

2025 Experience Study

Finance and Administration Committee
September 16, 2025

Today's Presentation

- Overview
- Discount Rate
- Inflation Review
- Salary Scale Review
- Mortality Review
- Cost Impacts
- Impact to PEPRA Member Rates
- Next Steps

Overview

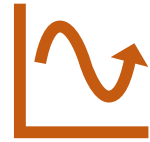
- Used to determine expected (not actual) costs for the system:
 - Funded status
 - Required employer and member contributions
 - Financial reporting information
- Used to create actuarial equivalent factors for benefits and service credit purchases
- Assumptions that understate or overstate pension costs result in future funding corrections
- Last study was performed in 2021

Actuarial Assumptions

The discount rate assumption is studied during asset-liability management cycle



Experience Study



Economic Assumptions

- Long-term Investment Return
- Discount Rate
- Inflation



Non-Economic Assumptions

- Pay Increases
- Longevity
- Retirement
- Termination
- Disability
- Others

Key Findings

- Pandemic experience was excluded for several assumptions due to anomalous results
- Most assumptions do not require significant changes
- Most plans will see increased costs due to the change to inflation and salary scale changes
- No change to the current 6.8% Discount Rate

Discount Rate

Discount Rate Recommendation

➤ No Change to the Current 6.8% Discount Rate

- 6.8% is appropriate for the recommended 75/25 Reference Portfolio and 400 basis points Active Risk Limit
- Fund experience and investment return expectations are monitored regularly to reassess the appropriateness of the Discount Rate

Other Discount Rate Considerations

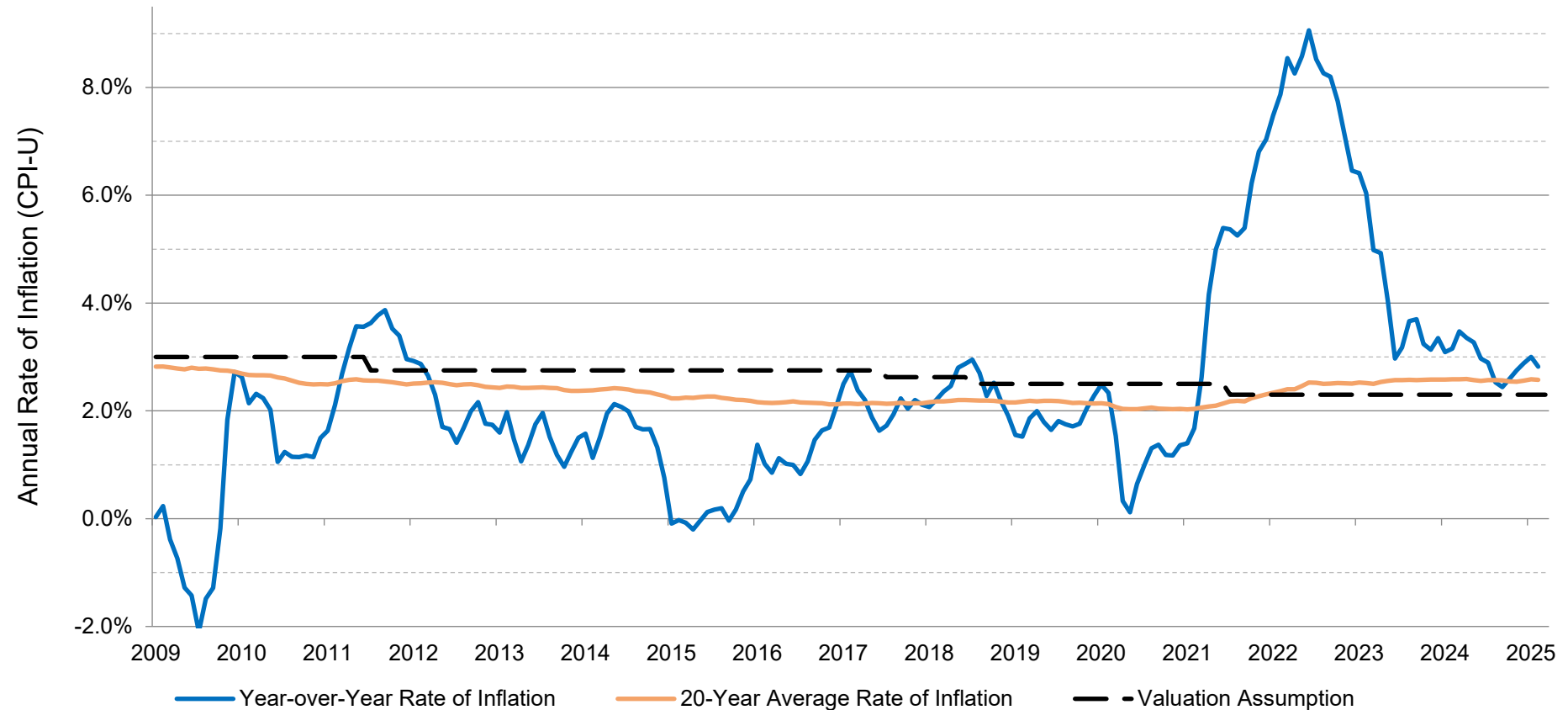
- Increasing the discount rate results in immediate reductions to contributions before the higher expected returns are realized
- Actual returns lower than the discount rate jeopardize funded status improvement and increase overall costs to employers

