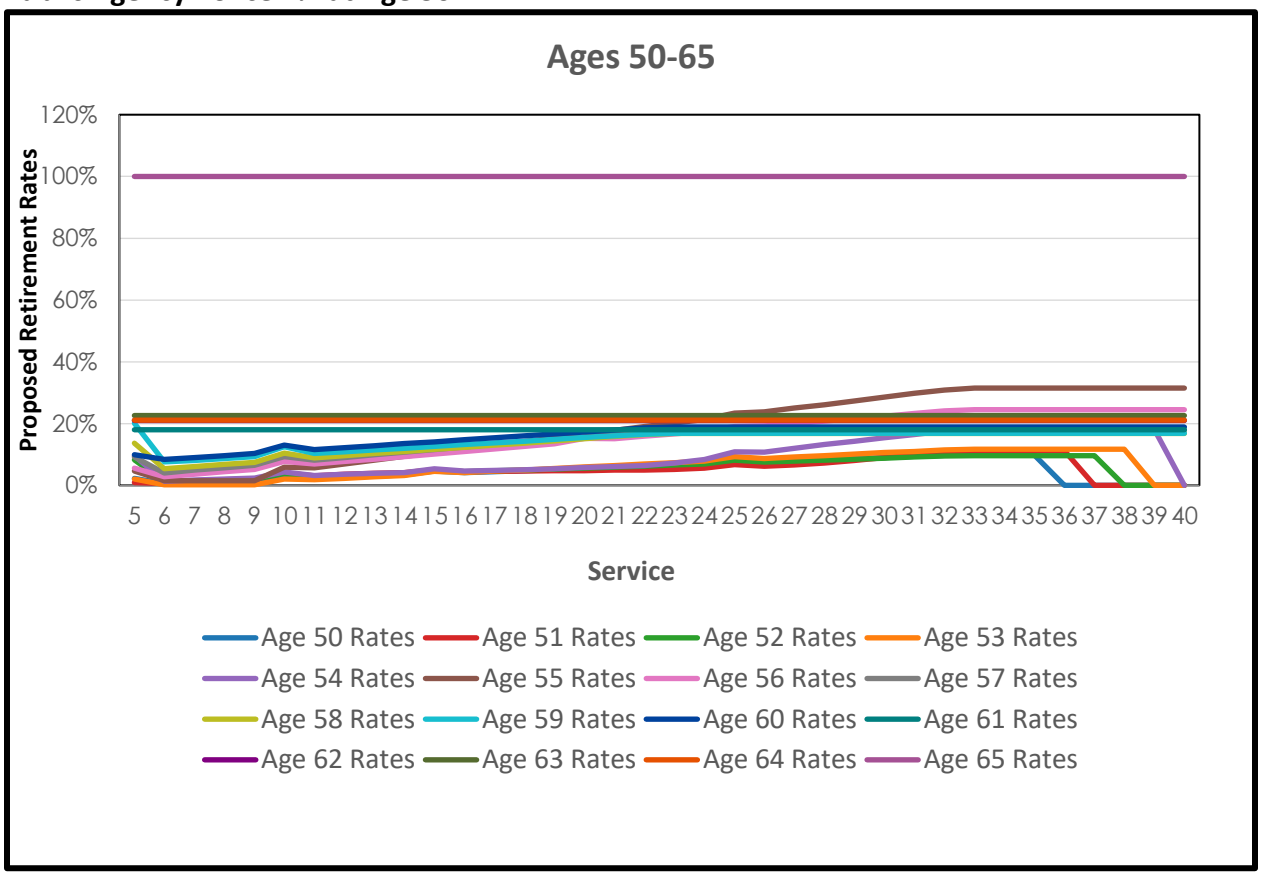
## Service Retirement (continued)

### Public Agency Fire 2% at Age 50



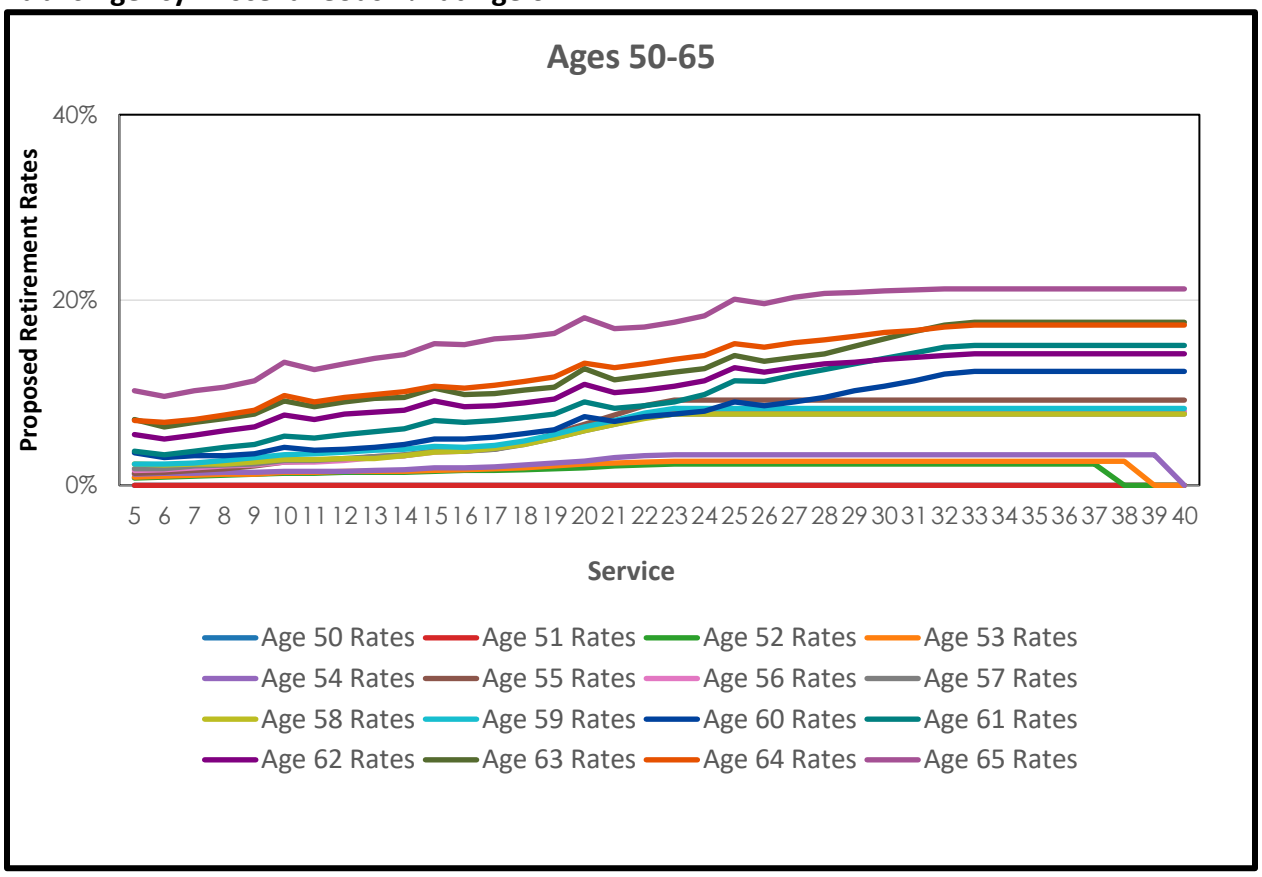
## Service Retirement (continued)

### Public Agency Police 2% at Age 50



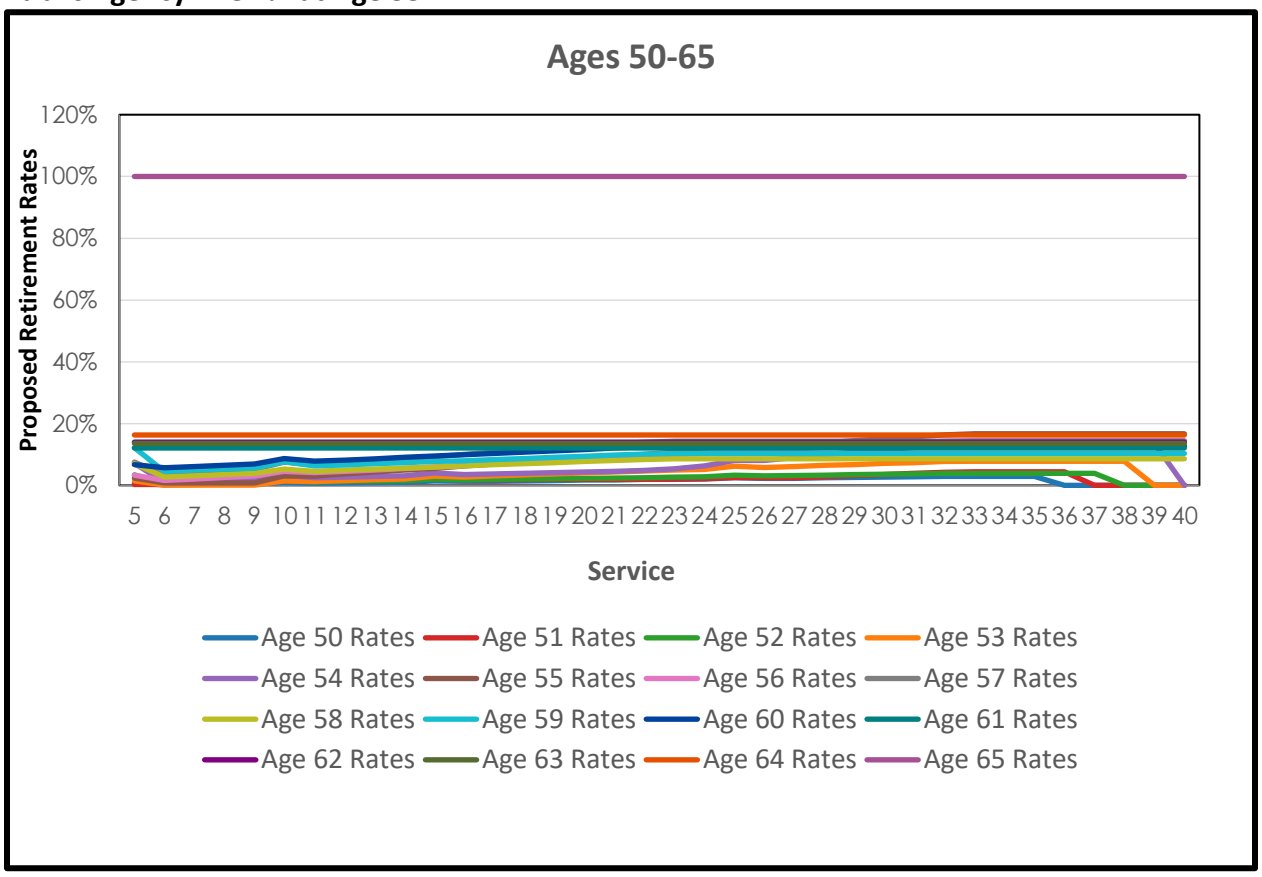
## Service Retirement (continued)

### Public Agency Miscellaneous 2% at Age 62 PEPRA



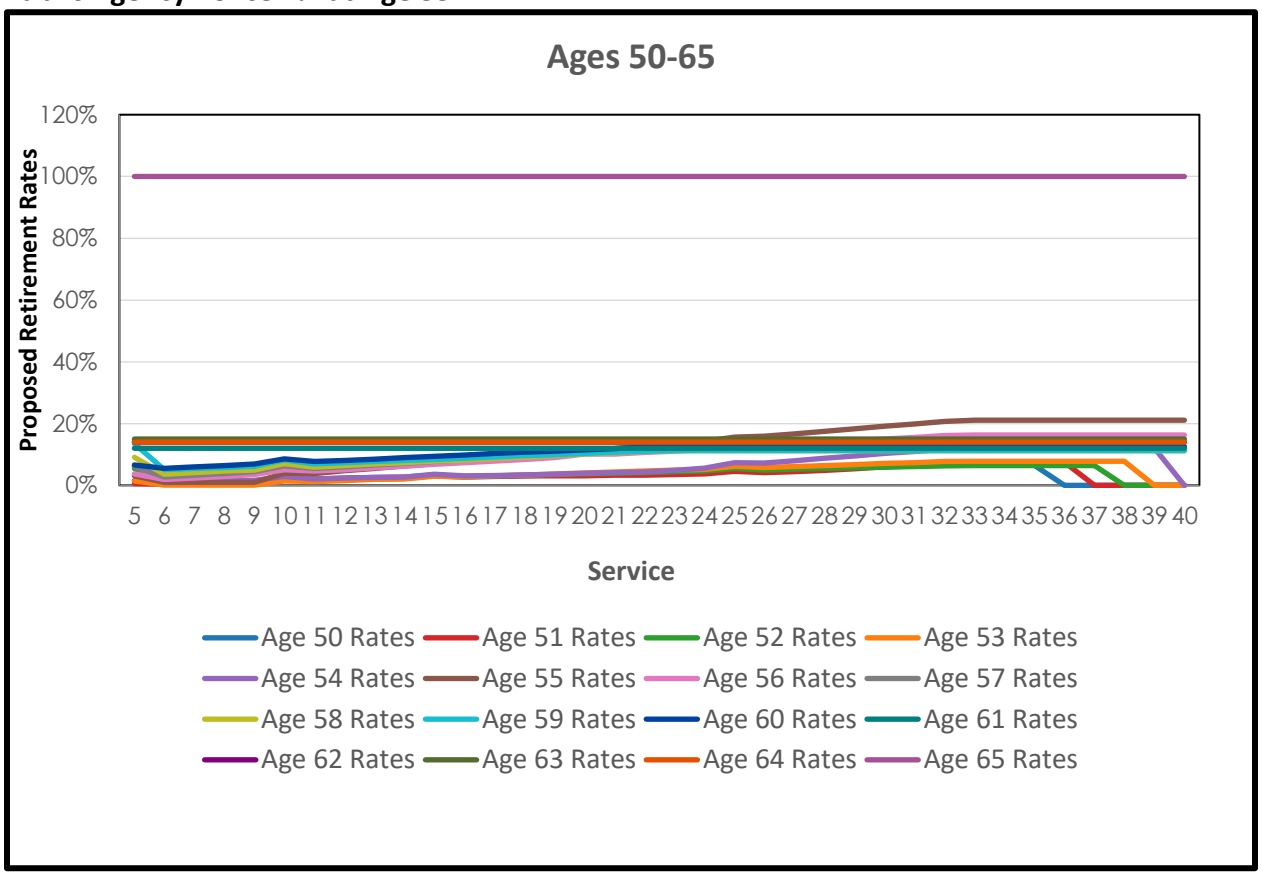
## Service Retirement (continued)

### Public Agency Fire 2% at Age 55



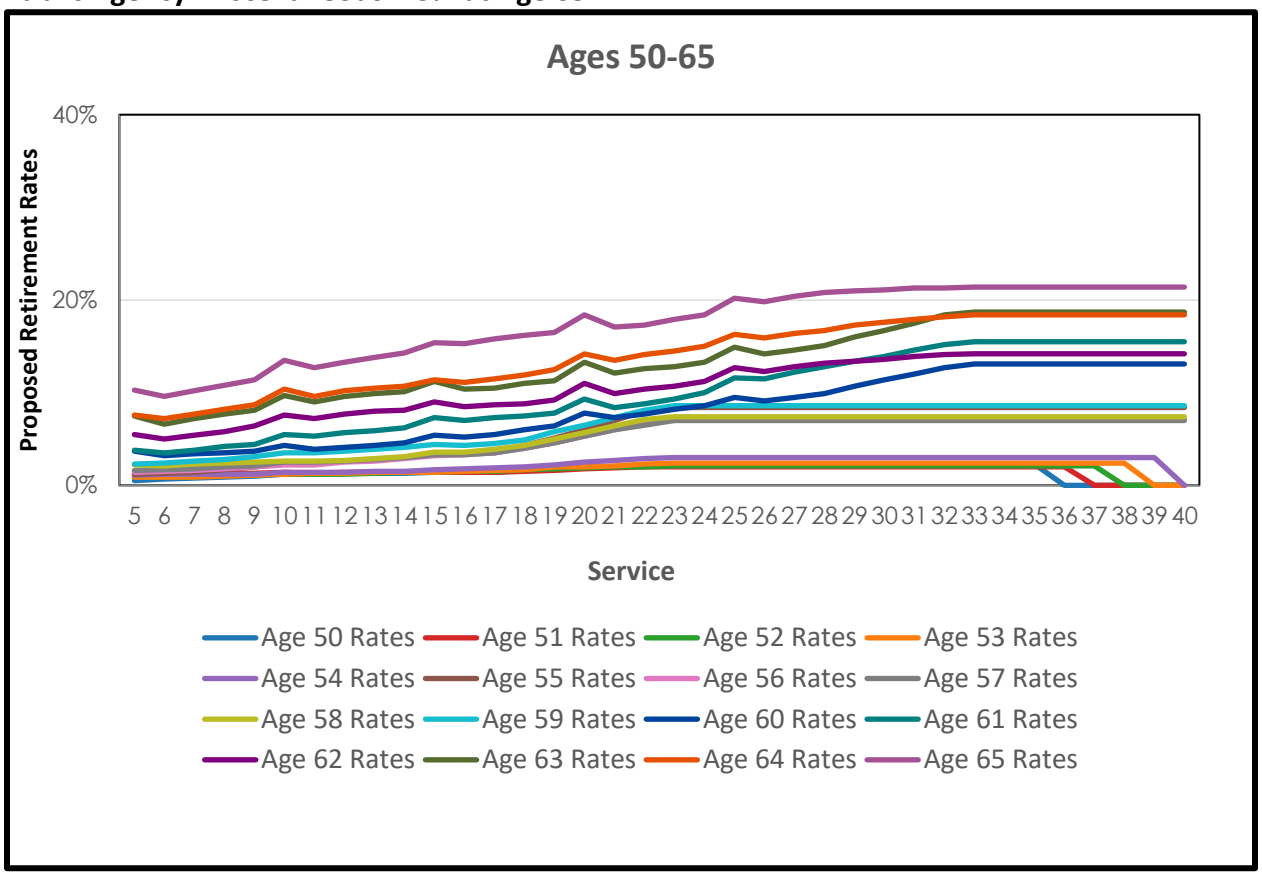
## Service Retirement (continued)

### Public Agency Police 2% at Age 55



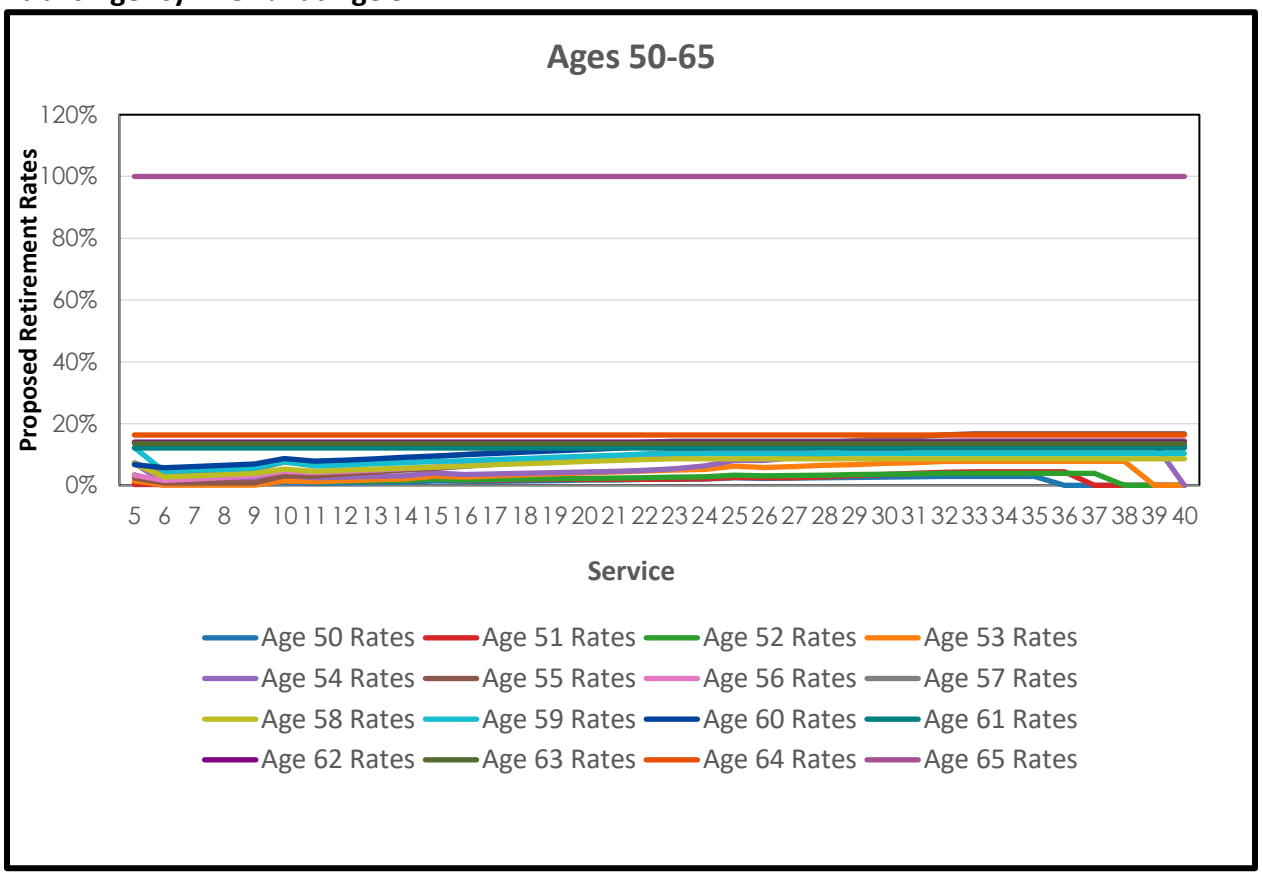
## Service Retirement (continued)

### Public Agency Miscellaneous 1.5% at Age 65



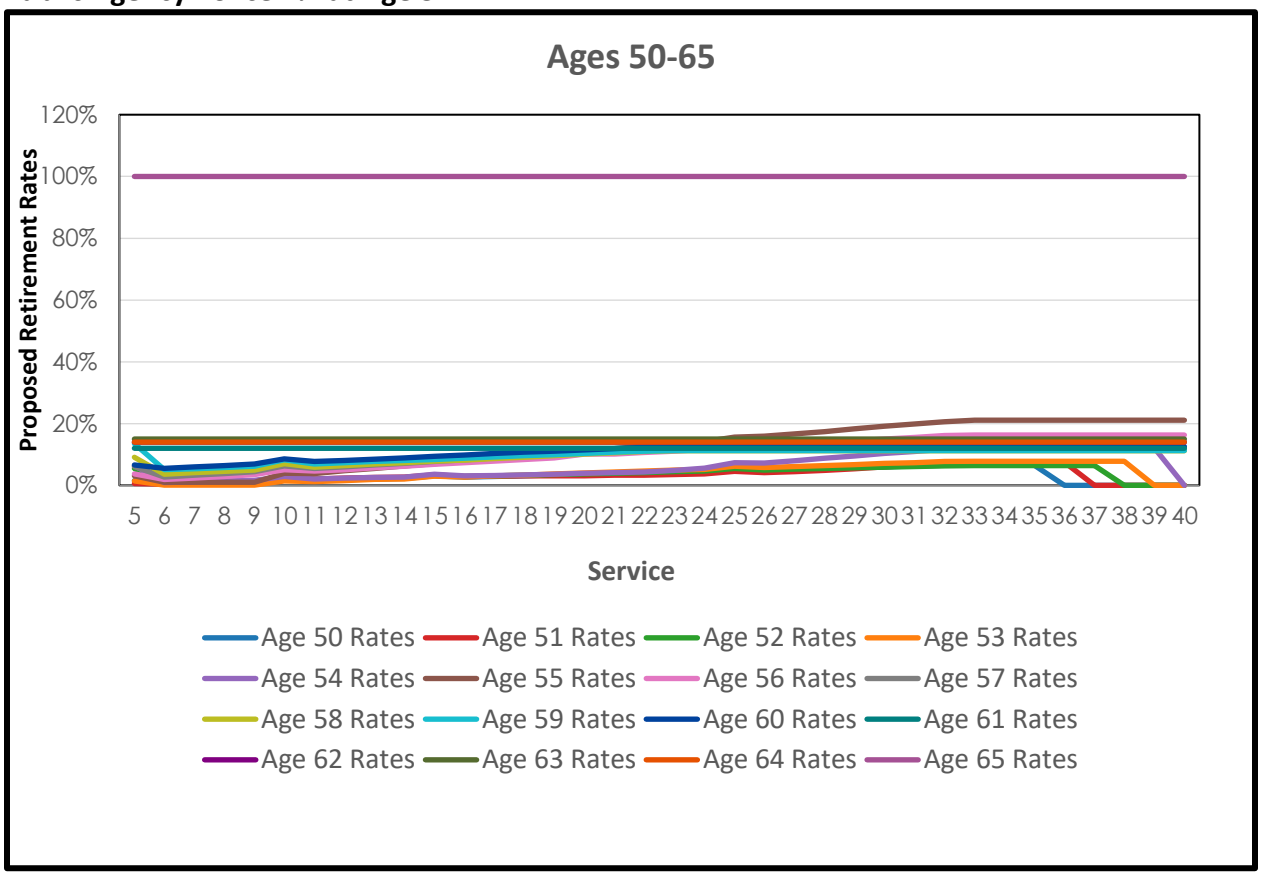
## Service Retirement (continued)

### Public Agency Fire 2% at Age 57



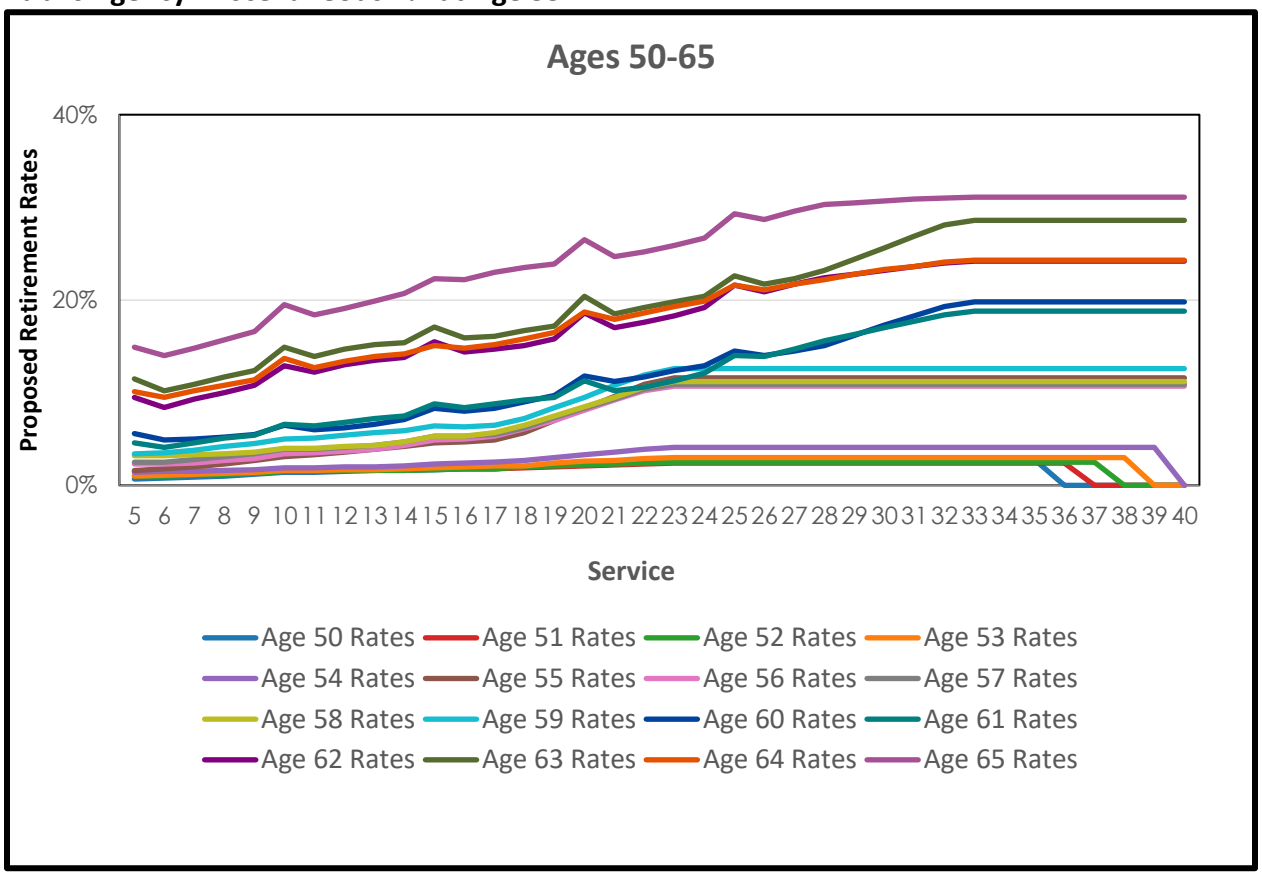
## Service Retirement (continued)

### Public Agency Police 2% at Age 57 PEPRA



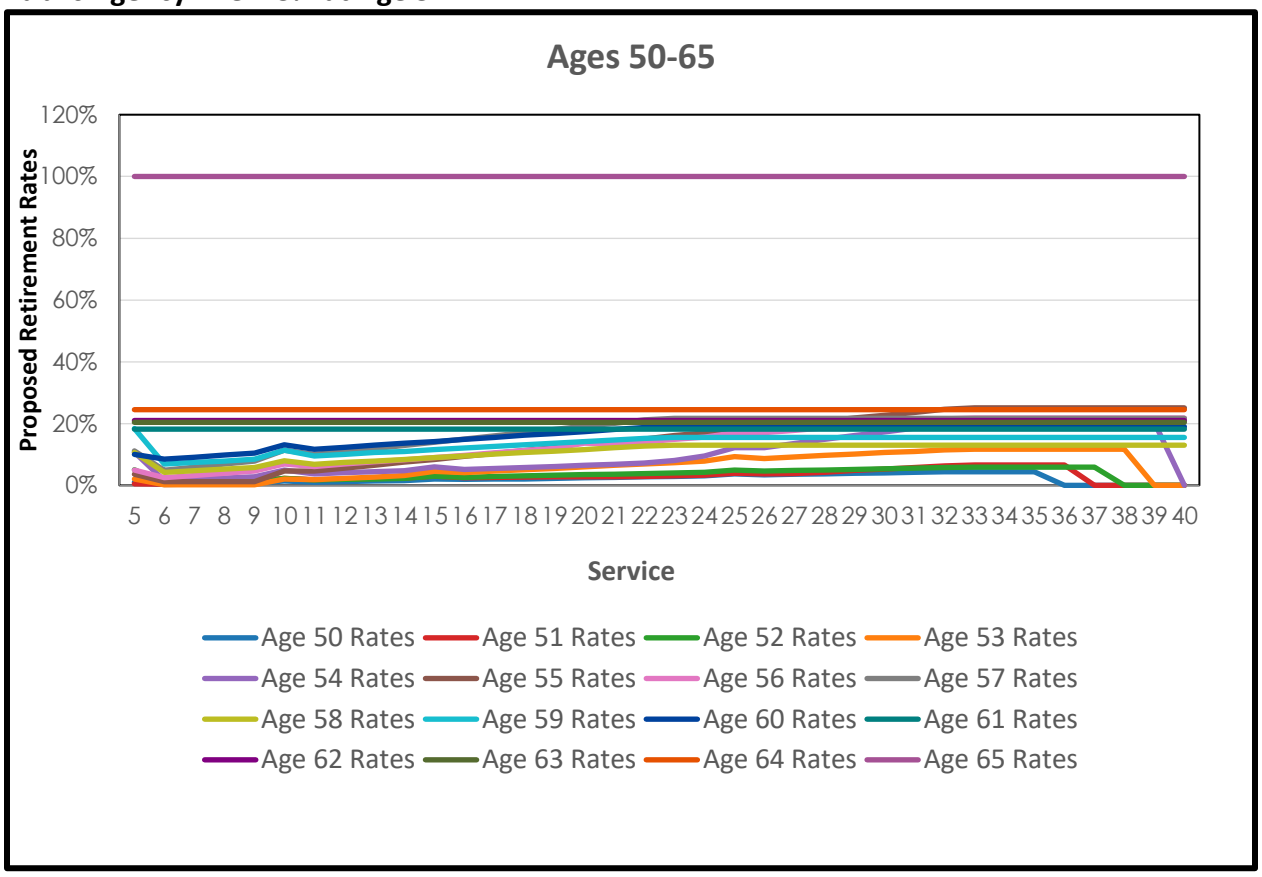
## Service Retirement (continued)

### Public Agency Miscellaneous 2% at Age 55



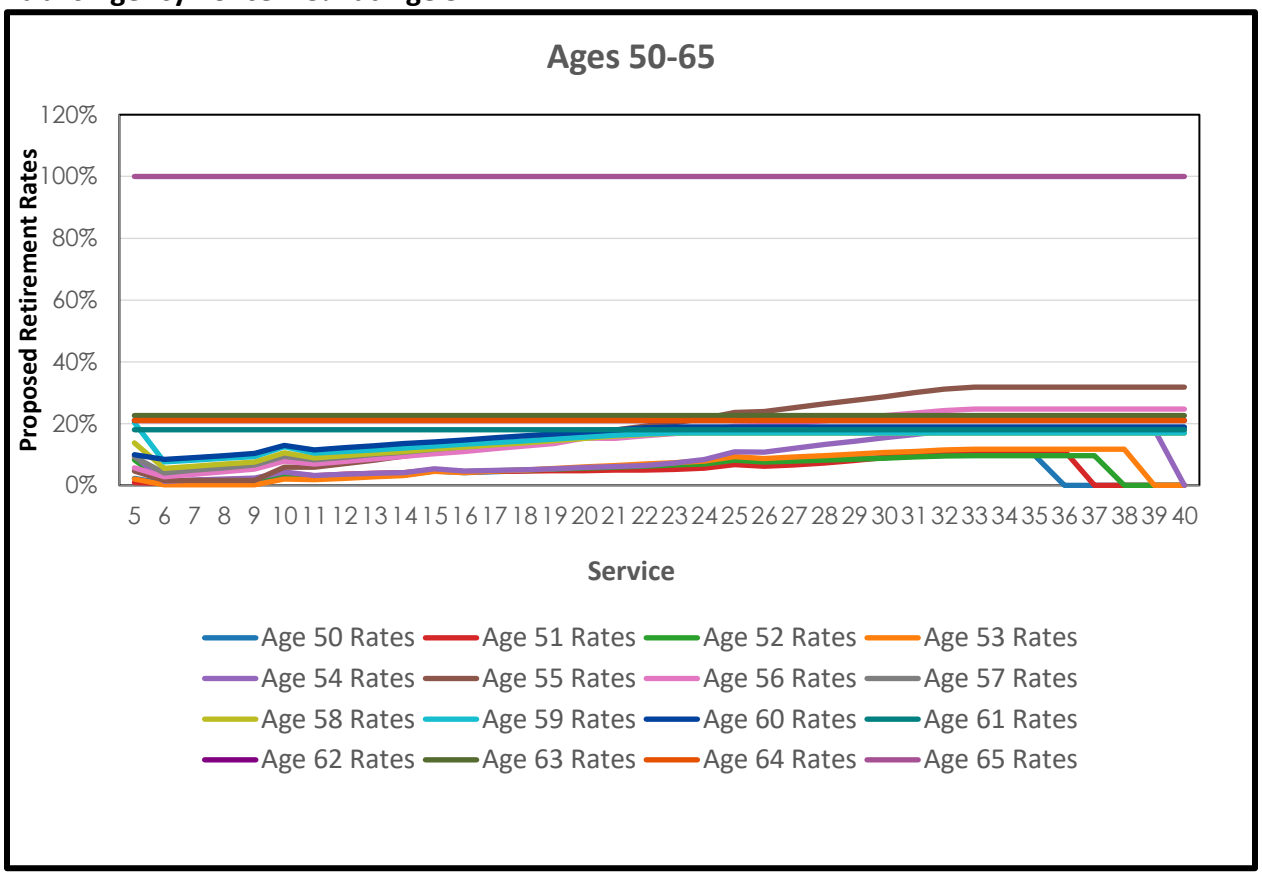
## Service Retirement (continued)

### Public Agency Fire 2.5% at Age 57



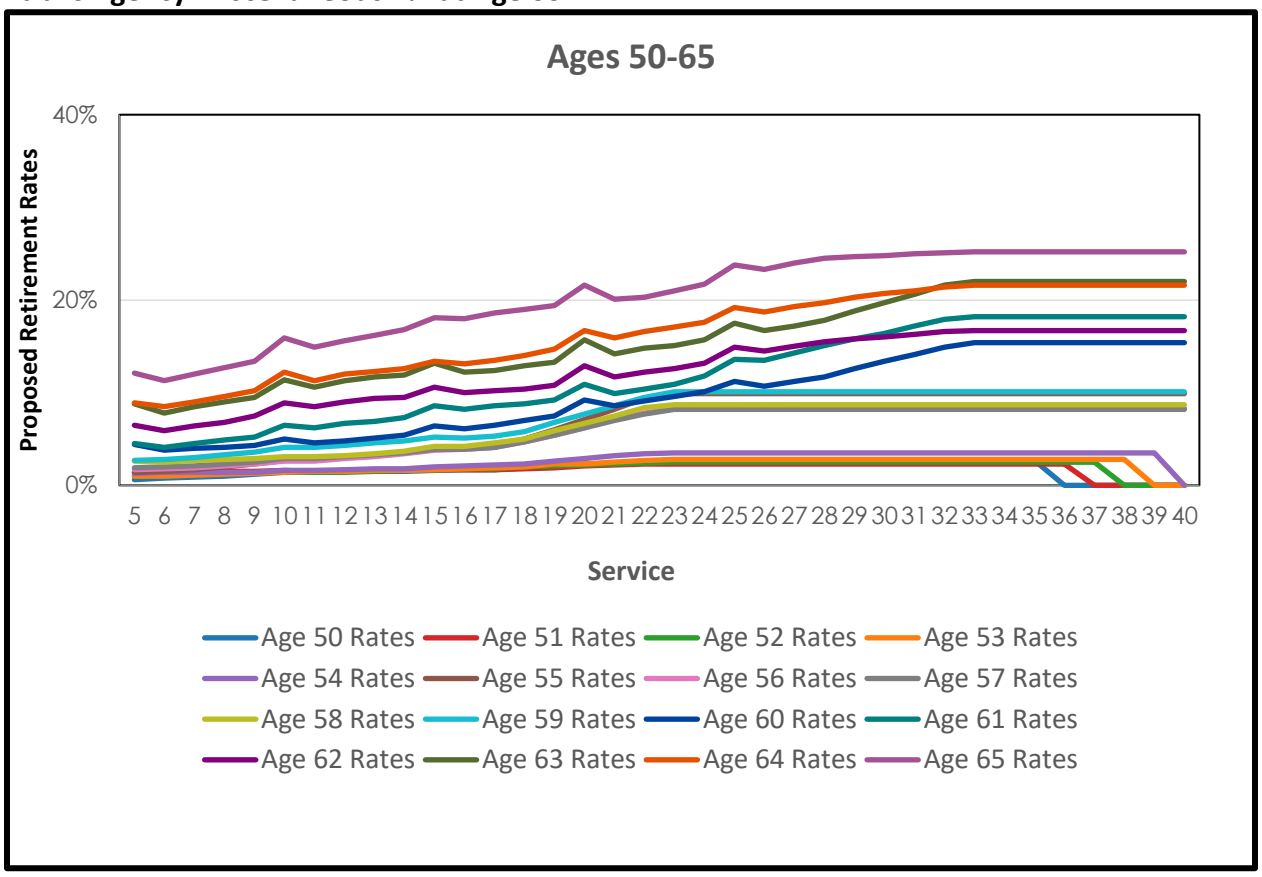
## Service Retirement (continued)

