KCERA
KERN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

May 26, 2023

Members, Board of Retirement
Employee Bargaining Units
Requesting News Media
Other Interested Parties

Subject: Meeting of the Kern County Employees' Retirement Association Finance Committee

Ladies and Gentlemen:

A meeting of the Kern County Employees' Retirement Association Finance Committee will be held on Friday, June 2, 2023 at 1:00 p.m. in the KCERA Boardroom, 11125 River Run Boulevard, Bakersfield, California, 93311.

How to Participate: Listen to or View the Board Meeting

To listen to the live audio of the Board meeting, please dial one of the following numbers *(for best audio a landline is recommended)* and enter ID# 878-1102-5748:

- (669) 900-9128; U.S. Toll-free: (888) 788-0099 or (877) 853-5247

To access live audio and video of the Board meeting, please use the following:

- https://us02web.zoom.us/j/87811025748?pwd=eHBWVVpOaHZybHJib1BheFlzb1RVdz09
- Passcode: 808240

Items of business will be limited to the matters shown on the attached agenda. If you have any questions or require additional service, please contact KCERA at (661) 381-7700 or send an email to administration@kcera.org.

Sincerely,

Dominic D. Brown
Chief Executive Officer

Attachments

AGENDA:

All agenda item supporting documentation is available for public review on KCERA's website at www.kcera.org following the posting of the agenda. Any supporting documentation that relates to an agenda item for an open session of any regular meeting that is distributed after the agenda is posted and prior to the meeting will also be available for review at the same location.

AMERICANS WITH DISABILITIES ACT
(Government Code §54953.2)

Disabled individuals who need special assistance to listen to and/or participate in the meeting of the Board of Retirement may request assistance by calling (661) 381-7700 or sending an email to administration@kcera.org. Every effort will be made to reasonably accommodate individuals with disabilities by making meeting materials and access available in alternative formats. Requests for assistance should be made at least two (2) days in advance of a meeting whenever possible.

CALL TO ORDER

ROLL CALL (IN PERSON)

AB 2449 REMOTE APPEARANCE(S)

Items 1 and/or 2 withdrawn from agenda if no trustees will have a need to appear via teleconference:

The first two items on the agenda are reserved for trustees who have a need to appear via teleconference due to a "just cause" need or an "emergency circumstance." Trustees who have notified this Committee before agenda-posting will be called upon and will provide a general description of their need to attend via teleconference as allowed by law. Trustees who were not able to notify the Committee in advance of posting and have a need to attend via teleconference will state their notification or request when called upon to do so. All trustees appearing via teleconference will need to disclose any adult person(s) present in the room of their remote location and their relationship to such person(s). Trustees appearing remotely are reminded to keep their camera on throughout the meeting.

1. JUST CAUSE CIRCUMSTANCE(S):

   a) The following Trustee(s) have notified the Committee of a "Just Cause" to attend this meeting via teleconference. (See Government Code § 54953).

      - NONE

   b) Call for Trustee(s) who wish to notify the Committee of a "Just Cause" to attend this meeting via teleconference. (See Government Code § 54953).

2. EMERGENCY CIRCUMSTANCE(S):

   a) The following Trustee(s) have requested the Committee approve their attendance of this meeting via teleconference due to an "Emergency Circumstance." (See Government Code § 54953).

      - NONE

   b) Call for Trustee(s) requesting the Committee approve their attendance of this meeting via teleconference due to an "Emergency Circumstance." (See Government Code § 54953).

      TAKE ACTION ON REQUEST(S) FOR REMOTE APPEARANCE

3. Discussion and appropriate action on the Actuarial Experience Study for the period July 1, 2019 through June 30, 2022, presented by Actuaries Paul Angelo, FSA, and Molly Calcagno, ASA, Segal – RECOMMEND THE BOARD OF RETIREMENT ADOPT THE ECONOMIC AND NON-ECONOMIC ASSUMPTIONS

4. Presentation regarding KCERA Organizational Landscape and Budget Governance presented by Chief Executive Officer Dominic Brown – HEAR PRESENTATION

5. Discussion and appropriate action on the proposed fiscal year 2023-2024 KCERA Operating Budget presented by Chief Executive Officer Dominic Brown, Chief Operations Officer Matthew Henry, and Chief Financial Officer Angela Kruger – RECOMMEND APPROVAL TO BOARD OF RETIREMENT

PUBLIC COMMENTS

6. The public is provided the opportunity to comment on agenda items at the time those agenda items are discussed by the Committee. This portion of the meeting is reserved for persons to address the Committee on any matter not on this agenda but under the jurisdiction of the Committee. Committee members may respond briefly to statements made or questions posed. They may ask a question for clarification and, through the Chair, make a referral to staff for factual information or request staff to report back to the Committee at a later meeting. Speakers are limited to two minutes. Please state your name for the record prior to making a presentation.

REFERRALS TO STAFF, ANNOUNCEMENTS OR REPORTS

7. On their own initiative, Committee members may make a brief announcement, refer matters to staff, subject to KCERA's rules and procedures, or make a brief report on their own activities.

8. Adjournment

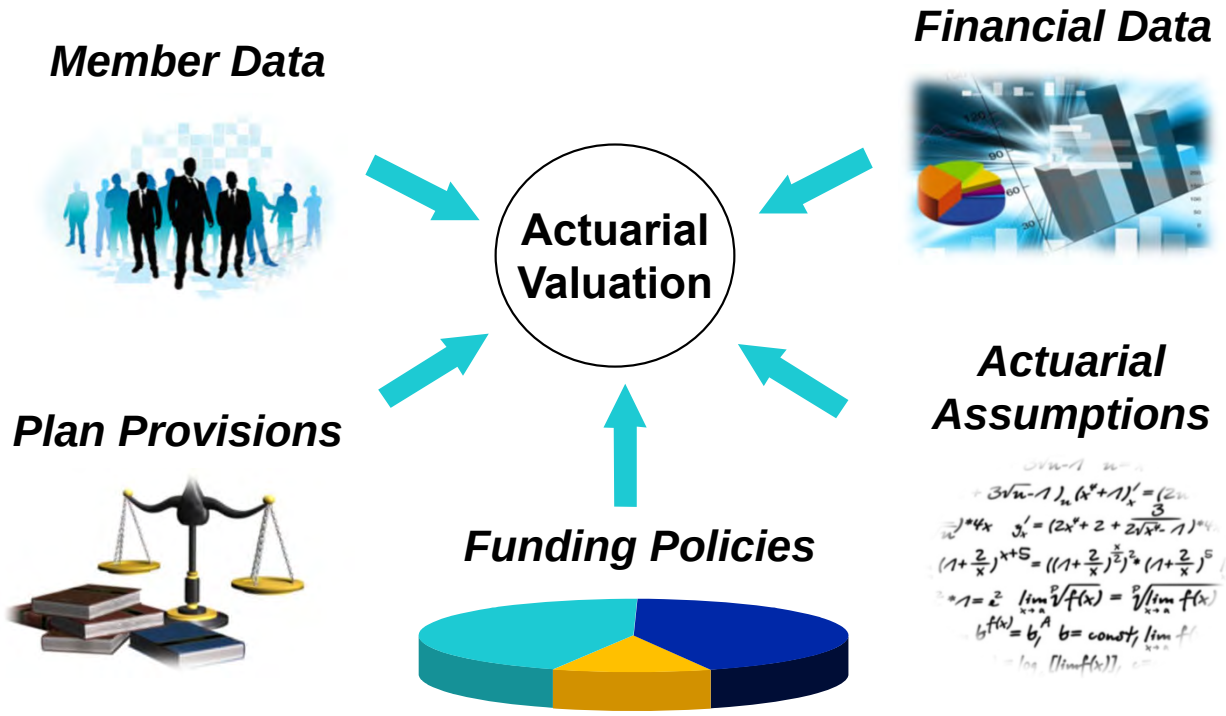
Kern County Employees' Retirement Association

2023 Actuarial Experience Study
June 2, 2023

Paul Angelo, FSA / Molly Calcagno, ASA

Segal

What Goes Into an Actuarial Valuation



KCERA 2023 Actuarial Experience Study

- Analysis of actuarial experience during the 3-year period July 1, 2019 through June 30, 2022
  - For some assumptions also includes experience from prior studies
  - Note: ongoing effect of COVID-19 is beyond scope of this study
- Develops recommended assumptions for the June 30, 2023 actuarial valuation (and 2024, 2025)
  - Determines contributions starting July 1, 2024 (and 2025, 2026)
- Major recommendations
  - Demographic assumptions: mortality
  - Economic assumptions: inflation, expected return, merit/promotion salary increases

Role of Assumptions and Methods

C + I = B + E

Contributions + Investment Income

equals

Benefit Payments + Expenses

- Actuarial valuation determines the current or "measured" cost, not the ultimate cost
- Assumptions and funding methods affect only the timing of costs (unless benefits are affected!)

Setting Actuarial Assumptions

- Selection of Actuarial Assumptions
  - Objective, long term
  - Experience study
  - Recent experience or future expectations
    - Demographic: recent experience
    - Economic: not necessarily!
  - Client specific or not
  - Consistency among assumptions
  - Desired pattern of cost incidence
    - Good assumptions produce level costs
    - Assumption setting is “results aware” but not “results based”

Demographic Assumptions

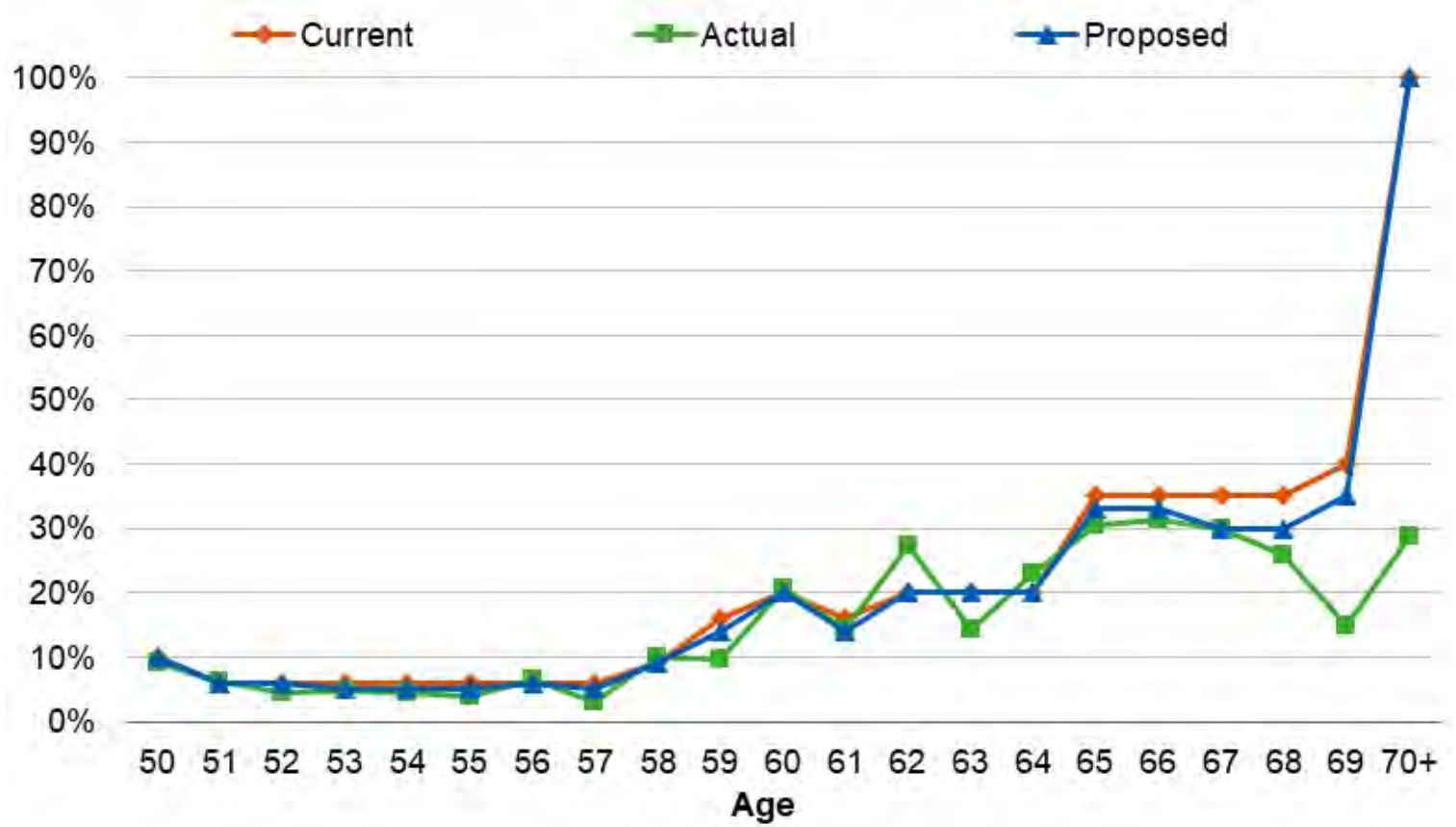
- Rates of “decrement”: termination, mortality, disability, retirement
  - Termination
    - Refund of contribution versus deferred vested benefit
  - Mortality
    - Before and after retirement
    - Healthy, disability and beneficiary
    - Service connected versus non-service connected
  - Disability
    - Service connected versus non-service connected
  - Retirement, based on age and service
- Percent married and member/spouse age difference
- Reciprocity
- Assumptions can be distinct for classification (General and Safety) as well as Tiers

Setting Actuarial Assumptions – Demographic Assumptions

- To determine rates for each assumption, we count the "exposures" and "decrements" for that event
  - Exposures = Number of employees who could have terminated, retired, etc.
  - Decrements = Number of employees who actually terminated, retired, etc.
  - This gives the "actual" decrement rates during the period
- Compare to the "current" assumed rates (or to expected number of decrements based on those current rates)
- Develop "proposed" new assumption based on both "current" assumption and recent "actual" experience
  - Weight the "actual" based on "credibility"

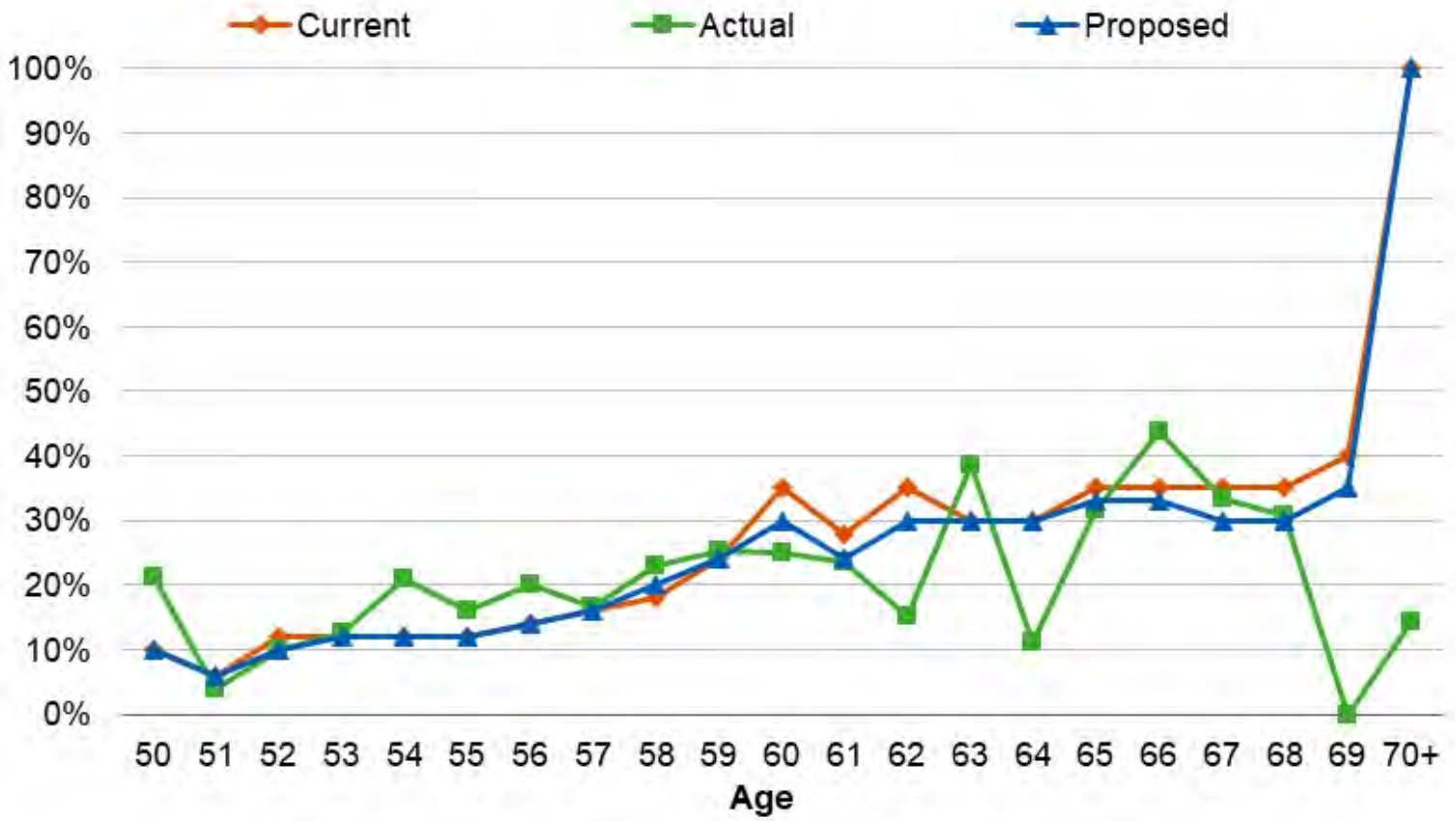
Setting Demographic Assumptions – Retirement Rates Example (General Tier I)

- General Tier I Retirement rates – Less than 25 years of service



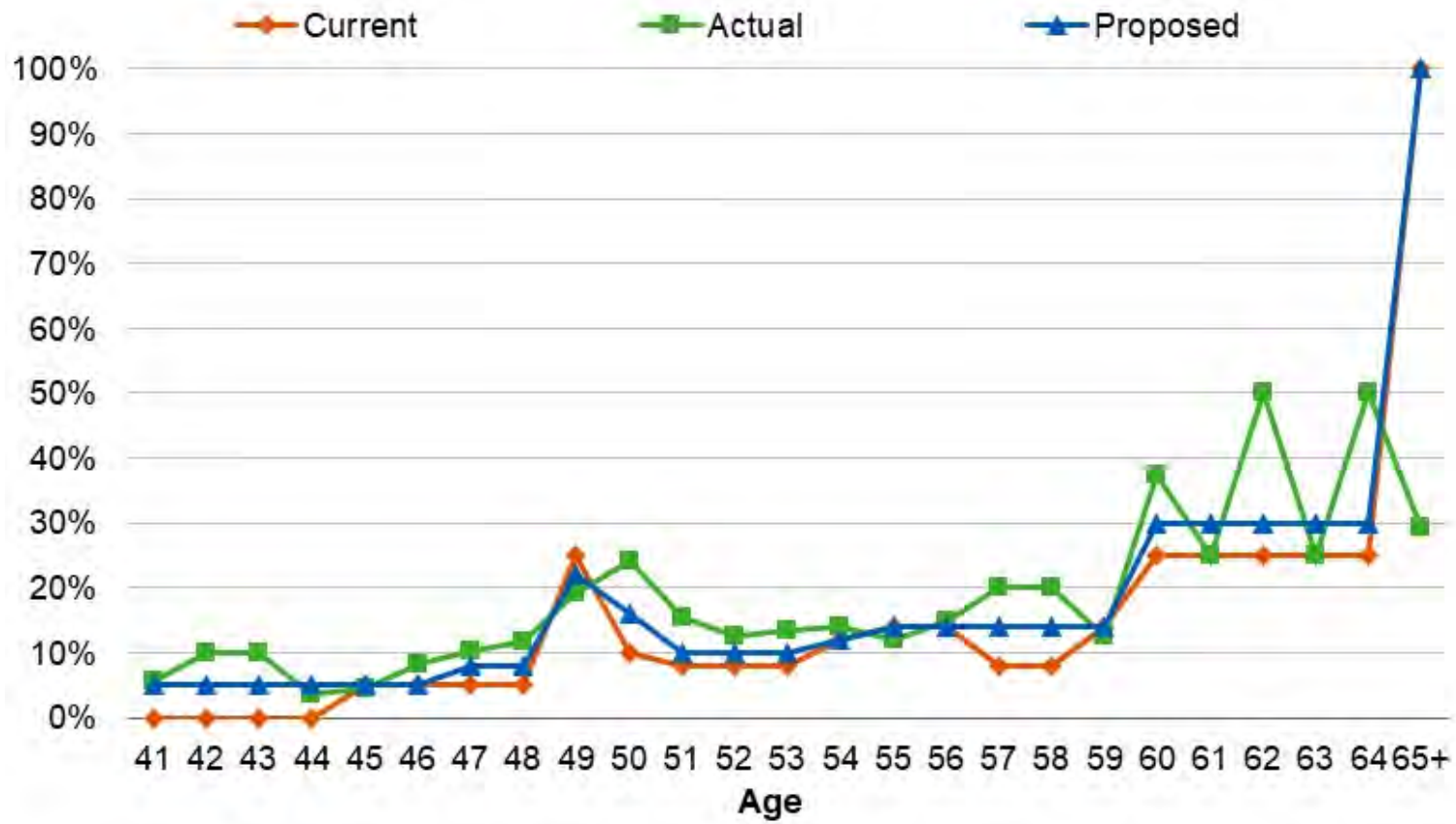
Setting Demographic Assumptions – Retirement Rates Example (General Tier I)

- General Tier I Retirement rates – 25 or More years of service



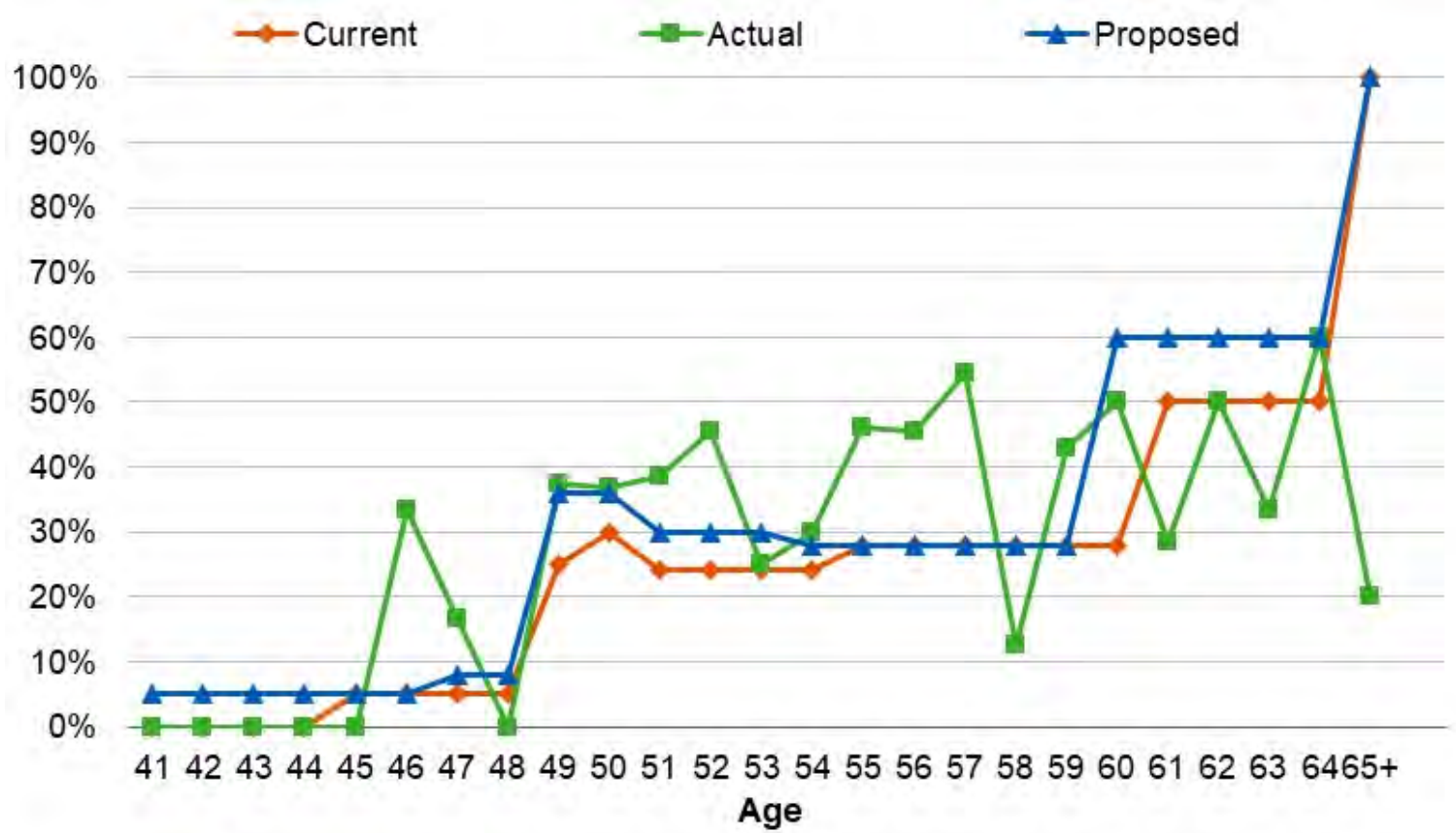
Setting Demographic Assumptions – Retirement Rates Example (Safety Tier I)

- Safety Tier I Retirement rates – Less than 25 years of service



Setting Demographic Assumptions – Retirement Rates Example (Safety Tier I)

- Safety Tier I retirement rates – 25 or More years of service



Recommended KCERA Demographic Assumptions

- Retirement rates
  - Adjust Tier I rates based on experience
    - Separately for members with under 25 years of service and for members with 25 or more years of service
    - Overall, slightly later retirements for General members and earlier retirements for Safety members
  - Adjust General Tier II rates based on experience and consistent with adjustments for Tier I
    - Slightly later retirements for General Tier II members
  - Adjust General Tier III and Safety Tier II rates consistent with adjustments for Tier I
    - Slightly later retirements for General Tier III members
    - Slightly earlier retirements for Safety Tier II members

Recommended KCERA Demographic Assumptions (continued)

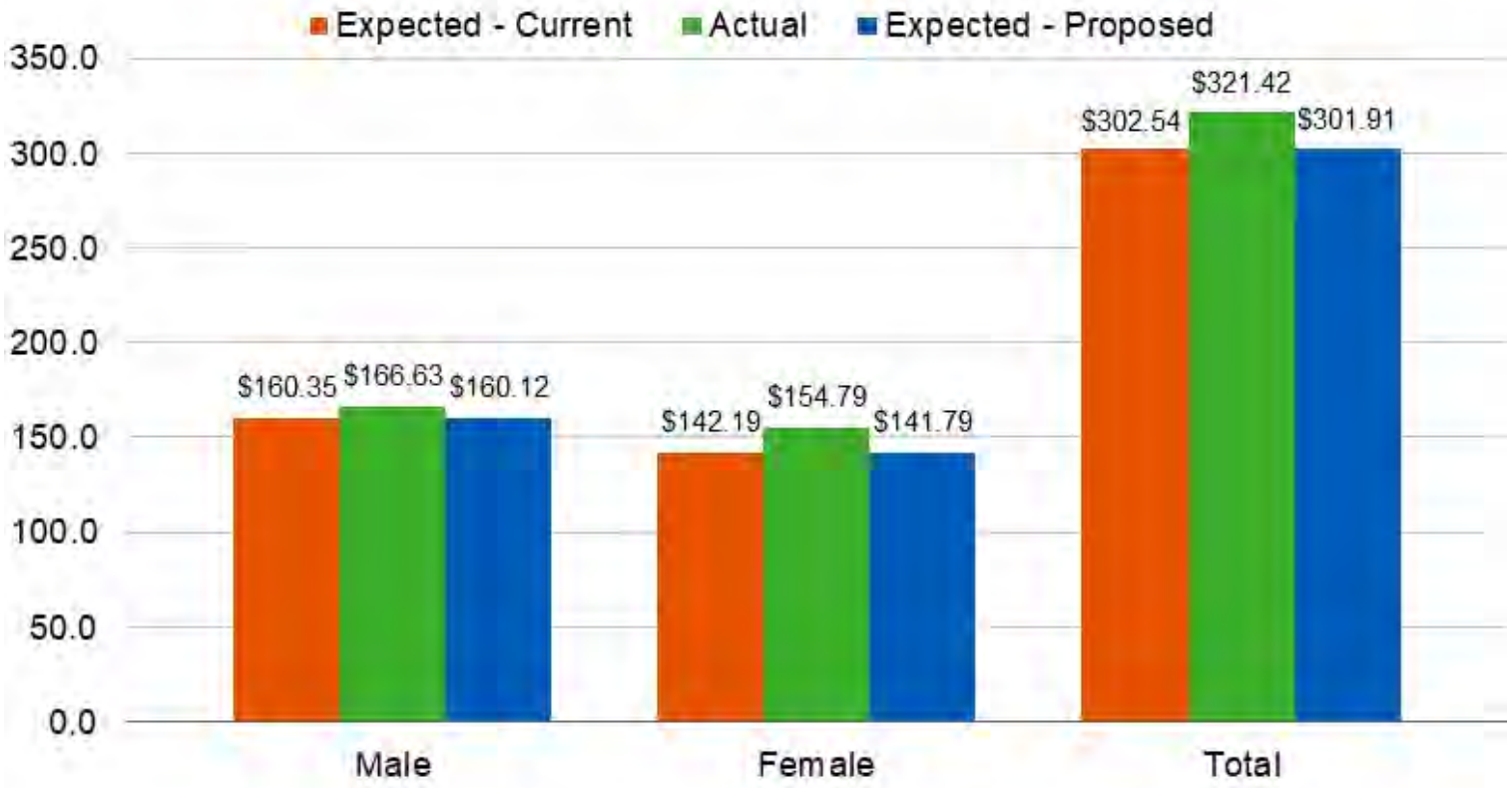
- Termination rates
  - Increase in termination rates for both General and Safety
  - Decrease in proportion of terminated members who elect a refund of contributions
    - Corresponding increase in proportion who elect a deferred retirement benefit
- Disability incidence rates
  - Decrease in disability rates for General and slight increase in disability rates for Safety

Setting Demographic Assumptions – KCERA Mortality Assumptions

- Continue using generational projection of future mortality improvement
  - Probability of dying depends not only on age and sex but also what year it is
  - Each future year has its own mortality table with forecasted improvement at every age
  - Currently using MP-2019 mortality improvement scale
  - Recommended mortality improvement scale is MP-2021
    - MP-2021 anticipates less future mortality improvement as compared to MP-2019
- Separate benefit weighted mortality tables for General and Safety members
  - Both using PUB-2010 as base table
    - PUB-2010 table developed using public sector pension experience
  - Adjusted based on 10 years of KCERA mortality experience
    - Four 3-year periods but excluding mortality data from 2020-2021 and 2021-2022
  - Adjustment reflects "credibility" based on amount of KCERA data available

Setting KCERA Mortality Assumptions – Example (General)

- Mortality analysis from experience study



Setting KCERA Mortality Assumptions – Example (Safety)

- Mortality analysis from experience study

Recommended KCERA Mortality Assumptions

- General service retirees base table:
  - Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates increased by 15% for females
    - Base table unchanged from prior study
  - Base table actual to expected ratio is 106% after adjustment for partial credibility
- Safety service retirees base table:
  - Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females)
    - Base table unchanged from prior study
  - Base table actual to expected ratio is 104% after adjustment for partial credibility
- Comparable tables for disabled retirees, beneficiaries and pre-retirement
  - All tables projected generationally with the two-dimensional mortality improvement scale MP-2021

Questions?