Probability of Achieving Various Average Investment Returns

Discount Rate	70/30		75/25		80/20	
	10-Years	20-Years	10-Years	20-Years	10-Years	20-Years
6.7%	52.1%	53.6%	52.5%	54.8%	53.0%	55.6%
6.8%	51.3%	52.6%	51.7%	53.6%	51.9%	54.5%

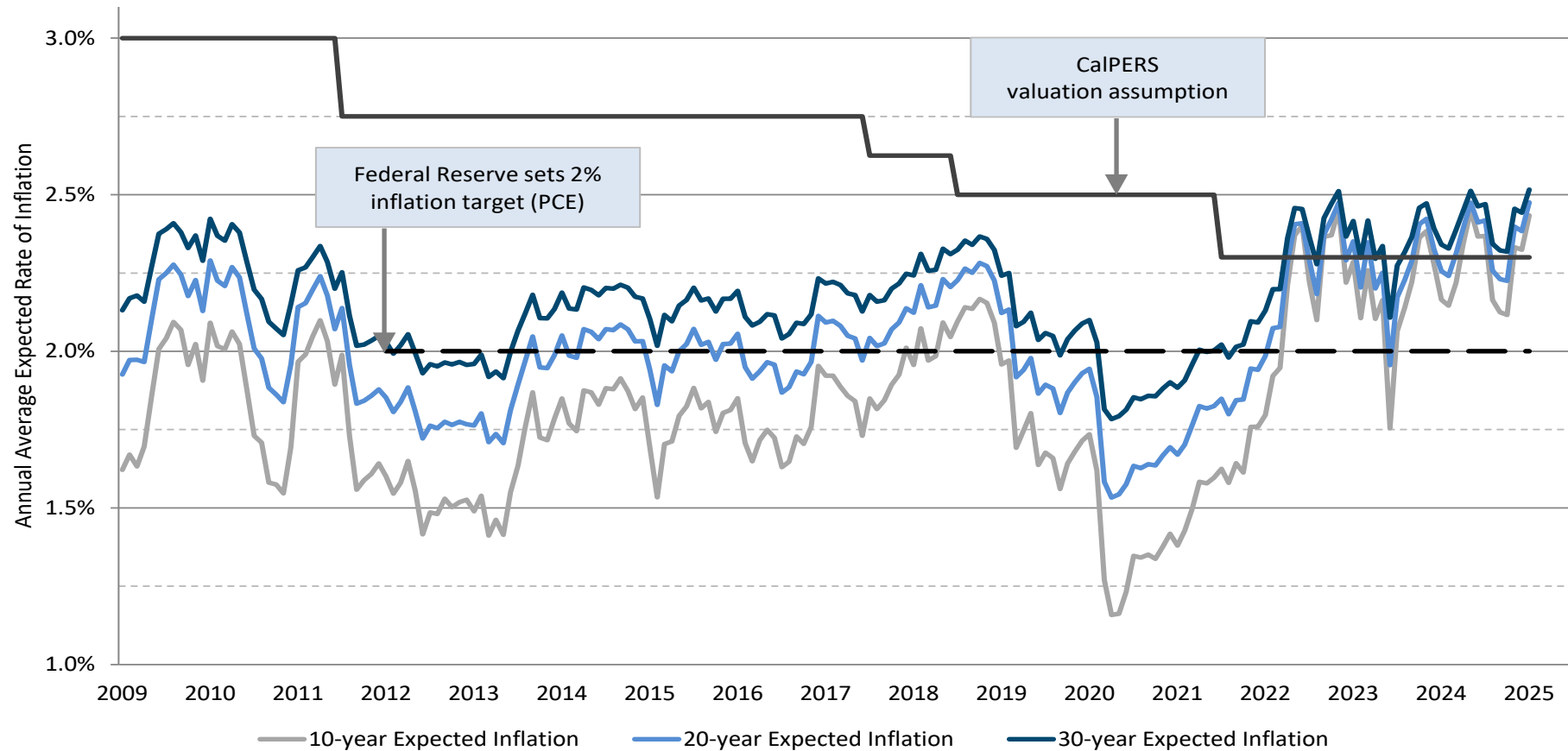
Inflation Review

History of Inflation Since 2009 (CPI-U)