### Public Agency Police 2.5% at Age 57 PEPRA



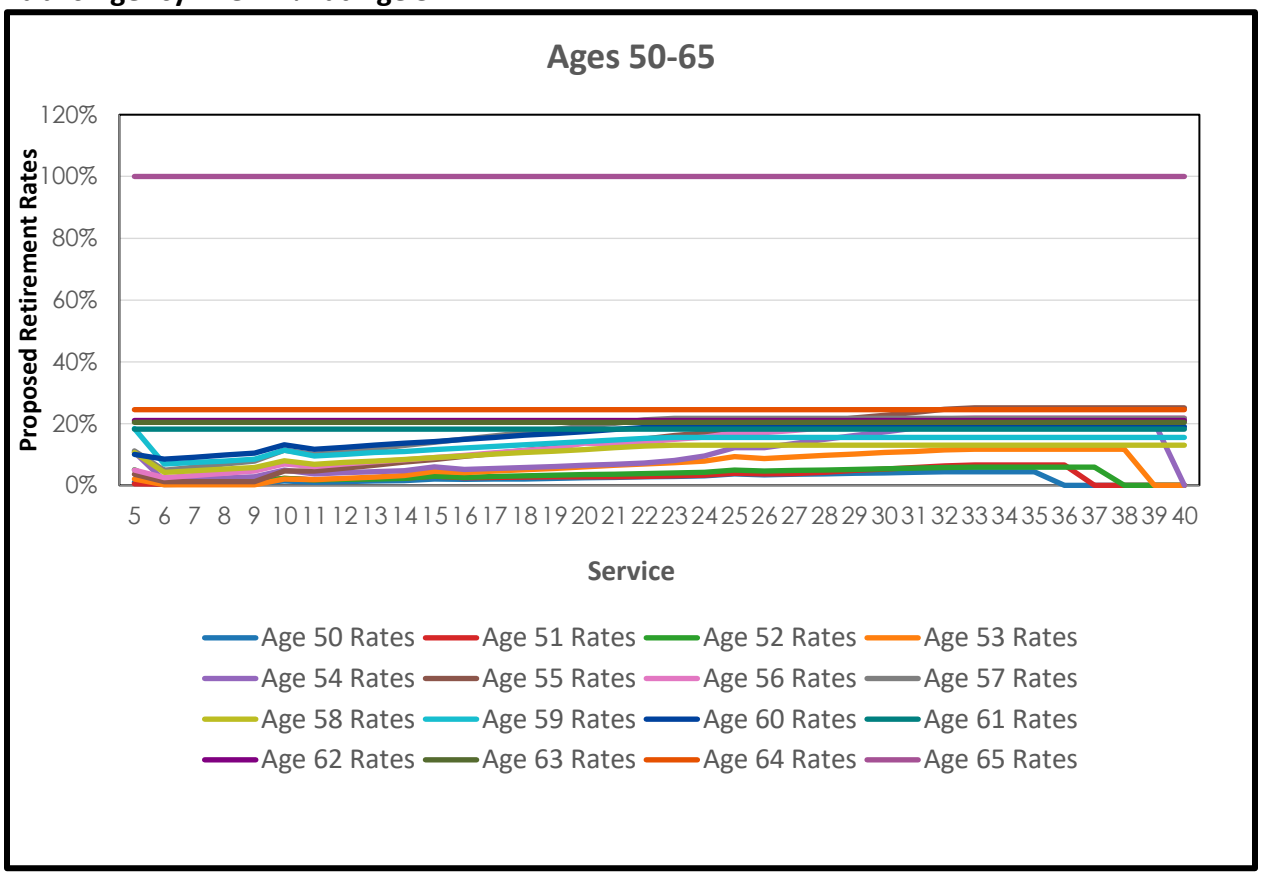
## Service Retirement (continued)

### Public Agency Miscellaneous 2% at Age 60



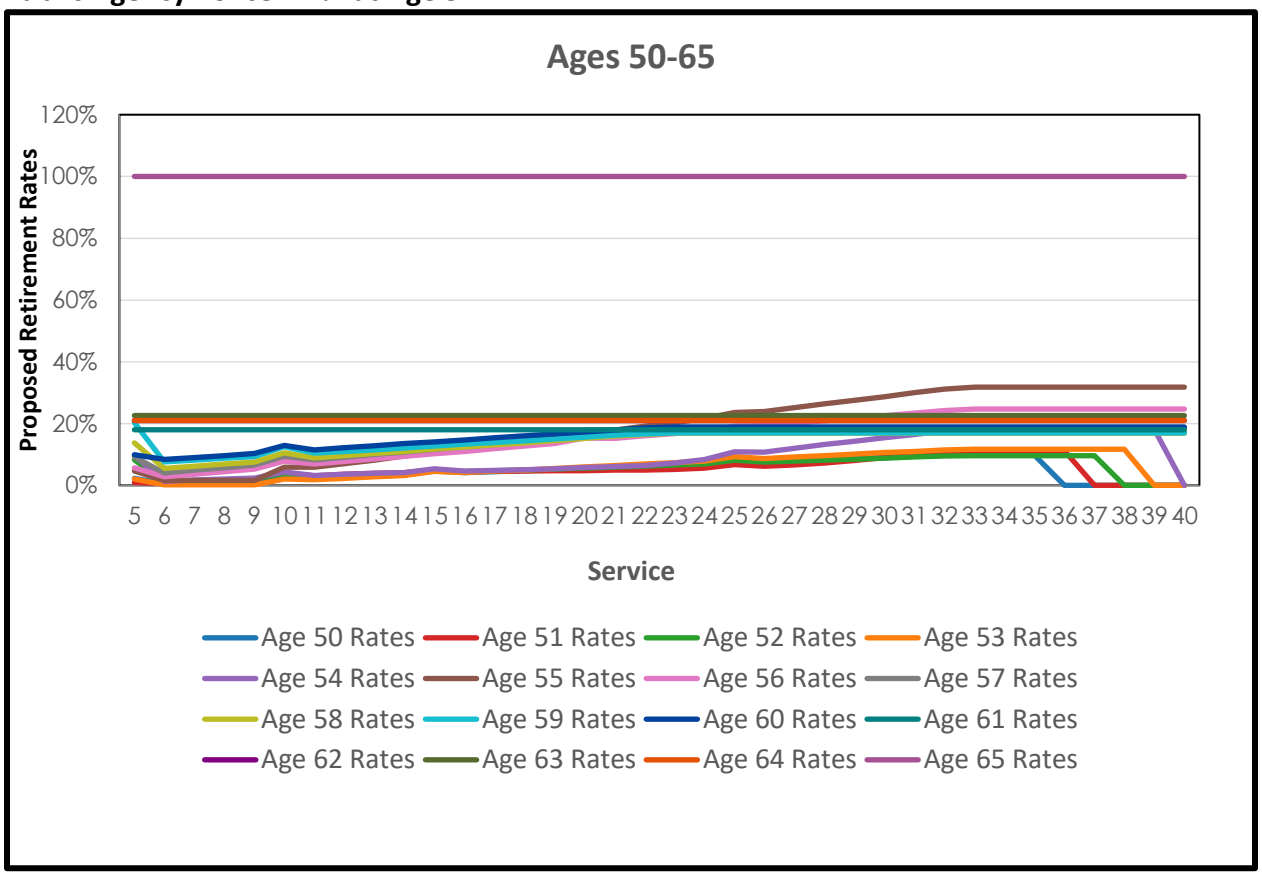
## Service Retirement (continued)

### Public Agency Fire 2.7% at Age 57



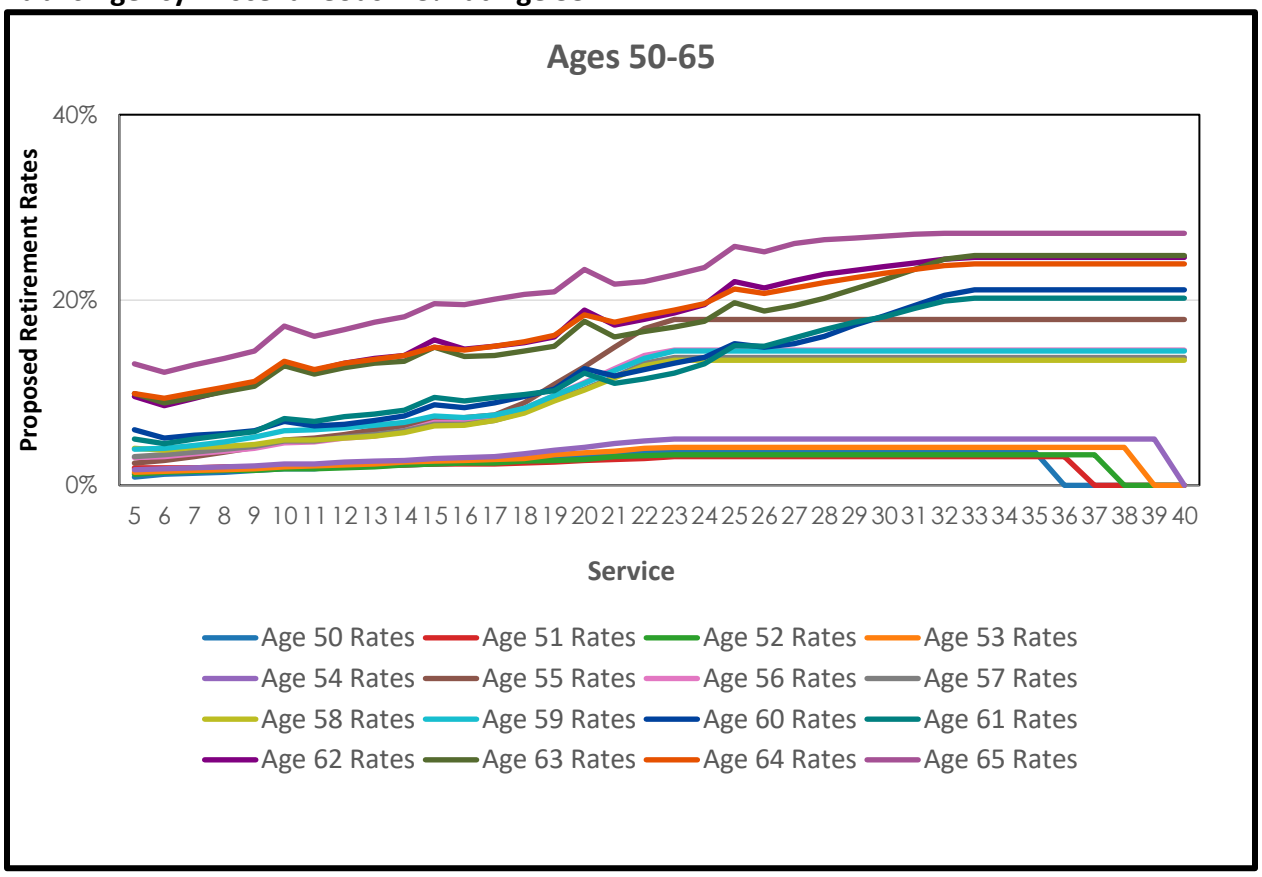
## Service Retirement (continued)

### Public Agency Police 2.7% at Age 57 PEPRA



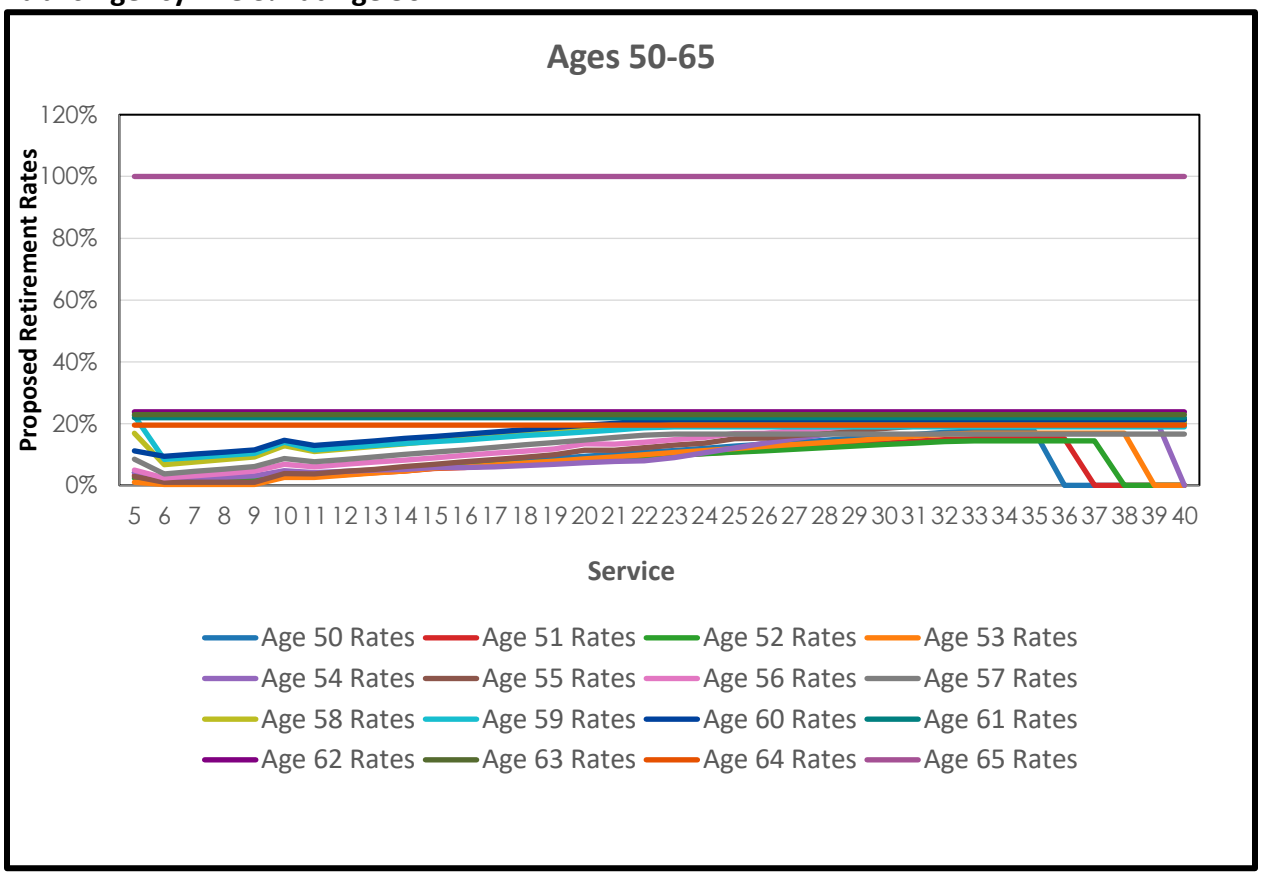
## Service Retirement (continued)

### Public Agency Miscellaneous 2.5% at Age 55



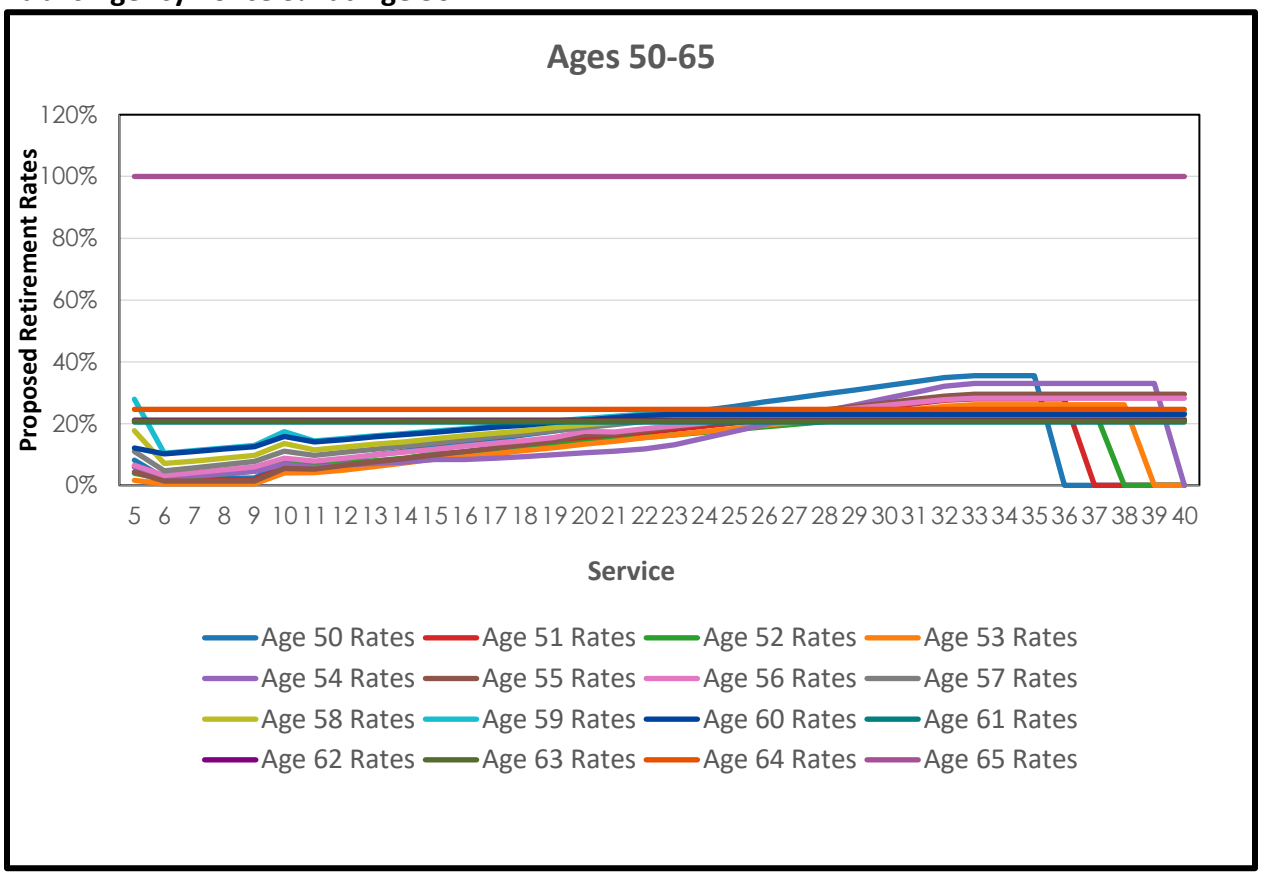
## Service Retirement (continued)

### Public Agency Fire 3% at Age 50



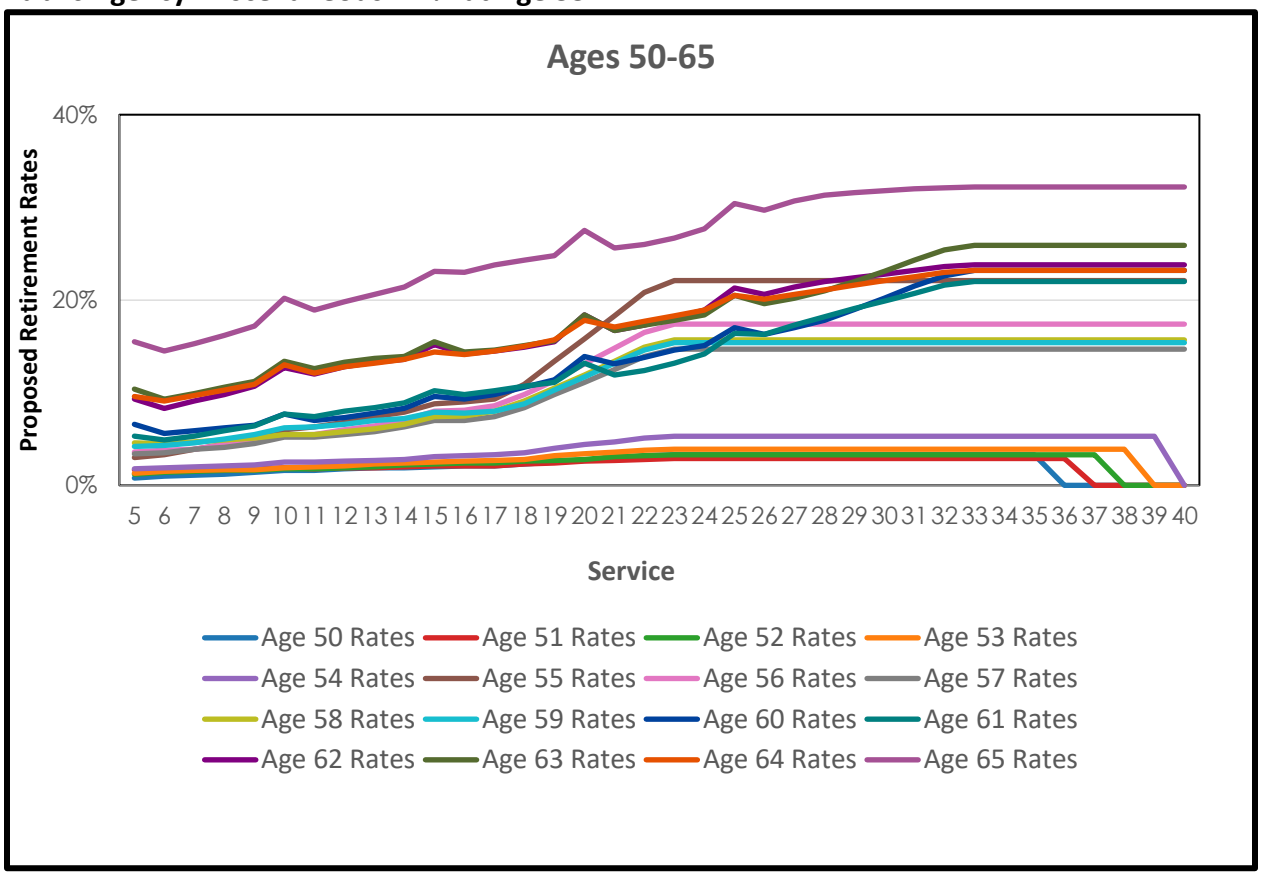
## Service Retirement (continued)

### Public Agency Police 3% at Age 50



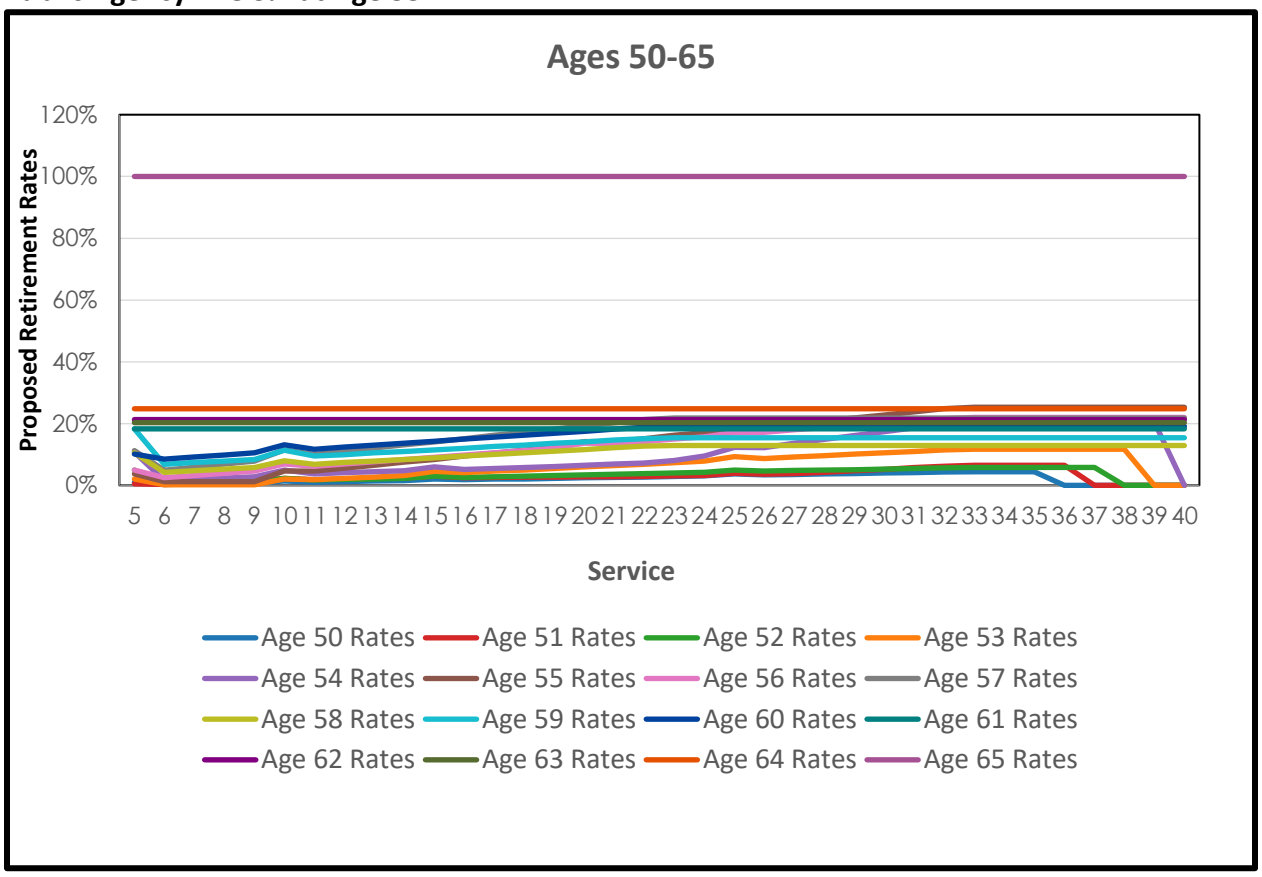
## Service Retirement (continued)

### Public Agency Miscellaneous 2.7% at Age 55



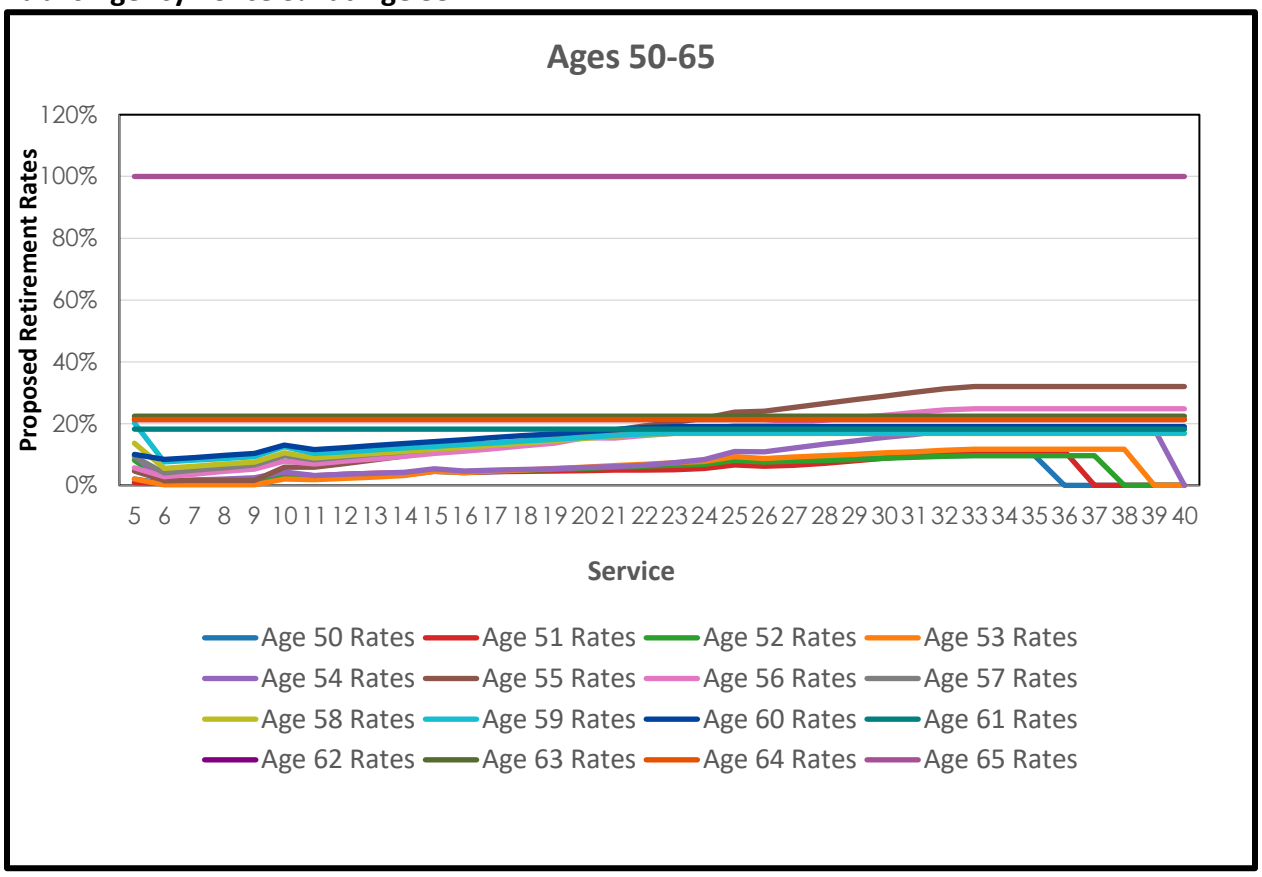
## Service Retirement (continued)

### Public Agency Fire 3% at Age 55



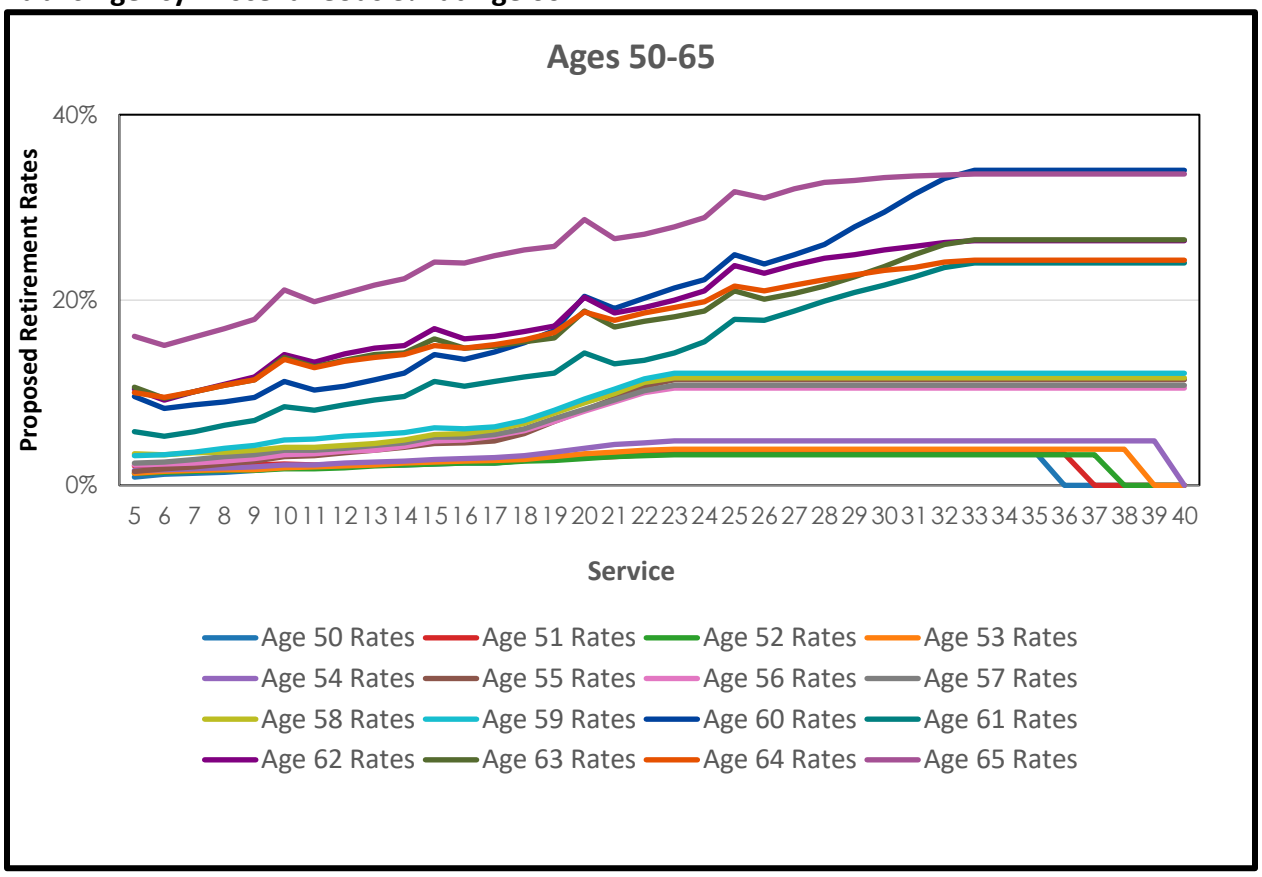
## Service Retirement (continued)

### Public Agency Police 3% at Age 55



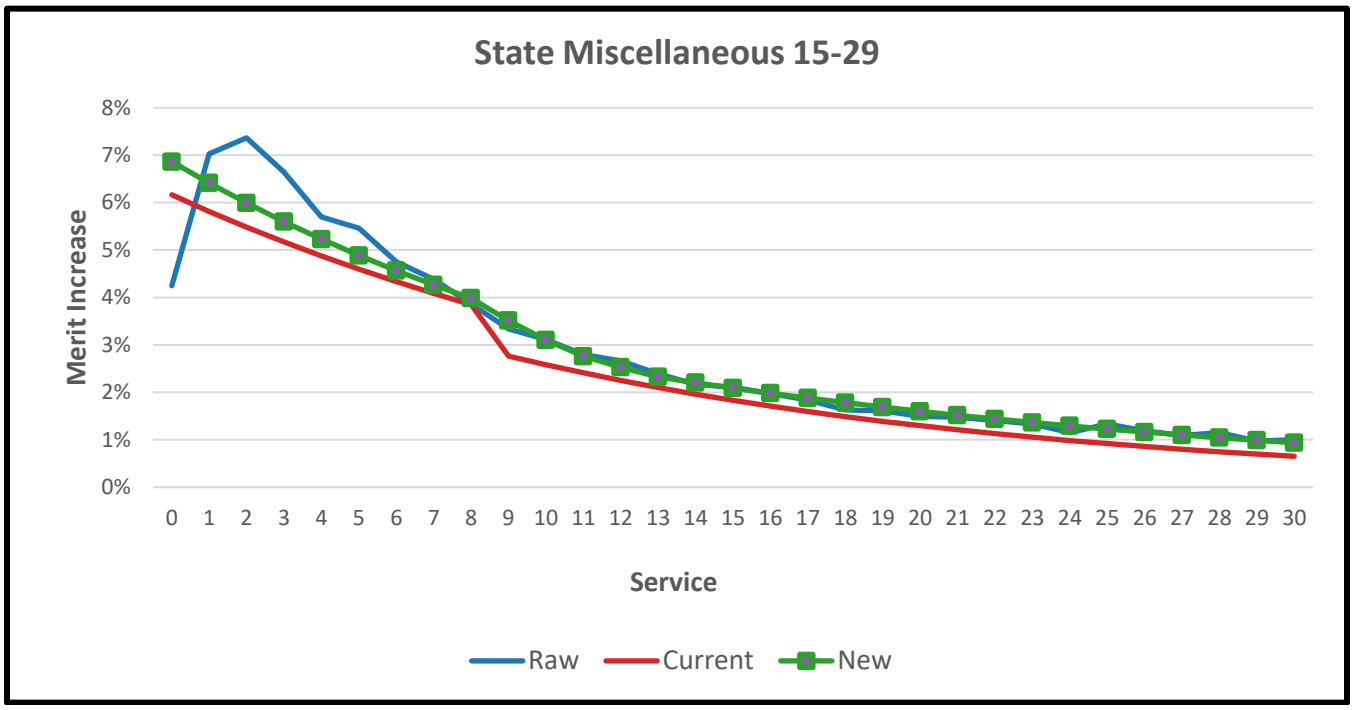
## Service Retirement (continued)

