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Tulare County Employees' Retirement Association

Actuarial Valuation Report as of June 30, 2023

Produced by Cheiron

Revised – December 2023

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Appendices

December 4, 2023

Board of Retirement
Tulare County Employees' Retirement Association
136 N. Akers St.
Visalia, CA 93291

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Tulare County Employees' Retirement Association (TCERA, the System, the Fund, the Plan) as of June 30, 2023. This report contains information on the System's assets, liabilities, and discloses employer contribution levels. Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report.

The purpose of this report is to present the results of the annual actuarial valuation of TCERA. This report was prepared for the TCERA Board of Retirement for the purposes described herein and for use by the plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Sincerely,
Cheiron

Graham A. Schmidt, ASA, EA, FCA, MAAA	Steven M. Hastings, FSA, EA, FCA, MAAA
Consulting Actuary	Consulting Actuary

FOREWORD

Cheiron has performed the actuarial valuation of the Tulare County Employees' Retirement Association as of June 30, 2023. The valuation is organized as follows:

- In Section I, the **Executive Summary,** we describe the purpose of an actuarial valuation, summarize the key results found in this valuation, and disclose important trends.

- The **Main Body** of the report presents details on the System's

    - Section II – Disclosures Related to Risk
    - Section III – Assets
    - Section IV – Liabilities
    - Section V – Contributions
    - Section VI –Annual Comprehensive Financial Reporting Information

- In the **Appendices,** we conclude our report with detailed information describing plan membership (Appendix A), actuarial assumptions and methods employed in the valuation (Appendix B), a summary of pertinent plan provisions (Appendix C), a glossary of key actuarial terms (Appendix D), and tables containing member contribution rates (Appendix E).

Future results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and, changes in plan provisions or applicable law.

This report was prepared using census data and financial information as of the valuation date, June 30, 2023. Events following that date are not reflected in this report. Actual experience, both demographic and economic, will be reflected in subsequent valuations as experience emerges.

In preparing our report, we relied on information (some oral and some written) supplied by the TCERA staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

SECTION I – EXECUTIVE SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify the following as of the valuation date:

- The funded status of the System,
- Past and expected trends in the funding progress of the System,
- Employer and employee contribution rates for Plan Year 2024-2025,
- An assessment and disclosure of key risks, and
- Information required by the GFOA for the Annual Comprehensive Financial Report (ACFR).

In the balance of this Executive Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key results, (C) an examination of the historical trends, and (D) the projected outlook for the System.

A. Valuation Basis

This valuation determines the employer contributions required for the employers' fiscal years beginning July 1, 2024. The System's funding policy is to collect contributions from the employers and employees equal to the sum of (1) the normal cost under the Entry Age Normal Cost Method and (2) amortization of the Unfunded Actuarial Liability.

The Unfunded Actuarial Liability (UAL) is the excess of the Actuarial Liability over the Actuarial Value of Assets. Based on the funding policy adopted by the Board at its October 28, 2015 meeting, the UAL payment in the current valuation is the amount needed to fund the June 30, 2015 UAL over a closed 19-year period with payments as a level percentage of payroll, assuming payroll increases of 3.00% per year, with subsequent gains and losses being amortized over new 19-year closed periods, also as a level percentage of payroll.

Actuarial experience studies are performed every three years. This valuation was performed using the economic and demographic assumptions adopted by the Board, which are based on the experience study presented by Cheiron on October 11, 2023 and described in detail in a follow-up report revised and delivered to the Board on December 13, 2023. There were changes to the mortality and termination rates, the merit/longevity pay increase rates, the form of payment assumptions, and various other demographic assumptions. The discount rate remains 7.00%. A summary of the assumptions and methods used in the current valuation is shown in Appendix B.

The contribution determined under these policies and assumptions represents a reasonable actuarially determined contribution (ADC) in accordance with Actuarial Standard of Practice (ASOP) No. 4. The actuarial methods have been selected to balance benefit security, intergenerational equity, and stability of actuarially determined contributions. The selection of the actuarial methods has taken into account the demographics of plan members, the funding goals and objectives of the Board, and the need to accumulate assets to make benefit payments when due.

SECTION I – EXECUTIVE SUMMARY

At the direction of the Board, the UAL and contribution rates shown in Tables I-1 and I-4 do not reflect any estimated liabilities associated with future transfers to the Supplemental Retiree Benefit Reserve (SRBR). An estimate of this liability has been disclosed in Table IV-4.

This valuation was prepared based on the plan provisions shown in Appendix C. There have been no changes to the plan provisions since the last valuation. This valuation does not include any consideration of external liabilities (or related debt service payments) incurred by the Plan sponsors outside of TCERA, such as those related to pension obligation bonds, which would be disclosed in Tulare County's Annual Comprehensive Financial Report.

B. Key Findings of this Valuation

The key results of the June 30, 2023 actuarial valuation are as follows:

- The average actuarially determined employer contribution rate increased from 16.01% of payroll to 17.31% of payroll. Information on the contribution rates and changes from last year to this year may be found in Tables I-4 and I-5.

- There was a 0.56% increase in the employer rate due to investment losses for the plan year ending June 30, 2023. On a Market Value of Assets basis, the Plan earned 6.74%, as compared to the prior year's 7.00% assumed return. On a smoothed (Actuarial Value of Assets) basis, the return was 5.77%.

- The UAL is the excess of the System's Actuarial Liability over the Actuarial Value of Assets. The System experienced an increase in the UAL from $207.2 million as of June 30, 2022 to $286.2 million as of June 30, 2023. The $79.0 million increase in the UAL was primarily due to investment ($22.6 million) and liability ($76.7 million) losses, partially offset by the impact of assumption changes which reduced the UAL by $14.0 million. A detailed reconciliation of the components of change in the UAL is shown in Table I-3.

- The remaining balance of the June 30, 2015 UAL is being amortized over 11 years and the remaining balances for each of the subsequent UAL layers are being amortized over periods that extend by one additional year each (e.g., the UAL loss from the plan year ending June 30, 2016 is being amortized over 12 years). Finally, the UAL loss for the plan year ending June 30, 2023 is being amortized as a new 19-year layer.

- The System's funded ratio, the ratio of actuarial assets over Actuarial Liability, decreased from 89.9% last year to 87.0% as of June 30, 2023. On a market value basis, the funded ratio decreased from 83.3% last year to 81.4% this year. The Actuarial Value of Assets is higher than the market value, meaning that there are deferred investment losses that will be recognized in the Actuarial Value of Assets (and employer contributions) in future years.

- During the 2022-2023 Plan year, the actuarial liabilities of the System increased more than expected. The liability losses were associated primarily with higher salary and post-retirement Cost-of-Living-Adjustments (COLAs) than expected and increases in the COLA banks during the year.

- Overall participant membership increased compared to last year, from 10,484 to 10,820. The total active population increased from 4,432 to 4,505 and total projected payroll increased from $293,444,953 to $323,042,880. The number of inactives increased from 2,467 to 2,633, while the number of retirees increased from 3,585 to 3,682.

- In Table IV-4 of this valuation, we have disclosed a liability of $125.9 million associated with future transfers to the Supplemental Retiree Benefit Reserve (SRBR). This is similar to the estimated liability from the prior valuation ($118.7 million), which was expected since the return on the Market Value of Assets was reasonably close to the assumption and there are still $124.4 million in unrecognized asset losses reflected in the Actuarial Value of Assets. These losses will flow to the Actuarial Value of Assets over 10 years and reduce the likelihood of future transfers.

The liability associated with future transfers is based on a simulation of investment returns and represents the accrued portion of the present value of SRBR transfers expected to result from future returns on the Actuarial Value of Assets in excess of the 7.00% assumption. It has not been reflected in the calculation of the employer contribution rate. Future SRBR transfers would result in lower net asset experience, which will be reflected in future amortization layers.

If the liability for future SRBR transfers were to be pre-funded, the employer contribution would be approximately $10.0 million higher, or about 3.1% of pay. We have also disclosed a liability of $106.1 million associated with the current SRBR balance, which is equal to the current balance of the SRBR, less the portion assumed to represent future benefit accruals. Note that the disclosure of these liabilities does not imply that the current benefit levels are guaranteed. Our understanding is that the Board has the power to adjust the benefit amounts paid from the SRBR.

On the following pages, we present Tables I-1 and I-2, which summarize the key results of the valuation with respect to TCERA assets, liabilities, Unfunded Actuarial Liability, funded ratios, and membership. The results are presented and compared for both the current and prior plan year.

The leverage ratios are equal to the Market Value of Assets (or Actuarial Liability) divided by payroll and represent a measure of the size of the plan relative to the plan sponsor. For additional discussion, see the discussion of maturity measures in Section II of this report.

SECTION I – EXECUTIVE SUMMARY

Table I-1

Summary of Key Valuation Results - Funded Status

(in thousands)

Valuation Date	June 30, 2022	June 30, 2023	% Change
Actuarial Liability	$ 2,047,350	$ 2,201,923	7.5%
Market Value of Assets	$ 1,819,009	$ 1,904,054	4.7%
Market Value of Assets (Excluding SRBR)	1,705,307	1,791,352	5.0%
Actuarial Value of Assets (Excluding SRBR)	1,840,109	1,915,710	4.1%
Unfunded Actuarial Liability (UAL)			
- based on Market Value of Assets	$ 342,043	$ 410,571	20.0%
- based on Actuarial Value of Assets	207,241	286,213	38.1%
Funding Ratio - Market value basis	83.3%	81.4%	-1.9%
Funding Ratio - Actuarial value basis	89.9%	87.0%	-2.9%
Expected Payroll	$ 293,445	$ 323,043	10.1%
Asset Leverage Ratio (Excluding SRBR)	5.8	5.5	-4.6%
Actuarial Liability Leverage Ratio	7.0	6.8	-2.3%
Interest on UAL (MVA basis)	$ 23,943	$ 28,740	20.0%
Interest Cost as Percent of Payroll	8.2%	8.9%	0.7%

Numbers may not add to totals due to rounding.

SECTION I – EXECUTIVE SUMMARY

Table I-2
Membership Total

Item	June 30, 2022	June 30, 2023	% Change
Actives	4,432	4,505	1.6%
Inactives	2,467	2,633	6.7%
Members Receiving Benefits	3,585	3,682	2.7%
Total Members	10,484	10,820	3.2%
Ratio of Retired Members to Active Members	80.9%	81.7%	0.8%
Active Member Projected Payroll for FYE June 30, 2023 and 2024	$ 293,444,953	$ 323,042,880	10.1%
Average Pay per Active	$ 66,211	$ 71,708	8.3%

The Unfunded Actuarial Liability (UAL) for TCERA increased by $79.0 million, from $207.2 million to $286.2 million. Table I-3 below presents the specific components of the change in the UAL.

The UAL was expected to decrease by $6.6 million, due to the scheduled amortization payment being greater than the interest on the UAL. Asset losses – i.e., the smoothed investment return below last year's assumed rate of 7.00% – increased the UAL by $22.6 million, which was compounded by liability experience losses of $76.7 million. Contributions were slightly less than the actuarial cost, due to the phase-in of prior assumption changes, increasing the UAL by $0.3 million. A detailed breakdown of the liability experience can be found in Table IV-2.

Table I-3
Change in Unfunded Actuarial Liability

Experience	(in thousands)
Unfunded actuarial liability, 6/30/2022	$ 207,241
Expected change in unfunded actuarial liability	(6,634)
Increase due to investment loss	22,555
Increase due to contributions less than actuarial cost	349
Increase due to liability loss	76,717
Increase due to assumption changes	(14,014)
Total change in unfunded actuarial liability	$ 78,972
Unfunded actuarial liability, 6/30/2023	$ 286,213

Numbers may not add to totals due to rounding.

SECTION I – EXECUTIVE SUMMARY

Employer and Employee Contributions

Table I-4 below compares the net employer contribution rate and its components to those from the prior year. The overall net employer contribution rate increased by 1.30% for the June 30, 2023 valuation. The net employer normal cost rate decreased by 0.23% and the UAL rate increased by 1.53%. The average employee rate decreased by 0.19%, from 9.07% to 8.88%.

Additional details on contributions may be found in Section V, including separate rates for the County versus the other employers, which have been included in this report to reflect the Board's decision to allocate the cost impact of the POB contribution to the County only. Future investment experience related to the POB contribution will be shared amongst all TCERA employers.

Table I-4
Summary of Contributions

	FYE 2024	FYE 2025	Change
Contribution Rates			
Net Employer Contribution Rate	16.01%	17.31%	1.30%
Estimated Employee Contribution Rate	9.07%	8.88%	-0.19%
Total Contribution Rate	25.08%	26.19%	1.10%
Net Employer Contribution Rate	16.01%	17.31%	
Estimated Net Employer Contributions *(in thousands)*	$ 48,372	$ 57,563	$ 9,191
Total Contribution Rate			
Estimated Employee Contribution Rate	9.07%	8.88%	-0.19%
Employer Normal Cost Rate	9.03%	8.80%	-0.23%
Total Normal Cost Rate	18.10%	17.68%	-0.43%
UAL Rate			
Interest on Market Value UAL	8.16%	8.90%	0.74%
Principal on Market Value UAL	-1.18%	-0.39%	0.79%
Total UAL Rate	6.98%	8.51%	1.53%
Total Contribution Rate	25.08%	26.19%	1.10%

Numbers may not add to totals due to rounding.

SECTION I – EXECUTIVE SUMMARY

Table I-5 summarizes the changes in the employer contribution rate. As discussed earlier in this section, the largest sources of change were increases due to the liability and investment losses. The increases were partially offset by payroll growing faster than expected, which reduced the amortization payment as a percentage of payroll, and assumption changes which lowered the normal cost and unfunded liability. In aggregate, the employer contribution rate increased from 16.01% for FYE 2024 to 17.31% for FYE 2025.

Table I-5
Employer Contribution Reconciliation

Item	Normal Cost	Amortization	Total
FYE 2024 Net Employer Contribution Rate	9.03%	6.98%	16.01%
Change due to asset loss	0.00%	0.56%	0.56%
Change due to contributions less than actuarial cost	0.00%	0.01%	0.01%
Change due to demographic gains and losses	0.04%	1.88%	1.91%
Change due to payroll more than expected	0.00%	-0.60%	-0.60%
Change due to assumption changes	-0.27%	-0.32%	-0.59%
Total Change in Employer Rate	-0.23%	1.53%	1.30%
FYE 2025 Net Employer Contribution Rate	8.80%	8.51%	17.31%

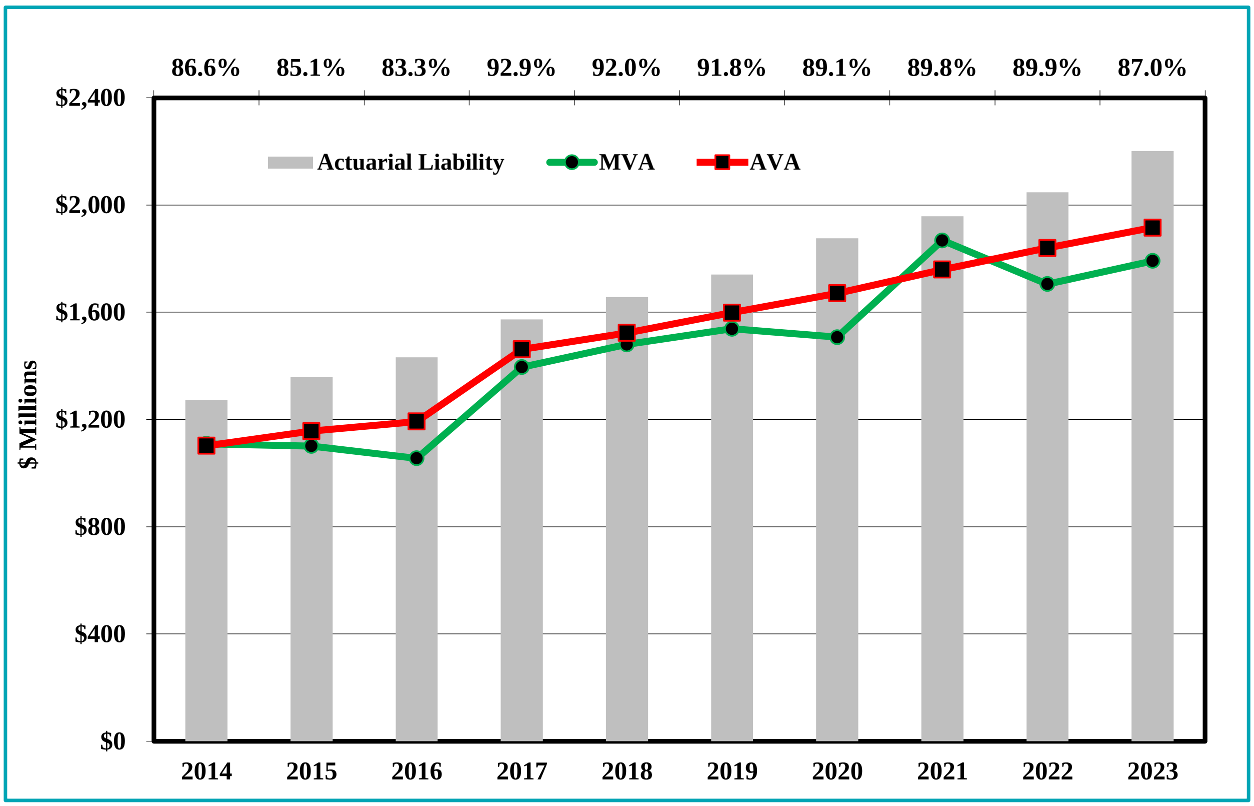
Numbers may not add to totals due to rounding.