Setting Actuarial Assumptions – Economic Assumptions

- Price Inflation (CPI)
  - Investment Return, Salary Increases, COLA
- Investment Return
  - Components include CPI, real return, investment expenses
  - Generally based on passive returns
- Salary Increases
  - "Across the board" increases
    - Includes price inflation plus real wage growth
  - Merit & Promotion: based on experience
    - More like a "demographic" assumption
- Administrative expenses

Current KCERA Economic Assumptions

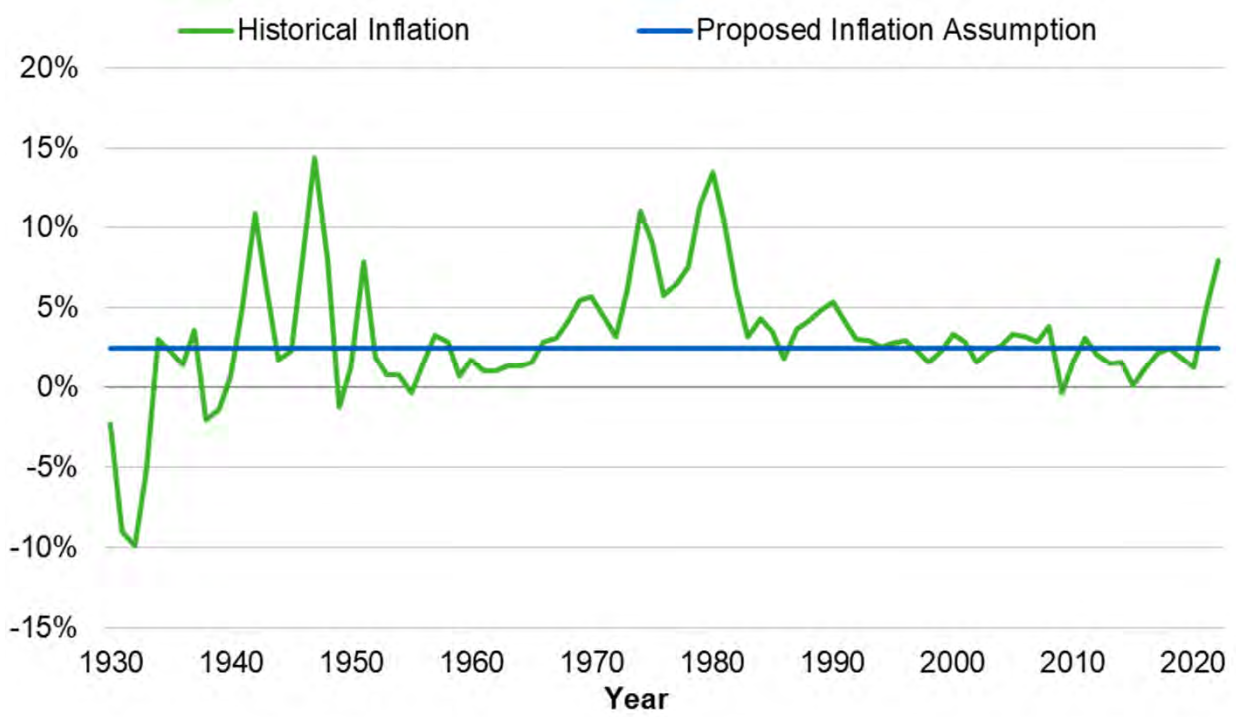
	2020 Study Adopted		2017 Study Adopted	
	Return	Pay*	Return	Pay*
Price Inflation	2.75%	2.75%	3.00%	3.00%
Real Wages	n/a	0.50%	n/a	0.50%
Net Real Return	4.50%**	n/a	4.25%**	n/a
Total	**7.25%**	**3.25%**	**7.25%**	**3.50%**

* Excludes merit and promotion component of assumed individual salary increases

** Recommended return is net of investment expenses

Setting Economic Assumptions – Price Inflation (CPI)

- Historical Consumer Price Index
  - Spike in Q2 of 2021 continuing into 2022
  - Relatively steady since Q2 of 2022

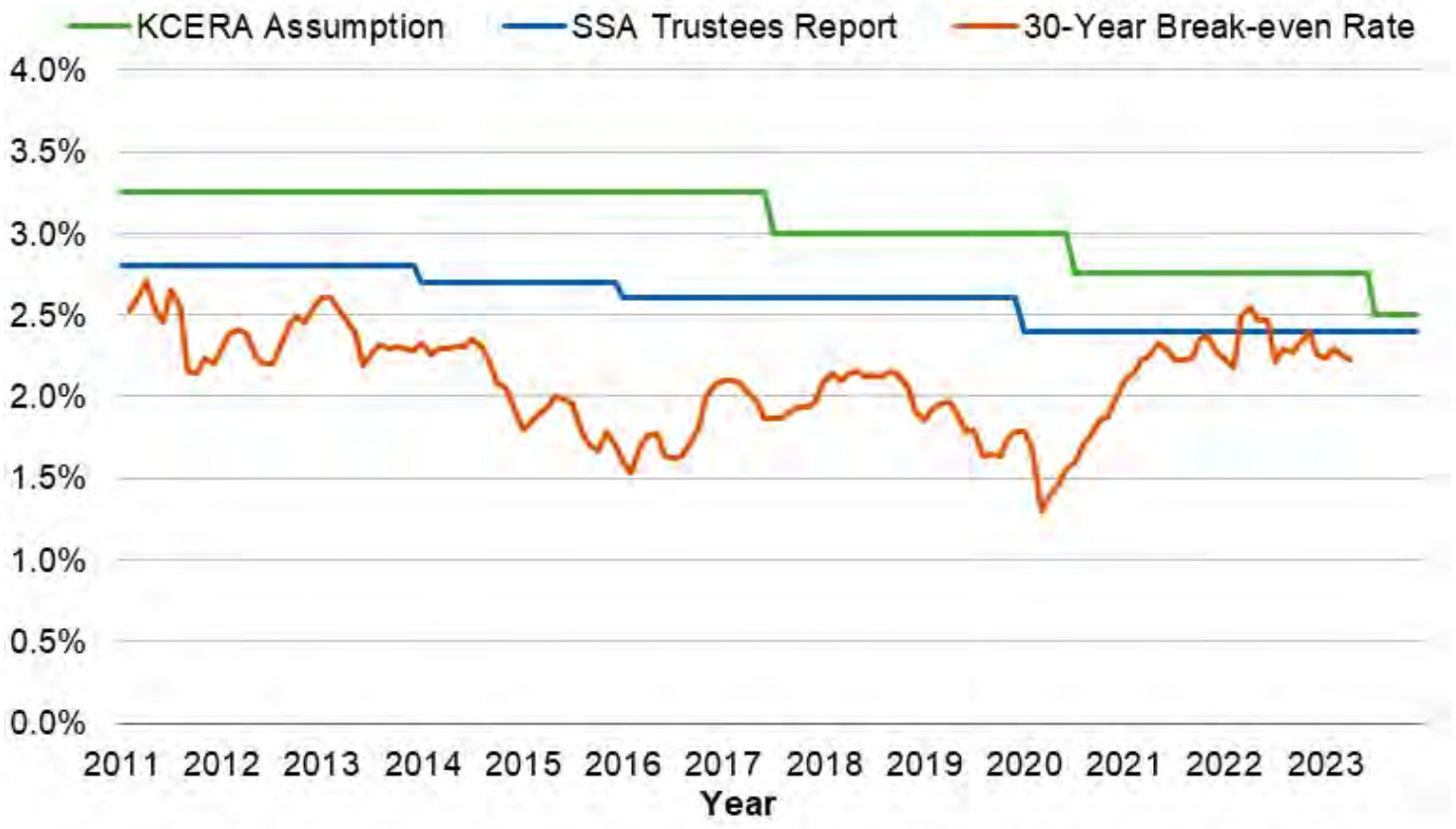


Setting Economic Assumptions – Price Inflation (CPI)

- Market-based inflation forecasts: “Breakeven rates”
  - Peaked at 2.55% in April 2022
  - Currently 2.23% (April 2023)
- Verus anticipates long-term inflation of 2.1%
  - Average inflation from survey of investment consultants = 2.43%
- Social Security’s 75-year intermediate forecast
  - Maintained at 2.4% in their latest report (2023)
- Other public retirement systems
  - Average state system inflation assumption is approximately 2.5% (NASRA survey)
  - Average CA system inflation is approximately 2.5%

Setting Economic Assumptions – Price Inflation (CPI)

- KCERA historical inflation assumption compared to Social Security and market-based forecasts



Recommended Price Inflation Assumption (CPI)

- Price Inflation: Trend is lower assumptions
  - KCERA: Reduced from 3.00% (2017) to 2.75% (2020)
  - Market-based forecasts are even lower
  - Segal has been recommending 2.50% since 2021
    - 2.50% anticipates some periods of high inflation (like the one we are in now)
- Recommend decreasing price inflation assumption from 2.75% to 2.50%
  - Note COLA assumption remains unchanged at 2.50%

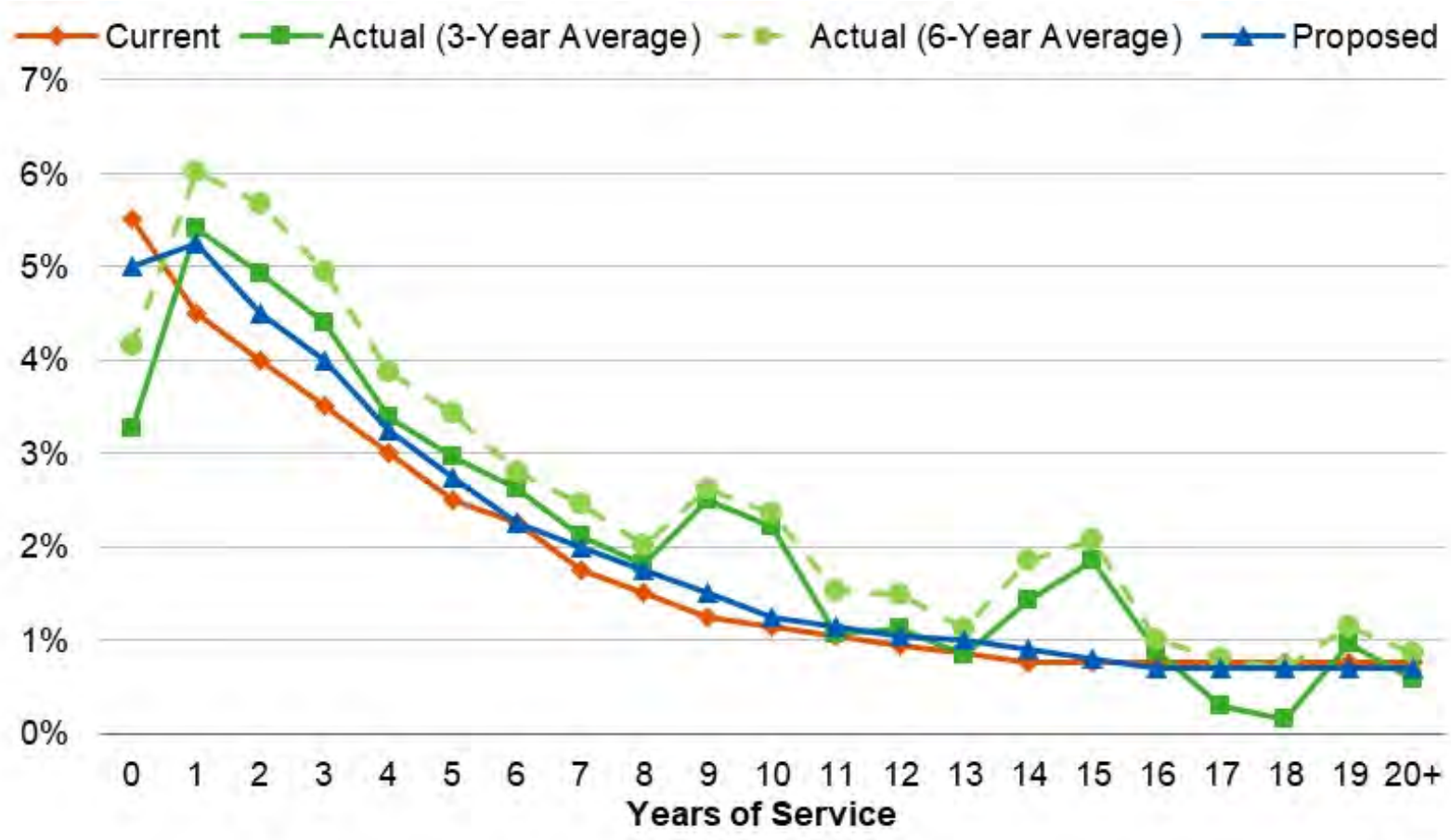
Setting Economic Assumptions – Recommended Salary Increase Assumptions

- Three components:
  - Price Inflation (CPI)
    - Recommend decreasing from 2.75% to 2.50%
  - Real Increases (“Across the Board”)
    - Average wage growth above average price increases
    - Historically: 0.5%-0.8% for state and local governments
    - Social Security projects 1.2% (median assumptions)
    - Recommend maintaining at 0.50%

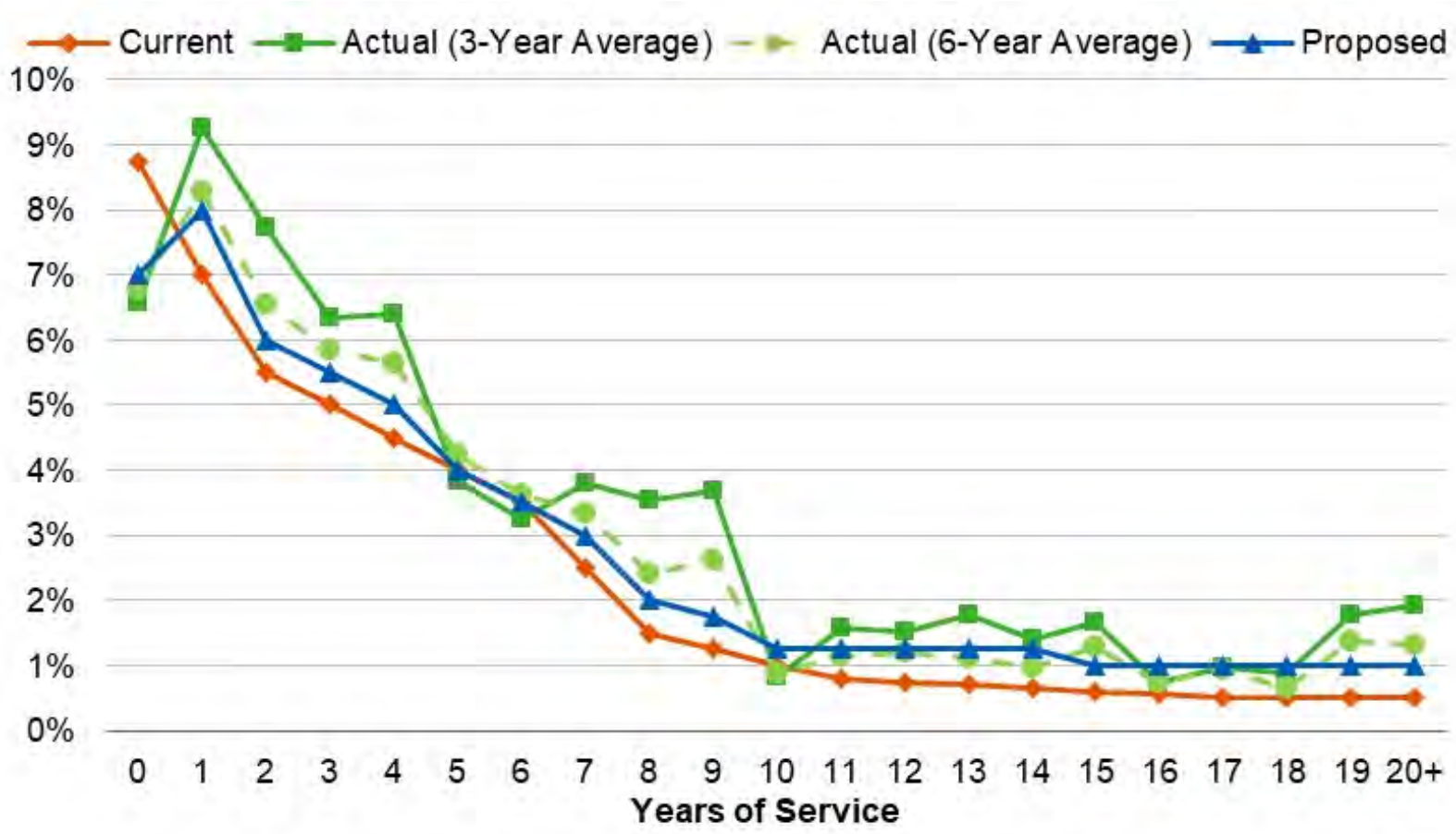
Recommended Salary Increase Assumptions (continued)

- Three components (continued):
  - Merit and Promotion Increases
    - Assumption based on years of service
    - Reviewed 3 years and 6 years of data
    - General: Currently 5.50% (0-1 years) to 0.75% (14+ years)
      - Increase merit and promotion for General members
      - Decrease overall after taking into account the lower inflation component
    - Safety: Currently 8.75% (0-1 years) to 0.50% (17+ years)
      - Increase merit and promotion for Safety members
      - Increase overall after taking into account the lower inflation component

Salary increase Assumptions – Merit and Promotion Example (General)



Salary Increase Assumptions – Merit and Promotion Example (Safety)



Setting Economic Assumptions – Payroll Growth Assumption

- Used to project total payroll for UAAL amortization
- Active member payroll growth based on wage inflation
  - Assumes constant active head count
- Includes price inflation and real wage increases
  - Price inflation: decrease to 2.50%
  - Real wage increases: maintain at 0.50%
  - Total payroll growth: decrease from 3.25% to 3.00%

Questions?

Setting Economic Assumptions – Investment Earnings (Return) Assumption

- Used to set the discount rate for measuring costs
  - Sometimes called the assumed interest rate
- Used for contribution requirements
  - Also for financial reporting (GASB 67 and 68)
- Affects timing of Plan cost
  - Lower assumed rate means higher current cost
  - Ultimately, actual earnings determine cost
    C + I = B + E
  - "Can't pay benefits with assumed earnings!"

Setting the Investment Earnings Assumption (continued)

- Building-Block Method – Four components:
  - Expected inflation: consistent with salary increases
  - Real return for each asset class
    - Survey of investment consultants (KCERA's and industry)
    - Weighted by asset allocation
    - **NEW:** Converted from expected arithmetic average to expected geometric average
  - Less assumed investment expenses
    - **NEW:** No reduction for active investment management fees
  - Less risk adjustment ("margin for adverse deviation")
    - Expressed as confidence level above 50%
- Note: generally no add-on for superior managers
  - "Indexed" returns, no "alpha"

Setting the Investment Earnings Assumption – Real Return Component

- Real return assumptions by asset class
  - Use an average of 6 investment advisory firms retained by Segal public clients and Segal's investment advisory division
    - Use results from Verus for asset categories unique to KCERA
- Expected real return for KCERA asset allocation is 5.81%
  - Increased from 5.25% in 2020 study (increase of 0.56%)
  - Primarily due to change in real return assumptions (+0.49%)
  - Extraordinarily high rates of real return should be used with caution in selecting a long-term investment return assumption

Setting the Investment Earnings Assumption – Real Return Component (continued)

- KCERA real rate of return

Asset Class	Target Allocation	Real Return	Weighted Return
Global Equity	37.0%	7.05%	2.61%
Core Fixed Income	14.0%	1.97%	0.28%
High Yield Corporate Credit	6.0%	4.63%	0.28%
Emerging Market Debt (Hard)	2.0%	4.72%	0.09%
Emerging Market Debt (Local)	2.0%	4.53%	0.09%
Commodities	4.0%	4.21%	0.17%
Core Real Estate	5.0%	3.86%	0.19%
Private Equity	5.0%	10.27%	0.51%
Private Credit	5.0%	6.97%	0.35%
Value Added Real Estate	5.0%	6.70%	0.34%
Midstream	5.0%	8.00%	0.40%
Capital Efficiency Alpha Pool	8.0%	3.10%	0.25%
Hedge Fund	10.0%	3.10%	0.31%
Cash	-8.0%	0.63%	-0.05%
Total	**100.0%**		**5.81%**

Setting the Investment Earnings Assumption – Investment Expenses Component

- Investment expenses

Year Ending June 30	Investment Expenses as a Percent of AVA	Year Ending June 30	Investment Expenses as a Percent of AVA
2017	0.03%	2020	0.04%
2018	0.04%	2021	0.06%
2019	0.03%	2022	0.04%
Three-Year Average	**0.04%**		**0.05%**
Six-Year Average			**0.04%**
Current			**0.40%**
Recommendation			**0.05%**

  - Includes investment consultant fees, custodian fees and other miscellaneous expenses
  - Beginning with this study, excludes investment management fees

Setting the Investment Earnings Assumption – Risk Adjustment Component

- Compares the Association's risk position over time
- Confidence level is a relative, not absolute, measure
  - Can be reevaluated and reset for future comparisons
- Confidence level is based on standard deviation
  - Measure of volatility based on portfolio assumptions
- Confidence level depends on model used

Two Common Models for Setting Discount Rate based on Expected Returns

- Use forward looking expected arithmetic average returns, reduced by all investment expenses
  - Expected to have no surplus or shortfall
  - Investment management fees reduce expected return
- Use forward looking expected geometric average returns, reduced only by consulting and custodian fees
  - Equal likelihood of surplus or shortfall
  - Investment management fees do not reduce expected return
- These differences offset each other so results are generally comparable

Setting the Investment Earnings Assumption – Summary of the Components

	2023 Recommended (new model)	2023 Comparison (prior model)	2020 Adopted
Assumed Inflation	2.50%	2.50%	2.75%
Portfolio Real Rate of Return	5.81%	5.81%	5.25%
Assumed Expenses	(0.05%)	(0.40%)	(0.40%)
Geometric Conversion	(0.75%)	N/A	N/A
Risk Adjustment	(0.51%)	(0.91%)	(0.35%)
Total	**7.00%**	**7.00%**	**7.25%**
Confidence Level	56%	61%	55%

Setting the Investment Earnings Assumption – Risk Adjustment Component History

- Most useful for comparing risk position over time

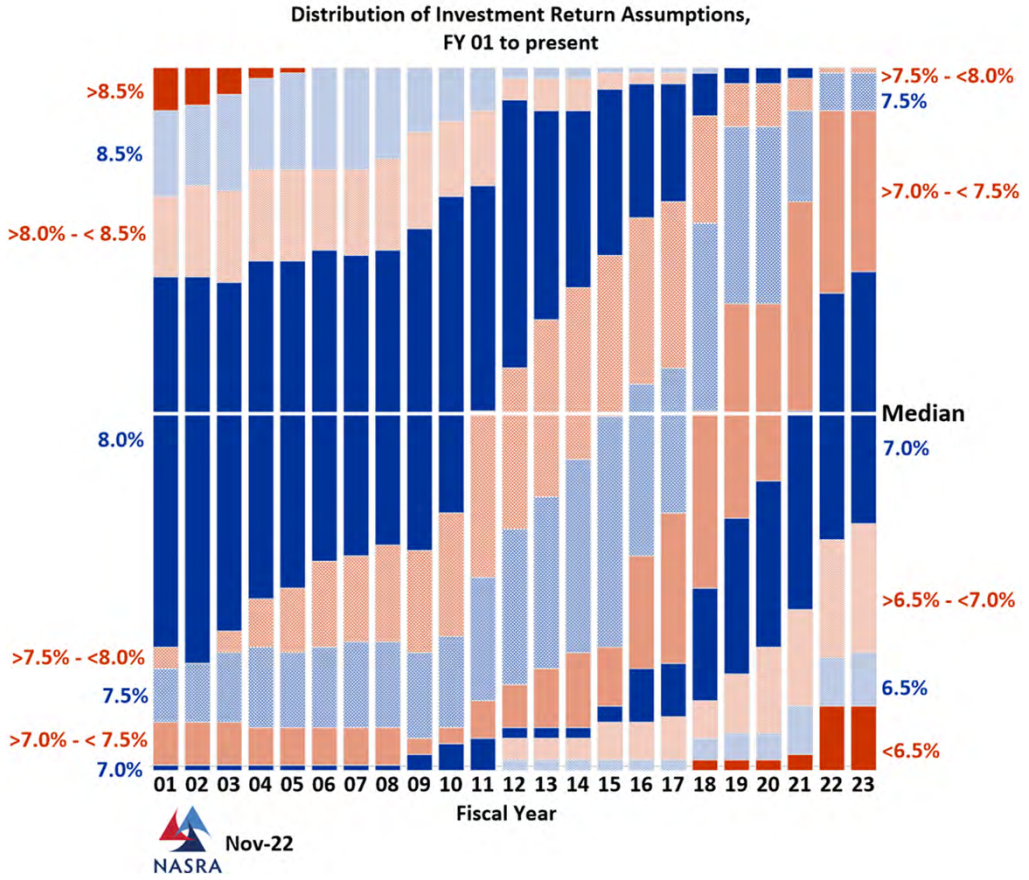
Year Ending June 30	Investment Return Assumption	Risk Adjustment	Confidence Level
2011 - 2013	7.75%	(0.04%)	49%
2014 - 2016	7.50%	0.23%	53%
2017 - 2019	7.25%*	0.22%	53%
2020 - 2022	7.25%*	0.35%	55%
2023 (Comparison)	7.00%*	0.91%	61%
2023 (Recommended)	7.00%*	0.51%	56%

* These investment return assumptions are gross of administrative expenses.

Setting the Investment Earnings Assumption – Comparison with Other Models and Systems (continued)

- Segal ran KCERA's asset allocation through alternative fully stochastic model
  - Using a national survey of capital market assumptions (Horizon)
    - Stochastic simulation using 10,000 trial outcomes
  - 51% likelihood of achieving 7.00% using 15-year returns
    - Compared to 56% in the 2020 experience study
- Comparison with other systems
  - National median is 7.00% but continues to trend down nationwide
    - National practice lags California!
  - 6.75% and 7.00% are most common for California CERL systems
    - Eight California systems at 6.75% and seven at 7.00%
    - CalPERS at 6.80% and CalSTRS at 7.00%

Setting the Investment Earnings Assumption – Change in Distribution of Public Pension Investment Return Assumptions, FY 01 to FY 23



Setting the Investment Earnings Assumptions – Expected Return Assumptions for California Systems

System(s)	Assumption	Count
CalPERS	6.80%	
CalSTRS	7.00%	
University of California	6.75%	
1937 CERL Systems	7.25%	2
	7.00%	7
	6.75%	8
	6.50%	2
	6.25%	1
City Systems		
San Francisco	7.20%	
LACERS, LAFPP	7.00%	
LADWP	6.50%	
Fresno	6.75%	
San Jose	6.625%	
San Diego	6.50%	

Setting the Investment Earnings Assumption – Administrative Expenses

- Administrative expenses

Year Ending June 30	Administrative Expenses as a Percent of Payroll	Year Ending June 30	Administrative Expenses as a Percent of Payroll
2017	0.96%	2020	0.91%
2018	0.89%	2021	1.00%
2019	0.83%	2022	1.09%
Three-Year Average	**0.89%**		**1.00%**
Six-Year Average			**0.95%**
Current			**0.90%**
Recommendation			**0.95%**

Questions?

Anticipated Impact on Valuation Results Modeled as of June 30, 2022 for Illustration

Summary of Cost Impact of Recommended Assumptions	
Impact on Employer	
Increase due to changes in economic assumptions	3.64%
Decrease due to changes in demographic assumptions	(0.25%)
Total increase in average employer rate	3.39%
Total estimated change in annual dollar amount	$20,653,000
Impact on Member	
Increase due to changes in economic assumptions	0.34%
Increase due to changes in demographic assumptions	0.02%
Total increase in average member rate	0.36%
Total estimated change in annual dollar amount	$2,226,000
Impact on UAAL and Funded Percentage	
Increase in UAAL	$182 million
Change in funded percentage	From 69.2% to 67.5%

Anticipated Impact on Valuation Results Modeled as of June 30, 2022 for Illustration (continued)

Employer Contribution Rate Increases/(Decreases) (% of Payroll) (Estimated Annual Dollar Amounts in $000s)				
	Normal Cost	UAAL	Total	Annual Amount
General County w/o Courts	0.37%	1.56%	1.93%	$7,646
Courts	0.46%	1.56%	2.02%	629
County Safety	2.32%	6.01%	8.33%	11,629
District Category I	0.33%	1.60%	1.93%	109
District Category II	0.59%	1.60%	2.19%	50
District Category III	0.35%	1.60%	1.95%	536
District Category V	0.35%	1.60%	1.95%	26
District Category VI	0.85%	1.60%	2.45%	5
Declining Employers	1.09%	11.35%	12.44%	23
Combined	0.82%	2.57%	3.39%	$20,653

* Based on June 30, 2022 projected annual payroll as determined under each set of assumptions.

Anticipated Impact on Valuation Results Modeled as of June 30, 2022 for Illustration (continued)

Average Member Contribution Rate Increases/(Decreases) (% of Payroll) (Estimated Annual Dollar Amounts in $000s)		
	Total	Annual Amount
General County w/o Courts	0.22%	$868
Courts	0.16%	46
County Safety	0.86%	1,190
District Category I	0.33%	19
District Category II	0.26%	6
District Category III	0.34%	94
District Category V	0.23%	3
District Category VI	0.00%	0
Declining Employers	0.00%	0
Combined	0.36%	$2,226

* Based on June 30, 2022 projected annual payroll as determined under each set of assumptions.

Questions?

Kern County Employees'
Retirement Association

Actuarial Experience Study

Analysis of Actuarial Experience During the Period July 1, 2019 through June 30, 2022

Segal

Segal

180 Howard Street
Suite 1100
San Francisco, CA 94105-6147
segalco.com

May 24, 2023

Board of Retirement
Kern County Employees' Retirement Association
11125 River Run Blvd.
Bakersfield, CA 93311

Re: Review of Actuarial Assumptions for the June 30, 2023 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience for the Kern County Employees' Retirement Association (KCERA). This study utilizes the census data for the period July 1, 2019 to June 30, 2022 as well as prior periods for some assumptions, and provides the proposed actuarial assumptions, both economic and demographic, to be used in the June 30, 2023 valuation.

We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to reviewing this report with you and answering any questions you may have.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary

Molly Calcagno, ASA, MAAA, EA
Senior Actuary

ST/jl

Table of Contents

1. Introduction, Summary, and Recommendations

To project the cost and liabilities of the pension plan, assumptions are made about all future events that could affect the amount and timing of the benefits to be paid and the assets to be accumulated. Each year actual experience is compared against the projected experience, and to the extent there are differences, the future contribution requirement is adjusted.

If assumptions are modified, contribution requirements are adjusted to take into account a change in the projected experience in all future years. There is a great difference in both philosophy and cost impact between recognizing the actuarial deviations as they occur annually and changing the actuarial assumptions. Taking into account one year's gains or losses without making a change in the assumptions means that year's experience is treated as temporary and that, over the long run, experience will return to what was originally assumed. For example, the actuarial assumptions used in the most recent valuation did not include any possible short-term or long-term impacts on mortality of the covered population that emerged due to COVID-19.[1] Changing assumptions reflects a basic change in thinking about the future, and has a much greater effect on the current contribution requirements than recognizing gains or losses as they occur.

The use of realistic actuarial assumptions is important in maintaining adequate funding, while paying the promised benefit amounts to participants already retired and to those near retirement. The actuarial assumptions used do not determine the "actual cost" of the plan. The actual cost is determined solely by the benefits and administrative expenses paid out, offset by investment income received. However, it is desirable to estimate as closely as possible what the actual cost will be so as to permit an orderly method for setting aside contributions today to provide benefits in the future, and to maintain equity among generations of participants and taxpayers.

This study was undertaken in order to review the economic and demographic actuarial assumptions and to compare the actual experience with that expected under the current assumptions during the three-year experience period from July 1, 2019 through June 30, 2022. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations"[2] and ASOP No. 35 "Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations." These Standards of Practice provide guidance for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation. Based on the study's results and expected future experience, we are recommending various changes in the current actuarial assumptions.

We are recommending changes in the assumptions for inflation, investment return, merit and promotion salary increases, administrative expenses, retirement from active employment, retirement age for deferred vested members, percent married, pre-retirement mortality, post-

[1] An analysis of the ongoing impact of COVID-19 is beyond the scope of the current experience study.
[2] References made later in this report are with respect to the revised ASOP 27 adopted in June 2020.

retirement healthy and disabled life mortality, beneficiary mortality, termination, and disability incidence (non-service connected and service connected).

Our recommendations for the major actuarial assumption categories are as follows:

Pg #	Actuarial Assumption Categories	Recommendation
11	**Inflation:** Future increases in the Consumer Price Index (CPI), which drives investment returns and active member salary increases.	Reduce the inflation assumption from 2.75% to 2.50% per annum as discussed in Section (3)(A).
14	**Retiree Cost of Living Increases:** Future increases in the cost of living adjustment for retirees.	Maintain the current assumption of 2.50% per annum as discussed in Section (3)(A).
15	**Investment Return:** The estimated average future net rate of return on current and future assets of the Association as of the valuation date. This rate is used to discount liabilities.	Reduce the investment return assumption from 7.25% to 7.00% per annum as discussed in Section (3)(B).
25	**Individual Salary Increases:** Increases in the salary of a member between the date of the valuation to the date of separation from active service. This assumption has three components: • Inflationary salary increases • Real "across the board" salary increases • Merit and promotion increases	Reduce the current inflationary salary increase assumption from 2.75% to 2.50% and maintain the current real "across the board" salary increase assumption of 0.50%. This means that the combined inflationary and real "across the board" salary increases will decrease from 3.25% to 3.00%. We recommend adjusting the merit and promotion rates of salary increase as developed in Section (3)(C) to reflect past experience. Overall future merit and promotion salary increases are higher for General and Safety members under the proposed assumptions. The recommended total rates of salary increase anticipate lower increases overall for General members and higher increases overall for Safety members than the current assumptions.
31	**Administrative Expenses:** Fees for administration, legal, accounting, and actuarial services, and other functions carried out by the Association.	Increase the explicit administrative expense load from 0.90% to 0.95% of projected payroll as discussed in Section (3)(D).
32	**Retirement Rates:** The probability of retirement at each age at which participants are eligible to retire. **Other Retirement Related Assumptions including:** • Retirement age for deferred vested members • Future reciprocal members and reciprocal salary increases • Percent married and spousal age differences for members not yet retired	For active members, adjust the current retirement rates to those developed in Section (4)(A). The retirement rate assumptions anticipate later retirements for General members and earlier retirements for Safety members overall. For deferred vested members, decrease the assumed retirement age for non-reciprocal General members from age 57 to age 56, increase the assumed retirement age for reciprocal General members from age 57 to age 60, and decrease the assumed retirement age for Safety members from age 53 to age 51. Maintain the current proportion of future terminated members expected to be covered by a reciprocal system at 45% for General members and 60% for Safety members. For active and deferred vested members, decrease the percent married at retirement assumption from 70% to 65% for males and from 60% to 55% for females. Maintain the spouse age difference assumption that male retirees are three years older than their spouses and maintain the assumption that female retirees are two years younger than their spouses.

Pg #	Actuarial Assumption Categories	Recommendation
44	**Mortality Rates:** The probability of dying at each age. Mortality rates are used to project life expectancies.	**Healthy Retirees:** Current & recommended base table for General Members: Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table with rates unadjusted for males and increased by 15% for females. Current & recommended base table for Safety Members: Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table. **All Beneficiaries:** Current base table: Pub-2010 Contingent Survivor Amount-Weighted Mortality Table with rates increased by 10% for males and females. Recommended base table: Pub-2010 Contingent Survivor Amount-Weighted Mortality Table with rates increased by 10% for males and 5% for females. For the purposes of the actuarial valuations (for funding and financial reporting), when calculating the liability for the continuance to a beneficiary of a surviving member we recommend that the General Healthy Retiree mortality tables be used for beneficiary mortality both before and after the expected death of the General or Safety member. Upon the actual death of the member (i.e., for all beneficiaries in pay status as of the valuation date), we recommend for the purposes of the actuarial valuations that we use the Contingent Survivor mortality tables as stated above. **Pre-Retirement Mortality:** Current & recommended base table for General Members: Pub-2010 General Employee Amount-Weighted Mortality Table. Current & recommended base table for Safety Members: Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table. **Disabled Retirees:** Current & recommended base table for General Members: Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table with rates decreased by 5% for males and females. Current base table for Safety Members: Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table with rates increased by 5% for males and females. Recommended base table for Safety Members: Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table. **All current tables** are projected generationally with the two-dimensional mortality improvement scale MP-2019. **All recommended tables** are projected generationally with the two-dimensional mortality improvement scale MP-2021. This is the most recent projection scale, as an updated projection scale was not published in 2022. **For member contribution rates, optional forms, and reserves:** change the mortality rates to those developed in Section (4)(B).

Pg #	Actuarial Assumption Categories	Recommendation
56	**Termination Rates:** The probability of leaving employment at each age and receiving either a refund of member contributions or a deferred vested retirement benefit.	We recommend adjusting the termination rates to those developed in Section (4)(D) to reflect a higher incidence of termination for General members and Safety members.
63	**Disability Incidence Rates:** The probability of becoming disabled at each age.	We recommend adjusting the disability rates to those developed in Section (4)(E) to reflect a slightly lower incidence of disability overall for General members and a slightly higher incidence of disability overall for Safety members.

We have estimated the impact of all the recommended economic and demographic assumptions as if they were applied to the June 30, 2022 actuarial valuation. The table below shows the changes in the employer and member contribution rates due to the proposed assumption changes separately for the recommended economic assumption changes including the recommended merit and promotion salary increases (as recommended in Section 3 of this report) and the recommended demographic assumption changes (as recommended in Section 4 of this report).

The cost associated with the administrative expense load has continued to be allocated to both the employer and the member based on the components of the total contribution rate (before administrative expenses) for the employer and the member.[1]

Cost Impact of the Recommended Assumptions Based on June 30, 2022 Actuarial Valuation

Assumption	Impact on Average Employer Contribution Rates
Increase due to changes in economic assumptions	3.64%
Decrease due to changes in demographic assumptions	(0.25%)
Total increase in average employer rate	**3.39%**
Total estimated increase in annual dollar amount ($000s)[2]	**$20,653**

Assumption	Impact on Weighted Average Member Contribution Rates
Increase due to changes in economic assumptions	0.34%
Increase due to changes in demographic assumptions	0.02%
Total increase in average member rate	**0.36%**
Total estimated increase in annual dollar amount ($000s)[2]	**$2,226**

[1] The actual allocation of contribution rates for administrative expenses will be determined in each actuarial valuation to reflect the relative proportion of employer and member contributions.

[2] Based on June 30, 2022 projected annual payroll as determined under each set of assumptions.

Assumption	Impact on UAAL[1] ($000s)
Increase due to changes in economic assumptions	$200,832
Decrease due to changes in demographic assumptions	(19,080)
Total increase in UAAL ($000s)	**$181,752**

	Impact on Funded Percentage
Change in Funded Percentage on VVA basis	69.2% to 67.5%

Of the various assumption changes, the most significant rate increase is due to the investment return assumption.

Section 2 provides some background on the basic principles and methodology used for the experience study and for the review of the economic and demographic actuarial assumptions. A detailed discussion of each assumption and reasons for the proposed changes are found in Section 3 for the economic assumptions and Section 4 for the demographic assumptions. The cost impact of the proposed changes is detailed in Section 5.

[1] UAAL stands for the Unfunded Actuarial Accrued Liability, which is the excess, if any, of the Actuarial Accrued Liability over the Valuation Value of Assets.

2. Background and Methodology

In this report, we analyzed both economic and demographic ("non-economic") assumptions. The primary economic assumptions reviewed are inflation, investment return, salary increases, and administrative expenses. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as "decrements," e.g., termination from service, disability retirement, service retirement, and death before and after retirement. In addition to decrements, other demographic assumptions reviewed in this study include the percentage of members electing the unmodified option with an eligible spouse or domestic partner, spousal age difference, percent of members assumed to go on to work for a reciprocal system, and reciprocal salary increase.

Economic Assumptions

Economic assumptions consist of:

- **Inflation:** Increases in the price of goods and services. The inflation assumption reflects the basic return that investors expect from securities markets. It also reflects the expected basic salary increase for active employees and drives increases in the allowances of retired members (if any).
- **Investment Return:** Expected long-term rate of return on the Association's investments after investment expenses. This assumption has a significant impact on contribution rates.
- **Salary Increases:** In addition to inflationary increases, it is assumed that salaries will also grow by real "across the board" pay increases in excess of price inflation. It is also assumed that employees will receive raises above these average increases as they advance in their careers. These are commonly referred to as merit and promotion increases. Payments to amortize any Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase each year by the price inflation rate plus any real "across the board" pay increases that are assumed.
- **Administrative Expenses:** These include expenses incurred in connection with the Plan's operation.

The setting of these economic assumptions is described in Section 3.

Demographic Assumptions

In order to determine the probability of an event occurring, we examine the "decrements" and "exposures" of that event. For example, taking termination from service, we compare the number of employees who actually terminate in a certain age and/or service category (i.e., the number of "decrements") with those who could have terminated (i.e., the number of "exposures"). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them left during the year, we would say the probability of termination in that age group is 50 ÷ 500 or 10%.