### Public Agency Miscellaneous 3% at Age 60



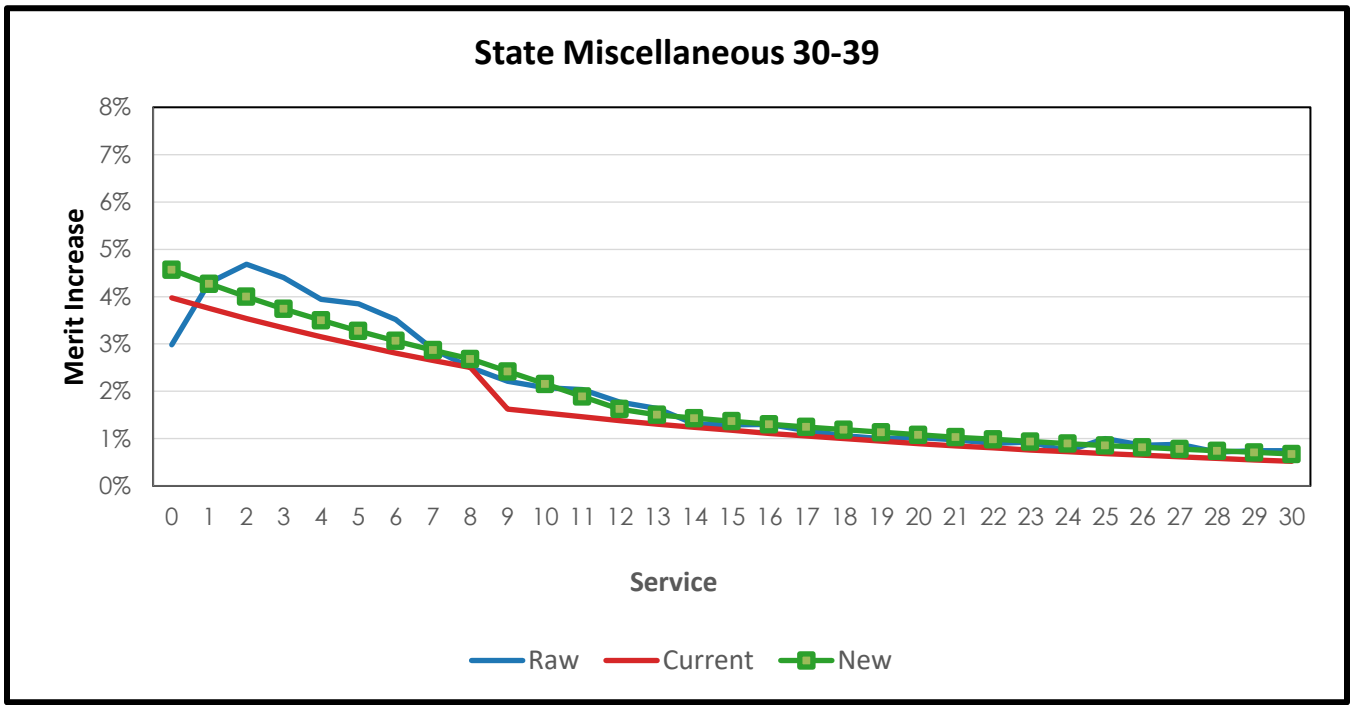
## Merit Rates

### State Miscellaneous



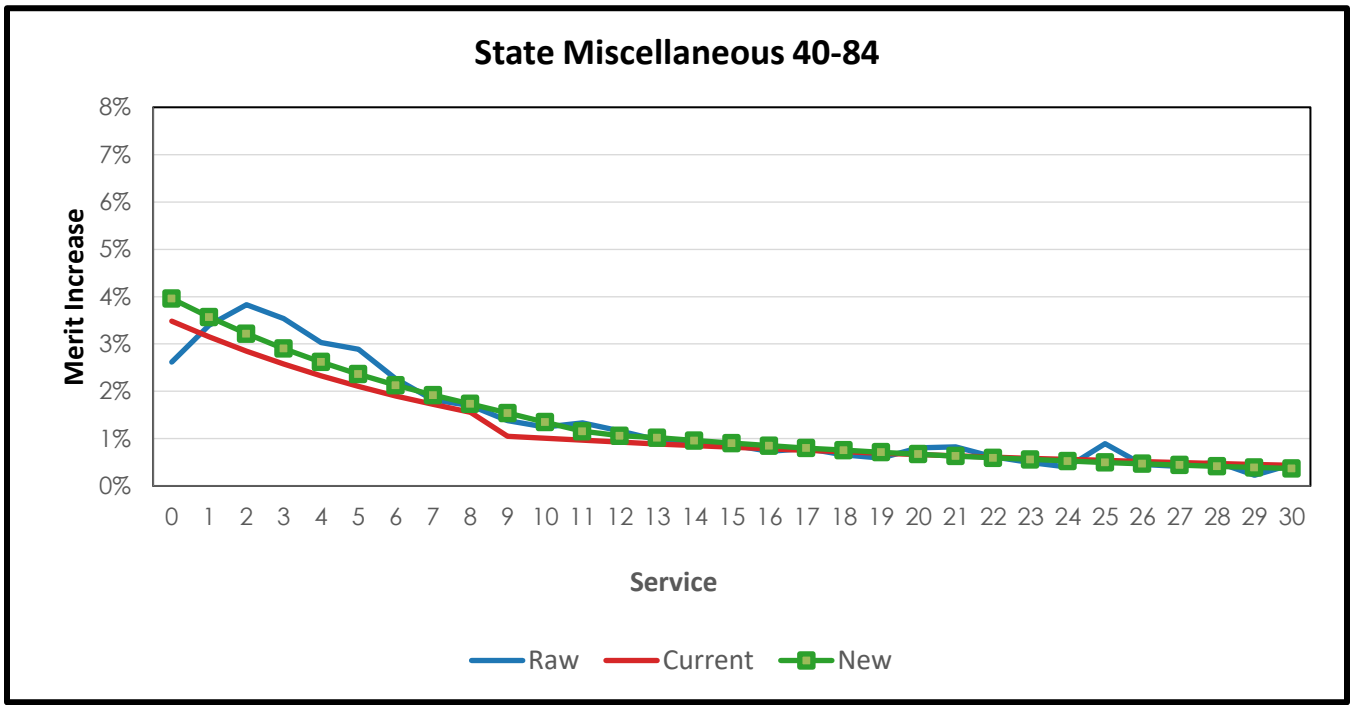
## Merit Rates (continued)

### State Miscellaneous 30-39



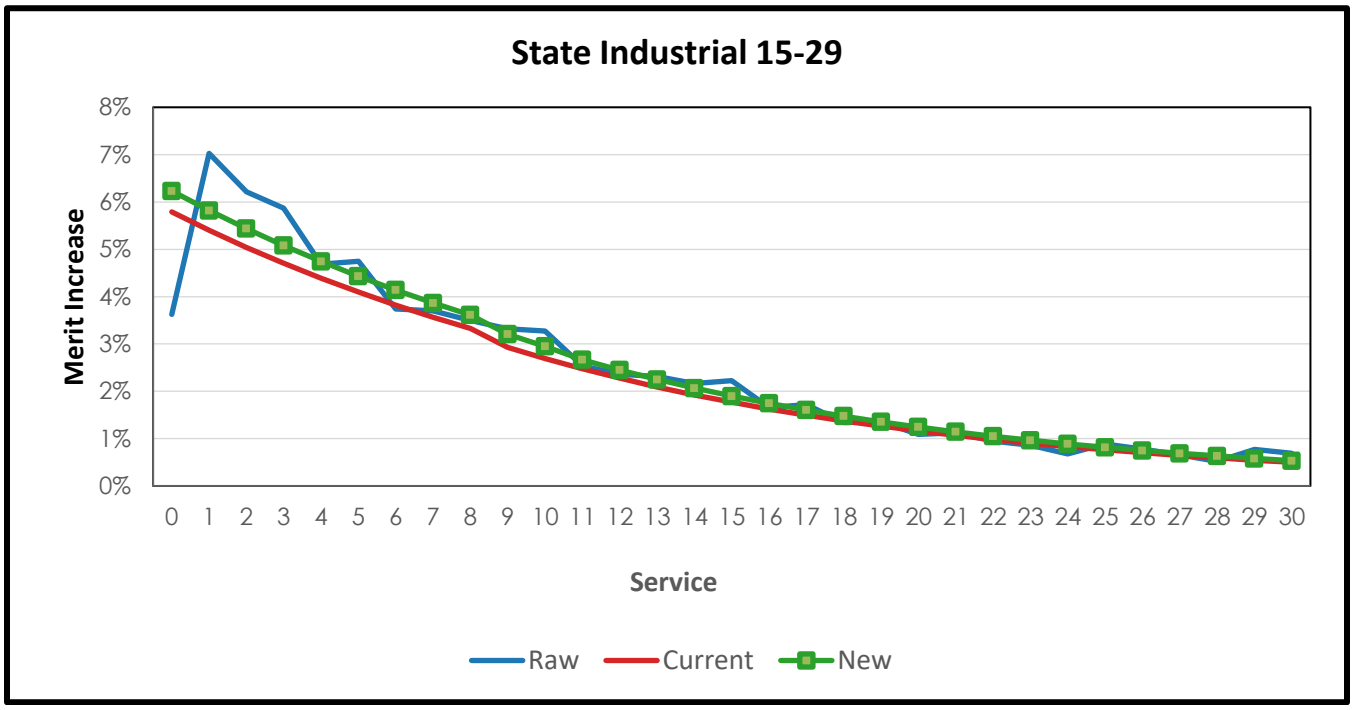
## Merit Rates (continued)

### State Miscellaneous 40-84



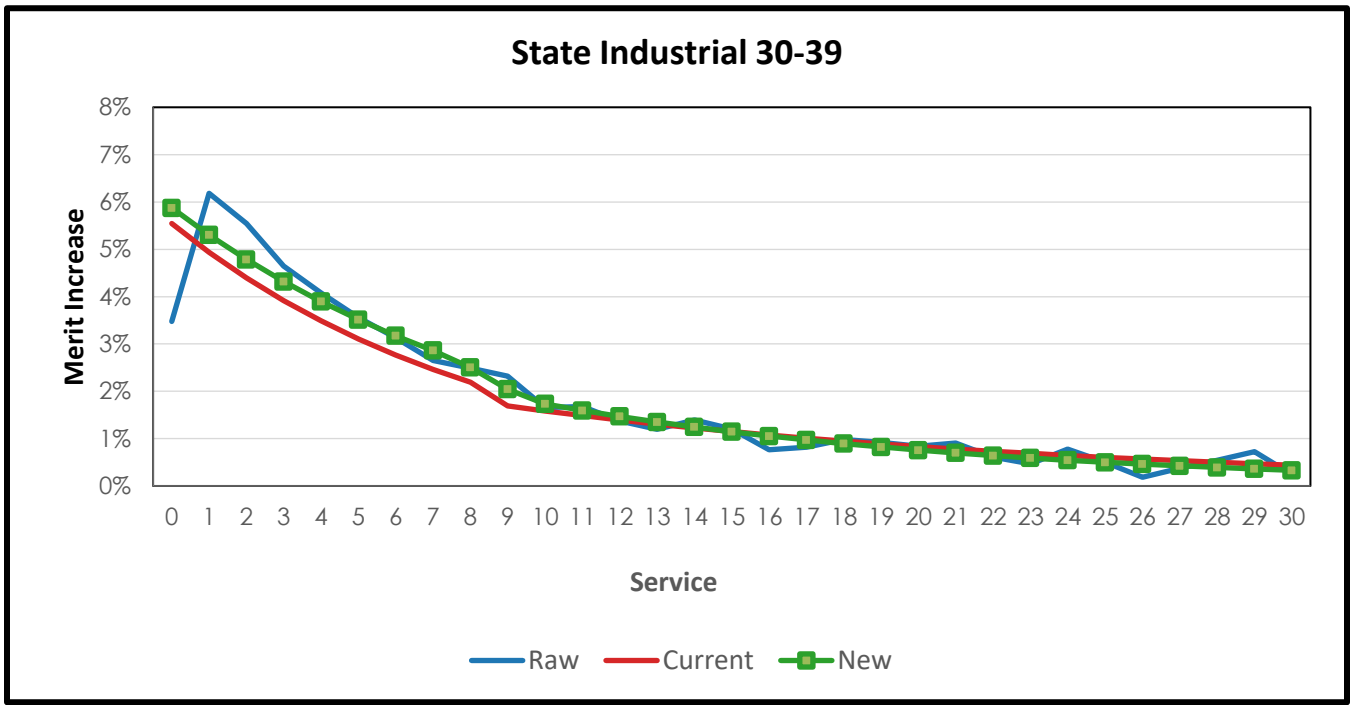
## Merit Rates (continued)

### State Industrial 15-29



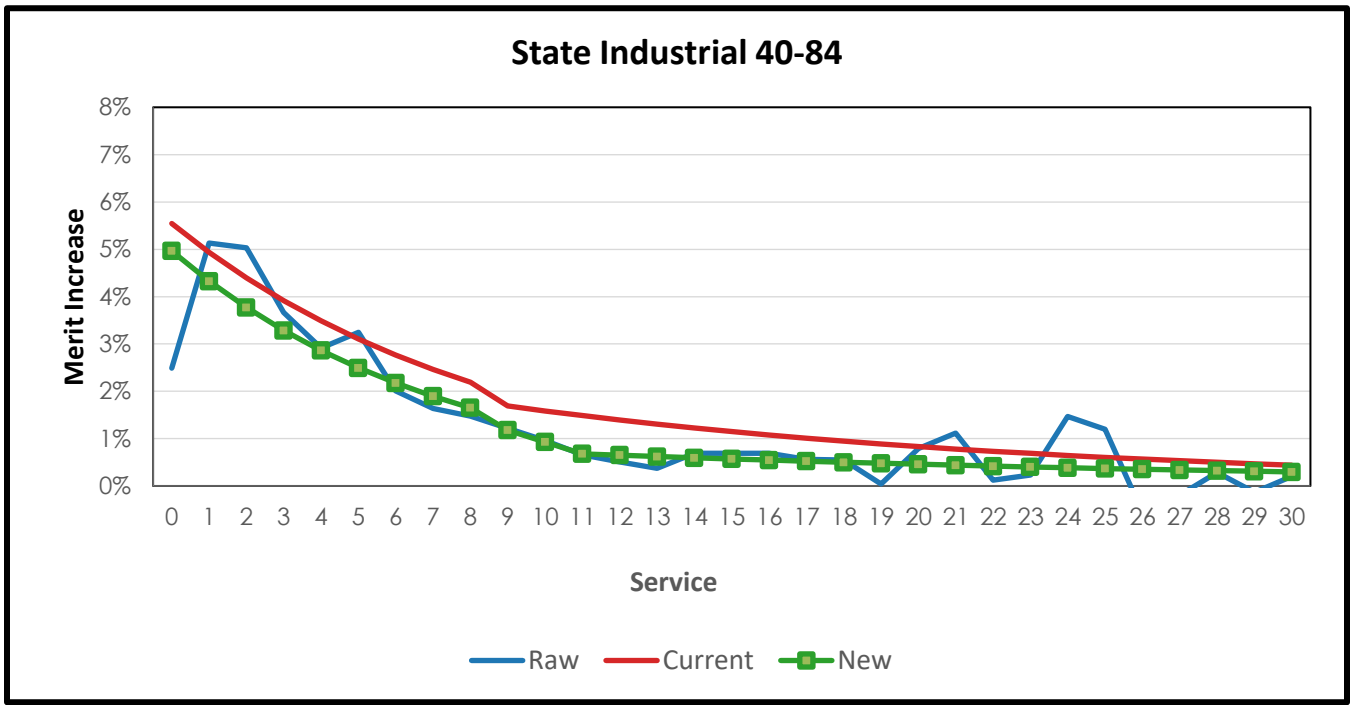
## Merit Rates (continued)

### State Industrial 30-39



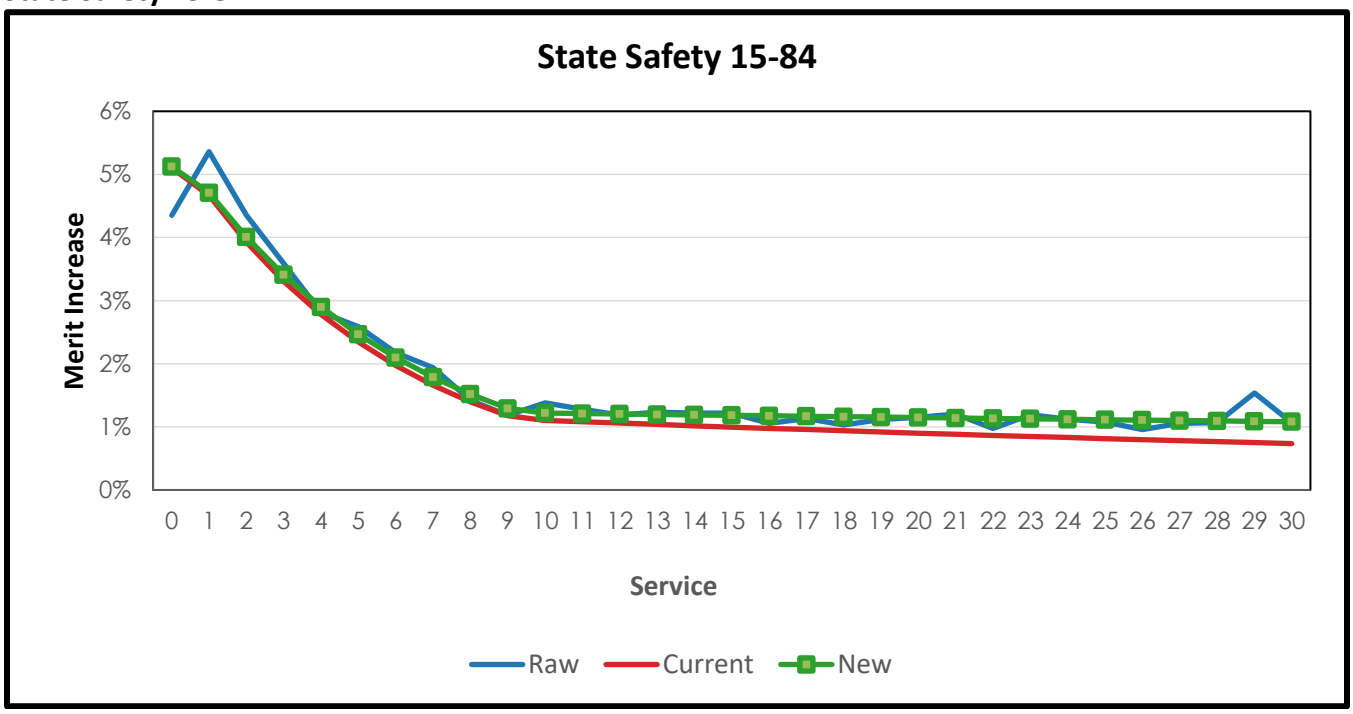
## Merit Rates (continued)

### State Industrial 40-84



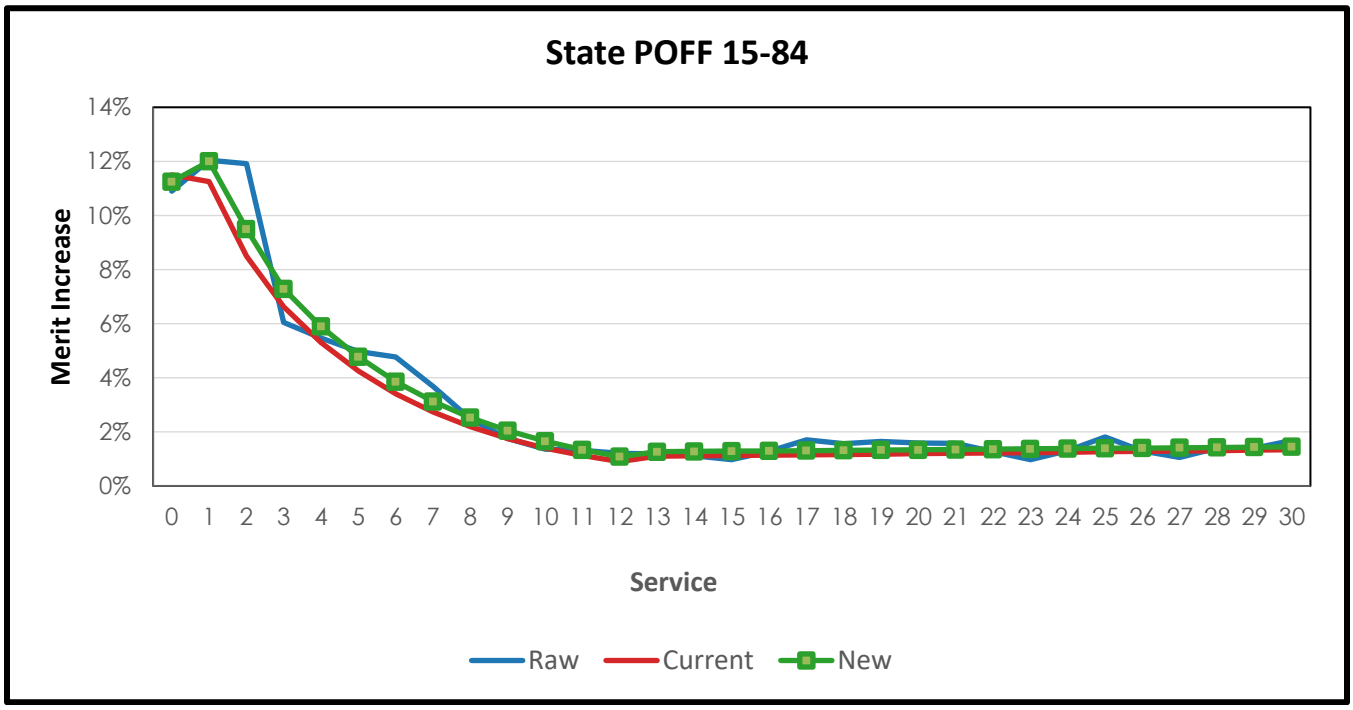
## Merit Rates (continued)

### State Safety 15-84



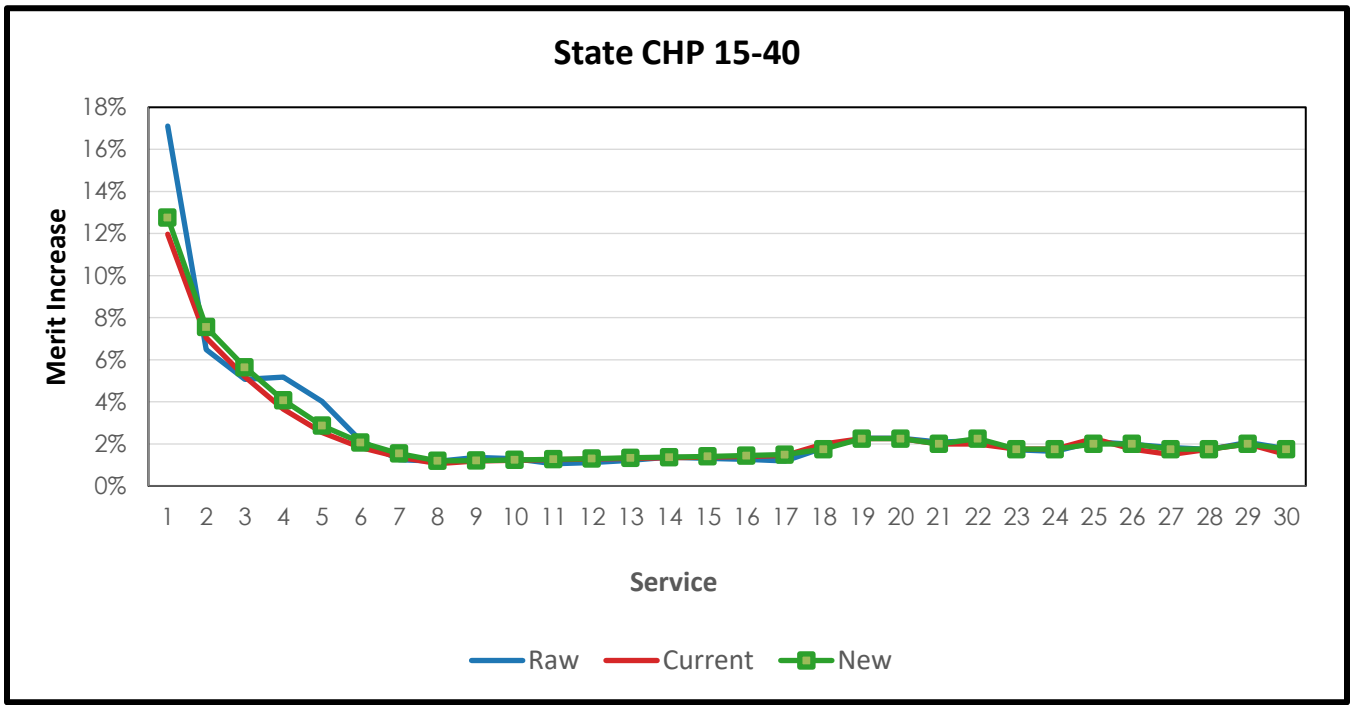
## Merit Rates (continued)

### State POFF 15-84



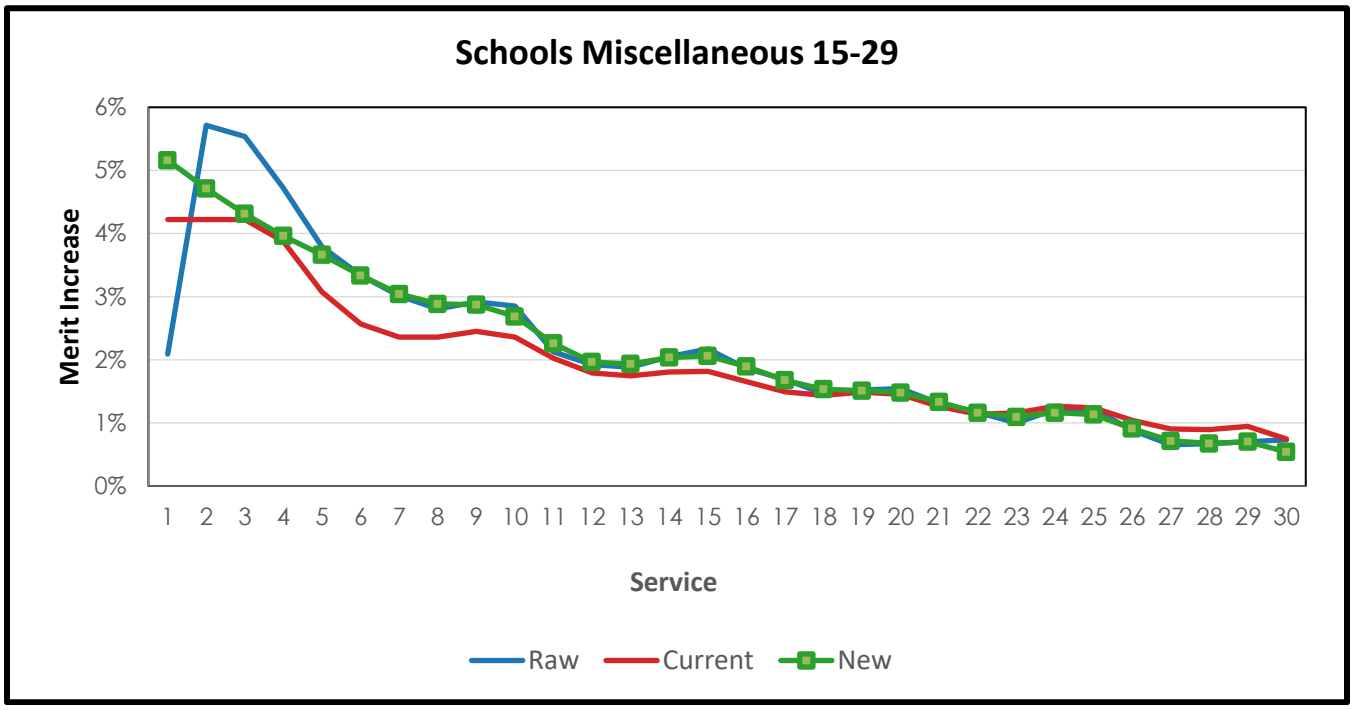
## Merit Rates (continued)

### State CHP 15-40



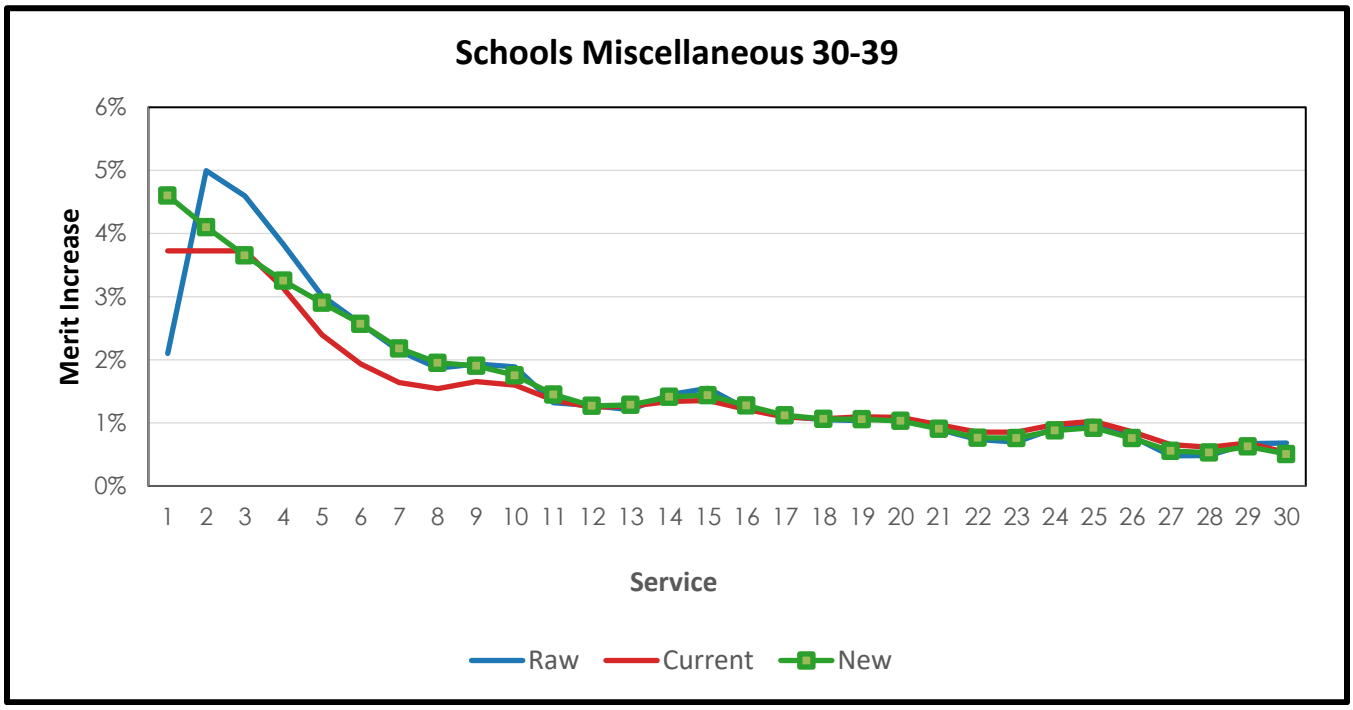
## Merit Rates (continued)

### Schools Miscellaneous 15-29



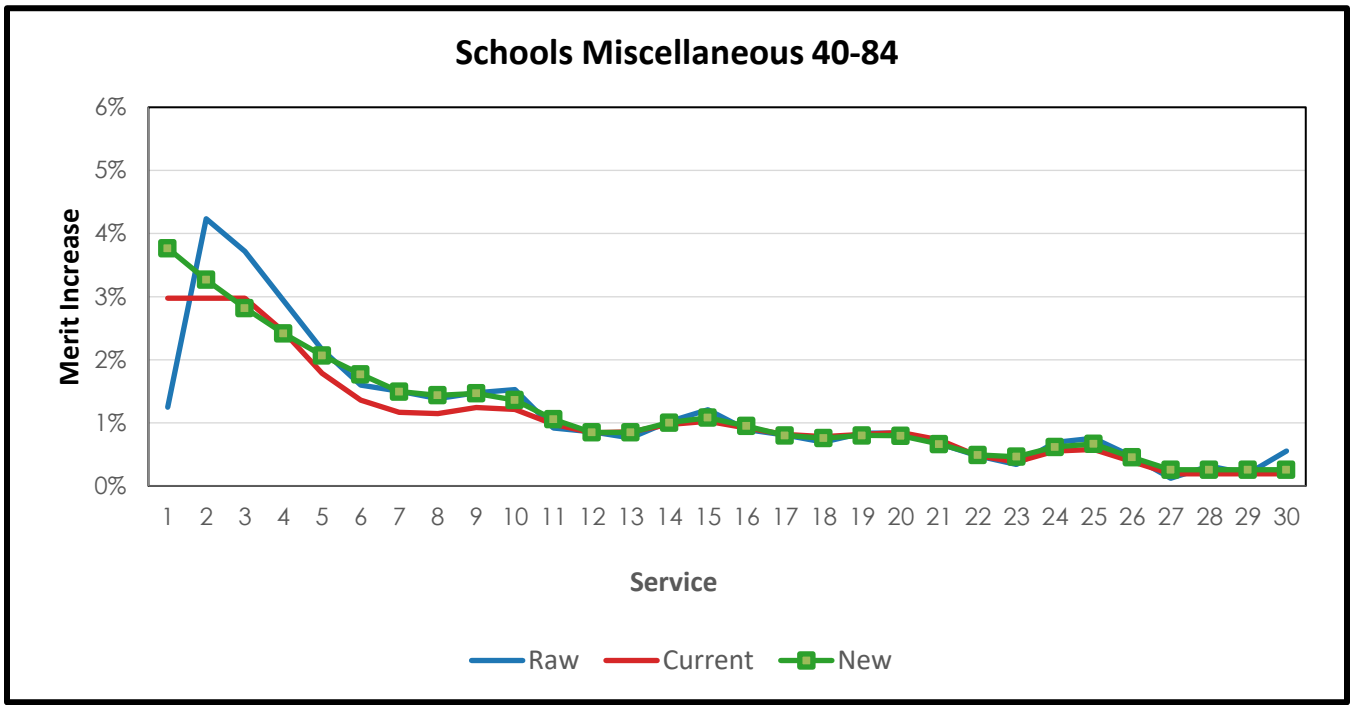
## Merit Rates (continued)

### Schools Miscellaneous 30-39



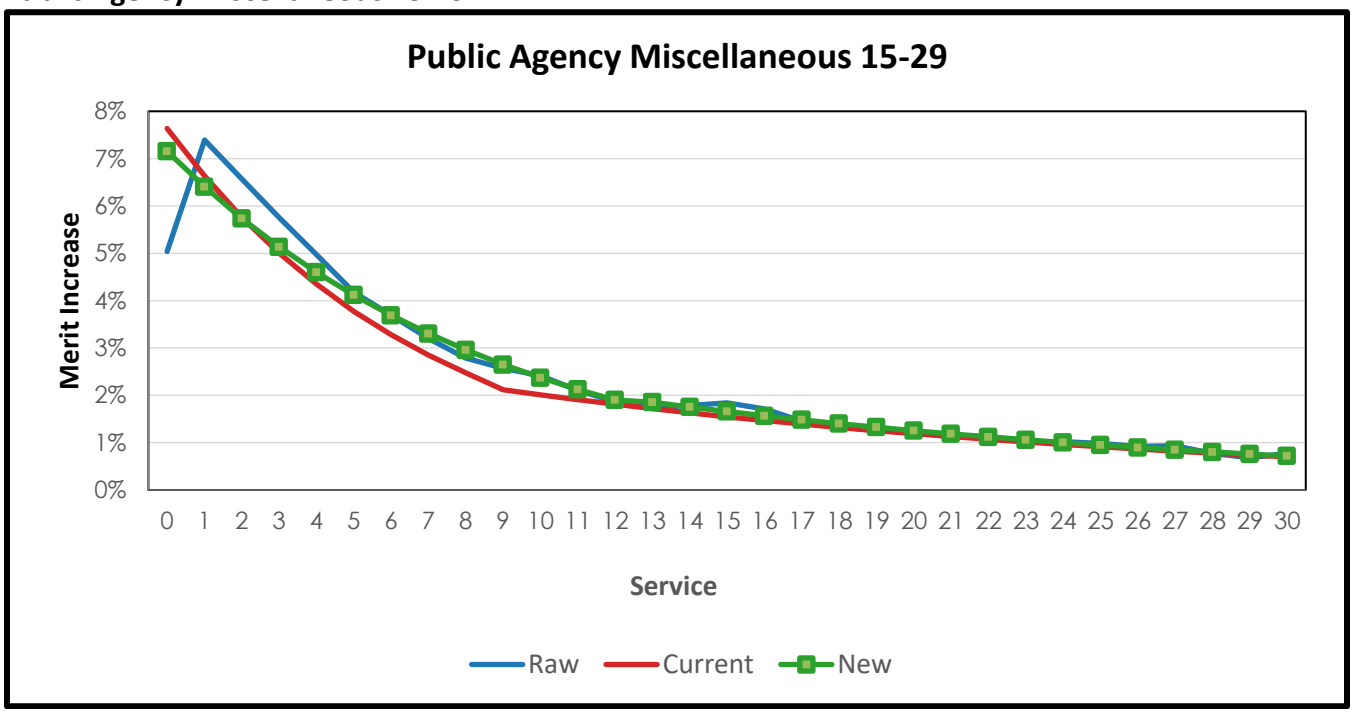
## Merit Rates (continued)

### Schools Miscellaneous 40-84



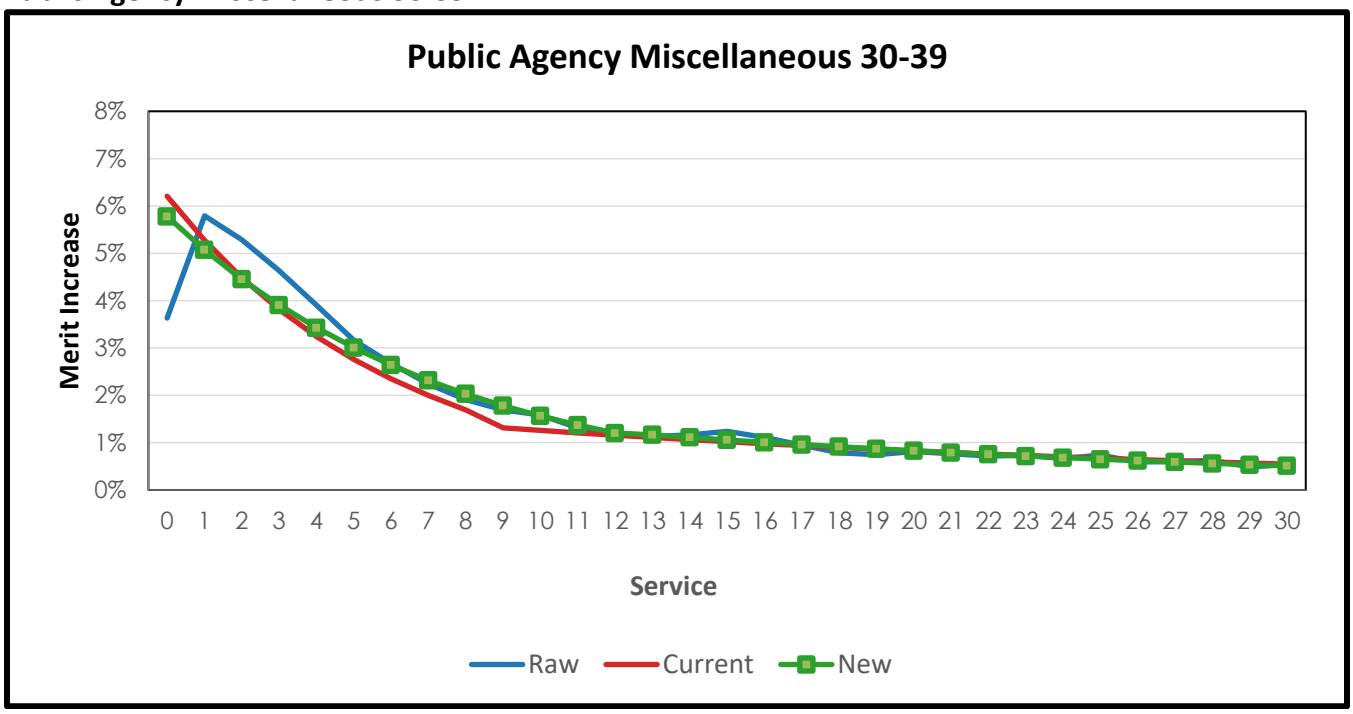
## Merit Rates (continued)

