Milwaukee County Retirement Plan Services

901 N. 9th Street, Courthouse, Room 210-C
Milwaukee, WI 53233
(414) 278-4207 (877) 652-6377
www.County.Milwaukee.Gov/Retirement

Date: June 7, 2024

To: Marcelia Nicholson, Chairwoman, Milwaukee County Board of Supervisors

From: Erika Bronikowski, Director, Retirement Plan Services

Subject: 2025 Milwaukee County ERS Employee Pension Contributions

This report was prepared in response to questions commonly asked regarding employee contributions in the Employees' Retirement System of Milwaukee County ("ERS").

Contents (linked below for ease of navigation)

Executive Summary

As detailed below, like most public pension funds, ERS is funded primarily through contributions as well as investment earnings. Milwaukee County has always made employer contributions to ERS, and 2011 Wisconsin Act 10 required that employees participating in ERS make employee contributions. Both the employee contribution rates and the contributions required from Milwaukee County are calculated annually by the ERS actuary. The ERS actuary uses a number of assumptions in determining the employee and employer contribution rates. One of these assumptions is the investment return assumption, which provides the investment return rate that the actuary assumes ERS will earn each year.

2023 Wisconsin Act 12 allowed the County to implement a .04% sales tax increase. However, Act 12 mandated that if the County adopted such a sales tax, certain changes were required to be made to ERS. Importantly, these required changes included reducing the ERS' investment return assumption effective January 1, 2024 from 7.5% to 6.8%, which is the return assumption used by WRS. A change to the investment return assumption has a significant impact on the ERS contribution rates. In this case, a reduction to the investment return assumption results in an increase to the required contributions because a reduction in this rate means that it is assumed that ERS' investment returns will be 6.8% instead of 7.5%. This change was effective January 1, 2024 because the County Board adopted the Act 12 sales tax in July 2023. Therefore, the 2025 rates, calculated in 2024, first reflect this investment return assumption. The contribution rates were further affected by other assumption changes.

The general employee contribution rates are increasing from 4.3% in 2024 to 5.1% in 2025 and the public safety employee contribution rates are increasing from 6.9% in 2024 to 9.1% in 2025. Both increased as a result of the decrease in the investment return assumption. Public safety employee contribution rates increased more due to other trends and assumptions: for example, public safety employees have larger benefits, higher salary increases, and can retire at an

earlier age than most general employees. Because employee contributions are a product of the cost of the benefits, public safety employees tend to have a higher rate than general employees.

Background of the ERS

The Employees' Retirement System of Milwaukee County ("ERS") is a tax qualified, governmental, defined benefit pension plan under Internal Revenue Code section 401(a) that was created by Milwaukee County in 1938 and restated in 1967. The ERS provides annuity benefits to most full time, permanent employees of Milwaukee County in retirement.

The ERS offers lifetime pension benefits to members who satisfy certain requirements that generally include minimum age and service requirements. ERS pension benefits are earned by completing service as a Milwaukee County employee while participating in the ERS and then they are paid as lifetime monthly payments when eligibility is reached. The amount of the pension benefit for members is based on a formula that takes into account the individual's salary and service. Milwaukee County, as the sponsor of ERS, has always been responsible for making contributions to the ERS. Pursuant to State law under Act 10, County employees who are members of the ERS are also required to make contributions to the ERS to fund the pension system. In 2023, Milwaukee County contributed $58,029,539 to the ERS and employees in ERS contributed $14,098,461. The assets of the ERS as of January 1, 2024 totaled $1,706,593,809. The liabilities of the ERS total $2,435,945,223 as of January 1, 2024 which results in a funded status of 70.06%. 2023 Wisconsin Act 12 (detailed further below) provides an additional funding source that will assist in reaching 100% funded status.

The Milwaukee County Pension Board is the governing body of fiduciaries that is charged with oversight of the ERS. Consistent with that obligation is the duty to administer the plan in accordance with Internal Revenue Code ("Code"), applicable Wisconsin State Statutes, Milwaukee County Ordinances, and Pension Board Rules in order to maintain and protect the tax-qualified status of the ERS. It is important for a plan to maintain its tax-qualified status because a retirement plan that satisfies the applicable requirements of the Code enjoys favorable tax treatment. If the Internal Revenue Service "disqualifies" a plan for failing to comply with the Code, the plan loses its tax-exempt status. Among other consequences of disqualification, active employee pension benefits earned may immediately become taxable income, and the pension fund's investment earnings can also be taxed. As such, putting the tax-qualified status of the ERS at risk by non-compliance with the Code, applicable Wisconsin State Statutes, Milwaukee County Ordinances, and Pension Board Rules would be cost prohibitive to Milwaukee County and members of the ERS.

Why do employees of Milwaukee County make pension contributions to the ERS?

Employee contributions to the ERS are required by Wisconsin State Statute 59.875, as amended by Act 12, which provides in relevant part:

> in any employee retirement system of a county, except as otherwise provided in a collective bargaining agreement entered into under subch. IV of ch. 111 and except as provided in pars. (b) and (c), employees shall pay half of all actuarially required normal cost contributions for funding benefits under the retirement system. The employer may not pay on behalf of an employee any of the employee's share of the actuarially required contributions.

How are employee contributions to the ERS calculated?

As indicated in the language above from Wisconsin State Statute 59.875, "…employees shall pay half of all actuarially required normal cost contributions for funding benefits under the retirement system".

Summarized calculation process (more detail provided below):

1. State law requires ERS employees to pay ½ of **actuarially required normal cost**.
2. What is the **actuarially required normal cost**? The current value of benefits earned in the preceding year.

3. How is the current value of benefits earned in the preceding year determined? The ERS Actuary reviews the employment changes (*data*) against the *formula* for pension benefits and makes *assumptions* about the likelihood of certain events that affect what benefits might be paid out and in what amount.
    - *Data*: all membership data from the RPS team as of 1/1/24
    - *Formula*: provided in Ordinance and Collective Bargaining Agreements
    - *Assumptions*: Economic Assumptions (Interest Rate, Salary Changes, Payroll growth) and Demographic Assumptions (Mortality, Retirement rates, Termination rates, Disability rates, Spousal information, Backdrop utilization). More detail on assumptions in the penultimate section of this document.

What are actuarially required normal cost contributions?

The actuarially required normal cost is the total present value of future benefits earned in the current year. In other words, the normal cost is the contribution necessary, when added to investment income, to pay for benefits earned each year. The normal cost "prefunds" or "pays in advance" for promised pension benefits. The normal cost does not include the unfunded liability.

The general calculation process is: The actuary takes a snapshot of the retirement system data as of January 1st and projects member benefits to retirement or other termination event. The actuary determines a rate for each employee to fund the projected benefits as a level percentage of salary over the employee's career. This determines each employee's Actuarial Accrued Liability and Normal Cost. The cost of the benefits accruing (taking into account assumed future investment income) is split between the County and employees in accordance Wisconsin State Statute 59.875. The findings are published mid-year and provide the upcoming year's contribution rates.

The normal cost and contribution calculation can be found in each year's valuation. Historical valuation reports, including the most recent report as of January 1, 2024 can be found on the Retirement Plan Services website.

The 2025 pension contributions are included in the January 1, 2024 valuation, excerpted below:

H. State Mandated Member Contributions

The following table develops the member contribution rates for 2025. Public Safety and General employees contribute 50% of the normal cost for active members. The rates exclude any amortization of the Unfunded Actuarial Accrued Liability.

Member Contribution Rates

		Public Safety*	General	All Members
Projected Member Contribution for 2025				
1	Normal cost with interest	4,910,489	21,818,841	26,729,330
2	Member contribution (50% of **1a** for Contributors)	2,455,245	10,909,421	13,364,666
3	Expected salaries in 2024	26,121,046	203,536,746	229,657,792
4	Member contribution rate: **2 ÷ 3 ÷ 1.068** ½	9.1%	5.2%	N/A

* The actives in the Public Safety group include 338 members comprised of Firefighters, Sheriffs and Non-Represented Sheriffs.

The 9.1% and 5.2% employee contribution rates for 2025 were determined based on the pension benefits earned from January 1, 2023, to December 31, 2023, by employees. The calculation was completed in May 2024.

Why are employee contribution rates for the ERS increasing for 2025?

Both general employees and public safety employee contribution rates are increasing for 2025. Many factors affect the contribution rates, and they are recalculated by the actuary each year. The increase from 2024 to 2025 is based on the calculation of the contribution rate required by 2023 Wisconsin Act 12. It should be noted that while the contribution rate increased from 2024 to 2025, the 2025 contribution rate is still lower than the pre-Act 12 contribution rate.

On July 27, 2023 the Milwaukee County Board of Supervisors adopted an additional 0.4% Sales and Use tax as permitted by 2023 Wisconsin Act 12. Under Act 12, once the County Board adopted the additional Sales and Use tax, certain changes to the ERS are required. These changes are:

Effective June 20, 2023: The State of Wisconsin Legislative Audit Bureau will annually audit the ERS. At least every five years, an actuarial audit of the ERS must be completed.

Effective January 1, 2024:

- The investment return assumption for the ERS cannot be higher than that of the Wisconsin Retirement System ("WRS"). This required ERS to reduce its investment return assumption from 7.5% to 6.8%.
- Employee contributions only include the normal cost contributions for funding benefits and will no longer include payment of a portion of the ERS unfunded liability.
- Sales tax revenue will be used to pay down the ERS unfunded liability.

Effective January 1, 2025: New employees of Milwaukee County will be enrolled in the WRS.

As indicated above, ERS was required to drop the investment return assumption from 7.5% to 6.8% as of January 1, 2024. This means that ERS must now assume that long-term investments will grow at a rate of 6.8% instead of 7.5%. Since less fund growth is assumed, more money needs to be contributed to reach the future payout amounts. A reduction to the investment return assumption is a significant driver of changes to required contributions.

A similar timeline regarding 2023 Wisconsin Act 12 was provided in file 23-712 for reference.

Below are the historical ERS employee contribution rates, for reference:

Year in Effect	**Valuation Date** *(data snapshot)*	**Reflects Benefits Earned in…**	**Valuation Completed**	**Public Safety Employees**	**General Employees**
2025	1/1/2024	2023	June 2024	9.1%	5.2%
2024	1/1/2023	2022	June 2023	6.9%	4.3%
2023	1/1/2022	2021	June-2022	9.8%	6.1%
2022	1/1/2021	2020	Mid-2021	9.9%	6.1%
2021	1/1/2020	2019	June 2020	9.7%	6.2%
2020	1/1/2019	2018	June 2019	8.9%	6.2%
2019	1/1/2018	2017	June 2018	9.5%	6.5%
2018	1/1/2017	2016	June 2017	8.3%	6.5%
2017	1/1/2016	2015	July 2016	8.1%	6.5%
2016	1/1/2015	2014	August 2015	7.9%	6.5%
2015	1/1/2014	2013	May 2014	5.3%	5.0%
2014	1/1/2013	2012	June 2013	5.2%	5.1%
2013	1/1/2012	2011	June 2012	6.59%	4.4%
2012	1/1/2011	2010	May 2011	6.59%	4.7%
2011	1/1/2010	2009	May 2010	None	2%, 3%, 4%

Why are the employee contributions for public safety employees higher than general employees?

In general, Public Safety employees of Milwaukee County have higher contribution rates than general County employees (see historical contribution rate table above). There are two major reasons for this: one is the difference in **eligibility** for pension benefits due to collective bargaining (different formula, retirement age, etc.), and the other is the difference in actual **experience** (higher raises, higher disability rates, etc.). These two reasons are further detailed below.

Eligibility/Formula components result in Public Safety pension benefits being higher and/or paid for a longer period of time. Therefore, these benefits are more costly:

- *Higher multiplier:* an employee's pension benefit is calculated by multiplying the employee's multiplier, years of service, and final average salary. General employees' pension benefits are calculated using a 1.6% multiplier and

Public Safety employees' pension benefits are calculated using a 2.5% or 2% multiplier, depending on their hire date. The examples below show the significant difference a higher multiplier makes.

  - General employee who works 25 years: 1.6% x 25 x $50,000 = $20,000 annual pension benefit
  - Public safety employee 1 who works 25 years: 2.0% x 25 x $50,000 = $25,000 annual pension benefit
  - Public safety employee 2 who works 25 years: 2.5% x 25 x $50,000 = $31,250 annual pension benefit

- *Earlier Retirement date:* Public Safety employees' retirement age is 57 or 55 with 15 years of service credit for sheriffs and age 60 for firefighters, while the general employees' retirement age is 64 for employees hired since 2011 Wisconsin Act 10.
- *More generous death benefits:* the death benefits available to the survivor of a Deputy Sheriff who is killed in the line of duty are more generous than the active death benefits available to general employees.
- *More generous disability benefits:* The minimum Accidental Disability Retirement benefit for Sheriffs is 75% of earnings. The minimum Accidental Disability Retirement benefit for all other members is 60% of earnings.

Experience/assumptions of the ERS that result in Public Safety pension benefits being assumed to have a higher cost over time:

Milwaukee County Ordinance Chapter 201.24 (8.15) requires an experience study to be completed every five years to assess the appropriateness of the long term assumptions used for valuing ERS. This is a best practice that helps to ensure that the assumptions that are used in the valuation (which ultimately determines the contribution requirements) reflect what is actually happening in the ERS. During the experience study, the actuary reviews data on members of the retirement system from the preceding five years to determine trends and to create assumptions about future workforce/retirement/mortality trends.

If the assumptions do not closely reflect the actual experience of the retirement system, then the actual costs of the ERS will be pushed to future members/future years.

The assumptions reviewed in the experience study include:

- Economic Assumptions
  - Investment Return Assumption – *2023 Wisconsin Act 12 capped the ERS investment rate assumption at the rate the Wisconsin Retirement System uses. The rate is currently 6.8%.*
  - Salary Changes – *salary change data is reviewed and Public Safety Employees had higher salary increases during the five-year review period than general employees.*
  - Payroll growth – *this anticipates growth in the County's revenues and does not factor into the normal cost, only the amortization of the unfunded liability (which is paid by the 0.4% sales tax).*
- Demographic Assumptions
  - Death after retirement – *across the board, there were more deaths than expected for retirees and beneficiaries*
  - Death in active service – *insufficient occurrences to set a unique assumption*
  - Retirement rates – *across the board, there were more retirements than expected*
  - Termination rates – *across the board, there were more terminations than expected*
  - Disability rates – *more disabilities than expected for Public Safety and fewer for general employees*
  - Spousal information – *no distinction between the Public Safety and general employees*
  - Backdrop utilization – *no distinction between the Public Safety and general employees*

The most recent experience study was completed in late 2022 which reflects pension benefits earned/paid from 2017 through 2021. The results of the study were provided to the Pension Board in early 2023, and after hearing recommendations from the actuary, assumption changes were adopted by the Pension Board in February 2023, see italicized notes above. Since the January 1, 2023 valuation was already underway, the assumptions approved in February 2023 are first reflected in the January 1, 2024 valuation. A copy of the most recent experience study has been attached at the end of this document for reference.

Why are Public Safety employees' contributions increasing at a higher rate?

In general, Public Safety employees of Milwaukee County have had higher contribution rates than general County employees. There are two major reasons for this: the difference in **eligibility** for pension benefits due to collective

bargaining (different formula, retirement age, etc.) and the difference in actual **experience** (higher raises, higher disability rates, etc.). The rates of increases have not always been consistent between the two groups. In 2025, the general employee contribution rates are increasing by about 20% over the 2024 rates (4.3% to 5.2%) and the Public Safety contribution rates are increasing just over 30% (from 6.9% to 9.1%).

Year in Effect	Public Safety Rate	Difference From Prior Year	% Change from Prior Year	General Employee Rate	Difference From Prior Year	% Change from Prior Year
2025	9.1%	2.2%	31.9%	5.2%	0.9%	20.9%
2024	6.9%	-2.9%	-29.6%	4.3%	-1.8%	-29.5%
2023	9.8%	-0.1%	-1.0%	6.1%	0.0%	0.0%
2022	9.9%	0.2%	2.1%	6.1%	-0.1%	-1.6%
2021	9.7%	0.8%	9.0%	6.2%	0.0%	0.0%
2020	8.9%	-0.6%	-6.3%	6.2%	-0.3%	-4.6%
2019	9.5%	1.2%	14.5%	6.5%	0.0%	0.0%
2018	8.3%	0.2%	2.5%	6.5%	0.0%	0.0%
2017	8.1%	0.2%	2.5%	6.5%	0.0%	0.0%
2016	7.9%	2.6%	49.1%	6.5%	1.5%	30.0%
2015	5.3%	0.1%	1.9%	5.0%	-0.1%	-2.0%
2014	5.2%	-1.4%	-21.1%	5.1%	0.7%	15.9%
2013	6.59%	0.0%	0.0%	4.4%	-0.3%	-6.4%
2012	6.59%	N/A	N/A	4.7%	N/A	N/A
2011	None	N/A	N/A	2%, 3%, 4%	N/A	N/A

The primary driver of the bigger increase in contributions for Public Safety is the adjustment to assumptions as a result of the experience study completed in late 2022 as well as the required reduction in the investment return assumption under Act 12.