C. Historical Trends

Despite the fact that for most retirement plans the greatest attention is given to the current valuation results and in particular the size of the current Unfunded Actuarial Liability and the employer contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is important to judge the current year's valuation results relative to historical trends, as well as trends expected into the future.

Assets and Liabilities

The chart below compares the Market Value of Assets (MVA) and Actuarial Value of Assets (AVA) to the actuarial liabilities. The percentage shown in the graph is the ratio of the Actuarial Value of Assets to the Actuarial Liability (the funded ratio). The funded ratio has remained relatively stable over the past decade. The largest factor for the funding ratio decline from 2014-2017 was the recognition of deferred asset losses from 2008-2009, and the significant increase in the funded ratio from 2017 to 2018 was due to the contribution from POB proceeds. For the 2023 plan year, the funding ratio decreased to 87.0%, primarily as result of the liability and smoothed asset losses.

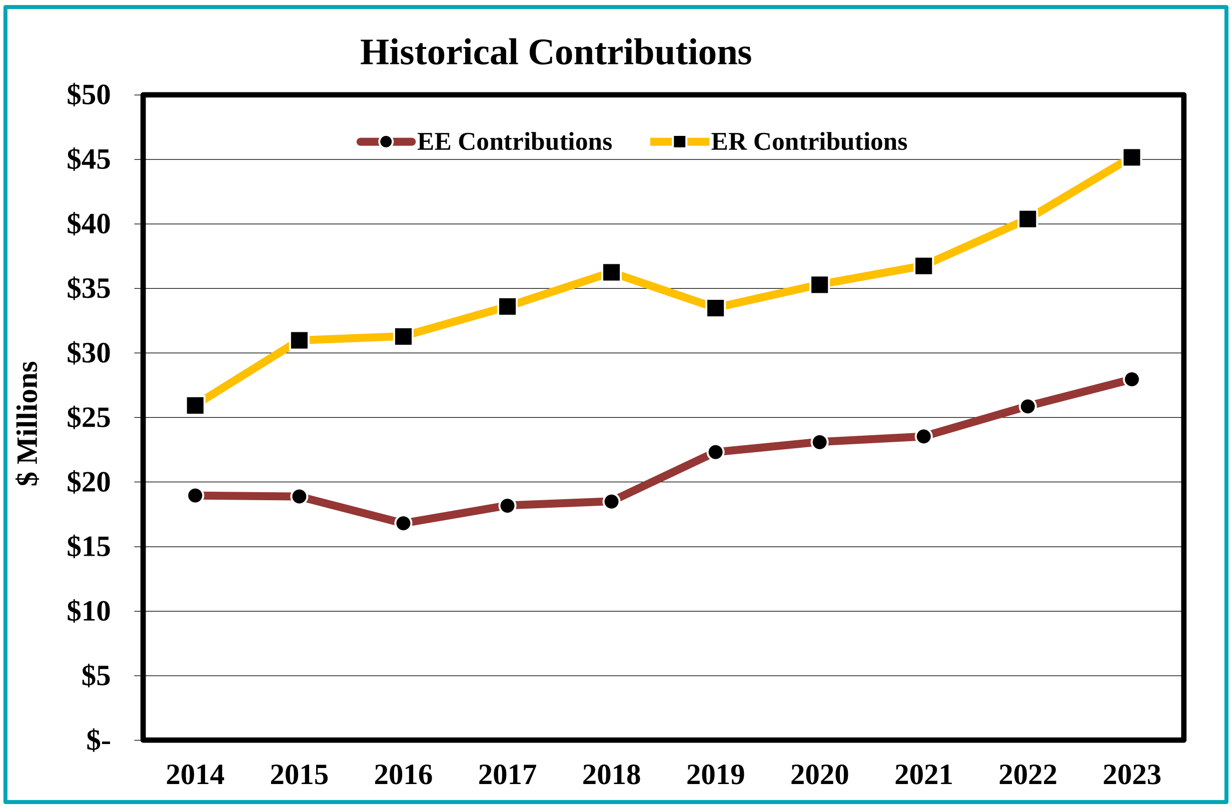


SECTION I – EXECUTIVE SUMMARY

Contribution Trends

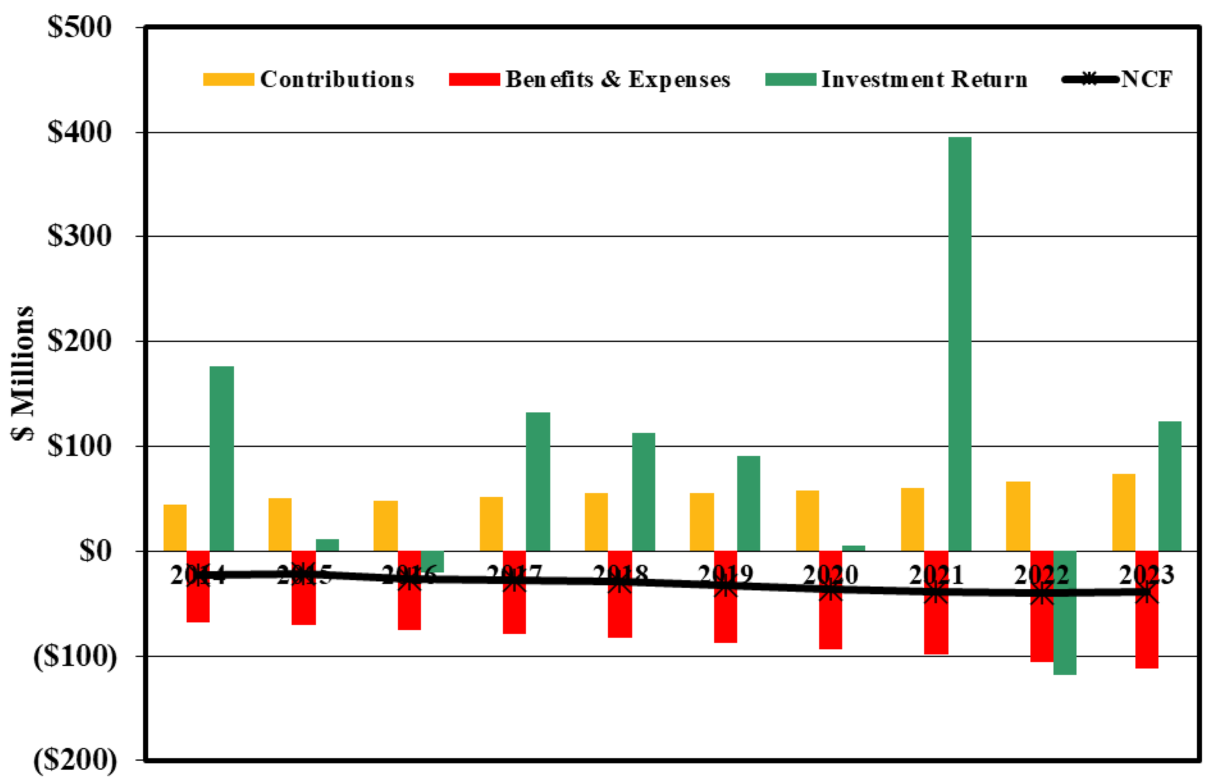
In the chart below, we present the historical trends for the TCERA employer and employee contributions. The employer contribution rates have increased as a result of the 2008-2009 asset losses that were phased in over 10 years. TCERA has also made assumption changes and experienced additional asset losses, further increasing the employer contribution rates, though the assumption changes implemented with the current valuation decreased rates. The growth in payroll this year increased the dollar amount of the contributions.

Note that the employer contributions shown below do not include the contribution from POB proceeds in FY2017-2018 that exceeded the regular actuarially determined amounts.



Cash Flows

The chart below shows the Plan's cash flow (contributions less benefit payments and administrative expenses). This is a critical measure, as it reflects the ability to have funds available to meet benefit payments without having to make difficult investment decisions, especially during volatile markets. Note that the contributions do not include the excess contributions from POB proceeds.



In the chart above, the contributions, benefit payments plus expenses, and investment returns are shown as bars and the Plan's net cash flow (NCF) is shown as a black line. The NCF, which is equal to contributions less benefit payments and administrative expenses, began close to zero at the beginning of the 10-year period, but has grown consistently more negative over time. For the most recent year, the plan had negative cash flow of approximately 2.2% of assets.

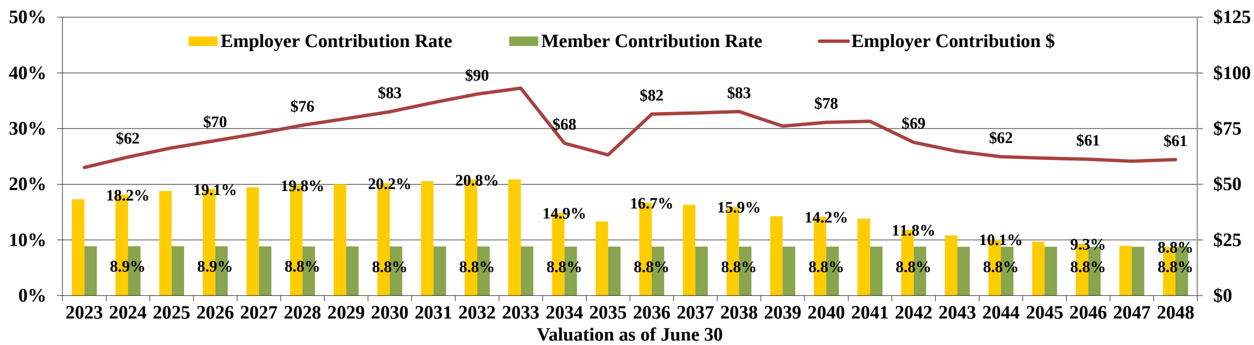
A negative cash flow magnifies the losses during a market decline hindering the Plan in its ability to absorb market fluctuations. The implications of a plan in negative cash flow are that the impact of market fluctuations can be more severe: as assets are being depleted to pay benefits in down markets, there is less principal available to be reinvested during favorable return periods. However, a negative cash flow is also a positive for a well-funded mature plan, as the investment earnings reduce the contributions needed to pay benefits.

D. Future Expected Financial Trends

The analysis of projected financial trends is an important component of this valuation. In this section, we present our assessment of the implications of the June 30, 2023 valuation results in terms of future projected contribution rates and benefit security (assets over liabilities). All the projections in this section are based on an investment return assumption of 7.00%. We have assumed future increases in total pensionable payroll of 3.00% per year.

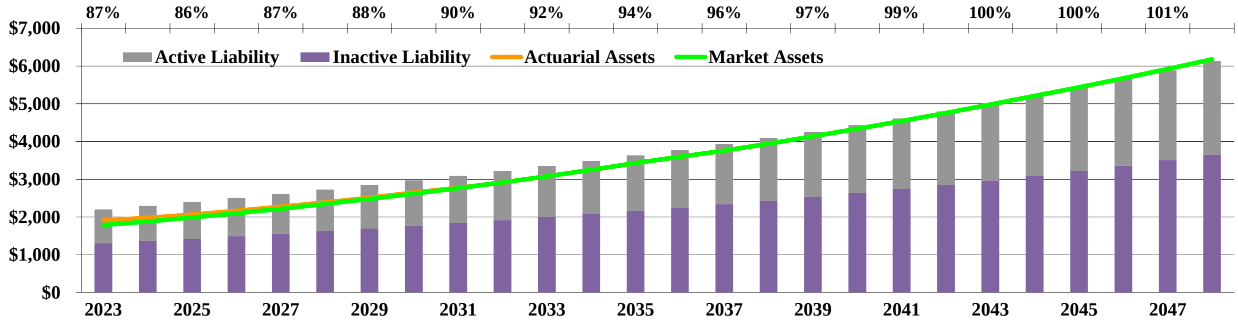
The following graph shows the expected employer contribution rate (gold bars) and employee contribution rate (green bars) determined as of the valuation date, and the employer contribution in millions of dollars (red line) for the following fiscal year, based on achieving the investment assumption **each year** for the next 25 years. This scenario is highly unlikely: even if the Plan does achieve the assumed return **on average** over this time period, the returns in each given year will certainly vary.

The contribution graph shows that the employer contribution rate is expected to increase for the next 10 years as the current deferred investment losses (approximately $124 million) are recognized, then drop significantly after 2033 when the UAL layer from 2015 is paid off.



SECTION I – EXECUTIVE SUMMARY

The following graph shows the projection of assets and liabilities assuming that assets will earn the investment assumption each year during the projection period (dollars shown in millions). The percentages at the top of the graph represent the funded ratio or status of the System.



The funded status, based on the Actuarial Value of Assets, is expected to reach 100% by 2043 assuming the actuarial assumptions are achieved, which is the same as in last year's report. The Market Value of Assets is currently lower than the actuarial value – due to the deferred losses mentioned above – and the funded status on this basis is currently about 6% lower but is expected to converge to the actuarial value over time if the investment return assumption is met.

However, as with the projection of contribution rates, it is the **actual** return on System assets that will determine the future funded status.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may vary significantly. This section of the report is intended to identify the primary risks to the Plan, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

The fundamental risks to the pension plan are that the contributions needed to pay the benefits become unaffordable or that the contributions needed to support the Plan may differ significantly from expectations. While there are a number of factors that could lead to either of these events, we believe the primary risks are:

- Investment risk,
- Assumption change risk, and
- Contribution and payroll risk.

Other risks that we have not identified may also turn out to be important.

Investment risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the Unfunded Actuarial Liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the Plan's asset allocation and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsors or other contribution base.