The reliability of the resulting probability is highly dependent on both the number of decrements and the number of exposures. For example, if there are only a few people in a high age category at the beginning of the year (number of exposures), we would not lend as much

credibility to the probability of termination developed for that age category, especially if it is out of line with the pattern shown for the other age groups. Similarly, if we are considering the death decrement, there may be a large number of exposures in the age 20-24 category, but very few decrements (actual deaths); therefore, we would not be able to rely heavily on the probability developed for that category.

One reason we use several years of experience for such a study is to have more exposures and decrements, and therefore more statistical reliability. Another reason for using several years of data is to smooth out fluctuations that may occur from one year to the next. However, we also calculate the rates on a year-to-year basis to check for any trend that may be developing in the later years.

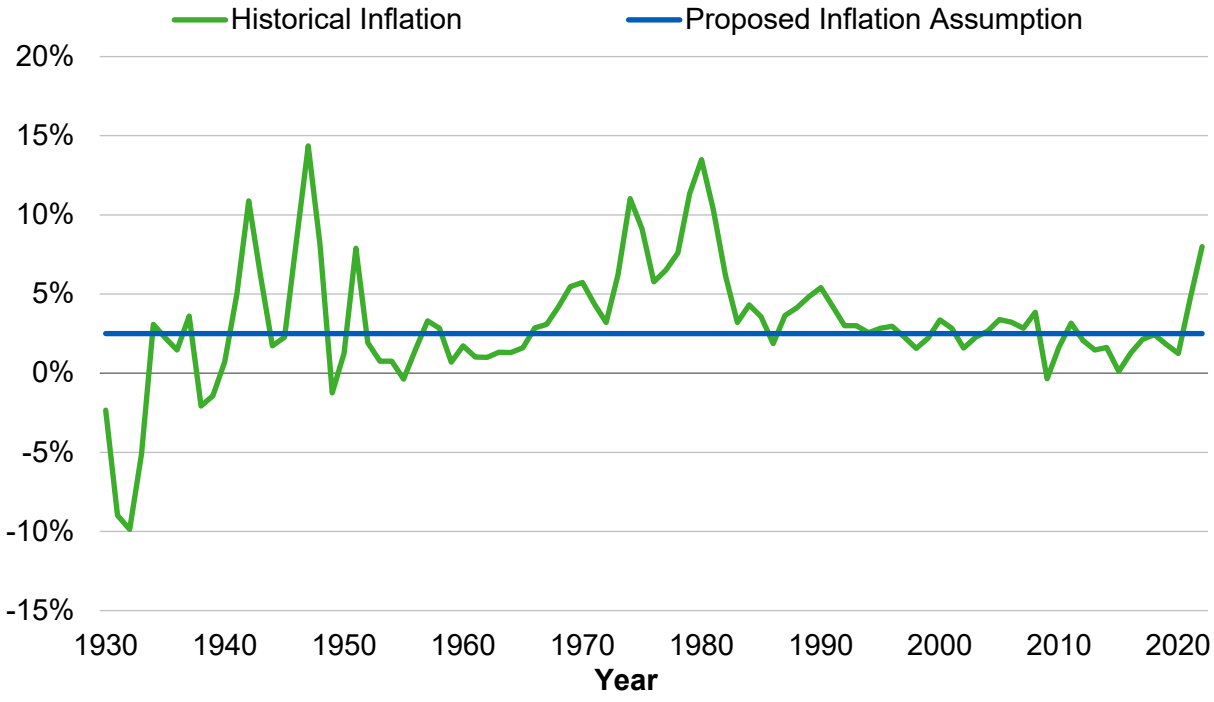
3. Economic Assumptions

A. Inflation

Unless an investment grows at least as fast as prices increase, investors will experience a reduction in the inflation-adjusted value of their investment. There may be times when "riskless" investments return more or less than inflation, but over the long term, investment market forces will generally require an issuer of fixed income securities to maintain a minimum return which protects investors from inflation.

The inflation assumption is long term in nature, so our analysis begins with a review of historical information. Following is a graph showing historical inflation rates and a comparison with the inflation assumption of 2.50% that we recommend in this report:

Historical Consumer Price Index – 1930 to 2022[1]
(U.S. City Average - All Urban Consumers)



There has been a spike in inflation that started in the second quarter of 2021 and continued into 2022. However, the rate of inflation, while still elevated, has been relatively steady since the Federal Reserve began to increase interest rates starting around the second quarter of 2022.

Based on information found in the Public Plans Database, which is produced in partnership with the National System of State Retirement Administrators (NASRA), the median inflation assumption used by 194 large public retirement funds in their 2021 fiscal year valuations was

[1] Source: Bureau of Labor Statistics – Based on annual-to-annual CPI for All Items in U.S. city average, all urban consumers, not seasonally adjusted (Series ID: CUUR0000SA0).

2.50%.[1] In California, CalSTRS and ten[2] 1937 Act CERL systems (including KCERA) currently use an inflation assumption of 2.75%, the other ten 1937 Act CERL systems use an inflation assumption of 2.50%[3] and CalPERS uses an inflation assumption of 2.30%.

KCERA's investment consultant, Verus, anticipates an annual inflation rate of 2.10% over a 30-year horizon,[4] while the average inflation assumption provided by Verus and five other investment advisory firms retained by Segal's California public sector clients, as well as Segal's investment advisory division (Segal Marco Advisors),[5] was 2.43%. Note that, in general, investment consultants use a time horizon for this assumption that is shorter than the time horizon we use for the actuarial valuation.[6]

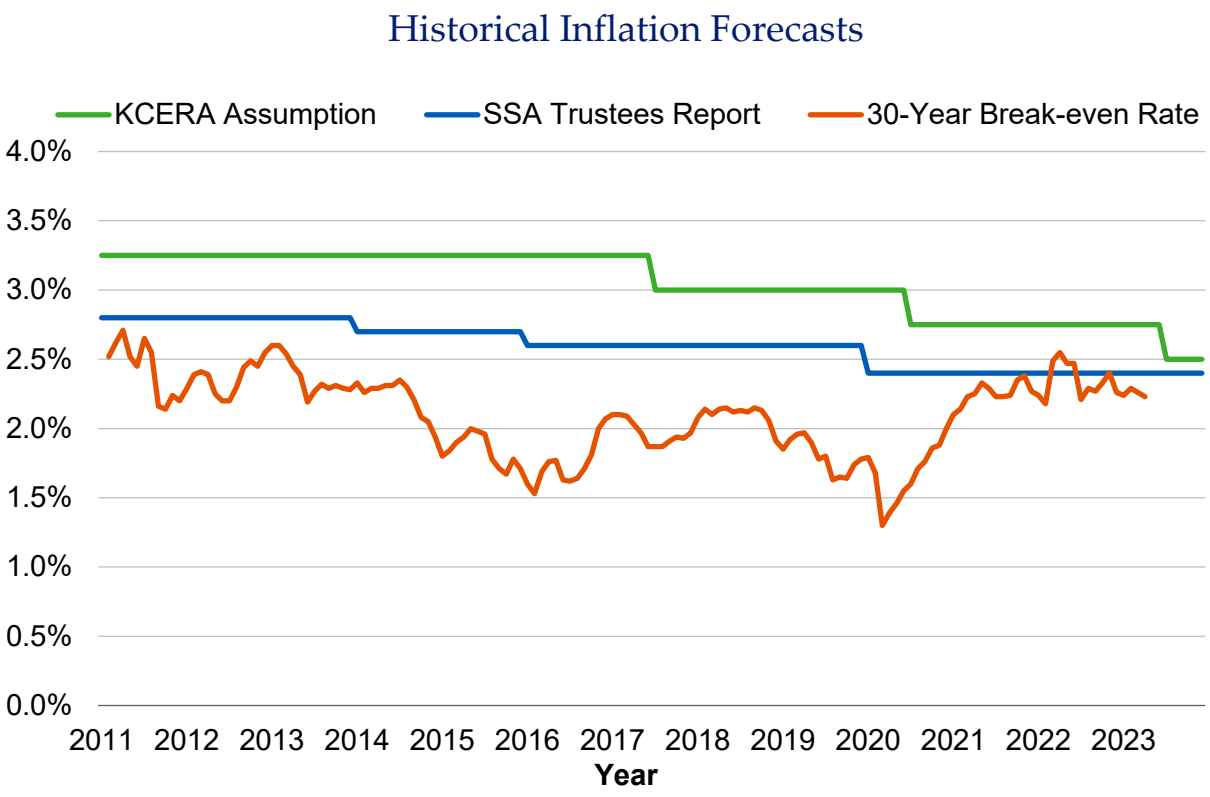
To find a forecast of inflation based on a longer time horizon, we referred to the Social Security Administration's (SSA) 2023 report on the financial status of the Social Security program.[7] The projected average increase in the Consumer Price Index (CPI) over the next 75 years under the intermediate cost assumptions used in that report was 2.40%. The SSA report also includes alternative projections using lower and higher inflation assumptions of 1.80% and 3.00%, respectively.

We also compared the yields on the thirty-year inflation indexed U.S. Treasury bonds to comparable traditional U.S. Treasury bonds.[8] This "break-even rate" is commonly regarded as a market-based gauge of future inflation expectations. As of February 2023, the difference in yields is about 2.29% which provides a measure of market expectations of inflation. This market expectation for long term inflation can be quite volatile and has dropped from the high of 2.55% over the last 12 months, which is illustrated in the table below. It is worth noting that even during the peak of the recent inflation spike this break-even rate exceeded 2.50% in only a single month, April 2022.

[1] Among 219 large public retirement funds, the 2021 fiscal year inflation assumption was not available for 25 of the public retirement funds in the survey data as of March 2023.
[2] We note that out of these ten 1937 Act CERL Systems, five of those are served by Segal and we would generally expect to recommend 2.50% as the inflation assumption in their next experience study. KCERA is included in this count.
[3] Four of these 1937 Act CERL systems use a 2.50% inflation assumption with a 2.75% COLA assumption.
[4] The annual inflation assumption used by Verus is 2.5% over a 10-year horizon.
[5] We note that this is the first time we have included inflation and real rate of return assumptions used by Segal Marco Advisors in our review of economic assumptions for KCERA.
[6] The time horizon used by the six investment consultants included in our review, with the exception of one investment consultant that uses a 1-year horizon, generally ranges from 20 years to 30 years, with Verus using a 30-year horizon.
[7] Source: Social Security Administration: The 2023 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds.
[8] Source: Board of Governors of the Federal Reserve System.

Observation Month	Difference in Yields	Observation Month	Difference in Yields
November 2021	2.38%	August 2022	2.29%
December 2021	2.27%	September 2022	2.27%
January 2022	2.24%	October 2022	2.33%
February 2022	2.18%	November 2022	2.40%
March 2022	2.49%	December 2022	2.26%
April 2022	2.55%	January 2023	2.24%
May 2022	2.47%	February 2023	2.29%
June 2022	2.47%	March 2023	2.26%
July 2022	2.21%	April 2023	2.23%

The following graph shows Segal's historical and proposed inflation assumptions compared to the two other measures just discussed, going back to 2011. In effect, this compares Segal's assumption to two separate independent forecasts, one based on market observations and one developed by economists at the SSA. The graph shows that over this period, Segal's assumption has been higher but consistently moving towards these other forecasts.



The setting of the inflation assumption using the information outlined above is a somewhat subjective process, and Segal does not apply a specific weight to each of the metrics in determining our recommended inflation assumption. Based on a consideration of all of the above metrics, beginning in 2021 we are generally recommending the same 2.50% inflation assumption in our experience studies for our California public retirement system clients.

Based on all of the above information, we recommend reducing the annual inflation assumption from 2.75% to 2.50%.

Retiree Cost of Living Increases

In our last experience study as of June 30, 2019, consistent with the 2.75% annual inflation assumption adopted by the Board, the Board maintained the 2.50% retiree cost-of-living adjustment for all General and Safety tiers.

We recommend that the current retiree cost of living assumption of 2.50% per year be continued in the June 30, 2023 valuation for all tiers.

In developing the COLA assumption, we also considered the results of a stochastic approach that would attempt to account for the possible impact of low inflation that could occur before COLA banks are able to be established for the member. Although the results of this type of analysis might justify the use of a lower COLA assumption, we are not recommending that at this time. The reasons for this conclusion include the following:

- The results of the stochastic modeling are significantly dependent on assuming that lower levels of inflation will persist in the early years of the projections. If this is not assumed, then the stochastic modeling will produce results similar to our proposed COLA assumptions.
- Using lower long-term COLA assumptions based on a stochastic analysis would mean that an actuarial loss would occur even when the inflation assumption of 2.50% is met in a year. We question the reasonableness of this result.

We do not see the stochastic possibility of COLAs averaging less than those predicted by the assumed rate of inflation as a reliable source of cost savings that should be anticipated in our COLA assumptions. Therefore, we continue to recommend setting the COLA assumptions based on the lesser of the provision adopted by the employers to provide an up to 2.50% retiree cost-of-living adjustment or the long-term annual inflation assumption, as we have in prior years.

B. Investment Return

The investment return assumption is comprised of two primary components, inflation and real rate of investment return, with adjustments for expenses and risk.

Real Rate of Investment Return

This component represents the portfolio's incremental investment market returns over inflation. Generally, when an investor takes on greater investment risk, the return on the investment is expected to also be greater, at least in the long run. This additional risk and return is expected to vary by asset class and empirical data supports that expectation. For that reason, the real rate of return assumptions are developed by asset class. Therefore, the real rate of return assumption for a retirement plan's portfolio will vary with the Board's asset allocation among asset classes.

The Association's current target asset allocation and the assumed real rate of return assumptions by asset class are shown in the following table. The first column of real rate of return assumptions are determined by reducing Verus' total or "nominal" 2023 return assumptions by their assumed 2.10% inflation rate. The second column of returns (except for Value Added Real Estate, Midstream, Capital Efficiency Alpha Pool, and Hedge Fund) represents the average of a sample of real rate of return assumptions. The sample includes the expected annual real rate of return provided to us by Verus and five other investment advisory firms retained by Segal's public sector clients, as well as Segal's investment advisory division. We believe these averages are a reasonable consensus forecast of long-term future market returns in excess of inflation.[1]

[1] Note that, just as for the inflation assumption, in general the time horizon used by the investment consultants in determining the real rate of return assumption is shorter than the time horizon encompassed by the actuarial valuation.

KCERA's Target Asset Allocation and Assumed Arithmetic Net Real Rate of Return Assumptions by Asset Class and for the Portfolio

Asset Class	Percentage of Portfolio	Verus' Assumed Net Real Rate of Return[1]	Average Assumed Net Real Rate of Return from a Sample of Consultants to Segal's California Public Sector Clients[2]
Global Equity	37.00%	7.70%	7.05%
Core Fixed Income	14.00%	2.60%	1.97%
High Yield Corporate Credit	6.00%	5.00%	4.63%
Emerging Market Debt (Hard)	2.00%	6.60%	4.72%
Emerging Market Debt (Local)	2.00%	5.60%	4.53%
Commodities	4.00%	4.40%	4.21%
Core Real Estate	5.00%	4.30%	3.86%
Private Equity	5.00%	10.60%	10.27%
Private Credit	5.00%	8.86%	6.97%
Value Added Real Estate	5.00%	6.70%	6.70%[3]
Midstream	5.00%	8.00%	8.00%[3]
Capital Efficiency Alpha Pool	8.00%	3.10%	3.10%[3]
Hedge Fund	10.00%	3.10%	3.10%[3]
Cash	-8.00%	1.20%	0.63%
Total	**100.00%**	**6.32%**	**5.81%**

Generally, the above are representative of "indexed" returns for securities that are publicly traded, returns net of fees for securities that are non-publicly traded and do not include any additional returns ("alpha") from active management. Consideration of returns without alpha is consistent with the Actuarial Standard of Practice No. 27, Section 3.8.3.d, which states:

> "Investment Manager Performance - Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). The actuary should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary has reason to believe, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the long term."

The following are some observations about the returns provided above:

[1] The rates shown have been estimated by Segal by taking Verus' nominal projected arithmetic returns and reducing by Verus' assumed 2.10% inflation rate to develop the assumed real rate of return shown.

[2] These are based on the projected arithmetic returns provided by Verus and five other investment advisory firms serving the county retirement system of KCERA and 16 other city and county retirement systems in California, as well as Segal's investment advisory division. These return assumptions are net of any applicable investment management expenses.

[3] For this asset class, Verus' assumption is applied in lieu of the average because there is a larger disparity in returns for these asset classes among the firms surveyed and using Verus' assumption should more closely reflect the underlying investments made specifically for KCERA.

1. The investment consultants to our California public sector clients, as well as Segal's investment advisory division, have each provided us with their expected real rates of return for each asset class, over various future periods of time. However, in general, the returns available from investment consultants are projected over time periods that are shorter than the durations of a retirement plan's liabilities.
2. As discussed in the next section, the real rates of return provided this year by the investment consultants reflect a change in how investment expenses are reported.
3. Using a sample average of expected net real rates of return allows the Association's investment return assumption to reflect a broader range of capital market information and should help reduce year to year volatility in the investment return assumption.
4. Therefore, we recommend that the 5.81% portfolio net real rate of return be used to determine KCERA's investment return assumption, but with some caution. This return is 0.56% higher than the 5.25% gross return that was used three years ago in the review of the recommended investment return assumption for the June 30, 2020 valuation even before we consider the approximately 0.35% in investment management expense that, as discussed in the next section, will no longer be subtracted from the 5.81% gross return.
5. The 0.56% increase in the portfolio net real rate of return since the 2020 return is due to changes in the real rate of return assumptions provided to us by the investment advisory firms (+0.49% under the 2020 asset allocation), changes in KCERA's target asset allocation (+0.07%) and the interaction effect between these changes (+0.00%). We believe the increase in the real rates of return may be due to the very low returns earned in the 2021-2022 plan year, as well as the increase in the federal funds rate during 2022, and so should be used with caution in selecting a long-term investment return assumption.

Investment Expenses

For funding purposes, the real rate of return assumption for the portfolio needs to be adjusted for investment expenses expected to be paid from investment income. In the prior experience studies, we had adjusted the gross real rate of return developed using the target asset allocation by the investment expenses expected to be paid by KCERA.

However, as prevailing practice by investment advisory firms is to provide us with the real rates of return net of expected investment expenses, especially for active portfolio management, we now need to make adjustments only for investment consulting fees, custodian fees and other miscellaneous investment expenses. The following table provides these investment expenses in relation to the actuarial value of assets as of the beginning of the year, for the six-year period ending June 30, 2022.

Investment Expenses as a Percentage of Actuarial Value of Assets
(Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets[1]	Investment Expenses[2]	Investment %
2017	$3,806,917	$1,330	0.03%
2018	4,037,302	1,791	0.04
2019	4,291,195	1,329	0.03
Three-Year Average (2017-2019)			**0.04**
2020	4,418,118	1,869	0.04
2021	4,635,030	2,667	0.06
2022	4,988,449	2,194	0.04
Three-Year Average (2020-2022)			**0.05**
Six-Year Average			**0.04**
Current Assumption (including investment management fees)			**0.40**
Proposed Assumption (excluding investment management fees)			**0.05**

Based on the above experience, we recommend reducing the investment expense component of the investment return assumption from 0.40% to 0.05%.

Note related to investment expenses paid to active managers – As cited above, under Section 3.8.3.d of ASOP No. 27, the effect of an active investment management strategy should be considered "net of investment expenses…unless the actuary believes, based on relevant data, that such superior or inferior returns represent a reasonable expectation over the measurement period."

We have not performed a detailed analysis to measure how much of the investment expenses paid to active managers might have been offset by additional returns ("alpha") earned by that active management. For this study, we will continue to use the current approach that any "alpha" that may be identified would be treated as an increase in the risk adjustment and corresponding confidence level that are discussed in the next section. However, as discussed above, the real return assumptions provided by the investment advisory firms assume that active management will generate additional returns to cover the expense of such management, an assumption that is consistent with ASOP No. 27.

Risk Adjustment

The real rate of return assumption for the portfolio is adjusted to reflect the potential risk of shortfalls in the return assumptions. KCERA's asset allocation determines this portfolio risk, since risk levels are driven by the variability of returns for the various asset classes and the correlation of returns among those asset classes. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

[1] As of beginning of plan year.
[2] Equals the sum of investment consulting fees, custodian fees, and miscellaneous investment expenses. Excludes investment manager fees.

The purpose of the risk adjustment (as measured by the corresponding confidence level) is to increase the likelihood of achieving the actuarial investment return assumption in the long term.[1] This is consistent with our experience that retirement plan fiduciaries would generally prefer that returns exceed the assumed rate more often than not.

The 5.81% expected real rate of return developed earlier in this report was based on expected arithmetic average returns. A retirement system using an expected arithmetic average return as the discount rate in a funding valuation is expected on average to have no surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.[2] That is the basis used in Segal's previous experience studies for KCERA.

Beginning with this study, in addition to no longer including an explicit adjustment for investment management fees, we are converting the portfolio's expected arithmetic average return to an expected geometric average return. A retirement system using an expected geometric average return as the discount rate in a funding valuation will, over long periods of time, have an equal likelihood of having a surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.[3]

Under either the arithmetic or geometric model, the confidence level associated with a particular risk adjustment represents a relative likelihood that future investment earnings would equal or exceed the assumed earnings over a 15-year period. The 15-year time horizon represents an approximation of the "duration" of the fund's liabilities, where the duration of a liability represents the sensitivity of that liability to interest rate variations.

For comparison purposes we first consider how the earlier model would look if used in this year's study. Three years ago, the Board adopted an investment return assumption of 7.25%. Under the model used in that experience study, that return implied a risk adjustment of 0.35%, corresponding to a 15-year confidence level of 55%, based on an annual portfolio return standard deviation of 11.0% provided by Verus in 2020.

If we use the same 55% 15-year confidence level from our last study to set this year's risk adjustment and the current annual portfolio return standard deviation of 12.69% provided by Verus, the corresponding risk adjustment would be 0.40%. Together with the other investment return components (including for this comparison updated expected arithmetic average returns and the same expense adjustment as used in the prior study), this would result in an investment return assumption of 7.51%, which is higher than the current assumption of 7.25%.

Based on the general practice of using one-quarter percentage point increments for economic assumptions, we evaluated the effect on the confidence level of other alternative investment return assumptions. We also considered that, as discussed above, the increase in the real rates of return provided by the investment consultants may reflect the very low returns earned in the 2021-2022 plan year, as well as the increase in the federal funds rate during 2022, and so could be overly optimistic when used for selecting a long-term investment return assumption. For that reason, for this comparison value we considered a net investment return assumption of 7.00% which, together with the other investment return components, would produce a risk adjustment of 0.91% which corresponds to a confidence level of 61% under the model and expense

[1] This type of risk adjustment is referred to in the Actuarial Standards of Practice as a "margin for adverse deviation."
[2] The mathematical terminology for this is that the mean (or average) surplus or asset shortfall is expected to be zero.
[3] The mathematical terminology for this is that over time the median surplus or asset shortfall is expected to be zero.

adjustment used in prior studies. We believe this increase in confidence level would be appropriate given the concerns stated. For comparison, the current net investment return assumption of 7.25% would now have a confidence level of 58% under the model and expense adjustment used in prior studies.

As noted above, beginning with this study, in addition to no longer including an explicit adjustment for investment management fees, we are converting the portfolio's expected arithmetic average return to an expected geometric average return. For any given asset portfolio, the expected geometric average return will be less than expected arithmetic average return.[1] The difference depends on the variability of the portfolio as measured by its standard deviation. Based on the annual portfolio return standard deviation of 12.69% provided by Verus, the adjustment to an expected geometric average return reduces the expected return by 0.75%.

Together with the other investment return components (now excluding investment management expenses) and prior to any risk adjustment, this would result in a median expected assumption of 7.51%, which is higher than the current assumption of 7.25%. In applying this model to KCERA for the first time we also considered a net investment return assumption of 7.00% which, together with the other investment return components, would produce a risk adjustment of 0.51% which under the expected geometric average return model corresponds to a confidence level of 56%. For comparison, the current net investment return assumption of 7.25% would have a confidence level of 53% under this model.

Recommended Investment Return Assumption

The following table summarizes the components of the recommended investment return assumption developed in the previous discussion. For comparison purposes, we have also included similar values from the last study as well as the comparison values discussed above that apply the prior year's model to this year's information.

Assumption Component	June 30, 2023 Recommended Value	June 30, 2023 Comparison Values	June 30, 2020 Adopted Value
Inflation	2.50%	2.50%	2.75%
Portfolio Expected Arithmetic Real Rate of Return	5.81%	5.81%	5.25%
Expense Adjustment	(0.05)%	(0.40)%[2]	(0.40)%
Adjustment to Expected Geometric Real Rate of Return	(0.75)%	N/A	N/A
Risk Adjustment	(0.51)%	(0.91)%	(0.35)%
Total	**7.00%**	**7.00%**	**7.25%**
Confidence Level	**56%**	**61%**	**55%**

Based on this analysis, we recommend reducing the investment return assumption from 7.25% to 7.00% per annum.

[1] This is because the expected geometric average return reflects expected median outcomes, while the expected arithmetic average return reflects expected average or mean outcomes. Expected median outcomes are lower than expected average outcomes because they are less affected by the possibility of extraordinary ("outlier") favorable outcomes.

[2] For purposes of these comparison values we have assumed the same investment expenses as in the previous study, which included investment management fees.

The table below shows KCERA's recommended investment return assumption and the corresponding risk adjustment and confidence level compared to the similar values for prior studies.

Historical Investment Return Assumptions, Risk Adjustments and Confidence Levels based on Assumptions Adopted by the Board

Years Ending June 30	Investment Return[1]	Risk Adjustment	Corresponding Confidence Level
2011 - 2013	7.75%	(0.04%)	49%
2014 - 2016	7.50%	0.23%	53%
2017 - 2019	7.25%	0.22%	53%
2020 - 2022	7.25%	0.35%	55%
2023 (Comparison)	7.00%	0.91%	61%
2023 (Recommended)	7.00%	0.51%	56%

As we have discussed in prior experience studies, the risk adjustment model and associated confidence level is most useful as a means for comparing how KCERA has positioned itself relative to risk over periods of time.[2] The use of either a 56% or 61% confidence level should be considered in context with other factors, including:

- As noted above, the confidence level is more of a relative measure than an absolute measure, and so can be reevaluated and reset for future comparisons. This is particularly true when comparing confidence levels developed using different models, as we are doing in this transitional year from one model to another.
- The confidence level is based on the standard deviation of the portfolio that is determined and provided to us by Verus. The standard deviation is a statistical measure of the future volatility of the portfolio and so is itself based on assumptions about future portfolio volatility and can be considered somewhat of a "soft" number.
- We have not taken into account any additional returns ("alpha") that might be earned on active management. This means that if active management generates enough alpha to cover its related expenses, this would increase returns. This aspect of Segal's model is further evaluated below.
- As with any model, the results of the risk adjustment model should be evaluated for reasonableness and consistency. This is discussed in the later section on "Comparison with Other Public Retirement Systems."

Effect of Gain Sharing Provisions

The recommended investment return assumption has been developed without taking into consideration any impact of the 50/50 excess earnings allocation between the retirement and Supplemental Retiree Benefit Reserve (SRBR) asset pools. This is based on our understanding

[1] The investment returns starting in 2014 are gross of administrative expenses.
[2] In particular, it would not be appropriate to use this type of risk adjustment as a measure of determining an investment return rate that is "risk-free."

that Article 5.5 of the Statute, which authorizes the allocation of 50% allocation of excess earnings to the SRBR, does not allow for the use of a different investment return for funding than is used for interest crediting. This would appear in effect to preclude the prefunding of the SRBR through the use of an assumption lower than the market earnings assumption.

ASOP No. 4 "Measuring Pension Obligations and Determining Pension Plan Costs or Contributions" was revised and adopted in December 2013.[1] The revised ASOP states that some plan provisions, including gain sharing provisions, "may create pension obligations that are difficult to appropriately measure using traditional valuation procedures." ASOP No. 4 now mentions that "for such plan provisions, the actuary should consider using alternative valuation procedures, such as stochastic modeling…to reflect the impact of variations in experience from year to year."

Accordingly, we performed stochastic modeling in December 2015 to estimate the impact of the 50% allocation of future excess earnings to the SRBR. The results of our model indicated that the 50/50 allocation of future excess earnings would have about the same impact as an "outflow" (i.e., assets not available to fund the benefits included in this valuation) that would average approximately 0.3% of assets over time. This was done by comparing the future impact on the employer's contribution rate over a 15-year period with and without the 50% allocation of excess earnings to the SRBR.

We recommend that we continue to develop our recommended investment return assumption and the resultant member and employer contribution rates without considering the 50% allocation of excess earnings to the SRBR. In addition, we will continue to disclose in the annual actuarial valuation reports the potential increase in actuarial liabilities and employer contributions by re-measuring the liabilities and contributions under an investment return assumption that is reduced by 0.3% to anticipate the 50% allocation of future excess earnings to the SRBR.

Comparison with Alternative Model used to Review Investment Return Assumption

In previous studies, we have consistently reviewed investment return assumptions based on our model that incorporates expected arithmetic real returns for the different asset classes and for the entire portfolio as one component of that model.[2] The use of "forward looking expected arithmetic returns" is one of the approaches discussed for use in the Selection of Economic Assumptions for measuring Pension Obligations under Actuarial Standards of Practice (ASOP) No. 27.

Besides using forward looking expected arithmetic returns, ASOP No. 27 also discusses setting investment return assumptions using an alternative "forward looking expected geometric returns" approach, which is the model we have used in this study.[3] Even though as noted earlier

[1] ASOP No. 4 was subsequently revised and adopted in December 2021 but those revisions did not impact the reference language which was adopted in 2013.

[2] Again, as discussed earlier in this section, if a retirement system uses the expected arithmetic average return as the discount rate in the funding valuation, that retirement system is expected to have no surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.

[3] As also noted earlier in slightly different terms, if a retirement system uses the expected geometric average return as the discount rate in the funding valuation, that retirement system is expected to have an asset value that generally converges to the median accumulated value as the time horizon lengthens assuming all actuarial assumptions are met in the future.

expected geometric returns are lower than expected arithmetic returns, public retirement systems that have set investment return assumptions using this geometric approach have in practice adopted investment return assumptions that are comparable to those adopted by the Board for KCERA under the arithmetic approach. This is because under the model used by those retirement systems and by Segal in this report, the investment return assumption is not reduced to anticipate future investment management expenses. That is also why the comparison values and recommended values discussed earlier reach the same 7.00% expected return with generally comparable confidence levels.

In the interest of still having an alternative model for comparison, we evaluated the recommended 7.00% assumption based on the expected geometric return for the entire portfolio gross of management investment expenses, but using a fully stochastic approach and a different source for capital market assumptions. Under this alternative model, over a 15-year period, there is a 51% likelihood that future average geometric returns will meet or exceed 7.00%[1] developed using the capital market assumptions compiled by Horizon Actuarial Services based their most recent survey published in August 2022. This 51% likelihood is lower than the corresponding likelihood of 56% that we observed in this comparison during the assumption review in 2020. However, note that some of the investment advisory firms that participated in the 2022 Horizon survey have since raised their capital market assumptions and it is reasonable to expect the 51% likelihood to increase if we were to revise these results using the updated capital market assumptions when the 2023 Horizon survey becomes available.

Comparison with Other Public Retirement Systems

One final test of the recommended investment return assumption is to compare it against those used by other public retirement systems, both in California and nationwide.

We note that an investment return of 7.00% or lower is becoming more common among California public sector retirement systems. In particular, of the twenty 1937 Act CERL systems, seven use a 7.00% investment return assumption, eight use 6.75%, two use 6.50% and one uses 6.25%. The remaining two 1937 Act CERL systems, including KCERA, currently use a 7.25% earnings assumption. Furthermore, CalSTRS currently uses a 7.00% earnings assumption and CalPERS uses a 6.80% earnings assumptions, while the San Jose and San Diego City retirement systems use investment return assumptions of 6.625% and 6.50%, respectively.

The following table compares KCERA's recommended net investment return assumption against those of the 210 large public retirement funds in their 2021 fiscal year valuations based on information found in the Public Plans Database, which is produced in partnership with NASRA:[2]

[1] We performed this stochastic simulation using the capital market assumptions included in the 2022 survey prepared by Horizon Actuarial Services. That simulation was performed using 10,000 trial outcomes of future market returns, using assumptions from 20-year arithmetic returns, standard deviations and correlation matrix that were found in the 2022 survey that included responses from 24 investment advisors.

[2] Among 219 large public retirement funds, the 2021 fiscal year investment return assumption was not available for 9 of the public retirement funds in the Public Plans Database as of March 2023.

		Public Plans Data[1]		
Assumption	**KCERA**	**Low**	**Median**	**High**
Net Investment Return	7.00%	4.25%	7.00%	8.25%

The detailed survey results show that over 80% of the systems have an investment return assumption in the range of 6.75% to 7.50%. Also, over half of the systems have reduced their investment return assumption from 2017 to 2021. State systems outside of California tend to change their economic assumptions less frequently and so may lag behind emerging practices in this area.

In summary, we believe the recommended assumption of 7.00% provides for an appropriate risk margin within the risk adjustment model and is consistent with KCERA's historical practice relative to other public systems.

[1] Public Plans Data website – Produced in partnership with the National System of State Retirement Administrators (NASRA).

C. Salary Increase

Salary increases impact plan costs in two ways: (1) by increasing members' benefits (since benefits are a function of the members' highest average pay) and future normal cost collections; and (2) by increasing total active member payroll which in turn generates lower UAAL contribution rates as a percent of payroll. These two impacts are discussed separately as follows:

As an employee progresses through his or her career, increases in pay are expected to come from three sources:

1. **Inflation:** Unless pay grows at least as fast as consumer prices grow, employees will experience a reduction in their standard of living. There may be times when pay increases lag or exceed inflation, but over the long term, labor market forces may require an employer to maintain its employees' standards of living.

   As discussed earlier in this report, we recommend reducing the annual inflation assumption from 2.75% to 2.50%. This inflation component is used as part of the salary increase assumption.

2. **Real "Across the Board" Pay Increases:** These increases are typically termed productivity increases since they are considered to be derived from the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least some portion of the value of these improvements can provide a source for pay increases. These increases are typically assumed to extend to all employees "across the board". The State and Local Government Workers Employment Cost Index produced by the Department of Labor provides evidence that real "across the board" pay increases have averaged about 0.5% – 0.8% annually during the last ten to twenty years.

   We also referred to the annual report on the financial status of the Social Security program published in June 2022. In that report, real "across the board" pay increases are forecast to be 1.15% per year under the intermediate assumptions.

   The real pay increase assumption is generally considered a more "macroeconomic" assumption that is not necessarily based on individual plan experience. However, recent salary experience with public systems in California as well as anecdotal discussions with plans and plan sponsors indicate lower future real wage growth expectations for public sector employees. We note that for KCERA's active members, the actual average inflation plus "across the board" increase (i.e., wage inflation) over the three-year period ending June 30, 2022 was 1.93%, which is lower than the change in CPI of 4.30% during that same period, largely as a result of the inflation spike discussed above:

Valuation Date	Actual Average Increase[1]	Actual Annual-to-Annual Change in CPI[2]
June 30, 2020	2.51%	1.62%
June 30, 2021	1.77%	3.83%
June 30, 2022	1.51%	7.45%
Three-Year Average	**1.93%**	**4.30%**

[1] Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year. It does not reflect the average salary increases received by members who worked the full year.

[2] Based on the change in the annual average CPI for the Los Angeles-Long Beach-Anaheim Area compared to the prior year.

Even though the actual average salary increase was lower than the average change in the CPI over the 3-year period ending June 30, 2022, this was in part due to the spike in inflation in 2021-2022.

Based on all of the above information, we recommend maintaining the real "across the board" salary increase assumption at 0.50%. This means that the combined inflation and "across the board" salary increase assumption will decrease from 3.25% to 3.00%.

3. **Merit and Promotion Increases:** As the name implies, these increases come from an employee's career advances. This form of pay increase differs from the previous two, since it is specific to the individual. For KCERA, there are service-specific merit and promotion increase assumptions.

   The annual merit and promotion increases are determined by measuring the actual increases received by members over the experience period, net of the inflationary and real "across the board" pay increases. Increases are measured separately for General and Safety members. This is accomplished by:

   a. Measuring each continuing member's actual salary increase over each year of the experience period on a salary-weighted basis, with higher weights assigned to experience from members with larger salaries;
   b. Excluding any members with increases of more than 50% or decreases of more than 25% during any particular year;
   c. Categorizing these increases according to member demographics;
   d. Removing the wage inflation component from these increases (assumed to be equal to the increase in the members' average salary during the year);
   e. Averaging these annual increases over the experience period; and
   f. Modifying current assumptions to reflect some portion of these measured increases reflective of their "credibility."