Milwaukee County Ordinance Chapter 201.24 (8.15) requires an experience study to be completed every five years to assess the appropriateness of the long term assumptions used for valuing the ERS. This is a best practice that helps to ensure that the assumptions that are used in the valuation (which ultimately determines the contribution requirements) reflect what is actually happening in the ERS. During the experience study, the actuary reviews data on members of the retirement system from the preceding five years to determine trends and to create assumptions about future workforce/retirement/mortality trends.

If the assumptions do not reflect the actual experience of the retirement system, then the actual costs of the pension will be pushed to future members/future years. The assumptions reviewed in the experience study include:

Economic Assumptions

- Interest rate – *Capped at 6.8% for entire pension system*
- Salary Changes – *Public Safety employees had higher salary increases during the five-year review period than general employees*
- Payroll growth – *Does not factor into the normal cost/contribution calculation*

Demographic Assumptions

- Death after retirement – *across the board, there were more deaths than expected for retirees and beneficiaries*
- Death in active service – *insufficient occurrences to set a unique assumption*
- Retirement rates – *across the board, there were more retirements than expected*
- Termination rates – *across the board, there were more terminations than expected*
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- Spousal information – *no distinction between the Public Safety and general employees*
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The most recent experience study was completed in late 2022 which reflects pension benefits earned/paid from 2017 through 2021. The results of the study were provided to the Pension Board in early 2023, and after hearing recommendations from the actuary, assumption changes were adopted by the Pension Board in February 2023.The assumptions approved in February 2023 are first reflected in the January 1, 2024 valuation.

Why are the County ERS rates different from the employee contribution rates in the WRS?

There are two other public retirement systems in the State of Wisconsin: the Wisconsin Retirement System ("WRS") and the City of Milwaukee Employees' Retirement System ("CMERS"). New employees of Milwaukee County as of January 1, 2025, will enter the WRS instead of the County ERS.

Each of these three pension systems (the County ERS, WRS, and CMERS) are separate legal entities with distinct formula differences, different populations, and different funding needs. Due to the differing nature of their respective benefit formulas and populations, the employee contributions in the three systems generally will not match.

County ERS: Below is an excerpt from the January 1, 2024 valuation which provides the calculation of the employee contribution rates for the County ERS for 2025:

H. State Mandated Member Contributions

The following table develops the member contribution rates for 2025. Public Safety and General employees contribute 50% of the normal cost for active members. The rates exclude any amortization of the Unfunded Actuarial Accrued Liability.

Member Contribution Rates

		Public Safety*	General	All Members
Projected Member Contribution for 2025				
1	Normal cost with interest	4,910,489	21,818,841	26,729,330
2	Member contribution (50% of 1a for Contributors)	2,455,245	10,909,421	13,364,666
3	Expected salaries in 2024	26,121,046	203,536,746	229,657,792
4	Member contribution rate: 2 ÷ 3 ÷ 1.068 ½	9.1%	5.2%	N/A

* The actives in the Public Safety group include 338 members comprised of Firefighters, Sheriffs and Non-Represented Sheriffs.

WRS: The Wisconsin Retirement System has different provisions from the City and County of Milwaukee for earning and receiving pension benefits. For example, protective service (public safety) members covered by social security have a 2% multiplier which is different from the ERS public safety multiplier, which is 2.5% for members hired before July 1, 1995 (2.5%). Additionally, the disability retirement benefits offered for protective service members are less generous in the WRS than in the County ERS. These are two of many examples of plan provision differences between the two retirement systems that contribute to different contribution rates.

Below is a screenshot of a WRS website that provides current contribution rates for 2024. While the 2025 WRS rates are not yet published, even with the increase, it is likely that ERS general employees will pay less in ERS contributions than they would in the WRS. While ERS public safety employees are paying more than the protective service employees in WRS, State law has established a different contribution calculation for WRS than ERS. In the WRS, employers and public safety employees are not required to split the cost 50/50 whereas the City and County of Milwaukee ERS employers and employees are required to split the costs. As noted above, the 2025 rates have not yet been published.
https://etf.wi.gov/benefits/wrs-contribution-rates

Contributions

Employee and employer contributions are adjusted annually.

Normal Cost	2024 Contributions as Percent of Payroll		
	General, Executive and Elected	Protective with Social Security	Protective without Social Security
Employee	6.9%	6.9%	6.9%
Employer	6.9%	14.3%	19.1%
Total	**13.8%**	**21.2%**	**26.0%**

City ERS: The City of Milwaukee has different provisions from the WRS and County ERS for earning and receiving pension benefit.

Below are the City of Milwaukee ERS contribution rates that were set in 2022 and cover the years 20203 to 2027. Please note that this was published before 2023 Wisconsin Act 12 so these rates may change.

2025 rates have not been published yet. https://www.cmers.com/CMERS/Reports/Actuary/2023-CMERS-Valuation-Document-Final_06192023.pdf

	General Employees	Policemen	Firemen	Total
1. Retirement Benefits	$26,834	$31,138	$11,725	$69,697
2. Withdrawal Benefits	14,312	1,525	513	16,350
3. Disability Benefits	1,061	2,027	2,638	5,726
4. Death Benefits	693	222	110	1,025
5. Total Normal Cost	$42,900	$34,912	$14,986	$92,798
6. Projected Payroll	$390,258	$146,653	$62,373	$599,284
7. Normal Cost Rate	10.99%	23.81%	24.03%	15.48%
8. Member Contribution Rate	(4.70%)	(7.00%)	(7.00%)	(5.50%)
9. Employer Normal Cost Rate	6.29%	16.81%	17.03%	9.98%

Please let me know if you have any questions.

Cc:
Supervisor Willie Johnson Jr., Chair, Finance Committee
Supervisor Patti Logsdon, Chair, Personnel Committee
Supervisor Jack Eckblad, Chair, Audit Committee
David Crowley, County Executive
Margo Franklin, Chief Human Resources Officer
Finance Committee
Audit Committee
Personnel Committee
Mary Jo Meyers, Chief of Staff, Office of the County Executive
Aaron Hertzberg, Director, Department of Administrative Services
Liz Sumner, Comptroller
Jennifer Folliard Director of Audit, Office of the Comptroller
Steve Cady, Research and Policy Director, Office of the Comptroller
Scott Brown, Corporation Counsel

Employees' Retirement System of the County of Milwaukee

Actuarial Experience Review

January 1, 2017, through December 31, 2021

October 2022 / Matt Strom / Geoff Bridges

Segal

Agenda

Overview

Analysis:

- Economic Assumptions
- Demographic Assumptions

Summary of Recommended Assumptions

Cost Impact

Overview: Purpose of an Experience Study

An experience study provides the basis for developing recommended assumptions to be used in the annual actuarial valuation

- Performed on a periodic basis, typically every five years
- Last ERS experience study reviewed demographic and economic assumptions over the 5-year period ending December 31, 2016.
- Current study is based on the 5-year period January 1, 2017, through December 31, 2021

Segal's role is to make appropriate recommendations to the Board for each assumption

- The assumptions are the Board's assumptions, and the Board can adopt all, none, or some of the recommendations of the actuary
- Segal's recommendations will follow the guidance of the applicable Actuarial Standards of Practice. Assumptions should be reasonable individually and in the aggregate (ASOP No. 27 and 35).

Overview: How Assumptions Are Set

Review past experience ("actual") and compare with assumptions ("expected")

Determine trends – make judgments about the future

Develop component parts of each assumption

- Maintain internal consistency

Keep in mind:

- No "right" answer
- Assumptions are long-term in nature
- Assumptions do not directly affect the payment of benefits, only the timing of contributions

Overview: Actuarial Assumptions

Economic

- Inflation
- Investment return
- Salary increase
- Payroll growth

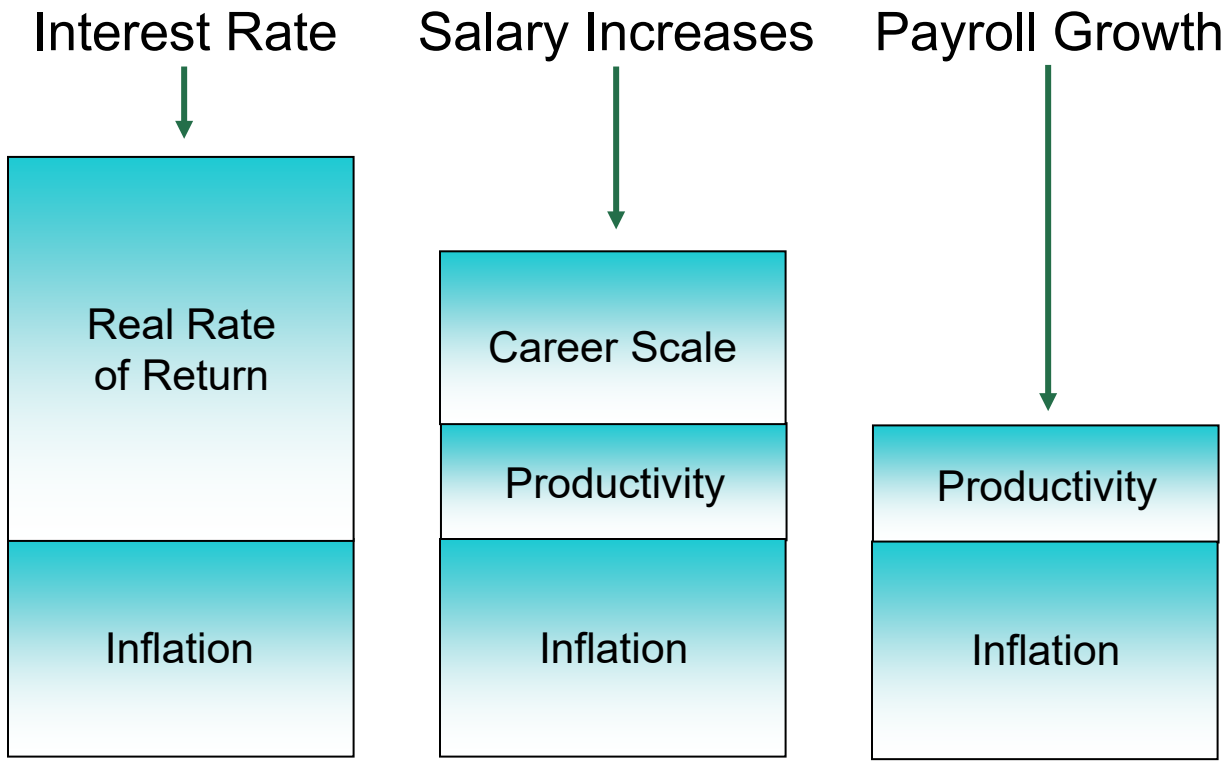
Demographic

- Death after retirement
- Death in active service
- Retirement
- Termination
- Disability
- Spousal Information
- Backdrop Utilization

Actuaries make assumptions as to when and why a member will leave active service and estimate the amount, duration and present value of the pension benefits paid.

Basis for Setting Economic Assumptions

Each economic assumption has 2 or 3 components



Each component should be consistent across all economic assumptions, but may include a provision for adverse deviation.

Assumed Rate of Inflation

Inflation represents the annual increase in the cost of living and reflects long term expectations

The current inflation assumption is 2.50%

- Inflation is a component of the following economic assumptions:
  - Investment return
  - Individual salary increases
  - Payroll growth (reflecting County & Board view of anticipated growth in county revenues)

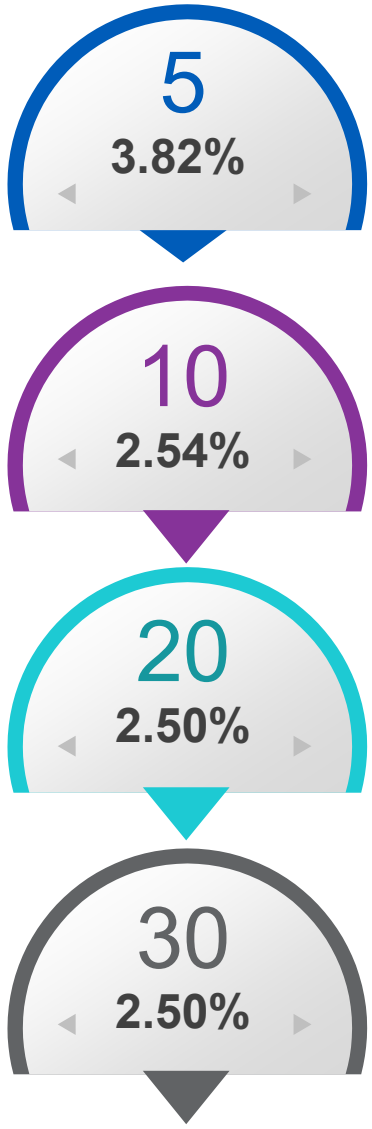
Segal's recommendation is to keep the assumption of 2.50%, based on:

- Average 20-year inflation assumption from the 2022 Horizon Survey of Capital Market Expectations is 2.44%
- The Philadelphia Federal Reserve Bank Third Quarter 2022 Survey of Professional Forecasters 10-year outlook (2.80%) is generally consistent with the 10-year average from the 2022 Horizon Survey (2.46%)
- Spread between inflation-indexed and non-inflation-indexed US Treasury Bonds* for 20-year maturity is 2.40%

* As of September 30, 2022, the yields on 20-year Treasury bonds with and without index for inflation from the U.S. Department of the Treasury website treasury.gov were 1.68% and 4.08%, respectively.

Assumed Rate of Inflation *(continued)*

As of August 31, 2022, the historical national inflation (CPI-U) averages are:



5-year Average

The most recent 5-year average increase in CPI-U is 3.82%

10-year Average

The most recent 10-year average increase in CPI-U is 2.54%

20-year Average

The most recent 20-year average increase in CPI-U is 2.50%

30-year Average

The most recent 30-year average increase in CPI-U is 2.50%

Assumed Rate of Investment Return

The investment return is a principal assumption used in the actuarial valuation and is used to discount future expected benefit payments to the valuation date in order to determine the liabilities of the plan

The current investment return assumption of 7.50% consists of two components:

- Inflation*: 2.50%
- Real rate of return: 5.00%

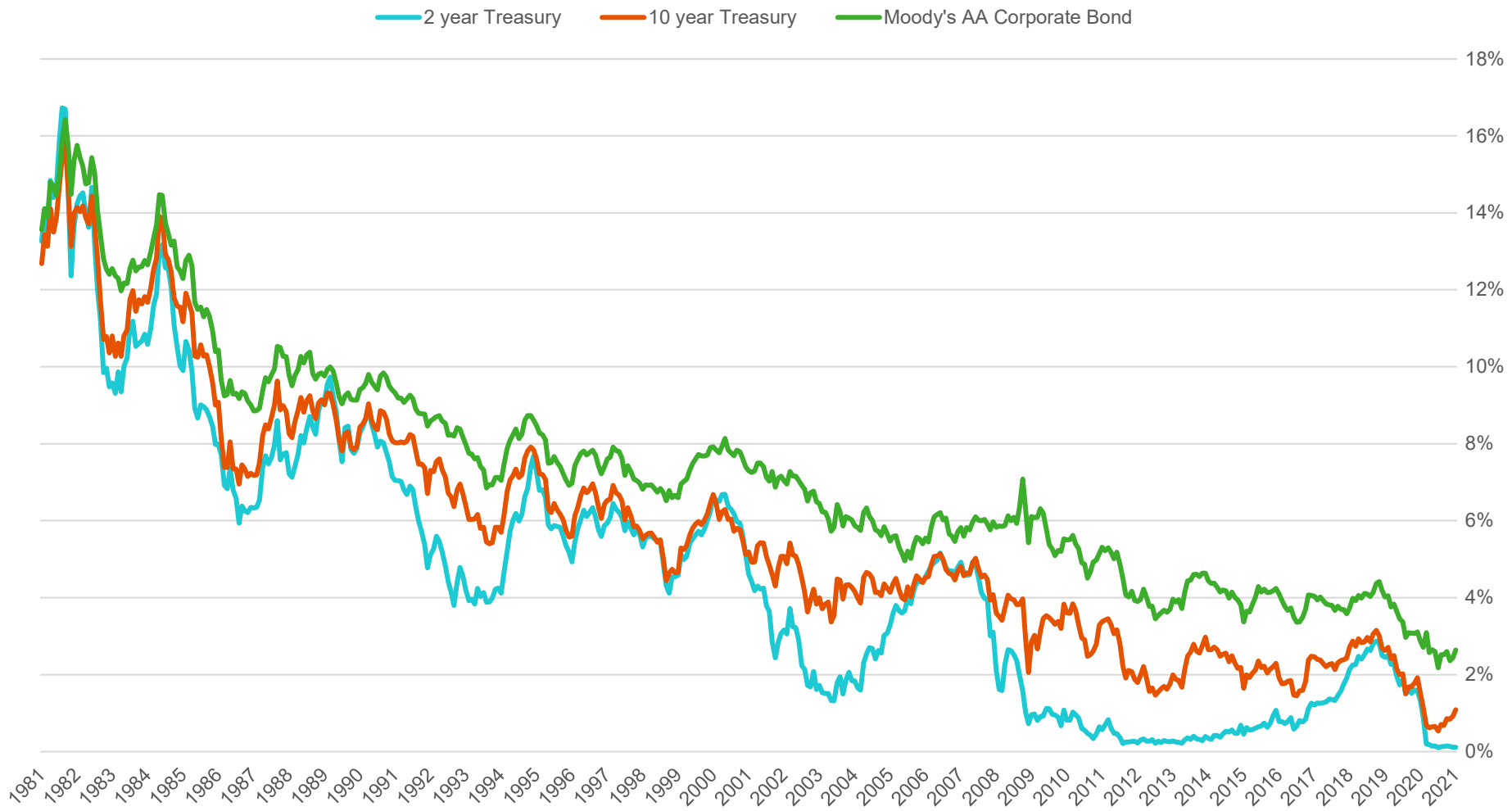
Our approach is to analyze inflation and real return separately