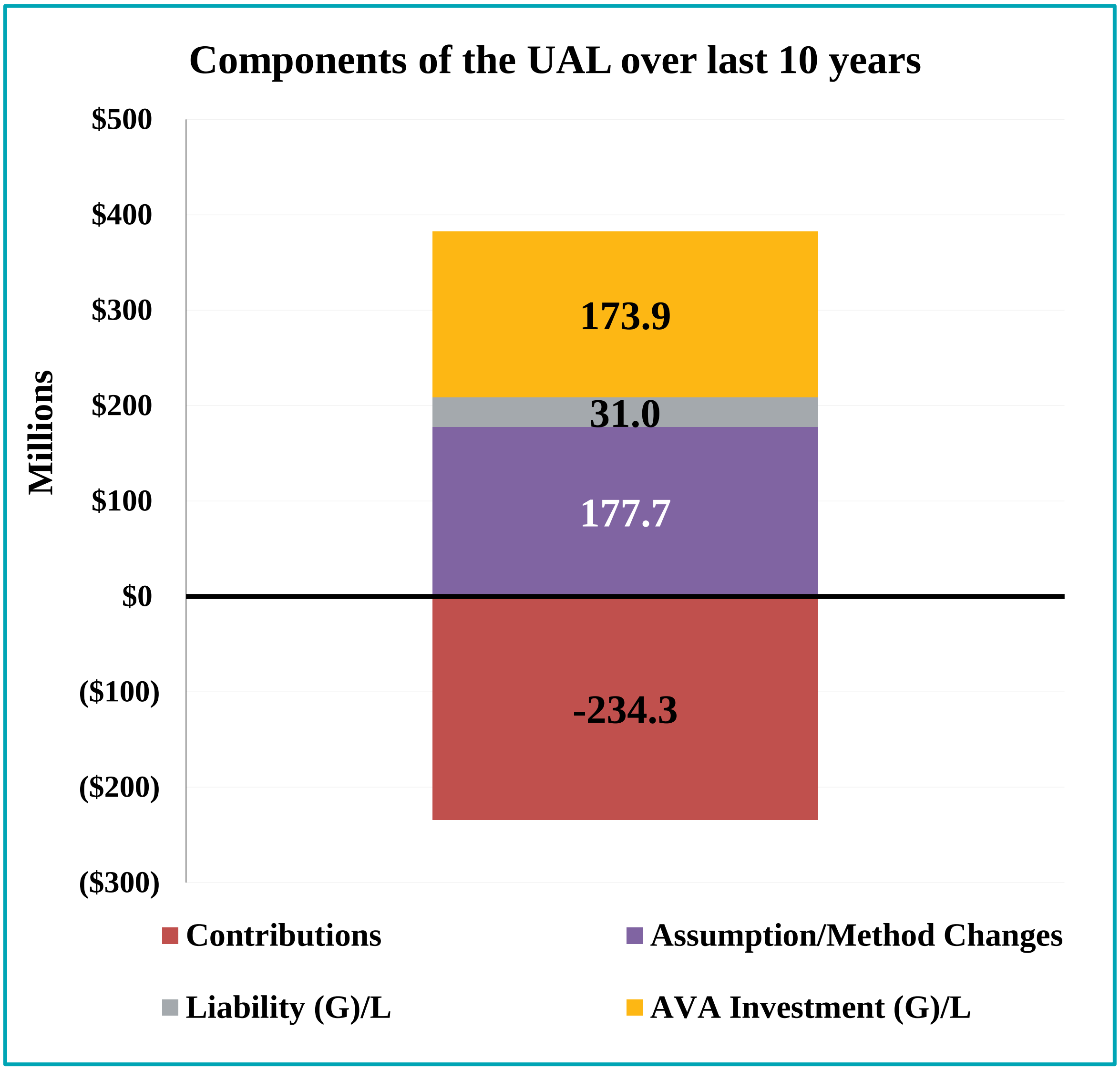
Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. For example, declines in interest rates over the last three decades (which have recently reversed) resulted in higher investment returns for fixed-income investments, but lower expected future returns necessitating either a change in investment policy, a reduction in discount rate, or some combination of the two. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

Contribution risk is the potential for actual future contributions to deviate from expected future contributions. There are different sources of contribution risk such as the sponsor choosing to not make contributions in accordance with the funding policy. As another example, the contribution requirement might become a financial strain on the sponsor as a result of material contribution base changes (e.g., covered employees, covered payroll) that affect the amount of contributions the Plan can collect.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The chart below shows the components contributing to the Unfunded Actuarial Liability (UAL) from July 1, 2013 through June 30, 2023. Over the last 10 years, the UAL has increased by approximately $148.3 million. The investment losses (gold bar) of $173.9 million on the Actuarial Value of Assets (AVA) and assumption/method changes (purple bar) resulting in a total UAL increase of $177.7 million are the primary sources in the UAL growth. Net liability losses (gray bar) of $31.0 million also increased the UAL. Contributions in excess of the "tread water" level (red bar) of $234.3 million, primarily resulting from a pension obligation bond contribution of approximately $250 million, have partially offset the UAL growth.

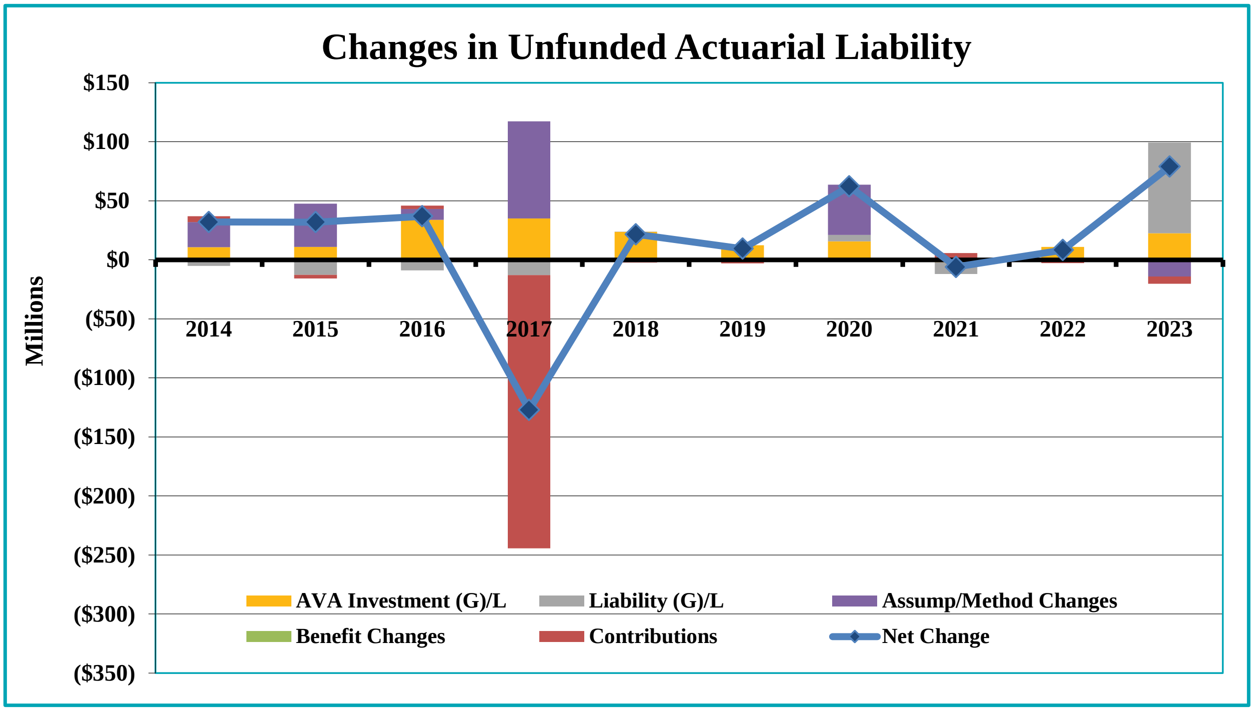
Chart II-1



SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Chart II-2 below details the annual sources of the UAL change (colored bars) for the plan years ending June 30. The net UAL change for each year is represented by the blue diamonds.

Chart II-2



On a smoothed basis, the average annual geometric return over the 10-year period is 6.0%, with losses occurring on the AVA every year, except 2021, which have increased the UAL. As of June 30, 2023, there are approximately $124 million of deferred losses that will be recognized over the next nine years. As a result, even if the Plan earns above the expected return of 7.00% on a market basis, there could still be a loss on the smoothed value of assets.

Over the same time period, the assumed rate of return decreased from 7.90% to 7.00%. It is important to note that these changes simply reflect a downward revision to the estimate of future investment earnings; ultimately costs will be determined by actual investment earnings. Future expectations of investment returns may continue to decline necessitating further reductions in the discount rate.

The net impact of assumption changes is represented by the purple bars and includes changes to demographic assumptions that decreased the UAL in some years.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Each year the UAL is expected to increase for benefits earned in the current year (the normal cost), administrative expenses, and interest on the UAL. This expected increase is referred to as the tread water level. If contributions are greater than the tread water level, the UAL is expected to decrease. Conversely, if contributions are less than the tread water level, the UAL is expected to increase. The amortization policy (as well as the contribution-timing lag) can impact whether or not the contributions exceed the tread water level.

The County issued bonds worth approximately $250 million and included a similar amount as a receivable contribution for the June 30, 2017 valuation. This large contribution went directly toward paying down the principal on the UAL as seen below in Table II-1, which numerically summarizes the changes in the UAL for each year by source over the last 10 years. It should be noted that for bonds to have positive long-term financial impact, pension investments will need to outperform debt service payments over the length of the bonds.

The Board adopted 19-year layered amortization of the UAL at its October 28, 2015 meeting. Under this approach, contributions are typically above the tread water level each year. However, the Board's election to phase-in the impact of the 2020 assumption changes over three years was the primary cause for the contributions to be less than the tread water level for the 2021 fiscal year end. Contributions for the 2023 fiscal year end were $6.3 million more than the tread water level and subsequently decreased the UAL by that amount.

Table II-1

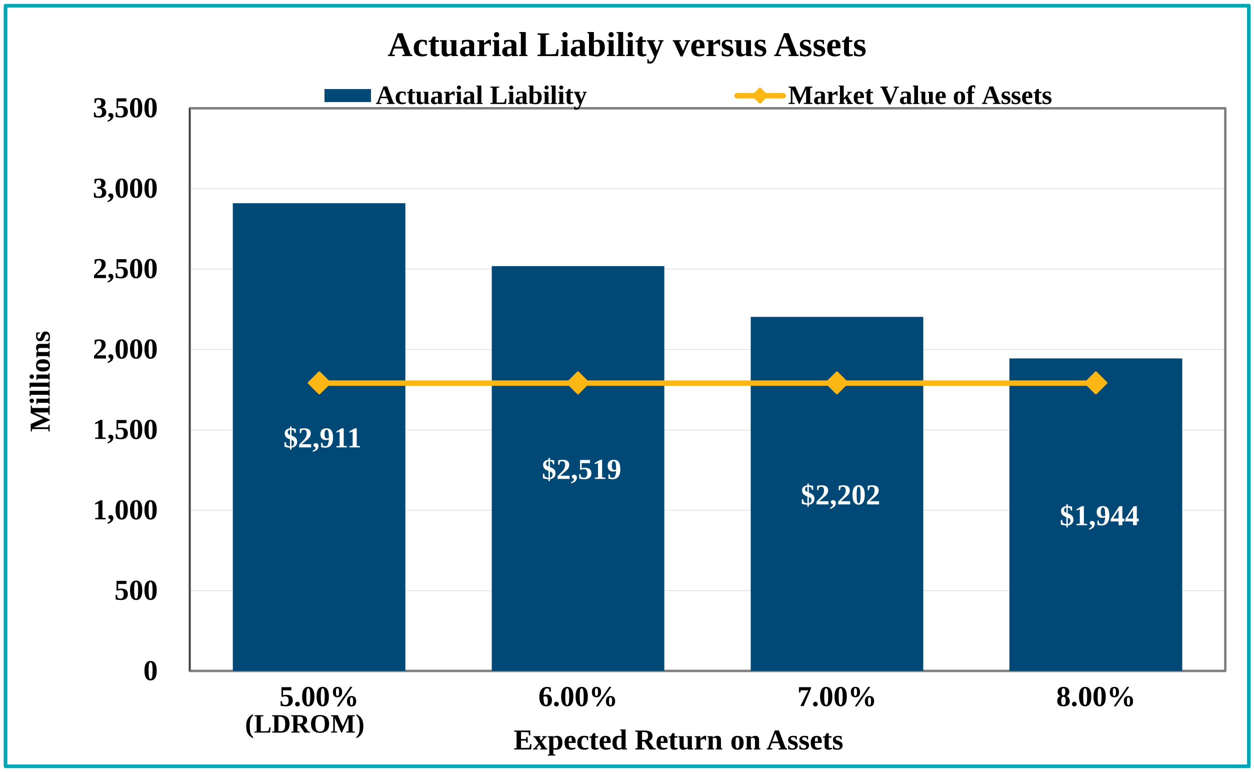
Unfunded Actuarial Liability (UAL) Change by Source					
June 30,	Contributions	Assumption/ Method Changes	Liability Experience	Investment Experience	Total UAL Change
2014	$ 5,138,315	$ 21,095,393	$ (5,070,085)	$ 10,841,064	$ 32,004,687
2015	(3,043,058)	36,744,870	(12,668,401)	10,912,537	31,945,948
2016	2,775,153	9,170,277	(8,948,443)	33,948,354	36,945,341
2017	(231,452,683)	82,259,297	(12,982,692)	35,033,717	(127,142,361)
2018	(2,307,142)	0	285,647	23,696,427	21,674,932
2019	(2,726,065)	0	(161,312)	12,412,582	9,525,205
2020	(1,439,104)	42,435,148	5,587,388	15,576,636	62,160,068
2021	5,856,076	0	(9,839,957)	(2,067,958)	(6,051,840)
2022	(806,901)	0	(1,919,754)	11,007,851	8,281,196
2023	(6,285,142)	(14,014,216)	76,716,587	22,554,969	78,972,198
Total	**$ (234,290,552)**	**$ 177,690,769**	**$ 30,998,978**	**$ 173,916,178**	**$ 148,315,374**

Assessing Costs and Risks

Sensitivity to Investment Returns

The chart below compares the Market Value of Assets (line) to the actuarial liabilities (bars) discounted at the current expected rate of return (7.00%) and at discount rates 100 basis points above and below the expected rate of return. This year we have added an additional measurement, the Low Default Risk Obligation Measure (LDROM), which is based on a discount rate of 5.00% for the current valuation.

Chart II-3



If investments return 7.00% annually, the Plan will need approximately $2.2 billion in assets today to pay the benefits associated with service earned to date, compared to current assets of $1.8 billion (excluding assets and liabilities related to the Supplemental Retiree Benefit Reserve). If investment returns are only 6.00%, the Plan would need approximately $2.5 billion in assets today, and if investment returns are 8.00%, the Plan would need approximately $1.9 billion in assets.