   To be consistent with the other economic assumptions, these merit and promotion assumptions should be used in combination with the total 3.00% assumed inflation and real "across the board" increases recommended in this study.

   Due to the high variability of the actual salary increases, we have analyzed this assumption using data for the past six years. We believe that when the experience from the current and prior studies is combined, it provides a more reasonable representation of potential future merit and promotion salary increases over the long term.

The following table shows the General members' actual average merit and promotion increases by years of service over the current three-year period from July 1, 2019 through June 30, 2022, along with the average increases over the six-year period from July 1, 2016 through June 30, 2022 (combining the current three-year period with the three-year period from the prior experience study). The current and proposed assumptions are also shown. The actual increases were reduced by the actual average inflation plus "across the board" increase (i.e., wage inflation, estimated as the increase in average salaries) for each year during the experience period (2.01% on average for the current three-year period, 0.90% on average for the prior three-year period).

General

Rate (%)

Years of Service	Current Assumption	Actual Average Increase from Current Study (Last 3 Years)	Actual Average Increase from Current and Prior Studies (Last 6 Years)	Proposed Assumption
Less than 1	5.50	3.26	4.16	5.00
1 – 2	4.50	5.41	6.01	5.25
2 – 3	4.00	4.92	5.67	4.50
3 – 4	3.50	4.41	4.94	4.00
4 – 5	3.00	3.38	3.87	3.25
5 – 6	2.50	2.97	3.42	2.75
6 – 7	2.25	2.63	2.79	2.25
7 – 8	1.75	2.11	2.45	2.00
8 – 9	1.50	1.80	2.01	1.75
9 – 10	1.25	2.50	2.61	1.50
10 – 11	1.15	2.22	2.35	1.25
11 – 12	1.05	1.07	1.53	1.15
12 – 13	0.95	1.13	1.48	1.05
13 – 14	0.85	0.85	1.13	1.00
14 – 15	0.75	1.42	1.86	0.90
15 – 16	0.75	1.85	2.07	0.80
16 – 17	0.75	0.89	0.99	0.70
17 – 18	0.75	0.30	0.81	0.70
18 – 19	0.75	0.15	0.71	0.70
19 – 20	0.75	0.97	1.14	0.70
20 & Over	0.75	0.58	0.86	0.70

Based on this experience, overall we recommend increasing the merit and promotion salary increase assumptions for General members. The overall salary increase assumptions will decrease for General members after taking into account the lower inflation component of the salary increase assumption.

Chart 1 that follows later in the section compares the actual merit and promotion increase experience with the current and proposed assumptions for General members.

The following table shows the Safety members' actual average merit and promotion increases by years of service over the current three-year period from July 1, 2019 through June 30, 2022, along with the average increases over the six-year period from July 1, 2016 through June 30, 2022 (combining the current three-year period with the three-year period from the prior experience study). The current and proposed assumptions are also shown. The actual increases were reduced by the actual average inflation plus "across the board" increase (i.e., wage inflation, estimated as the increase in average salaries) for each year during the experience period (1.82% on average for the current three-year period, 0.48% on average for the prior three-year period).

Safety
Rate (%)

Years of Service	Current Assumption	Actual Average Increase from Current Study (Last 3 Years)	Actual Average Increase from Current and Prior Studies (Last 6 Years)	Proposed Assumption
Less than 1	8.75	6.57	6.78	7.00
1 – 2	7.00	9.25	8.28	8.00
2 – 3	5.50	7.73	6.56	6.00
3 – 4	5.00	6.33	5.86	5.50
4 – 5	4.50	6.41	5.63	5.00
5 – 6	4.00	3.82	4.24	4.00
6 – 7	3.50	3.25	3.62	3.50
7 – 8	2.50	3.80	3.33	3.00
8 – 9	1.50	3.53	2.41	2.00
9 – 10	1.25	3.68	2.62	1.75
10 – 11	1.00	0.83	0.88	1.25
11 – 12	0.80	1.58	1.15	1.25
12 – 13	0.75	1.52	1.19	1.25
13 – 14	0.70	1.79	1.11	1.25
14 – 15	0.65	1.39	0.97	1.25
15 – 16	0.60	1.66	1.28	1.00
16 – 17	0.55	0.74	0.73	1.00
17 – 18	0.50	0.97	0.94	1.00
18 – 19	0.50	0.88	0.66	1.00
19 – 20	0.50	1.77	1.37	1.00
20 & Over	0.50	1.91	1.30	1.00

Based on this experience, overall we recommend increasing the merit and promotion salary increase assumptions for Safety members. The overall salary increase assumptions will increase for Safety members after taking into account the lower inflation component of the salary increase assumption.

Chart 2 compares the actual merit and promotion increase experience with the current and proposed assumptions for Safety members.

Active Member Payroll

Projected active member payrolls are used to develop the UAAL contribution rate. Future values are determined as a product of the number of employees in the workforce and the average pay for all employees. The average pay for all employees increases only by inflation and real "across the board" pay increases. The merit and promotion increases are not an influence, because this average pay is not specific to an individual.

Under the Board's current practice, the UAAL contribution rate is developed by assuming that the total payroll for all active members will increase annually over the amortization periods at the same assumed rates of inflation plus real "across the board" salary increase assumptions as are used to project the members' future benefits.

Consistent with the combined recommended inflation and real "across the board" salary increase assumptions, we recommend reducing the payroll growth assumption from 3.25% to 3.00% annually.

Chart 1: Merit and Promotion Salary Increase Rates
General Members

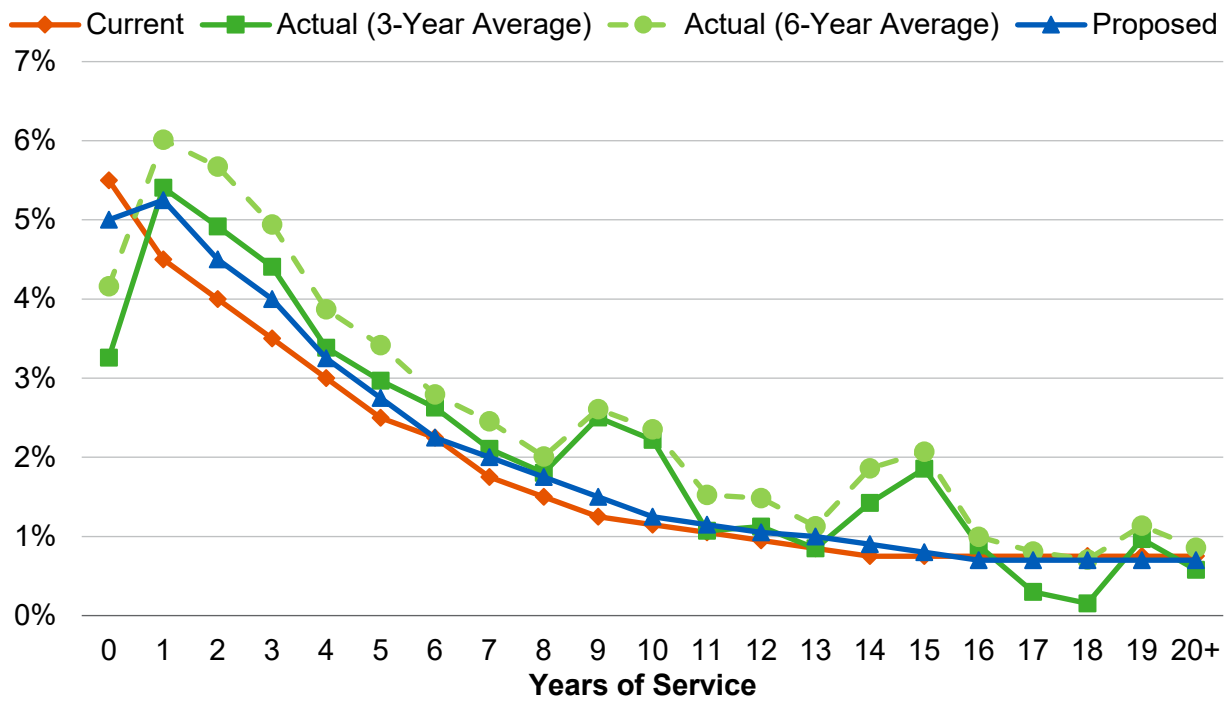
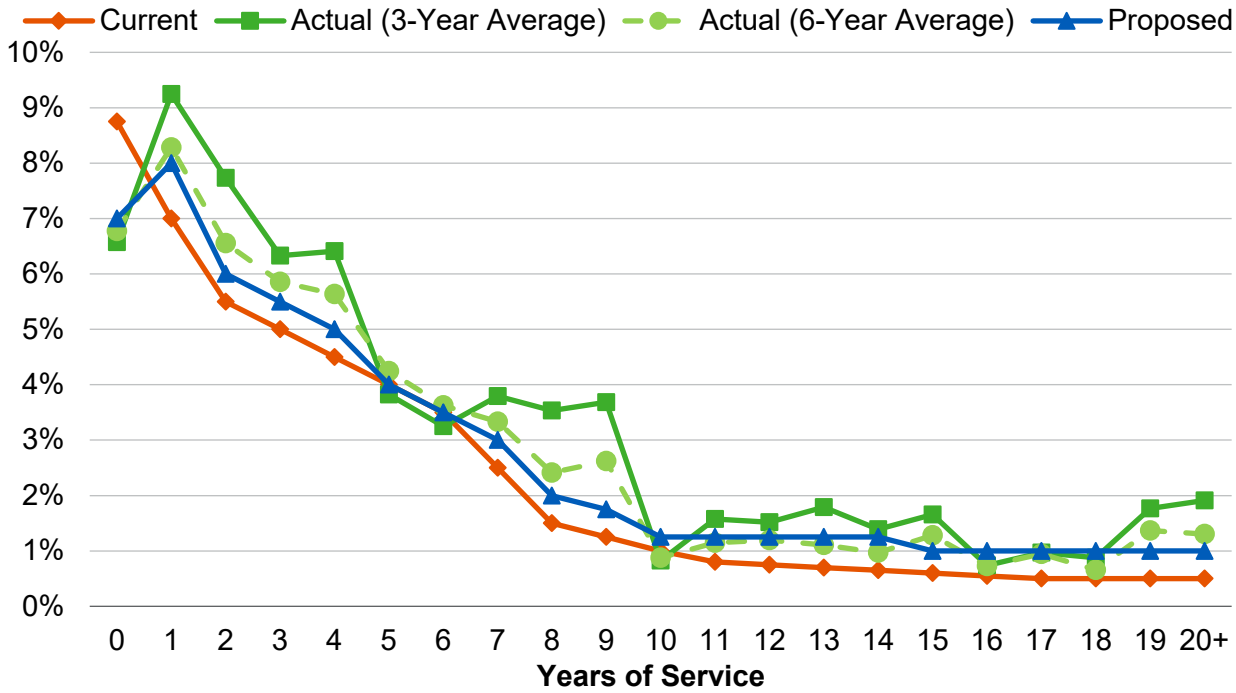


Chart 2: Merit and Promotion Salary Increase Rates
Safety Members



D. Administrative Expenses

Like benefit payments made to members, expenses incurred in connection with the plan's operation are paid from KCERA's assets. These expenses include fees for administrative, legal, accounting, and actuarial services, as well as routine costs for printing, mailings, computer-related activities, and other functions carried out by the plan. They do not include investment-related expenses.

In order to reflect future administrative expenses in the contribution rates, the total assumed administrative expense load is allocated to both the employer and the member based on contribution rates (before expenses) for the employer and the member in each actuarial valuation.

The following table shows actual administrative expenses as a percent of payroll.

Administrative Expenses as a Percentage of Projected Payroll
(Dollars in 000's)

Year Ending June 30	Projected Payroll	Administrative Expenses	Administrative %
2017	$546,671	$5,243	0.96%
2018	576,729	5,116	0.89
2019	579,072	4,804	0.83
Three-Year Average (2017-2019)			**0.89**
2020	607,695	5,523	0.91
2021	604,320	6,061	1.00
2022	612,609	6,702	1.09
Three-Year Average (2020-2022)			**1.00**
Six-Year Average			**0.95**
Current Assumption			**0.90**
Proposed Assumption			**0.95**

Based on this experience, we recommend increasing the current administrative expense assumption from 0.90% to 0.95% of projected payroll.

This expense will be allocated to the employer and member based on the total average contribution rates in the upcoming June 30, 2023 actuarial valuation, as determined before including the administrative expenses. The allocation of the total administrative expenses between employer and member is subject to change with each actuarial valuation.

4. Demographic Assumptions

A. Retirement Rates

The age at which a member retires from service (i.e., who did not retire on a disability pension) will affect both the amount of the benefits that will be paid to that member as well as the period over which funding must take place.

The following table shows the observed service retirement rates for General Tier I members based on the actual experience over the past three years, separately for those with less than 25 years of service and more than 25 years of service. The actual service retirement rates were determined by comparing those members who actually retired from service to those eligible to retire from service. This same methodology is followed throughout this report and was described in Section 2. Also shown are the current assumed rates and the rates we propose.

General Tier I

Rate of Retirement (%)

Age	Less than 25 Years of Service			25 or More Years of Service		
	Current Rate	Actual Rate	Proposed Rate	Current Rate	Actual Rate	Proposed Rate
50	10.00	9.03	10.00	10.00	21.21	10.00
51	6.00	6.36	6.00	6.00	4.00	6.00
52	6.00	4.55	6.00	12.00	9.84	10.00
53	6.00	4.69	5.00	12.00	12.70	12.00
54	6.00	4.42	5.00	12.00	20.97	12.00
55	6.00	3.91	5.00	12.00	15.94	12.00
56	6.00	6.53	6.00	14.00	20.00	14.00
57	6.00	3.06	5.00	16.00	16.48	16.00
58	9.00	9.95	9.00	18.00	23.08	20.00
59	16.00	9.64	14.00	24.00	25.24	24.00
60	20.00	20.75	20.00	35.00	25.00	30.00
61	16.00	14.17	14.00	28.00	23.64	24.00
62	20.00	27.18	20.00	35.00	15.22	30.00
63	20.00	14.43	20.00	30.00	38.71	30.00
64	20.00	22.99	20.00	30.00	11.11	30.00
65	35.00	30.38	33.00	35.00	31.58	33.00
66	35.00	31.48	33.00	35.00	43.75	33.00
67	35.00	30.00	30.00	35.00	33.33	30.00
68	35.00	25.93	30.00	35.00	30.77	30.00
69	40.00	15.00	35.00	40.00	0.00	35.00
70 & Over	100.00	28.89	100.00	100.00	14.29	100.00

Based on this experience, we recommend decreasing the retirement rate assumption at certain ages while increasing the retirement rate assumption at other ages. Overall, the proposed rates represent a decrease from the current rates for General Tier I members.

Chart 3 that follows later in this section compares actual to expected retirements over the past three years for both the current and proposed assumptions for all General and Safety Tier I members.

Chart 4 compares the actual retirement experience with the current and proposed assumptions for General Tier I members with less than 25 years of service.

Chart 5 compares the actual retirement experience with the current and proposed assumptions for General Tier I members with 25 or more years of service.

The following table shows the observed service retirement rates for Safety Tier I members based on the actual experience over the past three years, separately for those with less than 25 years of service and more than 25 years of service.

Safety Tier I

Rate of Retirement (%)

Age	Less than 25 Years of Service			25 or More Years of Service		
	Current Rate	Actual Rate	Proposed Rate	Current Rate	Actual Rate	Proposed Rate
41	0.00	5.56	5.00	0.00	N/A	5.00
42	0.00	10.00	5.00	0.00	N/A	5.00
43	0.00	10.00	5.00	0.00	N/A	5.00
44	0.00	3.70	5.00	0.00	N/A	5.00
45	5.00	4.48	5.00	5.00	0.00	5.00
46	5.00	8.11	5.00	5.00	33.33	5.00
47	5.00	10.29	8.00	5.00	16.67	8.00
48	5.00	11.67	8.00	5.00	0.00	8.00
49	25.00	19.12	22.00	25.00	37.50	36.00
50	10.00	24.00	16.00	30.00	36.84	36.00
51	8.00	15.58	10.00	24.00	38.46	30.00
52	8.00	12.50	10.00	24.00	45.45	30.00
53	8.00	13.33	10.00	24.00	25.00	30.00
54	12.00	13.89	12.00	24.00	30.00	28.00
55	14.00	12.00	14.00	28.00	46.15	28.00
56	14.00	15.00	14.00	28.00	45.45	28.00
57	8.00	20.00	14.00	28.00	54.55	28.00
58	8.00	20.00	14.00	28.00	12.50	28.00
59	14.00	12.50	14.00	28.00	42.86	28.00
60	25.00	37.50	30.00	28.00	50.00	60.00
61	25.00	25.00	30.00	50.00	28.57	60.00
62	25.00	50.00	30.00	50.00	50.00	60.00
63	25.00	25.00	30.00	50.00	33.33	60.00
64	25.00	50.00	30.00	50.00	60.00	60.00
65 & Over	100.00	29.41	100.00	100.00	20.00	100.00

Based on this experience, we recommend increasing the retirement rate assumption at certain ages while decreasing the retirement rate assumption at other ages. Overall, the proposed rates represent an increase from the current rates for Safety Tier I members.

Chart 6 compares the actual retirement experience with the current and proposed assumptions for Safety Tier I members with less than 25 years of service.

Chart 7 compares the actual retirement experience with the current and proposed assumptions for Safety Tier I members with 25 or more years of service.

The following table shows the observed service retirement rates for General Tier II members based on the actual experience over the past three years. Also shown are the current assumed rates and the rates we propose.

General Tier IIA and IIB

Rate of Retirement (%)

Age	Current Rate	Actual Rate	Proposed Rate
50	5.00	4.76	5.00
51	3.00	6.25	3.00
52	3.00	6.25	3.00
53	3.00	0.00	3.00
54	3.50	6.06	3.25
55	4.00	0.00	3.50
56	4.50	8.00	4.00
57	5.00	0.00	4.50
58	6.50	12.00	6.50
59	11.00	7.14	11.00
60	12.00	4.55	12.00
61	13.00	13.79	13.00
62	20.00	20.00	20.00
63	20.00	9.09	20.00
64	20.00	46.67	20.00
65	35.00	33.33	33.00
66	35.00	28.57	33.00
67	35.00	14.29	30.00
68	35.00	16.67	30.00
69	40.00	28.57	35.00
70 & Over	100.00	6.90	100.00

Based on this experience, we recommend decreasing the retirement rate assumption at certain ages. Overall, the proposed rates represent a decrease from the current rates for General Tier II members.

Chart 8 compares the actual retirement experience with the current and proposed assumptions for General Tier II members

The following table shows the current assumed service retirement rates and the rates we propose for General Tier III and Safety Tier II members. There were no active retirements from General Tier III and few retirements from Safety Tier II over the past three years, so no actual rates are shown. We have based our recommended rates for General Tier III and Safety Tier II on a combination of the current assumptions for those tiers and the actual retirement experience that occurred for General Tier I, General Tier II, and Safety Tier I members.

General Tier III and Safety Tier II

Rate of Retirement (%)

Age	Current General Tier III Rate	Proposed General Tier III Rate	Current Safety Tier II Rate	Proposed Safety Tier II Rate
50	0.00	0.00	3.00	5.00
51	0.00	0.00	3.00	3.00
52	3.00	3.00	3.00	3.00
53	3.00	3.00	5.00	5.00
54	3.50	3.25	11.00	11.00
55	4.00	3.50	13.00	13.00
56	4.50	4.00	12.00	12.00
57	5.00	4.50	12.00	12.00
58	6.50	6.50	12.00	12.00
59	11.00	11.00	12.00	12.00
60	12.00	12.00	12.00	15.00
61	13.00	13.00	12.00	15.00
62	20.00	20.00	25.00	30.00
63	20.00	20.00	25.00	30.00
64	20.00	20.00	25.00	30.00
65	35.00	33.00	100.00	100.00
66	35.00	33.00	100.00	100.00
67	35.00	30.00	100.00	100.00
68	35.00	30.00	100.00	100.00
69	40.00	35.00	100.00	100.00
70 & Over	100.00	100.00	100.00	100.00

Due to the limited actual experience, we recommend changing the retirement rate assumption consistent with the changes made for General Tier II members and Safety Tier I members with less than 25 years of service. Overall, the proposed rates represent a slight decrease from the current rates for General Tier III members and a slight increase from the current rates for Safety Tier II members.

Chart 9 shows the current and proposed assumptions for General Tier III members.

Chart 10 shows the current and proposed assumptions for Safety Tier II members.

Deferred Vested Members

Under the current assumptions, deferred vested General members are assumed to retire at age 57 and Safety members are assumed to retire at age 53.

The following table shows the observed deferred vested retirement age for General non-reciprocal, General reciprocal, and Safety members based on the actual experience over the past three years. Based on the limited data on Safety deferred vested retirements over the past three years, there was not a significant difference between the actual retirement ages for reciprocal and non-reciprocal deferred vested members, so we have continued to combine the experience for these groups.[1] Also shown are the current assumed retirement ages and the retirement ages we propose.

Deferred Vested Retirement Age

	General Non-Reciprocal Members	General Reciprocal Members	Safety Members
Current Assumption	57.0	57.0	53.0
Actual Average Age	55.7	60.2	50.0
Proposed Assumption	**56.0**	**60.0**	**51.0**

Based on this experience, we recommend decreasing the deferred vested retirement age assumption for General non-reciprocal members from age 57 to 56, increasing the deferred vested retirement age for General reciprocal members from age 57 to 60, and decreasing the deferred vested retirement age for Safety members from age 53 to age 51.

Reciprocity

Under current assumptions, it is assumed that 45% of General and 60% of Safety future deferred vested members will be covered under a reciprocal retirement system. As of June 30, 2022, about 40% of the total General deferred vested members and 56% of the total Safety deferred vested members went on to be covered by a reciprocal retirement system. The actual reciprocal percentages shown above are as of June 30, 2022 instead of an average over three years.

Based on this experience, we recommend maintaining the future reciprocal assumption for General members at 45% and maintaining the future reciprocal assumption for Safety members at 60%. This recommendation takes into account the experience of all deferred vested members as of June 30, 2022 instead of just new deferred vested members during the three-year period. This is because there is a lag between a member's date of termination and the time that it is known if they have reciprocity with a reciprocal retirement system.

[1] For Safety, the difference in the average retirement age for reciprocal and non-reciprocal members was about 0.98 years. We will continue to monitor the retirement ages for Safety reciprocal and non-reciprocal deferred vesteds in future experience studies.

Survivor Continuance Under the Unmodified Option

In prior valuations, it was assumed that all members would select the unmodified option at retirement. Actual experience for recent new retirees shows that around 86% select the unmodified option. **Therefore, we recommend maintaining the assumption that all members will elect the unmodified option at retirement.**

Under current assumptions, it is assumed that 70% of all active and inactive male members and 60% of all active and inactive female members would be married or have an eligible domestic partner at the time of their retirement or pre-retirement death. We reviewed experience for new retirees during the three-year period and determined the actual percentage of these new retirees electing the unmodified option that had an eligible spouse or eligible domestic partner at the time of retirement. The results of that analysis are shown below.

New Retirees – Actual Percent Electing the Unmodified Option with Eligible Spouse or Domestic Partner

Year Ending June 30	Male	Female
2020	61%	55%
2021	68%	57%
2022	66%	57%
Total	**65%**	**56%**

According to experience of members who retired during the last three years, about 65% of all male members and 56% of all female members who selected the unmodified option were married or had a domestic partner at retirement

Based on this experience, we recommend decreasing the percent married assumption for male members from 70% to 65%, and decreasing the percent married assumption for female members from 60% to 55%.

Since the present value of the survivor's automatic continuance benefit is dependent on the survivor's age and sex, we must also have assumptions for the age and sex of the survivor. Based on the experience for members who retired during the most recent three-year period (results shown in the table below) and studies done for other retirement systems, **we recommend the following:**

1. Since most of the actual survivors are of the opposite sex, even with the inclusion of domestic partners, **we will continue to assume that all active and inactive members have a survivor of the opposite sex.**
2. **Based on the experience over three years, we recommend maintaining the spouse age difference assumption that male retirees are three years older than their spouses and maintaining the spouse age difference assumption that female retirees are two years younger than their spouses.** These assumptions will continue to be monitored in future experience studies.

Member's Age as Compared to Spouse's Age

	Male Retiree	Female Retiree
Current Assumption	3 years older	2 years younger
Actual Experience	1.6 years older[1]	1.7 years younger
Proposed Assumption	**3 years older**	**2 years younger**

[1] In the prior three-year period, new male retirees were 3.3 years older than their spouses.

Chart 3: Actual Number of Retirements Compared to Expected for General and Safety Tier I (July 1, 2019 through June 30, 2022)

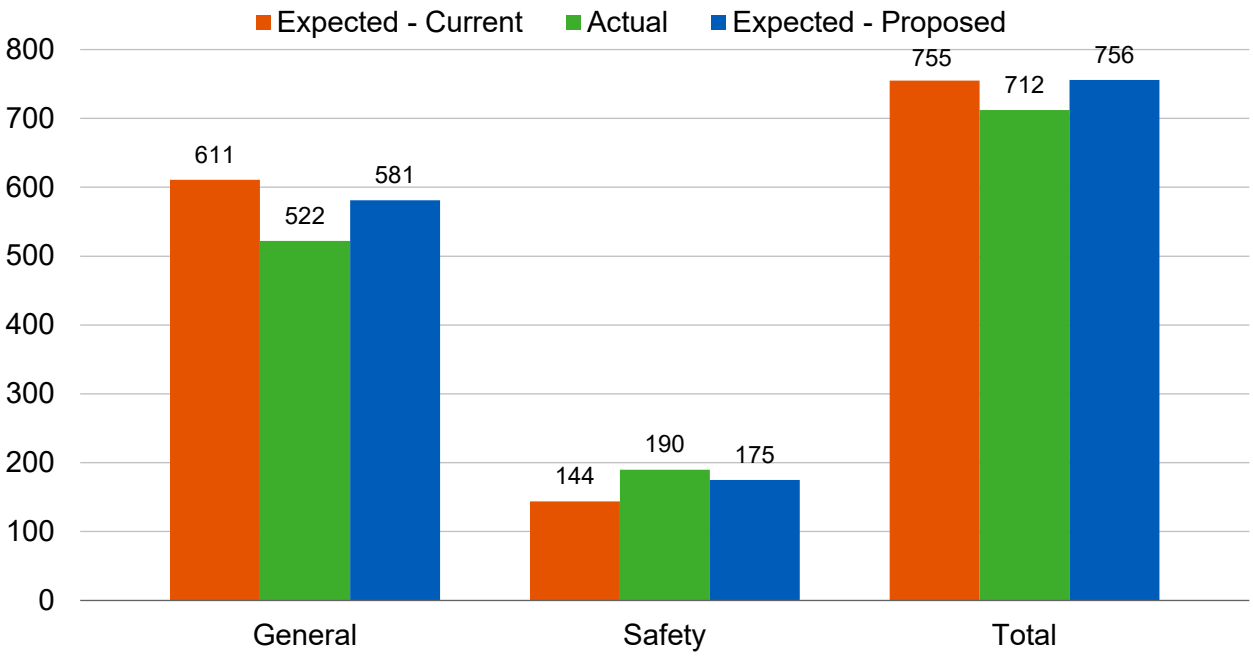


Chart 4: Retirement Rates General Tier I Members with Less than 25 Years of Service

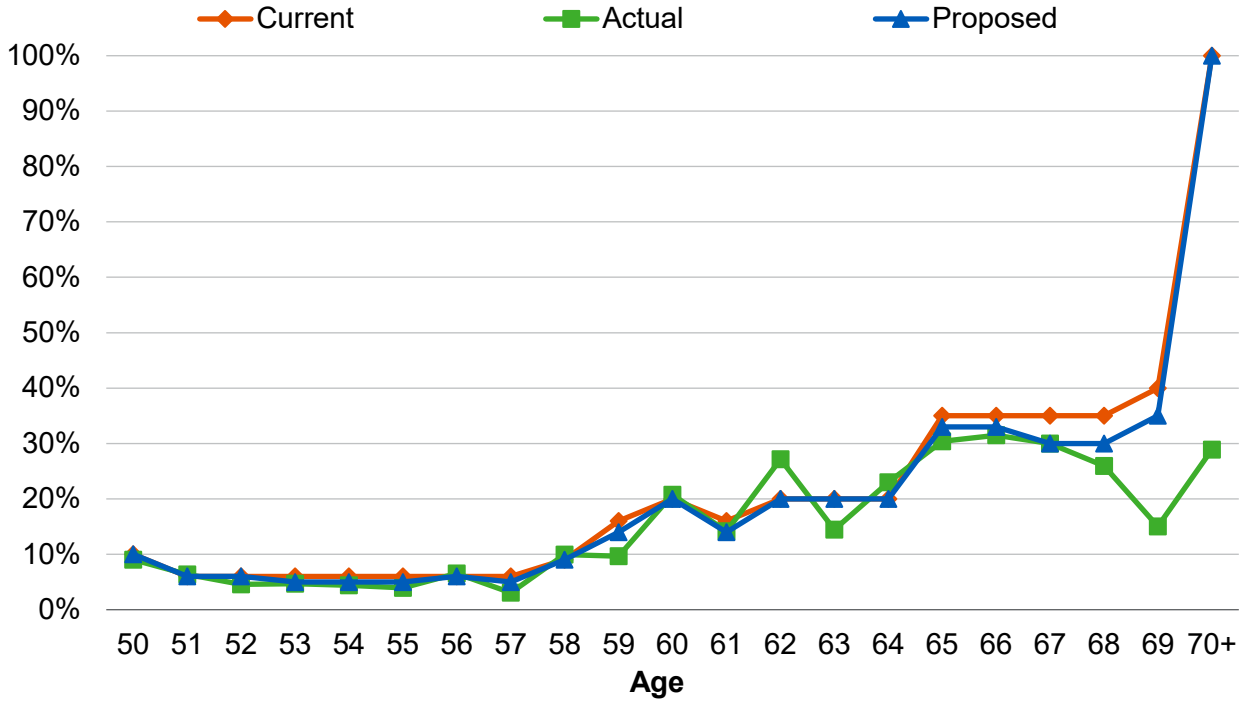


Chart 5: Retirement Rates
General Tier I Members with 25 or More Years of Service

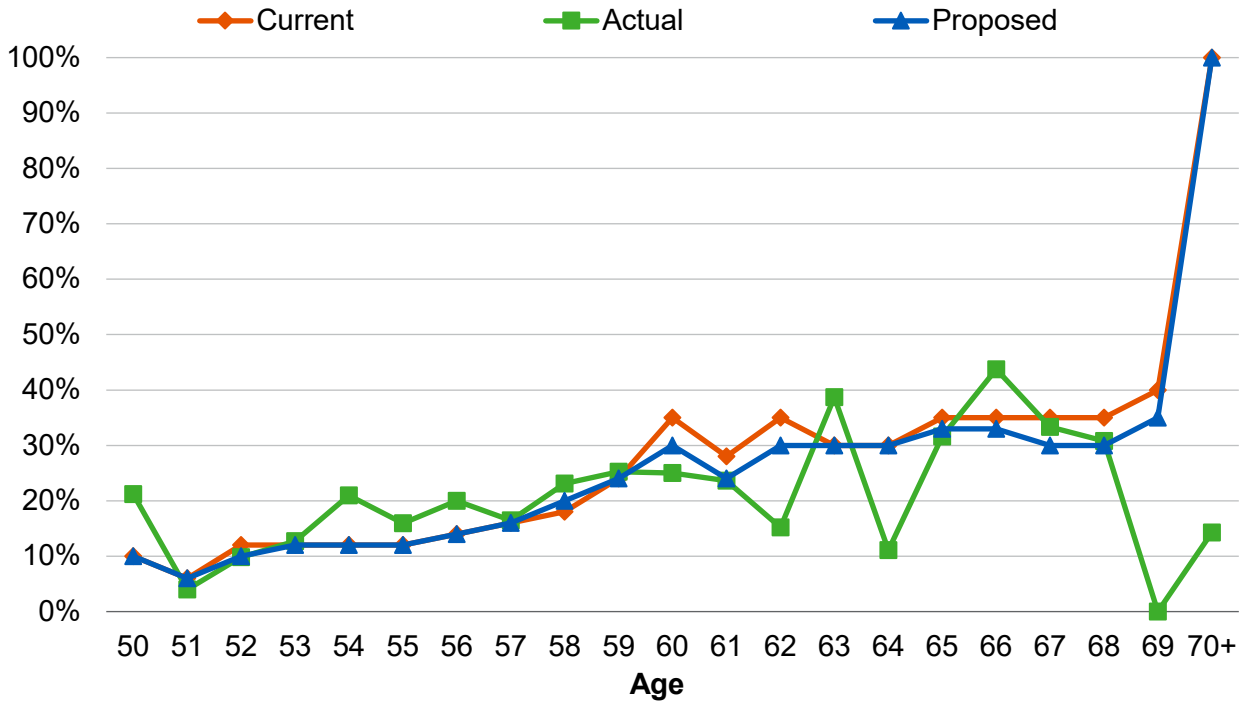


Chart 6: Retirement Rates
Safety Tier I Members with Less than 25 Years of Service