The analysis itself looks at three 'big ideas':

*The proposed inflation assumption remains at 2.50%

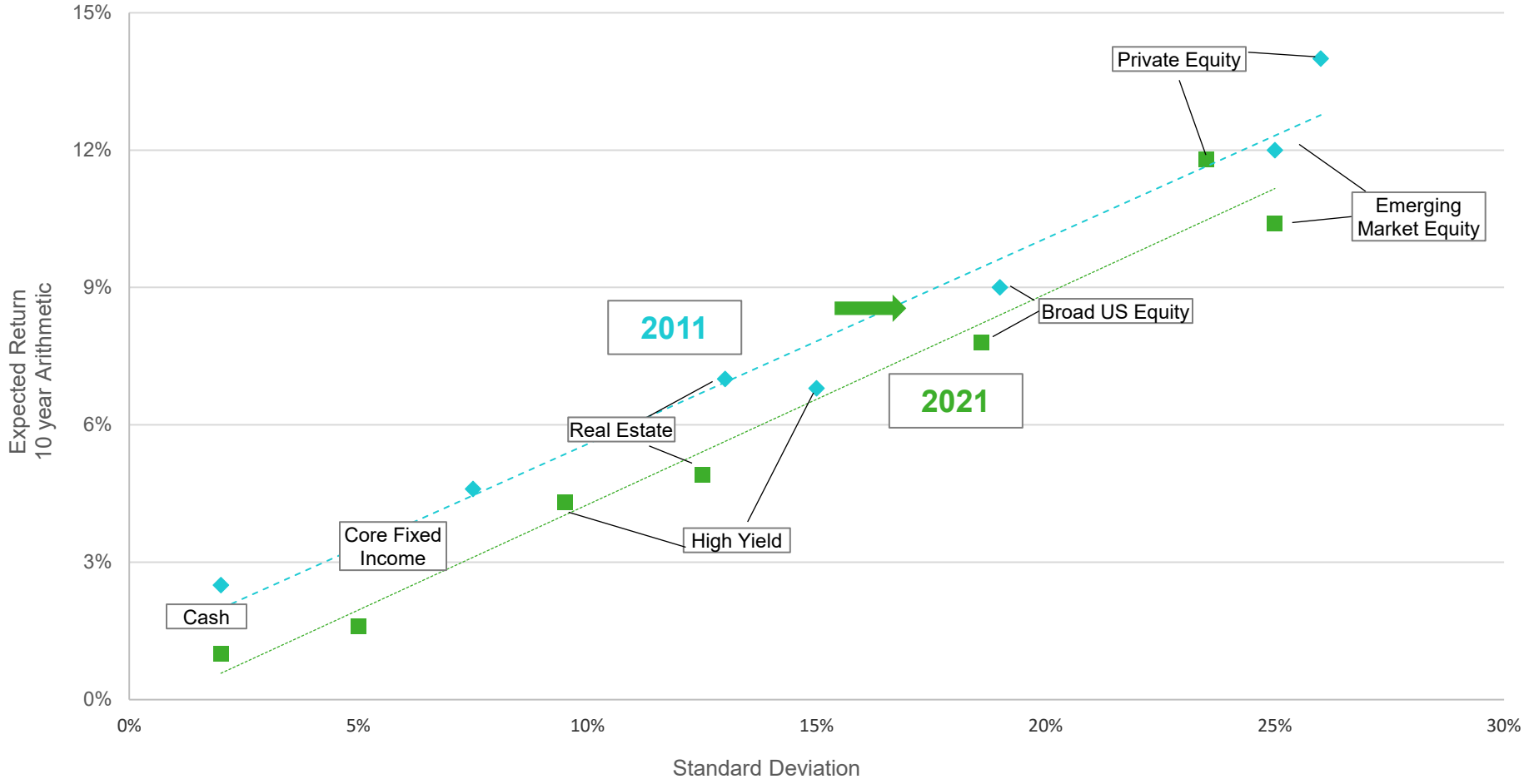
Evolution of Interest Rates

- Interest rates and bond yields are at historic lows



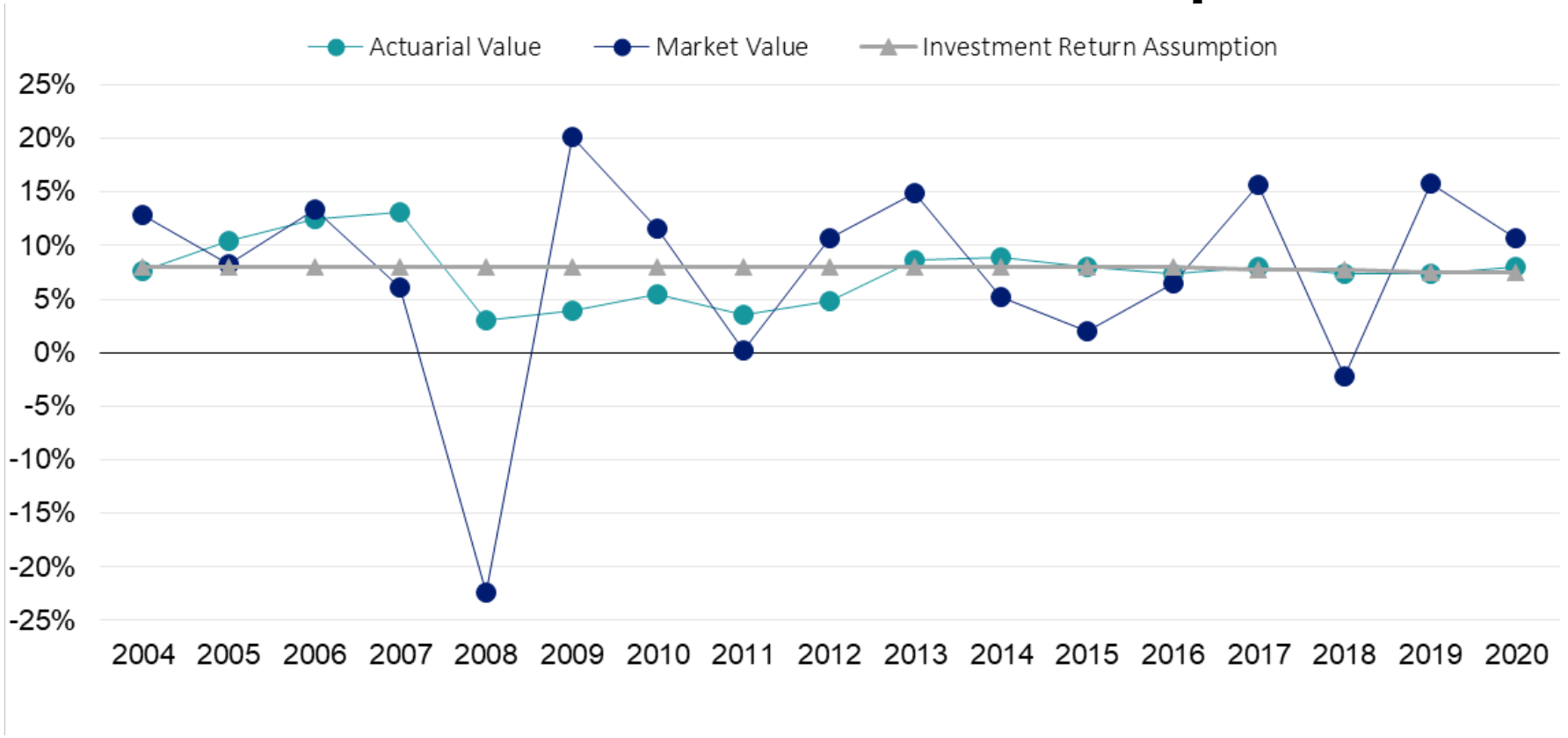
Asset Class Expectations

- Lower expected returns across multiple asset classes



Source: Segal Marco Advisors

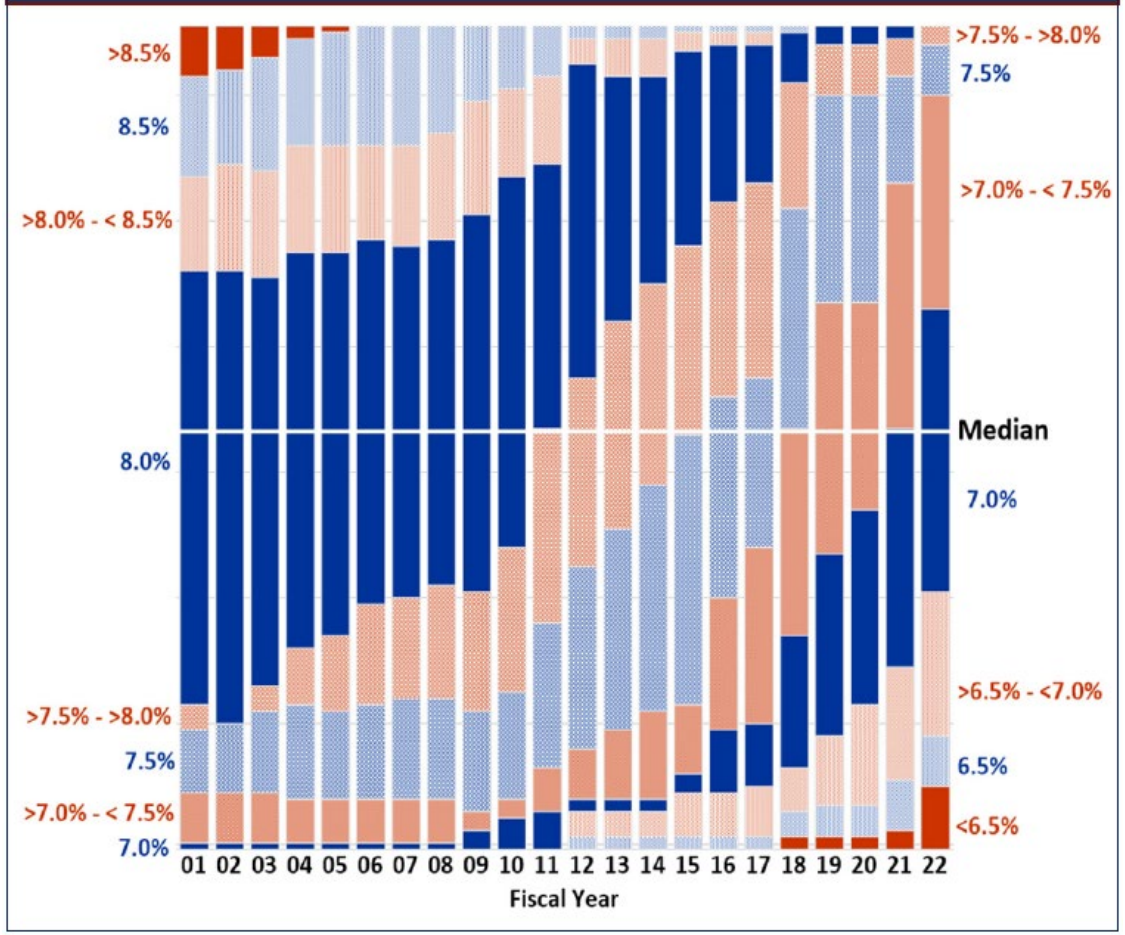
Investment Return Historical Experience



Average	AVA Returns	MVA Returns
5-year	7.59%	9.07%
10-year	7.16%	7.76%
15-year	7.27%	6.70%

Benchmarking: Investment Return in Peer Groups since 2001

Figure 4: Change in Distribution of Public Pension Investment Return Assumptions, FY 01 to FY 22



Source: *NASRA Issue Brief, March 2022*

Since 2001, the median investment return assumption has been moving downward and this trend is expected to continue as more systems complete experience review cycles.

This data is from a survey done by the National Association of State Retirement Administrators.

Additional Benchmarking

From the National Conference on Public Employee Retirement Systems (NCPERS)

- "Funds continue the trend toward more conservative actuarial assumptions. The average investment assumed rate of return for responding funds is 7.07 percent, compared with 7.26 percent last year. The inflation assumption remained 2.7 percent."

Source: NCPERS Public Retirement Systems Study, February 2022

Basis for Expected Real Rate of Return

We base our analysis of the expected real rate of investment return on several factors, including:

- The *Horizon Survey of Capital Market Assumptions (2022 Edition)*
  - This survey compiles and averages the capital market assumptions of 40 investment consultants (including Marquette)
  - For 2022, 24 respondents provided assumptions for "long term", or 20 years
- The analysis applies the survey assumptions to ERS' current target asset allocation
- The 20-year expected geometric portfolio real rate of return was generated from the 50th percentile of 5,000 simulated portfolio return trials

Over a 20-year period, ERS is expected to earn an annual real rate of return of at least 4.55% half of the time

- Reflecting the proposed inflation assumption of 2.50% results in achieving an expected nominal return of 7.05% 50-percent of the time
  - A 5-basis point provision for adverse deviation improves the probability of meeting or exceeding 7.00% to just under 51%.
  - A 30-basis point provision for adverse deviation improves the probability of meeting or exceeding 6.75% to just over 54%.

We recommend that the Board reduce the rate of return assumption to 7.00%.

Assumed Rates of Individual Salary Increase

In order to project future benefits, salaries are projected forward over the expected career for each active member

Individual member salary increase components:

- Inflation
- Productivity
- Merit and seniority increases

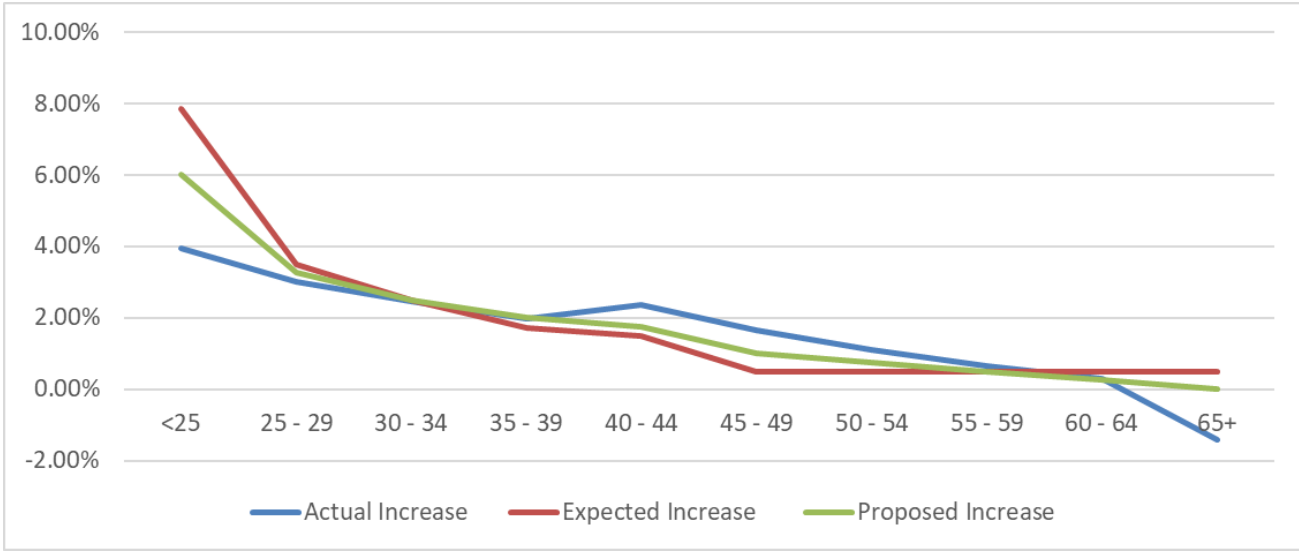
Since merit and seniority increases are unique to each retirement system, it is appropriate to base this assumption on recent experience

- We study the merit and seniority increases (plus productivity) separately from inflation
- Between 2016 and 2020, inflation averaged 1.95%. This does not include the inflation of 7.04% in 2021. We do not believe the 2021 inflation is yet reflected in the historical salary data.