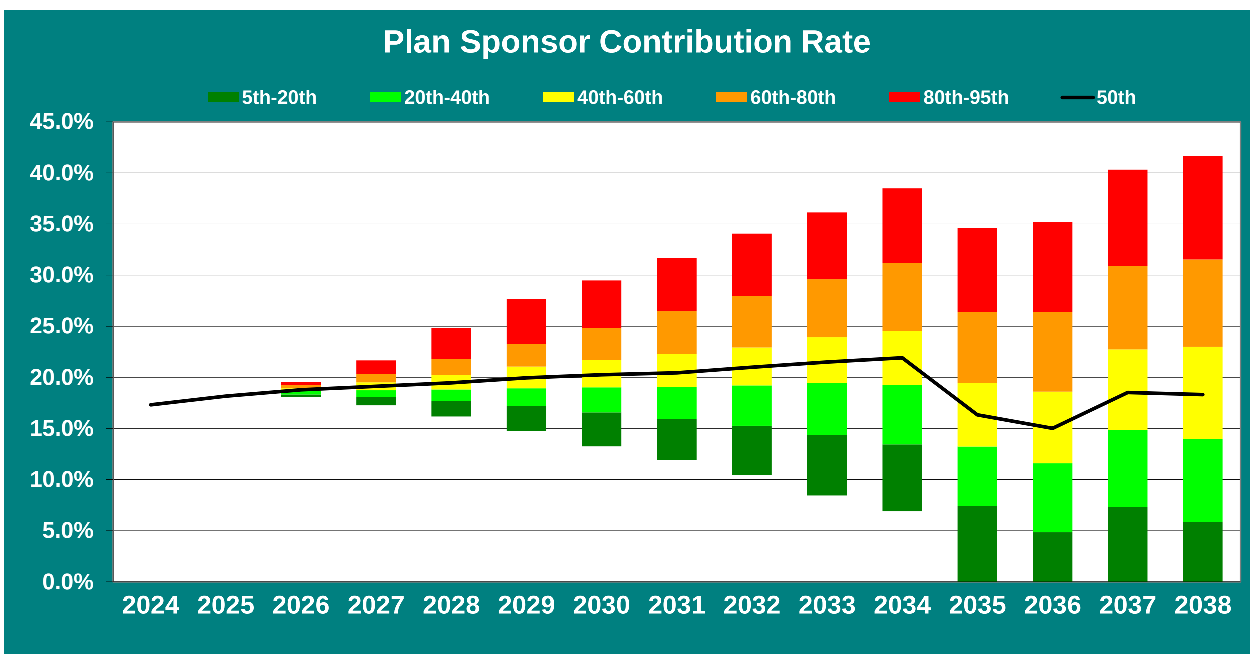
SECTION II – RISK IDENTIFICATION AND ASSESSMENT

TCERA invests in a diversified portfolio with the objective of maximizing investment returns at a reasonable level of risk. The lowest risk portfolio for a pension plan would be composed entirely of low-default-risk fixed income securities whose cash flows match the benefit cash flows of the plan. As of June 30, 2023, we estimate that such a portfolio would have an expected return of 5.00%, and TCERA would need $2.9 billion to pay all benefits attributed to past service. This amount is the LDROM, and the $700 million difference between the LDROM and the current Actuarial Liability represents the expected savings from bearing the risk of investing in TCERA's diversified portfolio. Alternatively, it also represents the cost of minimizing the investment risk.

Because TCERA invests in a diversified portfolio and not the LDROM portfolio, the reported funded status is higher, and expected employer contributions are lower. Benefit security for members of TCERA depends on a combination of TCERA assets, the investment returns generated on those assets, and the ability of the employers to make any needed future contributions. An LDROM portfolio would generate more predictable but lower expected investment returns, potentially changing the level of reliance on future contributions to secure benefits.

Sensitivity to Investment Returns - Stochastic Projections

Stochastic projections serve to show the range of probable outcomes of various measurements. The graphs below and on the following page show the projected range of the employer contribution rate and of the funded ratio on an Actuarial Value of Assets basis. The range in both scenarios is driven by the volatility of investment returns, assumed to be based on a 12.75% standard deviation of annual returns, as indicated by the analysis of Verus and other investment consultants' capital market assumptions contained in the 2023 Experience Study Report.

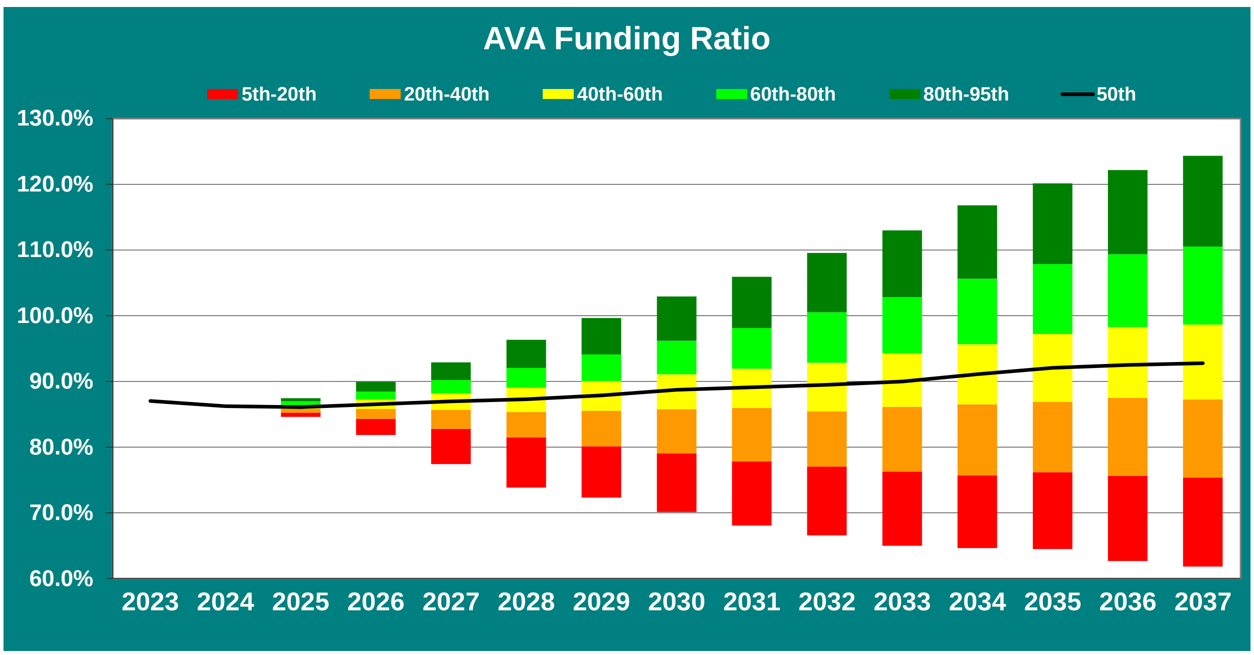


SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The stochastic projection of employer contributions as a percent of pay shows the probable range of future contribution rates. The baseline contribution rate (black line) is based on the median of the simulations using an average return of 7.00%. It is similar to the *deterministic* projections discussed in subsection D (page 12) of the Executive Summary of this report, where the returns are expected to be exactly 7.00% each year. However, the median results are somewhat higher than the deterministic projections because of the impact of the SRBR, which may result in fewer assets available to fund the basic benefits in years where the smoothed returns exceed 7.00%.

In the most pessimistic scenario shown, the 95th percentile, the projected employer contribution rate is over 35% of pay in 2034 and 2037-2038. Conversely, the most optimistic scenario shown, the 5th percentile, the projected employer contribution rate declines to 0% in 2035.

We note that these projections only allow the employers' contribution to drop below their share of the normal cost if the Plan becomes extremely overfunded (i.e., a funded ratio above 120%), as is required under PEPRA.



The graph above shows the projection of the funded ratio based on the Actuarial Value of Assets. While the median funded ratio (black line) is projected to be approximately 93% at the end of the 15-year period shown here, there is a wide range of potential outcomes. Good investment returns have the likelihood of bringing the funded ratio well over 100%. Due to the current funding policy of the Plan, even in scenarios with unfavorable investment returns, the Plan is projected to remain over 60% funded on an Actuarial Value of Assets basis, as long as the actuarially determined contributions continue to be made.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Contribution Risk

While investment returns are typically the dominant factor in volatility, contribution rates can also be sensitive to future salary increases and the hiring of new members. When member payroll growth stagnates or even declines, the dollar level of contributions made to the Plan also stagnates or declines since contributions are based on payroll levels.

There is also a risk of the contribution rate increasing even higher when payroll decreases since the Plan's funding policy amortizes the UAL as a level percentage of pay. This means that the UAL payments increase at the assumed payroll growth rate of 3.00%, so that the payment is expected to remain constant as a percentage of payroll. If payroll growth is less than the expected 3.00% or there is a decline in payroll, the UAL payments are spread over a smaller payroll base and the contribution rate as a percentage of pay increases, potentially making the Plan less affordable.

Plan Maturity Measures

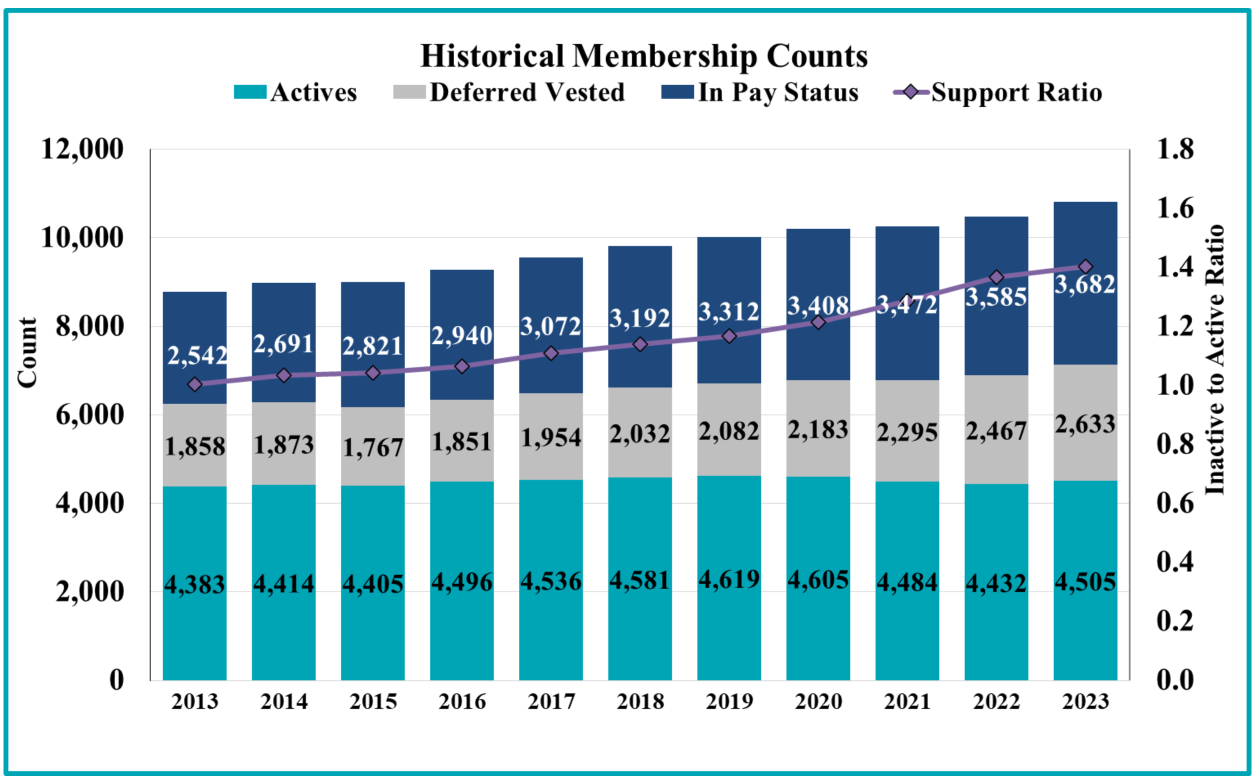
The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the Plan and how the maturity has changed over time.

Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the plan is compared to the contribution or revenue base that supports it; the more sensitive the plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for the Plan.

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of those receiving benefits or those entitled to a deferred benefit to the number of active members. The Support Ratio is expected to increase gradually as a plan matures. The chart below shows the growth in the Support Ratio from 2013 to 2023. The inactive membership level was about equal to the active membership level in 2013, so the Support Ratio was approximately 1.0. During the past few years, the growth in retired membership has exceeded the growth in active membership, increasing the Support Ratio to approximately 1.4. That means for 2023, there are approximately 1.4 inactive members per active member.

Chart II-4

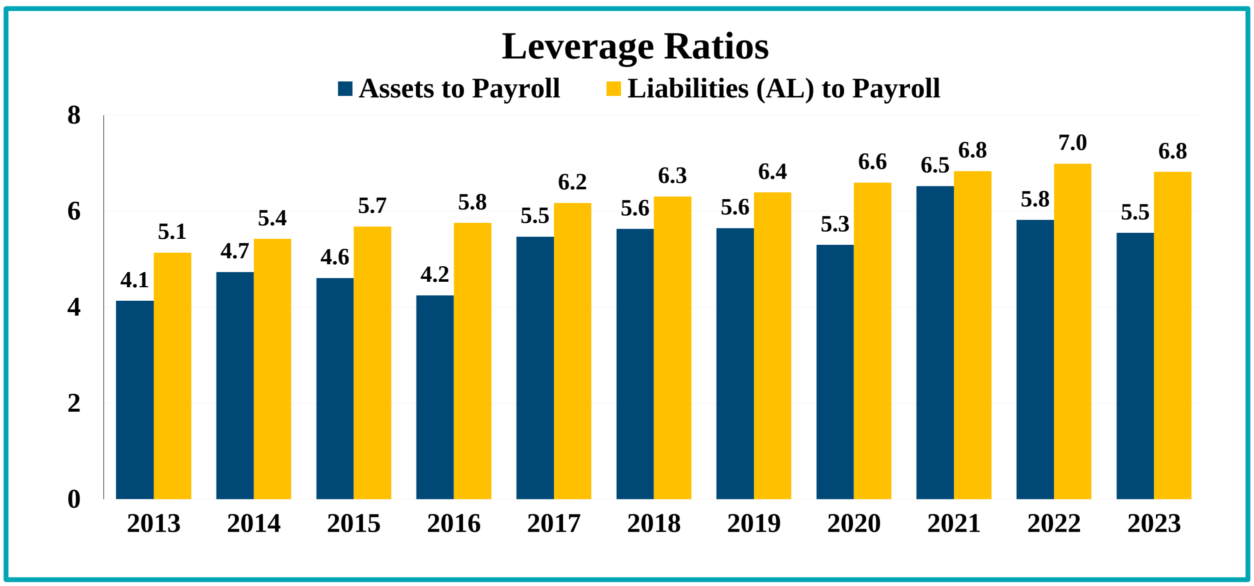


Leverage Ratios

Leverage or volatility ratios measure the size of the plan compared to its revenue base more directly. The asset leverage ratio is simply the Market Value of Assets to active member payroll and indicates the sensitivity of the Plan to investment returns. The liability leverage ratio is the plan's Actuarial Liability to active member payroll and indicates the sensitivity of the Plan to assumption changes or demographic experience.

The chart below shows the historical leverage ratios of the Plan. The liability leverage ratio has increased since 2013, driven by changes to more conservative actuarial assumptions and a continued maturing of the Plan, though there was a small decline in the ratio this year due to the increase in payroll. The asset leverage ratios have also increased, but with more volatility, based on variations in investment experience and with a large jump due to the pension obligation bond contribution for 2017. The asset leverage ratio also jumped significantly in 2021 due to strong asset returns but came back down for 2022 following poor investment performance.