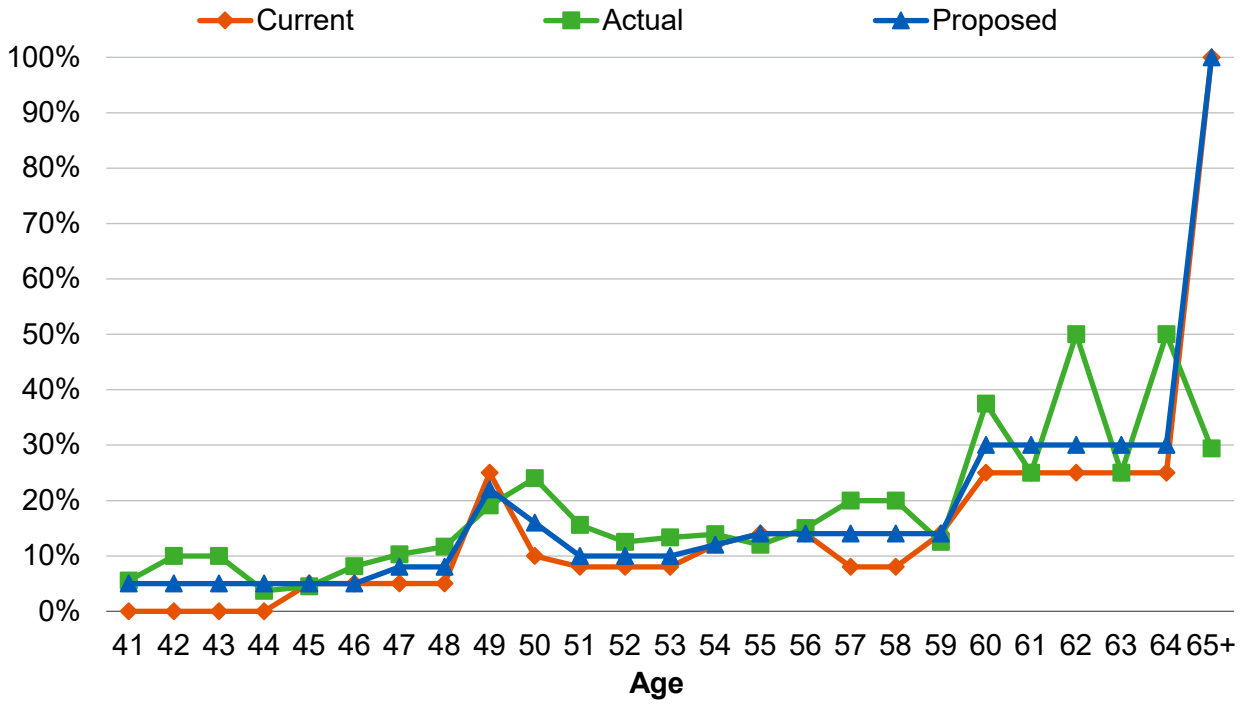


Chart 7: Retirement Rates
Safety Tier I Members with 25 or More Years of Service

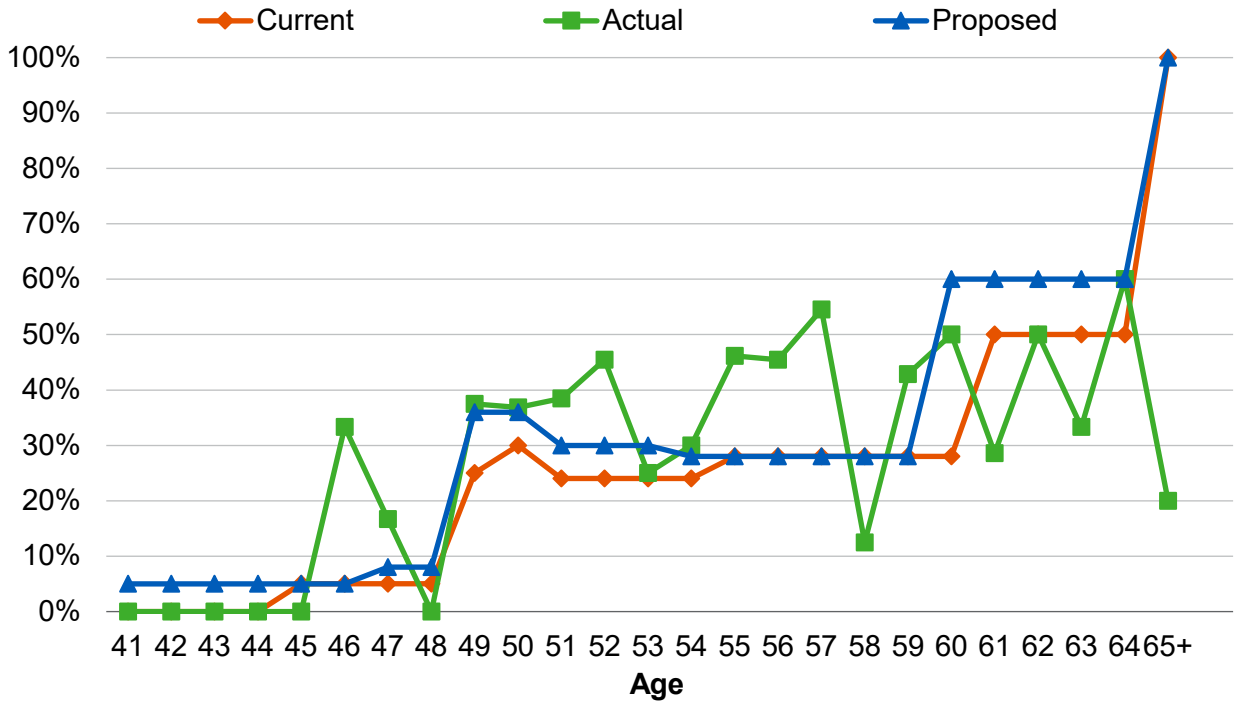


Chart 8: Retirement Rates
General Tier II Members

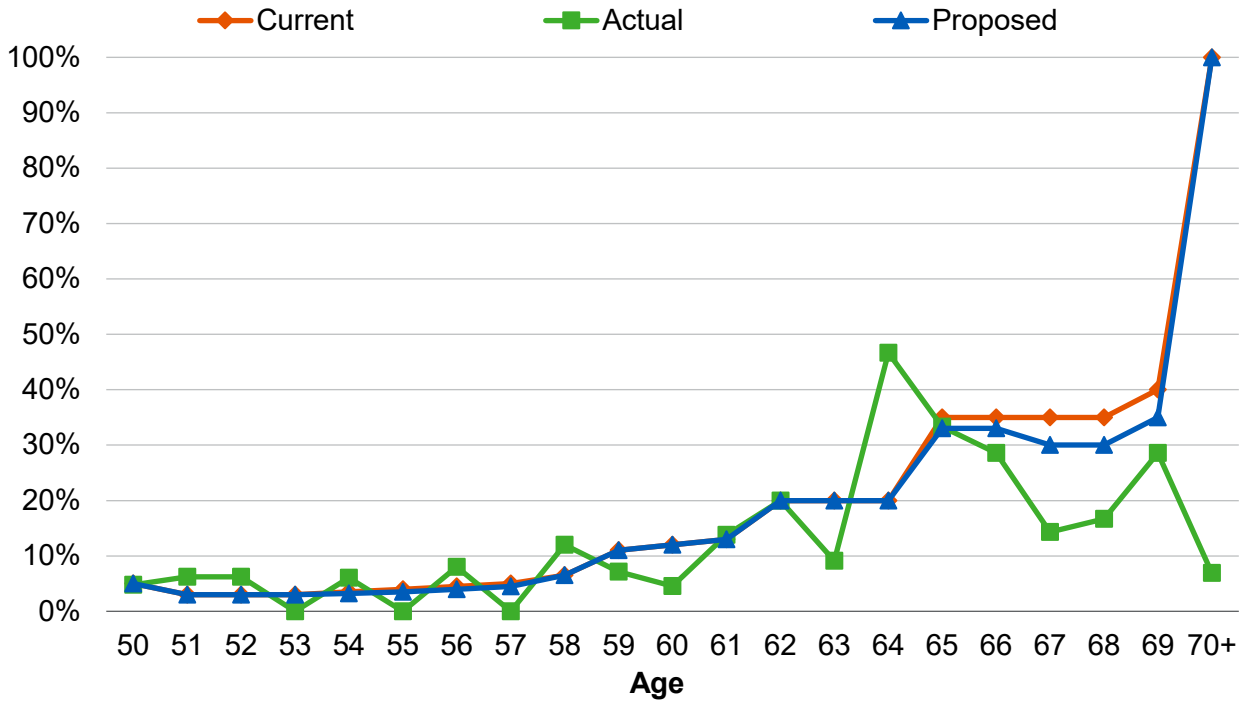


Chart 9: Retirement Rates
General Tier III Members

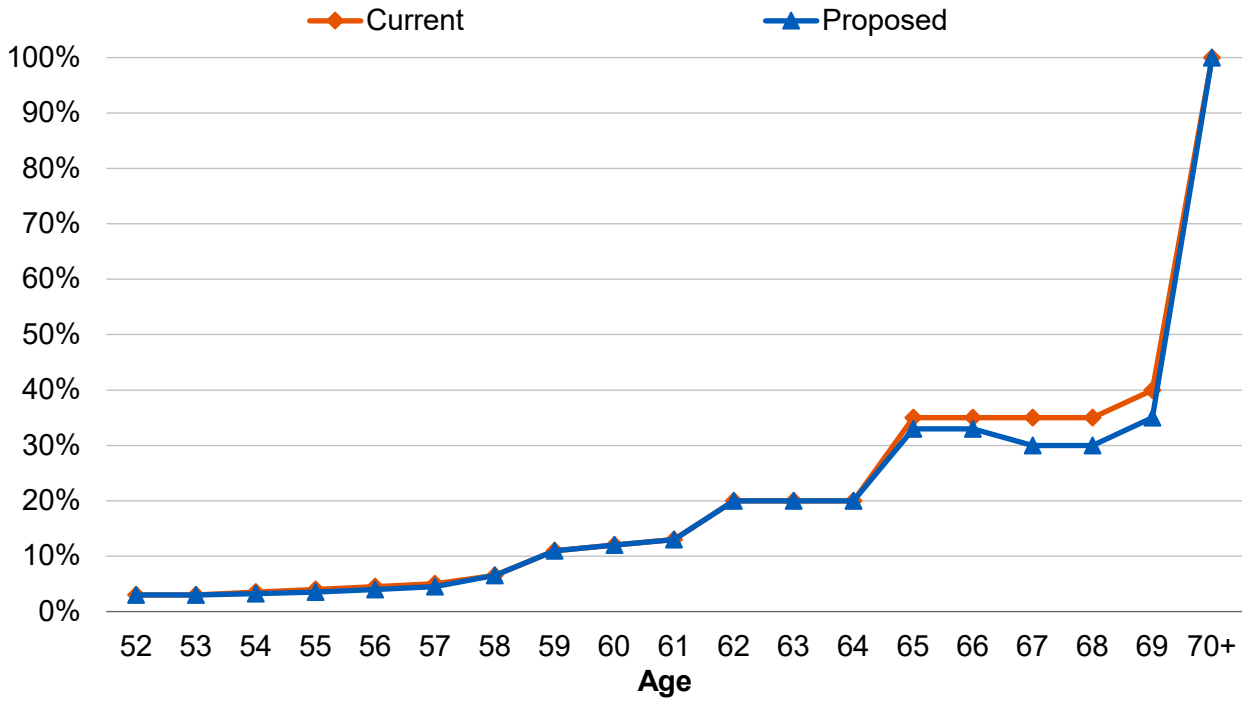
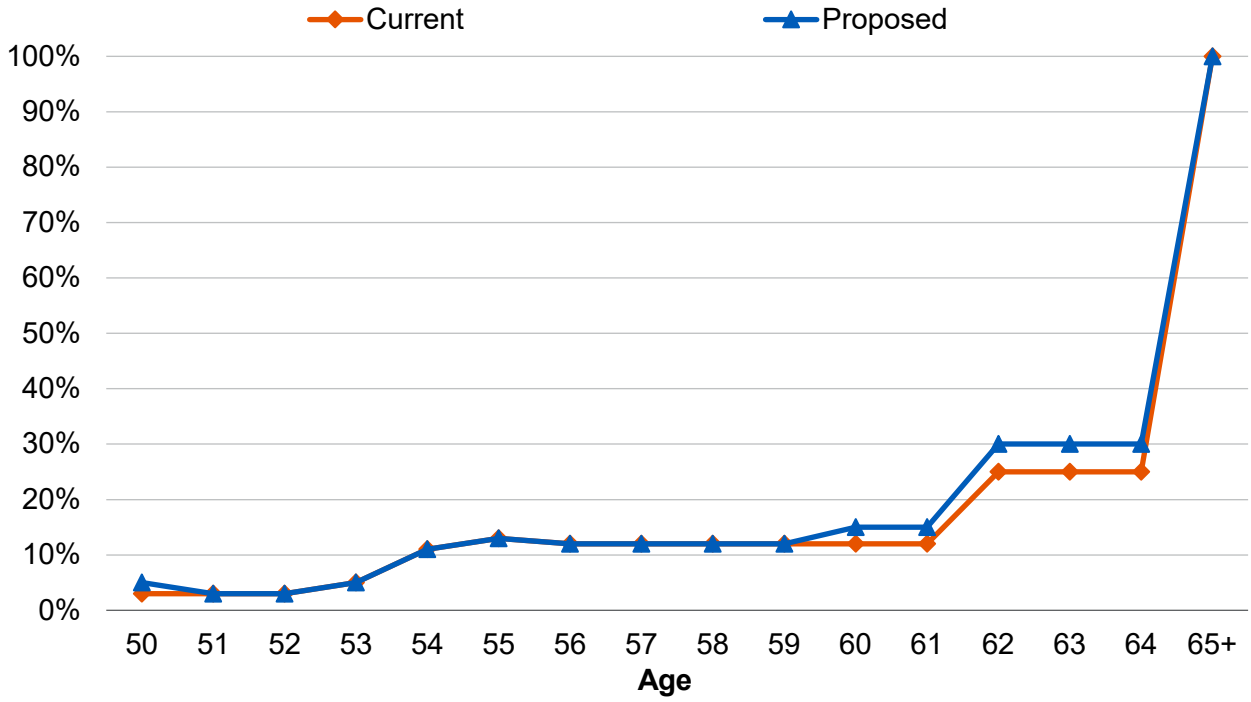


Chart 10: Retirement Rates
Safety Tier II Members



B. Mortality Rates - Healthy

The “healthy” mortality rates project the life expectancy of a member who retires from service (i.e., who did not retire on a disability pension). Also, the “healthy” pre-retirement mortality rates project what proportion of members will die before retirement. For General members, the table currently being used for post-service retirement mortality rates is the Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates unadjusted for males and increased by 15% for females, projected generationally with the two-dimensional mortality improvement scale MP-2019. For Safety members, the table currently being used for post-service retirement mortality rates is the Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2019. For all beneficiaries, the table currently being used is the Pub-2010 Contingent Survivor Amount-Weighted Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019.

The Public Retirement Plans Mortality tables (Pub-2010) were published by the Retirement Plans Experience Committee (RPEC) of the SOA in 2019. For the first time, the published mortality tables are based exclusively on public sector pension plan experience in the United States. Within the Pub-2010 family of mortality tables, there are separate tables by job categories of General, Safety and Teachers. Included with the mortality tables is the analysis prepared by RPEC that continues to observe that benefit amount for healthy retirees and salary for employees are the most significant predictors of mortality differences within the job categories. Therefore, Pub-2010 includes mortality rates developed for annuitants on a “benefit” weighted basis, with higher credibility assigned to experience from annuitants receiving larger benefits. We continue to recommend using the "amount weighted" median version of the Pub-2010 mortality tables for General and the above-median version of the Pub-2010 mortality tables for Safety (adjusted for KCERA experience as discussed herein).

We also continue to recommend that the mortality improvement scale be applied generationally where each future year has its own mortality table that reflects the forecasted improvements, using the published improvement scales. The “generational” approach is now the established practice within the actuarial profession.

A generational mortality table provides dynamic projections of mortality experience for each cohort of retirees. For example, the mortality rate for someone who is 65 next year will be slightly less than for someone who is 65 this year. In general, using generational mortality anticipates increases in the cost of the Plan over time as participants’ life expectancies are projected to increase.

We understand that RPEC intends to publish annual updates to their mortality improvement scales. Improvement scale MP-2021 is the latest improvement scale available as RPEC decided not to release an updated projection scale in 2022. According to RPEC, they have been relying on the most recent population mortality experience in their model to project future mortality trends. In 2022, if they were to follow their past practice, they would have relied on the newest mortality data available from 2020 to prepare their “MP-2022” mortality improvement scale. However, population data from 2020 was severely affected by the COVID-19 pandemic. They believed it would not be appropriate to incorporate, without adjustment, the substantially

higher rates of population mortality experience from 2020 into their graduation and projection models used to forecast future mortality. As a result, they elected not to release a new mortality improvement scale for 2022. We recommend that the Board adopt the Amount-Weighted Pub-2010 mortality tables for General members and the Amount-Weighted Above-Median Pub-2010 mortality tables for Safety members (adjusted for KCERA experience as discussed herein), and project the mortality improvement generationally using the MP-2021 mortality improvement scale.

In order to reflect more KCERA experience in our analysis, we have used experience for a twelve-year period by using data from the current (from July 1, 2019 through June 30, 2022 and the last three (from July 1, 2016 through June 30, 2019; from July 1, 2013 to June 30, 2016; and from July 1, 2010 to June 30, 2013) experience study periods in order to analyze this assumption. While we did not have information on the number of COVID-19 related deaths during the current three-year period, we noticed a spike in the number of deaths for 2020-2021 and 2021-2022. While the long-term impact of COVID-19 is still unknown, we have excluded the mortality data from 2020-2021 and 2021-2022 in setting our proposed mortality assumptions.

Even with the use of ten years of experience, based on standard statistical theory the data is only partially credible especially under the recommended amount-weighted basis when dispersion of retirees' benefit amounts is taken into account. In 2008 the SOA published an article recommending that mortality assumptions include an adjustment for credibility. Under this approach, the number of deaths needed for full credibility for a headcount-weighted mortality table is just over 1,000, where full credibility means a 90% confidence that the actual experience will be within 5% of the expected value. Therefore, in our recommended assumptions, we have only partially adjusted the Pub-2010 mortality tables to fit KCERA's experience. In future experience studies, more data will be available which may further increase the credibility of the KCERA experience.

Post-Retirement Mortality (Service Retirements)

Among all retired members, the actual deaths weighted by benefit amounts under the current assumptions for the ten-year period are shown in the table below. We also show the deaths weighted by benefit amount under the proposed assumptions. We continue to recommend the use of a generational mortality table, which incorporates a more explicit assumption for future mortality improvement. Accordingly, the goal is to start with a mortality table that closely matches the current experience (without a margin for future mortality improvement), and then reflect mortality improvement by projecting lower mortality rates in future years.

The proposed mortality table also reflects current experience to the extent that the experience is credible based on standard statistical theory. For KCERA, the volume of Safety member data is much less than the General member data, which makes the Safety group substantially less credible. As shown in the table below, the proposed mortality tables have actual to expected ratios of 106% and 104% for General and Safety, respectively, after adjustments for partial credibility. In future years the ratio should remain around 106% and 104% for General and Safety, respectively, as long as actual mortality improves at the same rates as anticipated by the generational mortality tables. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by benefit amounts for the ten-year period are as follows:

Healthy Retiree Mortality Experience – Benefit Weighted
(Dollars in millions)

	General Members			Safety Members		
Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$160.35	$166.63	$160.12	$88.68	$93.38	$88.55
Female	142.19	154.79	141.79	5.83	5.18	5.81
Total	**$302.54**	**$321.42**	**$301.91**	**$94.52**	**$98.56**	**$94.36**
Actual / Expected	**106%**		**106%[1]**	**104%**		**104%**

Notes:

1. Experience shown above is weighted by annual benefit amounts for deceased members.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For General members, we recommend maintaining the current assumption that the post-retirement mortality follow the Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates unadjusted for males and increased by 15% for females, projected generationally. We recommend updating the two-dimensional mortality improvement scale used for the generational projection from MP-2019 to MP-2021.

For Safety members, we recommend maintaining the current assumption that the post-retirement mortality follow the Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally. We recommend updating the two-dimensional mortality improvement scale used for the generational projection from MP-2019 to MP-2021.

Chart 11 that follows later in this section compares the number of actual to expected deaths on a benefit-weighted basis over the ten-year period for the current and proposed assumptions for Service Retirement General members.

Chart 12 compares the number of actual to expected deaths on a benefit-weighted basis over the ten-year period for the current and proposed assumptions for Service Retirement Safety members.

Chart 13 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables for General members on a benefit-weighted basis. Life expectancies under the proposed generational mortality rates are based on age as of 2023. In practice, assumed life expectancies will increase as a result of the mortality improvement scale.

[1] If we used the benchmark Pub-2010 General Healthy Retiree table without any adjustment, the proposed actual to expected ratio would be 113%.

Chart 14 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables for Safety members on a benefit-weighted basis. Life expectancies under the proposed generational mortality rates are based on age as of 2023. In practice, assumed life expectancies will increase as a result of the mortality improvement scale.

Beneficiary Mortality

The Pub-2010 Contingent Survivors Table is developed based only on contingent survivor data after the death of the retirees. This is consistent with the mortality experience that we have available for beneficiaries. The Pub-2010 Contingent Survivor mortality rates are comparable to KCERA's actual mortality experience for beneficiaries. However, in contrast to service retirees, there is less beneficiary data, so it is given less credibility when adjusting the base table. As shown in the table below, the proposed mortality tables have an actual to expected ratio of 108%, after adjustments for partial credibility. In future years the ratio should remain around 108% as long as actual mortality improves at the same rates as anticipated by the generational mortality tables. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by benefit amounts for the ten-year period are as follows:

Beneficiary Mortality Experience – Benefit Weighted
(Dollars in millions)

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$14.20	$17.92	$14.18
Female	80.63	80.17	76.81
Total	$94.83	$98.09	$90.98
Actual / Expected	**103%**		**108%**[1]

Notes:

1. Experience shown above is weighted by annual benefit amounts for deceased beneficiaries.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For all beneficiaries, we recommend updating the beneficiary mortality to follow the Pub-2010 Contingent Survivor Amount-Weighted Mortality Table (separate tables for males and females) with rates increased by 10% for males and increased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

As noted above, the Contingent Survivor mortality tables are developed based on contingent survivor data only after the death of the retirees (i.e., it does not reflect any contingent survivor

[1] If we used the benchmark Pub-2010 Contingent Survivor table without any adjustment, the proposed actual to expected ratio would be 114%.

data before the death of the retirees). In the last experience study, we recommended that the Board applied the Contingent Survivor mortality tables to predict the mortality rates for the beneficiaries both before and after the death of the retirees. According to analysis provided by RPEC, the mortality rates for the beneficiaries could be somewhat overstated before the death of the retirees as the Contingent Survivor mortality tended to be higher than retiree mortality and the difference was statistically significant. Based on this analysis, for the purposes of the actuarial valuations (for funding and financial reporting), when calculating the liability for the continuance to a beneficiary of a surviving member, we recommend that the General Healthy Retiree mortality tables be used for beneficiary mortality both before and after the expected death of the General or Safety member. Upon the actual death of the member (i.e., for all beneficiaries in pay status as of the valuation date), we recommend for the purposes of the actuarial valuations that we use the Contingent Survivor mortality tables as stated above. We note that the use of different mortality tables (before and after the death of the member) has been found by the RPEC to be reasonable.

Pre-Retirement Mortality

For General members, the table currently being used for pre-retirement mortality rates is the Pub-2010 General Employee Amount-Weighted Mortality Table (separate tables for males and females), projected generationally with the two-dimensional scale MP-2019. For Safety members, the table currently being used for pre-retirement mortality rates is the Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional scale MP-2019. When analyzing pre-retirement mortality, there is much less data available, so it is given little credibility when adjusting the base table.

For General members, we recommend maintaining the assumption that the pre-retirement mortality follow the Pub-2010 General Employee Amount-Weighted Mortality Table (separate tables for males and females), projected generationally. We recommend updating the two-dimensional mortality improvement scale used for the generational projection from MP-2019 to MP-2021.

For Safety members, we recommend maintaining the assumption that the pre-retirement mortality follow the Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally. We recommend updating the two-dimensional mortality improvement scale used for the generational projection from MP-2019 to MP-2021.

Based on actual experience during the three-year experience study period, we also recommend maintaining the current assumption for pre-retirement mortality of 100% non-service connected for both General and Safety members.[1]

Mortality Table for Member Contributions, Optional Forms of Payments, and Reserves

There are administrative reasons why a generational mortality table is more difficult to implement for determining member contributions for legacy tiers (i.e., General Tier I, General

[1] While it is possible that COVID-19 deaths for members in certain industries may be considered service connected, we do not recommend a change in our assumption to reflect this possible short-term increase in service connected deaths.

Tier IIA, Safety Tier I and Safety Tier IIA), optional forms of payment, and reserves. One emerging practice is to approximate the use of a generational mortality table by the use of a static table with projection of the mortality improvement from the measurement year over a period that is close to the duration of the benefit payments for active members. We would recommend the use of this approximation for determining member contributions for employees in the legacy tiers.

For General members, we recommend that the mortality table used for determining contributions be updated to a blended table based on the Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates unadjusted for males and increased by 15% for females, projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2021, weighted 30% male and 70% female.

For Safety members, we recommend that the mortality table used for determining contributions be updated to a blended table based on the Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females) projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2021, weighted 80% male and 20% female.

KCERA has implemented the use of a generational mortality table for determining optional forms of payment and reserves since the last experience study. We will provide the recommended mortality assumptions to KCERA in a separate letter at a later date similar to prior years.

Chart 11: Post-Retirement Benefit-Weighted Deaths ($ in Millions)
Service Retirement General Members
(July 1, 2010 through June 30, 2020)

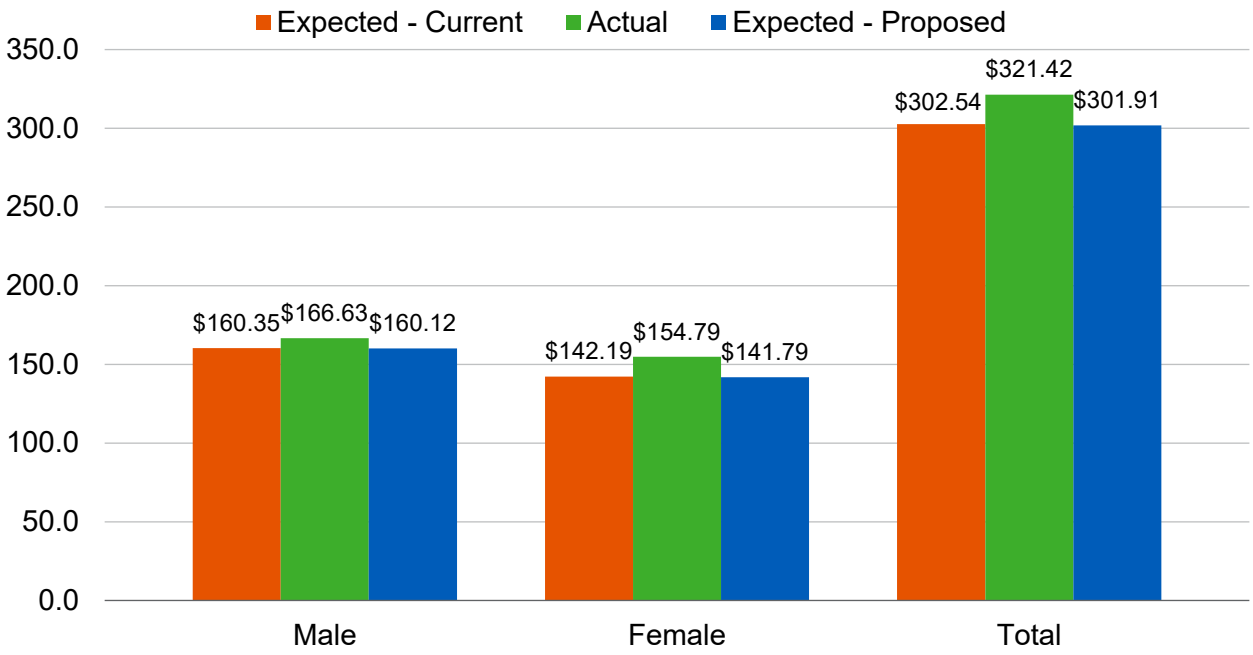


Chart 12: Post-Retirement Benefit-Weighted Deaths ($ in Millions)
Service Retirement Safety Members
(July 1, 2010 through June 30, 2020)

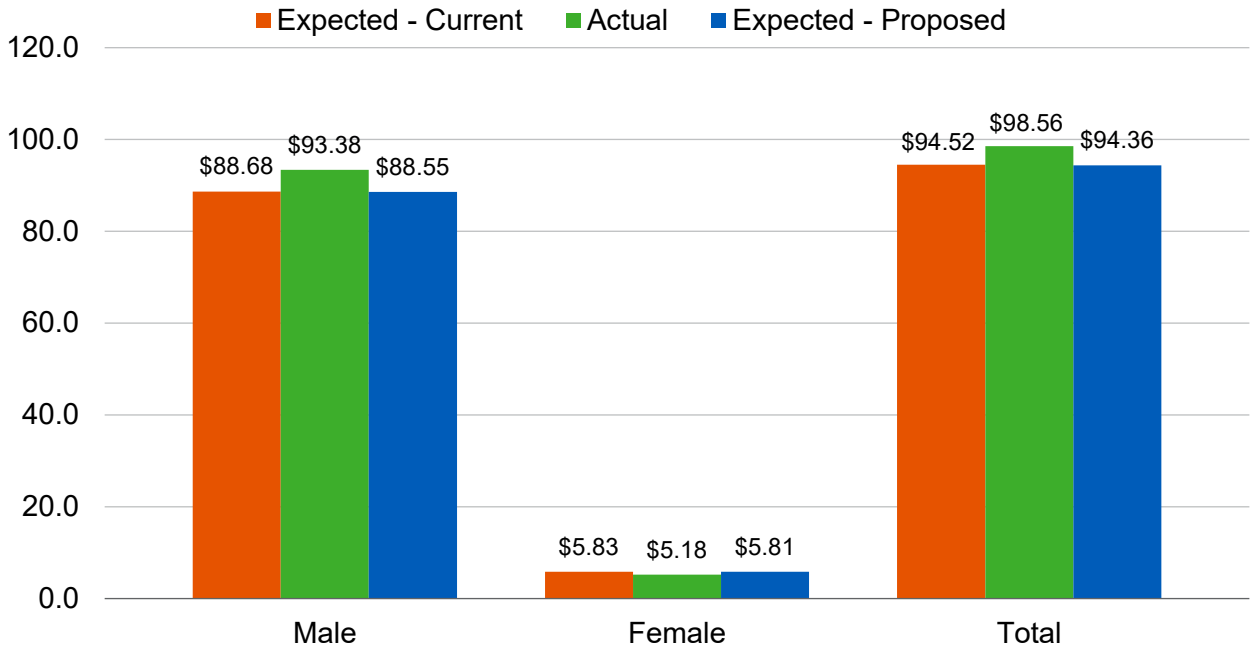


Chart 13: Benefit-Weighted Life Expectancies
Service Retirement General Members

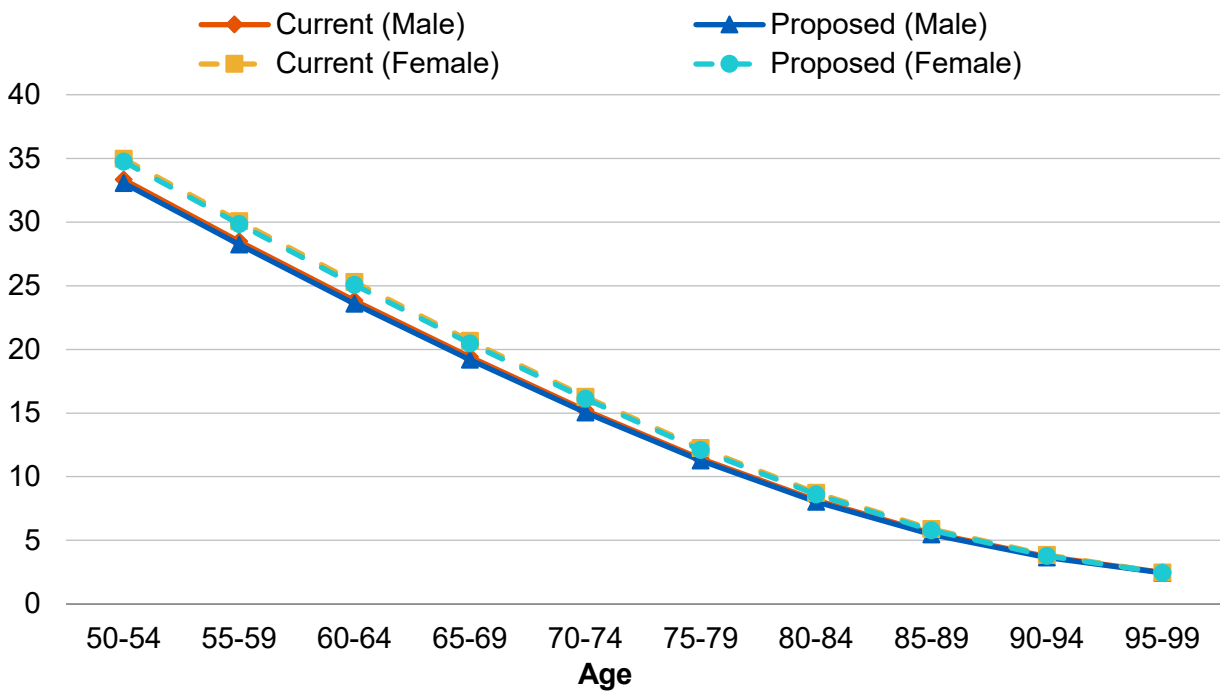
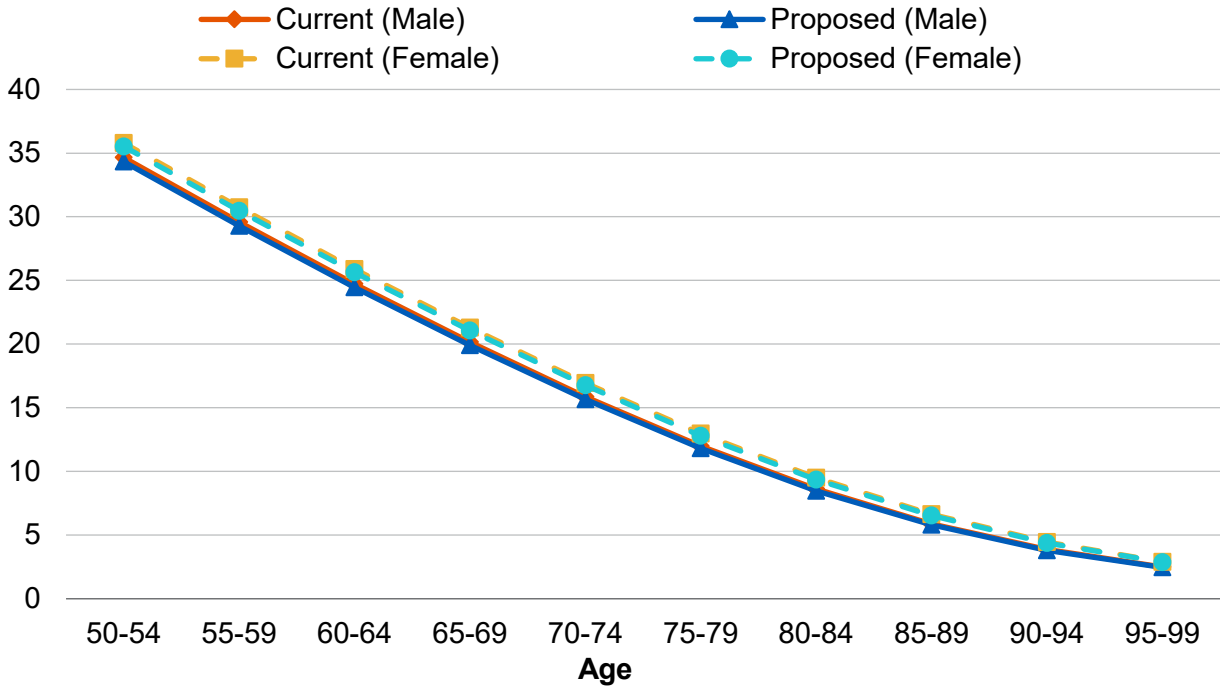


Chart 14: Benefit-Weighted Life Expectancies
Service Retirement Safety Members



C. Mortality Rates - Disabled

Since mortality rates for disabled members can vary from those of healthy members, a different mortality assumption is often used. For General members the table currently being used is the Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates decreased by 5% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. For Safety members, the table currently being used is the Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates increased by 5% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019.

Similar to mortality rates for service retirees, the proposed mortality table reflects current experience to the extent that the experience is credible based on standard statistical theory. For KCERA, there is far less data for disabled retirees, so it is given little credibility, even using experience for a ten-year period. As shown in the table below, the proposed mortality tables have actual to expected ratios of 88% and 100% for General and Safety respectively, after adjustments for partial credibility. In future years the ratio should remain around 88% and 100% for General and Safety, respectively, as long as actual mortality improves at the same rates as anticipated by the generational mortality tables. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by benefit amounts for the ten-year period are as follows:

Disabled Retiree Mortality Experience – Benefit Weighted

(Dollars in millions)

	General Members			Safety Members		
Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$18.05	$16.04	$18.02	$40.31	$37.88	$38.34
Female	20.59	17.94	20.53	2.56	2.99	2.42
Total	**$38.63**	**$33.98**	**$38.55**	**$42.87**	**$40.87**	**$40.76**
Actual / Expected	**88%**		**88%[1]**	**95%**		**100%**

Notes:

1. Experience shown above is weighted by annual benefit amounts for deceased members.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For General disabled members, we recommend maintaining the assumption that the disabled mortality follow the Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates decreased by 5% for

[1] If we use the benchmark Pub-2010 Non-Safety Disabled table without any adjustment, the proposed actual to expected ratio would be 84%.

males and females, projected generationally. We recommend updating the two-dimensional mortality improvement scale used for the generational projection from MP-2019 to MP-2021.

For Safety disabled members, we recommend updating the disabled mortality to follow the Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.

Chart 15 compares the number of actual to expected deaths on a benefit-weighted basis over the ten-year period for the current and proposed assumptions for disabled General members.

Chart 16 compares the number of actual to expected deaths on a benefit-weighted basis over the ten-year period for the current and proposed assumptions for disabled Safety members.

Chart 17 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables for disabled General members on a benefit-weighted basis. Life expectancies under the current and proposed generational mortality rates are based on age as of 2023. In practice, life expectancies will be assumed to increase as a result of the mortality improvement scale.

Chart 18 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables for disabled Safety members on a benefit-weighted basis. Life expectancies under the current and proposed generational mortality rates are based on age as of 2023. In practice, life expectancies will be assumed to increase as a result of the mortality improvement scale.