Rates of Salary Increase – General Employees

The following table compares the actual and expected individual salary increases over the past 5 years. This table is adjusted to remove actual annual inflation of about 1.95% over the experience period; however, this analysis excludes participants with less than 1 year of service:

Age	Actual Increase	Expected Increase	Proposed Increase
< 25	3.95%	8.00%	6.00%
25 – 29	3.00%	3.50%	3.25%
30 – 34	2.47%	2.50%	2.50%
35 – 39	1.97%	1.70%	2.00%
40 – 44	2.36%	1.50%	1.75%
45 – 49	1.65%	0.50%	1.00%
50 – 54	1.12%	0.50%	0.75%
55 – 59	0.65%	0.50%	0.50%
60 – 64	0.31%	0.50%	0.25%
65 +	–1.41%	0.50%	0.00%
Total	**1.56%**	**1.21%**	**1.35%**



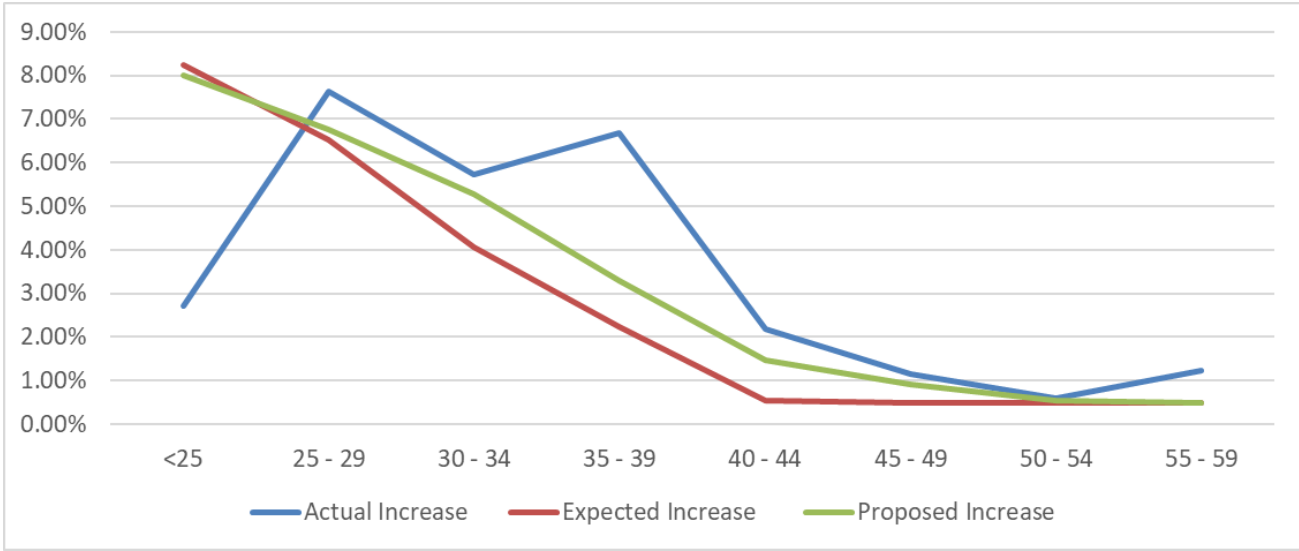
Reflecting the inflation assumption of 2.5%, the total proposed salary increase assumption for General Employees will average 3.85% per year (a net increase from the current average rate of 3.71%)

Based on this experience, we recommend slight **increases** to the non-inflationary portion of individual salary increases for all ages. Productivity is included above for purposes of salary scale analysis.

Rates of Salary Increase – Deputy Sheriffs

The following table compares the actual and expected individual salary increases over the past 5 years. This table is adjusted to remove actual annual inflation of about 1.95% over the experience period; however, this analysis excludes participants with less than 1 year of service:

Age	Actual Increase	Expected Increase	Proposed Increase
< 25	2.71%	8.25%	8.00%
25 – 29	7.62%	6.51%	6.76%
30 – 34	5.73%	4.07%	5.27%
35 – 39	6.69%	2.24%	3.30%
40 – 44	2.19%	0.54%	1.46%
45 – 49	1.15%	0.50%	0.92%
50 – 54	0.59%	0.50%	0.53%
55 – 59	1.23%	0.50%	0.50%
60 – 64	N/A	N/A	N/A
65 +	N/A	N/A	N/A
Total	**4.69%**	**1.74%**	**2.24%**



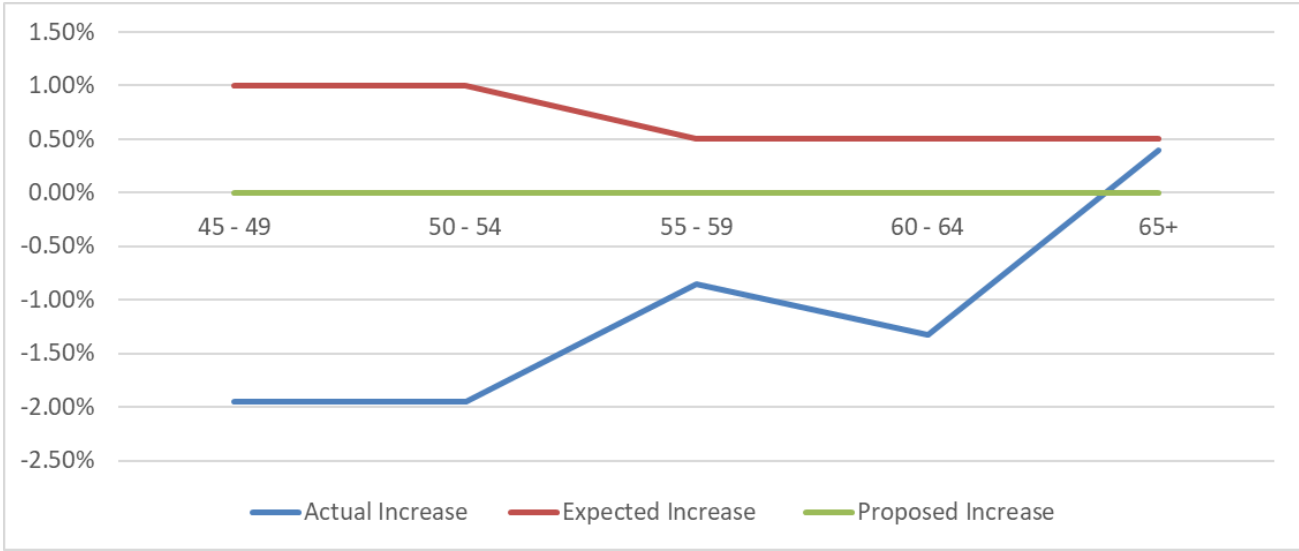
Reflecting the inflation assumption of 2.5%, the total proposed salary increase assumption for Deputy Sheriffs will average 4.74% per year (a net increase from the current average rate of 4.24%)

Based on this experience, we recommend **increases** to the non-inflationary portion of individual salary increases for all ages. Productivity is included above for purposes of salary scale analysis.

Rates of Salary Increase – Elected Officials

The following table compares the actual and expected individual salary increases over the past 5 years. This table is adjusted to remove actual annual inflation of about 1.95% over the experience period; however, this analysis excludes participants with less than 1 year of service:

Age	Actual Increase	Expected Increase	Proposed Increase
< 25	N/A	N/A	N/A
25 – 29	N/A	N/A	N/A
30 – 34	N/A	N/A	N/A
35 – 39	N/A	N/A	N/A
40 – 44	N/A	N/A	N/A
45 – 49	−1.95%	1.00%	0.00%
50 – 54	−1.95%	1.00%	0.00%
55 – 59	−0.85%	0.50%	0.00%
60 – 64	−1.33%	0.50%	0.00%
65 +	0.40%	0.50%	0.00%
Total	**−1.17%**	**0.58%**	**0.00%**



Reflecting the inflation assumption of 2.5%, the total proposed salary increase assumption for Elected Officials will average 2.50% per year (a net decrease from the current average rate of 3.08%)

Based on this experience, we recommend setting the non-inflationary portion of individual salary increases to 0% for all ages. Productivity is included above for purposes of salary scale analysis.

Assumed Rate of Payroll Growth

The payroll growth assumption is used to determine the amortization of unfunded actuarial accrued liability (in the actuarially determined contribution) as a level percentage of payroll

For purposes of amortizing the unfunded actuarial accrued liability on a level percentage basis, ERS uses a rate of 1.75%, which reflects the anticipated growth rate of the County's revenues.

We have no reason to believe that continued use of the 1.75% rate is inappropriate going forward, but welcome input from the County and Board.

Overview: How Mortality Assumption Is Set

Review past experience

Compare past experience ("actual") with assumptions ("expected")

- Examine on a "benefit-weighted" basis as opposed to a "headcount-weighted" basis

Determine appropriate standardized table as basis for new assumption

Assess credibility of data set and calculate weighting factor

- Actual experience can be the assumption basis for fully-credible data
- Partially-credible data is blended with standardized table
- Typically, we assume 1,082 deaths needed in a subgroup to be considered fully-credible
  - 90% confident that results are within a range of 5% around the mean

Death After Retirement

Our analysis uses a benefit-weighted approach, which weights the probability of death with each annuitant's pension benefit

- This methodology takes into consideration the correlation between the health of the annuitant and the size of the benefit

In 2019, the Society of Actuaries published a series of Pub-2010 mortality tables derived from public plan experience

- Three broad classifications based on teachers, public safety, and general employees
- Three separate versions of each of the table classifications: Baseline, Above Median, and Below Median
- Contingent annuitant mortality studied separately from retiree mortality
  - Contingent annuitant mortality is generally worse than retiree mortality
- Separate mortality tables for "healthy" annuitants and those members retiring with a disability pension

Death After Retirement (*continued*)

In order to determine which Pub-2010 table(s) should be applied, we separated the data by group, status and gender

Using these results, we recommended the Pub-2010 table variation that most accurately fits the data.

The current assumptions are the following:

- The mortality table is the RP-2006 Healthy Annuitant Mortality Table with adjustments for credibility and gender.
- The rates are projected generationally using the MP-2016 scale.
- The mortality table is applied to all groups.

The mortality analysis was adjusted for COVID-19.

- Adjustments of 86% and 88% for 2021 and 2020 experience, respectively, were applied based on data from the CDC related to observed "excess mortality" relative to expected from all causes.
  - These adjustments approximate the level of mortality ERS would have experienced in 2020 and 2021 in the absence of the pandemic.

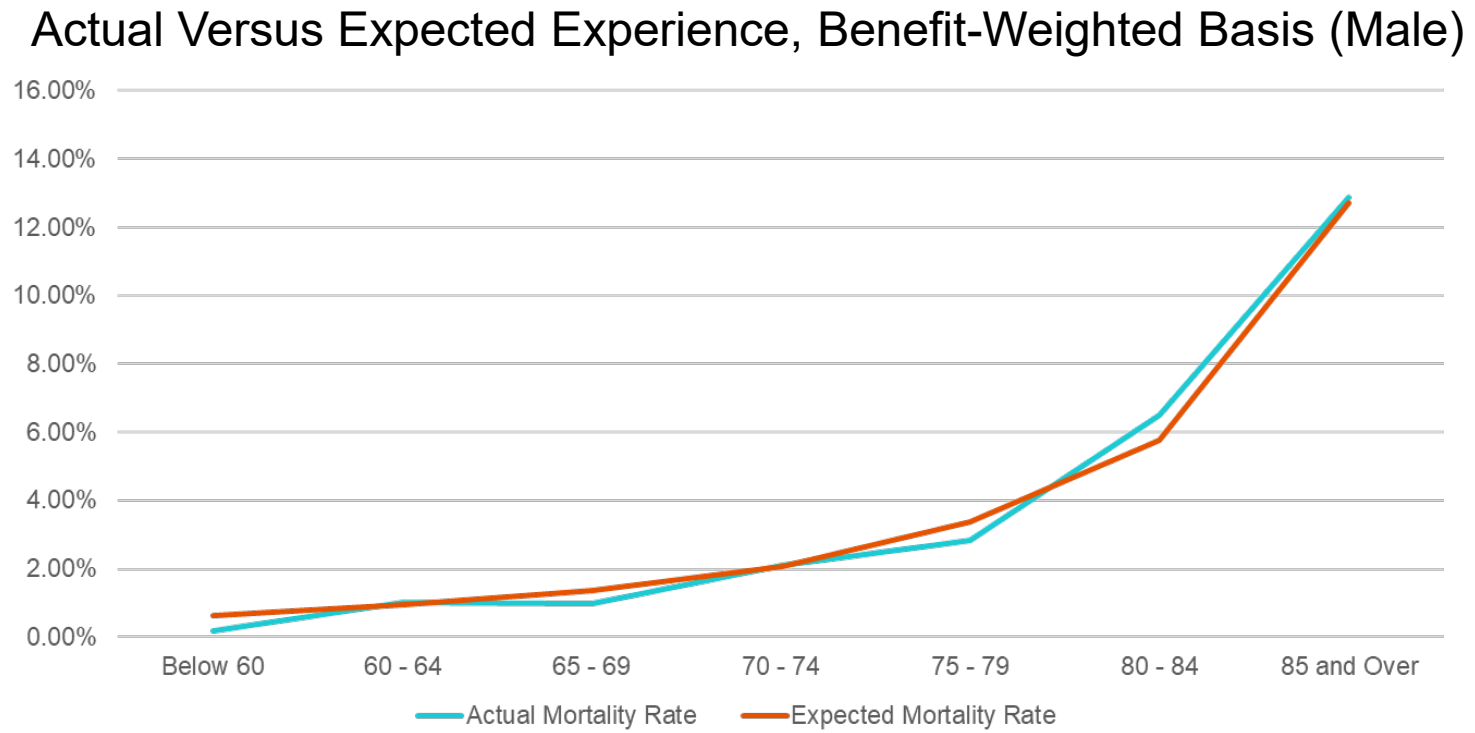
Death After Retirement (*continued*)

Over the experience period, there were generally more actual deaths than expected for all groups of retirees in aggregate (General Employees, Deputy Sheriff's, and Elected Officials). There were more actual deaths than expected deaths for beneficiaries.

Recommend updating base tables to appropriate Pub-2010 mortality tables, with adjustments based on ERS group-specific experience where "credible" data exists. We recommend the following separate tables for each group:

- **General Employees** – Pub-2010 General Retired Lives Table for males and females with credibility adjustments of 104% and 121%, respectively, of the rates for all ages
- **Deputy Sheriffs** – Pub-2010 Safety Retired Lives Table for males and females with no credibility adjustments for all ages
- **Elected Officials** – Pub-2010 General Above-Median Retired Lives Table for males and females with no credibility adjustments for all ages
- Updating the mortality projection scale to MP-2021 to reflect future improvements in mortality for all groups.