Chart II-5



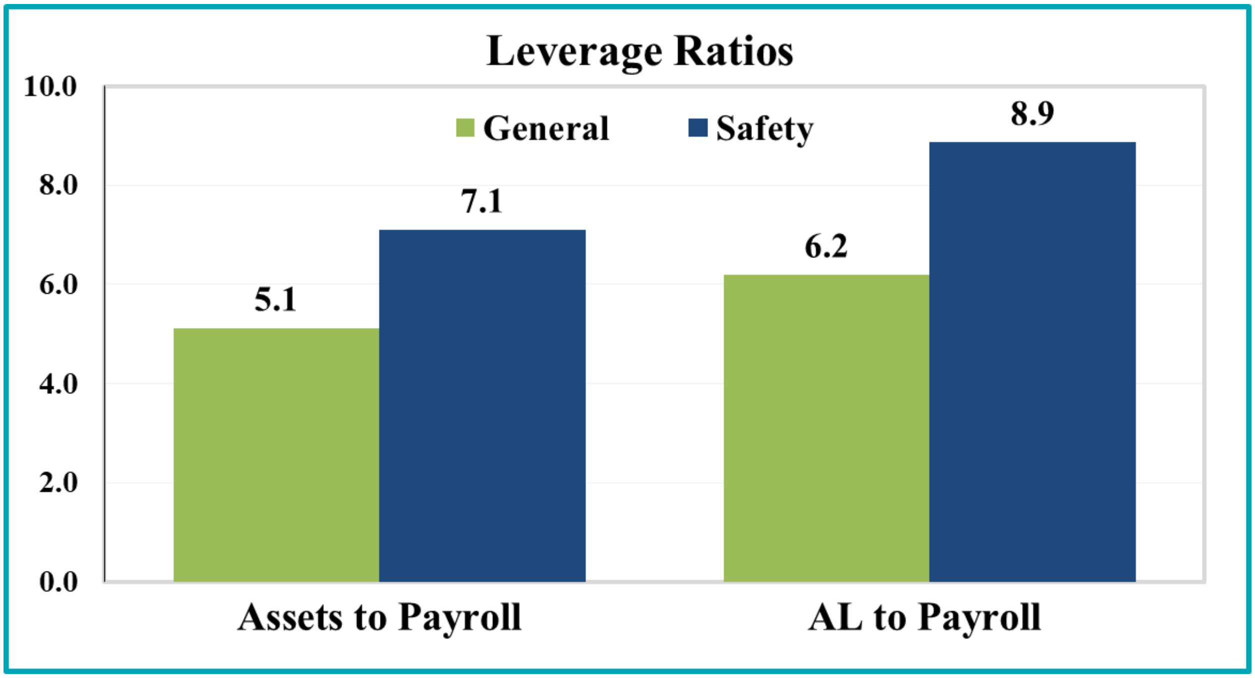
To appreciate the impact of the ratio of assets to payroll on plan cost, consider the situation for a new plan with almost no assets. Even if the assets suffer a bad year of investment returns, the impact on the plan cost is nil, because the asset level is so small.

As the Plan becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the asset leverage ratio would be 6.8 times payroll, or the Actuarial Liability (AL) leverage ratio.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The following chart shows that the ratio of both assets and liabilities to payroll, and therefore the sensitivity to investment returns, is higher for the Safety members compared to the General members. This is because of the higher benefit amounts and the earlier average retirement ages for Safety.

Chart II-6



The General asset leverage ratio of 5.1 means that if the Plan's assets lose 10% of their value, which is a 17.00% actuarial loss compared to the expected return of 7.00%, the loss would be equivalent to 87% of payroll (17.00% times 5.1). The same investment loss for the Safety group with an asset ratio of 7.1 would be equivalent to approximately 121% of payroll. As illustrated by this example, the contribution rates for the Safety members will generally be more volatile than those of the General members.

More Detailed Assessment

While a more detailed assessment is always valuable to enhance the understanding of the risks identified above, we believe the scenarios illustrated above cover the primary risks facing the Plan at this time. We would be happy to provide the Board with a more in-depth analysis at their request.

SECTION III – ASSETS

Pension plan assets play a key role in the financial operation of the System and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on System assets including:

- **Disclosure** of System assets as of June 30, 2022 and June 30, 2023;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;
- An allocation of the assets by **reserve balances**; and,
- An assessment of historical **investment performance versus inflation**.

Disclosure

There are two types of asset values disclosed in the valuation, the Market Value of Assets and the Actuarial Value of Assets. The market value represents "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. The Actuarial Value of Assets reflects smoothing of annual investment returns.

Table III-1 on the next page discloses and compares the market value of assets as of June 30, 2022 and June 30, 2023.

SECTION III – ASSETS

Table III-1
Statement of Assets at Market Value

	June 30, 2022	June 30, 2023
Cash and Securities Lending Collateral:		
Cash and Short Term Investments	$ 36,024,000	$ 28,197,000
Collateral on Loaned Securities	28,722,000	24,440,000
Total Cash and Securities Lending Collateral	$ 64,746,000	$ 52,637,000
Receivables:		
Sales of Investments	$ 9,575,000	$ 3,071,000
Interest and Dividends	839,000	1,981,000
Employee and Employer Contributions	998,000	1,579,000
Other Receivables	0	9,000
Total Receivables	$ 11,412,000	$ 6,640,000
Investments, at Fair Value:		
Fixed Income	$ 363,409,000	$ 339,281,000
Equities	797,565,000	891,419,000
Real Estate	393,078,000	393,413,000
Alternative Investments (Hedge Funds, Private Equity, Private Credit, Futures, Commodities)	241,242,000	262,074,000
Total Investments, at Fair Value	$ 1,795,294,000	$ 1,886,187,000
Capital Assets		
Land	$ 370,000	$ 370,000
Building, Office Equipment and Furniture Net of Accumulated Depreciation	746,000	707,000
Intangible Assets, Pension Administration System Net of Accumulated Depreciation	0	0
Total Capital Assets	$ 1,116,000	$ 1,077,000
Total Assets	$ 1,872,568,000	$ 1,946,541,000
Current Liabilities:		
Purchase of Investments	$ 17,507,000	$ 9,161,000
Obligations under Security Lending Program	28,722,000	24,440,000
Refunds Payable	4,102,000	5,715,000
Accounts Payable	3,122,000	3,057,000
Total Current Liabilities	$ 53,453,000	$ 42,373,000
Long-Term Liabilities:		
Compensated Absences	$ 106,000	$ 114,000
Total Long-Term Liabilities	$ 106,000	$ 114,000
Total Liabilities	$ 53,559,000	$ 42,487,000
Total Market Value of Assets for Valuation	**$ 1,819,009,000**	**$ 1,904,054,000**

Numbers may not add to totals due to rounding.

Changes in Market Value

The components of asset change are:

- Contributions (employer and employee)
- Benefit payments
- Expenses (investment and administrative)
- Investment income (realized and unrealized)

Table III-2 below and on the following page shows the components of change in the Market Value of Assets during the fiscal years ending June 30, 2022 and June 30, 2023.

Table III-2
Changes in Market Values

	June 30, 2022	June 30, 2023
Additions:		
Contributions		
Employer	$ 40,392,000	$ 45,174,000
Plan Member	25,880,000	27,965,000
Total Contributions	$ 66,272,000	$ 73,139,000
Investment Income		
Net Appreciation/(Depreciation) in		
Fair Value of Investments	$ (127,368,000)	$ 113,150,000
Interest	3,296,000	5,111,000
Dividends	3,616,000	3,943,000
Real Estate Operating Income	7,493,000	13,091,000
Other Investment Income	5,392,000	1,726,000
Total Investment Activity Income/(Loss)	$ (107,571,000)	$ 137,021,000
Less Expenses from Investing Activities	10,488,000	13,204,000
Net Investing Activity Income/(Loss)	$ (118,059,000)	$ 123,817,000
From Securities Lending Activities		
Securities Lending Income	$ 179,000	$ 1,223,000
Less Expenses from Securities Lending Income		
Management Fee	$ 8,000	$ 6,000
Borrower Rebate	73,000	1,067,000
Net Securities Lending Income	$ 98,000	$ 150,000
Total Net Investment Income/(Loss)	$ (117,961,000)	$ 123,967,000
Other Income	$ 188,000	$ 188,000
Total Additions	**$ (51,501,000)**	**$ 197,294,000**

Numbers may not add to totals due to rounding.

SECTION III – ASSETS

Table III-2
Changes in Market Values (Continued)

	June 30, 2022	June 30, 2023
Deductions:		
Benefits	$ 97,762,000	$ 103,392,000
Refunds of Contributions	4,946,000	6,111,000
Administrative Expenses	2,967,000	2,747,000
Total Deductions	$ 105,675,000	$ 112,250,000
Net Increase/(Decrease)	**$ (157,176,000)**	**$ 85,044,000**
Net Assets Held in Trust for Pension Benefits		
Beginning of Year	$ 1,976,185,000	$ 1,819,009,000
End of Year for Valuation	$ 1,819,009,000	$ 1,904,054,000
Approximate Return*	-6.17%	6.74%

Numbers may not add to totals due to rounding.
**Net of investment and administrative expenses*

Actuarial Value of Assets (AVA)

The table below shows the development of the Actuarial Value of Assets. Based on discussions with TCERA staff, the total actual market returns for each period shown are based on preliminary financial information. Please see Appendix B for a description of the asset smoothing method.

Table III-3
Development of Actuarial Value of Assets for June 30, 2023

Six month Period From	Six month Period To	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain (Loss)	Deferred Factor	Deferred Return
1/14	6/14	$ 62,482,815	$ 45,022,478	$ 17,460,337	0.05	$ 873,017
7/14	12/14	(17,886,044)	46,676,782	(64,562,826)	0.10	(6,456,283)
1/15	6/15	26,507,383	44,856,580	(18,349,197)	0.15	(2,752,380)
7/15	12/15	(45,631,715)	45,909,756	(91,541,471)	0.20	(18,308,294)
1/16	6/16	24,729,226	43,045,278	(18,316,052)	0.25	(4,579,013)
7/16	12/16	44,835,718	44,015,787	819,931	0.30	245,979
1/17	6/17	84,564,705	42,691,625	41,873,080	0.35	14,655,578
7/17	12/17	79,943,304	45,809,189	34,134,115	0.40	13,653,646
1/18	6/18	11,201,303	48,460,635	(37,259,332)	0.45	(16,766,699)
7/18	12/18	(54,685,836)	56,898,055	(111,583,891)	0.50	(55,791,945)
1/19	6/19	143,284,434	53,981,060	89,303,374	0.55	49,116,856
7/19	12/19	74,015,847	59,050,363	14,965,484	0.60	8,979,290
1/20	6/20	(69,767,060)	60,619,959	(130,387,018)	0.65	(84,751,562)
7/20	12/20	207,466,372	56,098,158	151,368,214	0.70	105,957,750
1/21	6/21	178,848,571	62,147,805	116,700,766	0.75	87,525,575
7/21	12/21	69,141,260	68,227,159	914,101	0.80	731,281
1/22	6/22	(177,123,495)	69,409,485	(246,532,980)	0.85	(209,553,033)
7/22	12/22	25,305,799	63,344,822	(38,039,023)	0.90	(34,235,120)
1/23	6/23	91,477,159	62,954,117	28,523,042	0.95	27,096,890

1. Total deferred return	(124,358,000)
2. Market Value of Assets (includes SRBR)	1,904,054,000
3. Actuarial Value of Assets for Funding Ratio (2. - 1.)[1]	2,028,412,000
4. Non-valuation reserves and designations:	
a. Supplemental Retiree Benefit Reserve (SRBR)	112,702,000
5. Preliminary Actuarial Value of Assets (3. - 4.)[2]	1,915,710,000
6. Corridor Limit	
a. 70% of Market Value of Assets excluding SRBR	1,253,946,400
b. 130% of Market Value of Assets excluding SRBR	2,328,757,600
7. Actuarial Value of Assets after Corridor	1,915,710,000

[1]Items will not sum due to a rounding adjustment on the MVA

[2]Items will not sum due to a rounding adjustment on the SRBR

SECTION III – ASSETS

Allocation of Reserve Balances

The following table shows the allocation of the assets among the various accounting reserves provided by TCERA staff.

Table III-4
Allocation of Assets by Accounting Reserve Amounts
for the Years Ended June 30, 2022 and June 30, 2023

		FYE 2022	FYE 2023
1.	Member Deposit Reserve	$ 359,335,000	$ 376,021,000
2.	Employer Advance Reserve	966,012,000	1,017,688,000
3.	Retiree Reserve	460,586,000	461,073,000
4.	Supplemental Retiree Benefit Reserve	113,702,000	112,702,000
5.	Contingency Reserve	55,609,000	57,602,000
6.	Market Stabilization Reserve	(134,802,000)	(124,358,000)
7.	TCERA Property, Inc. Retained Earnings	988,000	1,144,000
8.	Other Reserves	(2,421,000)	2,182,000
	Total Reserves	$ 1,819,009,000	$ 1,904,054,000

Numbers may not add to totals due to rounding.

Asset Returns vs. Inflation

Table III-5 shows the returns on the Market and Actuarial Values of Assets, with the increase in the CPI for comparison, over the last 10 years.

Table III-5
Net Return on Assets vs. Increase in Consumer Price Index

Year Ended June 30	Net Return at Market Value*	Net Return at Actuarial Value*	Increase in Consumer Price Index**
2014	16.7%	6.8%	2.1%
2015	0.7%	6.1%	0.1%
2016	-1.9%	4.7%	1.0%
2017	11.3%	4.6%	1.6%
2018	7.4%	5.6%	2.9%
2019	5.6%	6.5%	1.6%
2020	0.1%	6.3%	0.6%
2021	24.5%	7.1%	5.4%
2022	-6.2%	6.4%	9.1%
2023	6.7%	5.8%	3.0%
Compound Average	**6.2%**	**6.0%**	**2.7%**

* Net of investment and adminstrative expenses.
** Based on All Urban Consumers - U.S. City Average, June indices.

SECTION IV – LIABILITIES

In this section, we present detailed information on System liabilities including:

- **Disclosure** of System liabilities at June 30, 2022 and June 30, 2023;
- Statement of **changes** in these liabilities during the year;
- Present value of future **SRBR** benefits based on current benefit levels; and,
- Liability and funded status **disclosures** with and without the SRBR.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them. Note that these liabilities are not applicable for settlement purposes, including the purchase of annuities and the payment of lump sums.

- **Present Value of Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully fund all benefits of the System both earned as of the valuation date and those to be earned in the future by current plan participants, under the current System provisions.

- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the Present Value of Future Benefits and subtracting the present value of future Member Contributions and future employer normal costs under an acceptable actuarial funding method. The method used for this System is called the **Entry Age Normal** (EAN) funding method.

- **Unfunded Actuarial Liability:** The excess of the Actuarial Liability over the Actuarial Value of Assets.

Table IV-1 on the following page discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of Plan assets yields, for each respective type, a **net surplus,** or an **Unfunded Actuarial Liability**.

SECTION IV – LIABILITIES

Table IV-1
Present Value of Future Benefits and Actuarial Liability
(in thousands)

Item	General	Safety	June 30, 2023 Total	June 30, 2022 Total
Present Value of Future Benefits (PVFB)				
Actives	$ 960,878	$ 395,819	$ 1,356,697	$ 1,251,035
Terminated Vested	105,139	32,217	137,357	127,539
Retirees	720,797	234,940	955,737	898,148
Disabled	58,121	71,025	129,147	122,629
Beneficiaries	54,787	33,088	87,875	85,143
Total PVFB	$ 1,899,723	$ 767,089	$ 2,666,812	$ 2,484,494
Actuarial Liability				
Total Present Value of Benefits	$ 1,899,723	$ 767,089	$ 2,666,812	$ 2,484,494
Present Value of Future Normal Costs				
Employer Portion	167,226	74,248	241,474	226,554
Employee Portion	155,874	67,541	223,415	210,590
Actuarial Liability	$ 1,576,623	$ 625,300	$ 2,201,923	$ 2,047,350
Actuarial Value of Assets	$ 1,383,334	$ 532,376	$ 1,915,710	$ 1,840,109
Funded Ratio	87.7%	85.1%	87.0%	89.9%
Unfunded Actuarial Liability/(Surplus)	$ 193,289	$ 92,924	$ 286,213	$ 207,241

Numbers may not add to totals due to rounding.