Chart 15: Post-Retirement Benefit-Weighted Deaths ($ in Millions)
Disabled General Members
(July 1, 2010 through June 30, 2020)

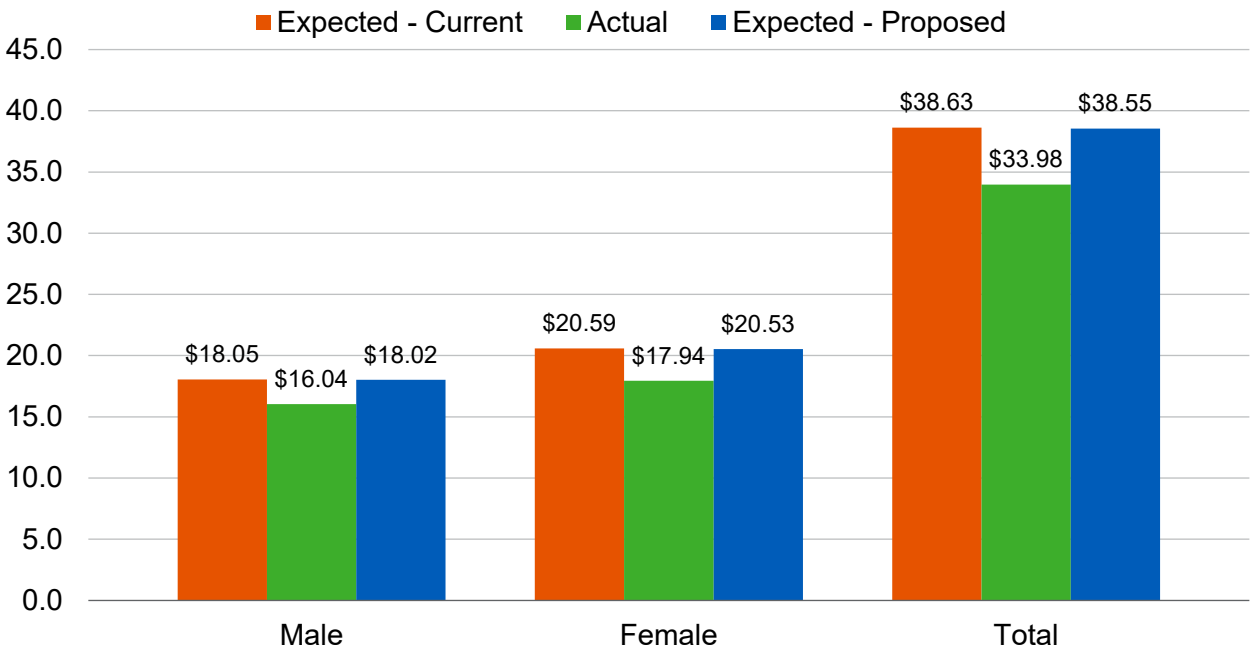


Chart 16: Post-Retirement Benefit-Weighted Deaths ($ in Millions)
Disabled Safety Members
(July 1, 2010 through June 30, 2020)

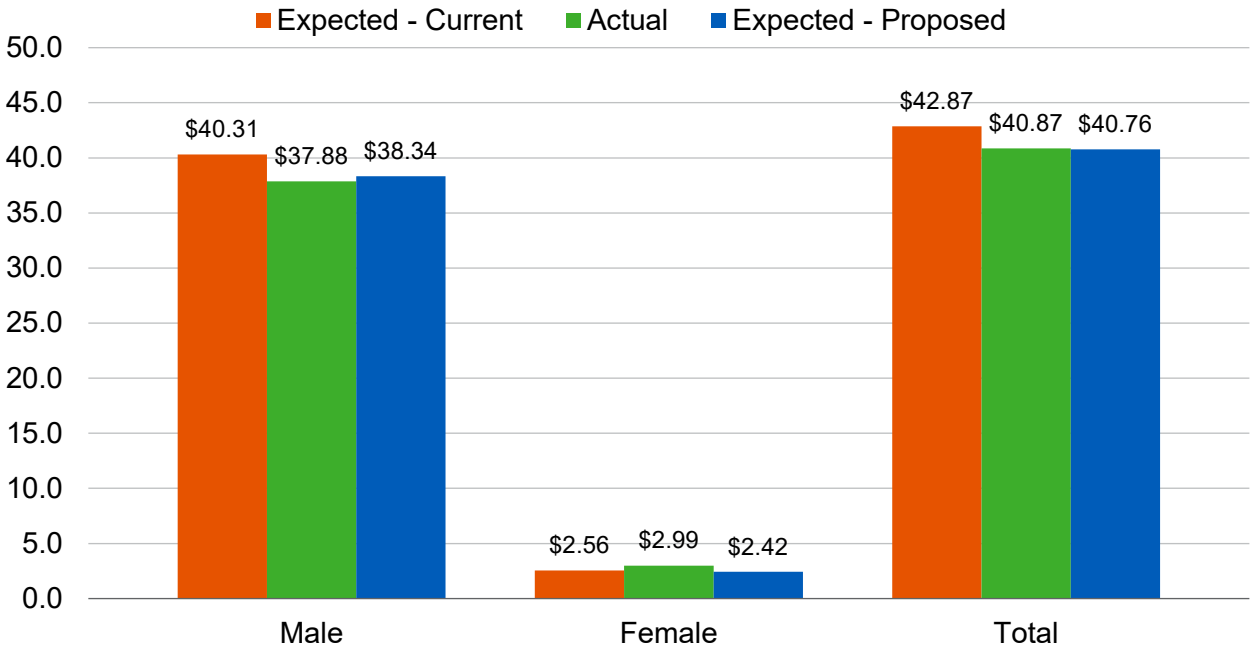


Chart 17: Benefit-Weighted Life Expectancies
Disabled General Members

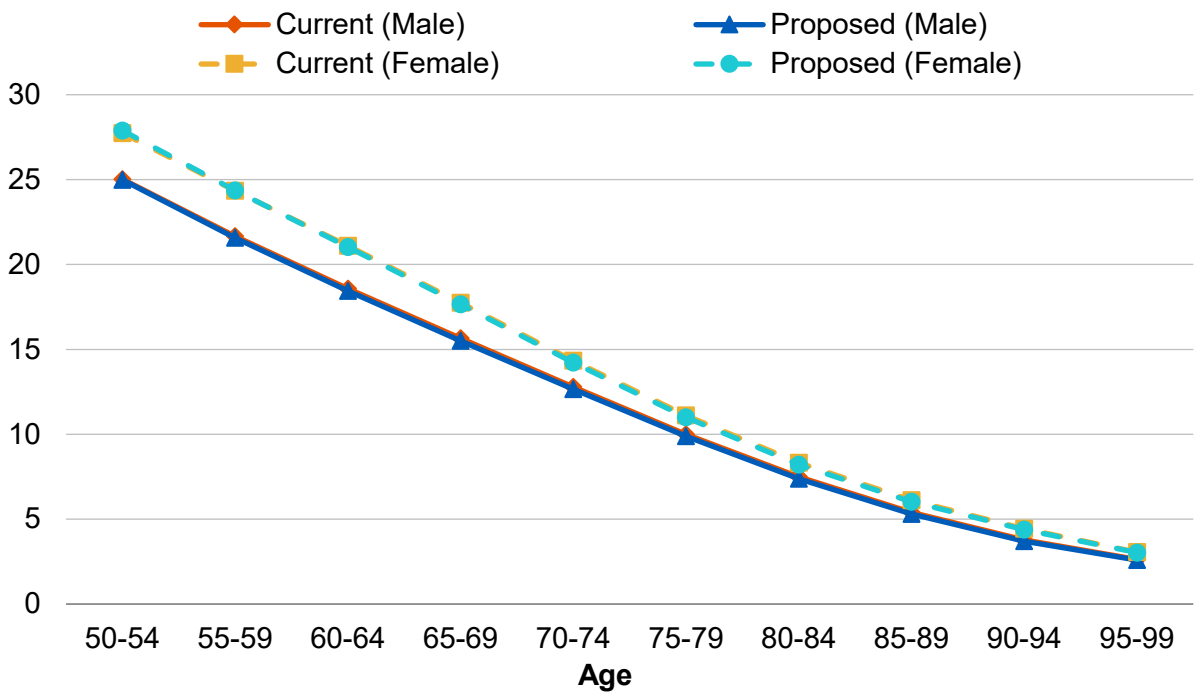
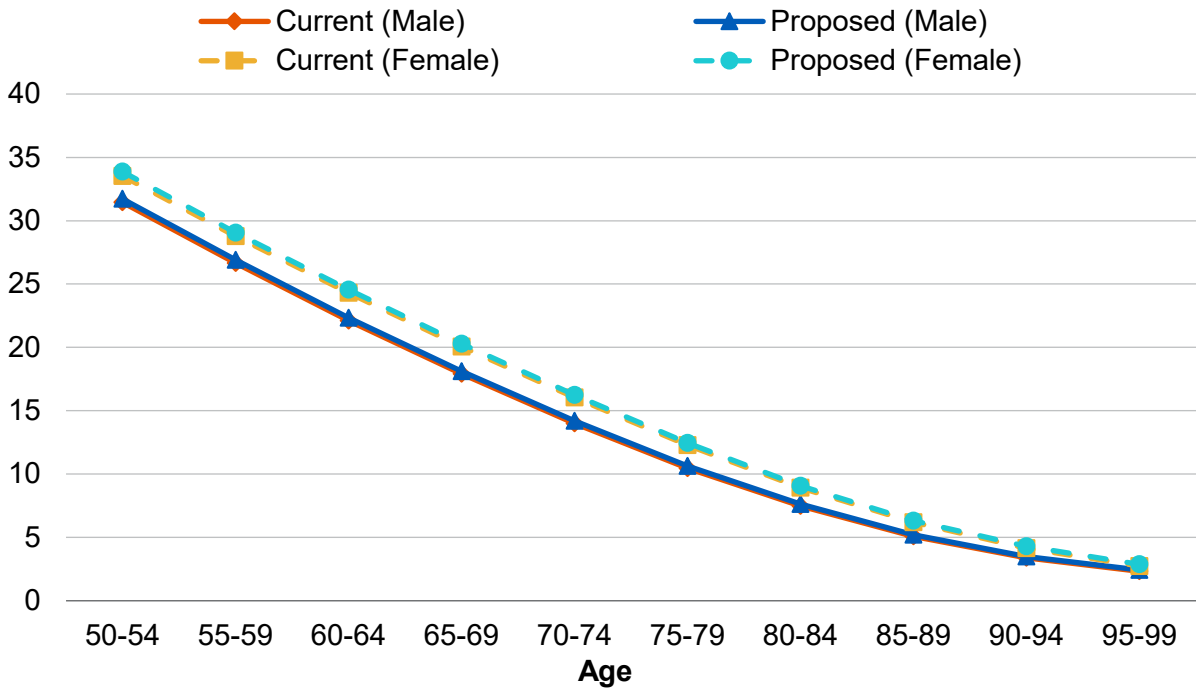


Chart 18: Benefit-Weighted Life Expectancies
Disabled Safety Members



D. Termination Rates

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions there is an overall incidence of total termination assumed, combined with a separate assumption for the percentage of members who would be expected to elect a refund of contributions versus a deferred retirement benefit. Furthermore, the termination rates are based on a function of the member's years of service.

The termination experience over the last six years for General and Safety members is shown by years of service in the following tables. We have included six years of experience, rather than only the three years of the current experience period, in order to improve the credibility of KCERA's termination experience. Also shown are the current assumed rates and the rates we propose. Please note that we have excluded any members that were eligible for retirement.

Termination

Rates (%)

	General				Safety			
Service	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate
Less than 1	17.00	20.11	22.51	20.00	9.00	14.72	18.57	11.00
1 – 2	13.00	15.00	16.54	15.00	8.00	9.26	8.58	9.00
2 – 3	10.00	12.49	13.92	12.00	7.00	8.04	6.09	8.00
3 – 4	9.00	10.60	12.27	11.00	6.00	9.41	12.38	7.00
4 – 5	8.50	8.94	9.04	9.00	5.00	7.50	9.02	6.50
5 – 6	8.00	8.43	8.34	8.50	4.00	5.74	8.39	5.50
6 – 7	7.00	8.21	7.91	8.00	3.50	4.76	5.77	4.75
7 – 8	6.00	7.84	8.41	7.50	3.25	6.61	5.68	4.50
8 – 9	5.00	6.41	7.91	6.50	3.00	5.99	7.21	4.25
9 – 10	4.00	3.99	4.84	5.00	2.60	5.86	6.54	4.00
10 – 11	3.75	5.43	7.38	4.50	2.20	3.42	4.48	3.50
11 – 12	3.50	4.43	5.64	4.00	1.80	3.85	6.01	3.25
12 – 13	3.25	5.38	5.08	3.75	1.60	3.21	4.94	3.00
13 – 14	3.00	3.60	3.69	3.50	1.40	2.02	1.89	2.00
14 – 15	2.75	3.80	3.98	3.25	1.20	2.67	2.73	2.00
15 – 16	2.50	3.33	3.28	3.00	1.00	2.94	3.93	2.00
16 – 17	2.30	2.89	2.82	2.75	0.90	0.75	1.23	1.00
17 – 18	2.10	2.21	1.45	2.25	0.75	1.06	1.12	0.90
18 – 19	1.90	1.86	2.52	2.00	0.75	0.54	1.04	0.80
19 – 20	1.70	2.98	2.58	1.90	0.75	0.64	0.59	0.75
20 – 21	1.50	3.70	3.78	1.75	0.00	N/A	N/A	0.00
21 – 22	1.30	2.67	2.68	1.50	0.00	N/A	N/A	0.00
22 – 23	1.10	2.17	1.43	1.25	0.00	N/A	N/A	0.00
23 – 24	1.00	1.10	2.70	1.00	0.00	N/A	N/A	0.00
24 – 25	1.00	0.00	0.00	1.00	0.00	N/A	N/A	0.00
25 – 26	1.00	2.27	0.00	1.00	0.00	N/A	N/A	0.00
26 – 27	1.00	3.03	0.00	1.00	0.00	N/A	N/A	0.00
27 – 28	1.00	7.14	0.00	1.00	0.00	N/A	N/A	0.00
28 – 29	1.00	0.00	0.00	1.00	0.00	N/A	N/A	0.00
29 – 30	1.00	0.00	0.00	1.00	0.00	N/A	N/A	0.00
30 & Over	0.00	N/A	N/A	0.00	0.00	N/A	N/A	0.00

It is important to note that not every service category has enough exposures and/or decrements such that the results in that category are statistically credible even if we look at six years' worth of experience. This is mainly the case for those members in the highest service categories because most members in those categories are eligible to retire and have been excluded from

our review of this termination experience as mentioned above. It is also the case in the tables that follow due to the even more limited experience regarding actual terminations.

Based on this experience, we recommend decreasing the termination rate assumption for certain service groups while increasing the termination rate assumption for other service groups. Overall, the proposed rates represent an increase from the current rates for General members and Safety members.

We also continue to recommend that no termination is assumed after a member is first assumed to retire.

Chart 19 compares the number of actual to expected terminations over the past six years for the current and proposed assumptions.

Chart 20 compares the actual termination experience with the current and proposed assumptions for General members.

Chart 21 compares the actual termination experience with the current and proposed assumptions for Safety members.

In addition, among the terminations, we recommend the following assumptions for the percentage of members who would elect a refund of contributions versus those who would elect to leave their contributions on deposit and receive a deferred vested benefit.

Proportion of Total Termination Assumed to Elect a Refund of Contributions

Rates (%)

	General				Safety			
Service*	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate
5 – 6	36.00	31.14	32.29	25.00	44.00	41.67	38.46	30.00
6 – 7	34.00	27.56	25.00	25.00	40.00	22.22	8.33	30.00
7 – 8	32.00	14.41	17.33	25.00	38.00	34.48	46.67	30.00
8 – 9	30.00	22.58	17.65	25.00	32.00	20.69	18.75	30.00
9 – 10	28.00	24.14	23.81	25.00	30.00	22.22	20.00	30.00
10 – 11	26.00	16.95	12.50	15.00	26.00	13.33	0.00	12.00
11 – 12	25.00	16.33	11.54	15.00	25.00	10.53	14.29	12.00
12 – 13	24.00	16.67	12.90	15.00	21.00	20.00	23.08	12.00
13 – 14	23.00	3.23	0.00	15.00	18.00	0.00	0.00	12.00
14 – 15	22.00	17.86	11.11	15.00	15.00	9.09	0.00	12.00
15 – 16	21.00	33.33	30.00	15.00	12.00	16.67	0.00	12.00
16 – 17	18.00	0.00	0.00	15.00	10.00	33.33	50.00	12.00
17 – 18	16.00	18.18	33.33	15.00	8.00	0.00	0.00	12.00
18 – 19	14.00	12.50	0.00	15.00	6.00	0.00	0.00	12.00
19 – 20	13.00	18.18	16.67	15.00	4.00	0.00	0.00	12.00
20 – 21	12.00	0.00	0.00	0.00	0.00	N/A	N/A	0.00
21 – 22	11.00	0.00	0.00	0.00	0.00	N/A	N/A	0.00
22 – 23	10.00	0.00	0.00	0.00	0.00	N/A	N/A	0.00
23 – 24	8.00	0.00	0.00	0.00	0.00	N/A	N/A	0.00
24 – 25	6.00	N/A	N/A	0.00	0.00	N/A	N/A	0.00
25 – 26	4.00	0.00	N/A	0.00	0.00	N/A	N/A	0.00
26 – 27	2.00	0.00	N/A	0.00	0.00	N/A	N/A	0.00
27 & Over	0.00	0.00	N/A	0.00	0.00	N/A	N/A	0.00

* *All members with less than 5 years of service are assumed to elect a refund of contributions*

For both General and Safety members, the overall actual rates for electing a refund of contributions are generally lower than the current assumptions for the past six years. **Based on this experience, we recommend overall decreases in the refund assumption. We are also changing the structure of our assumption to assume one rate for 5 to 10 years of service, one rate for 10 to 20 years of service, and assuming members with 20 or more years of service do not elect a refund of contributions.**

Chart 22 compares the actual rates of electing a refund of contributions with the current and proposed assumptions for General members.

Chart 23 compares the actual rates of electing a refund of contributions with the current and proposed assumptions for Safety members.

Chart 19: Actual Number of Terminations Compared to Expected (July 1, 2016 through June 30, 2022)

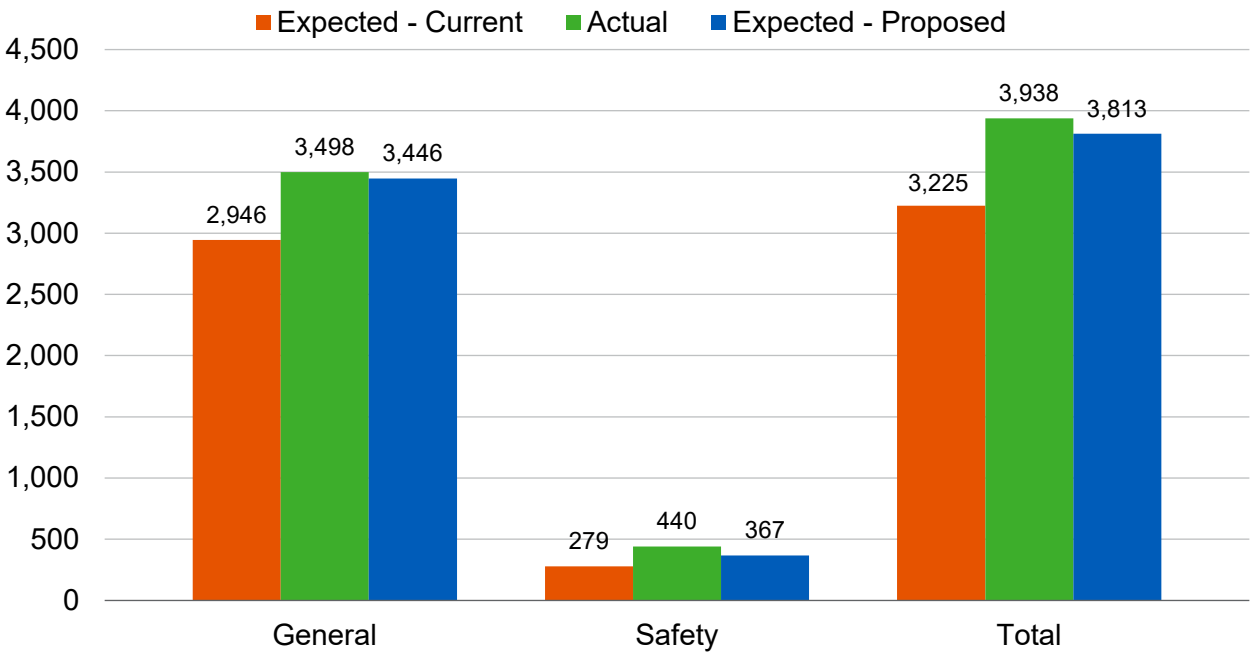


Chart 20: Termination Rates for General Members

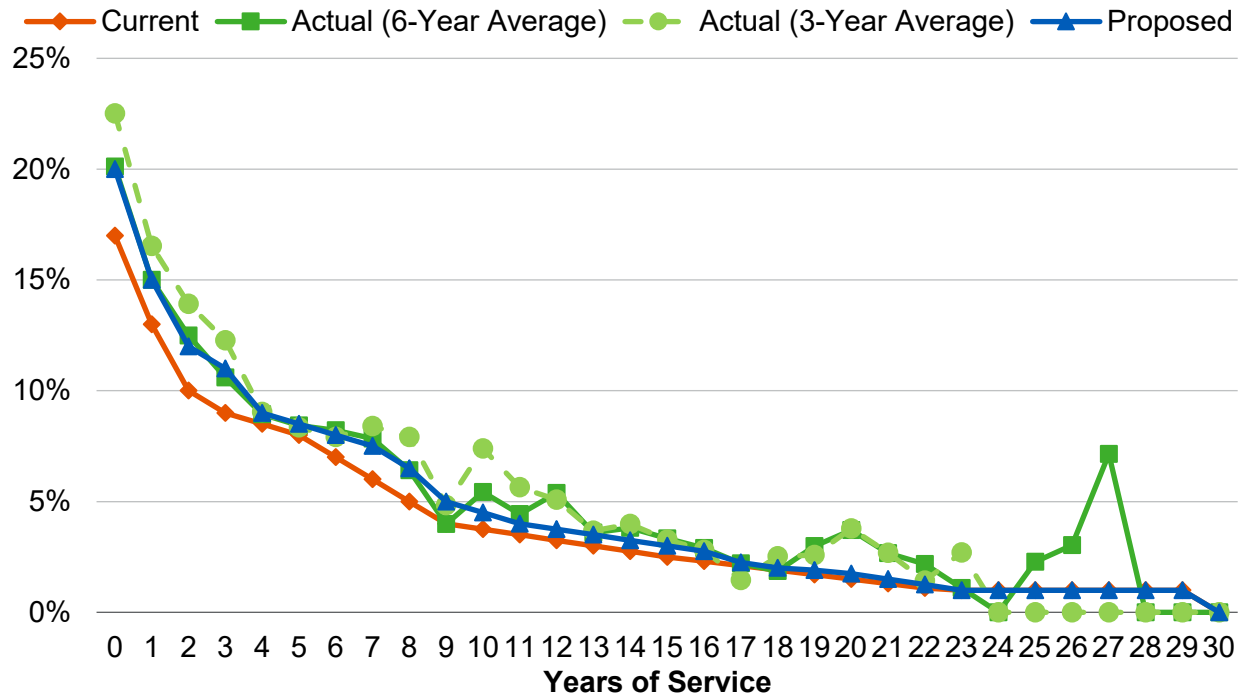


Chart 21: Termination Rates for Safety Members

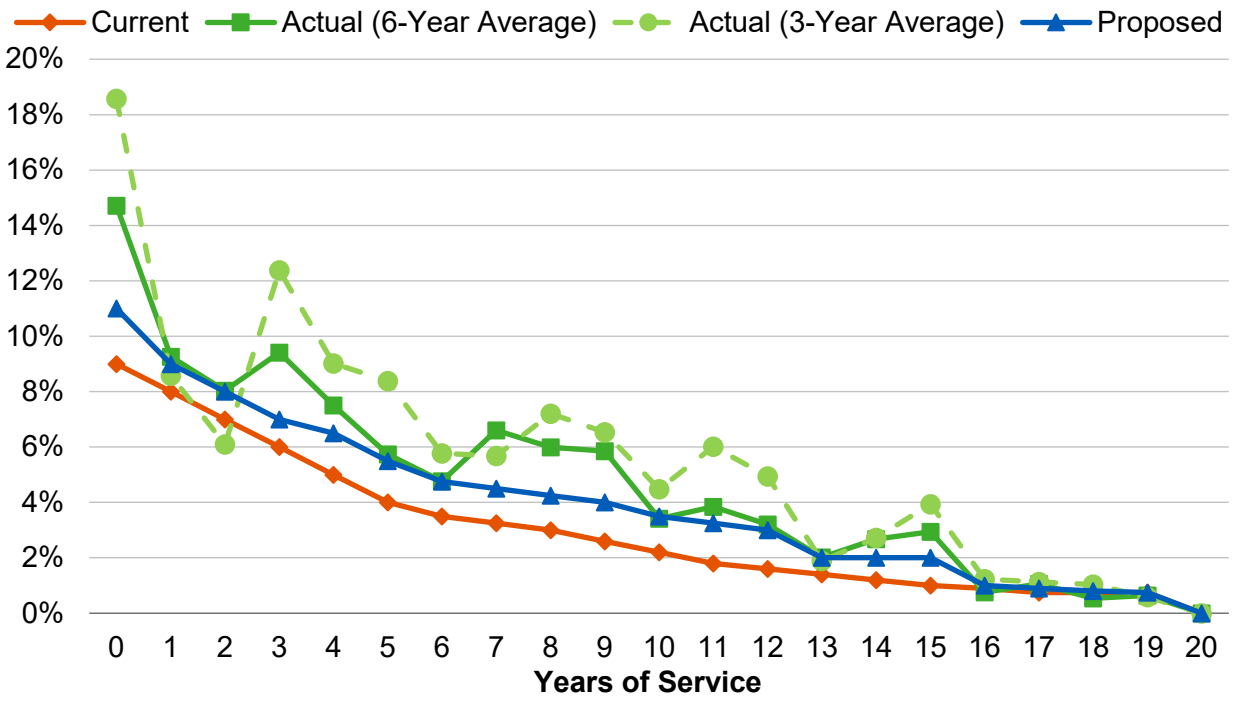


Chart 22: Rates of Electing a Refund – General Members

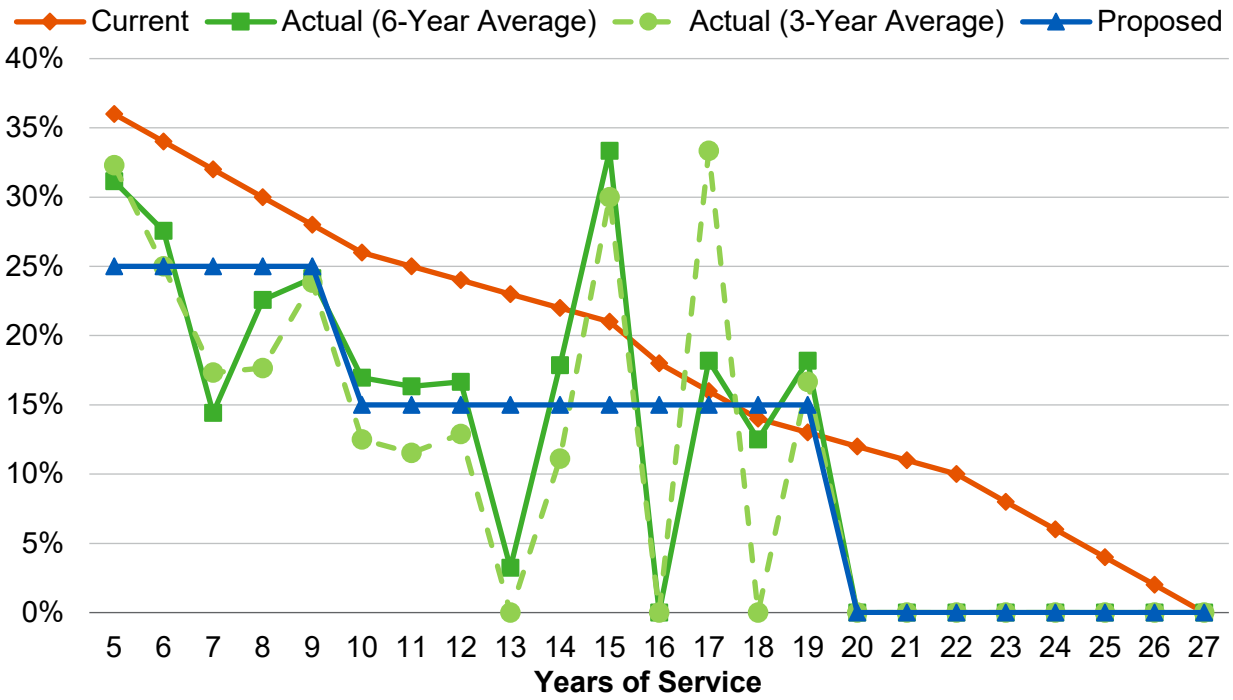
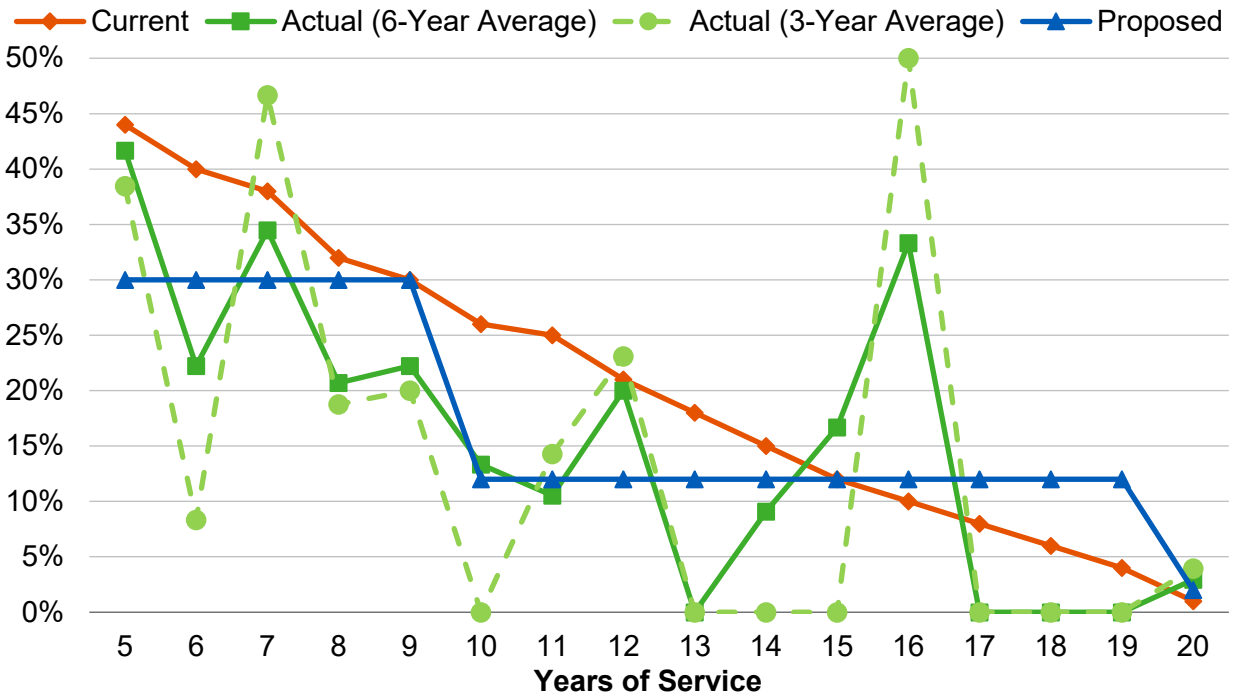


Chart 23: Rates of Electing a Refund – Safety Members



E. Disability Incidence Rates

When a member becomes disabled, he or she may be entitled to at least a 50% of pay pension (service connected disability), or a pension that depends upon the member's years of service (non-service connected disability).

The following table shows the observed disability incidence rates based on the actual experience over the past six years. We have included six years of experience, rather than only the three years of the current experience period, in order to improve the credibility of KCERA's disability experience. Also shown are the current assumed rates and the rates we propose. Please note that we have combined service and non-service connected disability incidence in the table below.

Disability Incidence[1]

Rates (%)

	General				Safety			
Age	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate
20 – 24	0.02	0.00	0.00	0.02	0.05	0.00	0.00	0.05
25 – 29	0.03	0.00	0.00	0.02	0.08	0.00	0.00	0.08
30 – 34	0.05	0.00	0.00	0.04	0.12	0.05	0.00	0.11
35 – 39	0.08	0.01	0.03	0.07	0.24	0.14	0.09	0.22
40 – 44	0.10	0.02	0.00	0.09	0.30	0.40	0.71	0.40
45 – 49	0.15	0.04	0.07	0.13	0.45	0.51	0.60	0.50
50 – 54	0.20	0.17	0.17	0.18	1.50	0.54	1.00	1.35
55 – 59	0.30	0.20	0.23	0.25	3.25	2.60	1.30	3.00
60 – 64	0.40	0.37	0.30	0.35	4.00	3.60	6.15	4.25
65 – 69	0.40	0.11	0.00	0.35	4.00	4.44	8.70	4.25

Based on this experience, we recommend decreasing the disability incidence rate assumption for General members and slightly increasing the disability incidence rate for Safety members.

Chart 24 that follows later in this section compares the number of actual to expected service and non-service connected disabilities over the past six years for the current and proposed assumptions.

Chart 25 compares the actual disability incidence experience with the current and proposed assumptions for General members.

Chart 26 compares the actual disability incidence experience with the current and proposed assumptions for Safety members.

[1] Total rate for service connected and non-service connected disabilities.

The following table shows the observed percentage of members that received a service versus non-service connected disability based on the actual experience over the past six years. Also shown are the current assumed percentages and the percentages we propose.

Service vs. Non-Service Connected Disability

Service Connected %	General	Safety
Current Assumption	50%	90%
Actual Experience	53%	93%
Proposed Assumption	**50%**	**90%**

Based on this experience, we recommend maintaining the current assumption that 50% of General disabilities will be service connected disabilities, with the remaining 50% assumed to be non-service connected disabilities. We also recommend maintaining the current assumption that 90% of Safety disabilities will be service connected disabilities, with the remaining 10% assumed to be non-service connected disabilities.