### Public Agency Miscellaneous 15-29



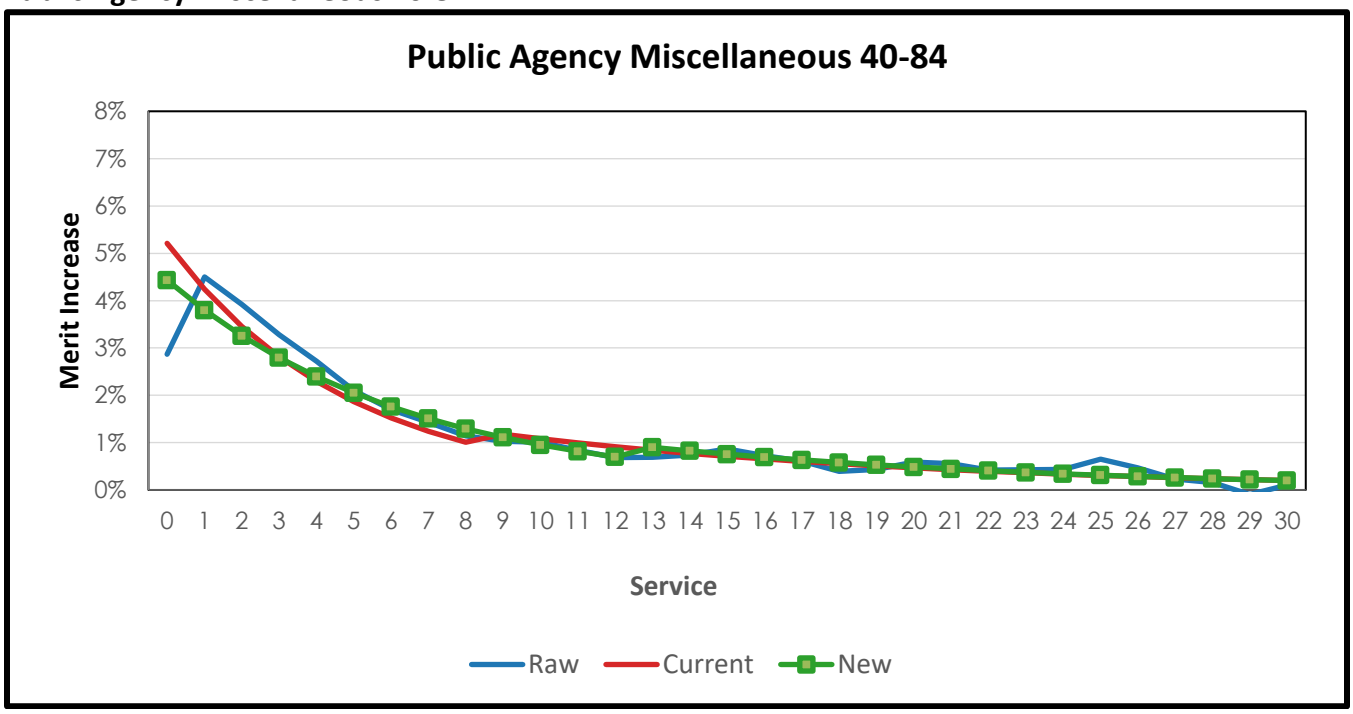
## Merit Rates (continued)

### Public Agency Miscellaneous 30-39



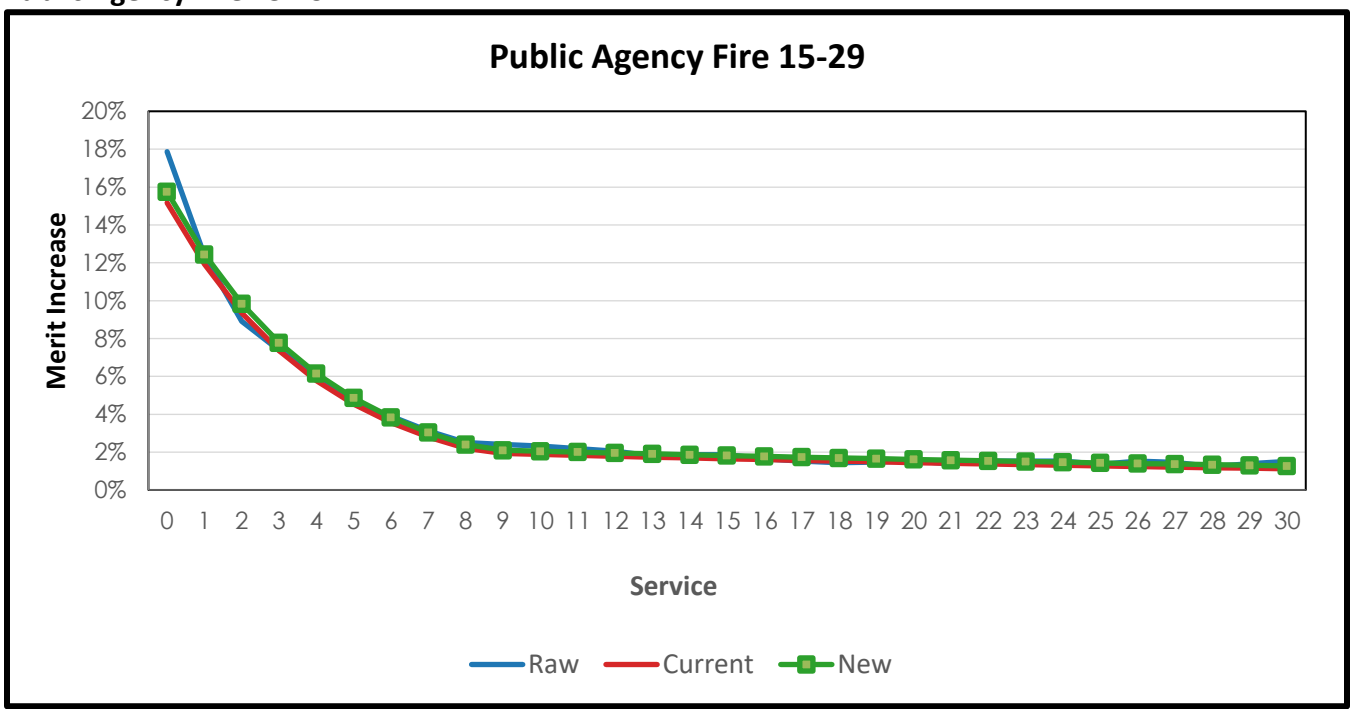
## Merit Rates (continued)

### Public Agency Miscellaneous 40-84



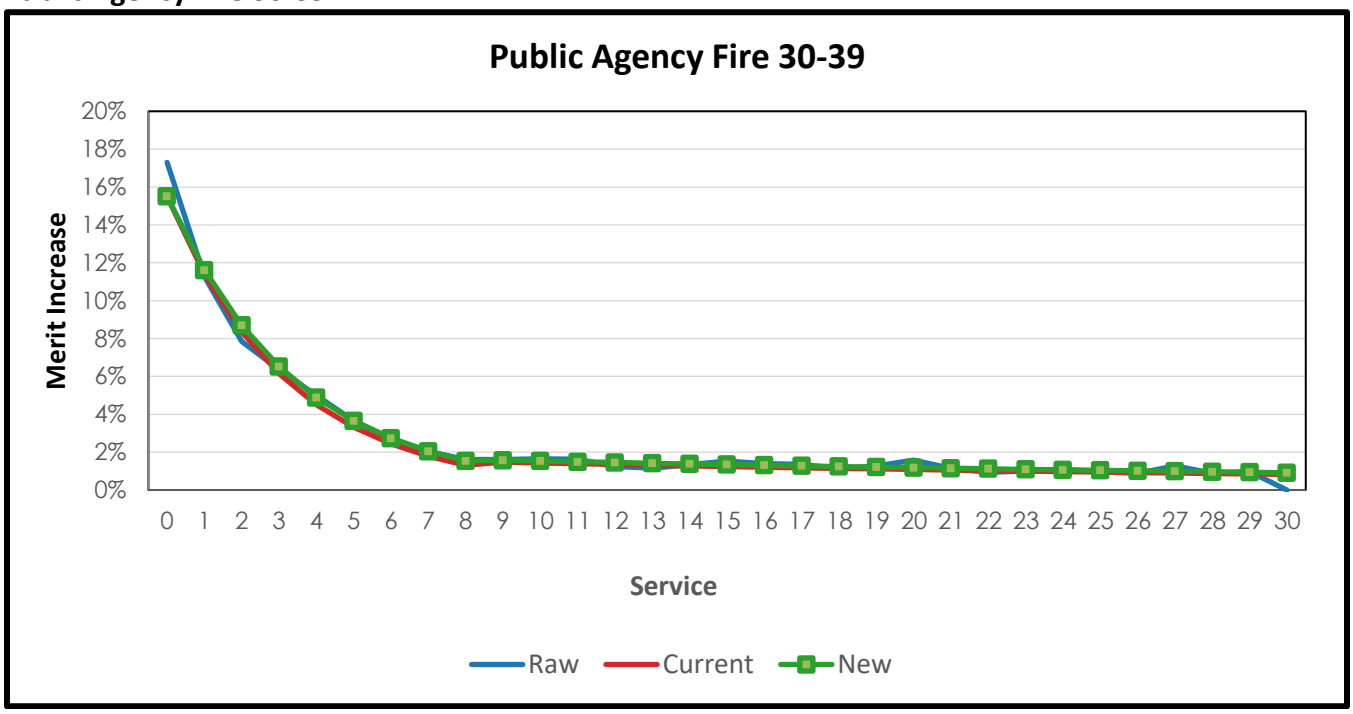
## Merit Rates (continued)

### Public Agency Fire 15-29



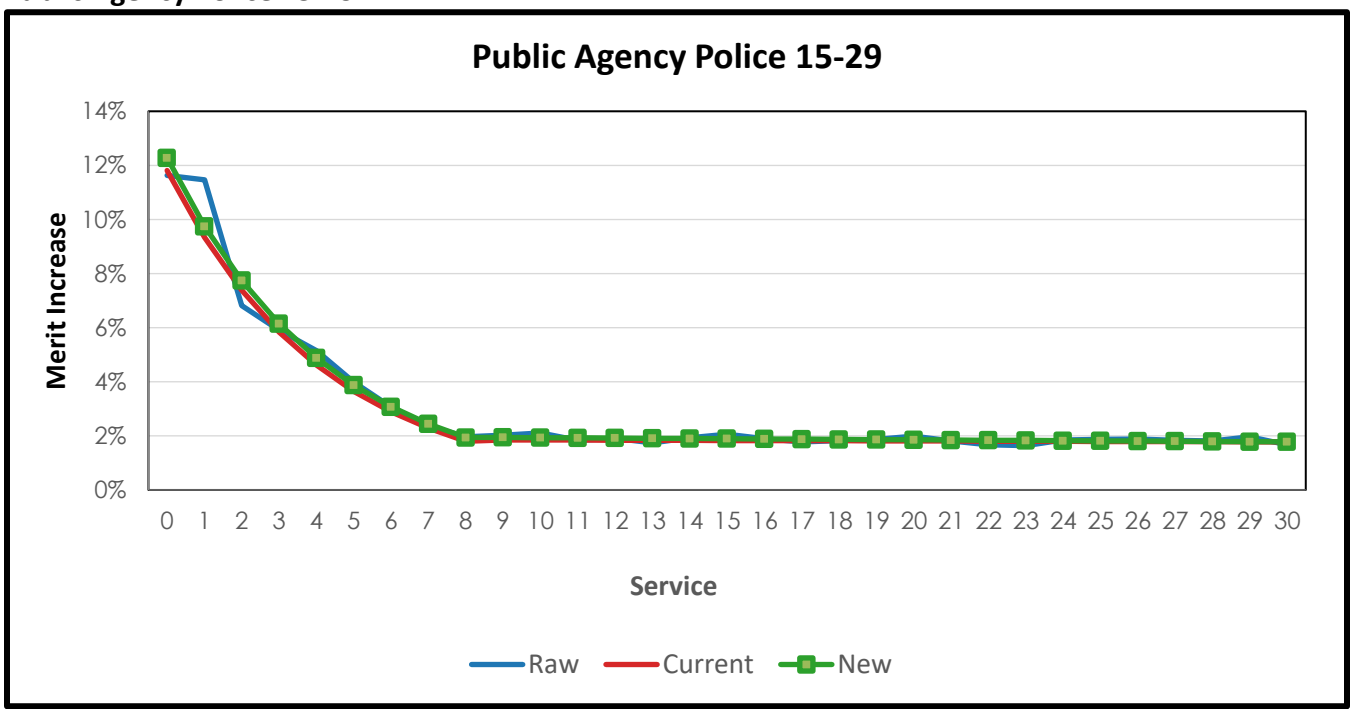
## Merit Rates (continued)

### Public Agency Fire 30-39



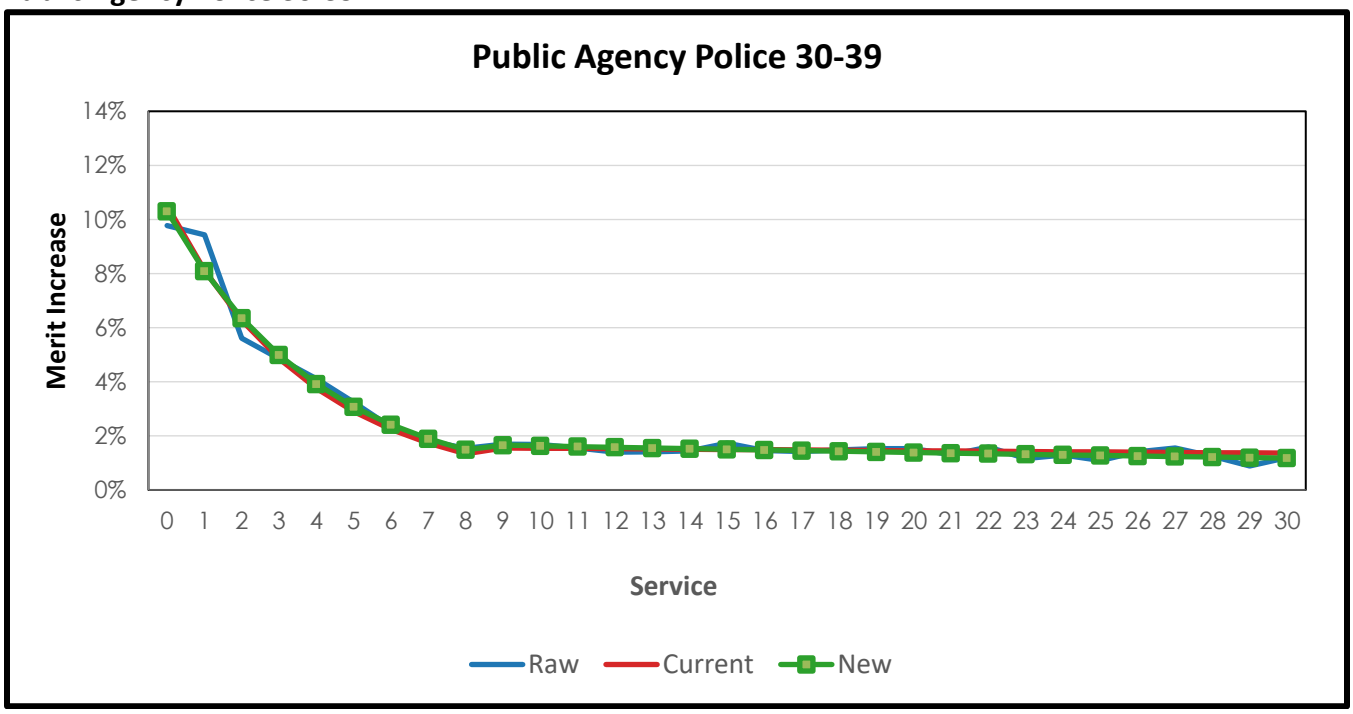
## Merit Rates (continued)

### Public Agency Police 15-29



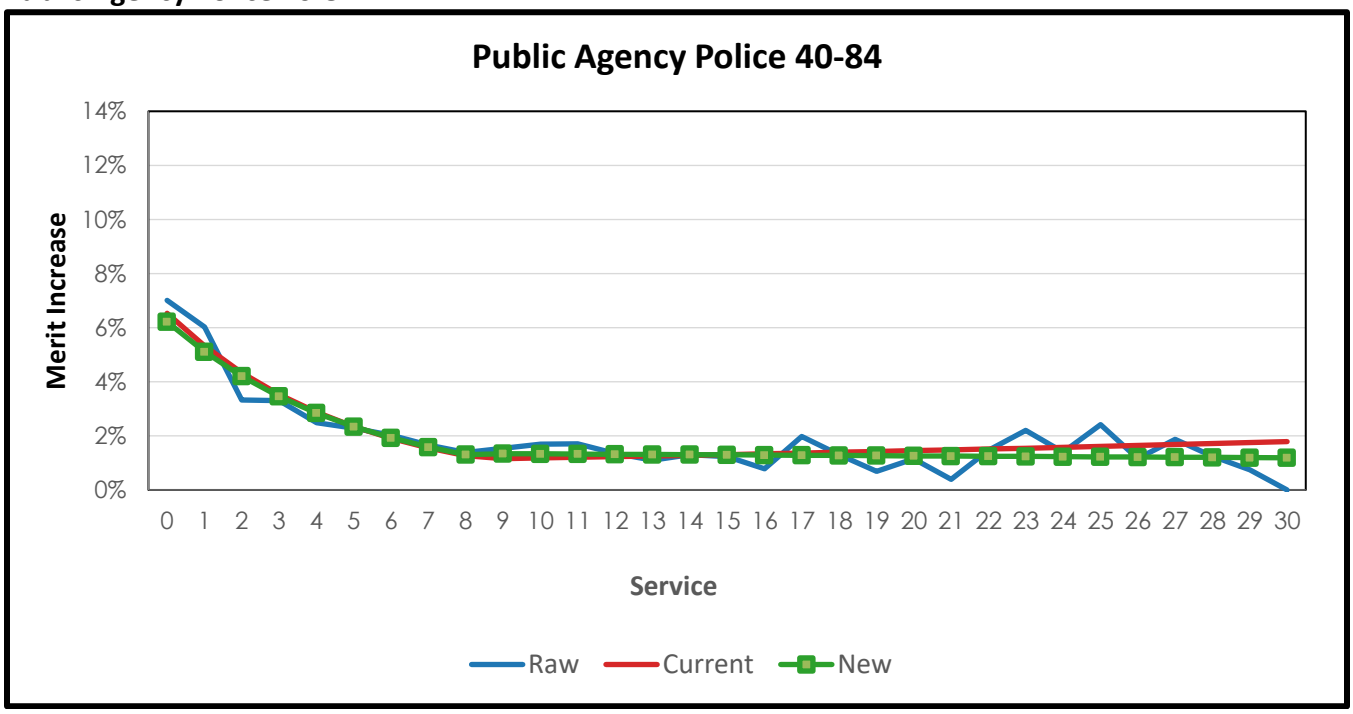
## Merit Rates (continued)

### Public Agency Police 30-39



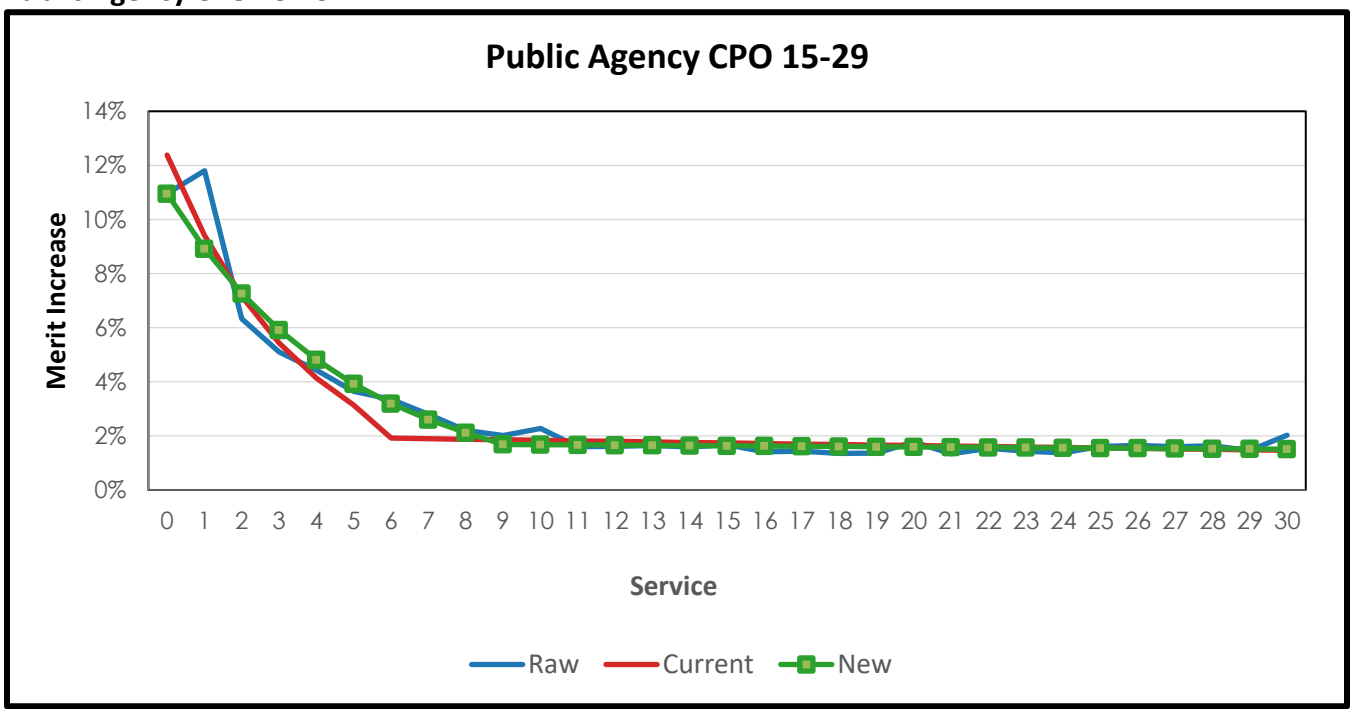
## Merit Rates (continued)

### Public Agency Police 40-84



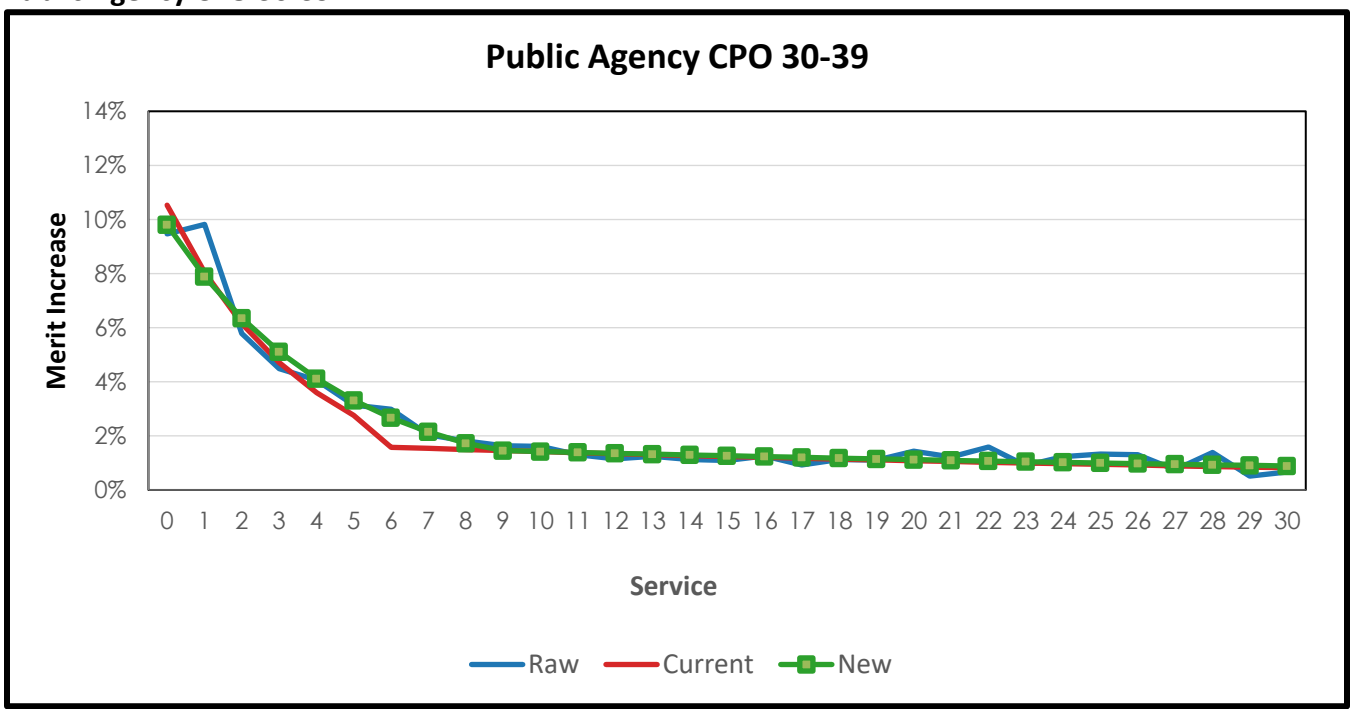
## Merit Rates (continued)

### Public Agency CPO 15-29



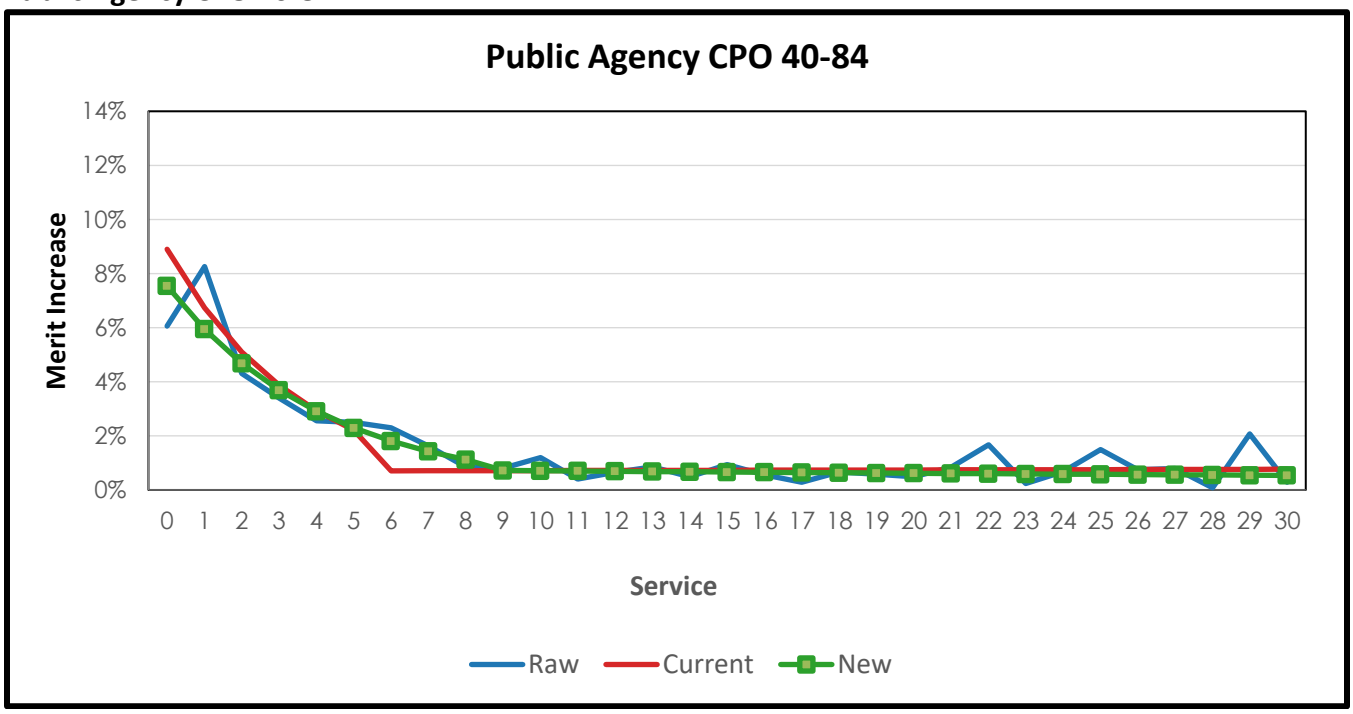
## Merit Rates (continued)

### Public Agency CPO 30-39



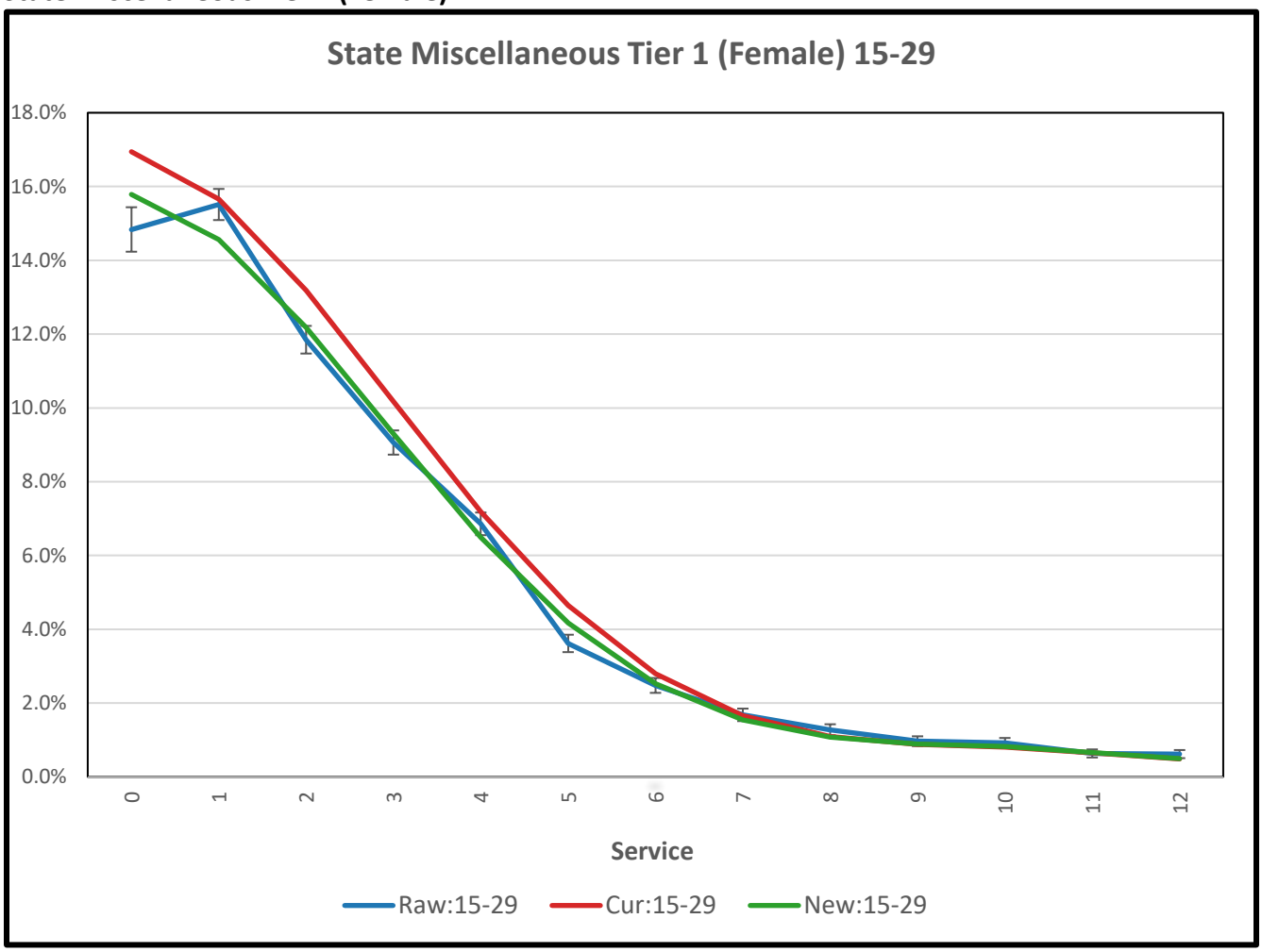
## Merit Rates (continued)

### Public Agency CPO 40-84



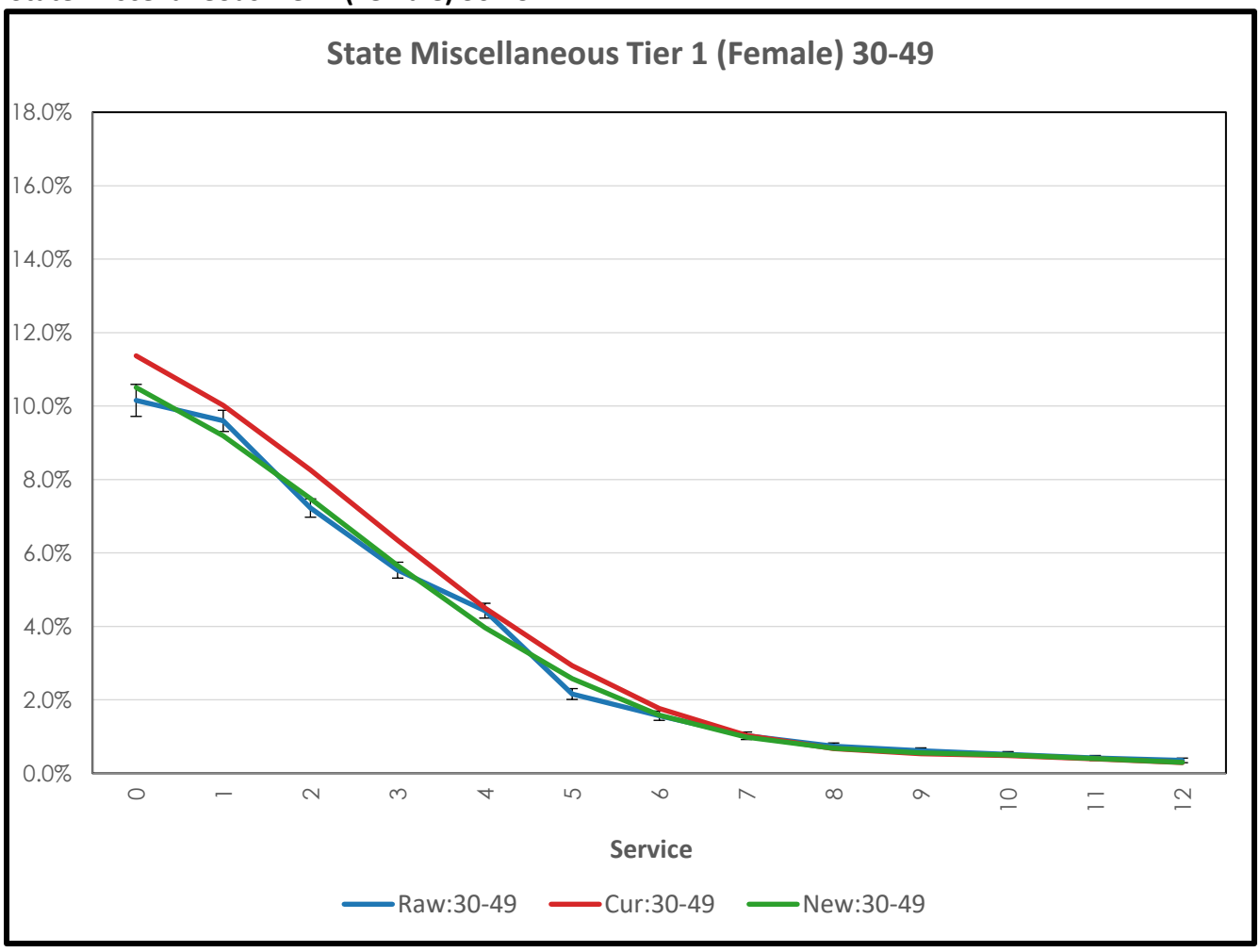
## Termination with Refund

### State Miscellaneous Tier 1 (Female)



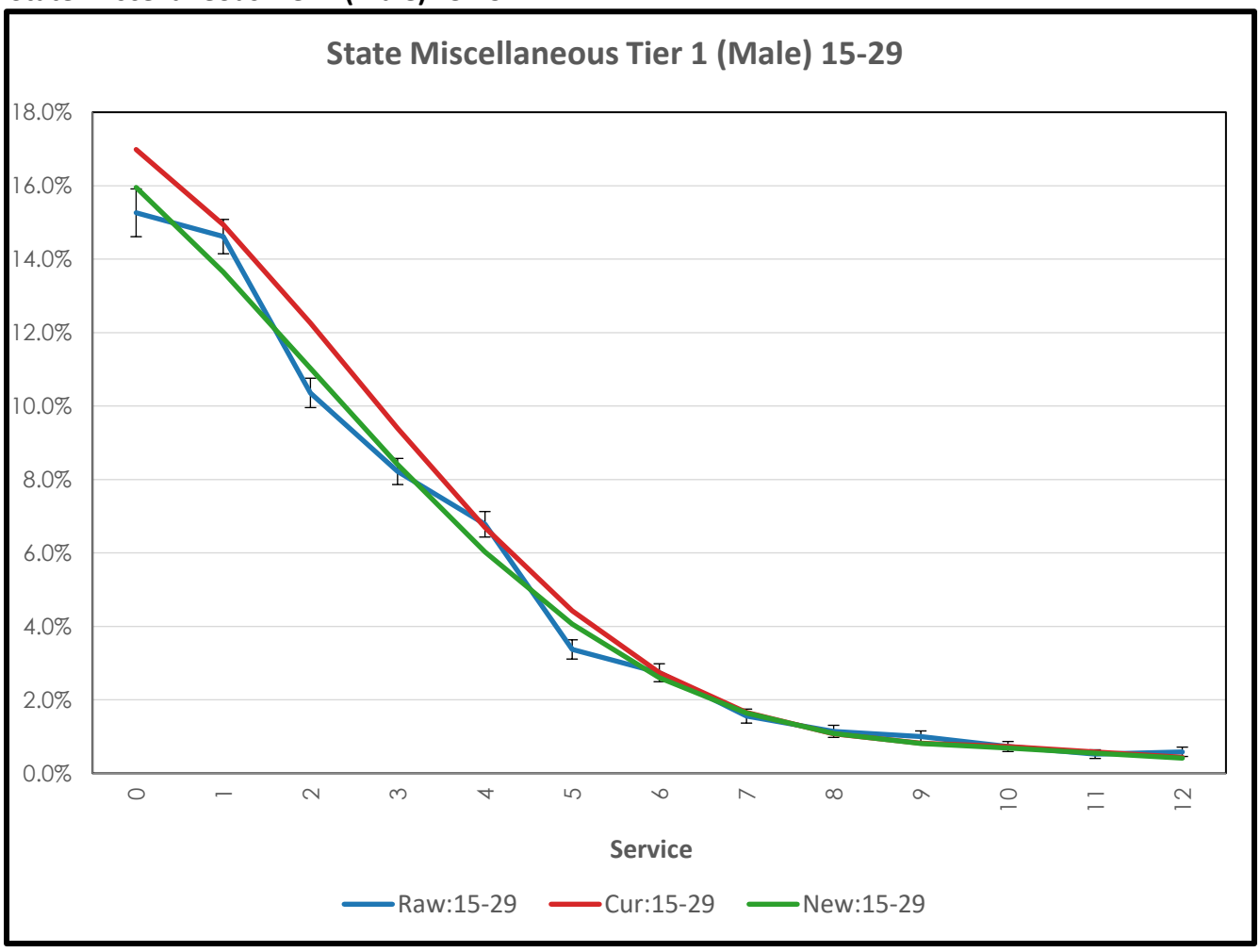
## Termination with Refund (continued)