Changes in Liabilities

Each of the liabilities disclosed in the prior tables are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in System assets resulting from:

- Employer contributions different than the actuarial cost
- Investment earnings different than expected
- A change in the method used to measure plan assets

SECTION IV – LIABILITIES

Table IV-2
Development of 2023 Experience Gain/(Loss)
(in thousands)

	Item		Cost
1.	Unfunded Actuarial Liability at June 30, 2022	$	207,241
2.	Middle of year actuarial liability payment		(20,438)
3.	Interest to end of year on 1 and 2		13,804
4.	Impact of assumption changes		(14,014)
5.	Expected Unfunded Actuarial Liability at June 30, 2023	$	186,592
6.	Actual Unfunded Liability at June 30, 2023 (AVA basis)		286,213
7.	Net Gain/(Loss): (5 - 6)	$	(99,621)
8.	Portion of net gain/(loss) due to:		
	a. Investment experience loss	$	(22,555)
	b. Contributions less than actuarial cost		(349)
	c. Inactive mortality loss		(707)
	d. COLAs more than expected		(11,810)
	e. Salaries more than expected		(57,752)
	f. Retirements		(3,207)
	g. Terminations		6,643
	h. Other experience		(9,884)
	i Total gain/(loss)	$	(99,621)

Numbers may not add to totals due to rounding.

SECTION IV – LIABILITIES

Table IV-3 shows the present value of future SRBR benefits at current benefit levels and the calculation of the net reserve based on the SRBR balance. The net reserve as of June 30, 2023 is positive, meaning that the current SRBR balance is expected to cover SRBR benefits at current levels.

Table IV-3
Supplemental Retiree Benefit Reserve as of June 30, 2023

	June 30, 2022	June 30, 2023
Level One		
1. Current Retirees	$ 62,634,020	$ 64,123,136
2. Inactive Members	1,888,632	1,735,493
3. Active members	36,155,243	34,233,078
4. Subtotal	$ 100,677,895	$ 100,091,707
Level Two		
5. Supplemental COLA for those who have lost at least 15% of Purchasing Power	$ 1,089,150	$ 3,162,003
Level Three		
6. Supplemental Spousal Death Benefit	$ 6,310,316	$ 6,304,633
7. Total SRBR Combined Liability: (4) + (5) + (6)	$ 108,077,361	$ 109,558,343
8. Supplemental Retiree Benefit Reserve: (SRBR)	113,702,000	112,702,000
9. Net Reserve: (8) - (7)	$ 5,624,639	$ 3,143,657

Numbers may not add to totals due to rounding.

SECTION IV – LIABILITIES

The top portion of Table IV-4 on the next page shows System assets, liabilities, and funded ratios excluding the SRBR. In the bottom half, the liabilities are adjusted to include the portion associated with the current SRBR balance that has been accrued based on service to date ($106.1 million) as well as the accrued portion of the present value of future transfers to the SRBR ($125.9 million). In addition, the SRBR balance of $112.7 million as of June 30, 2023 is added to the asset values.

The Board has not elected to pre-fund the estimated liability associated with future SRBR transfers. Such transfers will be recognized as asset losses in the valuation as they occur. The estimated liability associated with future transfers has increased slightly since the prior valuation (from $118.7 million to $125.9 million).

These liability disclosures do not imply that the current benefit levels are guaranteed. Our understanding is that the Board has the power to adjust the benefit amounts paid from the SRBR.

SECTION IV – LIABILITIES

Table IV-4
Disclosure of SRBR Liabilities
(in thousands)

Valuation Date	June 30, 2022	June 30, 2023
Without SRBR		
Actuarial Liability (Excluding SRBR)	$ 2,047,350	$ 2,201,923
Actuarial Value of Assets (Excluding SRBR)	1,840,109	1,915,710
Market Value of Assets (Excluding SRBR)	1,705,307	1,791,352
Funded Ratio - Actuarial Value Basis	89.9%	87.0%
Funded Ratio - Market Value Basis	83.3%	81.4%
With SRBR		
Actuarial Liability (Excluding SRBR)	$ 2,047,350	$ 2,201,923
Liability Associated with Current SRBR Balance	106,033	106,129
Liability from Future Transfers	118,668	125,855
Total Liability with SRBR	$ 2,272,050	$ 2,433,907
Actuarial Value of Assets (Including SRBR)	$ 1,953,811	$ 2,028,412
Market Value of Assets (Including SRBR)	1,819,009	1,904,054
Funded Ratio - Actuarial Value Basis	86.0%	83.3%
Funded Ratio - Market Value Basis	80.1%	78.2%

Numbers may not add to totals due to rounding.

SECTION V – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the actuarial funding method used to determine the normal cost and the Unfunded Actuarial Liability is the **Entry Age Normal (EAN)** cost method. There are two primary components to the total contribution: the **normal cost rate** (employee and employer), and the **Unfunded Actuarial Liability rate** (UAL rate).

The normal cost rate is determined in the following steps. First, an individual normal cost rate is determined by taking the value of each member's projected future benefits as of the member's entry age into the System. This value is then divided by the value of the member's expected future salary, also at entry age, producing a normal cost rate that should remain relatively constant over a member's career. The total normal cost is computed by adding the expected dollar amount of each active member's normal cost for the current year – known as the Individual Entry Age Method. The total normal cost rate is the total normal cost divided by expected salary. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate.

The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. The UAL as of June 30, 2015 is being amortized over a closed 19-year period as a level percentage of payroll (with 11 years remaining), assuming payroll increases of 3.00% per year. Subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

The tables on the following pages present the calculation of the contribution rates for the System for the current and prior valuations.

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2025 are shown in the table below, split by tier (1-4), membership class (General or Safety), and for the General class, employer (County or non-County). As directed by the TCERA Board at its April 12, 2018 meeting, we have allocated the cost impact of the contribution from POB proceeds to the County only, based on their share of pensionable payroll for the fiscal year ending June 30, 2018 (excluding TCAG). We were notified by Staff that all Safety members are employed by the County, so there is only one set of Safety rates. Based on information provided by Staff, we recommend that the General (Non-County) employer contribution rates be used for the Strathmore Public Utility District (SPUD).

Table V-1(a)
Development of the Net Employer Contribution Rate as of June 30, 2023 for FYE 2025

	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Total Normal Cost Rate	12.45%	16.27%	15.29%	15.73%
2. Member Contribution Rate	0.00%	8.40%	7.65%	7.98%
3. Employer Normal Cost Rate (1-2)	12.45%	7.86%	7.65%	7.75%
4. UAL Amortization	6.94%	6.94%	6.94%	6.94%
5. Net Employer Contribution Rate (3+4)	19.39%	14.80%	14.59%	14.69%
General (Non-County)				
1. Total Normal Cost Rate	12.45%	16.27%	15.29%	15.73%
2. Member Contribution Rate	0.00%	8.40%	7.65%	7.98%
3. Employer Normal Cost Rate (1-2)	12.45%	7.86%	7.65%	7.75%
4. UAL Amortization	13.72%	13.72%	13.72%	13.72%
5. Net Employer Contribution Rate (3+4)	26.17%	21.58%	21.37%	21.47%
Safety (County)				
1. Total Normal Cost Rate	N/A	23.85%	25.48%	24.58%
2. Member Contribution Rate	N/A	11.54%	12.74%	12.07%
3. Employer Normal Cost Rate (1-2)	N/A	12.32%	12.74%	12.51%
4. UAL Amortization	N/A	12.23%	12.23%	12.23%
5. Net Employer Contribution Rate (3+4)	N/A	24.55%	24.97%	24.74%

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2024 are shown in the table below, split by tier (1-4) and membership class (General or Safety).

Table V-1(b)
Development of the Net Employer Contribution Rate as of June 30, 2022 for FYE 2024

	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Total Normal Cost Rate	18.54%	16.76%	15.72%	16.25%
2. Member Contribution Rate	2.44%	8.54%	7.86%	8.19%
3. Employer Normal Cost Rate (1-2)	16.10%	8.21%	7.86%	8.05%
4. UAL Amortization	5.60%	5.60%	5.60%	5.60%
5. Net Employer Contribution Rate (3+4)	21.70%	13.81%	13.46%	13.65%
General (Non-County)				
1. Total Normal Cost Rate	18.54%	16.76%	15.72%	16.25%
2. Member Contribution Rate	2.44%	8.54%	7.86%	8.19%
3. Employer Normal Cost Rate (1-2)	16.10%	8.21%	7.86%	8.05%
4. UAL Amortization	12.94%	12.94%	12.94%	12.94%
5. Net Employer Contribution Rate (3+4)	29.04%	21.15%	20.80%	20.99%
Safety (County)				
1. Total Normal Cost Rate	N/A	23.42%	25.88%	24.46%
2. Member Contribution Rate	N/A	11.47%	12.94%	12.09%
3. Employer Normal Cost Rate (1-2)	N/A	11.95%	12.94%	12.37%
4. UAL Amortization	N/A	9.68%	9.68%	9.68%
5. Net Employer Contribution Rate (3+4)	N/A	21.63%	22.62%	22.05%

Reflects final year of three year phase-in of assumption changes for employer contribution rate

SECTION V – CONTRIBUTIONS

The combined General and Safety employer contribution rates for FYE 2025 are shown in the table below, split by tier (1-4). Separate rates are shown above and below the first $161.54 of biweekly compensation (Social Security Integration).

Table V-2(a)
Development of the Employer Contribution Rate as of June 30, 2023 for FYE 2025 with Social Security Integration

	Tier 1	Tier 2 & 3	Tier 4	Total
General and Safety				
1. Employer Normal Cost Rate:	12.45%	9.00%	8.60%	8.80%
a. Rate on first $161.54 of biweekly compensation	8.52%	6.11%		
b. Rate on biweekly compensation in excess of $161.54	12.79%	9.17%		
2. UAL Rate:	7.47%	8.69%	8.36%	8.52%
a. Rate on first $161.54 of biweekly compensation	5.11%	5.90%		
b. Rate on biweekly compensation in excess of $161.54	7.67%	8.85%		
3. Total Rate (1 + 2):	19.92%	17.69%	16.96%	17.31%
a. Rate on first $161.54 of biweekly compensation	13.64%	12.02%		
b. Rate on biweekly compensation in excess of $161.54	20.46%	18.02%		

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2025 are shown in the table below, split by tier (1-4), membership class (General or Safety), and for the General class, employer (County or Non-County). Separate rates are shown above and below the first $161.54 of biweekly compensation (Social Security Integration).

Table V-2(b)
Development of the Employer Contribution Rate as of June 30, 2023 for FYE 2025 with Social Security Integration

	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Employer Normal Cost Rate:	12.45%	7.86%	7.65%	7.75%
a. Rate on first $161.54 of biweekly compensation	8.52%	5.35%		
b. Rate on biweekly compensation in excess of $161.54	12.79%	8.02%		
2. UAL Rate:	6.94%	6.94%	6.94%	6.94%
a. Rate on first $161.54 of biweekly compensation	4.75%	4.72%		
b. Rate on biweekly compensation in excess of $161.54	7.13%	7.08%		
3. Total Rate (1 + 2):	19.39%	14.80%	14.59%	14.69%
a. Rate on first $161.54 of biweekly compensation	13.27%	10.06%		
b. Rate on biweekly compensation in excess of $161.54	19.91%	15.10%		
General (Non-County)				
1. Employer Normal Cost Rate:	12.45%	7.86%	7.65%	7.75%
a. Rate on first $161.54 of biweekly compensation	8.52%	5.35%		
b. Rate on biweekly compensation in excess of $161.54	12.79%	8.02%		
2. UAL Rate:	13.72%	13.72%	13.72%	13.72%
a. Rate on first $161.54 of biweekly compensation	9.39%	9.33%		
b. Rate on biweekly compensation in excess of $161.54	14.09%	14.00%		
3. Total Rate (1 + 2):	26.17%	21.58%	21.37%	21.47%
a. Rate on first $161.54 of biweekly compensation	17.92%	14.68%		
b. Rate on biweekly compensation in excess of $161.54	26.87%	22.01%		
Safety (County)				
1. Employer Normal Cost Rate:	N/A	12.32%	12.74%	12.51%
a. Rate on first $161.54 of biweekly compensation	N/A	8.34%		
b. Rate on biweekly compensation in excess of $161.54	N/A	12.51%		
2. UAL Rate:	N/A	12.23%	12.23%	12.23%
a. Rate on first $161.54 of biweekly compensation	N/A	8.28%		
b. Rate on biweekly compensation in excess of $161.54	N/A	12.42%		
3. Total Rate (1 + 2):	N/A	24.55%	24.97%	24.74%
a. Rate on first $161.54 of biweekly compensation	N/A	16.61%		
b. Rate on biweekly compensation in excess of $161.54	N/A	24.92%		

SECTION V – CONTRIBUTIONS

Table V-3 below shows information on each layer of the June 30, 2023 UAL. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. The UAL as of June 30, 2015 is being amortized over a closed 19-year period as a level percentage of payroll, assuming payroll increases of 3.00% per year, and subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

Table V-3
Development of Amortization Payment
For the June 30, 2023 Actuarial Valuation

Type of Base	Date Established	Initial Amount	Initial Amortization Years	June 30, 2023 Outstanding Balance	Remaining Amortization Years	Amortization Amount
1. Initial UAL	6/30/2015	201,848,216	19	171,164,328	11	19,332,934
2. (Gain)/Loss Base	6/30/2016	38,033,040	19	33,481,656	12	3,528,369
3. (Gain)/Loss Base	6/30/2017	25,611,386	19	23,251,554	13	2,301,845
4. Assumption Change Base	6/30/2017	82,259,297	19	74,679,931	13	7,393,122
5. POB Contribution Base	6/30/2017	(233,100,233)	19	(211,622,388)	13	(20,950,073)
6. (Gain)/Loss Base	6/30/2018	23,781,349	19	22,163,425	14	2,073,210
7. (Gain)/Loss Base	6/30/2019	12,251,268	19	11,662,714	15	1,035,996
8. (Gain)/Loss Base	6/30/2020	23,103,302	19	22,368,365	16	1,895,081
9. Assumption Change Base	6/30/2020	42,435,148	19	41,085,244	16	3,480,802
10. (Gain)/Loss Base	6/30/2021	(1,383,632)	19	(1,358,501)	17	(110,189)
11. (Gain)/Loss Base	6/30/2022	13,836,166	19	13,730,337	18	1,069,781
12. (Gain)/Loss Base	6/30/2023	99,620,526	19	99,620,526	19	7,478,092
13. Assumption Change Base	6/30/2023	(14,014,216)	19	(14,014,216)	19	(1,051,988)
Total				$ 286,212,975		$ 27,476,982

Numbers may not add to totals due to rounding.

If the UAL payment above of $27,476,982 is calculated based on a single-equivalent period with the June 30, 2023 UAL of $286,212,975, the number of years to fully pay off the UAL would be approximately 14 years.

SECTION V – CONTRIBUTIONS

Table V-4 below shows the development of the UAL amortization rates. The payroll split between County General and Non-County General is based on pensionable payroll by employer for FYE 2023 provided for the GASB 67/68 report. Following direction from Staff, the pensionable payroll for TCAG is excluded from the County's share.

As shown below (and described earlier in this section), the cost impact of the contribution from POB proceeds has been allocated to the County only.

Table V-4
Development of UAL Amortization Rates for FYE 2025

General (County)		
1. General County Projected Payroll for FYE June 30, 2024	$	232,674,385
2. Total General Projected Payroll for FYE June 30, 2024	$	252,348,896
3. County Share (1 divided by 2)		92.2034%
4. UAL Payment, not including POB Contribution	$	34,621,903
5. UAL Payment for POB Contribution	$	(15,777,962)
6. County Share of 4. (3 multiplied by 4)	$	31,922,589
7. County Share of 5. (100% of 5)	$	(15,777,962)
8. Total General County UAL Payment (6+7)	$	16,144,627
9. General County UAL Rate (8 divided by 1)		6.94%
General (Non-County)		
1. General Non-County Projected Payroll for FYE June 30, 2024	$	19,674,511
2. Total General Projected Payroll for FYE June 30, 2024	$	252,348,896
3. Non-County Share (1 divided by 2)		7.7966%
4. UAL Payment, not including POB Contribution	$	34,621,903
5. UAL Payment for POB Contribution	$	(15,777,962)
6. Non-County Share of 4. (3 multiplied by 4)	$	2,699,314
7. Non-County Share of 5. (0% of 5)	$	0
8. Total General Non-County UAL Payment (6+7)	$	2,699,314
9. General Non-County UAL Rate (8 divided by 1)		13.72%
Safety (County)		
1. County Safety Projected Payroll for FYE June 30, 2024	$	70,565,512
2. Total Safety Projected Payroll for FYE June 30, 2024	$	70,565,512
3. County Share (1 divided by 2)		100.0000%
4. UAL Payment, not including POB Contribution	$	13,805,152
5. UAL Payment for POB Contribution	$	(5,172,111)
6. County Share of 4. (3 multiplied by 4)	$	13,805,152
7. County Share of 5. (100% of 5)	$	(5,172,111)
8. Total County Safety UAL Payment (6+7)	$	8,633,041
9. County Safety UAL Rate (8 divided by 1)		12.23%

Numbers may not add to totals due to rounding.