Healthy Retiree Mortality Analysis – General Employees (Male)

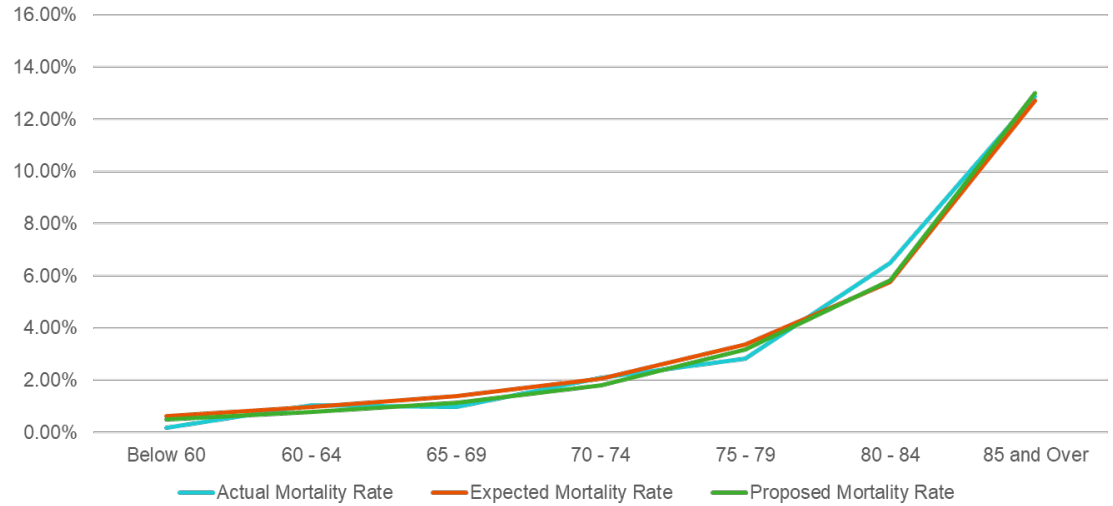


Basis	Exposures	Actual Deaths	Expected	Actual to Expected
Counts	12,831	467*	434	108%
Benefits	333,309**	10,700**	10,994**	97%

* 467 actual (adjusted) deaths in the observation period yields partial credibility of 66%
** Based on annual benefits in thousands of dollars

Healthy Retiree Mortality Analysis – General Employees (Male)

Actual Versus Proposed Experience, Benefit-Weighted Basis (Male)



On a benefit-weighted basis, unadjusted PubG-2010 Retiree Table (male) results in a reduction of $10,142,000 in benefits due to the proposed assumption

- Credibility-weighted adjustment (66%) results in a reduction of $10,510,000 in benefits

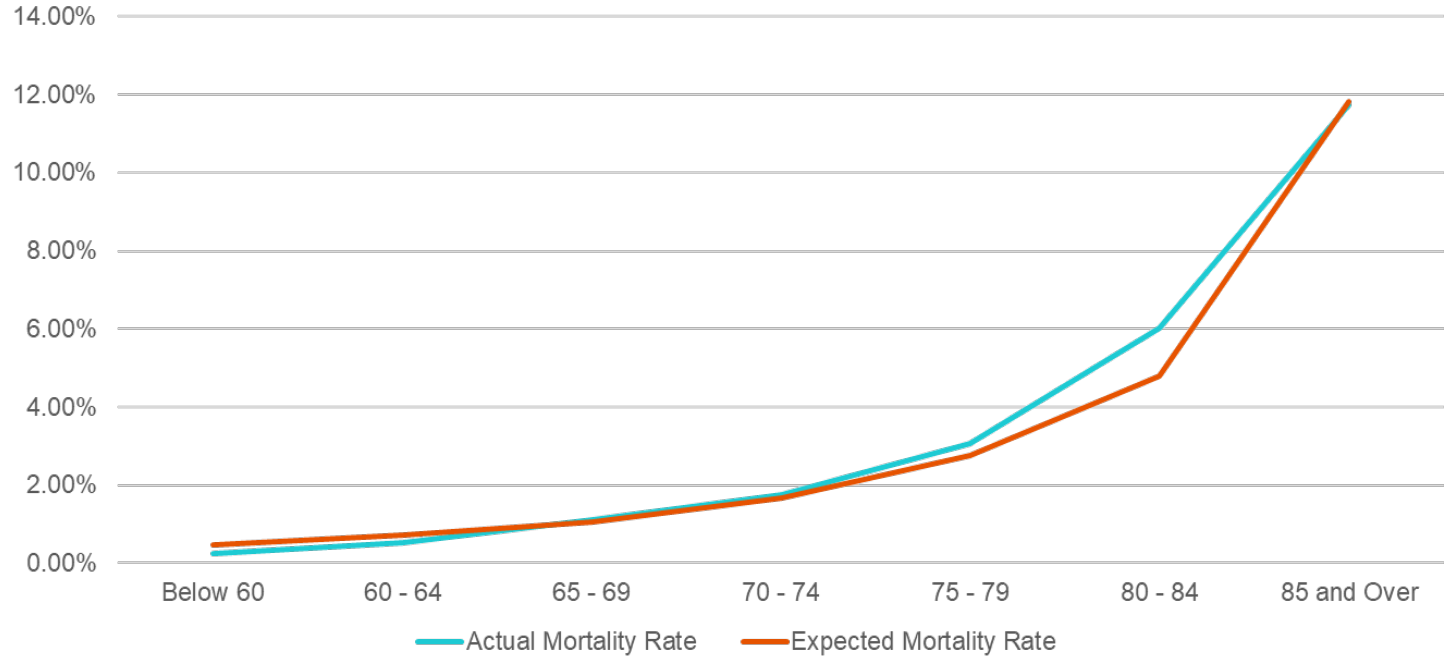
Recommend 104% of PubG-2010 Retiree Table (male), which results in $10,548,000 proposed reduction

Basis	Exposures	Actual Deaths	Proposed Deaths	Actual to Proposed
Benefits	333,309*	10,700*	10,548*	101%

* Based on annual benefits in thousands of dollars

Healthy Retiree Mortality Analysis – General Employees (Female)

Actual Versus Expected Experience, Benefit-Weighted Basis (Female)

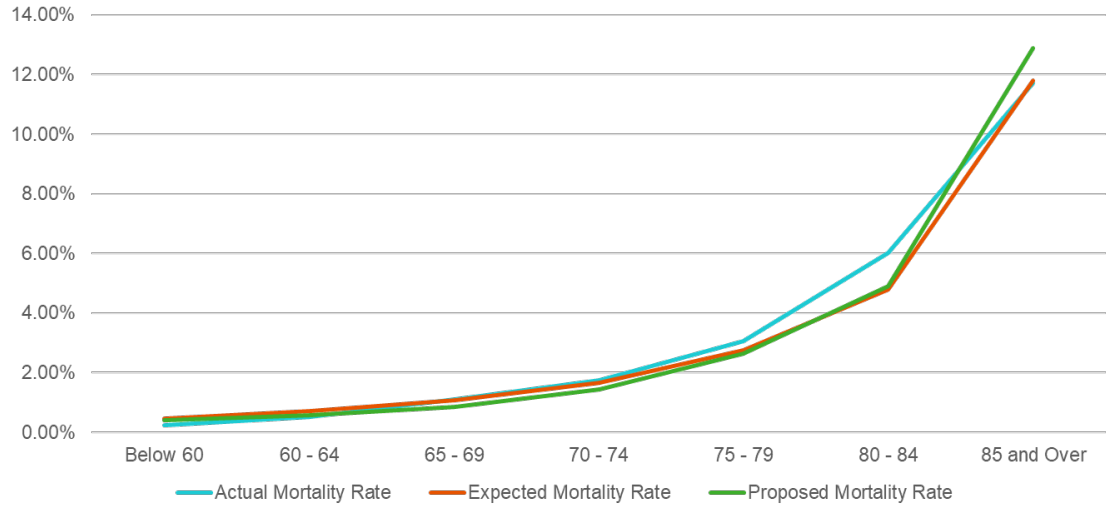


Basis	Exposures	Actual Deaths	Expected	Actual to Expected
Counts	19,340	636*	601	106%
Benefits	367,579**	10,221**	9,791**	104%

* 636 actual (adjusted) deaths in the observation period yields partial credibility of 77%
** Based on annual benefits in thousands of dollars

Healthy Retiree Mortality Analysis – General Employees (Female)

Actual Versus Proposed Experience, Benefit-Weighted Basis (Female)



On a benefit-weighted basis, unadjusted PubG-2010 Retiree Table (female) results in a reduction of $8,026,000 in benefits due to the proposed assumption

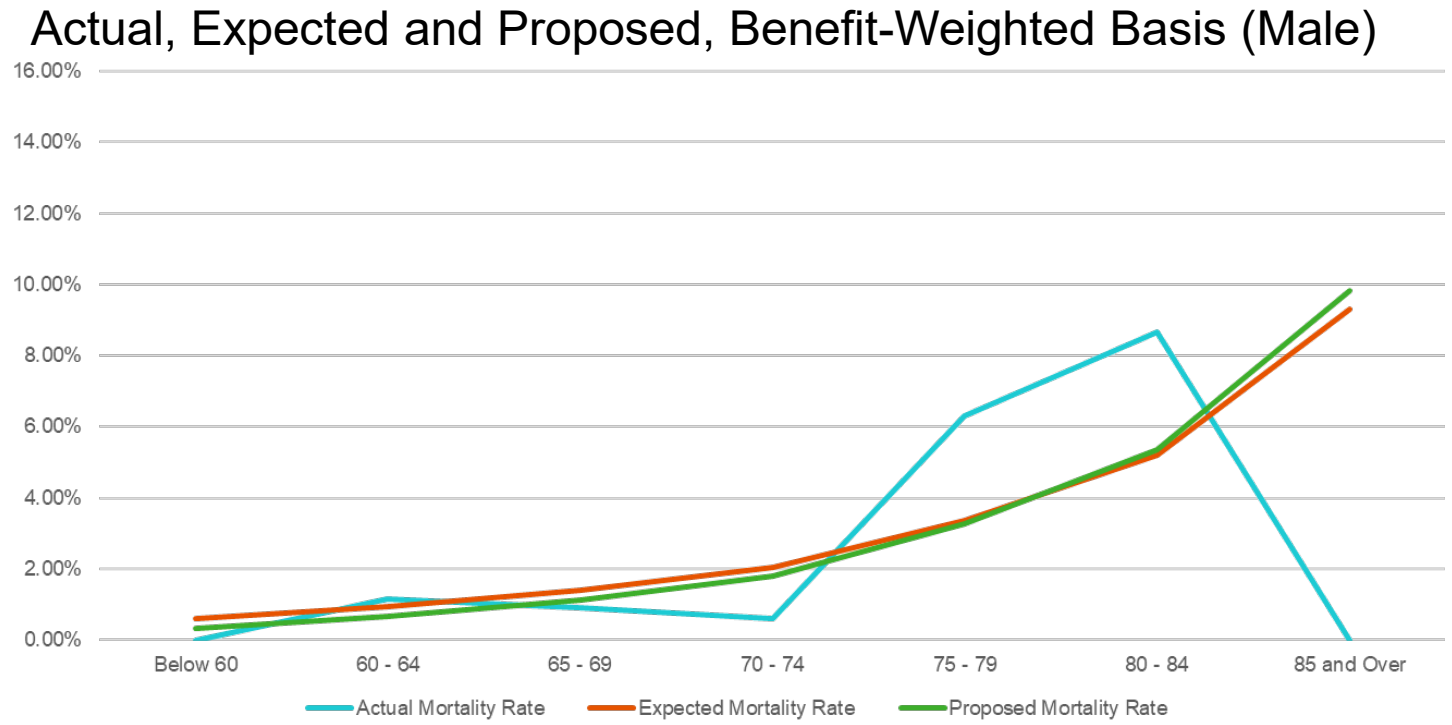
- Credibility-weighted adjustment (77%) results in a reduction of $9,716,000 in benefits

Recommend 121% of PubG-2010 Retiree Table (female), which results in $9,711,000 proposed reduction

Basis	Exposures	Actual Deaths	Proposed Deaths	Actual to Proposed
Benefits	367,579*	10,221*	9,711*	105%

* Based on annual benefits in thousands of dollars

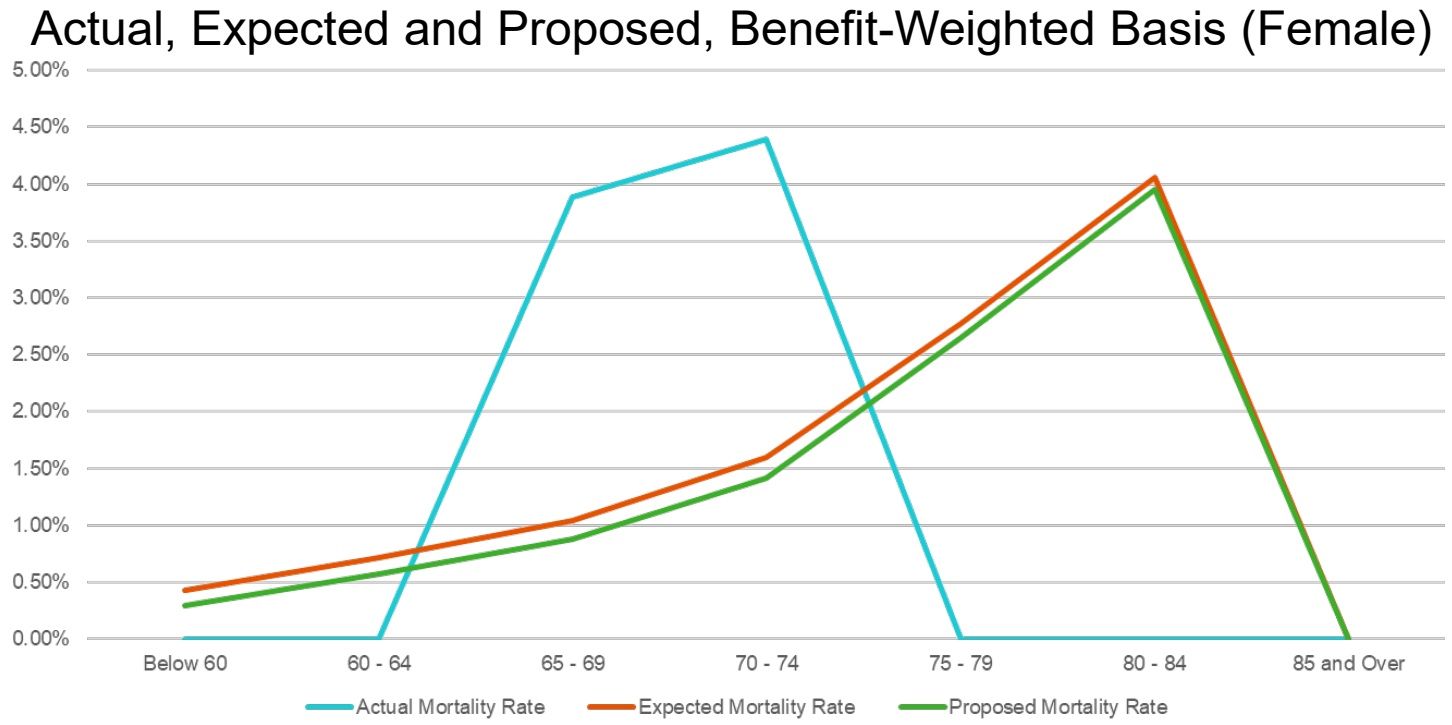
Healthy Retiree Mortality – Deputy Sheriffs (Males)



Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	1,391	21	23	90%	23	93%
Benefits*	62,044*	925*	1,072*	86%	927*	100%

* Based on annual benefits in thousands of dollars

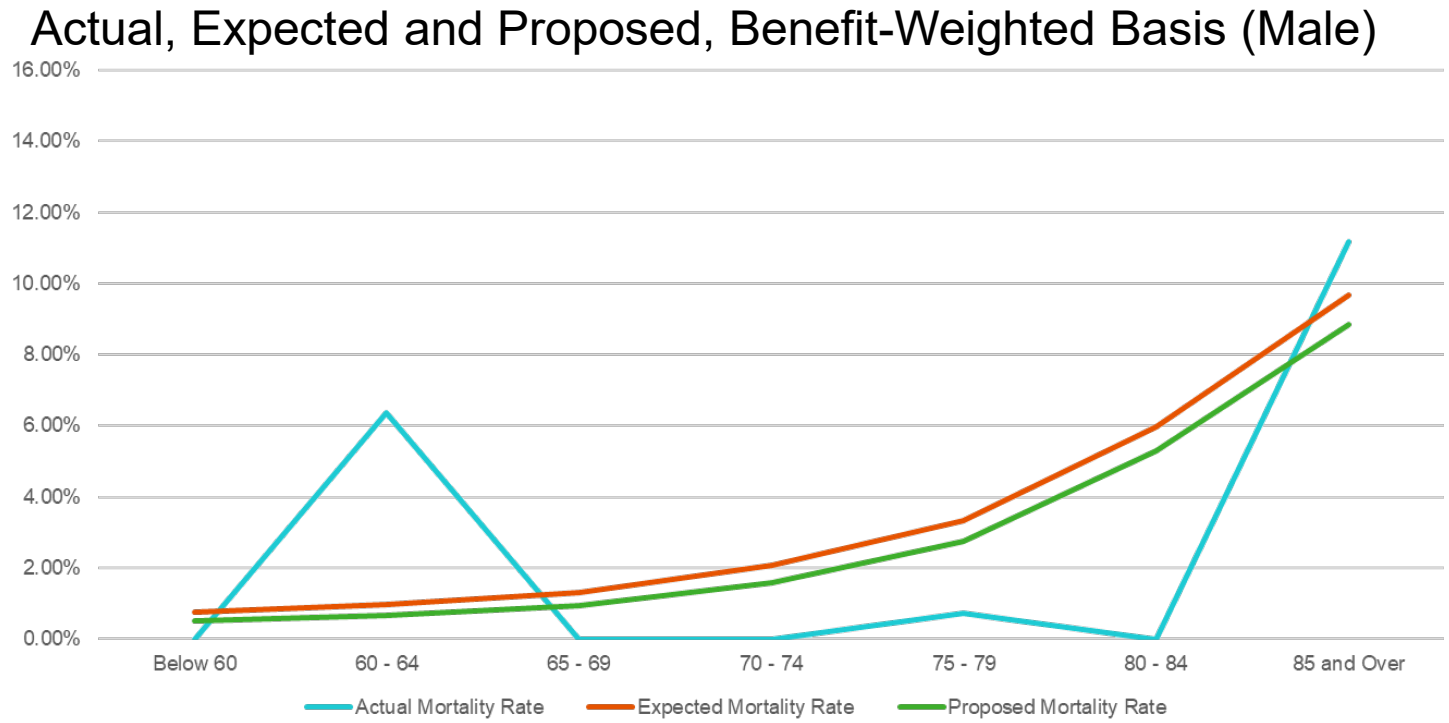
Healthy Retiree Mortality – Deputy Sheriffs (Female)



Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	404	5	3	157%	3	169%
Benefits*	16,606*	258*	143*	180%	119*	218%