**State Miscellaneous Tier 1 (Female) 30-49**



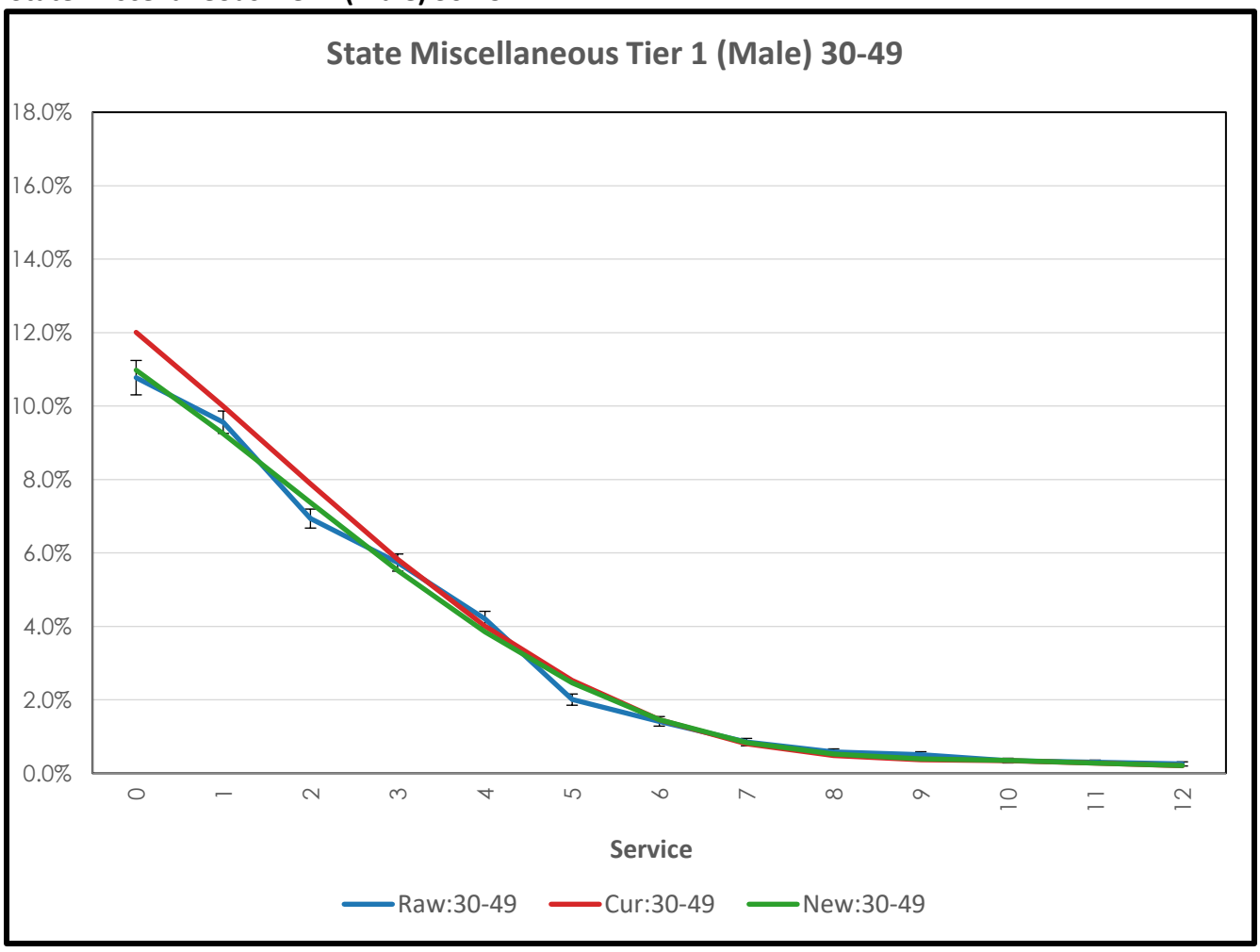
## Termination with Refund (continued)

**State Miscellaneous Tier 1 (Male) 15-29**



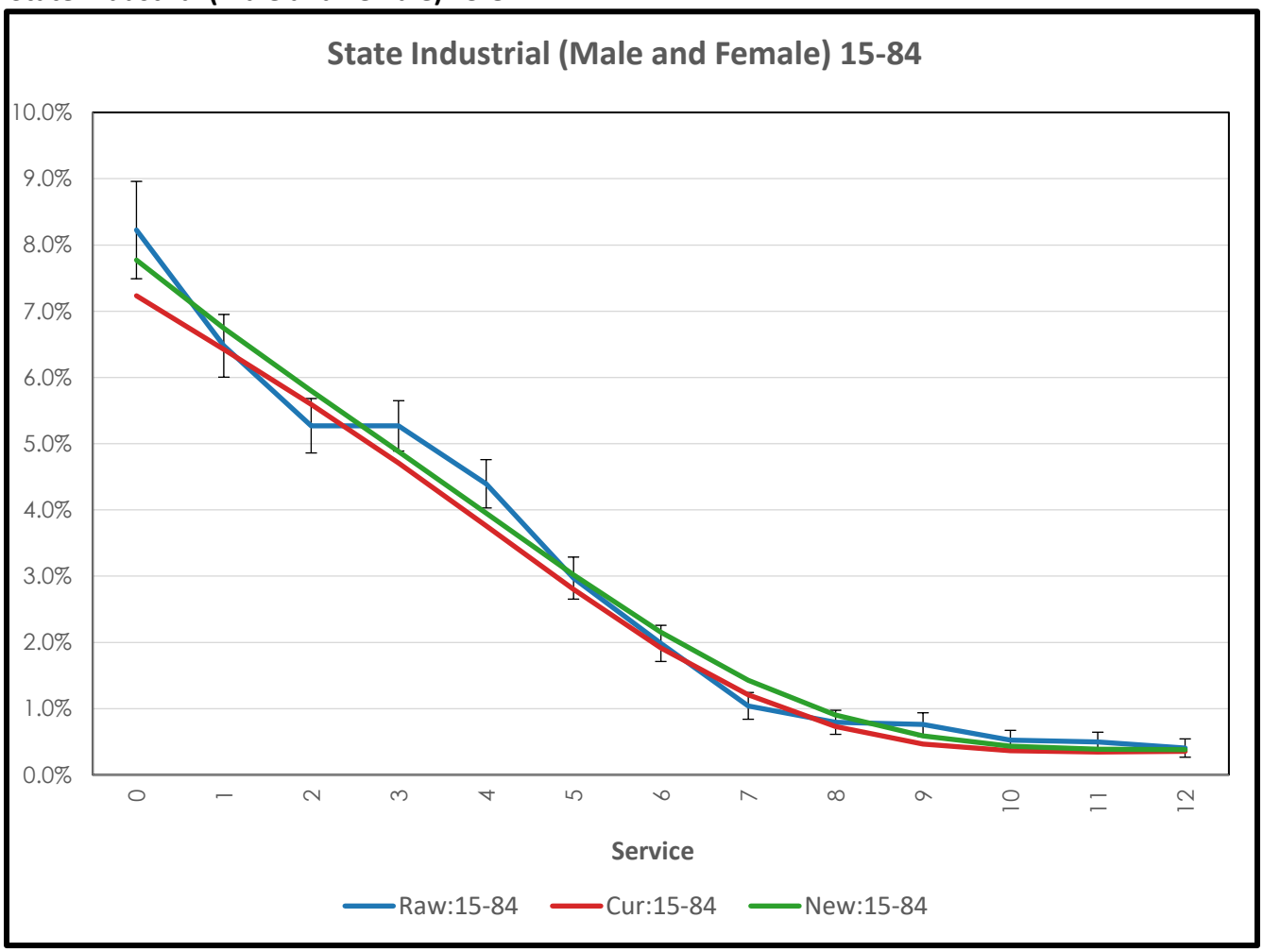
## Termination with Refund (continued)

**State Miscellaneous Tier 1 (Male) 30-49**



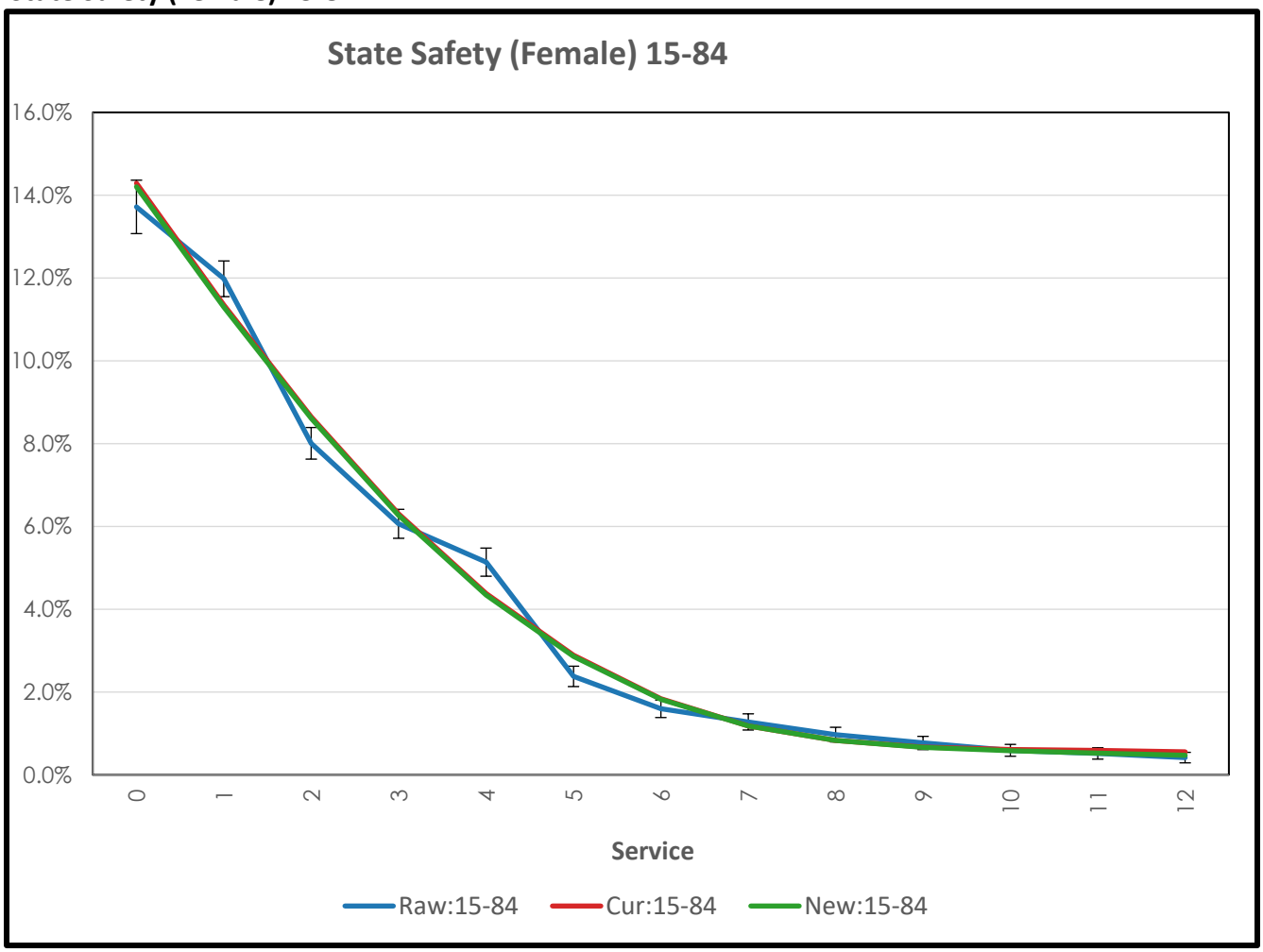
## Termination with Refund (continued)

**State Industrial (Male and Female) 15-84**



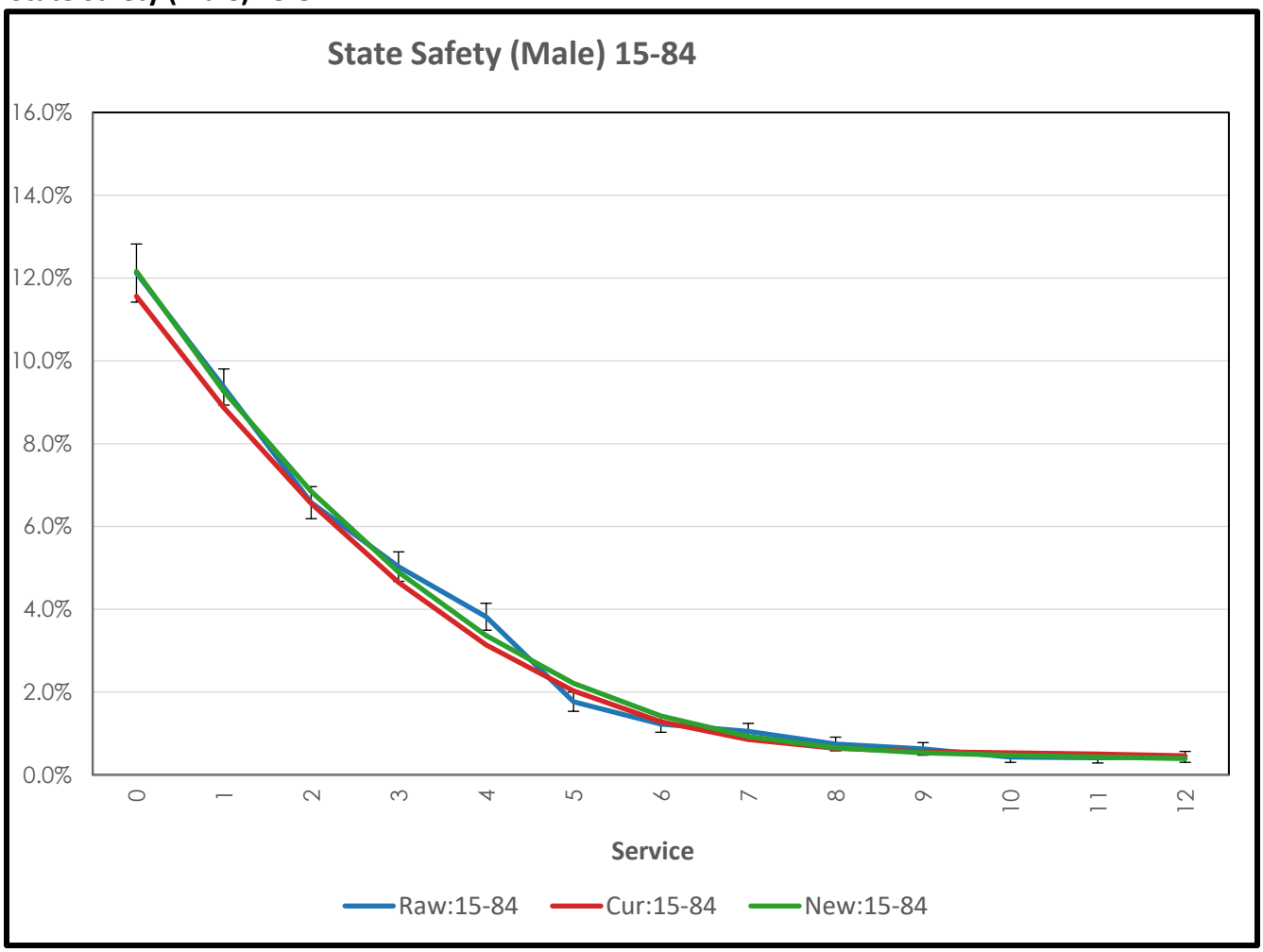
## Termination with Refund (continued)

**State Safety (Female) 15-84**



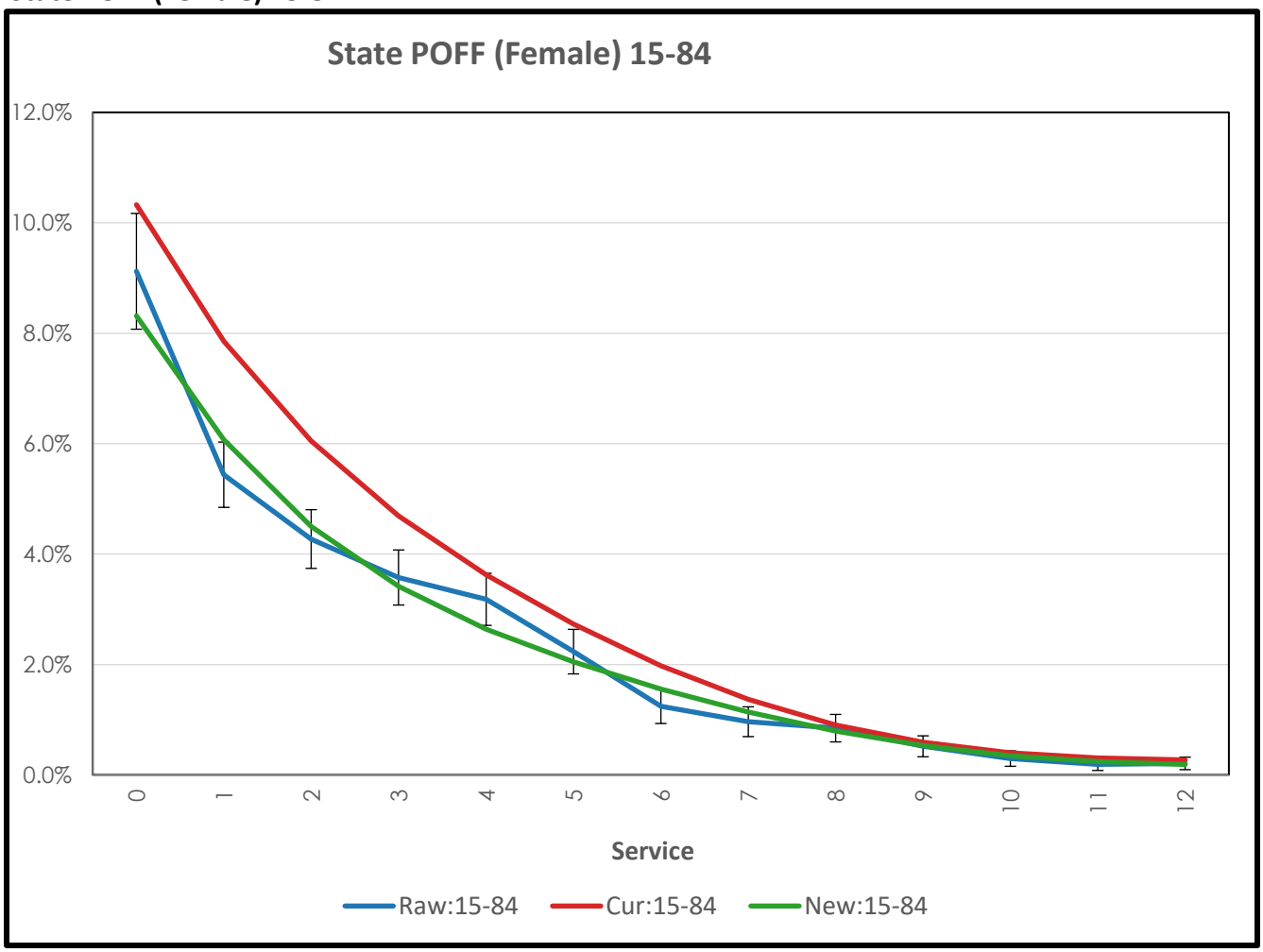
## Termination with Refund (continued)

**State Safety (Male) 15-84**



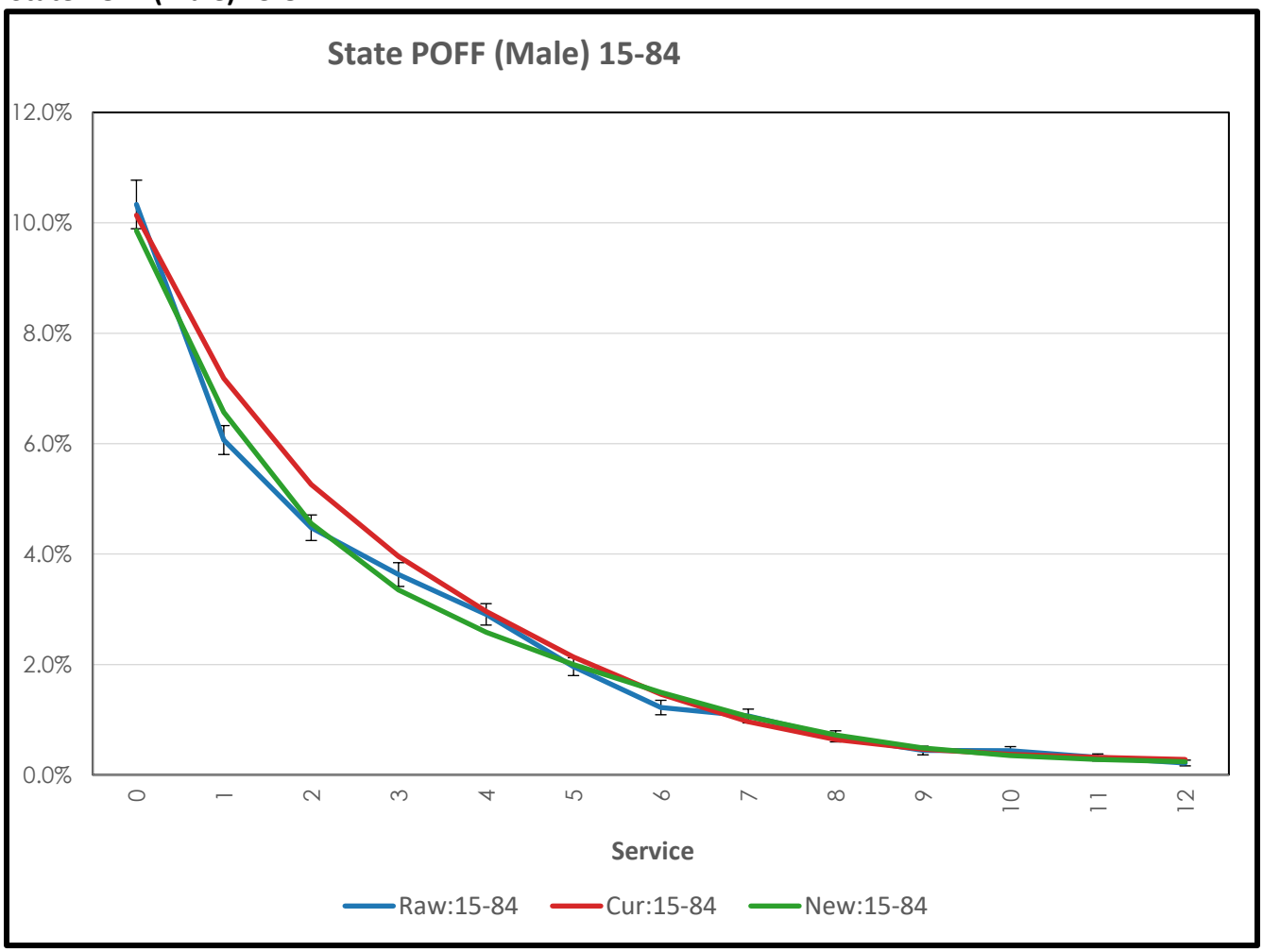
## Termination with Refund (continued)

**State POFF (Female) 15-84**



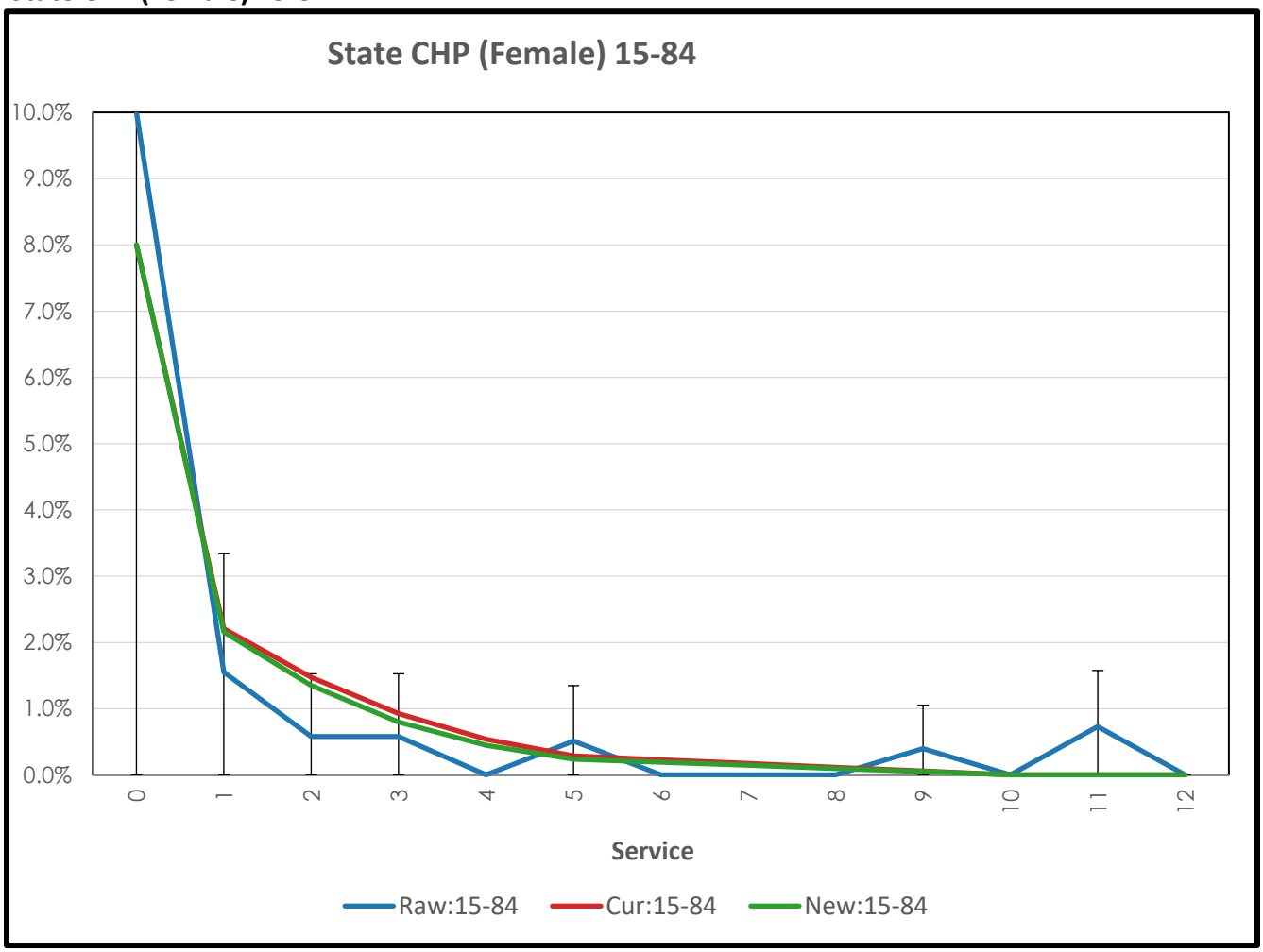
## Termination with Refund (continued)

**State POFF (Male) 15-84**



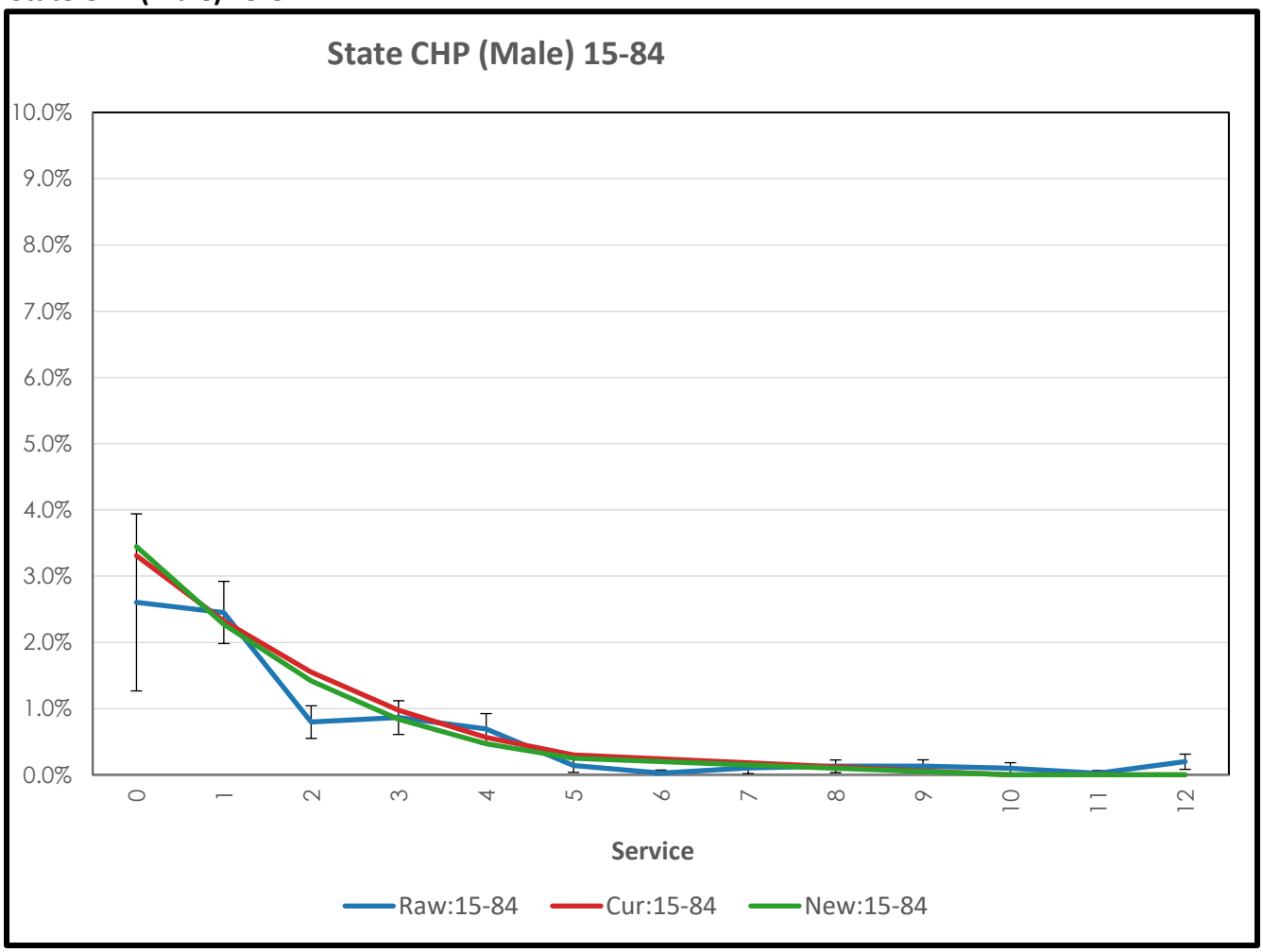
## Termination with Refund (continued)

**State CHP (Female) 15-84**



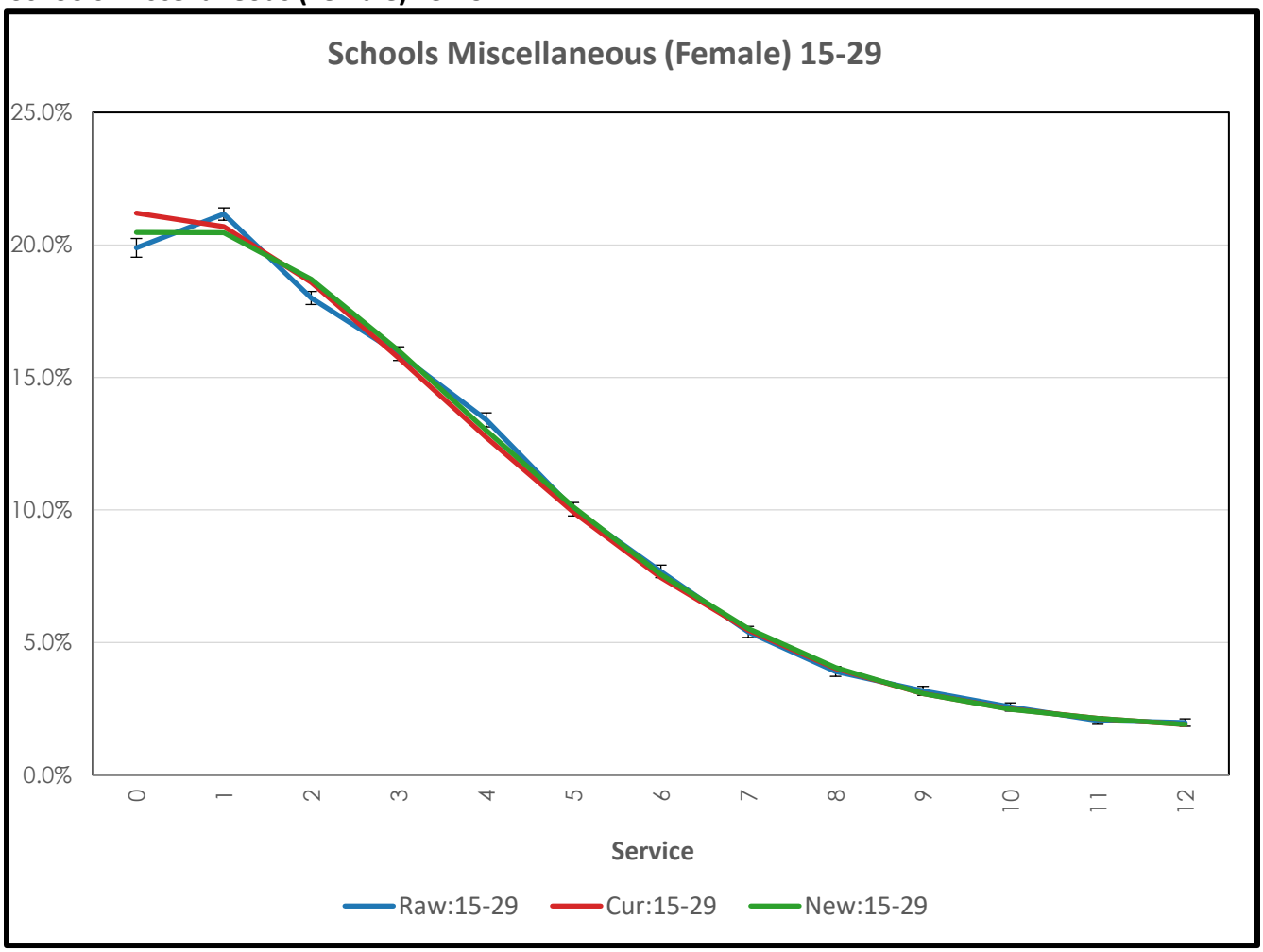
## Termination with Refund (continued)

**State CHP (Male) 15-84**



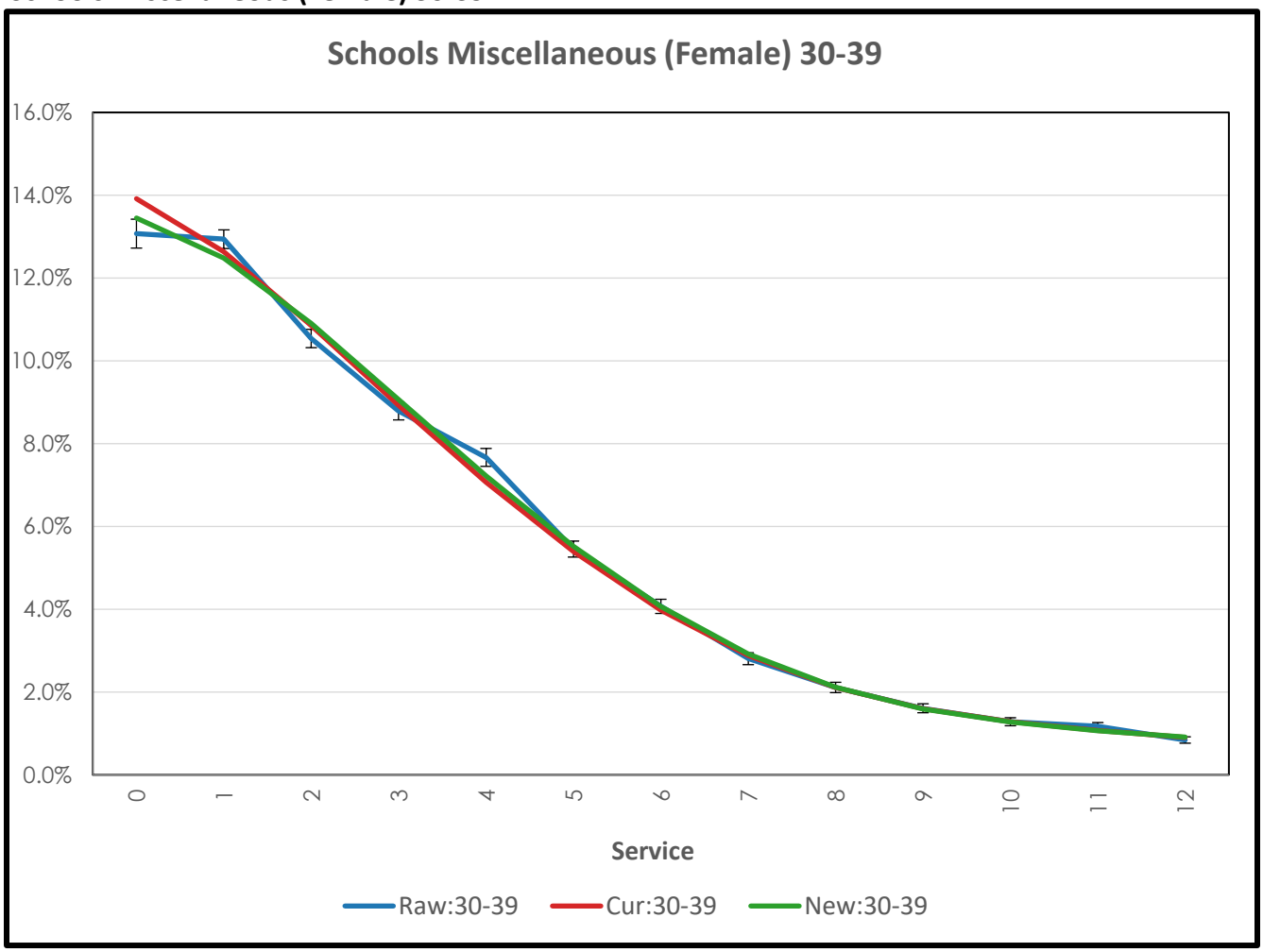
## Termination with Refund (continued)