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2025 are shown in Table V-5 below, split by membership class, employer (County or non-County for General members), and tier (1-4). Separate rates are displayed for normal cost and UAL Amortization, both of which are further split into Basic and COLA rates. Table V-6 on the following page shows employee contribution rates for FYE 2025 at sample ages.

Table V-5
Detailed Employer Contribution Rate as of June 30, 2023 for FYE 2025

		Normal Cost			UAL Amortization Cost			Total Cost		
Member Type	Tier	Basic Rate	COLA Rate	Total Rate	Basic Rate	COLA Rate	Total Rate	Basic Rate	COLA Rate	Total Rate
General (County)	1	10.08%	2.38%	12.45%	5.62%	1.32%	6.94%	15.69%	3.70%	19.39%
General (County)	2&3	6.47%	1.39%	7.86%	5.71%	1.23%	6.94%	12.19%	2.62%	14.80%
General (County)	4	6.17%	1.48%	7.65%	5.60%	1.34%	6.94%	11.77%	2.82%	14.59%
General (Non-County)	1	10.08%	2.38%	12.45%	11.10%	2.62%	13.72%	21.18%	4.99%	26.17%
General (Non-County)	2&3	6.47%	1.39%	7.86%	11.29%	2.43%	13.72%	17.77%	3.82%	21.58%
General (Non-County)	4	6.17%	1.48%	7.65%	11.07%	2.65%	13.72%	17.24%	4.13%	21.37%
General (Total)	1	10.08%	2.38%	12.45%	6.05%	1.42%	7.47%	16.13%	3.80%	19.92%
General (Total)	2&3	6.47%	1.39%	7.86%	6.15%	1.32%	7.47%	12.62%	2.71%	15.33%
General (Total)	4	6.17%	1.48%	7.65%	6.03%	1.44%	7.47%	12.20%	2.92%	15.12%
Safety (County)	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Safety (County)	2&3	9.98%	2.34%	12.32%	9.90%	2.33%	12.23%	19.88%	4.67%	24.55%
Safety (County)	4	10.23%	2.51%	12.74%	9.82%	2.41%	12.23%	20.05%	4.92%	24.97%

SECTION V – CONTRIBUTIONS

Table V-6
Employee Contribution Rate at Sample Ages as of June 30, 2023 for FYE 2025

Member Type	Tier	Age 25	Age 35	Age 45	Single Rate
General	1	4.79%	5.88%	7.23%	N/A
General	2&3	7.60%	9.32%	11.41%	N/A
General	4	5.64%	7.64%	10.43%	N/A
Safety	1	N/A	N/A	N/A	N/A
Safety	2&3	11.28%	13.11%	15.19%	N/A
Safety	4	11.57%	14.81%	18.69%	N/A

SECTION V – CONTRIBUTIONS

Table V-7 below shows projected annual employer contributions for FYE 2025, split by membership class, employer (County or non-County for General members), and tier (1-4). The contribution amounts are further split into normal cost and UAL Amortization components.

Table V-7
Estimated Annual Employer Contributions for FYE 2025

Member Type	Tier	Normal Cost	UAL Amortization	Contributions Total
General (County)	1	$ 47,901	$ 26,696	$ 74,597
General (County)	2&3	8,543,960	7,541,839	16,085,799
General (County)	4	9,994,102	9,070,113	19,064,214
General (Non-County)	1	4,050	4,463	8,513
General (Non-County)	2&3	722,461	1,260,745	1,983,206
General (Non-County)	4	845,083	1,516,222	2,361,304
General (Total)	1	51,951	31,158	83,110
General (Total)	2&3	9,266,422	8,802,584	18,069,006
General (Total)	4	10,839,184	10,586,334	21,425,519
Safety (County)	1	0	0	0
Safety (County)	2&3	4,959,092	4,923,775	9,882,867
Safety (County)	4	4,133,869	3,968,829	8,102,698

Numbers may not add to totals due to rounding.

SECTION V – CONTRIBUTIONS

Table V-8 below shows a projection of the expected contributions (for the fiscal year beginning one year after the valuation date) to cover the employer normal cost and UAL amortization over the next 20 years.

Table V-8
Retirement Contributions

Valuation Year	Employer Normal Cost Contribution	Employer UAL Amortization Contribution	Total Employer Contributions	Employer Rate (%)	Employee Contribution	Employee Rate (%)
2023	$ 29,250,519	$ 28,312,680	$ 57,563,199	17.3%	$ 29,497,716	8.9%
2024	30,124,597	32,089,838	62,214,435	18.2%	30,351,498	8.9%
2025	31,019,497	35,276,318	66,295,815	18.8%	31,237,042	8.9%
2026	31,943,283	37,595,540	69,538,822	19.1%	32,151,106	8.9%
2027	32,895,425	39,956,199	72,851,624	19.5%	33,095,420	8.8%
2028	33,877,081	42,601,423	76,478,504	19.8%	34,071,109	8.8%
2029	34,889,216	44,638,880	79,528,096	20.0%	35,075,411	8.8%
2030	35,931,449	46,614,130	82,545,579	20.2%	36,112,383	8.8%
2031	37,005,778	49,684,738	86,690,517	20.6%	37,179,006	8.8%
2032	38,111,823	52,352,910	90,464,733	20.8%	38,277,254	8.8%
2033	39,250,889	53,947,016	93,197,905	20.9%	39,410,128	8.8%
2034	40,424,669	28,002,860	68,427,530	14.9%	40,576,121	8.8%
2035	41,633,289	21,521,015	63,154,303	13.3%	41,777,809	8.8%
2036	42,878,352	38,622,275	81,500,627	16.7%	43,013,474	8.8%
2037	44,160,031	37,828,542	81,988,573	16.3%	44,284,296	8.8%
2038	45,479,469	37,149,082	82,628,551	15.9%	45,593,434	8.8%
2039	46,838,500	29,236,865	76,075,365	14.3%	46,941,870	8.8%
2040	48,238,218	29,600,359	77,838,578	14.2%	48,331,566	8.8%
2041	49,680,125	28,572,338	78,252,463	13.8%	49,761,678	8.8%
2042	51,164,762	17,674,205	68,838,967	11.8%	51,234,400	8.8%
2043	52,693,763	12,136,898	64,830,661	10.8%	52,752,909	8.8%

SECTION VI – ANNUAL COMPREHENSIVE FINANCIAL REPORTING INFORMATION

The GASB adopted Statement Nos. 67 and 68, replacing GASB Statement Nos. 25 and 27. GASB 67 was effective for periods beginning after June 15, 2013 (first effective June 30, 2014 for the Plan) and GASB 68 was effective for fiscal years beginning after June 15, 2014 (first effective for the fiscal year July 1, 2014 to June 30, 2015 for the Employers). The disclosures needed to satisfy the GASB requirements will be included in the TCERA GASB 67/68 Report as of June 30, 2023.

In accordance with Government Finance Officers Association (GFOA) and their recommended checklist for Annual Comprehensive Financial Reports (ACFRs), we continue to prepare the Schedule of Funded Liabilities by Type disclosure, as shown in Table VI-1. As requested by TCERA, we have also included the Schedule of Funding Progress (Table VI-2) and the Schedule of Employer Contributions (Table VI-3).

Table VI-1
SCHEDULE OF FUNDED LIABILITIES BY TYPE
(in thousands)

Valuation Date June 30,	(A) Active/Inactive Member Contributions	(B) Retirees And Beneficiaries	(C) Remaining Active Members' Liabilities	Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets (A)	(B)	(C)
2014	$ 252,883	$ 660,147	$ 358,802	$ 1,101,929	100%	100%	53%
2015	264,870	698,147	395,418	1,156,587	100%	100%	49%
2016	272,740	748,703	409,993	1,192,642	100%	100%	42%
2017	278,900	808,799	485,707	1,461,755	100%	100%	77%
2018	287,078	869,729	499,550	1,523,030	100%	100%	73%
2019	301,935	925,027	514,321	1,598,431	100%	100%	72%
2020	319,562	1,008,432	547,804	1,670,786	100%	100%	63%
2021	339,547	1,050,032	568,406	1,759,025	100%	100%	65%
2022	359,335	1,105,920	582,095	1,840,109	100%	100%	64%
2023	376,021	1,172,759	653,143	1,915,710	100%	100%	56%

Numbers may not add to totals due to rounding.
June 30, 2014 and earlier numbers calculated by prior actuary.

SECTION VI – ANNUAL COMPREHENSIVE FINANCIAL REPORTING INFORMATION

June 30, 2017 assets include receivable for expected contribution from POB.

Table VI-2
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded AL	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
June 30, 2003	$ 634,249	$ 608,505	$ (25,744)	104.2%	$ 162,397	-15.9%
June 30, 2004	665,244	649,649	(15,595)	102.4%	158,032	-9.9%
June 30, 2005	681,618	714,656	33,038	95.4%	164,777	20.1%
June 30, 2006	729,899	792,844	62,945	92.1%	186,949	33.7%
June 30, 2007	800,967	846,030	45,063	94.7%	204,803	22.0%
June 30, 2008	879,051	946,414	67,363	92.9%	226,836	29.7%
June 30, 2009	919,179	996,747	77,568	92.2%	227,306	34.1%
June 30, 2010	946,640	1,033,211	86,571	91.6%	217,811	39.7%
June 30, 2011	969,681	1,072,144	102,463	90.4%	219,854	46.6%
June 30, 2012	981,946	1,101,456	119,510	89.1%	222,635	53.7%
June 30, 2013	1,048,160	1,186,057	137,897	88.4%	230,955	59.7%
June 30, 2014	1,101,929	1,271,832	169,903	86.6%	234,569	72.4%
June 30, 2015	1,156,587	1,358,435	201,848	85.1%	239,055	84.4%
June 30, 2016	1,192,642	1,431,436	238,794	83.3%	248,514	96.1%
June 30, 2017	1,461,755	1,573,406	111,651	92.9%	254,941	43.8%
June 30, 2018	1,523,030	1,656,357	133,326	92.0%	262,714	50.7%
June 30, 2019	1,598,431	1,741,283	142,851	91.8%	272,416	52.4%
June 30, 2020	1,670,786	1,875,797	205,011	89.1%	284,272	72.1%
June 30, 2021	1,759,025	1,957,985	198,960	89.8%	286,886	69.4%
June 30, 2022	1,840,109	2,047,350	207,241	89.9%	293,445	70.6%
June 30, 2023	1,915,710	2,201,923	286,213	87.0%	323,043	88.6%

Numbers may not add to totals due to rounding.
June 30, 2014 and earlier numbers calculated by prior actuary.
June 30, 2017 assets include receivable for expected contribution from POB.

SECTION VI – ANNUAL COMPREHENSIVE FINANCIAL REPORTING INFORMATION

Table VI-3
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

Year Ended June, 30	Actuarially Determined Contribution	Actual Contribution	Percentage Contributed
2003	$ 5,245	$ 5,245	100%
2004	9,595	9,595	100%
2005	10,502	10,502	100%
2006	12,443	12,443	100%
2007	17,975	17,975	100%
2008	22,692	22,692	100%
2009	22,431	22,431	100%
2010	25,339	25,339	100%
2011	23,434	23,434	100%
2012	25,257	25,257	100%
2013	29,847	29,847	100%
2014	25,953	25,953	100%
2015	30,992	30,992	100%
2016	31,297	31,297	100%
2017	33,616	33,616	100%
2018	36,263	36,263	100%
2019	33,494	33,494	100%
2020	35,310	35,310	100%
2021	36,766	36,766	100%
2022	40,392	40,392	100%
2023	45,174	45,174	100%

June 30, 2014 and earlier numbers calculated by prior actuary.

Note that the actual contributions do not include the contribution from POB proceeds above the actuarially determined amount.

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the Tulare County staff as of June 30, 2023. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

SUMMARY OF TOTAL ACTIVE MEMBERSHIP			
	June 30, 2022	June 30, 2023	Change
Total (General & Safety)			
Count	4,432	4,505	1.6%
Average Age	42.5	42.2	-0.5%
Average Service	10.5	10.3	-1.8%
Annual Projected Payroll	$ 293,444,953	$ 323,042,880	10.1%
Average Annual Pay	$ 66,211	$ 71,708	8.3%

SUMMARY OF INACTIVE MEMBERSHIP*			
	June 30, 2022	June 30, 2023	Change
General			
Count	2,083	2,222	6.7%
Average Age	43.9	43.8	-0.1%
Total Contribution Balance	$ 52,984,947	$ 58,738,327	10.9%
Average Contribution Balance	$ 25,437	$ 26,435	3.9%
Safety			
Count	384	411	7.0%
Average Age	39.3	39.4	0.3%
Total Contribution Balance	$ 15,792,000	$ 17,477,746	10.7%
Average Contribution Balance	$ 41,125	$ 42,525	3.4%
Total			
Count	2,467	2,633	6.7%
Average Age	43.2	43.1	-0.1%
Total Contribution Balance	$ 68,776,947	$ 76,216,073	10.8%
Average Contribution Balance	$ 27,879	$ 28,946	3.8%

**Includes unclaimed accounts.*

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED MEMBERSHIP	June 30, 2022	June 30, 2023	Change
General			
Count	2,947	3,014	2.3%
Average Age	71.8	71.9	0.2%
Total Annual Allowance	$ 69,411,269	$ 72,997,199	5.2%
Average Annual Allowance	$ 23,553	$ 24,219	2.8%
Safety			
Count	638	668	4.7%
Average Age	65.3	65.4	0.2%
Total Annual Allowance	$ 24,727,646	$ 26,445,626	6.9%
Average Annual Allowance	$ 38,758	$ 39,589	2.1%
Total			
Count	3,585	3,682	2.7%
Average Age	70.6	70.8	0.2%
Total Annual Allowance	$ 94,138,915	$ 99,442,825	5.6%
Average Annual Allowance	$ 26,259	$ 27,008	2.9%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE GENERAL MEMBERSHIP