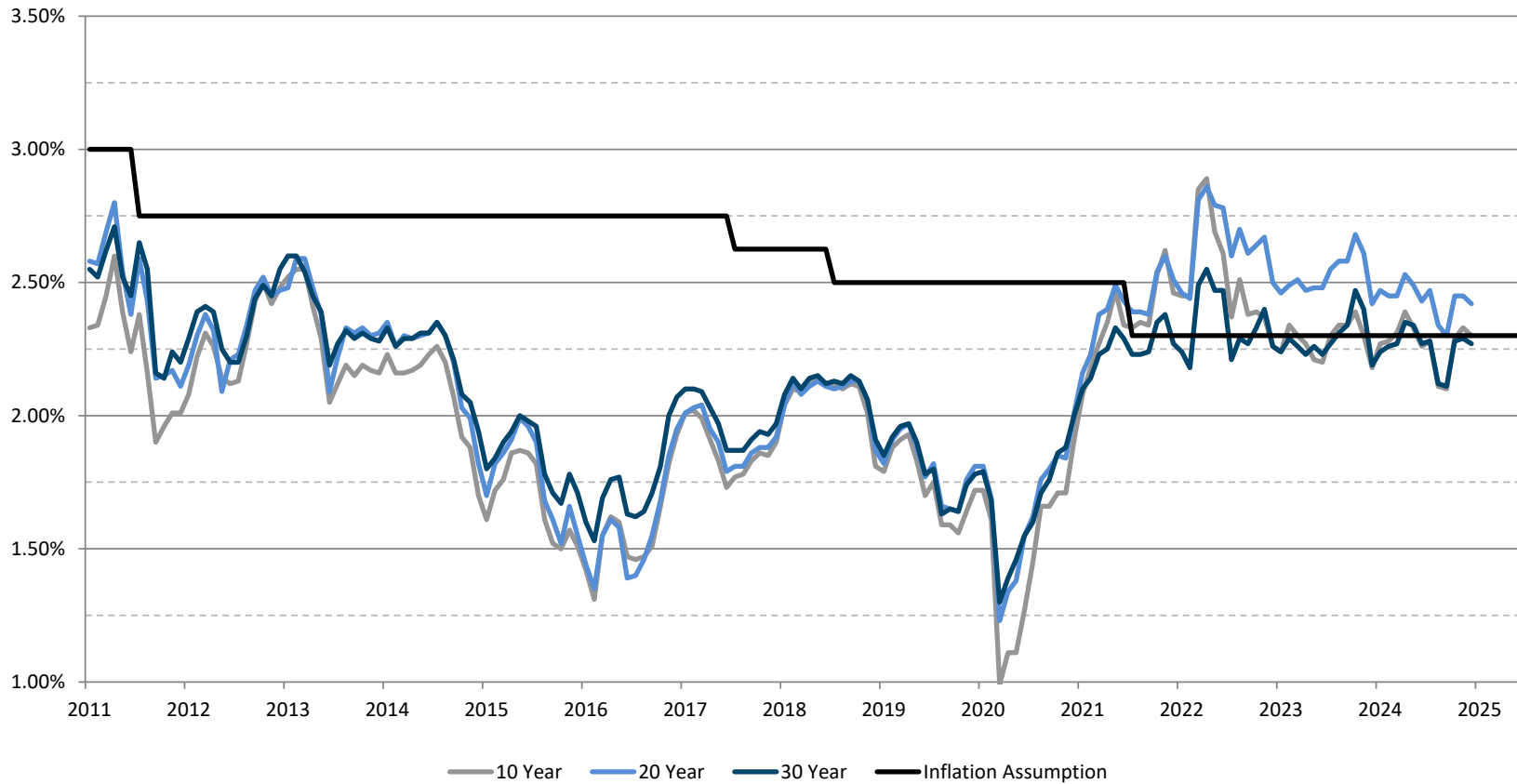
Cleveland Federal Reserve Inflation Model

Published monthly showing expected inflation for 1 to 30 years



Bond Market

Interest rate spread – conventional Treasuries vs TIPS



Observations

- Social Security Trustees intermediate assumption 2.4%
- Cleveland federal reserve publishes a 10, 20, 30 year Expected Inflation
 - Ranges between 2.2% and 2.6%
- Bond Market Interest Rate spread – Treasuries vs. TIPS
 - Ranges between 2.2% and 2.6%