**Schools Miscellaneous (Female) 15-29**



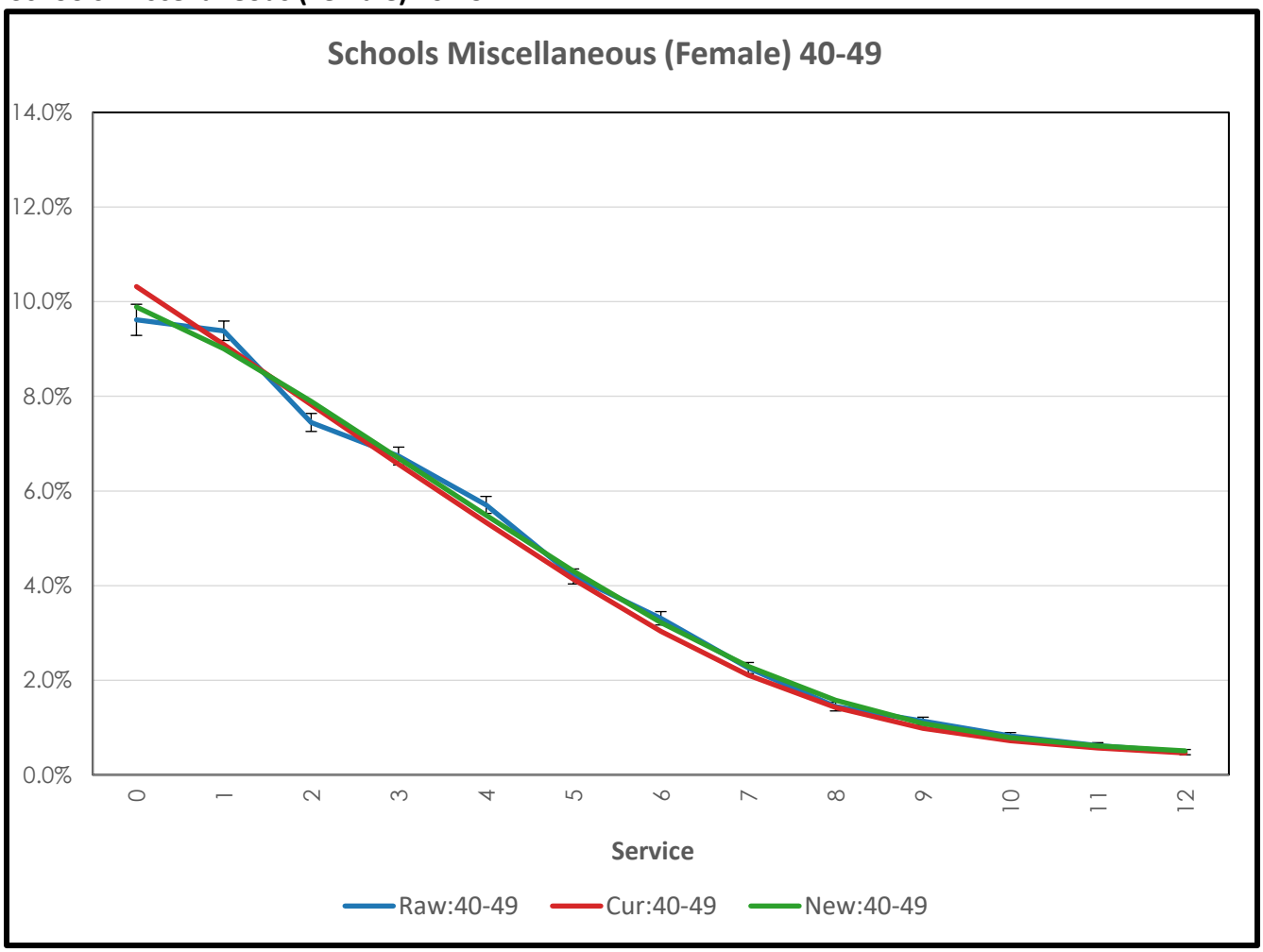
## Termination with Refund (continued)

**Schools Miscellaneous (Female) 30-39**



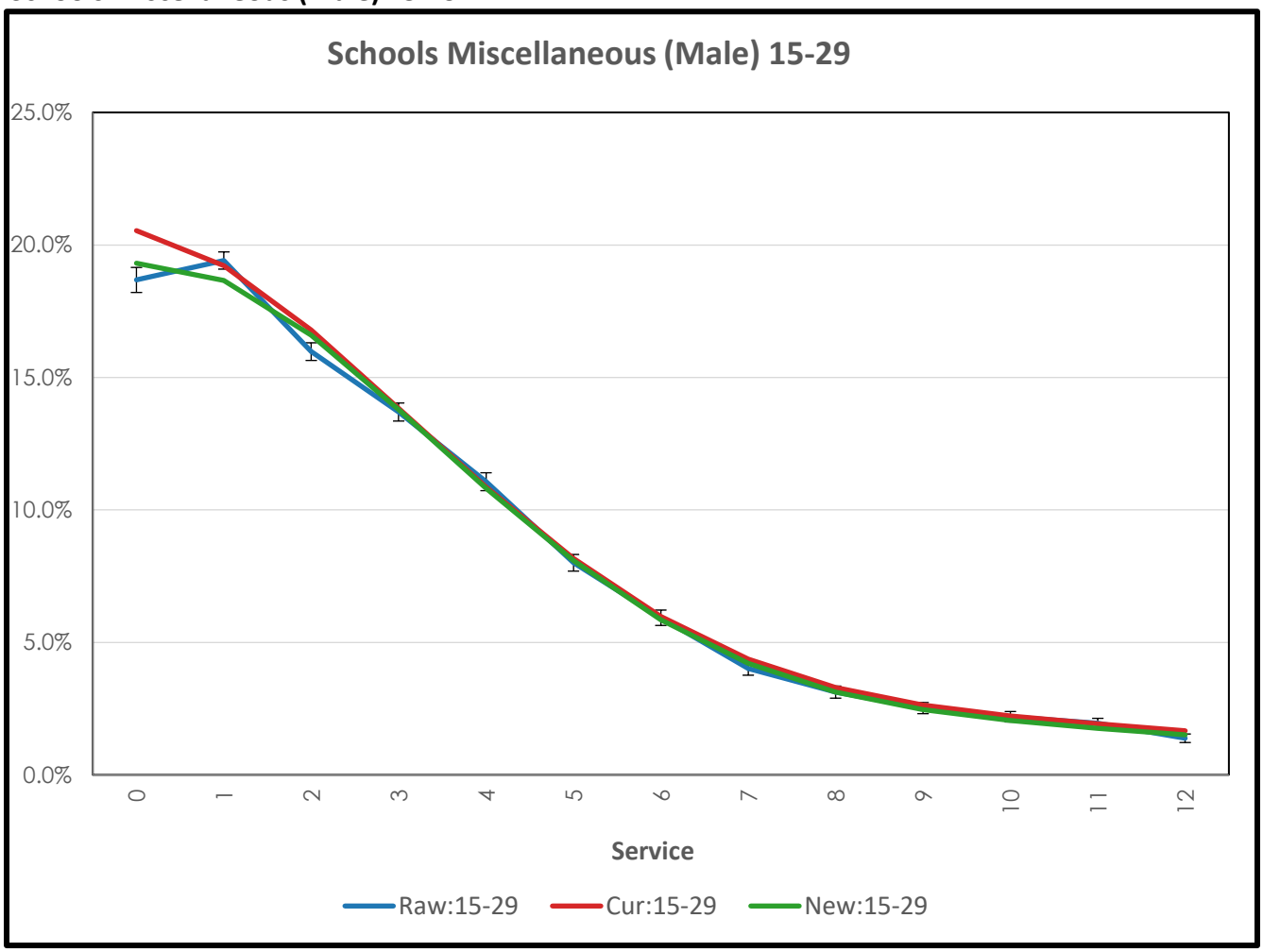
## Termination with Refund (continued)

**Schools Miscellaneous (Female) 40-49**



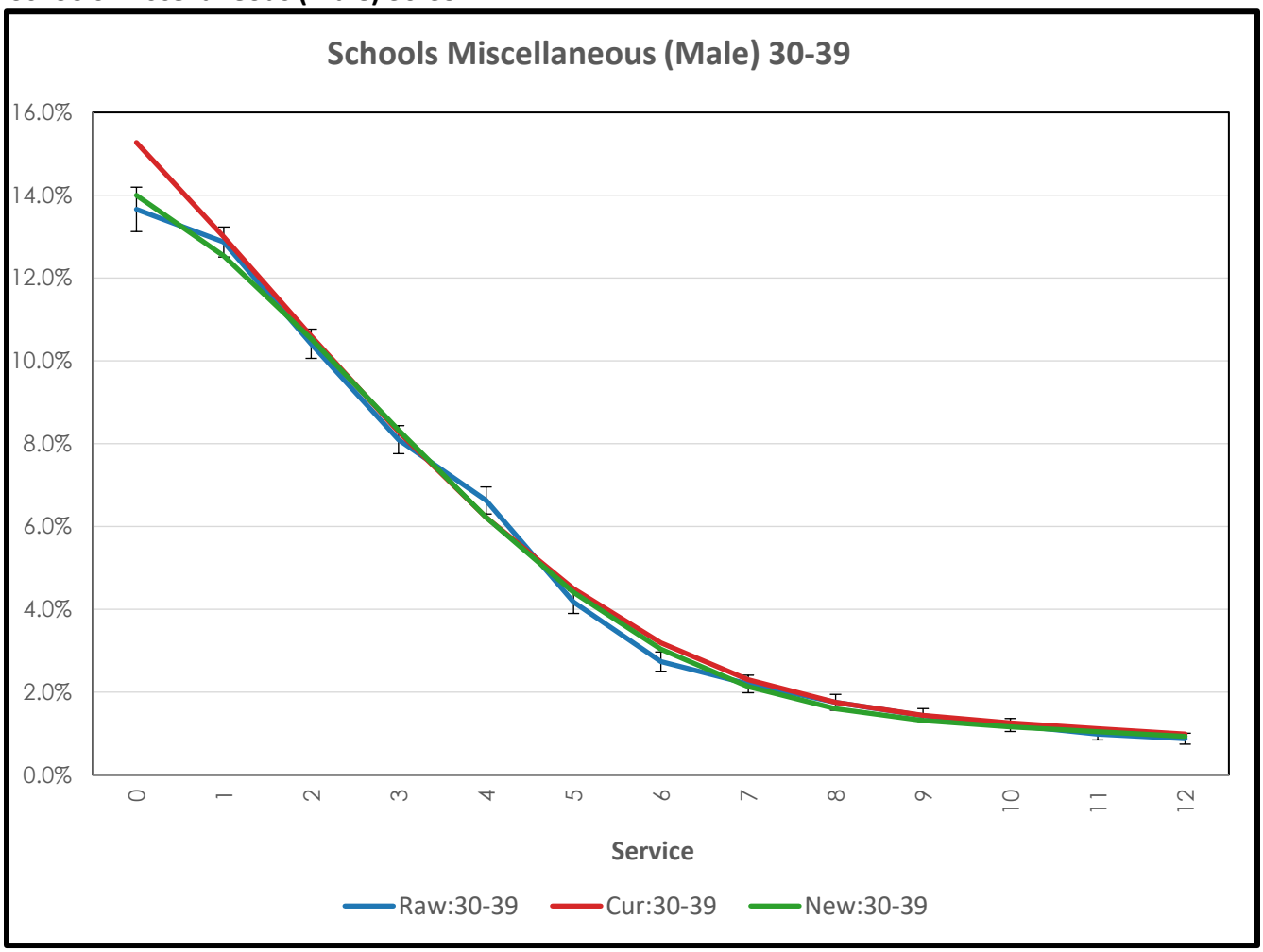
## Termination with Refund (continued)

**Schools Miscellaneous (Male) 15-29**



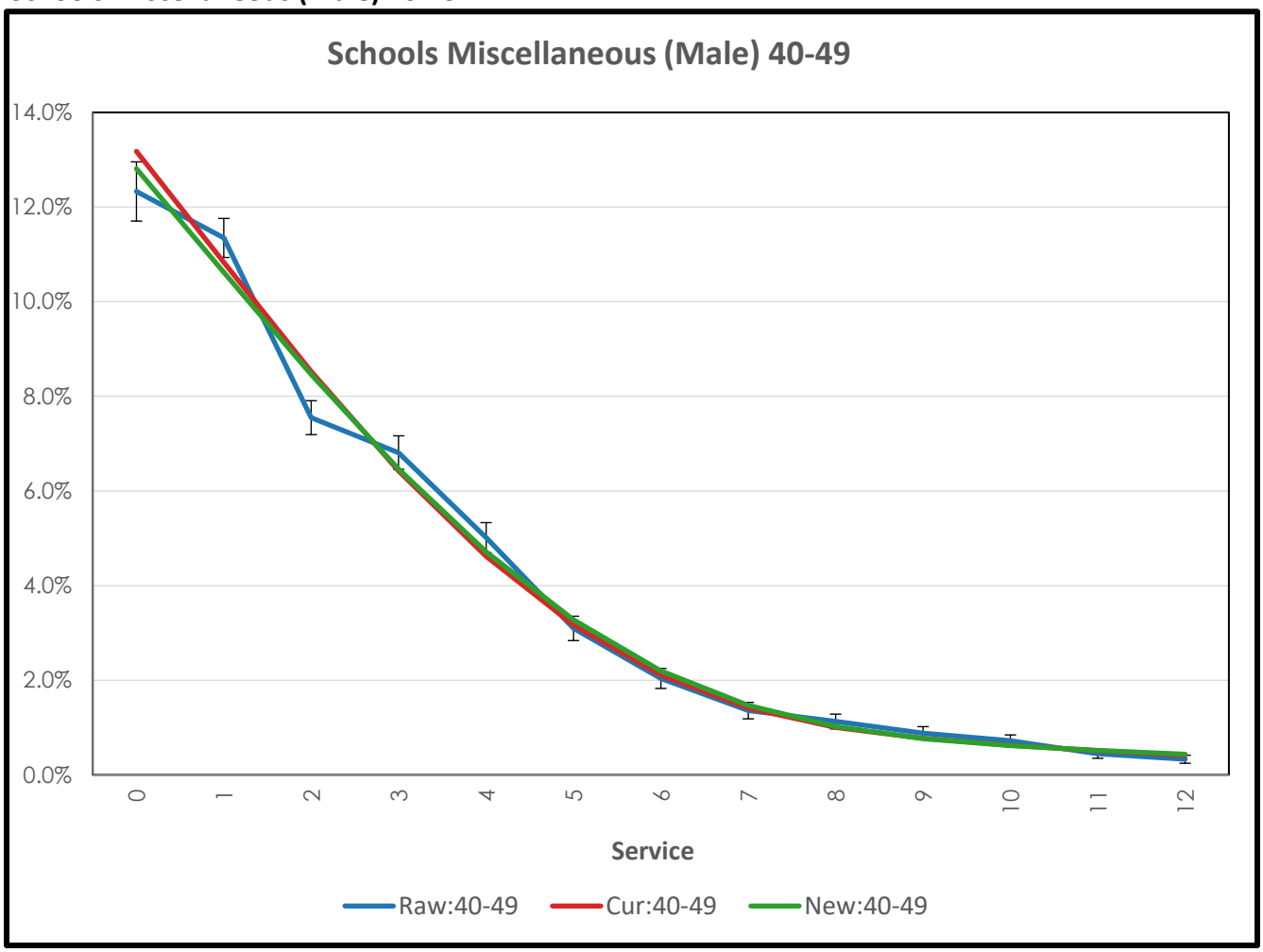
## Termination with Refund (continued)

**Schools Miscellaneous (Male) 30-39**



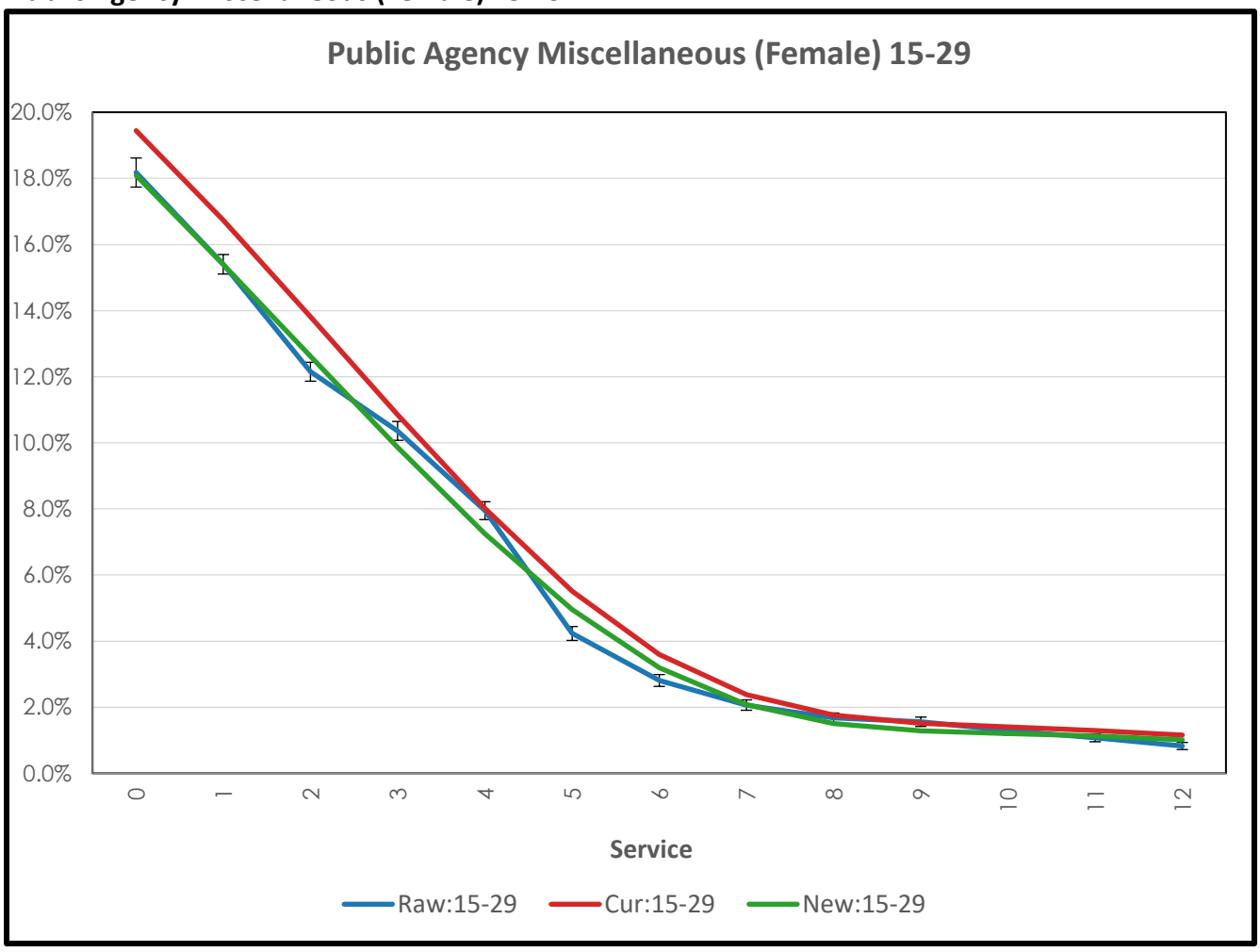
## Termination with Refund (continued)

**Schools Miscellaneous (Male) 40-49**



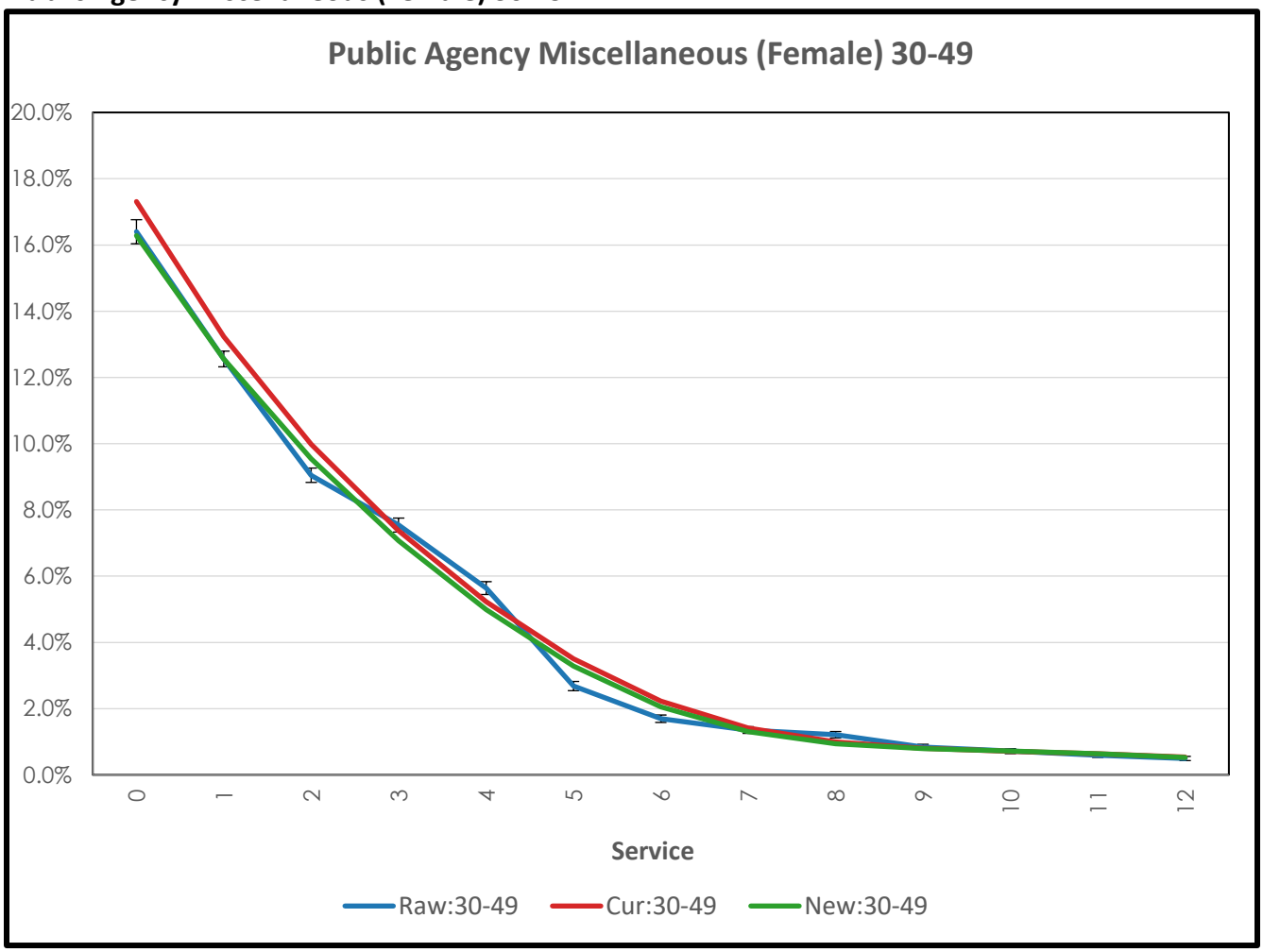
## Termination with Refund (continued)

**Public Agency Miscellaneous (Female) 15-29**



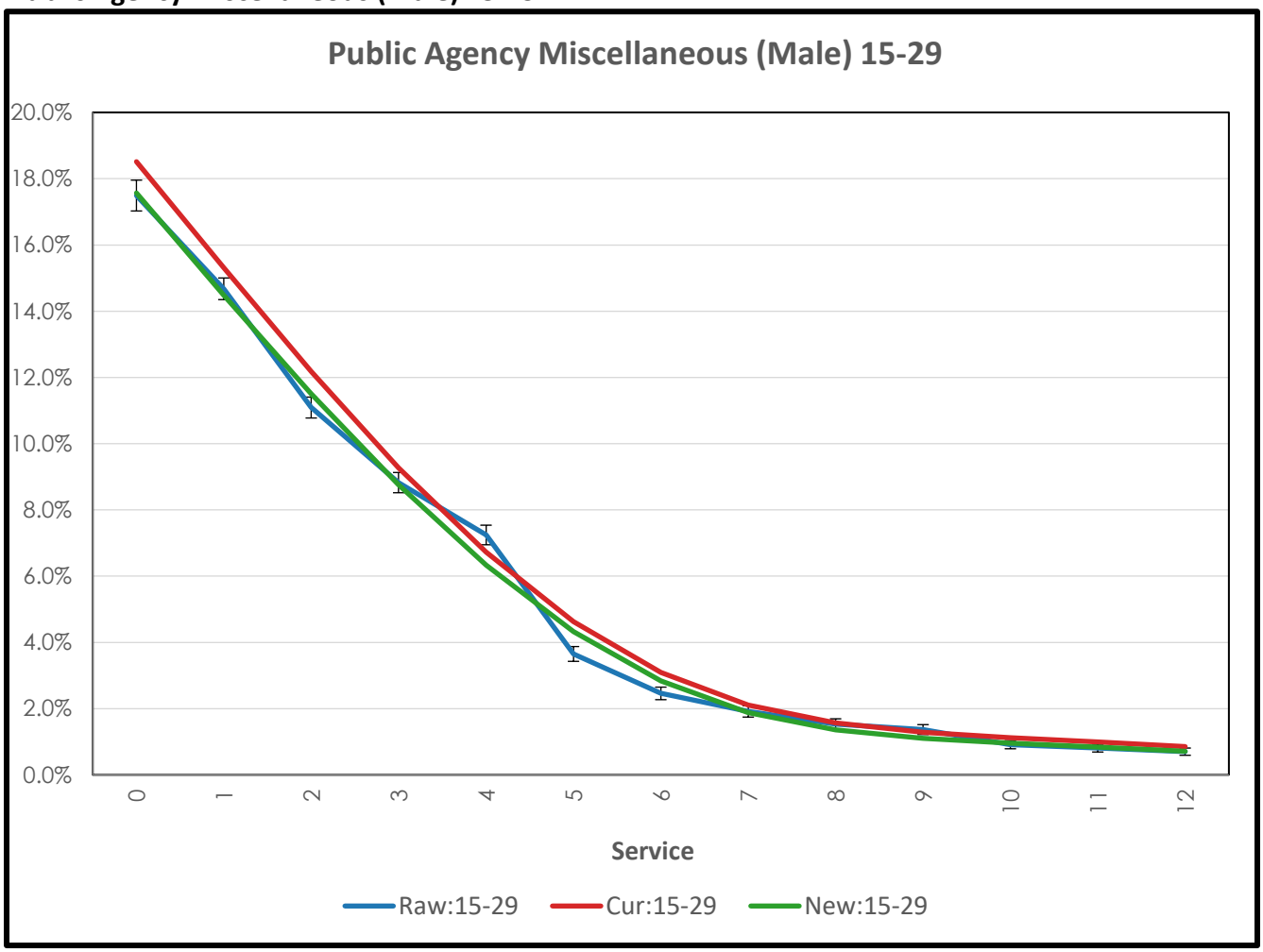
## Termination with Refund (continued)

**Public Agency Miscellaneous (Female) 30-49**



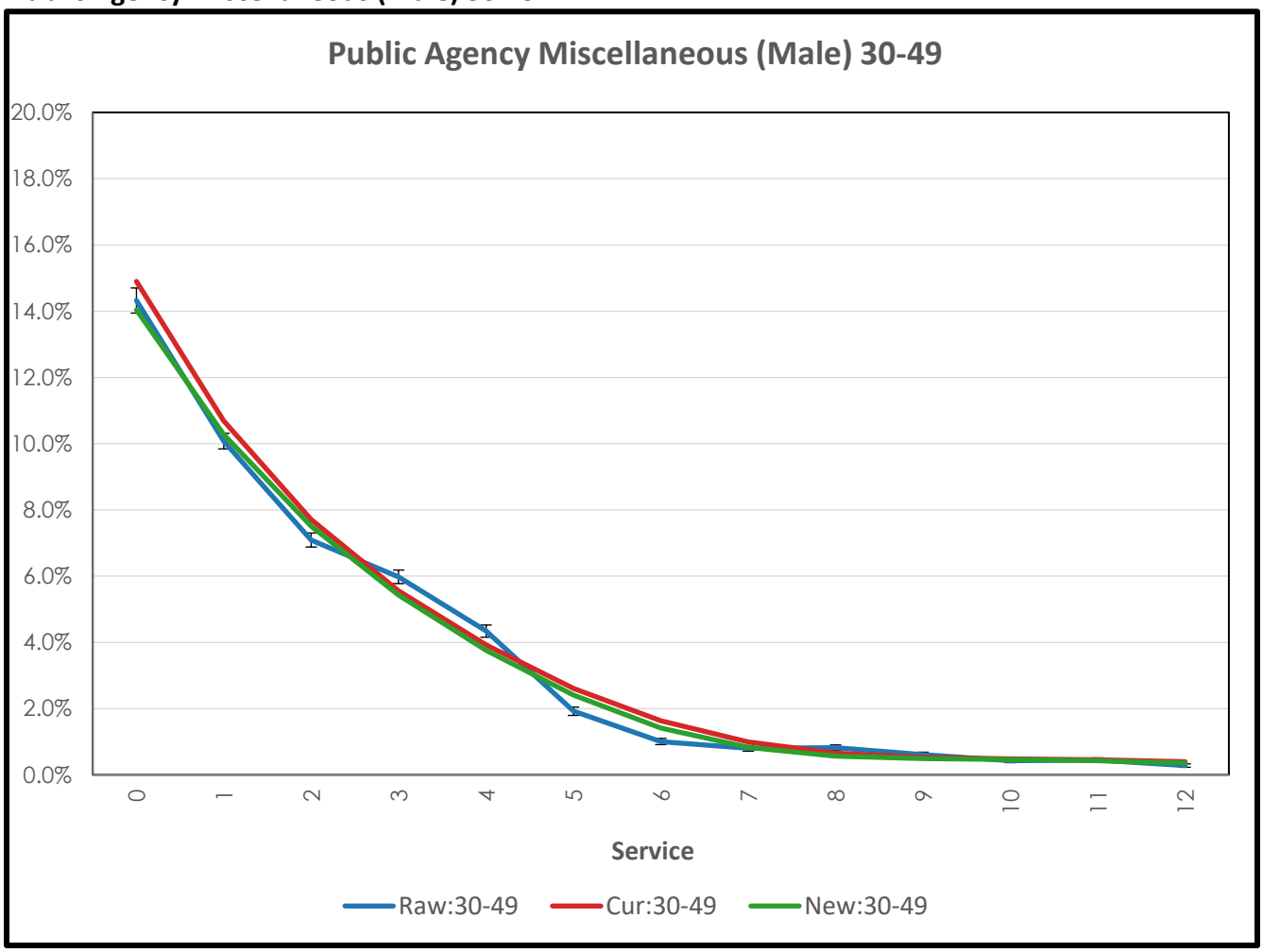
## Termination with Refund (continued)

**Public Agency Miscellaneous (Male) 15-29**



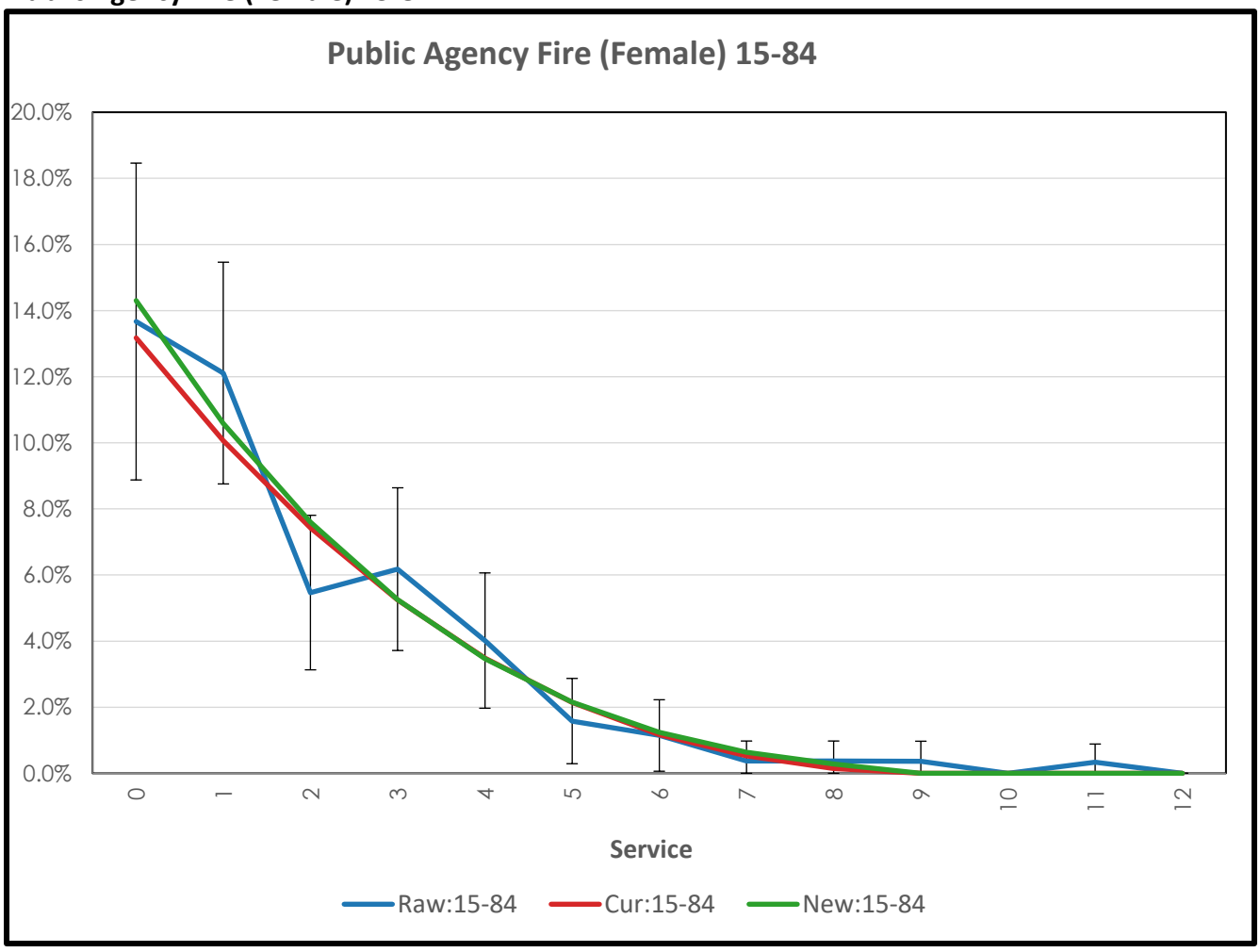
## Termination with Refund (continued)

**Public Agency Miscellaneous (Male) 30-49**



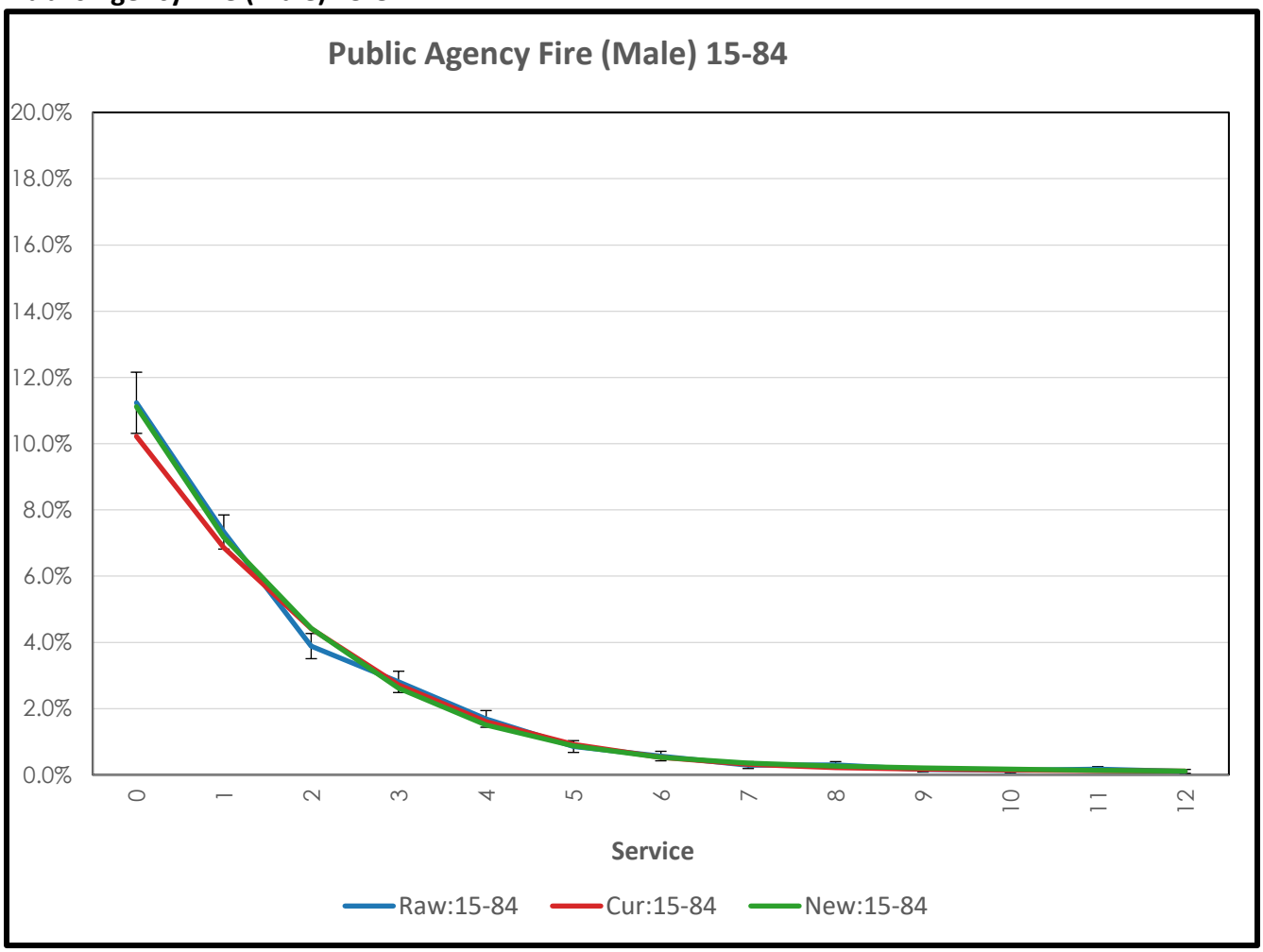
## Termination with Refund (continued)