* Based on annual benefits in thousands of dollars

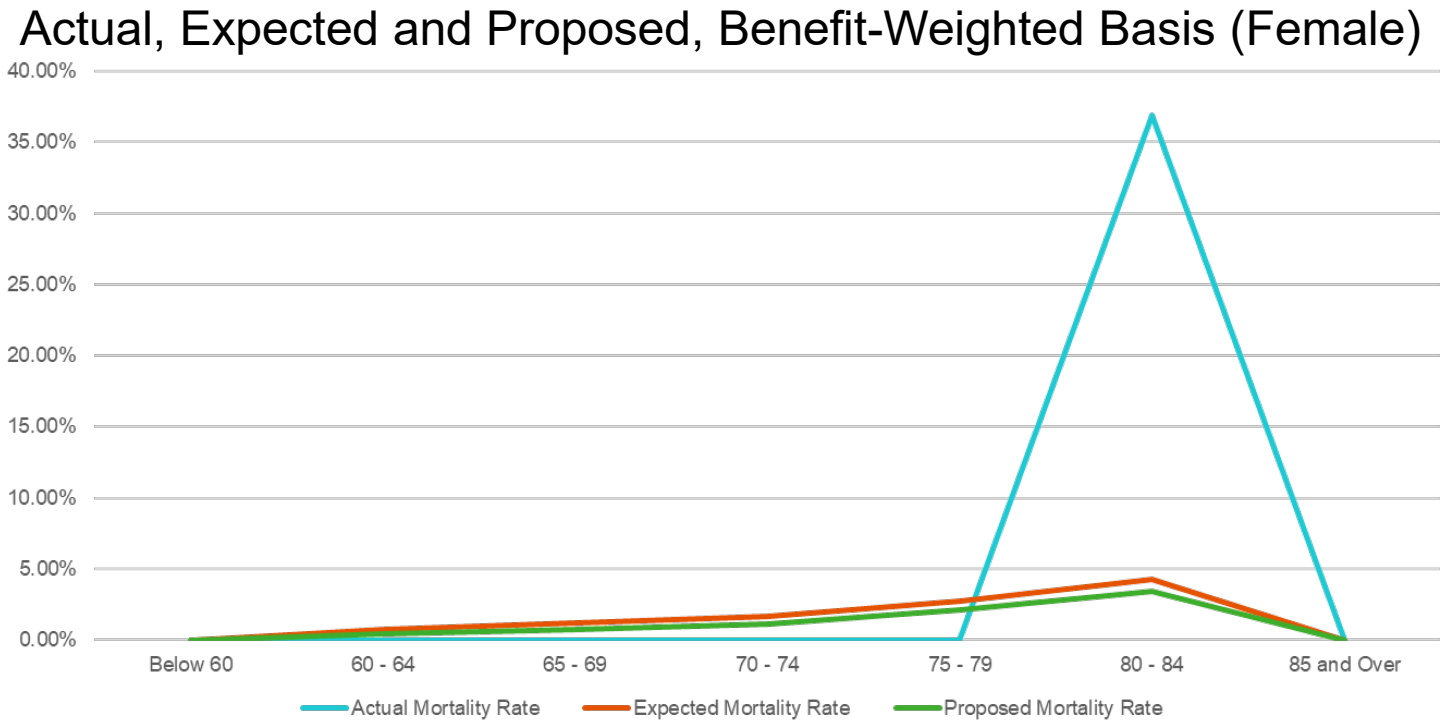
Healthy Retiree Mortality – Elected Officials (Male)



Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	120	3	4	65%	4	72%
Benefits*	3,777*	104*	144*	72%	125*	83%

* Based on annual benefits in thousands of dollars

Healthy Retiree Mortality – Elected Officials (Female)



Basis	Exposures	Actual Deaths	Expected Deaths	Actual to Expected	Proposed Deaths	Actual to Proposed
Counts	42	1	1	138%	0	183%
Benefits*	1,097*	15*	17*	88%	12*	123%

* Based on annual benefits in thousands of dollars

Disabled Mortality

The current mortality table for all disabled lives is the RP-2006 Disabled Retiree Mortality Table adjusted by 97% for male rates and 95% for female rates.

We recommend:

- **For Non-Deputy Sheriffs, updating to the Pub-2010 Non-Safety Disabled Lives Table with credibility adjustments for males and females of 107% and 98%, respectively, of the rates for all ages**
- **For Deputy Sheriffs, updating to the Pub-2010 Safety Disabled Lives Table with no credibility adjustments for males and females, of the rates for all ages**
- **Updating the mortality projection scale to MP-2021**

Group	Gender	Exposures*	Actual Deaths*	Expected Deaths*	Actual to Expected	Proposed Deaths*	Actual to Proposed
Non-Deputy Sheriffs	Male	10,952	570	416	137%	408	140%
Non-Deputy Sheriffs	Female	11,258	384	456	84%	450	85%
Deputy Sheriffs	Male	6,700	37	145	25%	36	102%
Deputy Sheriffs	Female	4,401	89	61	146%	21	419%

* Based on annual benefits in thousands of dollars

Beneficiary Mortality

The current mortality table for all beneficiaries is the RP-2006 Healthy Annuitant Mortality Table with adjustments for credibility and gender, projected generationally using the MP-2016 scale (the same tables used for healthy post-retirement retirees).

We recommend:

- **Updating to the Pub-2010 General Contingent Survivor Table with credibility adjustments for males and females of 107% and 100%, respectively, of the rates for all ages**
- **Updating the mortality projection scale to MP-2021**

Gender	Exposures*	Actual Deaths*	Expected Deaths*	Actual to Expected	Proposed Deaths*	Actual to Proposed
Male	6,738	517	326	159%	359	144%
Female	71,793	3,990	4,233	94%	3,787	105%

* Based on annual benefits in thousands of dollars

Death While In Active Service

Mortality rates applied to active members

- Very few members die in active service
  - Liability associated with active death is a small percentage of the total liability
  - Plan experience is insufficient to set assumption

The current assumptions are based on the RP-2006 Employee Mortality Table, unadjusted, for all groups. The rates are projected generationally using the MP-2016 scale.

We recommend the following tables by group:

- **General Employees** – Pub-2010 General Employee Table by gender and age
- **Deputy Sheriffs** – Pub-2010 Safety Employee Table by gender and age
- **Elected Officials** – Pub-2010 General Above-Median Employee Table by gender and age
- Updating the mortality projection scale to MP-2021 to reflect future improvements in mortality for all groups.

Retirement Eligibilities

Eligibility criteria for retirement differs by group and age. We analyzed retirement experience on a benefit-weighted basis for the following groups:

- General Employees
  - Further analyzed by backdrop eligibility
  - Note that the monthly drop benefit is based on salary, service, and benefit multipliers as of April 1, 2013. The probability of electing the backdrop declines the further we go out beyond this date. Splitting the retirement eligibilities between participants eligible and not eligible for back drop will become obsolete in the future.
- Elected Officials
- Deputy Sheriffs
- Participants eligible for "Rule of 75"

Active Retirements

In the aggregate there were slightly fewer retirements than expected on a headcount-weighted basis, but larger on a benefit-weighted basis.

- Among groups and gender, some groups experienced more retirements than expected
- We recommend modifications to rates at several ages across most groups
- Currently there are no retirement rates specific to unreduced/reduced ("Rule of 75") retirements

We have analyzed retirement experience on a benefit-weighted basis for males and females together

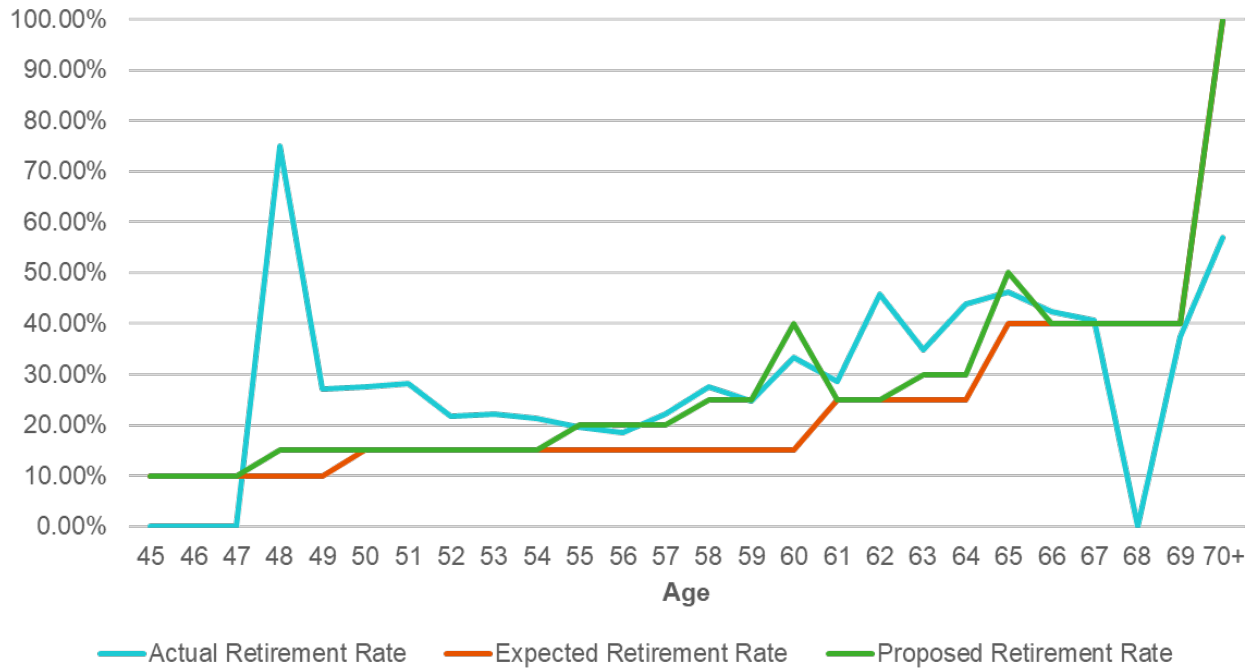
We analyzed retirement experience for participants that reach "Rule of 75"

- Most participants that are eligible for "Rule of 75" are grandfathered into this eligibility.
- In addition, the experience of this group was not significant enough to warrant separate retirement rates (i.e., expected retirements of participants that reach "Rule of 75" were reasonably close to actual retirements).

Active Retirements – General Employees – Backdrop Eligible

Males and Females:

- Overall, more retirements than expected
- More retirements at most ages



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
44,990	12,177	8,059	151%	10,813	113%

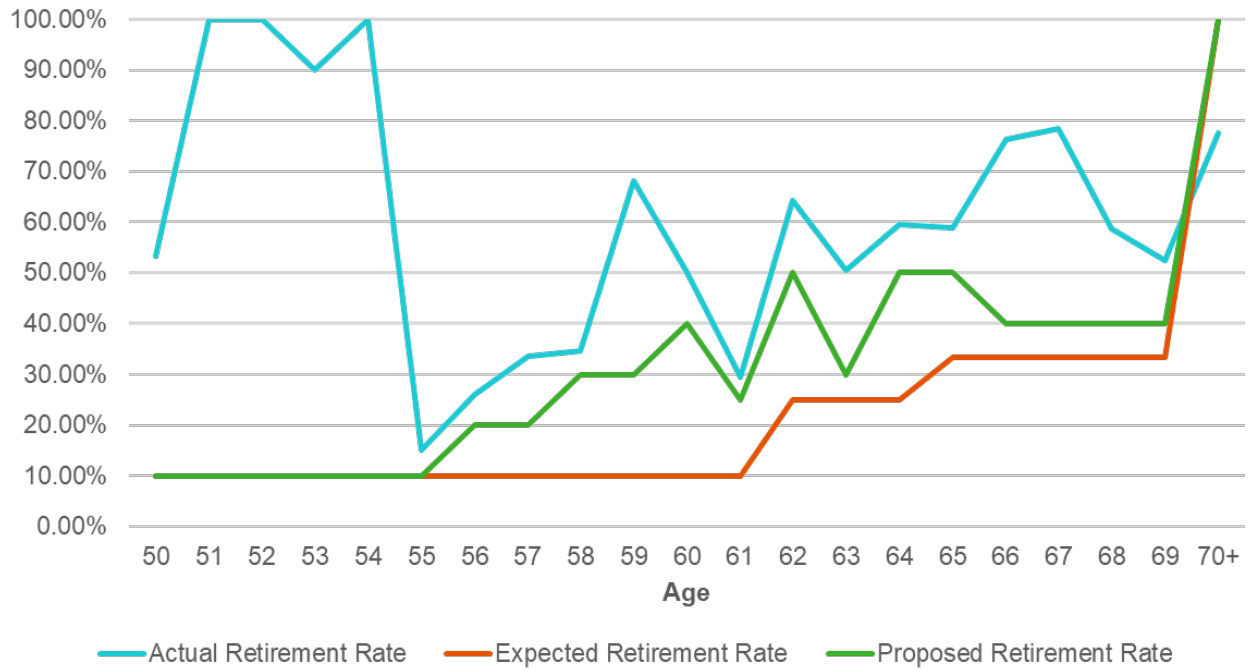
Recommend modifying the rates to better match actual experience

* Based on annual benefits in thousands of dollars

Active Retirements – General Employees – Not Backdrop Eligible

Males and Females:

- Overall, more retirements than expected
- More retirements at all ages



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
14,570	8,543	4,027	212%	6,112	140%

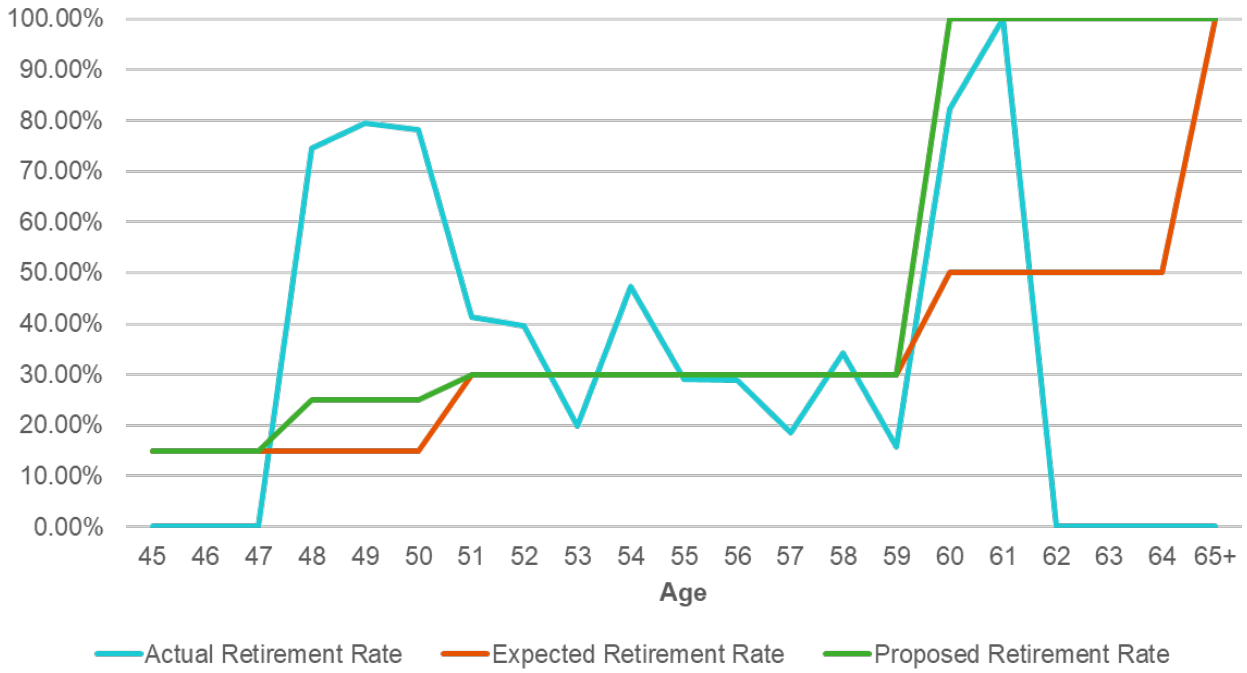
Recommend modifying the rates to better match actual experience

* Based on annual benefits in thousands of dollars

Active Retirements – Deputy Sheriffs

Males and Females:

- Overall, more retirements than expected
- More retirements at certain ages



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
5,945	2,548	1,706	149%	2,000	127%