Recommendation

- Increase inflation assumption from 2.3% to 2.5%

Salary Scale Review

Increase in Average Salary During Study Period

	CHP	Co. PO	PA Fire	Ind.	PA Pol	POFF	Safety	State Misc	PA Misc	Schools	All
2007-2008	7.70%	5.13%	5.97%	4.92%	5.70%	-0.22%	14.19%	5.40%	4.64%	3.97%	4.75%
2008-2009	4.99%	4.93%	4.37%	-7.15%	5.37%	-6.97%	-4.68%	-3.78%	4.36%	1.47%	0.54%
2009-2010	1.79%	3.96%	1.70%	-4.15%	1.84%	-2.15%	-3.53%	-4.58%	1.75%	1.00%	-0.29%
2010-2011	1.95%	3.05%	0.69%	10.00%	1.12%	8.83%	9.21%	7.91%	0.99%	0.26%	2.98%
2011-2012	1.56%	-1.95%	-0.54%	5.33%	0.01%	5.47%	3.98%	2.48%	1.13%	Excluded	1.94%
2012-2013	-0.99%	0.09%	-0.69%	0.44%	0.97%	-0.94%	-1.13%	-0.50%	-0.86%	1.22%	0.01%
2013-2014	6.42%	2.81%	-0.03%	2.56%	0.40%	2.93%	0.15%	2.95%	1.30%	4.91%	2.57%
2014-2015	5.74%	3.64%	1.83%	3.17%	1.85%	1.22%	3.83%	1.27%	2.17%	3.04%	2.13%
2015-2016	0.52%	3.59%	2.59%	2.41%	2.60%	0.70%	1.54%	2.30%	2.87%	4.30%	2.57%
2016-2017	3.40%	2.61%	2.41%	1.43%	2.67%	4.95%	1.28%	2.89%	3.09%	7.94%	4.11%
2017-2018	3.29%	2.77%	2.76%	6.24%	3.10%	3.82%	4.88%	4.59%	3.02%	1.98%	3.12%
2018-2019	5.12%	2.02%	2.83%	4.74%	3.02%	3.29%	2.88%	3.83%	3.13%	2.90%	3.16%
2019-2020	5.25%	1.32%	3.20%	4.23%	3.30%	4.62%	2.44%	3.97%	3.98%	3.53%	3.80%
2020-2021	0.98%	3.63%	2.55%	2.53%	2.46%	-2.17%	1.10%	0.98%	3.33%	1.98%	2.12%
2021-2022	3.33%	2.66%	2.36%	6.30%	2.86%	7.29%	2.35%	5.02%	2.38%	3.96%	3.26%
2022-2023	4.68%	4.92%	5.34%	2.83%	5.12%	2.34%	3.51%	4.04%	4.70%	7.19%	4.57%
2007-2023	3.46%	2.81%	2.32%	2.79%	2.64%	1.99%	2.54%	2.37%	2.61%	3.08%	2.57%

Average Increase

Observations of Salary Scale

- Study Period (FYE 2007-2023)
- Recommending changes to all 10 sets of assumptions
- Results are mixed
 - Higher merit increases
 - State Misc.
 - State Safety
 - PA Fire
 - State POFF

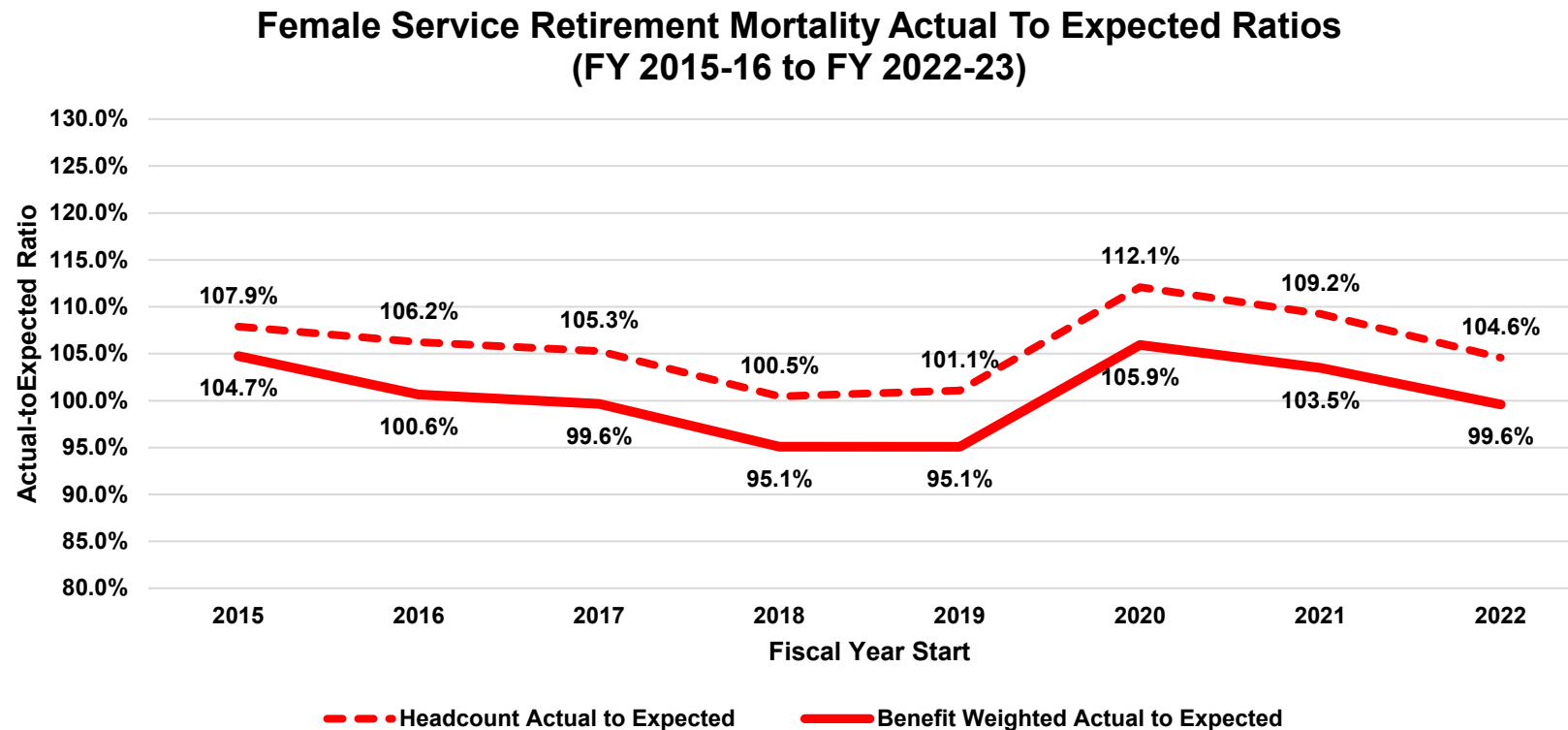
Observations of Salary Scale (continued)