**Public Agency Fire (Female) 15-84**



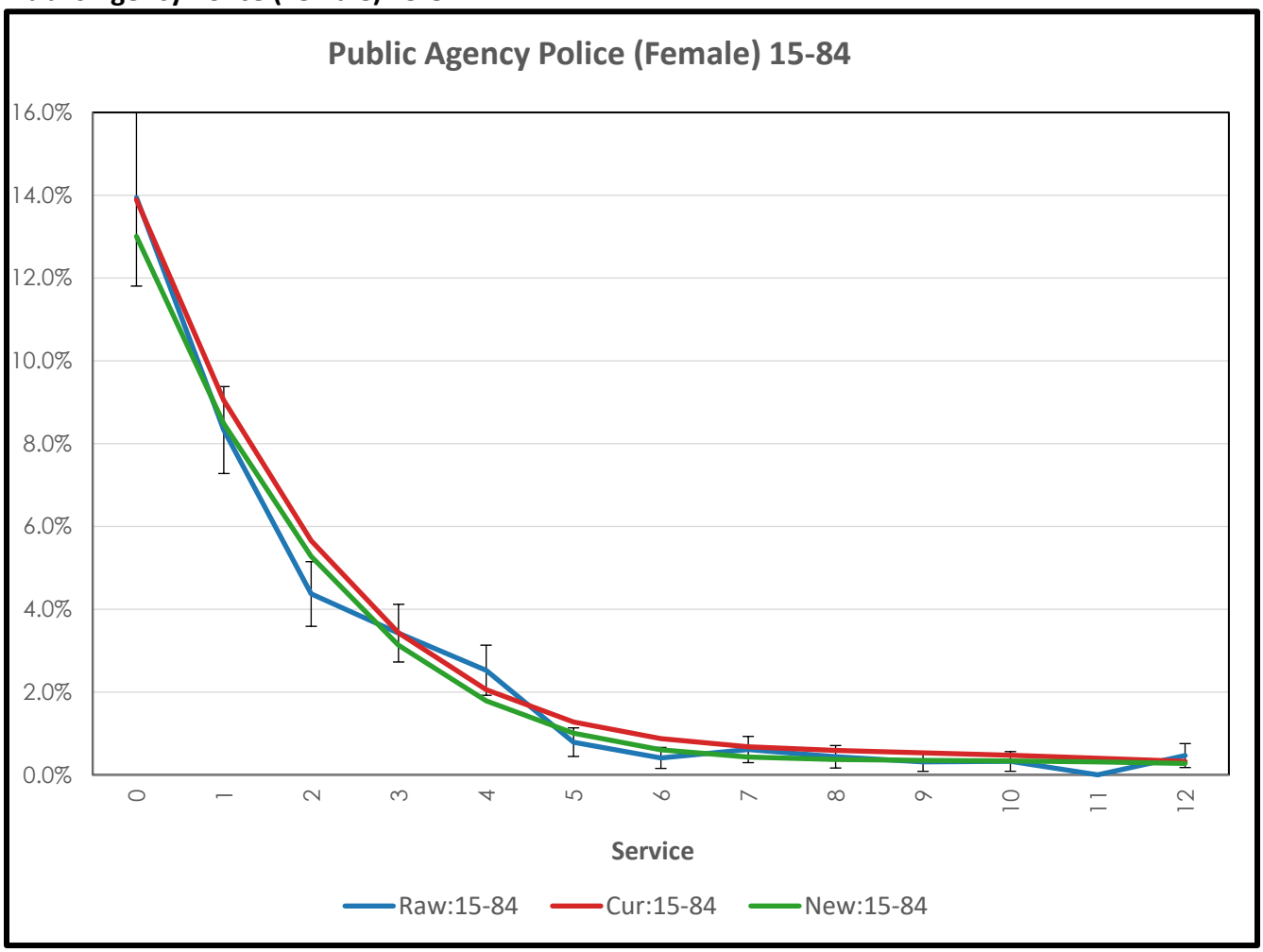
## Termination with Refund (continued)

**Public Agency Fire (Male) 15-84**



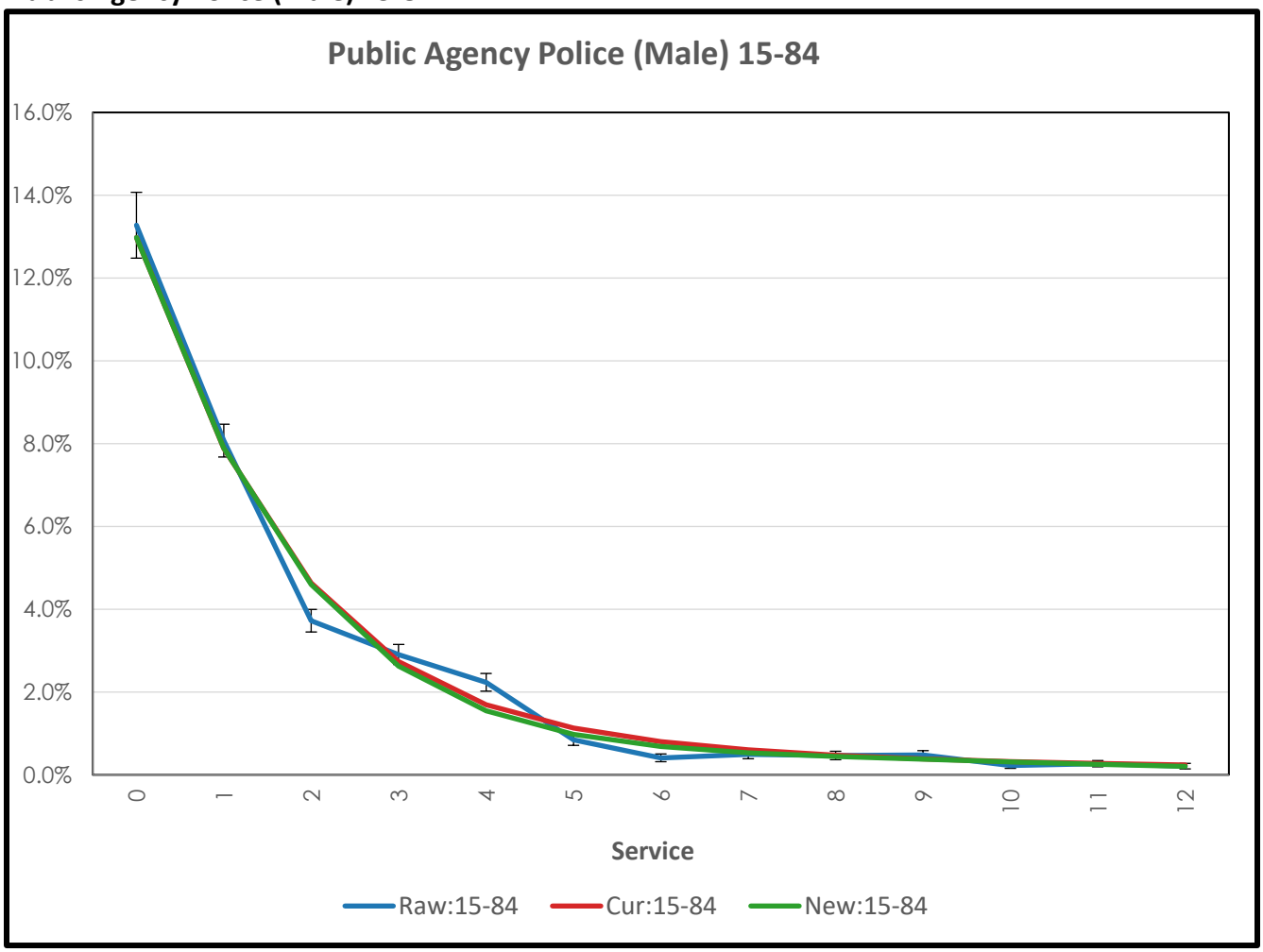
## Termination with Refund (continued)

**Public Agency Police (Female) 15-84**



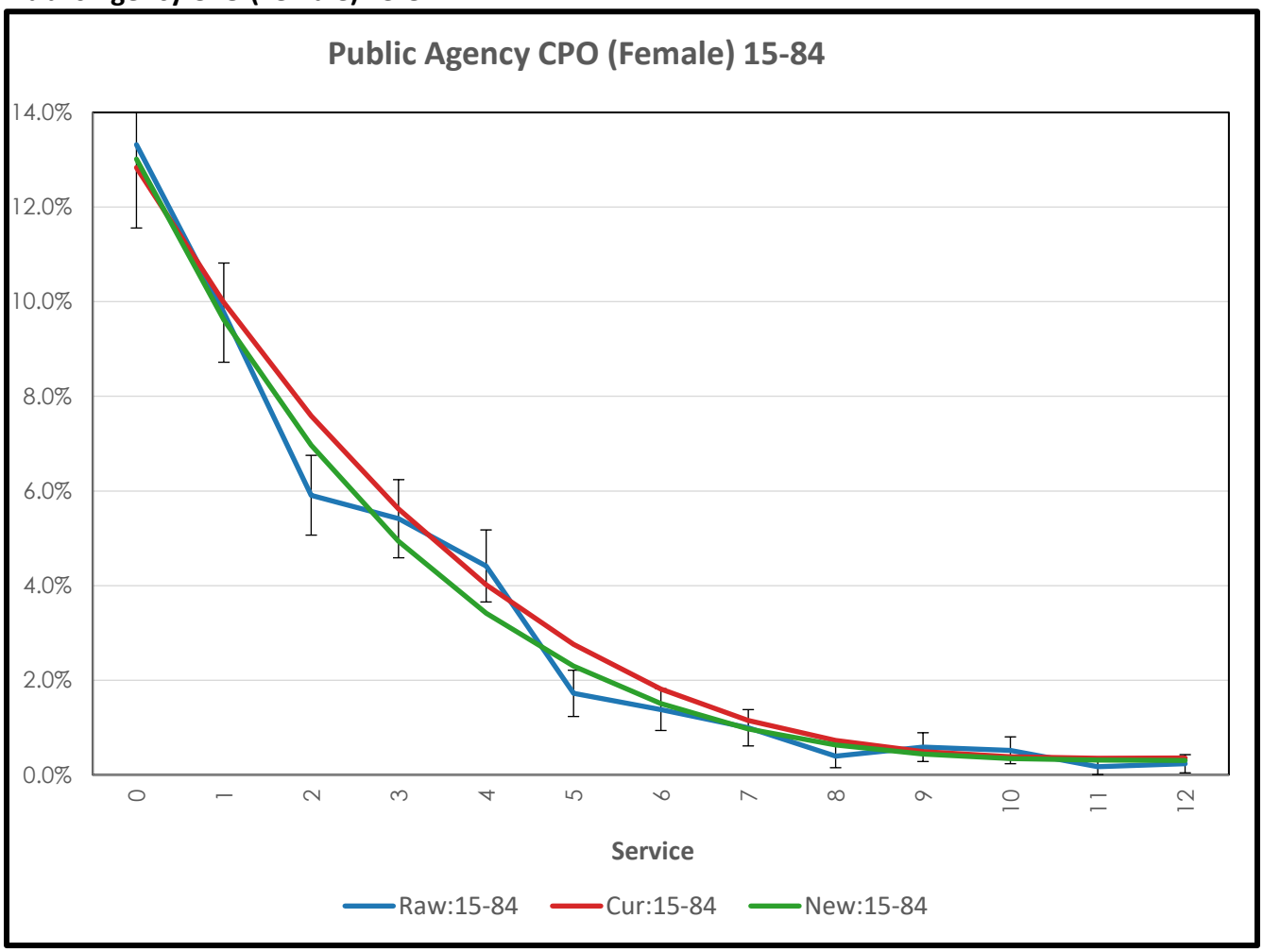
## Termination with Refund (continued)

**Public Agency Police (Male) 15-84**



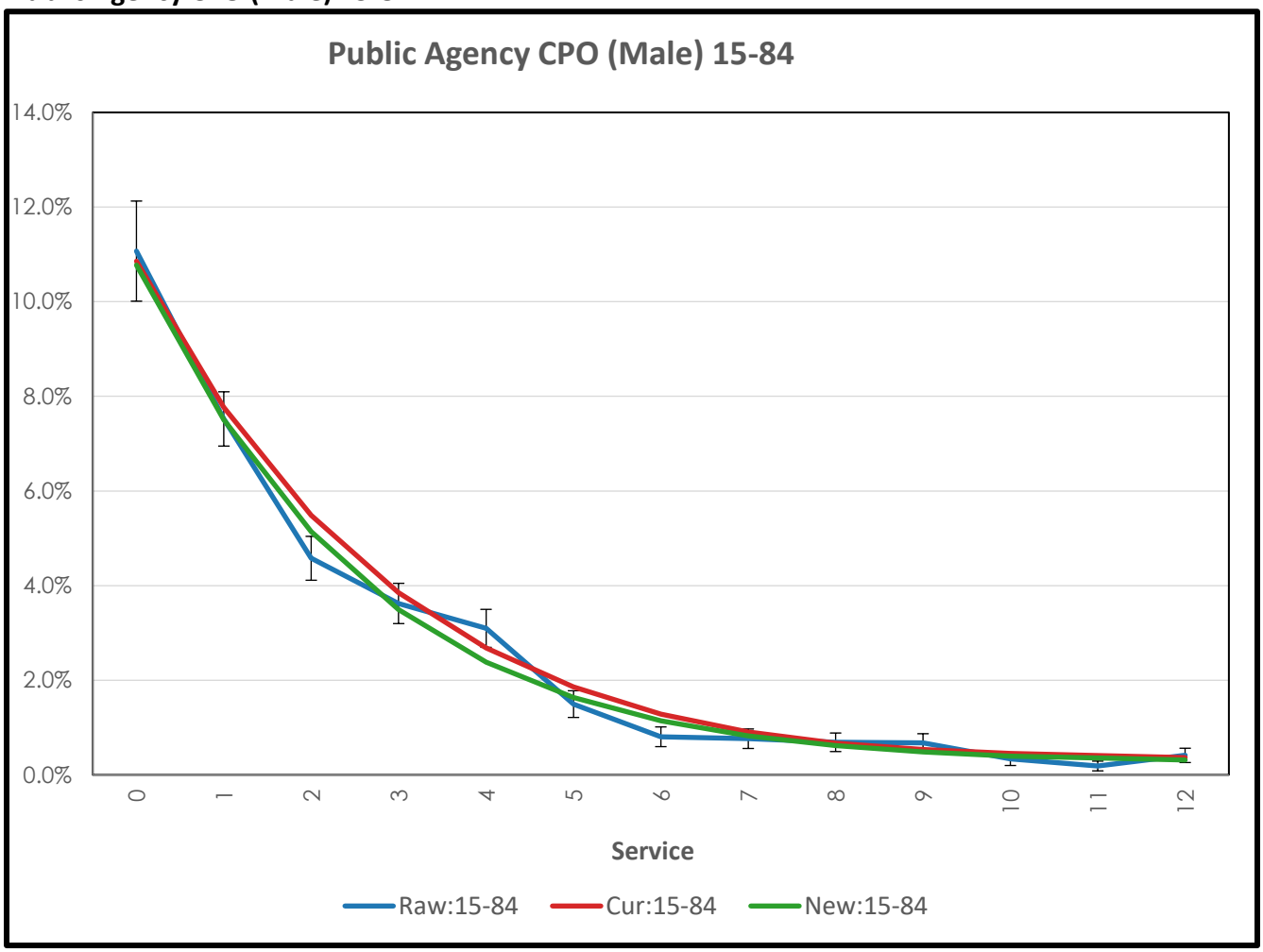
## Termination with Refund (continued)

**Public Agency CPO (Female) 15-84**



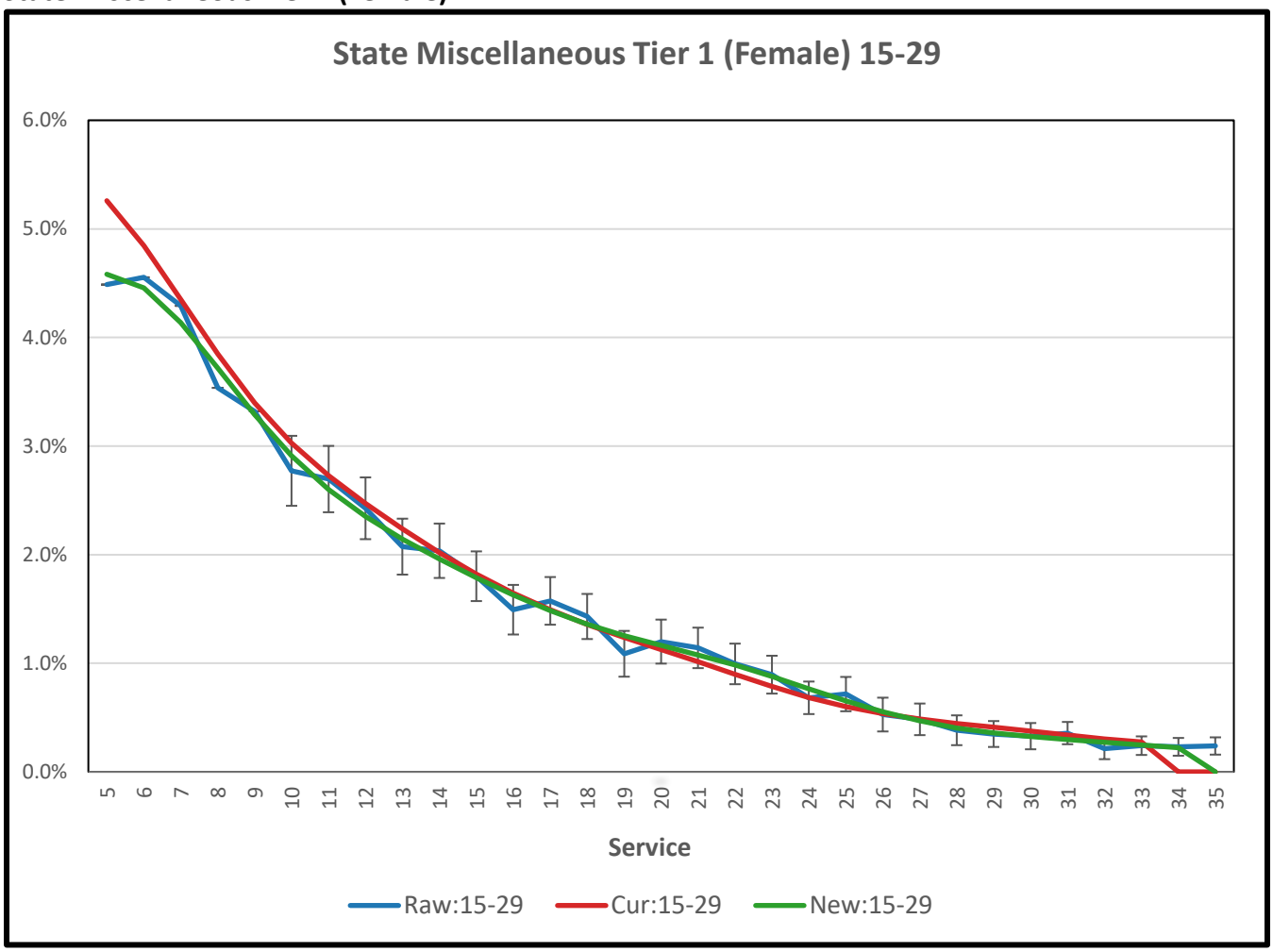
## Termination with Refund (continued)

**Public Agency CPO (Male) 15-84**



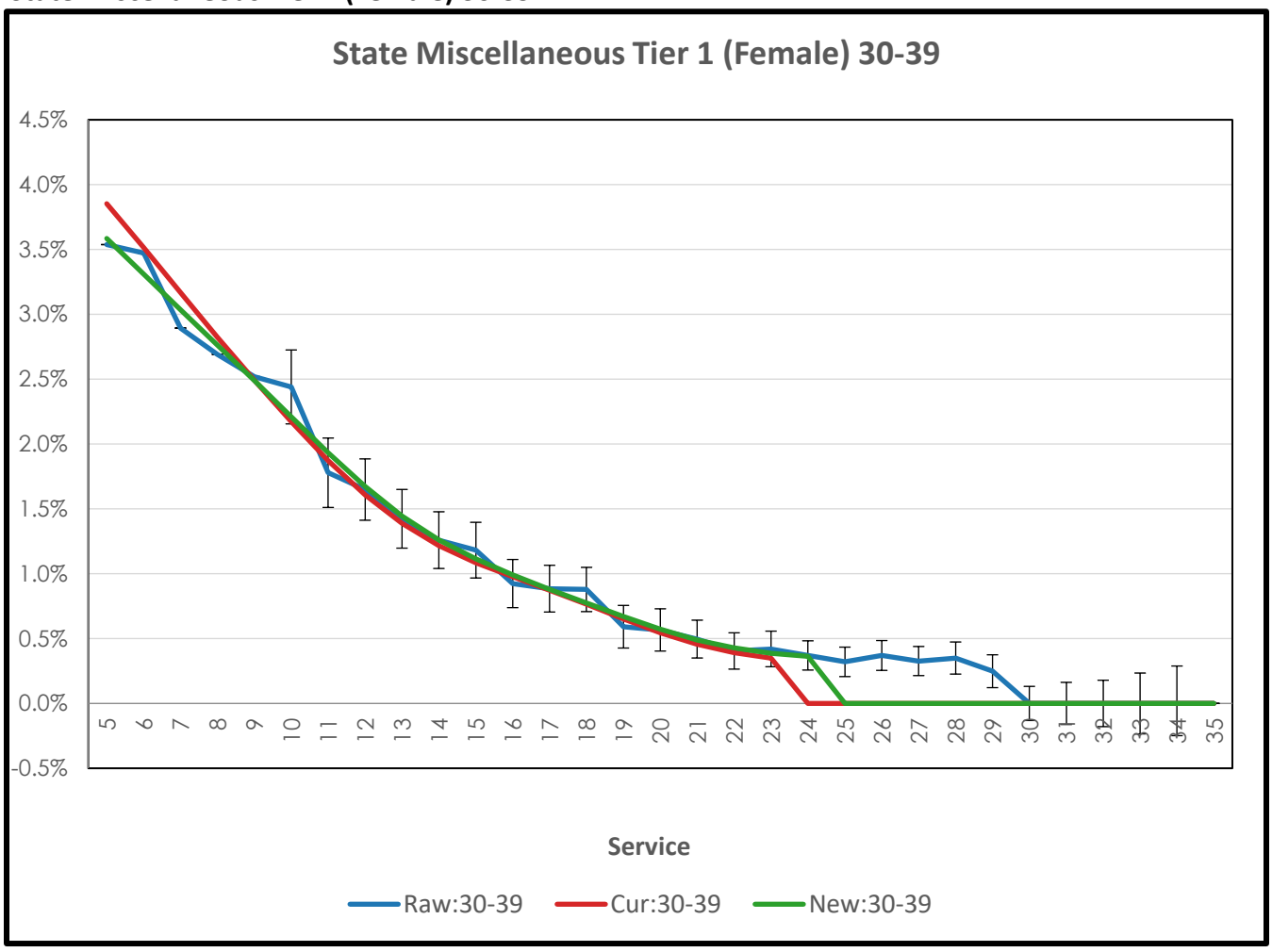
## Terminated With Vested Benefits

### State Miscellaneous Tier 1 (Female)



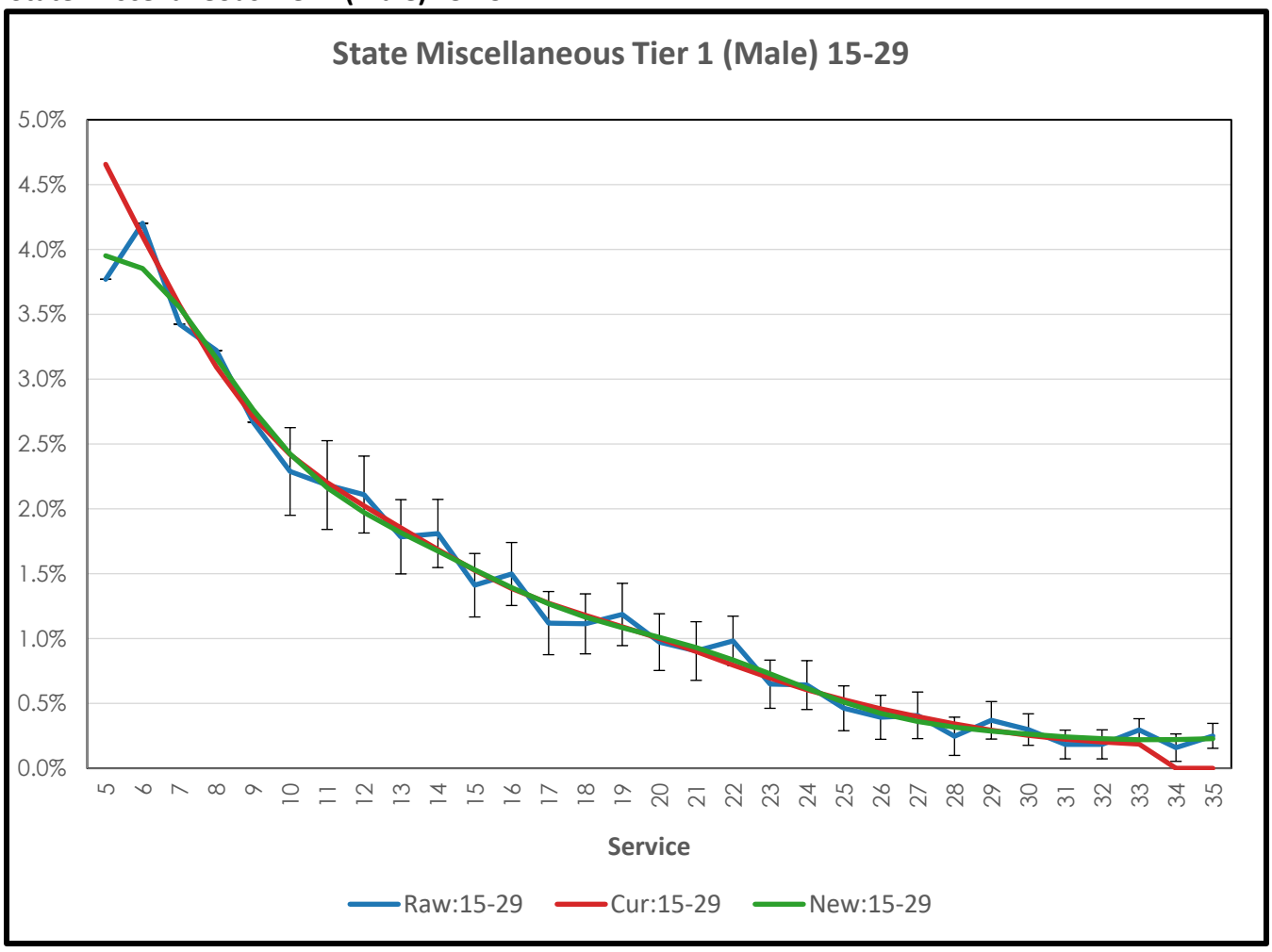
## Termination with Vested Benefits (continued)

**State Miscellaneous Tier 1 (Female) 30-39**



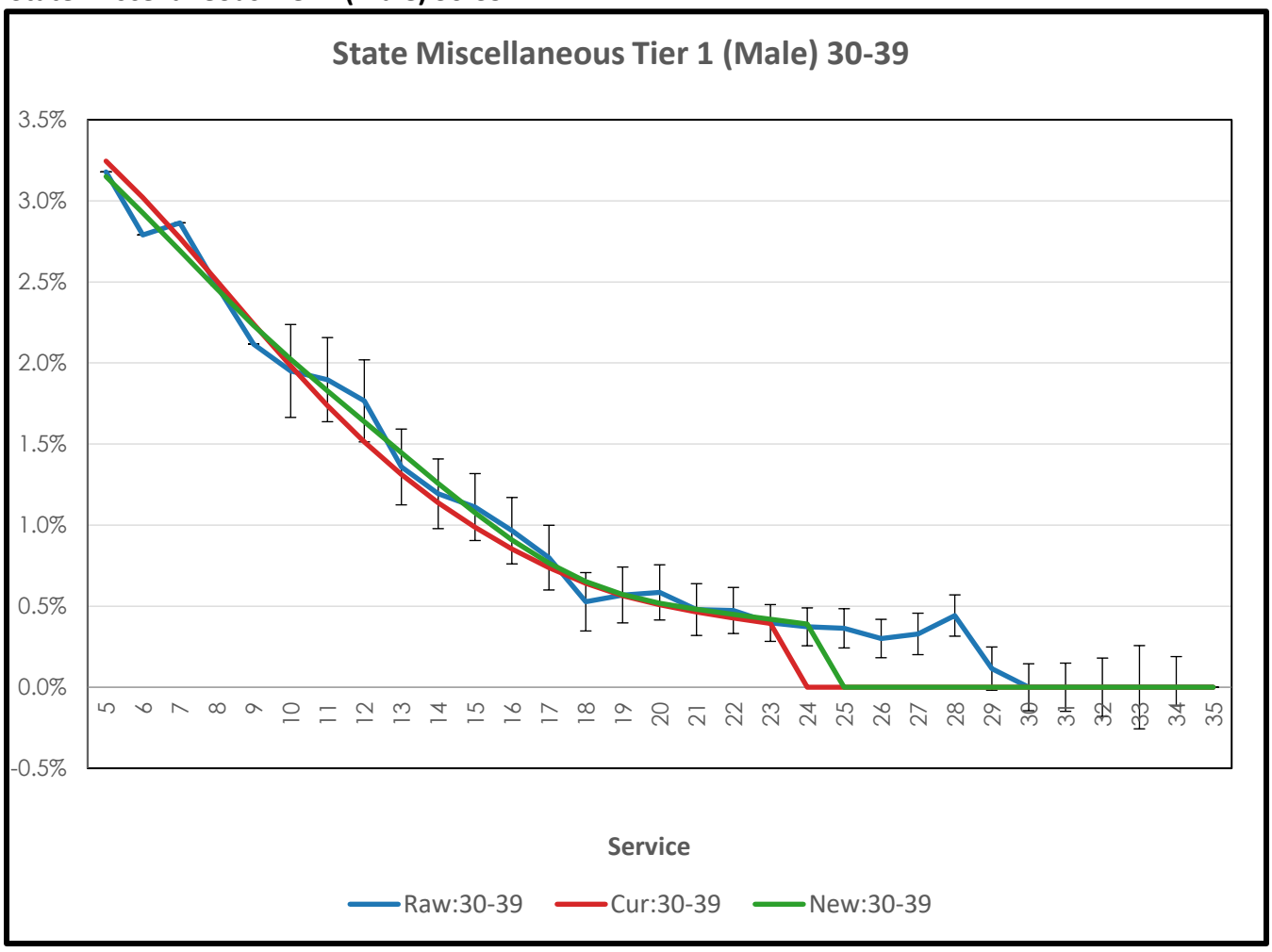
## Termination with Vested Benefits (continued)

**State Miscellaneous Tier 1 (Male) 15-29**



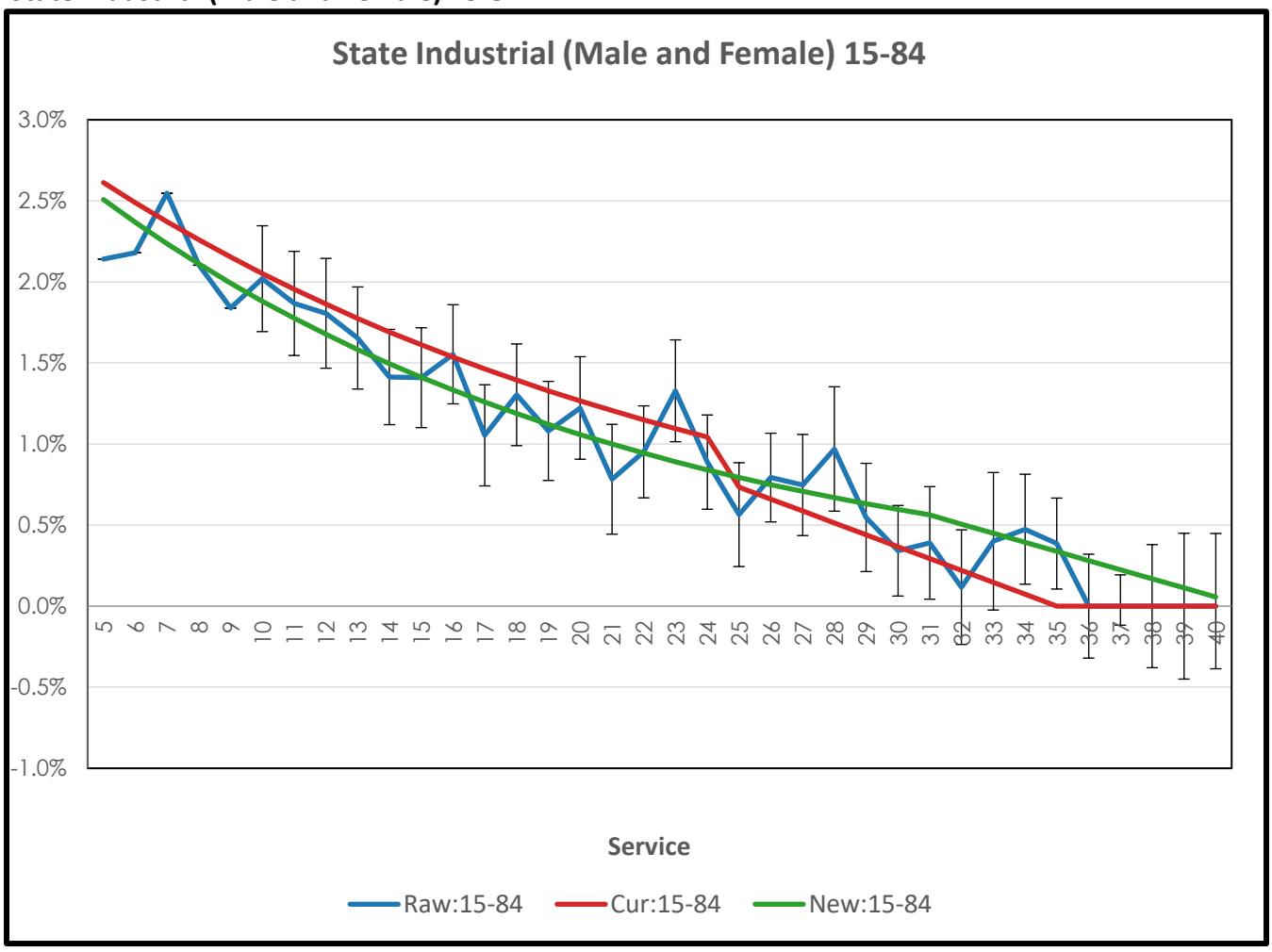
## Termination with Vested Benefits (continued)

**State Miscellaneous Tier 1 (Male) 30-39**



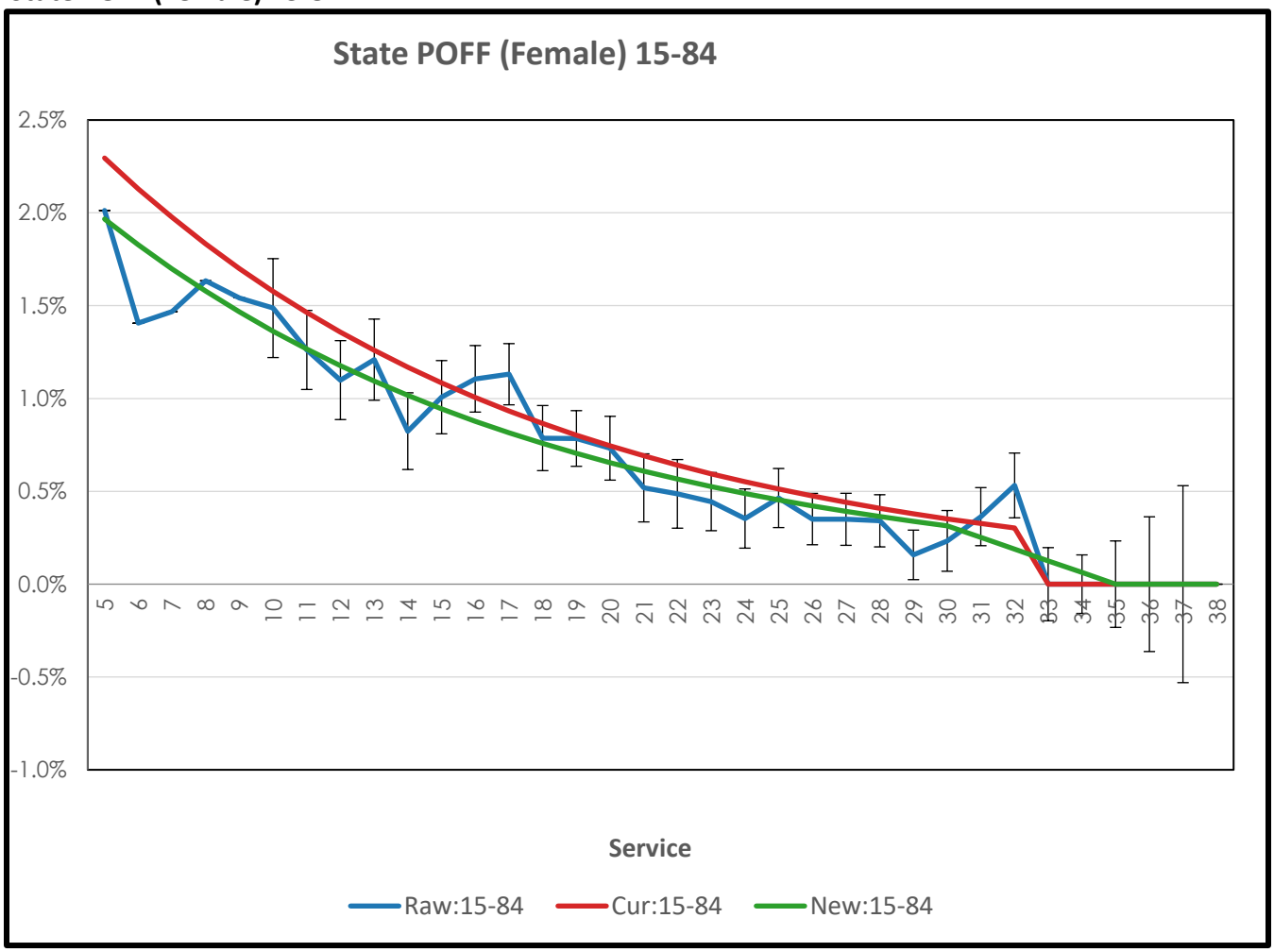
## Termination with Vested Benefits (continued)