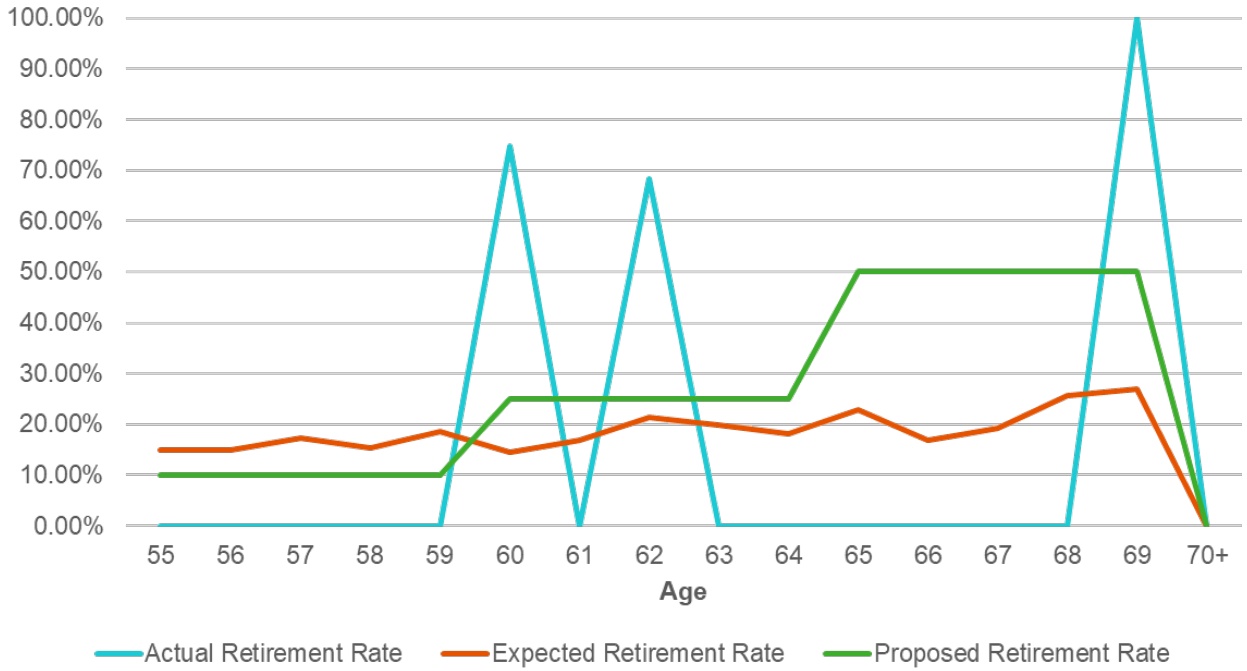
Recommend modifying the rates to better match actual experience

* Based on annual benefits in thousands of dollars

Active Retirements – Elected Officials

Males and Females:

- Overall, more retirements than expected
- More retirements at certain ages



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
569	310	111	278%	176	176%

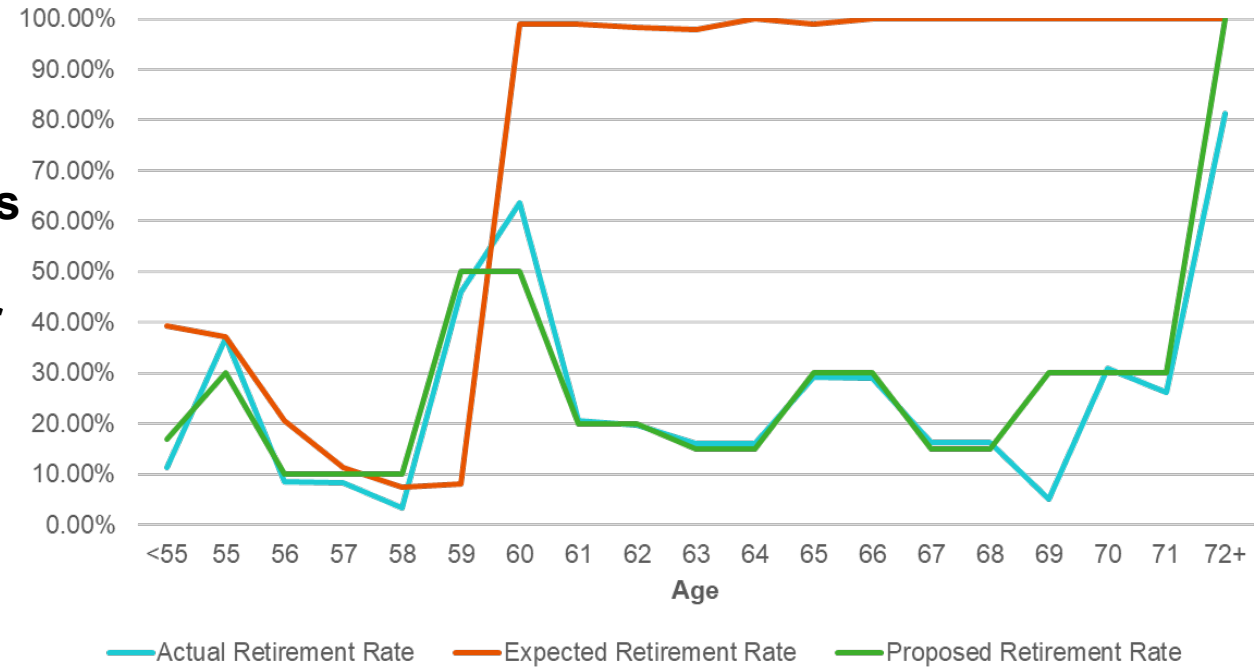
Recommend modifying the rates to better match actual experience

* Based on annual benefits in thousands of dollars

Inactive Retirements

The current assumption is that 100% of inactive members who terminate employment are assumed to retire at the participant's Normal Retirement Age.

We have reviewed actual experience for inactive members and recommend changing the rates to reflect one set of age-based retirement rates for males and females in all groups. We have analyzed inactive retirement experience on a benefit-weighted basis for males and females in all groups together. General Employees make up most of the exposures for inactive retirements, so a single set of age-based rates is reasonable.



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
11,054	3,089	6,641	47%	2,974	104%

* Based on annual benefits in thousands of dollars

Termination

Experience shows that slightly more active members are terminating prior to retirement than expected, in aggregate.

The current assumptions are:

- "Select and ultimate" tables
  - The select termination rates for the first five years of service are age and service-based, split by group for General Employees and Elected Officials, not Deputy Sheriffs.
  - The ultimate termination rates are for five or more of service and are age-based, split by all groups

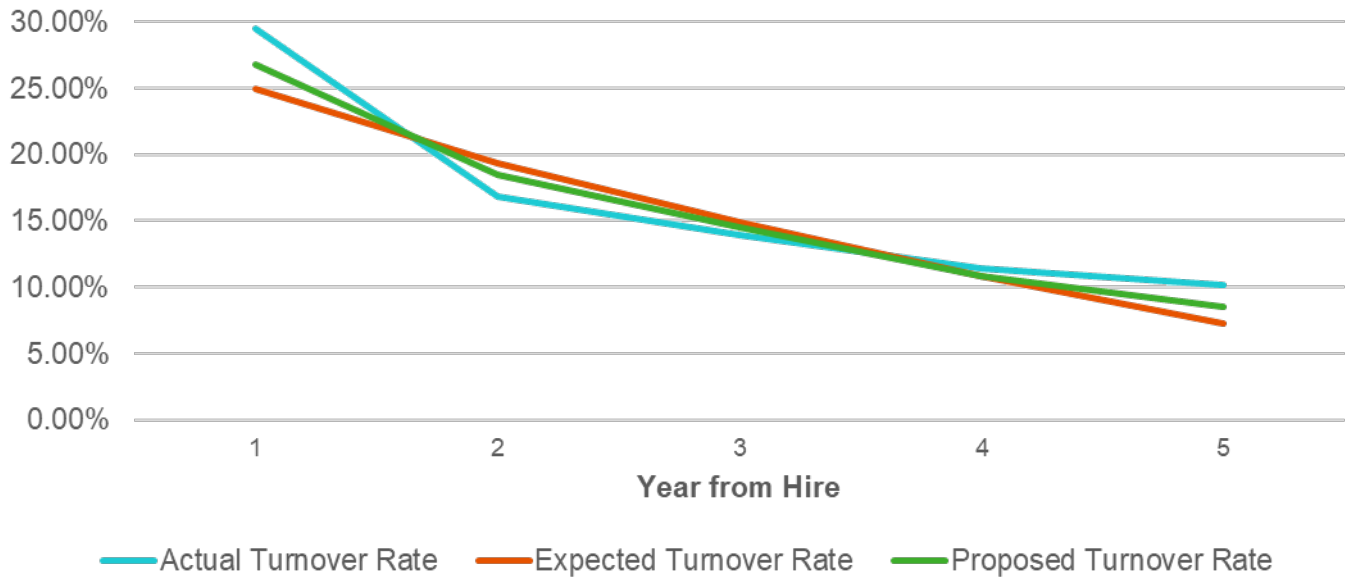
We recommend adjusting the termination rates for General Employees and Deputy Sheriffs to better fit experience and to retain the "Select and Ultimate" tables where applicable. We recommend no changes to termination rates for Elected Officials. We have analyzed inactive retirement experience on a headcount-weighted basis.

Select Termination Rates – General Employees

Males and Females:

- More terminations than expected

Recommend generally decreasing the termination rates at early and later ages, and increasing the termination rates at middle ages



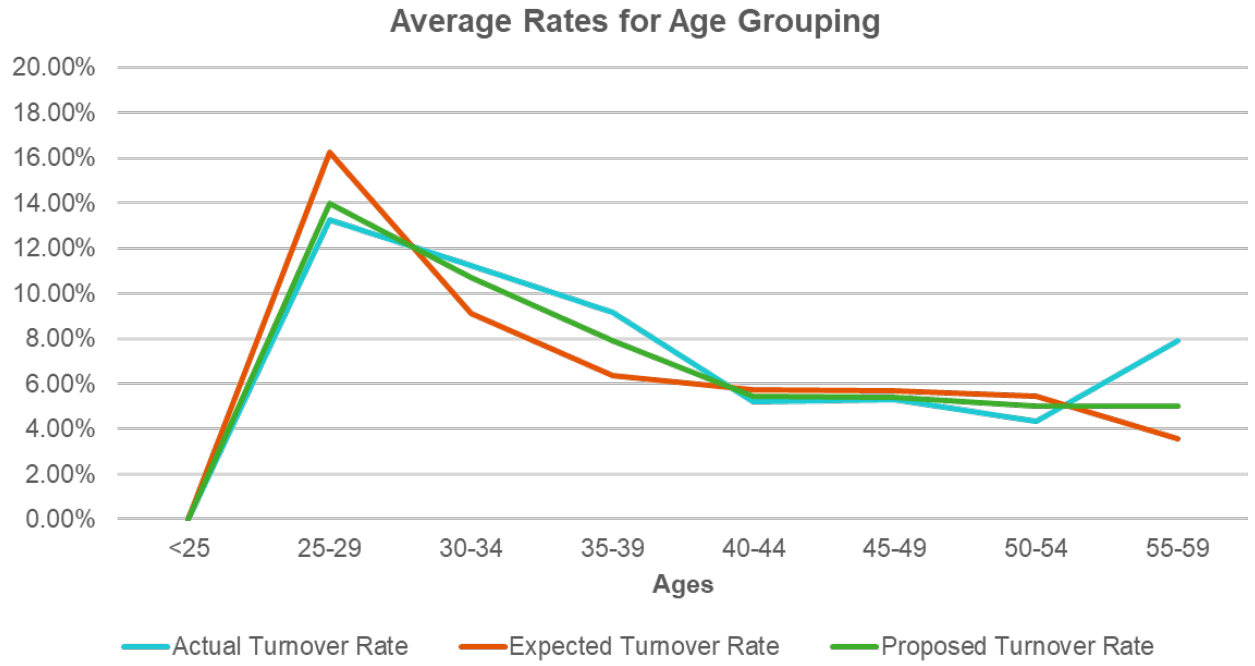
Year from Hire	Exposures	Actual Terminations	Expected Terminations	Actual to Expected	Proposed Terminations	Actual to Proposed
1	2,432	718	608	118%	650	110%
2	1,697	285	329	87%	313	91%
3	1,216	170	181	94%	176	96%
4	1,014	116	110	105%	110	105%
5	827	84	60	140%	71	119%

Ultimate Terminations – General Employees

Males and Females:

- More terminations than expected

Recommend generally increasing the termination rates



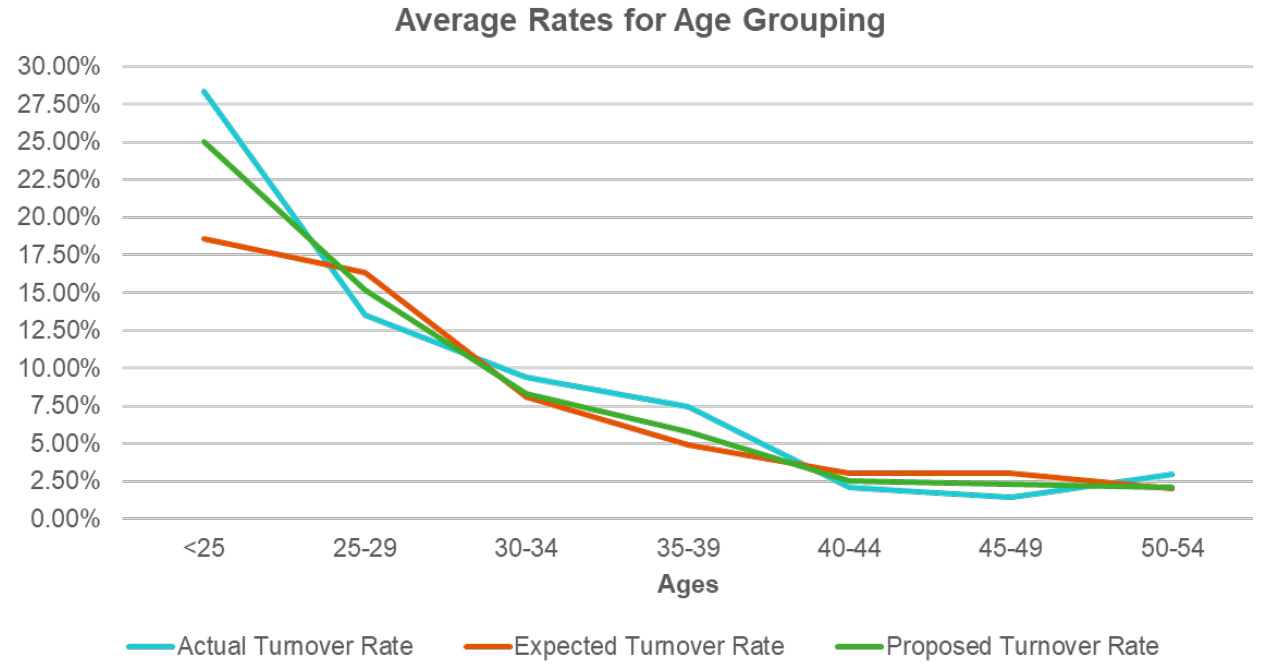
Exposures	Actual Terminations	Expected Terminations	Actual to Expected	Proposed Terminations	Actual to Proposed
5,723	372	334	111%	345	108%

All Terminations – Deputy Sheriffs

Males and Females:

- Slightly more terminations than expected

Recommend a minor net increase in the termination rates



Exposures	Actual Terminations	Expected Terminations	Actual to Expected	Proposed Terminations	Actual to Proposed
1,222	83	82	101%	83	101%

Disability Retirement

Experience over the prior five years shows that fewer active members retired under a disability pension than expected on a headcount basis

The current disability retirement assumptions are based on age for all groups. We have analyzed retirement experience on a benefit-weighted basis for males and females together

We recommend splitting the disability rates between Deputy Sheriffs and Non-Deputy Sheriffs.