- Results (continued)
 - Moderate increases
 - PA Misc.
 - Police
 - CHP
 - Other Safety
 - Moderate decreases
 - State Industrial
 - Schools

Mortality Review

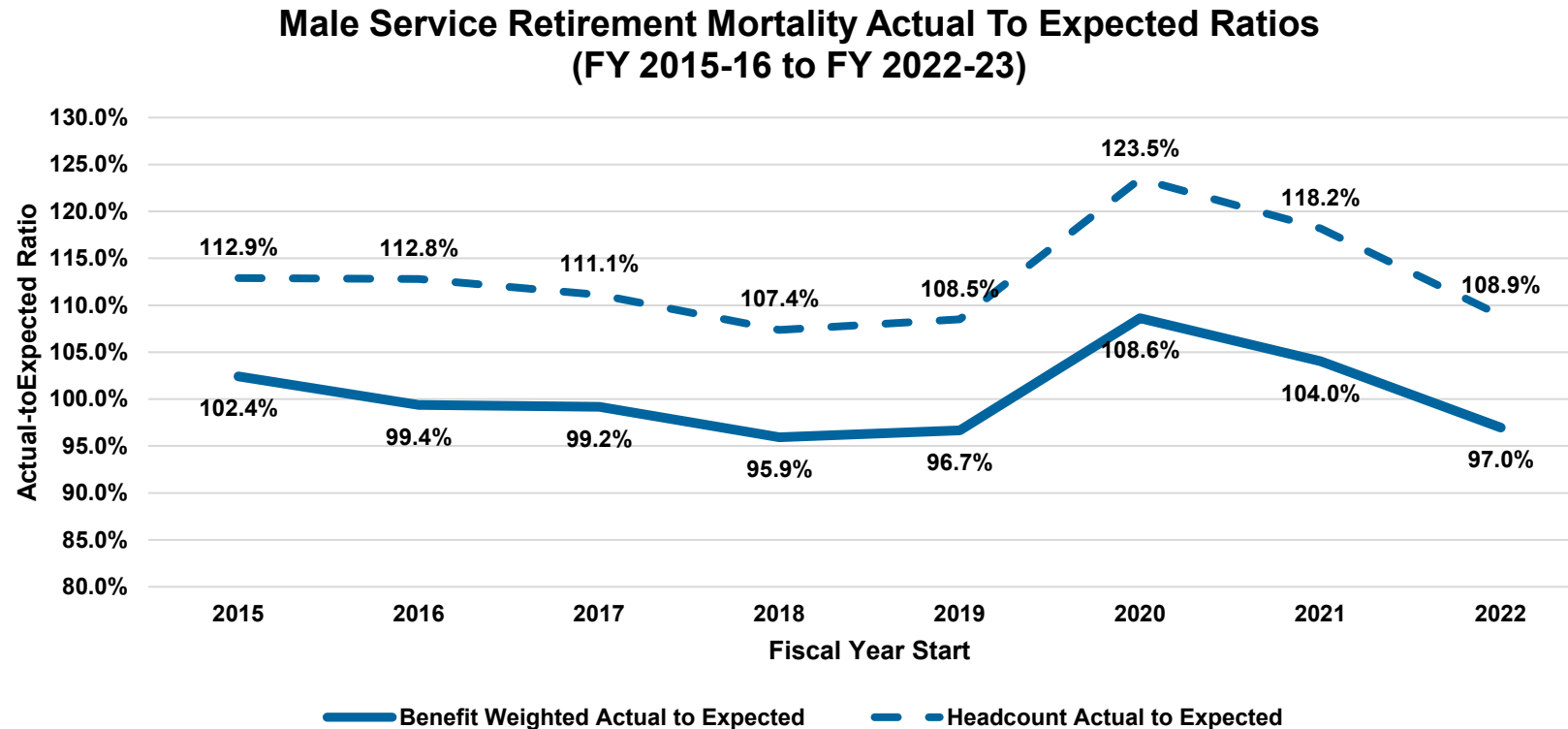
COVID-19

Post-Retirement Mortality Analysis – Actual to Expected



COVID-19

Post-Retirement Mortality Analysis – Actual to Expected