**State Industrial (Male and Female) 15-84**



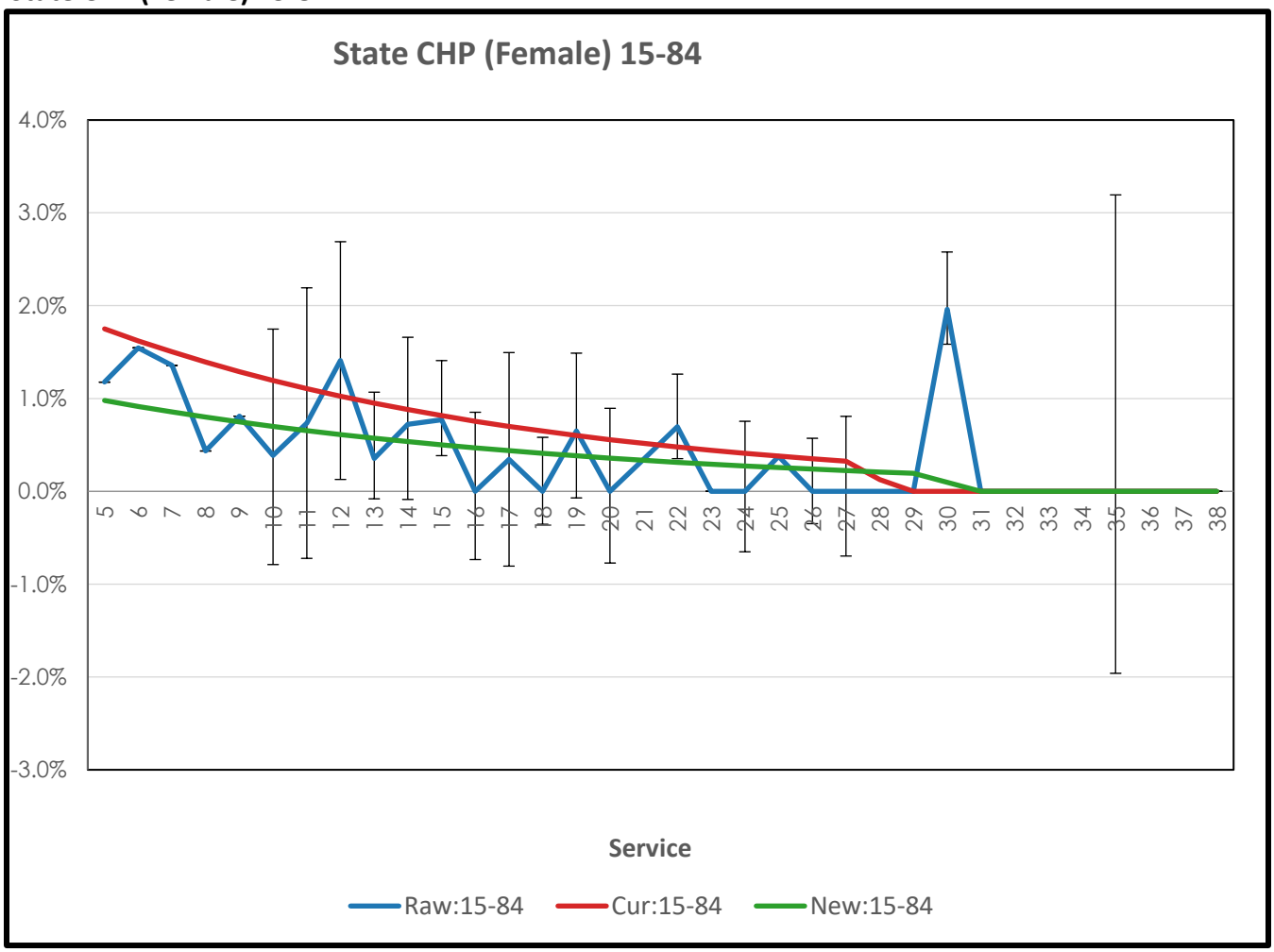
## Termination with Vested Benefits (continued)

**State POFF (Female) 15-84**



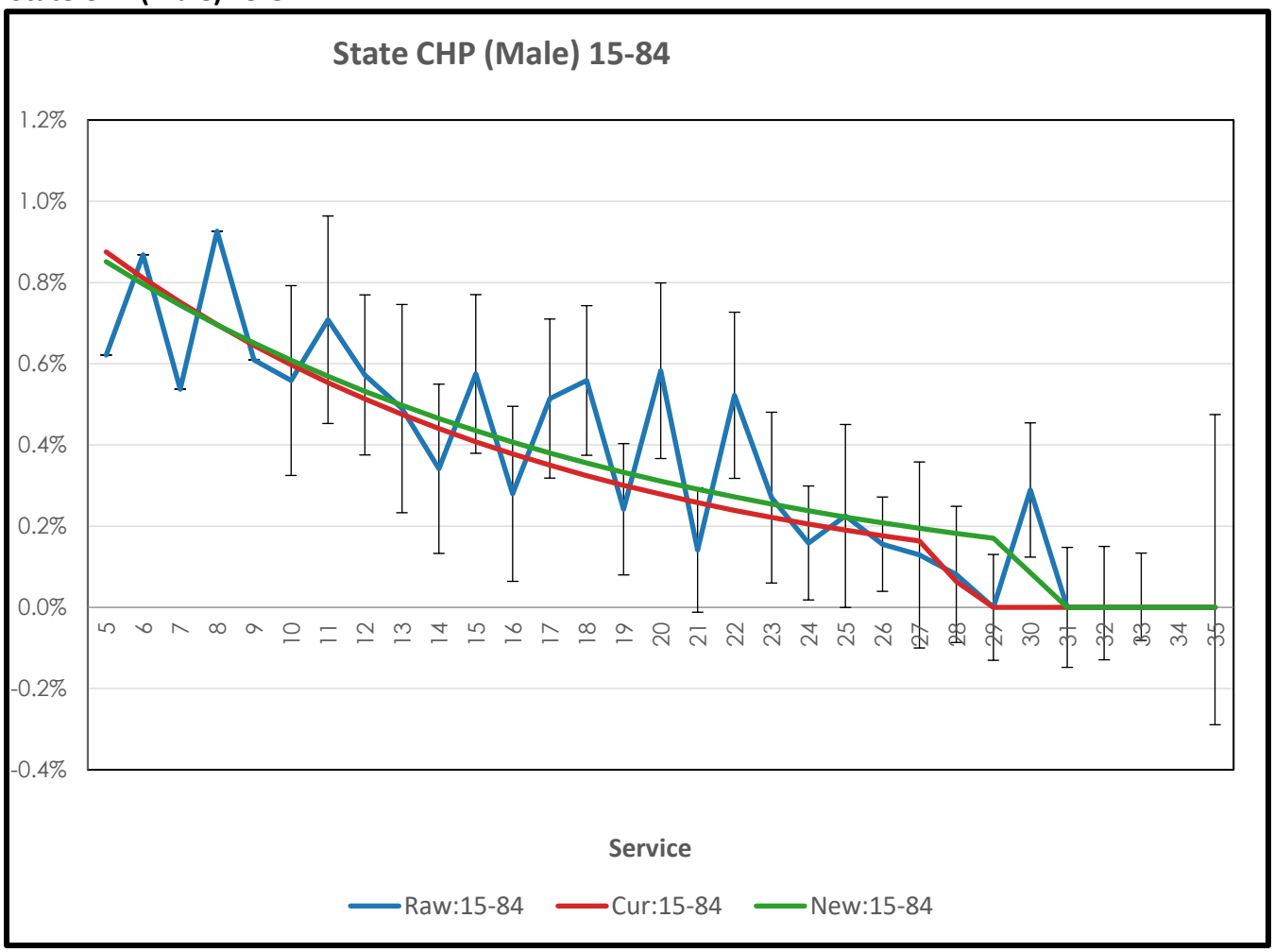
## Termination with Vested Benefits (continued)

**State CHP (Female) 15-84**



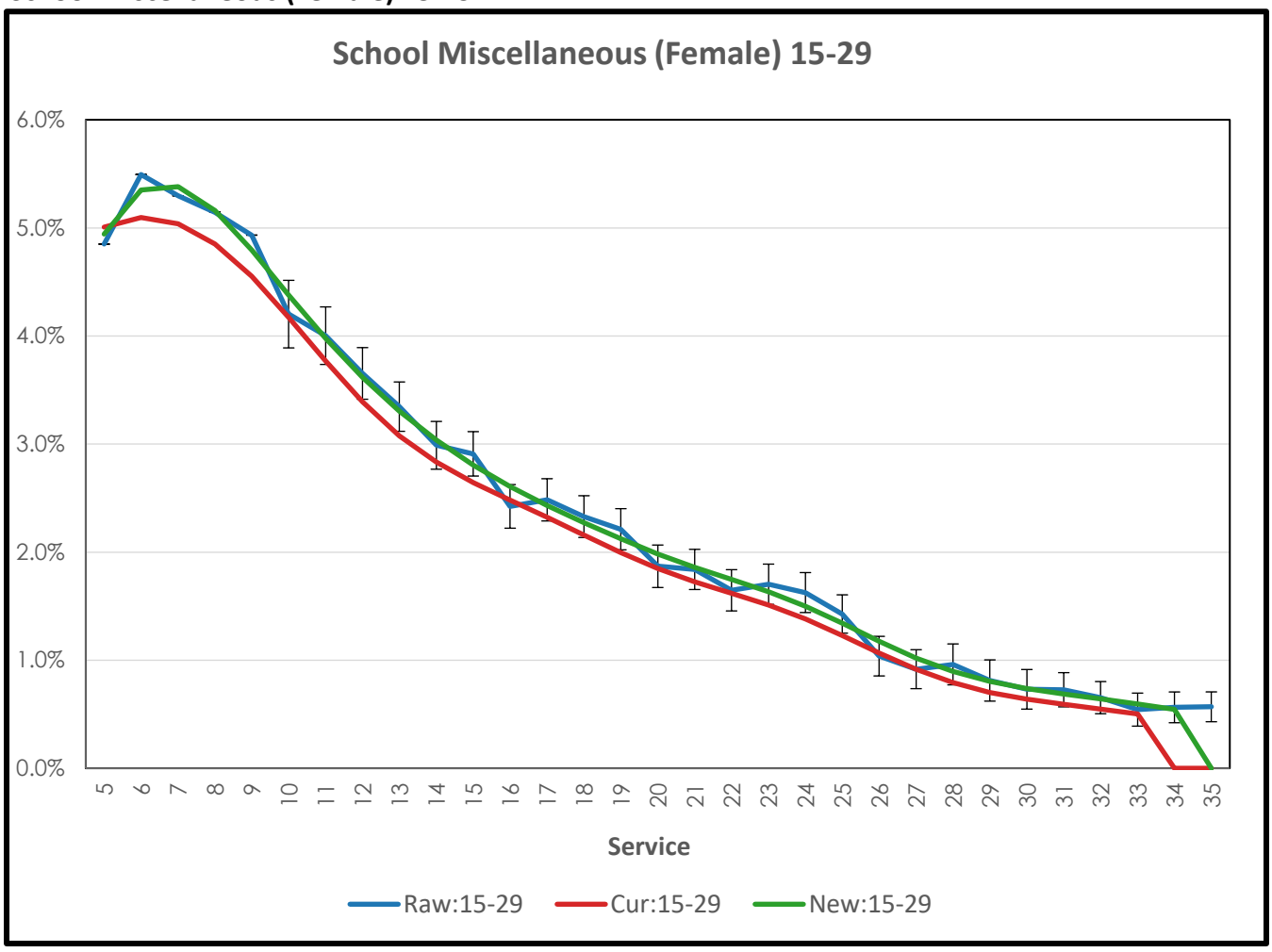
## Termination with Vested Benefits (continued)

**State CHP (Male) 15-84**



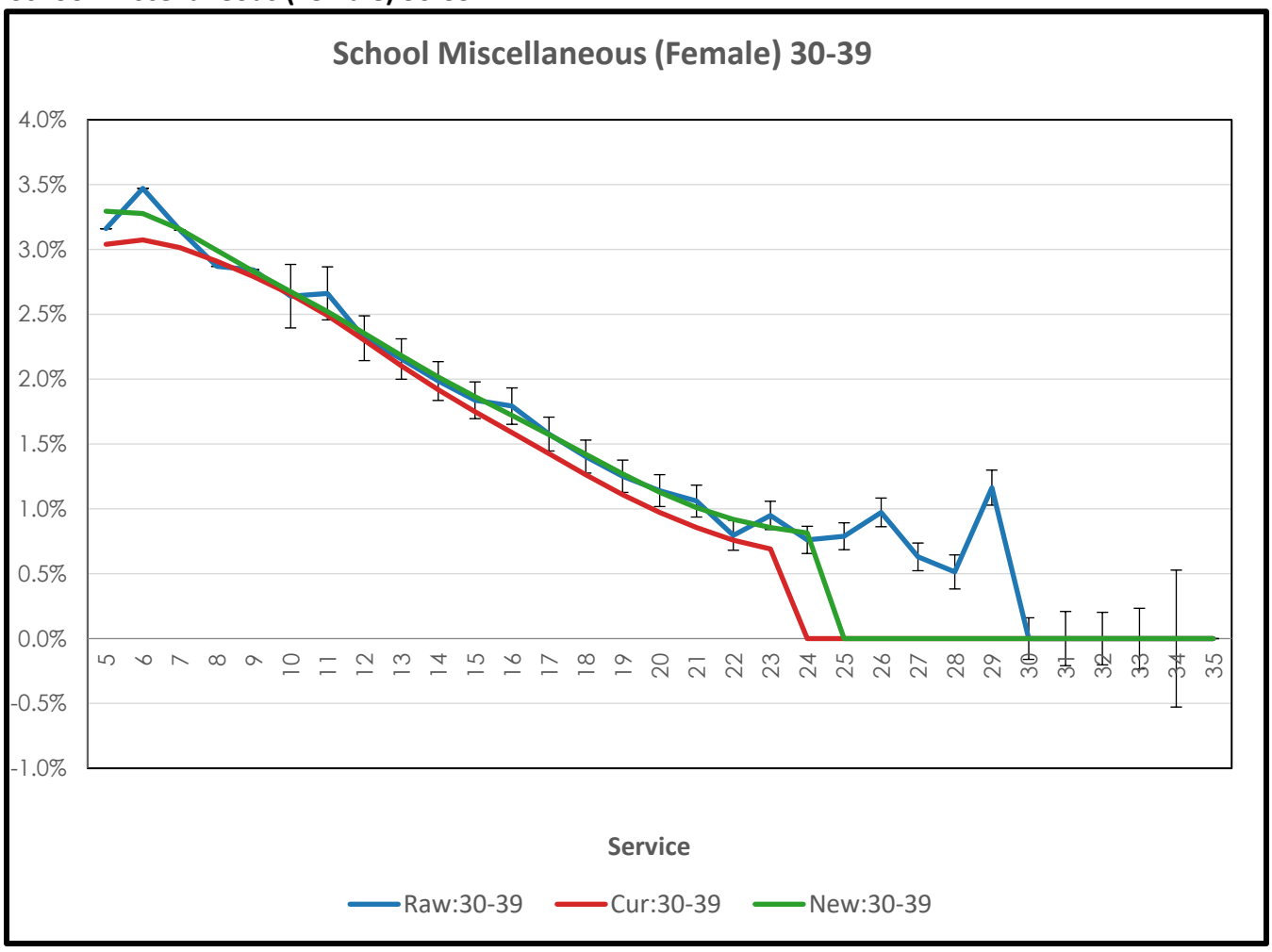
## Termination with Vested Benefits (continued)

**School Miscellaneous (Female) 15-29**



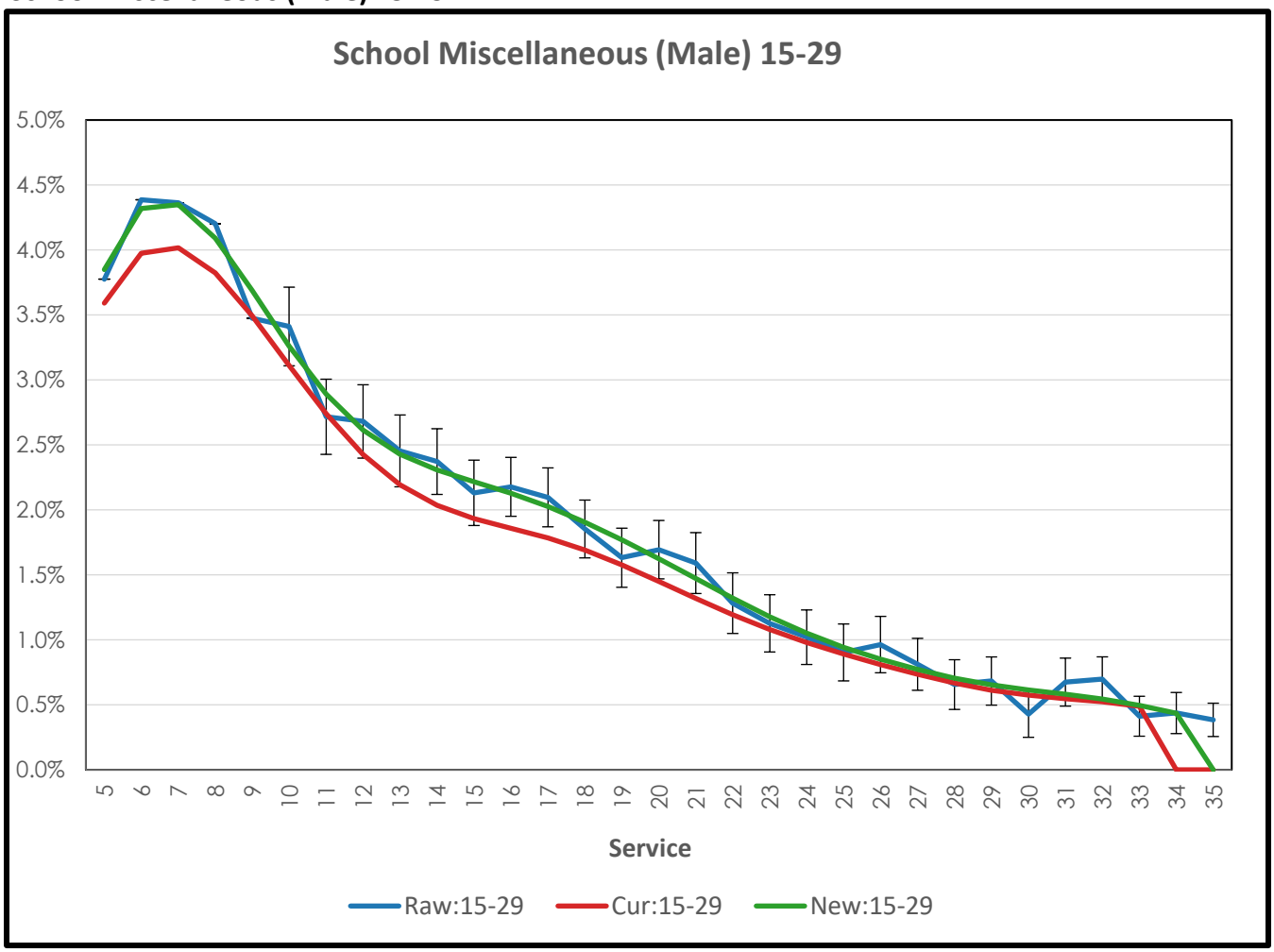
## Termination with Vested Benefits (continued)

**School Miscellaneous (Female) 30-39**



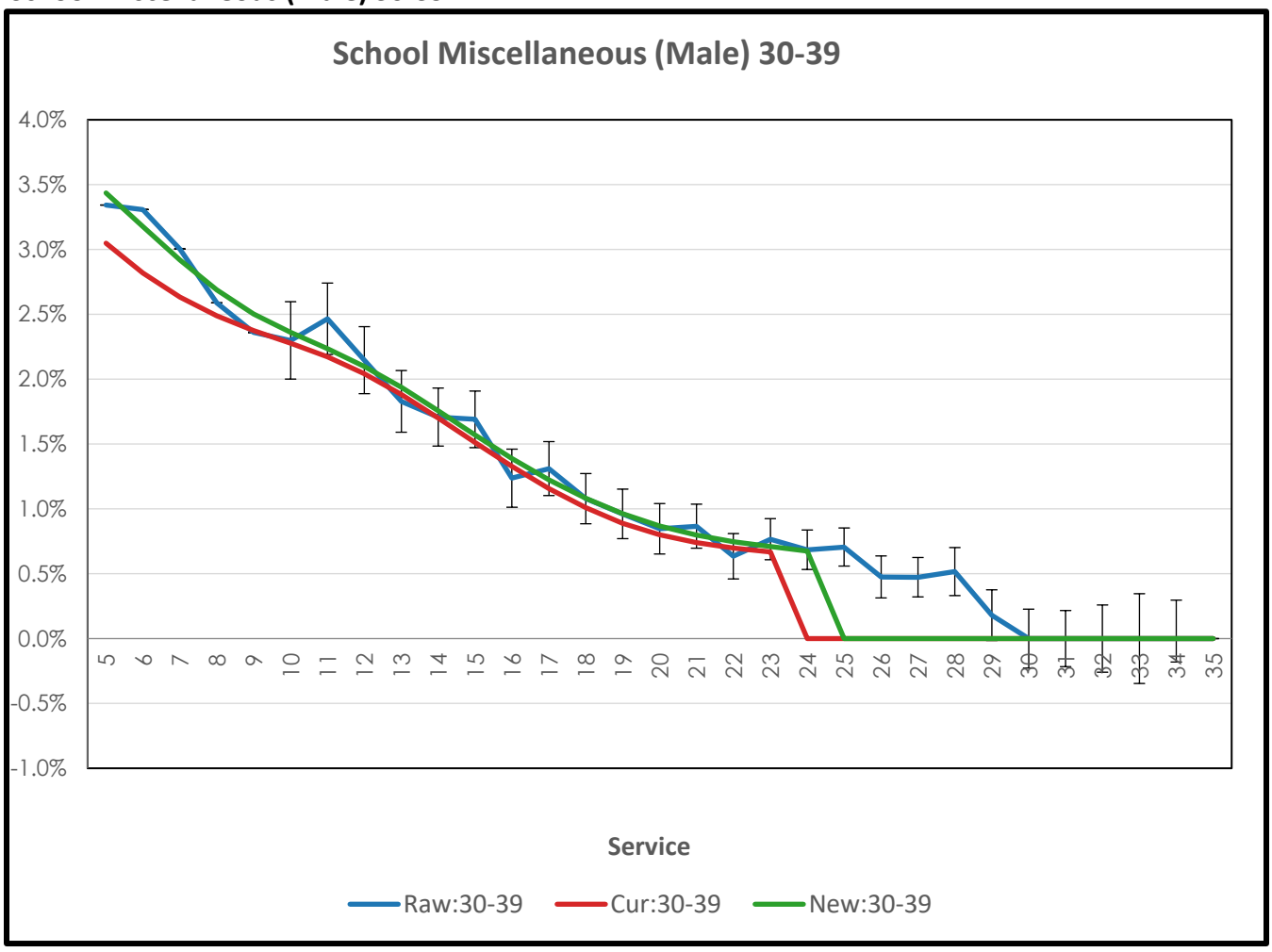
## Termination with Vested Benefits (continued)

**School Miscellaneous (Male) 15-29**



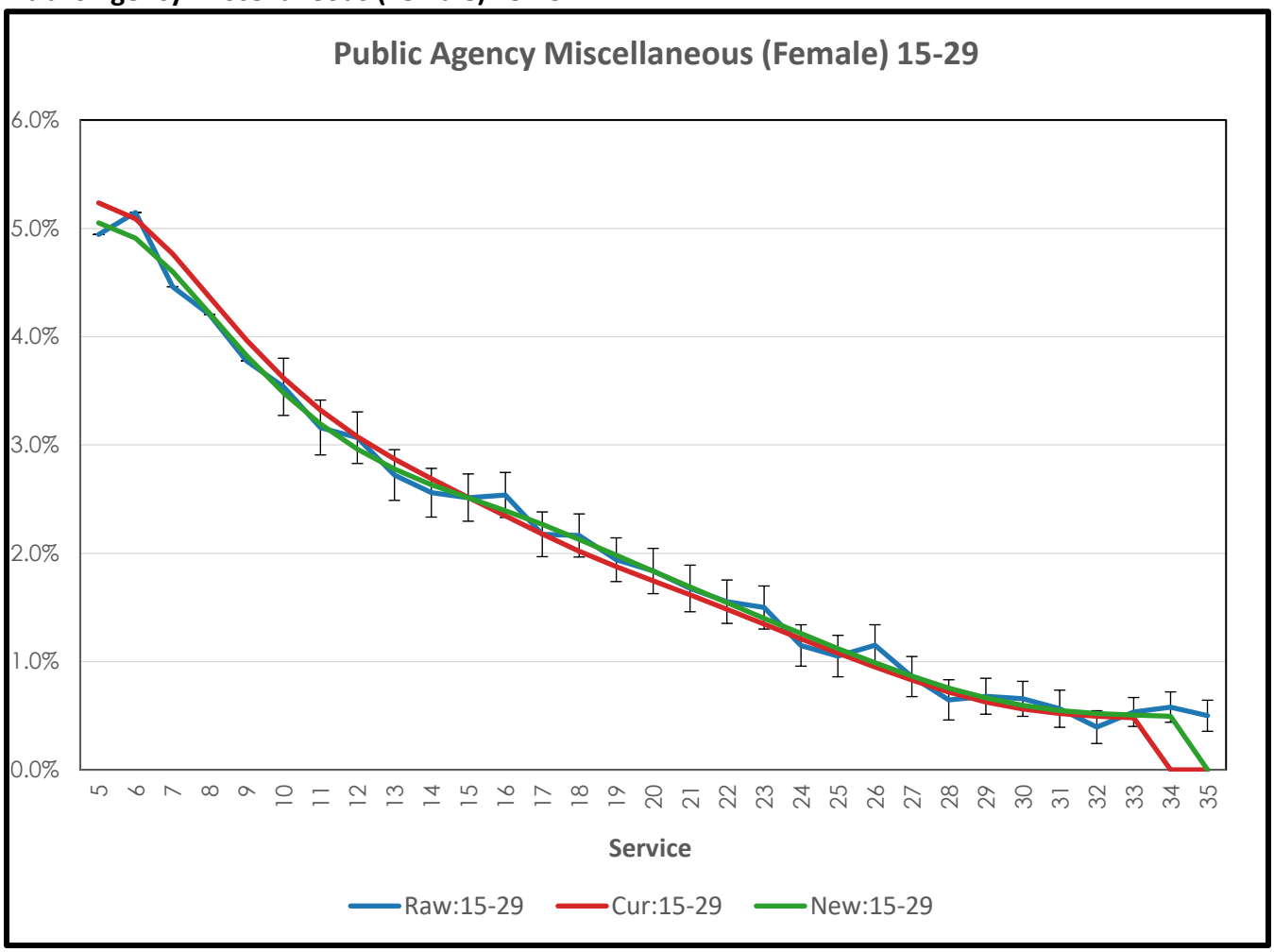
## Termination with Vested Benefits (continued)

**School Miscellaneous (Male) 30-39**



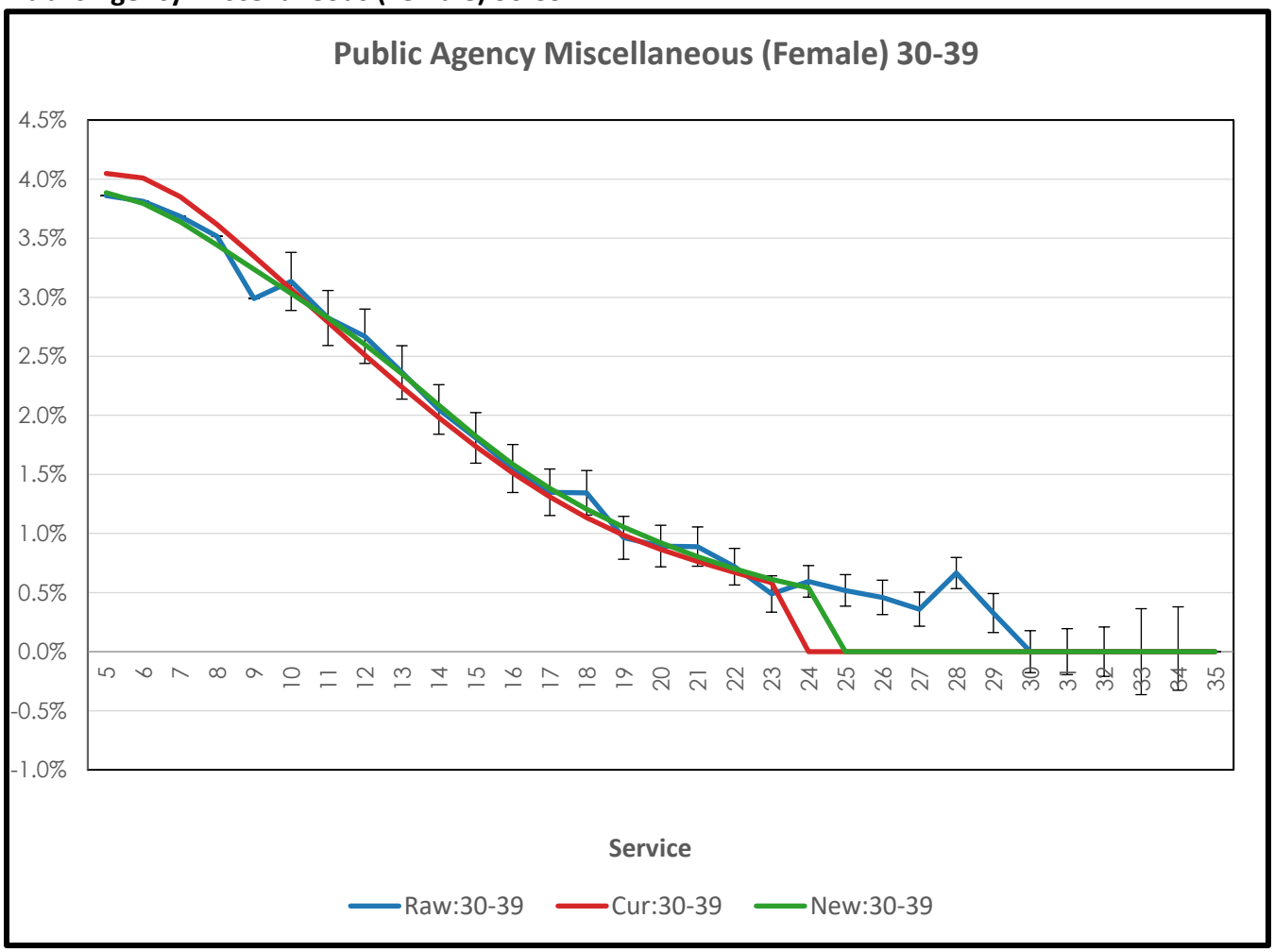
## Termination with Vested Benefits (continued)

**Public Agency Miscellaneous (Female) 15-29**



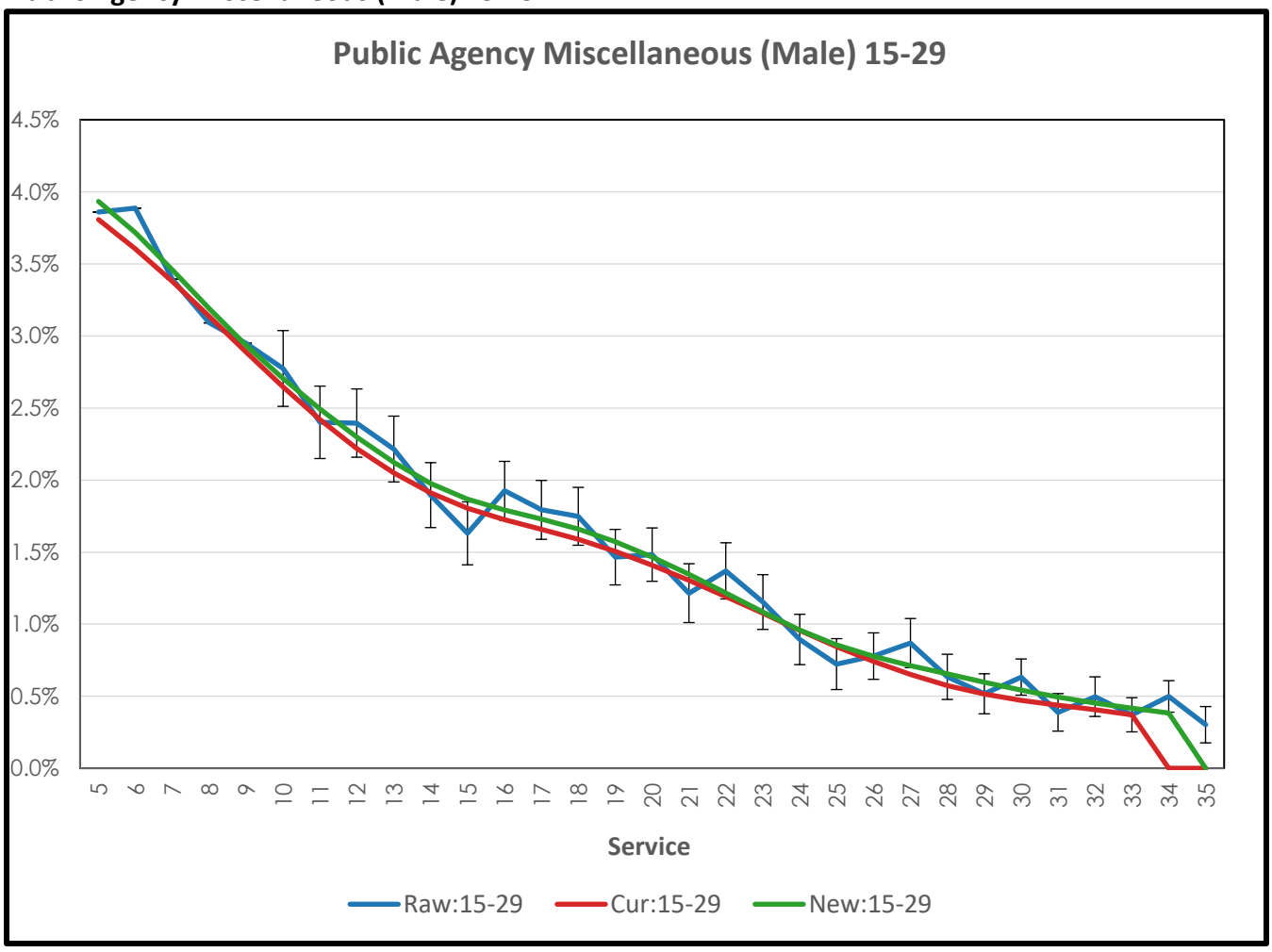
## Termination with Vested Benefits (continued)

**Public Agency Miscellaneous (Female) 30-39**



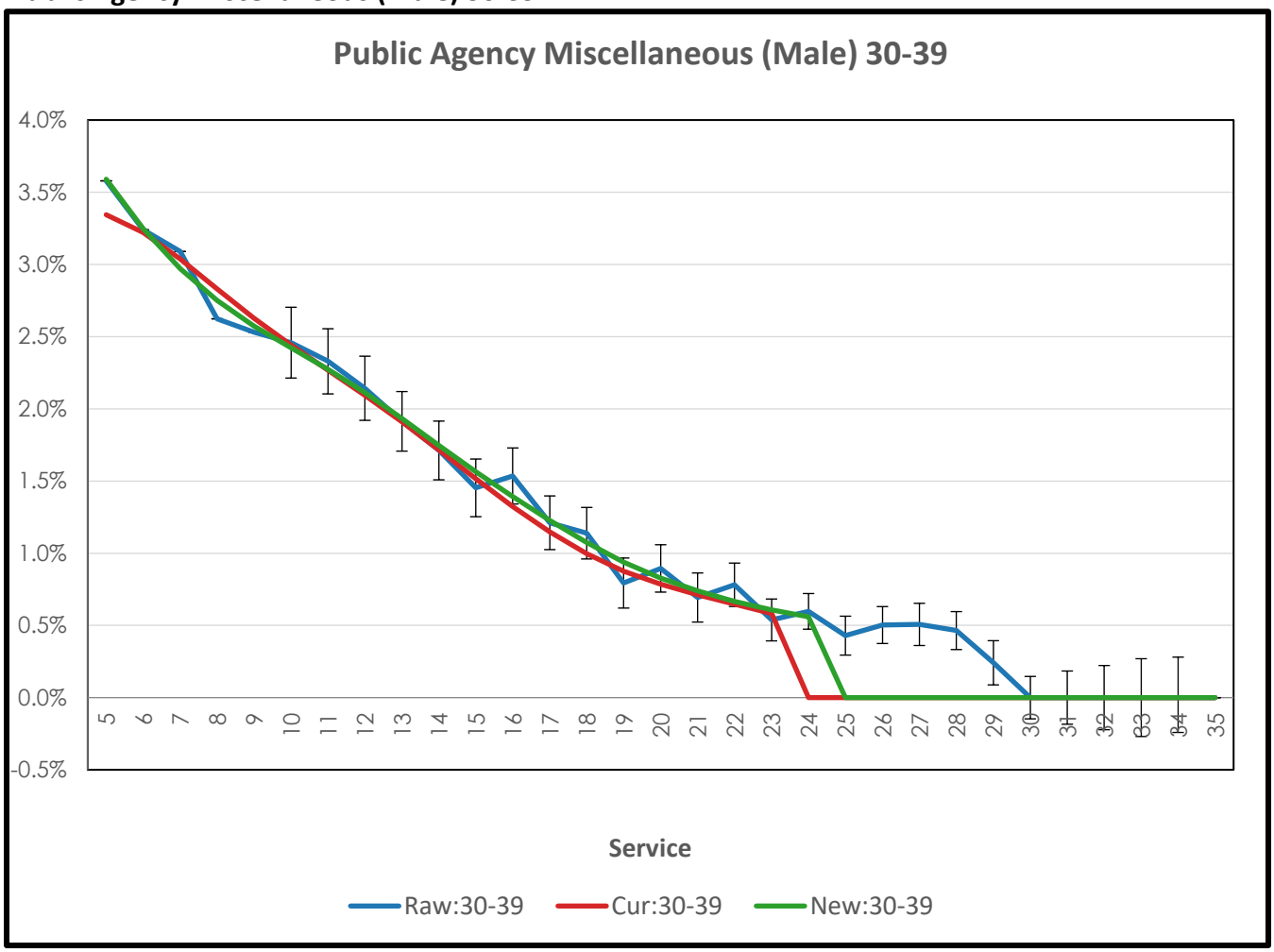
## Termination with Vested Benefits (continued)

**Public Agency Miscellaneous (Male) 15-29**



## Termination with Vested Benefits (continued)

**Public Agency Miscellaneous (Male) 30-39**



## Termination with Vested Benefits (continued)

**Public Agency Police (Female) 15-84**