Chart 22: Actual Number of Disabilities Compared to Expected (July 1, 2016 through June 30, 2022)

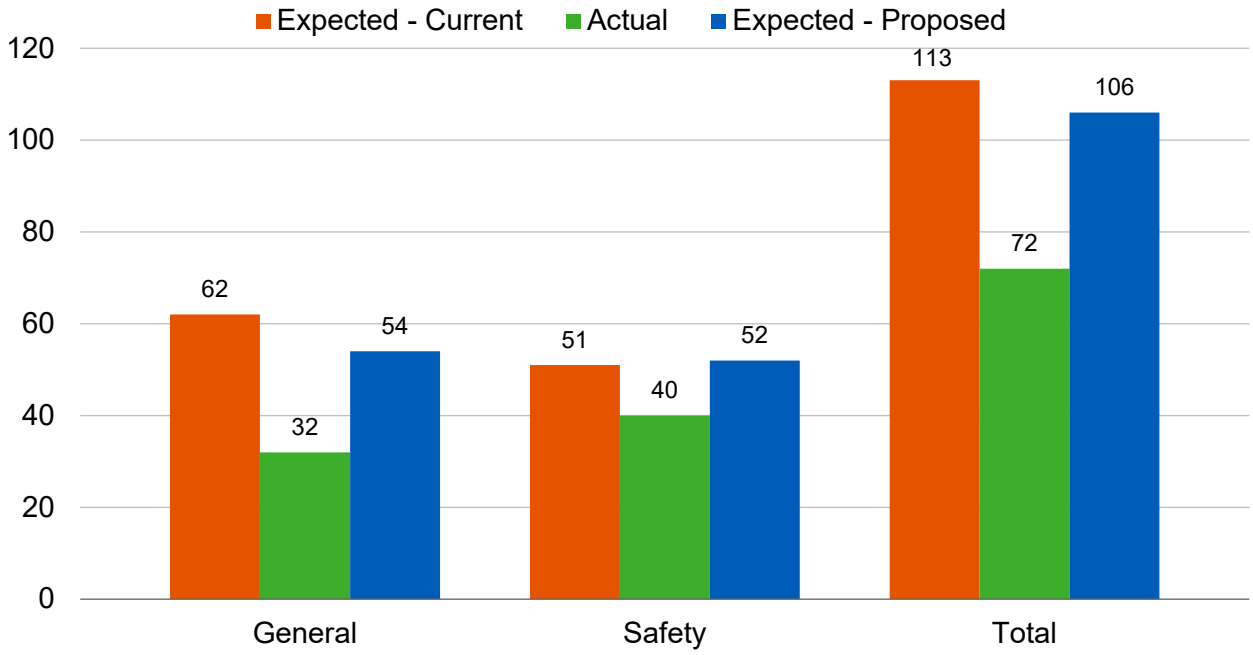


Chart 23: Disability Incidence Rates for General Members

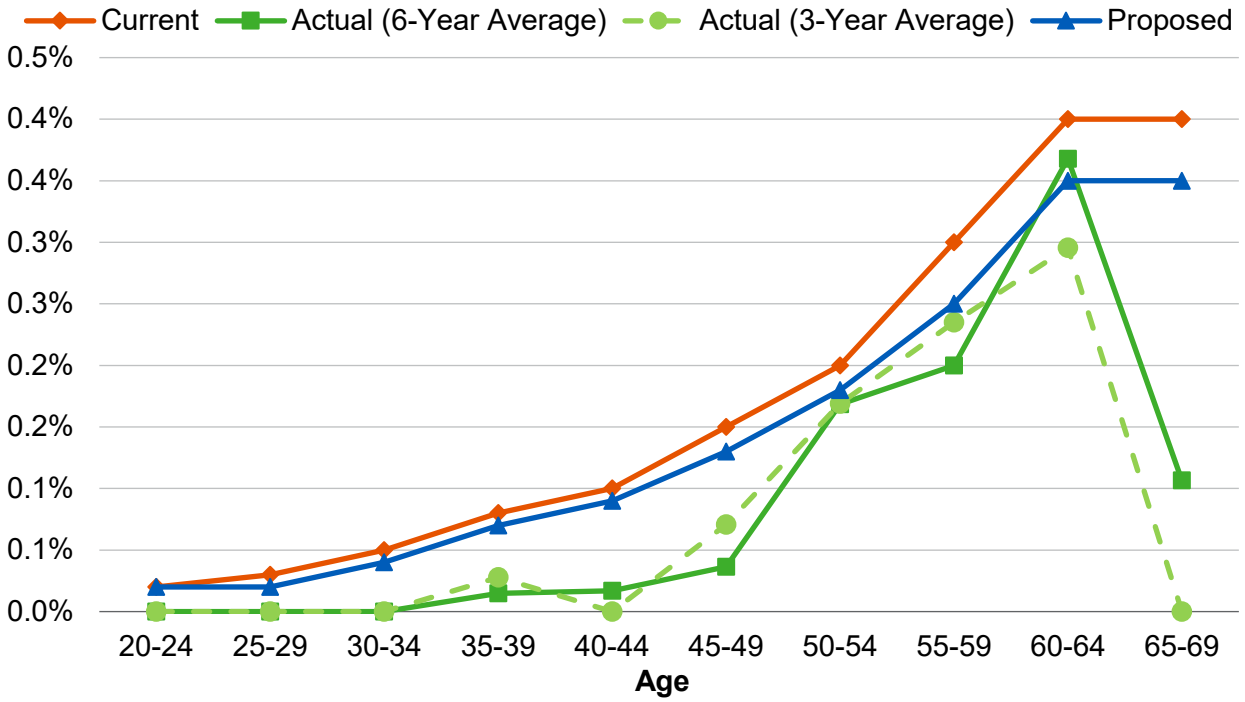
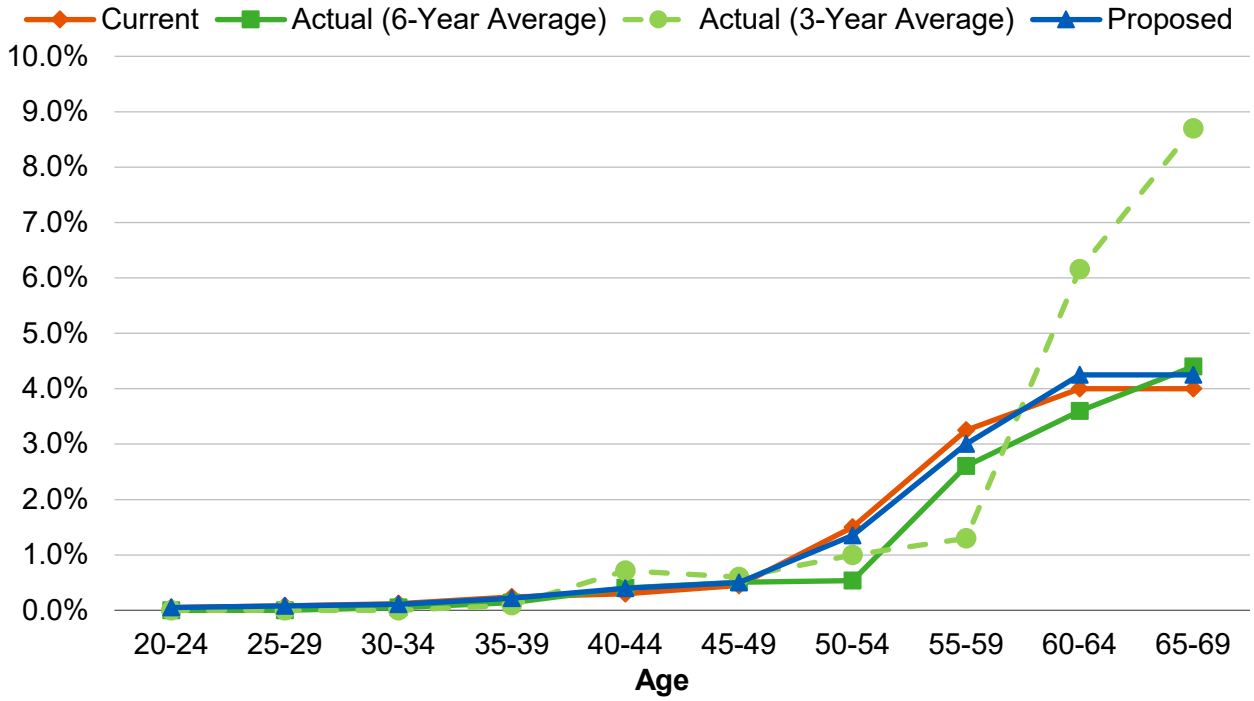


Chart 24: Disability Incidence Rates for Safety Members



5. Cost Impact

We have estimated the impact of all the recommended demographic and economic assumptions as if they were applied to the June 30, 2022 actuarial valuation. The table below shows the changes in the employer and member contribution rates due to the proposed assumption changes separately for the recommended economic assumption changes including the recommended merit and promotion salary increases (as recommended in Section 3 of this report) and the recommended demographic assumption changes (as recommended in Section 4 of this report).[1]

Cost Impact of the Recommended Assumptions Based on June 30, 2022 Actuarial Valuation

Assumption	Impact on Average Employer Contribution Rates
Increase due to changes in economic assumptions	3.64%
Decrease due to changes in demographic assumptions	(0.25%)
Total increase in average employer rate	**3.39%**
Total estimated increase in annual dollar amount ($000s)[2]	**$20,653**

Assumption	Impact on Weighted Average Member Contribution Rates
Increase due to changes in economic assumptions	0.34%
Increase due to changes in demographic assumptions	0.02%
Total increase in average member rate	**0.36%**
Total estimated increase in annual dollar amount ($000s)[1]	**$2,226**

Assumption	Impact on UAAL ($000s)
Increase due to changes in economic assumptions	$200,832
Decrease due to changes in demographic assumptions	(19,080)
Total increase in UAAL ($000s)	**$181,752**

	Impact on Funded Percentage
Change in Funded Percentage	69.2% to 67.5%

Of the various assumption changes, the most significant rate increase is due to the investment return assumption.

[1] The actual allocation of contribution rates for administrative expenses will be determined in each actuarial valuation to reflect the relative proportion of employer and member contributions.

[2] Based on June 30, 2022 projected annual payroll as determined under each set of assumptions.

The tables below show the average employer and member contribution rate impacts for each cost group due to the recommended assumption changes as if they were applied to the June 30, 2022 actuarial valuation.

Employer Contribution Rate Increases/(Decreases)
(% of Payroll)

	Normal Cost	UAAL	Total	Annual Amount[1] ($000s)
General County without Courts	0.37%	1.56%	1.93%	$7,646
Courts	0.46%	1.56%	2.02%	629
County Safety	2.32%	6.01%	8.33%	11,629
District Category I	0.33%	1.60%	1.93%	109
District Category II	0.59%	1.60%	2.19%	50
District Category III	0.35%	1.60%	1.95%	536
District Category V	0.35%	1.60%	1.95%	26
District Category VI	0.85%	1.60%	2.45%	5
Declining Employers	1.09%	11.35%	12.44%	23
All Categories Combined	**0.82%**	**2.57%**	**3.39%**	**$20,653**

[1] Based on June 30, 2022 projected annual payroll as determined under each set of assumptions.

Average Member Contribution Rate Increases/(Decreases)
(% of Payroll)

	Total	Annual Amount[1] ($000s)
County General Tier I without Courts	0.22%	$256
County General Tier IIA without Courts	0.13%	72
County General Tier IIB without Courts	0.25%	540
Courts Tier I	0.01%	(1)
Courts Tier IIA	0.20%	6
Courts Tier IIB	0.25%	41
County Safety Tier I	0.64%	548
County Safety Tier IIA	0.70%	52
County Safety Tier IIB	1.28%	590
District Category I Tier I	0.43%	15
District Category I Tier IIA	0.17%	1
District Category I Tier IIB	0.25%	3
District Category II Tier I	0.24%	3
District Category II Tier IIB	0.25%	3
District Category II Tier III	0.21%	0
District Category III Tier I (Buttonwillow)	0.23%	1
District Category III Tier I (SJVAPCD)	0.42%	62
District Category III Tier IIA (Buttonwillow)	0.25%	0
District Category III Tier IIA (SJVAPCD)	0.20%	2
District Category III Tier IIB	0.25%	29
District Category V Tier I	0.00%	0
District Category V Tier IIA	0.06%	1
District Category V Tier IIB	0.25%	2
District Category VI Tier I	0.00%	0
District Category VI Tier IIB	0.25%	0
Declining Employers Tier I	0.00%	0
Declining Employers Tier IIB	0.25%	0
All Categories Combined	**0.36%**	**$2,226**

[1] Based on June 30, 2022 projected annual payroll as determined under each set of assumptions.

Appendix A: Current Actuarial Assumptions

Economic Assumptions

Net Investment Return:	7.25%, net of investment expenses.
Administrative Expenses:	0.90% of payroll allocated to both the employer and member based on the components of the total contribution rate (before expenses) for the employer and member.
Member Contribution Crediting Rate:	7.25%, compounded semi-annually.
Consumer Price Index (CPI):	Increase of 2.75% per year; retiree COLA increases due to CPI are limited to maximum of 2.50% per year.
Payroll Growth:	Inflation of 2.75% per year plus “across the board” real salary increases of 0.50% per year.
Increases in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 2.75% per year from the valuation date.
Increase in Section 7522.10 Compensation Limit:	Increase of 2.75% per year from the valuation date.

Salary Increases:

The annual rate of compensation increase includes:

- Inflation at 2.75%, plus
- "Across the board" salary increases of 0.50% per year, plus
- The following merit and promotion increases:

Years of Service	Rate (%)	
	General	Safety
Less than 1	5.50	8.75
1 – 2	4.50	7.00
2 – 3	4.00	5.50
3 – 4	3.50	5.00
4 – 5	3.00	4.50
5 – 6	2.50	4.00
6 – 7	2.25	3.50
7 – 8	1.75	2.50
8 – 9	1.50	1.50
9 – 10	1.25	1.25
10 – 11	1.15	1.00
11 – 12	1.05	0.80
12 – 13	0.95	0.75
13 – 14	0.85	0.70
14 – 15	0.75	0.65
15 – 16	0.75	0.60
16 – 17	0.75	0.55
17 – 18	0.75	0.50
18 – 19	0.75	0.50
19 – 20	0.75	0.50
20 & Over	0.75	0.50

Demographic Assumptions

Post-Retirement Mortality Rates:	*Healthy* • **General Members:** Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates unadjusted for males and increased by 15% for females, projected generationally with the two-dimensional mortality improvement scale MP-2019. • **Safety Members:** Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2019. *Disabled* • **General Members:** Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates decreased by 5% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. • **Safety Members:** Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates increased by 5% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. *Beneficiary* • **All Beneficiaries:** Pub-2010 General Contingent Survivor Amount-Weighted Mortality Table (separate tables for males and females) with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Pre-Retirement Mortality Rates:

- **General Members:** Pub-2010 General Employee Amount-Weighted Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2019.
- **Safety Members:** Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2019.

	Rate (%)			
	General		Safety	
Age	Male	Female	Male	Female
25	0.03	0.01	0.03	0.02
30	0.04	0.01	0.04	0.02
35	0.05	0.02	0.04	0.03
40	0.07	0.04	0.05	0.04
45	0.10	0.06	0.07	0.06
50	0.15	0.08	0.10	0.08
55	0.22	0.12	0.15	0.11
60	0.32	0.19	0.23	0.14
65	0.47	0.30	0.35	0.20

Note that generational projections beyond the base year (2010) are not reflected in the above mortality rates.

All pre-retirement deaths are assumed to be non-service connected.

Mortality Rates for Member Contributions:

- **General Members:** Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates increased by 15% for females, projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2019, weighted 30% male and 70% female.
- **Safety Members:** Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2019, weighted 80% male and 20% female.

Disability Incidence Rates:

Age	Rate (%)	
	General	Safety
20	0.02	0.05
25	0.03	0.07
30	0.04	0.10
35	0.07	0.19
40	0.09	0.28
45	0.13	0.39
50	0.18	1.08
55	0.26	2.55
60	0.36	3.70
65	0.40	4.00

50% of General disabilities are assumed to be service connected disabilities. The other 50% are assumed to be non-service connected disabilities.

90% of Safety disabilities are assumed to be service connected disabilities. The other 10% are assumed to be non-service connected disabilities.

Termination Rates:

Years of Service	Rate (%)	
	General	Safety
Less than 1	17.00	9.00
1 – 2	13.00	8.00
2 – 3	10.00	7.00
3 – 4	9.00	6.00
4 – 5	8.50	5.00
5 – 6	8.00	4.00
6 – 7	7.00	3.50
7 – 8	6.00	3.25
8 – 9	5.00	3.00
9 – 10	4.00	2.60
10 – 11	3.75	2.20
11 – 12	3.50	1.80
12 – 13	3.25	1.60
13 – 14	3.00	1.40
14 – 15	2.75	1.20
15 – 16	2.50	1.00
16 – 17	2.30	0.90
17 – 18	2.10	0.75
18 – 19	1.90	0.75
19 – 20	1.70	0.75
20 – 21	1.50	0.00
21 – 22	1.30	0.00
22 – 23	1.10	0.00
23 – 24	1.00	0.00
24 – 25	1.00	0.00
25 – 26	1.00	0.00
26 – 27	1.00	0.00
27 – 28	1.00	0.00
28 – 29	1.00	0.00
29 – 30	1.00	0.00
30 & Over	0.00	0.00

Refer to the next table that contains rates for electing a refund of contributions upon termination. No termination is assumed after a member is first assumed to retire.

Electing a Refund of Contributions Upon Termination:

Years of Service	Rate (%)	
	General	Safety
Less than 5	100.00	100.00
5 – 6	36.00	44.00
6 – 7	34.00	40.00
7 – 8	32.00	38.00
8 – 9	30.00	32.00
9 – 10	28.00	30.00
10 – 11	26.00	26.00
11 – 12	25.00	25.00
12 – 13	24.00	21.00
13 – 14	23.00	18.00
14 – 15	22.00	15.00
15 – 16	21.00	12.00
16 – 17	18.00	10.00
17 – 18	16.00	8.00
18 – 19	14.00	6.00
19 – 20	13.00	4.00
20 – 21	12.00	0.00
21 – 22	11.00	0.00
22 – 23	10.00	0.00
23 – 24	8.00	0.00
24 – 25	6.00	0.00
25 – 26	4.00	0.00
26 – 27	2.00	0.00
27 & Over	0.00	0.00

Retirement Rates:

	Rate (%)			
	General			
	Tier I			
Age	Less Than 25 Years of Service	25 or More Years of Service	Tier IIA and IIB	Tier III
50	10.00	10.00	5.00	0.00
51	6.00	6.00	3.00	0.00
52	6.00	12.00	3.00	3.00
53	6.00	12.00	3.00	3.00
54	6.00	12.00	3.50	3.50
55	6.00	12.00	4.00	4.00
56	6.00	14.00	4.50	4.50
57	6.00	16.00	5.00	5.00
58	9.00	18.00	6.50	6.50
59	16.00	24.00	11.00	11.00
60	20.00	35.00	12.00	12.00
61	16.00	28.00	13.00	13.00
62	20.00	35.00	20.00	20.00
63	20.00	30.00	20.00	20.00
64	20.00	30.00	20.00	20.00
65	35.00	35.00	35.00	35.00
66	35.00	35.00	35.00	35.00
67	35.00	35.00	35.00	35.00
68	35.00	35.00	35.00	35.00
69	40.00	40.00	40.00	40.00
70	100.00	100.00	100.00	100.00

The retirement rates only apply to members who are eligible to retire at the age shown.

Retirement Rates (continued):

	Rate (%)		
	Safety		
	Tier I		
Age	Less Than 25 Years of Service	25 or More Years of Service	Tier IIA and IIB
45	5.00	5.00	0.00
46	5.00	5.00	0.00
47	5.00	5.00	0.00
48	5.00	5.00	0.00
49	25.00	25.00	0.00
50	10.00	30.00	3.00
51	8.00	24.00	3.00
52	8.00	24.00	3.00
53	8.00	24.00	5.00
54	12.00	24.00	11.00
55	14.00	28.00	13.00
56	14.00	28.00	12.00
57	8.00	28.00	12.00
58	8.00	28.00	12.00
59	14.00	28.00	12.00
60	25.00	28.00	12.00
61	25.00	50.00	12.00
62	25.00	50.00	25.00
63	25.00	50.00	25.00
64	25.00	50.00	25.00
65	100.00	100.00	100.00

The retirement rates only apply to members who are eligible to retire at the age shown.

Retirement Age and Benefit for Deferred Vested Members:	For current and future deferred vested members, retirement assumptions are as follows: General Retirement Age: 57 Safety Retirement Age: 53 We assume that 45% of future General and 60% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocal members, we assume 4.00% and 3.75% compensation increases per annum for General and Safety members, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male. If not provided, salary is assumed to be equal to the average salary of the membership group and tier.
Definition of Active Members:	All active members of KCERA as of the valuation date.
Form of Payment:	All active and inactive members are assumed to elect the unmodified option at retirement.
Percent Married:	For all active and inactive members, 70% of male members and 60% of female members are assumed to be married at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.

Appendix B: Proposed Actuarial Assumptions

Economic Assumptions

Net Investment Return:	7.00%, net of investment expenses.
Administrative Expenses:	0.95% of payroll allocated to both the employer and member based on the components of the total contribution rate (before expenses) for the employer and member.
Member Contribution Crediting Rate:	7.00%, compounded semi-annually.
Consumer Price Index (CPI):	Increase of 2.50% per year; retiree COLA increases due to CPI are limited to maximum of 2.50% per year.
Payroll Growth:	Inflation of 2.50% per year plus real “across the board” salary increases of 0.50% per year.
Increases in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 2.50% per year from the valuation date.
Increase in Section 7522.10 Compensation Limit:	Increase of 2.50% per year from the valuation date.

Salary Increases:

The annual rate of compensation increase includes:

- Inflation at 2.50%, plus
- "Across the board" salary increases of 0.50% per year, plus
- The following merit and promotion increases:

Years of Service	Rate (%)	
	General	Safety
Less than 1	5.00	7.00
1 – 2	5.25	8.00
2 – 3	4.50	6.00
3 – 4	4.00	5.50
4 – 5	3.25	5.00
5 – 6	2.75	4.00
6 – 7	2.25	3.50
7 – 8	2.00	3.00
8 – 9	1.75	2.00
9 – 10	1.50	1.75
10 – 11	1.25	1.25
11 – 12	1.15	1.25
12 – 13	1.05	1.25
13 – 14	1.00	1.25
14 – 15	0.90	1.25
15 – 16	0.80	1.00
16 & Over	0.70	1.00

Demographic Assumptions

Post-Retirement Mortality Rates:	*Healthy* • **General Members:** Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates unadjusted for males and increased by 15% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **Safety Members:** Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021. *Disabled* • **General Members:** Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates decreased by 5% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **Safety Members:** Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021. *Beneficiary* • **Beneficiaries not currently in Pay Status:** Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates unadjusted for males and increased by 15% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **Beneficiaries in Pay Status:** Pub-2010 General Contingent Survivor Amount-Weighted Mortality Table (separate tables for males and females) with rates increased by 10% for males and increased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Pre-Retirement Mortality Rates:

- **General Members:** Pub-2010 General Employee Amount-Weighted Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.
- **Safety Members:** Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.

	Rate (%)			
	General		Safety	
Age	Male	Female	Male	Female
25	0.03	0.01	0.03	0.02
30	0.04	0.01	0.04	0.02
35	0.05	0.02	0.04	0.03
40	0.07	0.04	0.05	0.04
45	0.10	0.06	0.07	0.06
50	0.15	0.08	0.10	0.08
55	0.22	0.12	0.15	0.11
60	0.32	0.19	0.23	0.14
65	0.47	0.30	0.35	0.20

Note that generational projections beyond the base year (2010) are not reflected in the above mortality rates.

All pre-retirement deaths are assumed to be non-service connected.

Mortality Rates for Member Contributions:

- **General Members:** Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates increased by 15% for females, projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2021, weighted 30% male and 70% female.
- **Safety Members:** Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2021, weighted 80% male and 20% female.

Disability Incidence Rates:

Age	Rate (%) General	Rate (%) Safety
20	0.02	0.05
25	0.02	0.07
30	0.03	0.10
35	0.06	0.18
40	0.08	0.33
45	0.11	0.46
50	0.16	1.01
55	0.22	2.34
60	0.31	3.75
65	0.35	4.25

50% of General disabilities are assumed to be service connected disabilities. The other 50% are assumed to be non-service connected disabilities.

90% of Safety disabilities are assumed to be service connected disabilities. The other 10% are assumed to be non-service connected disabilities.

Termination Rates:

Years of Service	Rate (%)	
	General	Safety
Less than 1	20.00	11.00
1 – 2	15.00	9.00
2 – 3	12.00	8.00
3 – 4	11.00	7.00
4 – 5	9.00	6.50
5 – 6	8.50	5.50
6 – 7	8.00	4.75
7 – 8	7.50	4.50
8 – 9	6.50	4.25
9 – 10	5.00	4.00
10 – 11	4.50	3.50
11 – 12	4.00	3.25
12 – 13	3.75	3.00
13 – 14	3.50	2.00
14 – 15	3.25	2.00
15 – 16	3.00	2.00
16 – 17	2.75	1.00
17 – 18	2.25	0.90
18 – 19	2.00	0.80
19 – 20	1.90	0.75
20 – 21	1.75	0.00
21 – 22	1.50	0.00
22 – 23	1.25	0.00
23 – 24	1.00	0.00
24 – 25	1.00	0.00
25 – 26	1.00	0.00
26 – 27	1.00	0.00
27 – 28	1.00	0.00
28 – 29	1.00	0.00
29 – 30	1.00	0.00
30 & Over	0.00	0.00

Proportion of Total Terminations Assumed to Elect a Refund of Contributions Upon Termination

Years of Service	Rate (%)	
	General	Safety
Less than 5	100.00	100.00
5 – 10	25.00	30.00
10 – 15	15.00	12.00
15 – 20	15.00	12.00
20 & Over	0.00	0.00

No termination is assumed after a member is eligible for retirement.

Retirement Rates:

	Rate (%)			
	General			
	Tier I			
Age	Less Than 25 Years of Service	25 or More Years of Service	Tier IIA and IIB	Tier III
50	10.00	10.00	5.00	0.00
51	6.00	6.00	3.00	0.00
52	6.00	10.00	3.00	3.00
53	5.00	12.00	3.00	3.00
54	5.00	12.00	3.25	3.25
55	5.00	12.00	3.50	3.50
56	6.00	14.00	4.00	4.00
57	5.00	16.00	4.50	4.50
58	9.00	20.00	6.50	6.50
59	14.00	24.00	11.00	11.00
60	20.00	30.00	12.00	12.00
61	14.00	24.00	13.00	13.00
62	20.00	30.00	20.00	20.00
63	20.00	30.00	20.00	20.00
64	20.00	30.00	20.00	20.00
65	33.00	33.00	33.00	33.00
66	33.00	33.00	33.00	33.00
67	30.00	30.00	30.00	30.00
68	30.00	30.00	30.00	30.00
69	35.00	35.00	35.00	35.00
70	100.00	100.00	100.00	100.00

The retirement rates only apply to members who are eligible to retire at the age shown.

Retirement Rates (continued):

	Rate (%)		
	Safety		
	Tier I		
Age	Less Than 25 Years of Service	25 or More Years of Service	Tier IIA and IIB
41	5.00	5.00	0.00
42	5.00	5.00	0.00
43	5.00	5.00	0.00
44	5.00	5.00	0.00
45	5.00	5.00	0.00
46	5.00	5.00	0.00
47	8.00	8.00	0.00
48	8.00	8.00	0.00
49	22.00	36.00	0.00
50	16.00	36.00	5.00
51	10.00	30.00	3.00
52	10.00	30.00	3.00
53	10.00	30.00	5.00
54	12.00	28.00	11.00
55	14.00	28.00	13.00
56	14.00	28.00	12.00
57	14.00	28.00	12.00
58	14.00	28.00	12.00
59	14.00	28.00	12.00
60	30.00	60.00	15.00
61	30.00	60.00	15.00
62	30.00	60.00	30.00
63	30.00	60.00	30.00
64	30.00	60.00	30.00
65	100.00	100.00	100.00

The retirement rates only apply to members who are eligible to retire at the age shown.

Retirement Age and Benefit for Deferred Vested Members:	For current and future deferred vested members, retirement assumptions are as follows: General Non-Reciprocal Retirement Age: 56 General Reciprocal Retirement Age: 60 Safety Retirement Age: 51 We assume that 45% of future General and 60% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocal members, we assume 3.70% and 4.00% compensation increases per annum for General and Safety members, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male. If not provided, salary is assumed to be equal to the average salary of the membership group and tier.
Definition of Active Members:	All active members of KCERA as of the valuation date.
Form of Payment:	All active and inactive members are assumed to elect the unmodified option at retirement.
Percent Married:	For all active and inactive members, 65% of male members and 55% of female members are assumed to be married at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.

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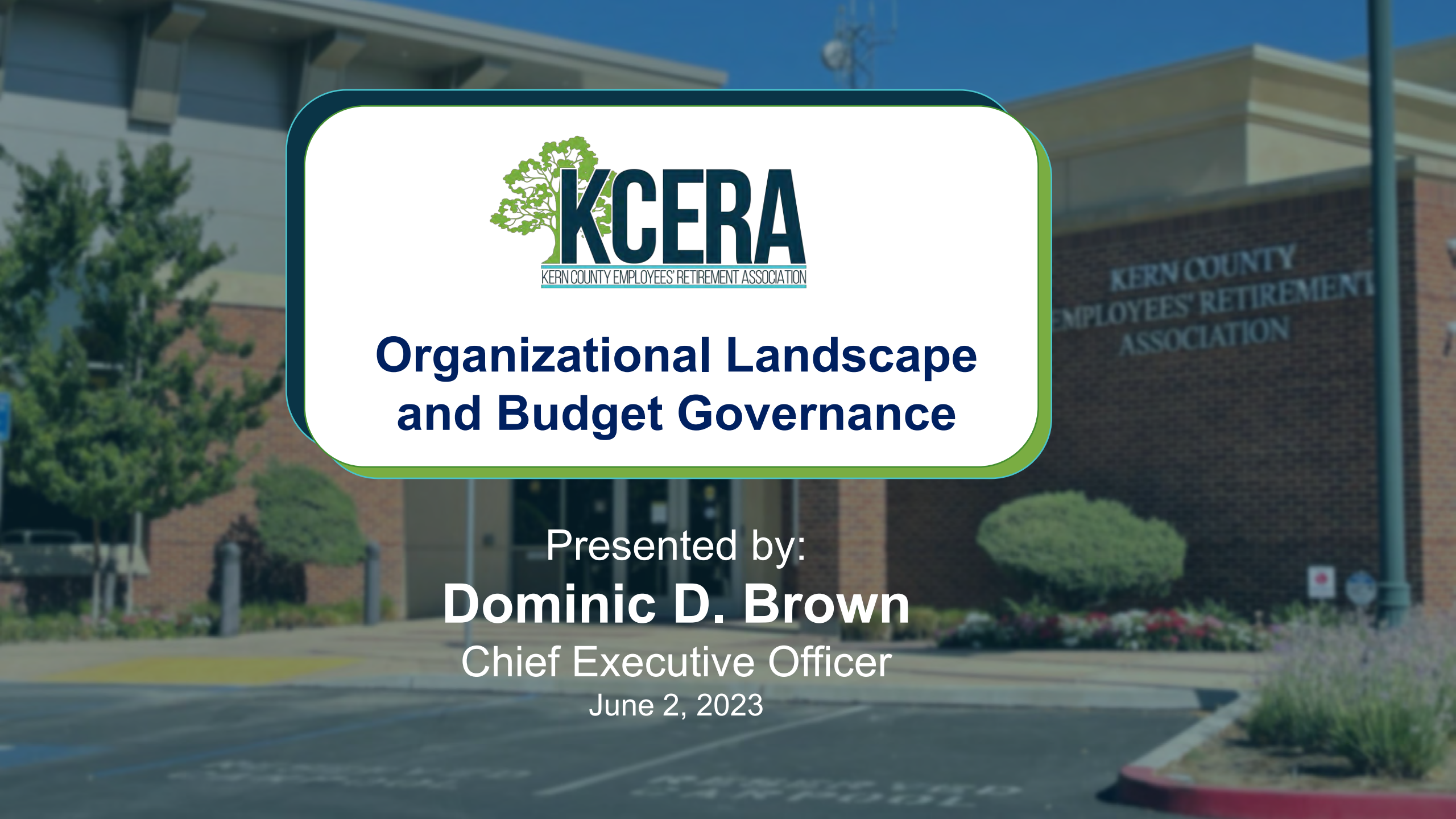


KCERA
KERN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Organizational Landscape and Budget Governance

Presented by:
Dominic D. Brown
Chief Executive Officer
June 2, 2023

Governance & Budget

- KCERA was established under the provisions of the County Employee Retirement Law of 1937 (CERL) by resolution of the Kern County Board of Supervisors. These provisions vest plenary authority of the management of the retirement system with the Board of Retirement.
- The complexity of benefits administration has increased significantly over the years, and the resource requirements to discharge those fiduciary duties are also increasing.
  - *Ventura* Decision, Tier I/Tier II, Service Purchases, PEPRA, Retiree Return to Work, Hospital Authority, Payroll Providers, Declining Employers, Affordable Care Act, Reciprocity, Portfolio Growth, *Alameda* Decision, etc.

Governance Landscape

- KCERA Board
  - 4-1-4 composition
- Government Code
  - An entire section of the government code is dedicated to the CERL and as the Plan Document, it governs the administration of KCERA's defined benefit system
- County Salary Schedule
- KCERA is responsible for delivering the pension promises made by our plan sponsors to their employees, to the extent allowed by our Plan and governing laws

The Five Fiduciary Pillars

Primary Loyalty to Members

- Avoid "two hat" conflicts of interest
- Attract and retain capable staff
- Provide superior member service
- Minimize risk of loss

Exclusive Benefit of Members

- Avoid diverting assets for other purposes
- Avoid impacting plan for others' goals
- Pay only reasonable expenses to administer fund

Prudent Care and Expertise

- Establish and follow good governance policies as a Board
- Be transparent
- Engage and delegate to expert staff and consultants
- Monitor and adjust as needed

Diversify the Assets

- Establish collective risk tolerance
- Seek risk-adjusted returns across all markets
- Weigh each investment for its contribution to whole program

Follow the Law

- Establish and comply with written plan documents
- Be mindful of public official role

Delegation and Oversight

- A public fiduciary may (often must!) delegate, but only to others who are held to the same fiduciary standards
- You have specific authority to delegate to staff

  CERL sec. 31522.1: "The board of retirement … may appoint such administrative, technical, and clerical staff personnel as are required to accomplish the necessary work of the boards. "
- But don't "set and forget" – prudent delegation requires vigilant oversight: Monitor, evaluate, adjust when appropriate
- Engage advisors (auditors, consultants, counsel) to help you exercise your oversight role

KCERA'S "Stakeholders"

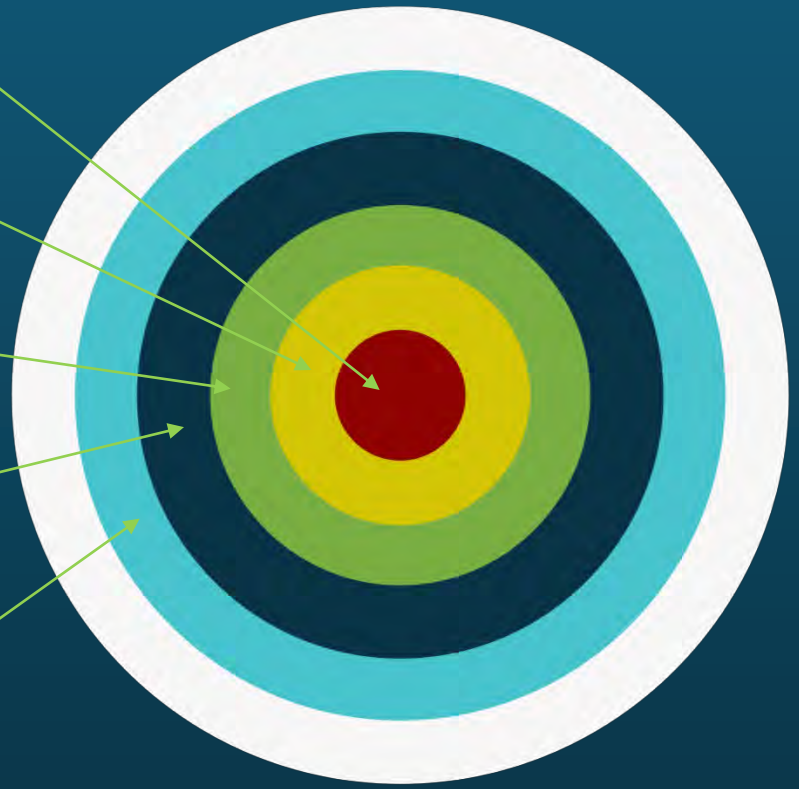
Members & Beneficiaries

Contributing Employers: County and Districts

Retiree Orgs.