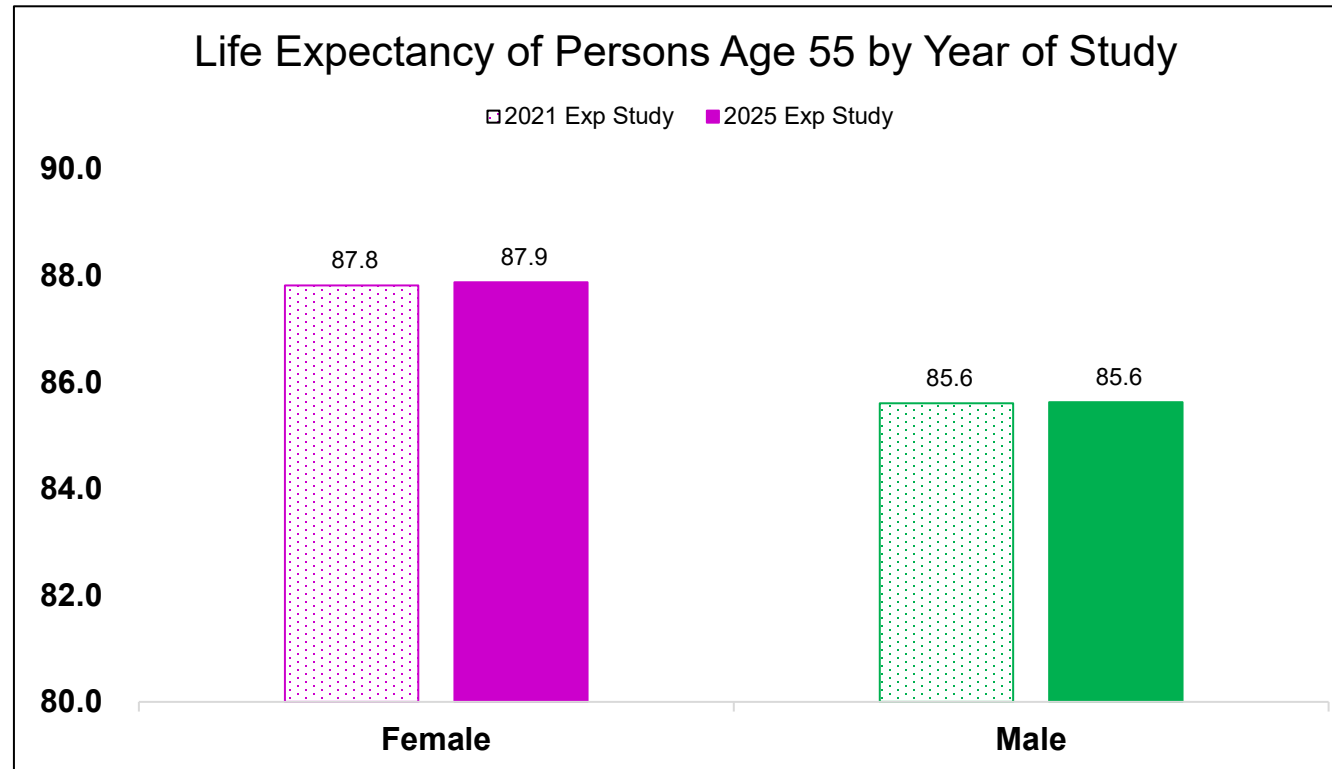
Observations

- Mortality experience during the years impacted by COVID provided no value in assessing the current base mortality rates or assumptions for future mortality improvement
- Prior to COVID, the CalPERS mortality rates aligned well with actual experience