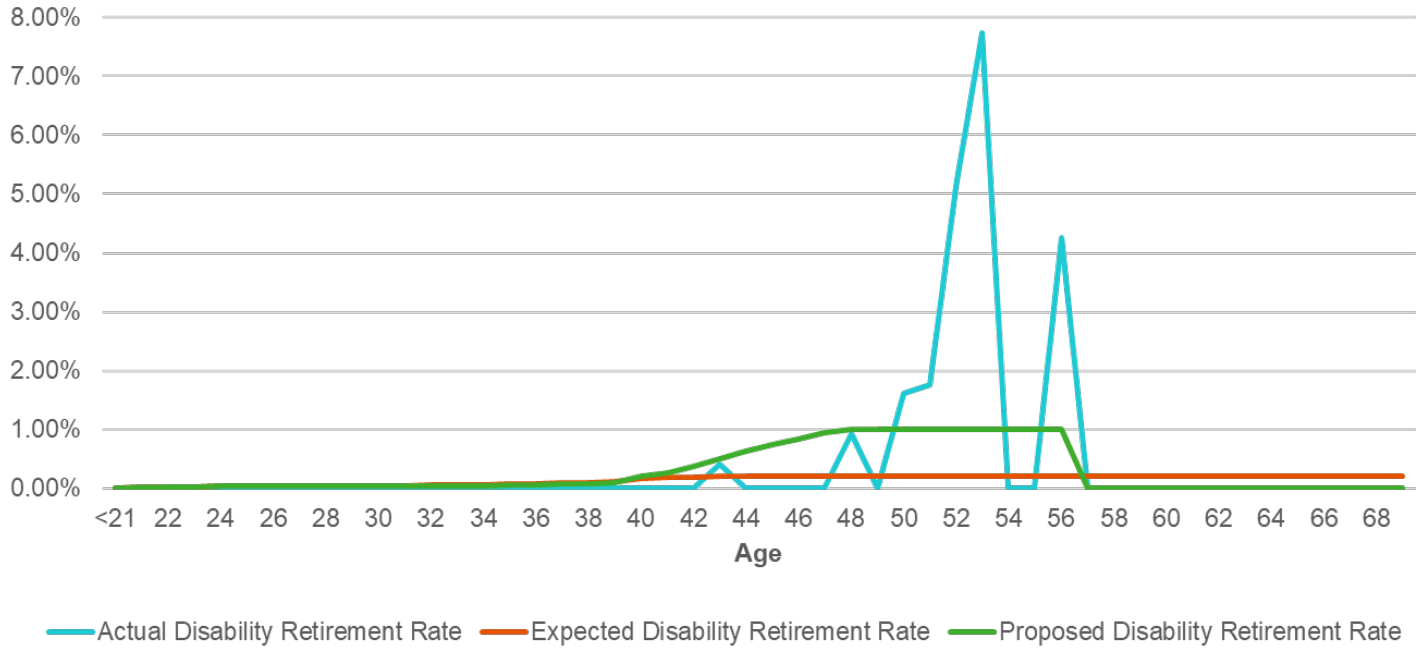
- **Deputy Sheriffs – a decrease of 20% applied to the current rates before age 40 and reflecting heavier experience after age 40 resulting in increased rates**
- **Non-Deputy Sheriffs – a uniform decrease of 20% applied to the current rates**

Disability Retirements – Deputy Sheriffs

Males and Females:

- More disabilities than expected

Recommend decreasing the rates for lower ages and increasing the rates for higher ages



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
28,869	334	58	580%	229	146%

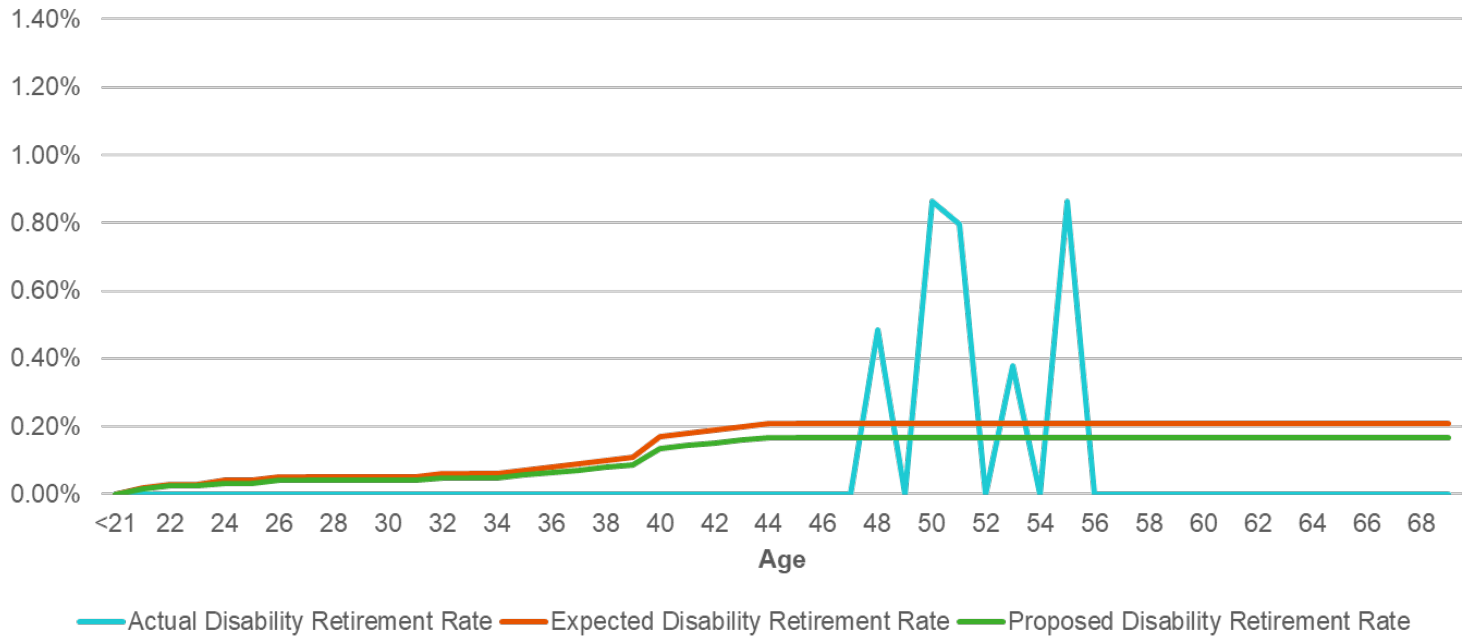
* Based on annual benefits in thousands of dollars

Disability Retirements – Non-Deputy Sheriffs

Males and Females:

- Less disabilities than expected

Recommend decreasing the rates uniformly for all ages



Exposures*	Actual Retirements*	Expected Retirements*	Actual to Expected	Proposed Retirements*	Actual to Proposed
177,144	239	321	75%	257	93%

* Based on annual benefits in thousands of dollars

Spouse/Dependent Information

Current assumptions:

- 80% of active members are married; Male spouses are the same age as female spouses
- 21.6% of General Employees, 43.2% of Deputy Sheriffs and Elected Officials are married with at least one dependent child.
- For participants who die prior to age 60, the dependent child will remain a dependent until the member would have turned age 60.

Note that we have limited information on marital status and spouse/dependent information

We propose the following assumptions:

- **Male spouses are 2 years older than female spouses.**
- **No other proposed changes to the assumptions.**

Benefit Election

Current assumptions:

- 100% of members are assumed to elect the Straight Life Annuity form of payment.

We recommend the following changes to the assumption:

- **<u>Non-married</u> members: 100% assumed to elect the Straight Life Annuity form of payment**
- **<u>Married</u> members: 100% assumed to elect 100% Joint & Survivor (J&S) form of payment**

Note that we have limited information on marital status and spouse/dependent information. Our analysis showed that 99% of married retirees elected a J&S form of payment. Below is the benefit election experience of new retirees in the past 5 years.

J&S	Election Rate
100%	46%
75%	9%
50%	28%
25%	16%
5%	1%

Death Benefits

Current assumptions:

- 100% of death benefits are assumed to be ordinary.

We recommend no change to these assumptions

Note that we have don't have information on type of death benefit.

Disability Type

Current assumptions:

- Represented Employees
  - 50% of disabilities are assumed to be ordinary and 50% are assumed to be accidental.
- Non-Represented Employees
  - 100% of disabilities are assumed to be ordinary.

We recommend the following changes to these assumptions:

- **Represented Employees**
  - **60% of disabilities are assumed to be ordinary and 40% are assumed to be accidental.**
- **Non-Represented Employees**
  - **30% of disabilities are assumed to be ordinary and 70% are assumed to be accidental.**

Backdrop

Current assumptions:

- 75% of eligible participants are assumed elect backdrop
- Of these eligible participants, 75% are assumed to elect the max backdrop period. 25% are assumed to elect half the max backdrop period

We recommend the following changes to these assumptions:

- **50% of eligible participants are assumed elect backdrop**
- **Of these eligible participants, 100% are assumed to elect the max backdrop period.**

Recent experience suggests that number of eligible members electing backdrop is decreasing and that the total actives eligible for backdrop is rapidly decreasing. These numbers will continue to drop in the future.

Backdrop (continued)

December 31,	2017	2018	2019	2020	2021	Total
Total Retirements	255	237	201	173	204	1,070
Eligible for Backdrop	145	180	146	127	145	743
Elected Backdrop	96	85	65	68	62	376
% Elected Backdrop	66%	47%	45%	54%	43%	51%
Backdrop Fraction Elected*	98%	98%	98%	98%	97%	98%

December 31,	2017	2018	2019	2020	2021	Total
Total Actives	3,015	2,942	2,972	3,125	2,917	14,971
Eligible for Backdrop	1,147	1,015	891	685	596	4,334
% Eligible for Backdrop	38%	34%	30%	22%	20%	29%

Note that the monthly drop benefit is based on salary, service, and benefit multipliers as of April 1, 2013. The further we go out beyond this date, the lower the value in electing the backdrop becomes.

*The backdrop fraction is the number of backdrop years elected as a percentage of maximum backdrop period available.

Summary of Assumption Impact

Assumption	Description	Impact on Liability/Cost	Impact on Actuarial Valuation Gain/Loss
Inflation	The rate at which price levels are rising and purchasing power is falling	The impact that inflation has on liability and cost varies by each economic assumption	The impact that inflation has on gain/loss varies by each economic assumption
Investment Return	Based on invested plan asset categories and assumed rates of return for each asset class	Higher assumption causes lower liability and cost	Higher than anticipated actuarial return will create actuarial gains
Salary Increases	The expected rate of future salary increases for employees at various ages or years from hire	Higher assumption causes higher liability and cost	Higher than anticipated salary increases to actives will create actuarial losses
Payroll Growth	Used to project covered payroll to estimate the employer normal cost for budgeting purposes	Higher assumption causes lower initial contributions, but has no impact on liability	Payroll growth has no impact on gain/loss, but impacts the ADC calculation
Mortality	The probability of dying within one year at each age	Lower mortality increases liability and cost	Higher than anticipated mortality will create actuarial gains
Retirement	The age (or ages) when employees are expected to retire	Earlier assumed retirement usually increases liability and cost	If more members retired later in their careers, this could result in gains. Generally, losses result when a member retires earlier without a full actuarial reduction. Other scenarios may result in gains/losses.
Termination	The expected rate of termination for employees at various ages or years from hire	Greater assumed termination decreases liability and cost	Higher than anticipated terminations will likely result in actuarial gains
Disability	The age (or ages) when employees are expected to become disabled	Greater incidence of disability usually slightly increases liability and cost	Greater incidence of disability than anticipated will likely result in slight actuarial losses

Summary of Economic Assumptions

Assumption	Current	Proposed	Impact on Actuarially Determined Contribution*
Inflation	2.50%	No Change	N/A
Investment Return	7.50%	7.00%	Increase
Salary Scale	Merit/seniority rates (including productivity) based on age plus inflation	General Employees – Increase rates for most ages Deputy Sheriffs – Increase rates for most ages Elected Officials – Decrease rates for all ages	Increase
Payroll Growth	3.50%; 1.75% anticipated growth rate of the County's revenues	No Change	N/A

**Determined based on results of the January 1, 2022, annual valuation.*

Summary of Demographic Assumptions

Assumption	Current	Proposed	Impact on Actuarially Determined Contribution*
Healthy Post-Retirement Mortality - Retirees	For males, 102% of RP-2006 Healthy Annuitant male, projected with generational projection using scale MP-2016. For females, 107% of RP-2006 Healthy Annuitant female, projected with generational projection using scale MP-2016.	General Employees – Pub-2010 General Retired Lives Table for males and females with credibility adjustments of 104% and 121%, respectively, of the rates for all ages	Increase
		Deputy Sheriffs – Pub-2010 Safety Retired Lives Table for males and females with no credibility adjustments for all ages	Increase
		Elected Officials – Pub-2010 General Above-Median Retired Lives Table for males and females with no credibility adjustments for all ages	Increase
		Updating the mortality projection scale to MP-2021	Decrease
Healthy Post-Retirement Mortality - Beneficiaries	Same as Retirees mortality above	Pub-2010 General Contingent Survivor Table for males and females with credibility adjustments of 107% and 100%, respectively, of the rates for all ages	Increase
Disabled Post-Retirement Mortality	For males, 97% of RP-2006 Disabled Annuitant male, projected with generational projection using scale MP-2016. For females, 95% of RP-2006 Disabled Annuitant female, projected with generational projection using scale MP-2016.	Non-Deputy Sheriffs –Pub-2010 Non-Safety Disabled Lives Table with credibility adjustments for males and females of 107% and 98%, respectively, of the rates for all ages	Increase
		Deputy Sheriffs –Pub-2010 Safety Disabled Lives Table with no credibility adjustments for males and females for all ages	Increase
		Updating the mortality projection scale to MP-2021	Decrease
Pre-Retirement Mortality	For males, RP-2006 Employee male, projected with generational projection using scale MP-2016. For females, RP-2006 Employee Annuitant female, projected with generational projection using scale MP-2016.	General Employees – Pub-2010 General Employee Table by gender and age	Increase
		Deputy Sheriffs – Pub-2010 Safety Employee Table by gender and age	Increase
		Elected Officials – Pub-2010 General Above-Median Employee Table by gender and age	Increase
		Updating the mortality projection scale to MP-2021	Decrease

**Determined based on results of the January 1, 2022, annual valuation.*

Summary of Demographic Assumptions

Assumption	Current	Proposed	Impact on Actuarially Determined Contribution
Active Retirement	All Groups: Unisex age-based rates split by group, with General Employees further split by backdrop eligibility	Modifying the rates to better match actual experience	Increase
Inactive Retirement	All Groups: 100% of inactive members who terminate employment are assumed to retire at the participants' Normal Retirement Age	Changing the rates to reflect one set of age-based retirement rates for males and females in all groups to better match actual experience	Decrease
Termination	Select and Ultimate Tables for General Employees and Elected officials. Deputy Sheriffs are based on age only. Rates are unisex.	Adjusting the termination rates for General Employees and Deputy Sheriffs to better fit experience and retaining the "Select and Ultimate" tables where applicable. No changes to elected officials.	Decrease
Disability Retirement	Rates are based on age and are unisex for all groups.	Deputy Sheriffs – a decrease of 20% applied to the current rates before age 40 and reflecting heavier experience after age 40 resulting in increased rates Non-Deputy Sheriffs – a uniform decrease of 20% applied to the current rates	Increase

**Determined based on results of the January 1, 2022, annual valuation.*

Summary of Demographic Assumptions

Assumption	Current	Proposed	Impact on Actuarially Determined Contribution*
Spouse Information	80% of members are married. Male spouses are the same age as female spouses. 100% of spouses are of the opposite gender.	80% of members are married. Male spouses are 2 years older than female spouses. 100% of spouses are of the opposite gender.	Increase
Dependent Information	21.6% of General Employees, 43.2% of Deputy Sheriffs and elected Officials are married with at least one dependent child. For participants who die prior to age 60, it is assumed the dependent child will remain a dependent until the member would have turned age 60.	No Change	N/A
Benefit Election	100% of members are assumed to elect the Straight Life Annuity form of payment.	Non-married members – 100% assumed to elect the Straight Life Annuity form of payment Married members – 100% assumed to elect 100% Joint & Survivor (J&S) form of payment	Increase
Death Benefits	100% of death benefits are assumed to be ordinary.	No Changes	N/A
Disability Type	For Represented Employees, 50% of disabilities are assumed to be ordinary and 50% are assumed to be accidental. For Non-Represented Employees, 100% of disabilities are assumed to be ordinary.	For Represented Employees, 60% of disabilities are assumed to be ordinary and 40% are assumed to be accidental. For Non-Represented Employees, 30% of disabilities are assumed to be ordinary and 70% are assumed to be accidental.	Increase
Backdrop	75% of eligible participants are assumed elect backdrop Of these eligible participants, 75% are assumed to elect the max backdrop period. 25% are assumed to elect half the max backdrop period	50% of eligible participants are assumed elect backdrop Of these eligible participants, 100% are assumed to elect the max backdrop period.	Decrease

**Determined based on results of the January 1, 2022, annual valuation.*

Cost Impact
(Based on January 1, 2022 Actuarial Valuation, $ in Millions)

	Before Changes (Baseline)	Reflecting Investment Return	Reflecting Investment Return and Mortality	Reflecting Investment Return, Mortality, and Other Demographics	Reflecting Investment Return, All Demographic Changes, and Misc. Assumptions
Present Value of Future Benefits	$2,412.2	$2,537.3	$2,538.7	$2,530.1	$2,508.9
% Change		5.2%	0.0%	-0.3%	-0.9%
Cumulative		5.2%	5.2%	4.9%	4.0%
Entry Age Normal Accrued Liability	$2,301.2	$2,410.3	$2,410.5	$2,414.1	$2,385.6
% Change		4.7%	0.0%	0.2%	-1.2%
Cumulative		4.7%	4.7%	4.9%	3.7%
Entry Age Normal Normal Cost	$17.9	$19.9	$20.0	$20.5	$21.0
% Change		11.2%	0.8%	2.6%	2.2%
Cumulative		11.2%	12.2%	15.1%	17.6%
Funded Percentage	76.6%	73.2%	73.2%	73.0%	73.9%
Delta		-3.4%	0.0%	-0.2%	0.9%
Cumulative		-3.4%	-3.4%	-3.6%	-2.7%
Actuarially Determined Contribution	$72.5	$81.8	$82.0	$82.9	$81.0
% Change		12.9%	0.2%	1.0%	-2.3%
Cumulative		12.9%	13.1%	14.3%	11.7%

**Due to rounding, values shown here may not sum as expected*