General Public & Taxpayers

Third Parties: Unions, consultants, vendors…



Cal. Gov. Code section 31522.1 Appointment of Staff Personnel

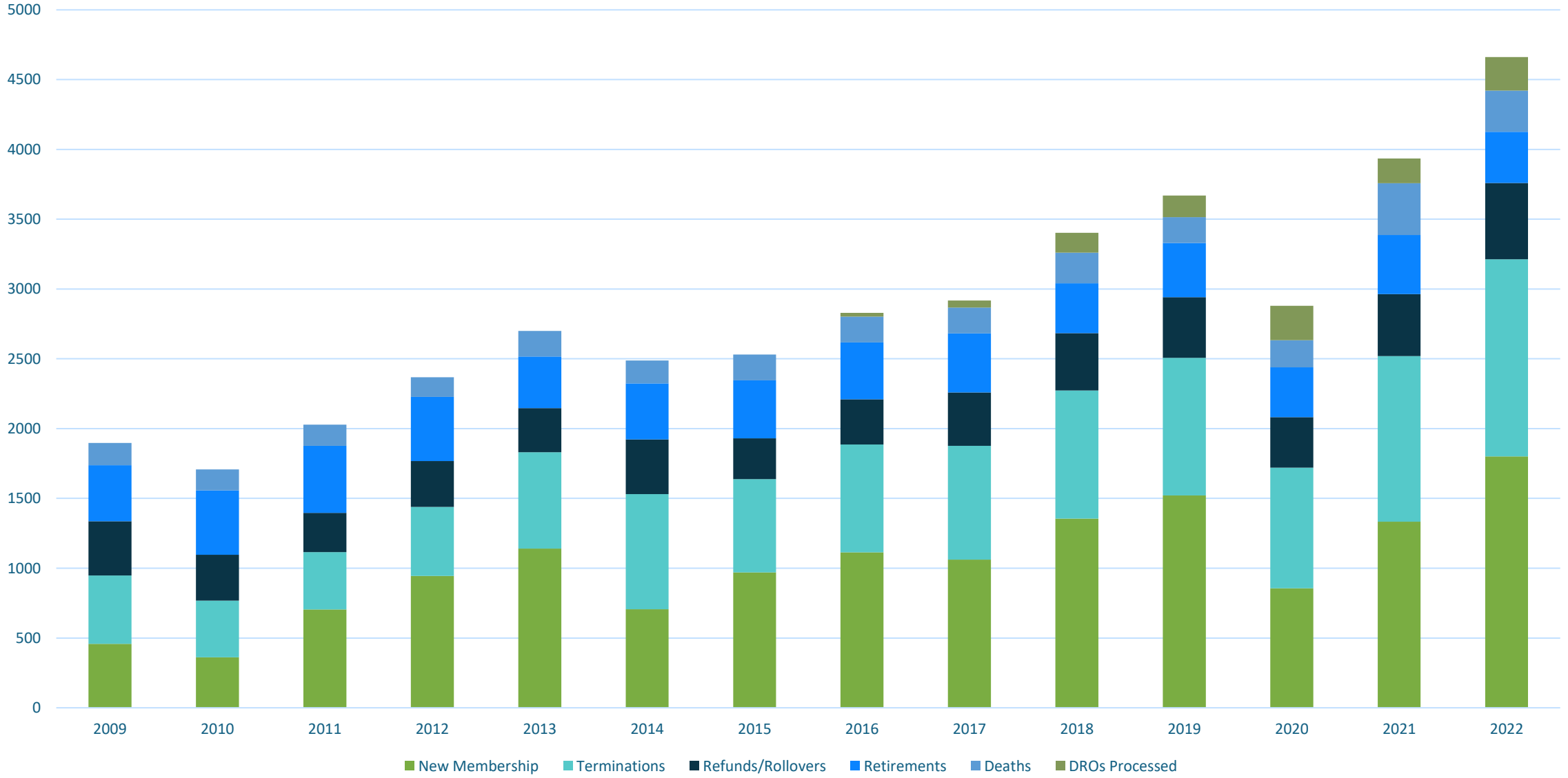
CERL – Cal. Gov. Code section 31522.1 –

The board of retirement and both the board of retirement and board of investment may appoint such administrative, technical, and clerical staff personnel as are required to accomplish the necessary work of the boards. The appointments shall be made from eligible lists created in accordance with the civil service or merit system rules of the county in which the retirement system governed by the boards is situated. The personnel shall be county employees and shall be subject to the county civil service or merit system rules or resolution adopted by the board of supervisors for the compensatioand shall be included in the salary ordinance n of county officers and employees.

California Constitution
Art. XVI, section 17 (Prop 162) (1992)

- "Notwithstanding any other provisions of law or this Constitution to the contrary, the retirement board of a public pension or retirement system shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system, subject to all of the following:
- (a) The retirement board of a public pension or retirement system shall have the sole and exclusive fiduciary responsibility over the assets of the public pension or retirement system. The retirement board shall also have sole and exclusive responsibility to administer the system in a manner that will assure prompt delivery of benefits and related services to the participants and their beneficiaries..."

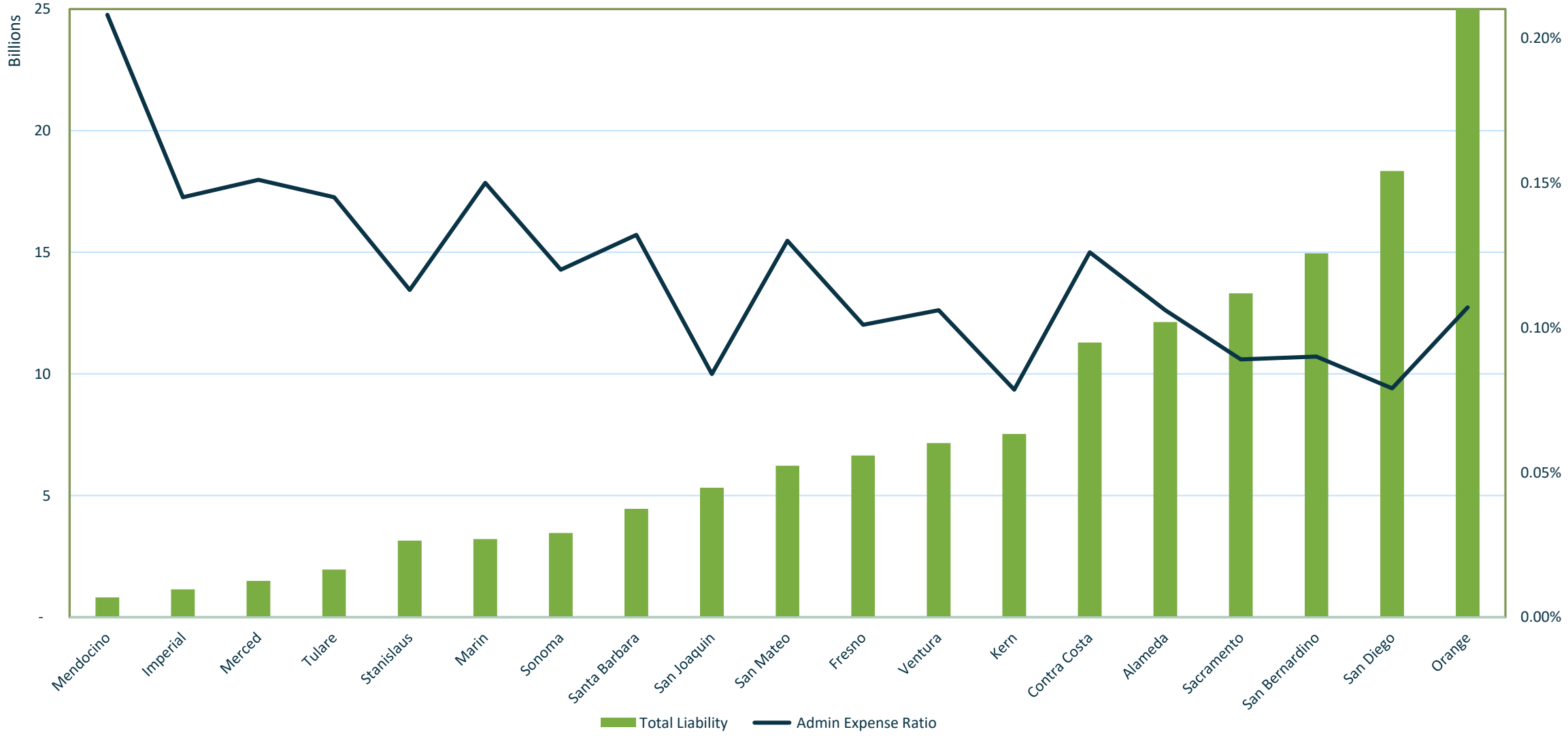
Member Activity by Year



Benchmarking

- The KCERA Board of Retirement is charged with exercising its fiduciary duty to determine the resources required in order to fulfill the KCERA mission and has independent budgetary authority to administer the system
- Other California State Association of County Retirement Systems (SACRS) peers can be a very helpful benchmark to help determine reasonable resource requirements
  - KCERA has a very low administrative expense ratio compared to peers

Total Liability vs. Admin Expense Ratio



APPFA & COSO

- The Association of Public Pension Fund Auditors, Inc. has published a document entitled *Operational Risks of a Defined Benefit and Related Plans and Controls to Mitigate those Risks*. A review of this document has revealed many risks that require additional resources in order to be sufficiently mitigated

  https://www.appfa.org/assets/docs/APPFA_OpRisk-Feb13-Final7.pdf

- COSO is an internal control framework that is used by accounting firms, the County, and other organizations for creating and evaluating business processes and internal controls

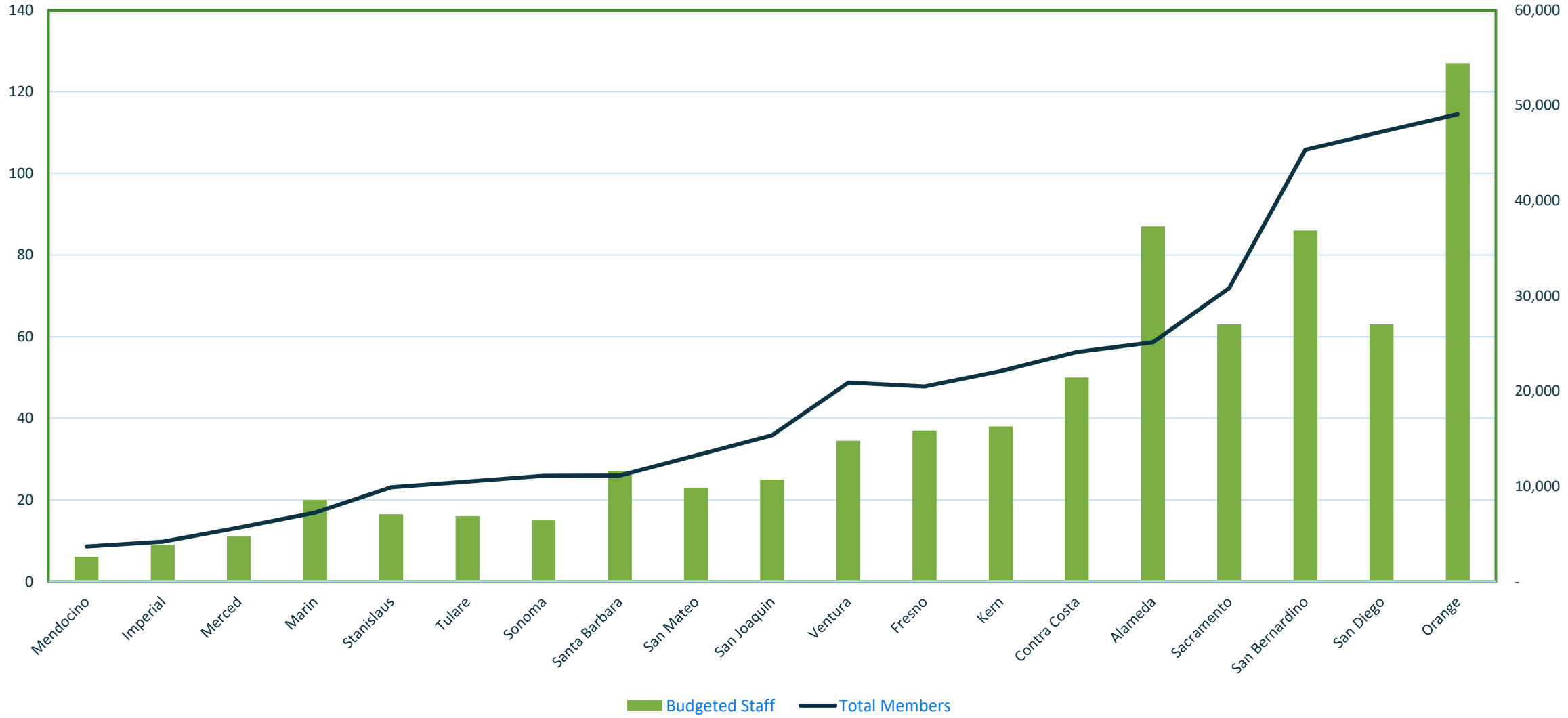
  https://www.coso.org/Documents/990025P-Executive-Summary-final-may20.pdf

- Staff has analyzed business processes throughout the organization and identified risks and opportunities to mitigate risks and improve service to our members

Uncompensated Operational Risks

- Errors in benefits, including tier placement, rate determinations, reciprocity analysis, service purchase calculations, special pay designations, MOU terms, COLA application, salary history analysis, etc.
- Slow response times to members including inquiries regarding retirement planning, service purchases, disability, DROs, etc.
- Attract and retain competent staff to carry out organizational responsibilities
- Headline risk

Staff vs Membership



Opportunities

- Mitigate operational risks
- Audit member data and enhance quality of member experience with KCERA by ensuring data is clean before member approaches retirement
- Enhance member education, especially retirement planning for Tier II members that will have a much smaller pension in retirement
- Member communication regarding domestic relations orders, member checklists, interaction with defined contribution plan, social security, health benefits, etc.

Reorganization

- KCERA completed a significant reorganization in the last few years, resulting in the addition of many positions, particularly in the investment section
- The next phase will focus on employee retention, cross-training, succession planning, and making sure that KCERA is strongly positioned to retain our high performing staff and be attractive in the talent marketplace

Expenses of Investing Money

CERL – Cal. Gov. Code section 31596.1 –

The expenses of investing its moneys shall be borne solely by the system. The following types of expenses shall not be considered a cost of administration of the retirement system, but shall be considered as a reduction in earnings from those investments or a charge against the assets of the retirement system as determined by the board: ….

- California Code, Cal. Gov't Code § 31596.1, Expenses of investing

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Conclusions

- KCERA must discharge its fiduciary duty to administer the plan prudently, including ensuring the Plan has adequate resources to administer benefits
- When compared with SACRS peers, KCERA's administrative expense ratio is very low because KCERA strives to be lean and efficient
- Staff has put together a plan to help KCERA discharge all fiduciary duties, while keeping administrative expenses as low as possible

KCERA's Mission Statement:

KCERA's mission is to administer the benefits with excellence, invest plan assets with prudence, and provide quality service to our members and their beneficiaries

Budget Book

For Fiscal Year

2023-24

Presented by:
Chief Executive Officer Dominic D. Brown, CPA, CFE
Chief Operations Officer Matthew Henry, CFE
Chief Financial Officer Angela Kruger

June 2, 2023

Table of Contents

SECTION I

Letter from the Chief Executive Officer

June 2, 2023

Members of the Board of Retirement:

I am pleased to present to you the proposed Operating Expense Budget for fiscal year 2023-24. Highlights of the 2022-23 and 2023-24 budgets include:

- The largest budgetary category is staff, which comprises 78.4% of the total proposed budget. The 2022-23 projected actual expense for staffing is $5.2 million, which is $901,853 less than what was approved.

- The proposed 2023-24 Administrative Expense Budget of $6.6 million (8.5 basis points) is $9.7 million (12.5 basis points) under the statutory limit of 21 basis points of the actuarial accrued liability of the retirement system, pursuant to Government Code Section 31580.2. See *Section IV – Administrative Expenses.*

- For 2023-24, staff recommends a budget of $8.77 million, which is $0.13 million (1.48%) more than last year's approved budget of $8.64 million. The increase is mainly due to higher expenses in salaries and benefits from cost-of-living increases granted by the County and the continued build-out of the schedule of authorized positions that was approved by the Board last year.

Key Events for Fiscal Year 2022-23

The past year brought new challenges as your Board evaluated management's proposals to improve operations, and opportunities to enhance the investment program and the services provided to KCERA members and stakeholders. This was all done while completing the historic *Alameda* Decision. In conjunction with the end of the state declared emergency, members and the public are welcomed back into the KCERA board room.

In this fiscal period, staff were added in Investments, Communications, and Member Services. The end of the year will bring about the Triennial Experience Study, strategic planning, asset-liability study, installation of a solar array, and several requests for proposals for services.

Future Expectations

In fiscal year 2023-24, I expect to see the strength of the organization continue to improve as management works to implement the strategic staffing plan that the Board approved last year, along with the next incremental improvements to continue to build for the future. Staff will seek to align duties and responsibilities with the appropriate level of personnel to improve the effectiveness and efficiency of each division. The initiatives included in the Strategic Plan are intended to further the Board's goals and priorities to enhance stakeholder relations, strengthen the investment program, leverage available technology in our operations, build the effectiveness of KCERA staff, and ensure plan sustainability.

In this year's budget projection, additional staff are being requested to assist your Board in continuing to meet challenges to maintain a culture of excellence, fiscal responsibility, transparency, and prudent management of risk. In doing so, your Board will set the future direction of the organization while ensuring that you meet your duties as fiduciaries of the plan.

Management is very grateful to the Board for the support it has received over the last year, and I am pleased to present you with KCERA's budget for 2023-24.

Sincerely,

Dominic D. Brown
Chief Executive Officer

SECTION II

Budget Policies and Process

Budget Policies and Process

Budget Policies

KCERA's budgeting policies and guidelines are based on the County Employees Retirement Law of 1937 ("CERL"), and the policies and charters of the Board of Retirement ("Board"). The California Government Code Section 31580.2 that governs the Kern County Employees' Retirement Association ("KCERA") specifies that the Board of Retirement "… shall annually adopt a budget covering the entire expense of administration of the retirement system, which expense shall be charged against the earnings of the retirement fund…"

The retirement system's administrative expenses are limited to 0.21% (21 basis points) of the Actuarial Accrued Liability. Government Code Sections 31522.6 and 31580.2(b) indicate that KCERA should exclude actuarial fees, investment-related expenses and technology from that portion of the operating expense budget subject to the statutory limit.

The Board annually adopts the operating budget for the administration of KCERA. Each line item is budgeted based on Board initiatives, past costs, vendor proposals, and estimates of anticipated expenses. The Board also reviews year-to-date actual expenses for budget compliance on a monthly basis. The budget may be amended throughout the fiscal year, if necessary. Budgeted amounts may be reallocated between categories at the discretion of the Chief Executive Officer. These reclassifications do not result in increases or decreases to the total approved budget. Increases or decreases to the total approved budget must be approved by the Board of Retirement. Action items to increase or decrease the approved budget are introduced by KCERA staff to the Finance Committee. If the Finance Committee deems the action item necessary, it will recommend approval to the Board of Retirement.

Budget Process

The Budget Team consists of the Chief Executive Officer, Chief Operations Officer, Chief Financial Officer, and the division managers of KCERA. The team members review the requirements of their respective divisions for the balance of the current fiscal year and the upcoming budget year. The Chief Financial Officer projects the current year-end actual expenses and the projected expenses for the budget year and finalizes the proposed budget.

The proposed budget is presented to the Finance Committee for review and feedback. Any revisions to the proposed budget recommended by the Finance Committee are incorporated to produce the final version the Committee recommends to the Board of Retirement for final adoption.

KCERA prepares the budget on an accrual basis in accordance with Generally Accepted Accounting Principles (GAAP) and consistent with KCERA's audited financial statements.

SECTION III

Operating Expense Budget

Operating Expense Budget

KCERA's annual Operating Expense Budget is a detailed plan established to estimate the anticipated costs of carrying out the necessary level of services or activities as proposed by the KCERA Board of Retirement.

The Board annually adopts the operating budget for the administration of KCERA. Each month, the Board reviews year-to-date actual expenses to ensure budget compliance.

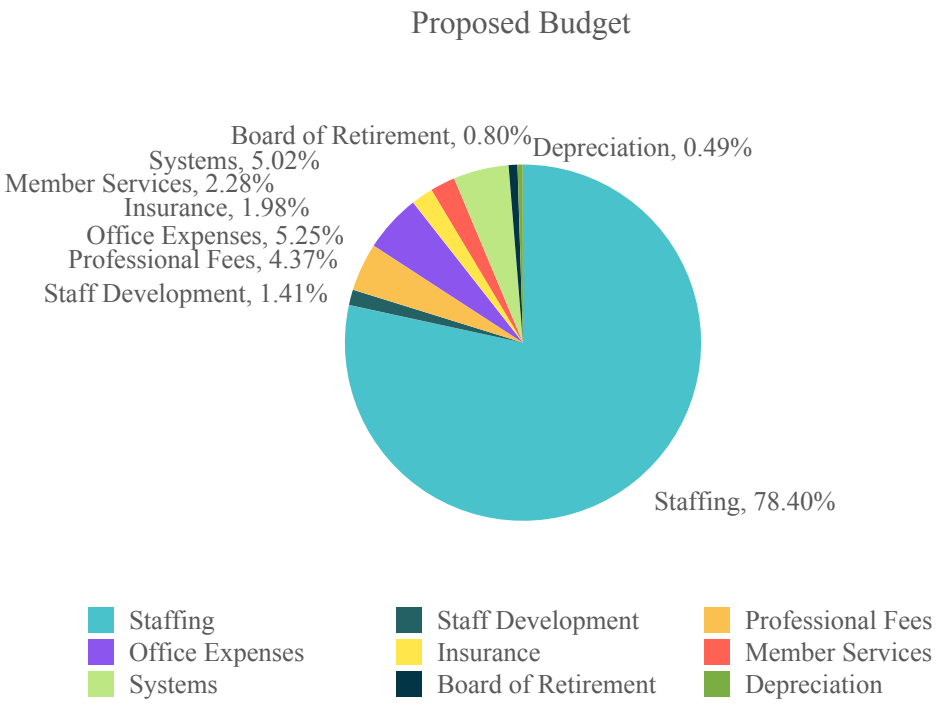
Important assumptions in the fiscal year 2023-24 budget include:

- Additional resources to complete the internal reorganization to effectively administer KCERA's service to plan sponsors.
    - Continued growth of Investment Unit to enhance KCERA's ability to effectively increase investment returns and meet the mandates required in managing a complex and diverse portfolio.
    - Anticipated 4% COLA increase for all staff.
    - Staff development to increase skills to proficient levels for new staff and continuing education.
- MMRO Disability Claim Review Service will continue to respond to KCERA's need to process disability claims more effectively.
- No Board election expenses, all trustees remain until terms expire next year or after.
- Proposed capital budget of $122,000 for Boardroom upgrades to be depreciated over a 10-year life and $118,914 for servers to be depreciated over a 5-year life.

KCERA's requested fiscal year 2023-24 Operating Expense Budget may be viewed on the following pages.

Operating Expense Budget Summary

Expense Type	FYE 23 Approved Budget	FYE 24 Proposed Budget	Increase (Decrease)	FYE 24 % of Total Operating Expenses
Staffing	$ 6,135,033	$ 6,871,078	$ 736,045	78.40 %
Staff Development	93,000	124,000	31,000	1.41 %
Professional Fees	385,500	383,275	(2,225)	4.37 %
Office Expenses	424,381	460,162	35,781	5.25 %
Insurance	160,595	173,384	12,789	1.98 %
Member Services	170,000	200,000	30,000	2.28 %
Systems	485,640	440,050	(45,590)	5.02 %
Board of Retirement	117,000	70,500	(46,500)	0.80 %
Depreciation	666,471	42,651	(623,820)	0.49 %
Total Operating Expenses	**$ 8,637,620**	**$ 8,765,100**	**$ 127,480**	**100 %**



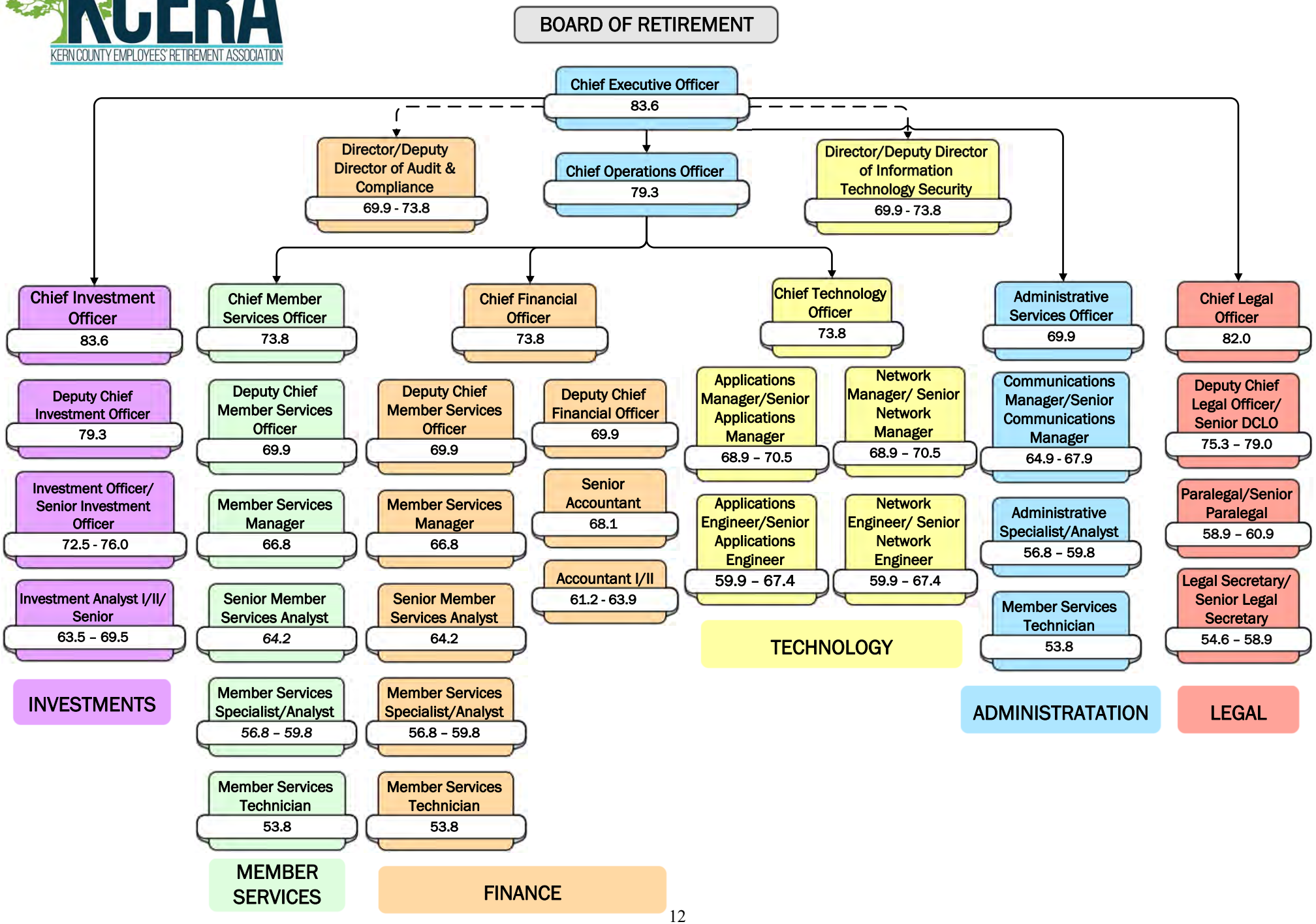
Operating Expense Budget

Expense Type	FYE 23 Approved Budget	FYE 23 Estimated Expenses	Over (Under)	FYE 24 Proposed Budget	Proposed vs. Approved Over (Under)	% Change
Staffing						
Salaries	3,724,357	3,293,008	(431,349)	4,215,888	491,531	
Benefits	2,410,676	1,922,135	(488,541)	2,655,190	244,514	
Temporary staff	—	18,037	18,037	—	—	
Staffing Total	6,135,033	5,233,180	(901,853)	6,871,078	736,045	12.00 %
Less Investment Staffing	(772,168)	(681,231)	(90,937)	(1,670,453)	(898,285)	
	5,362,865	4,551,949	(992,790)	5,200,625 $	(162,240)	
Staff Development						
Education & Professional	90,000	90,531	531	120,000	30,000	
Staff Appreciation	3,000	2,956	(44)	4,000	1,000	
Staff Development Total	93,000	93,487	487	124,000	31,000	33.33 %
Professional Fees						
Actuarial fees	140,000	121,623	(18,377)	100,000	(40,000)	
Audit fees	50,500	48,480	(2,020)	98,275	47,775	
Consultant fees	115,000	86,500	(28,500)	115,000	—	
Legal fees	80,000	36,475	(43,525)	70,000	(10,000)	
Professional Fees Total	385,500	293,078	(92,422)	383,275	(2,225)	(0.58) %
Office Expenses						
Building expenses	115,000	95,064	(19,936)	124,000	9,000	
Communications	72,770	27,449	(45,321)	84,062	11,292	
Equipment lease	9,600	8,788	(812)	12,000	2,400	
Equipment maintenance	7,178	2,000	(5,178)	10,100	2,922	
Memberships	20,000	8,220	(11,781)	20,000	—	
Office supplies & misc. admin.	68,300	37,174	(31,126)	80,000	11,700	
Payroll & accounts payable fees	27,800	18,117	(9,683)	25,000	(2,800)	
Other Services - Kern County	40,000	20,000	(20,000)	40,000	—	
Postage	20,000	19,069	(931)	20,000	—	
Subscriptions	13,733	12,841	(892)	15,000	1,267	
Utilities	30,000	47,015	17,015	30,000	—	
Office Expense Total	424,381	295,737	(128,645)	460,162	35,781	8.43 %
Insurance	160,595	162,795	2,200	173,384	12,789	7.96 %
Member Services						
Disability – administration	170,000	137,175	(32,825)	200,000	30,000	
Member Services Total	170,000	137,175	(32,825)	200,000	30,000	17.65 %
Systems						
Audit – security & vulnerability	15,000	13,750	(1,250)	15,000	—	
Business continuity expenses	23,850	16,934	(6,916)	16,050	(7,800)	
Hardware	48,453	12,647	(35,806)	37,420	(11,033)	
Licensing & support	148,413	136,549	(11,864)	140,780	(7,633)	
Software	164,229	139,446	(24,783)	217,600	53,371	
Website design & hosting	85,695	50,290	(35,405)	13,200	(72,495)	
Systems Total	485,640	369,616	(116,024)	440,050	(45,590)	(9.39) %
Board of Retirement						
Board compensation	12,000	8,640	(3,360)	12,000	—	
Board conferences & training	50,000	38,333	(11,667)	50,000	—	
Board elections	50,000	—	(50,000)	—	(50,000)	
Board meetings	5,000	2,716	(2,284)	8,500	3,500	
Board of Retirement Total	117,000	49,689	(67,311)	70,500	(46,500)	(39.74) %
Depreciation	666,471	659,455	(7,016)	42,651	(623,820)	(93.60) %
Total Operating Expenses	**8,637,620**	**7,294,212**	**(1,343,409)**	**8,765,100**	**127,480**	**1.48 %**

Operating Expense Budget 2023-24 Proposed Budget vs. 2022-23 Approved Budget	Variance Over (Under)
Staff Staffing	
· Increased cost for Investment, Legal, and Administrative staff	736,045
Sub-Total	**736,045**
Staff Development	
· Increased cost due career development and education for additional KCERA staff.	31,000
Sub-Total	**31,000**
Professional Fees	
· Prior year special projects - Actuarial Triennial Experience Study	(40,000)
· Plan sponsor compliance audit fees	47,775
· Decreased legal fees related to prior year special project - Alameda Decision	(10,000)
Sub-Total	**(2,225)**
Office Expenses	
· Increase in property management and building expenses,	9,000
· Increase in equipment and communications	17,881
· Increased office expenses related to additional staff and cost of goods	11,700
· Anticipated decrease in WFB payroll account fees due to higher interest rates.	(2,800)
Sub-Total	**35,781**
Insurance	
· Increased costs associated to insurance premiums	12,789
Sub-Total	**12,789**
Member Services	
· Anticipated increase in MMRO service fees and other fee related to disability claim review services	30,000
Sub-Total	**30,000**
Systems	
· Decrease for business continuity expenses	(7,800)
· Decreased expenses related to hardware purchases	(11,033)
· Increased costs for new Investment related software	45,738
· Website hosting digital deployment completed in prior year	(72,495)
Sub-Total	**(45,590)**
Board of Retirement	
· Elections for trustees	(50,000)
· Increased costs due to return to in-person meetings	3,500
Sub-Total	**(46,500)**
Depreciation	
· CPAS Pension Administration Software fully depreciated in prior year	(623,820)
Sub-Total	**(623,820)**
Total Over (Under)	**127,480**

Operating Expense Budget 2022-23 Estimated Expenses vs. 2022-23 Approved Budget	Variance Over (Under)
Staff Staffing	
· Savings in permanent positions not filled 100% of the time during the fiscal year	(901,853)
Sub-Total	**(901,853)**
Staff Development	
· Increase in staff's attendance at conferences/meetings/training	487
Sub-Total	**487**
Professional Fees	
· Savings in consulting services	(92,422)
Sub-Total	**(92,422)**
Office Expenses	
· Decreased office expense, including utilities	(88,709)
· Decrease in building expenses due to completion of expansion projects	(19,936)
· Decrease in anticipated expenses for services provided by Kern County	(20,000)
Sub-Total	**(128,645)**
Insurance	
· Net increase in insurance expenses	2,200
Sub-Total	**2,200**
Member Services	
· Expended less than estimated for disability professionals & services	(32,825)
Sub-Total	**(32,825)**
Systems	
· Applied savings from other IT expenses to purchase hardware and software	(72,453)
· Savings from security audit and other IT expenses	(43,571)
Sub-Total	**(116,024)**
Board of Retirement	
· Savings in Board meeting expenses	(5,644)
· Trustees' attendance at conferences/training	(11,667)
· Board Elections unnecessary - Trustees ran unopposed	(50,000)
Sub-Total	**(67,311)**
Depreciation	
· Depreciation on servers	(7,016)
Sub-Total	**(7,016)**
Total Over (Under)	**(1,343,409)**

KCERA
KERN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION



FY 2023-24

	Positions	Range	Position Limit	Section Limit
Administration	Chief Executive Officer	83.6	1	6
	Chief Operations Officer	79.3	1	
	Administrative Services Officer	69.9	1	
	Senior Communications Manager	67.9	1	
	Communications Manager	64.9		
	Administrative Analyst	59.8	2	
	Administrative Specialist	56.8		
	Member Services Technician	53.8		
Investments	Chief Investment Officer	83.6	1	5
	Deputy Chief Investment Officer	79.3	1	
	Senior Retirement Investment Officer	76.0	3	
	Retirement Investment Officer	72.5		
	Senior Retirement Investment Analyst	69.5	3	
	Retirement Investment Analyst II	66.5		
	Retirement Investment Analyst I	63.5		
Legal	Chief Legal Officer	82.0	1	5
	Senior Deputy Chief Legal Officer	79.0	1	
	Deputy Chief Legal Officer	75.3		
	Senior Paralegal	60.9	3	
	Paralegal	58.9		
	Senior Legal Secretary	58.9		
	Legal Secretary	54.6		
Finance	Chief Financial Officer	73.8	1	9
	Director of Audit & Compliance	73.8	1	
	Deputy Director of Audit & Compliance	69.9		
	Deputy Chief Financial Officer	69.9	1	
	Senior Accountant	68.1	3	
	Accountant II	63.9		
	Accountant I	61.2		
	Deputy Chief Member Services Officer	69.9	1	
	Member Services Manager	66.8	1	
	Senior Member Services Analyst	64.2	3	
	Member Services Analyst	59.8	5	
	Member Services Specialist	56.8		
	Member Services Technician	53.8		
Technology	Chief Technology Officer	73.8	1	5
	Director of Information Technology Security	73.8	1	
	Deputy Director of Information Tech. Security	69.9		
	Senior Network Manager	70.5	2	
	Network Manager	68.9		
	Senior Applications Manager	70.5		
	Applications Manager	68.9		
	Senior Network Engineer	67.4	2	
	Network Engineer	59.9		
	Senior Applications Engineer	67.4		
	Applications Engineer	59.9		
Member Services	Chief of Member Services Officer	73.8	1	10
	Deputy Chief Member Services Officer	69.9	1	
	Member Services Manager	66.8	1	
	Senior Member Services Analyst	64.2	3	
	Member Services Analyst	59.8	6	
	Member Services Specialist	56.8		
	Member Services Technician	53.8		
			Total	40

SECTION IV

Administrative Expenses

Administrative Expense Budget

The administrative expenses incorporates the limits of Section 31580.2 of the County Employees Retirement Act of 1937, whereby administrative expenses are "capped" at 0.21% of KCERA's actuarially accrued liabilities. The liability is calculated by KCERA's actuary. Pursuant to the relevant code sections, certain costs are excluded from the expense cap, namely those associated with investment related costs, expenditures for computer software, hardware and related technology consulting services.

Comparison of Administrative Expenses to Limits (Section 31580.2)	FY20 Budget	FY21 Budget	FY22 Budget	FY23 Budget*	FY24 Proposed Budget**
Total actuarial accrued liabilities	$6,622,495,000	$7,005,589,000	$7,164,225,000	$7,372,653,000	$7,770,000,000
Limit on expenses in basis points	21.00	21.00	21.00	21.00	21.00
Maximum allowed	$13,907,240	$14,711,737	$15,044,873	$15,482,571	$16,317,000
Operating expenses budget	$6,494,595	$6,754,287	$7,580,588	$8,637,620	$8,765,100
Less information technology expenses	$(965,354)	$(961,006)	$(1,010,998)	$(1,152,111)	$(482,701)
Less investment staff salaries	$(682,500)	$(797,332)	$(772,168)	$(1,560,610)	$(1,670,453)
Administrative expenses	$4,846,741	$4,995,949	$5,797,422	$5,924,899	$6,611,946
Over (Under) Maximum	**$(9,060,499)**	**$(9,715,788)**	**$(9,247,451)**	**$(9,557,672)**	**$(9,705,054)**
Basis Points	**7.32**	**7.13**	**8.09**	**8.04**	**8.51**

* Based on total actuarial accrued liabilities for pension as of June 30, 2022 (latest available actuarial valuation).

** Based on projected valuation value of assets and actuarial accrued liabilities (ASOP 51 Risk Report September 4, 2019).