Recommendation

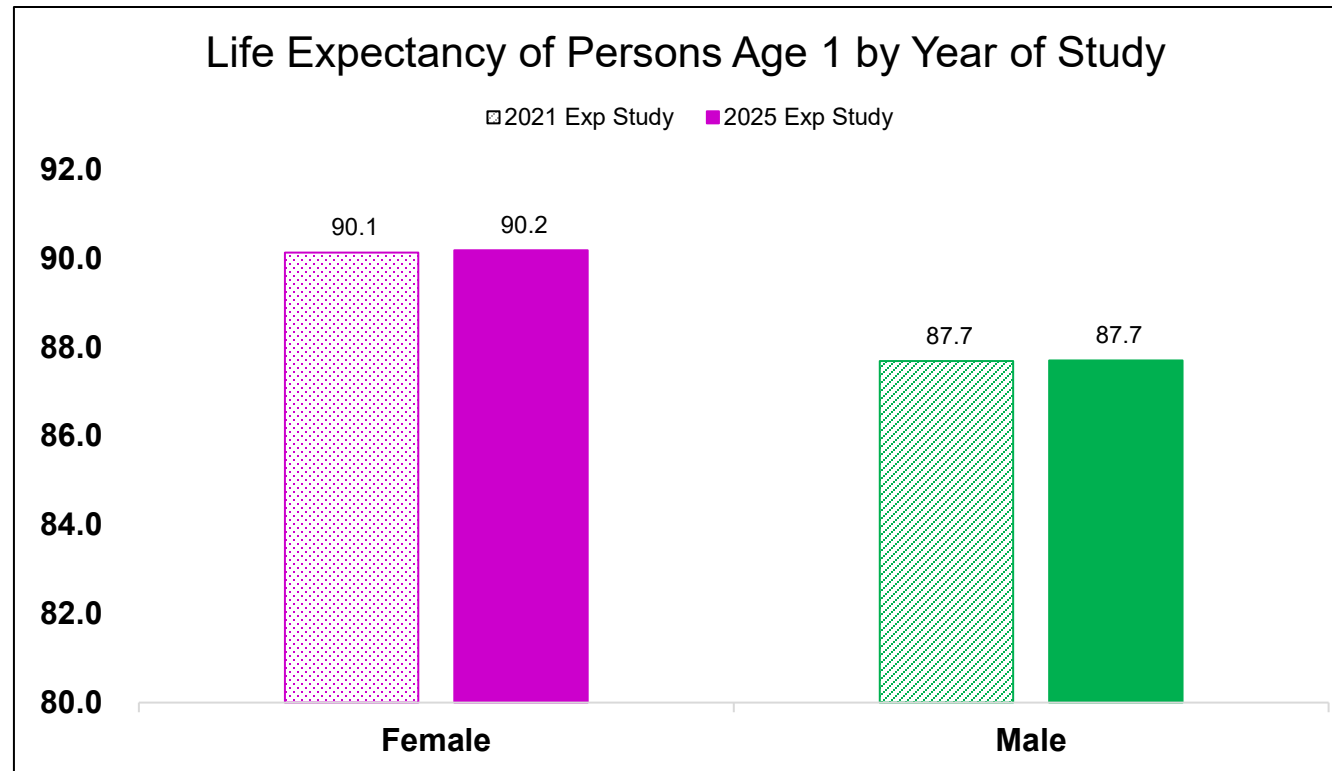
- No change to male base rates, minor changes to female base rates
- Add normal improvement progression (replace MP2020 with MP2021)

Life Expectancy-Age 55 by Year of Study



Recommendation: Retain base rates from 2021 study and adopt 80% of the MP2021 mortality improvement scale

Life Expectancy- Age 1 by Year of Study



Recommendation: Retain base rates from 2021 study and adopt 80% of the MP2021 mortality improvement scale

Overall Cost Impacts

Impact of Proposed Assumptions - State Miscellaneous and Schools

Category	Service Retirement	Salary Scale	Post-Ret Mortality	IDR	NIDR	Term Vested	Term Refund	Inflation	Impact on Employer Rate
State Misc	 -0.1%	 0.9%	 0.1%	N/A	 0.0%	 -0.1%	 0.0%	 0.8%	 1.6%
State Industrial	 -0.1%	 -0.2%	 0.1%	No Change Made	 0.1%	 -0.1%	 0.0%	 0.7%	 0.5%
Schools	 0.1%	 -0.1%	 0.1%	N/A	 0.0%	 -0.2%	 -0.1%	 0.8%	 0.6%

**blue – rates are going up green – rates are going down white – rates are staying the same

Impact of Proposed Assumptions - State Safety

Category	Service Retirement	Salary Scale	Post-Ret Mortality	IDR	NIDR	Term Vested	Term Refund	Inflation	Impact on Employer Rate
State Safety	 -0.3%	 0.7%	 0.1%	No Change Made	 0.0%	No Change Made	 0.0%	 0.7%	 1.2%
State POFF	 -0.5%	 0.9%	 0.1%	 0.1%	 0.0%	No Change Made	 0.1%	 1.2%	 1.9%
State CHP	 0.0%	 0.2%	 0.1%	 0.1%	 0.0%	 0.0%	 0.0%	 1.4%	 1.8%

**blue – rates are going up green – rates are going down white – rates are staying the same

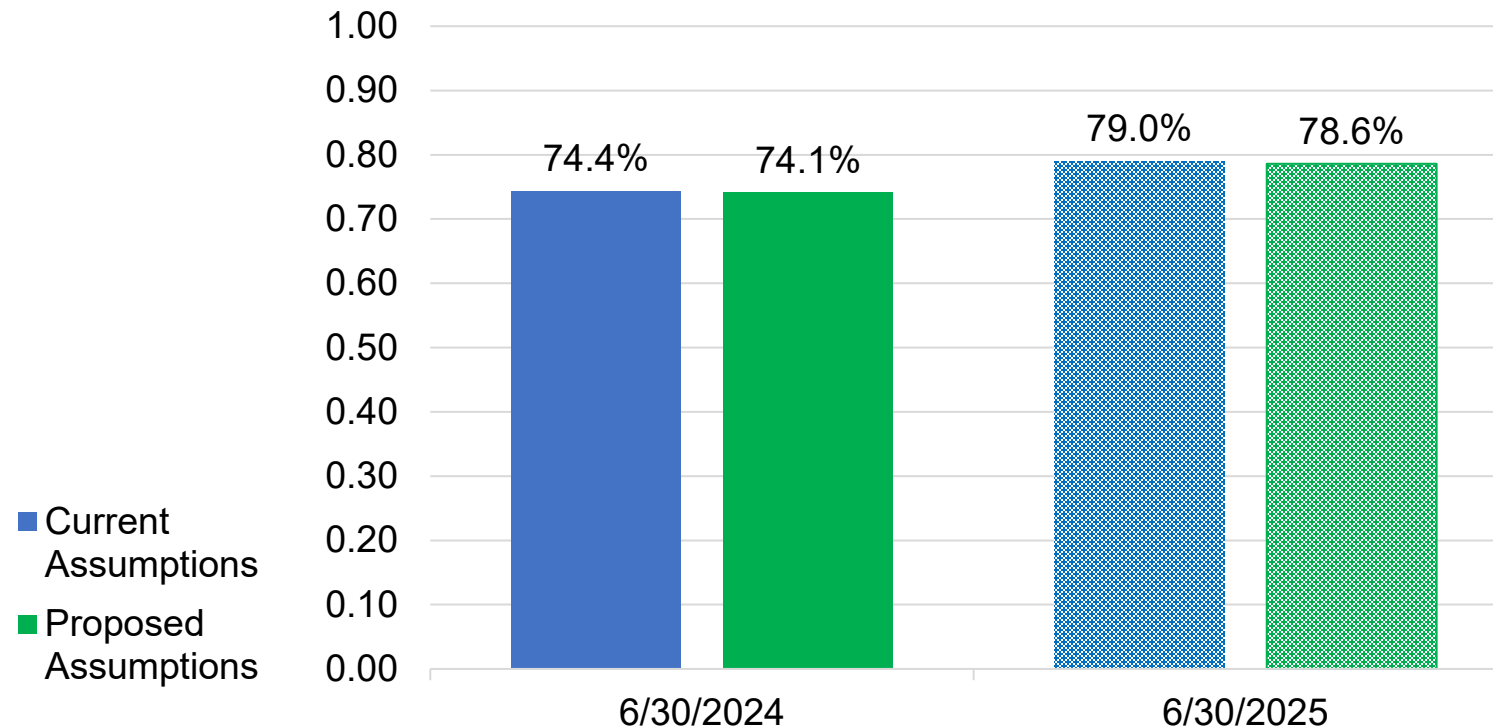
Impact of Proposed Assumptions - Public Agencies

	Min	Max	Median
<u>Classic Formulas</u>			
2% @ 60 Miscellaneous	0.1%	0.9%	0.3%
2% @ 55 Miscellaneous	0.1%	3.8%	0.7%
2.5% @ 55 Miscellaneous	0.0%	3.0%	0.3%
2.7% @ 55 Miscellaneous	-0.1%	3.0%	0.3%
3% @ 60 Miscellaneous	0.2%	3.1%	0.3%
2% @ 50 Safety	3.0%	3.1%	3.1%
3% @ 55 Safety	-0.6%	2.2%	1.8%
3% @ 50 Safety	-1.1%	7.5%	1.6%
<u>PEPRA Formulas</u>			
2% @ 62 Miscellaneous	-0.5%	2.7%	0.1%
2.7% @ 57 Safety	-2.0%	6.0%	1.3%

Note: Inflation and resulting salary scales had the largest impact driving the changes

Impact on the System Funded Ratio

Estimated Impact of Assumption Change to Funded Ratio



PEPRA Impacts

Impact on PEPRA Normal Costs

	Estimated Change in PEPRA Total Normal Cost %
State Miscellaneous	0.60%
State Industrial	0.10%
State Safety	0.20%
POFF	0.90%
CHP	0.80%
Schools	0.50%
Public Agency Miscellaneous	0.0% - 0.7%
Public Agency Safety	-1.8% - 1.5%

Effects on PEPRA Rate Plans

	Miscellaneous Plans		Safety Plans	
	Plan Count	Active Member Count	Plan Count	Active Member Count
Not Affected	1,413	155,404	227	10,620
Increase	9	1,738	551	16,431
Decrease	0	0	4	86

Detailed Changes to PEPRA Contribution Rates

Member Rate Change	RP Count	Active Member Count	RP Count	Active Member Count
-1.00%	-	-	1	6
-0.75%	-	-	3	80
0.00%	1,413	155,404	227	10,620
0.50%	6	704	498	12,131
0.75%	3	1,034	49	4,186
1.00%	-	-	4	114

Before and After PEPRA Employee Rate Changes

	PEPRA Member Contribution Ranges	
	Before	After
Miscellaneous	4.50 - 9.50	4.50 - 9.50
Safety	11.00 - 17.00	10.5 – 18.00
State/Schools	8.00 - 13.75	8.00 - 14.25*

*State and Schools PEPRA employee rates remain unchanged apart from 2.7% @ 57 POFF employees

Next Steps

Next Steps

- All results will be presented to the Board
 - Second reading, November 2025 (Action Item)
- Coordinated effort to implement assumptions is underway
 - MyCalPERS
 - External calculators
 - Internal spreadsheets

Questions?