	June 30, 2022	June 30, 2023	Change
General Tier 1			
Count	7	6	-14.3%
Average Age	69.0	70.4	1.9%
Average Service	37.8	43.9	16.1%
Annual Projected Payroll	$ 490,633	$ 404,879	-17.5%
Average Annual Pay	$ 70,090	$ 67,480	-3.7%
General Tier 2 & 3			
Count	1,619	1,481	-8.5%
Average Age	49.6	50.4	1.5%
Average Service	17.8	18.6	4.8%
Annual Projected Payroll	$ 113,469,216	$ 114,382,779	0.8%
Average Annual Pay	$ 70,086	$ 77,233	10.2%
General Tier 4			
Count	1,985	2,221	11.9%
Average Age	37.8	37.7	-0.1%
Average Service	4.2	4.3	2.2%
Annual Projected Payroll	$ 113,443,582	$ 137,689,710	21.4%
Average Annual Pay	$ 57,150	$ 61,994	8.5%
General Total			
Count	3,611	3,708	2.7%
Average Age	43.2	42.8	-0.8%
Average Service	10.4	10.1	-2.6%
Annual Projected Payroll	$ 227,403,431	$ 252,477,368	11.0%
Average Annual Pay	$ 62,975	$ 68,090	8.1%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE SAFETY MEMBERSHIP					
		June 30, 2022		June 30, 2023	Change
Safety Tier 1					
Count		0		0	0.0%
Average Age		0		0	0.0%
Average Service		0		0	0.0%
Annual Projected Payroll	$	0	$	0	0.0%
Average Annual Pay	$	0	$	0	0.0%
Safety Tier 2 & 3					
Count		428		389	-9.1%
Average Age		45.4		46.4	2.1%
Average Service		17.4		18.4	5.9%
Annual Projected Payroll	$	38,249,543	$	39,071,649	2.1%
Average Annual Pay	$	89,368	$	100,441	12.4%
Safety Tier 4					
Count		393		408	3.8%
Average Age		32.7		33.0	0.8%
Average Service		4.3		4.6	8.5%
Annual Projected Payroll	$	27,791,979	$	31,493,863	13.3%
Average Annual Pay	$	70,710	$	77,191	9.2%
Safety Total					
Count		821		797	-2.9%
Average Age		39.4		39.5	0.5%
Average Service		11.1		11.3	2.3%
Annual Projected Payroll	$	66,041,522	$	70,565,512	6.9%
Average Annual Pay	$	80,440	$	88,539	10.1%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED GENERAL MEMBERSHIP

	June 30, 2022	June 30, 2023	Change
Service Retirement			
Count	2,333	2,405	3.1%
Average Age	71.7	71.9	0.3%
Total Annual Allowance	$ 58,704,307	$ 62,062,923	5.7%
Average Annual Allowance	$ 25,163	$ 25,806	2.6%
Disability			
Count	204	204	0.0%
Average Age	65.7	66.0	0.5%
Total Annual Allowance	$ 4,574,239	$ 4,735,294	3.5%
Average Annual Allowance	$ 22,423	$ 23,212	3.5%
Beneficiaries			
Count	410	405	-1.2%
Average Age	75.6	75.2	-0.4%
Total Annual Allowance	$ 6,132,723	$ 6,198,982	1.1%
Average Annual Allowance	$ 14,958	$ 15,306	2.3%
Total			
Count	2,947	3,014	2.3%
Average Age	71.8	71.9	0.2%
Total Annual Allowance	$ 69,411,269	$ 72,997,199	5.2%
Average Annual Allowance	$ 23,553	$ 24,219	2.8%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED SAFETY MEMBERSHIP

	June 30, 2022	June 30, 2023	Change
Service Retirement			
Count	378	403	6.6%
Average Age	66.4	66.3	-0.1%
Total Annual Allowance	$ 16,881,299	$ 18,234,026	8.0%
Average Annual Allowance	$ 44,660	$ 45,246	1.3%
Disability			
Count	141	144	2.1%
Average Age	60.2	60.2	0.1%
Total Annual Allowance	$ 4,810,225	$ 5,058,491	5.2%
Average Annual Allowance	$ 34,115	$ 35,128	3.0%
Beneficiaries			
Count	119	121	1.7%
Average Age	67.8	68.7	1.4%
Total Annual Allowance	$ 3,036,122	$ 3,153,109	3.9%
Average Annual Allowance	$ 25,514	$ 26,059	2.1%
Total			
Count	638	668	4.7%
Average Age	65.3	65.4	0.2%
Total Annual Allowance	$ 24,727,646	$ 26,445,626	6.9%
Average Annual Allowance	$ 38,758	$ 39,589	2.1%

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY
OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2023
TIER 1

YEARS OF CREDITED SERVICE

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	58,109	2	58,109
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	87,079	0	0	3	67,194	4	72,165
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	87,079	0	0	5	63,560	6	67,480

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY
OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2023
TIER 2 & 3

YEARS OF CREDITED SERVICE

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	2	62,906	16	61,052	4	59,422	0	0	0	0	0	0	0	0	0	0	22	60,924
35 to 39	1	90,540	1	76,942	9	64,942	93	77,969	41	70,107	0	0	0	0	0	0	0	0	0	0	145	75,017
40 to 44	2	62,029	0	0	12	82,277	109	80,508	134	80,690	36	68,927	0	0	0	0	0	0	0	0	293	79,115
45 to 49	2	50,201	3	59,334	11	88,301	70	74,493	99	74,055	87	76,129	24	86,182	0	0	0	0	0	0	296	75,970
50 to 54	1	107,435	2	109,226	4	90,584	35	72,811	81	76,411	87	73,691	46	69,910	5	74,172	0	0	0	0	261	74,421
55 to 59	0	0	3	72,687	6	64,878	37	69,517	61	78,699	61	77,389	43	75,496	17	76,257	2	82,767	0	0	230	75,692
60 to 64	1	81,661	0	0	3	79,589	24	90,359	53	82,715	36	80,242	30	71,029	17	86,345	8	110,739	1	53,661	173	82,659
65 to 69	0	0	0	0	2	80,751	10	76,507	10	94,732	12	67,482	5	66,217	4	114,467	3	87,914	0	0	46	81,225
70 & up	1	65,384	0	0	0	0	5	135,906	3	88,430	4	113,838	2	81,257	0	0	0	0	0	0	15	108,538
Total	8	71,185	9	76,829	49	77,975	399	77,573	486	77,865	323	75,512	150	74,367	43	83,557	13	101,168	1	53,661	1,481	77,233

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2023
TIER 4

	YEARS OF CREDITED SERVICE																					
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
Attained Age	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	84	$ 44,901	43	$ 46,203	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	127	$ 45,342
25 to 29	133	50,982	177	58,004	64	54,054	0	0	0	0	0	0	0	0	0	0	0	0	0	0	374	54,831
30 to 34	88	51,737	227	62,171	236	64,879	8	68,072	0	0	0	0	0	0	0	0	0	0	0	0	559	61,756
35 to 39	63	57,811	125	63,046	204	70,203	19	75,862	0	0	0	0	0	0	0	0	0	0	0	0	411	66,388
40 to 44	36	56,583	111	67,916	112	68,593	11	74,283	0	0	0	0	0	0	0	0	0	0	0	0	270	66,945
45 to 49	35	57,893	68	63,926	76	70,706	7	53,027	0	0	0	0	0	0	0	0	0	0	0	0	186	65,151
50 to 54	24	63,880	40	65,183	55	66,436	9	82,267	0	0	0	0	0	0	0	0	0	0	0	0	128	66,678
55 to 59	9	54,311	34	67,782	35	64,811	7	56,193	0	0	0	0	0	0	0	0	0	0	0	0	85	64,178
60 to 64	6	53,146	24	69,211	32	72,271	4	55,131	0	0	0	0	0	0	0	0	0	0	0	0	66	68,381
65 to 69	0	0	6	56,896	6	55,143	1	43,704	0	0	0	0	0	0	0	0	0	0	0	0	13	55,072
70 & up	1	62,966	0	0	1	142,041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	102,504
Total	479	52,639	855	62,043	821	66,816	66	69,276	0	0	0	0	0	0	0	0	0	0	0	0	2,221	61,994

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2023
TIER 1

YEARS OF CREDITED SERVICE

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2023
TIER 2 & 3

YEARS OF CREDITED SERVICE

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	1	90,023	1	116,466	8	89,548	1	88,640	0	0	0	0	0	0	0	0	0	0	11	91,956
35 to 39	0	0	0	0	1	99,528	29	86,515	31	101,178	0	0	0	0	0	0	0	0	0	0	61	94,180
40 to 44	1	70,138	2	93,879	5	91,345	24	92,047	65	97,647	7	100,462	0	0	0	0	0	0	0	0	104	95,904
45 to 49	0	0	0	0	2	113,364	14	92,007	43	99,952	33	109,325	3	112,432	0	0	0	0	0	0	95	102,713
50 to 54	1	194,824	0	0	0	0	9	85,264	25	101,384	24	116,850	13	117,693	1	116,345	0	0	0	0	73	108,870
55 to 59	1	102,281	0	0	1	97,005	4	96,585	6	89,460	6	98,659	10	100,108	2	110,115	3	170,855	0	0	33	104,491
60 to 64	0	0	0	0	0	0	0	0	7	103,821	1	118,004	2	86,902	1	102,564	0	0	0	0	11	101,920
65 to 69	0	0	0	0	0	0	0	0	0	0	1	66,458	0	0	0	0	0	0	0	0	1	66,458
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	122,414	3	92,593	10	99,645	88	89,503	178	99,260	72	109,608	28	108,650	4	109,785	3	170,855	0	0	389	100,441

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2023
TIER 4

YEARS OF CREDITED SERVICE

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	14	$ 53,188	13	$ 71,261	1	$ 84,141	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	28	$ 62,684
25 to 29	25	60,368	84	73,852	25	81,539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	72,770
30 to 34	13	57,120	43	77,667	65	81,797	5	88,017	0	0	0	0	0	0	0	0	0	0	0	0	126	78,088
35 to 39	4	64,152	20	80,743	38	86,918	4	79,077	0	0	0	0	0	0	0	0	0	0	0	0	66	83,192
40 to 44	2	69,952	8	77,113	14	83,482	3	92,254	0	0	0	0	0	0	0	0	0	0	0	0	27	81,567
45 to 49	1	67,775	2	90,622	6	88,916	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	86,946
50 to 54	2	75,300	1	107,128	3	85,748	3	92,794	0	0	0	0	0	0	0	0	0	0	0	0	9	88,150
55 to 59	1	69,060	3	102,430	1	141,707	1	83,297	0	0	0	0	0	0	0	0	0	0	0	0	6	100,226
60 to 64	0	0	2	90,210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	90,210
65 to 69	0	0	0	0	1	97,725	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	97,725
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	62	59,360	176	76,577	154	84,034	16	87,177	0	0	0	0	0	0	0	0	0	0	0	0	408	77,191

Average Increases in Pay (for upcoming year, based on valuation data)	
Longevity and Promotion Component	2.43%
Wage Inflation Component	3.00%
Total	5.43%

APPENDIX A – MEMBERSHIP INFORMATION

AGE DISTRIBUTION OF TOTAL INACTIVE PARTICIPANTS
PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2023

	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
Age	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	80	$ 2,505,255	84	$ 1,641,157	46	$ 678,305	210	$ 4,824,717
55-59	44	1,372,177	213	5,789,285	15	229,211	272	7,390,673
60-64	53	1,367,854	394	11,283,692	41	798,218	488	13,449,764
65-69	62	1,632,804	586	17,232,724	71	1,473,199	719	20,338,727
70-74	50	1,375,961	600	17,954,203	84	1,472,009	734	20,802,173
75-79	39	1,085,178	527	16,487,105	91	1,771,662	657	19,343,945
80 & Over	20	454,556	404	9,908,783	178	2,929,487	602	13,292,826
Total	348	$ 9,793,785	2,808	$ 80,296,949	526	$ 9,352,091	3,682	$ 99,442,825

AGE DISTRIBUTION OF INACTIVE GENERAL PARTICIPANTS
PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2023

	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
Age	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	30	$ 690,741	45	$ 560,821	25	$ 215,936	100	$ 1,467,498
55-59	19	402,835	138	2,109,320	10	105,948	167	2,618,103
60-64	37	886,425	318	8,023,486	30	506,519	385	9,416,430
65-69	44	1,041,100	517	14,120,142	48	778,535	609	15,939,777
70-74	33	726,000	535	14,796,522	63	864,125	631	16,386,647
75-79	30	759,934	473	13,544,828	81	1,524,655	584	15,829,417
80 & Over	11	228,259	379	8,907,804	148	2,203,264	538	11,339,327
Total	204	$ 4,735,294	2,405	$ 62,062,923	405	$ 6,198,982	3,014	$ 72,997,199

APPENDIX A – MEMBERSHIP INFORMATION

AGE DISTRIBUTION OF INACTIVE SAFETY PARTICIPANTS PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2023								
	Disability Retirements		**Normal, Early Deferred Vested Retirements**		**Surviving Spouses and Beneficiaries Receiving Benefits**		**Total**	
Age	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	50	$ 1,814,514	39	$ 1,080,336	21	$ 462,369	110	$ 3,357,219
55-59	25	969,342	75	3,679,965	5	123,263	105	4,772,570
60-64	16	481,429	76	3,260,206	11	291,699	103	4,033,334
65-69	18	591,704	69	3,112,582	23	694,664	110	4,398,950
70-74	17	649,961	65	3,157,681	21	607,884	103	4,415,526
75-79	9	325,244	54	2,942,277	10	247,007	73	3,514,528
80 & Over	9	226,297	25	1,000,979	30	726,223	64	1,953,499
Total	144	$ 5,058,491	403	$ 18,234,026	121	$ 3,153,109	668	$ 26,445,626

APPENDIX A – MEMBERSHIP INFORMATION

Retirants and Beneficiaries Added to and Removed From Payroll

Plan Year Ended June 30	At Beginning of Year	Added During Year	Annual Allowances Added to the Rolls	Removed During Year	Annual Allowances Removed from the Rolls	At End of Year	Annual Allowance	% Increase in Annual Allowance	Average Annual Allowance
2013	2,424	183	$ 4,745,718	65	$ 483,264	2,542	$ 53,237,266	8.70%	$ 20,943
2014	2,542	224	$ 4,198,797	75	$ 659,212	2,691	$ 56,776,851	6.65%	$ 21,099
2015	2,691	218	$ 4,360,151	88	$ 1,432,880	2,821	$ 59,960,567	5.61%	$ 21,255
2016	2,821	185	$ 4,540,356	66	$ 986,150	2,940	$ 64,292,378	7.22%	$ 21,868
2017	2,940	191	$ 4,483,587	59	$ 896,529	3,072	$ 68,669,924	6.81%	$ 22,353
2018	3,072	178	$ 5,487,994	58	$ 830,938	3,192	$ 73,731,771	7.37%	$ 23,099
2019	3,192	174	$ 4,705,555	54	$ 1,098,384	3,312	$ 78,971,061	7.11%	$ 23,844
2020	3,312	163	$ 4,626,973	67	$ 925,421	3,408	$ 84,412,237	6.89%	$ 24,769
2021	3,408	141	$ 3,908,186	77	$ 1,434,138	3,472	$ 88,623,368	4.99%	$ 25,525
2022	3,472	178	$ 5,109,979	65	$ 1,181,524	3,585	$ 94,138,915	6.22%	$ 26,259
2023	3,585	176	$ 5,106,635	79	$ 1,576,004	3,682	$ 99,442,825	5.63%	$ 27,008

Data prior to 2015 was compiled by the previous actuary.

Starting in 2015, Annual Allowances Added to the Rolls no longer includes cost of living adjustments for existing retirees.

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of System Membership Since Prior Valuation
Total Members

	Active	Deferred Vested	Deferred Vested - Transferred	Ordinary Disability	Duty Disability	Retired	Beneficiaries	Non-Vested Terminations Due Refund	QDRO	Deferred QDRO	Totals
June 30, 2022	**4,432**	**530**	**660**	**119**	**226**	**2,711**	**466**	**1,258**	**63**	**19**	**10,484**
New Entrants	605										605
Rehires	27	(4)	(1)			(2)		(20)			-
Duty Disabilities	(6)	(1)			11	(4)					-
Ordinary Disabilities				2		(2)					-
Retirements	(122)	(13)	(30)			165					-
Vested Terminations	(125)	126	(1)								-
Non-Vested Terminations and	(191)	(1)	(1)	(5)	(2)	(31)		186			(45)
Death without beneficiary											-
Death with beneficiary				(1)	(2)	(29)	32				-
Transfers	(25)	(18)	58					(13)			2
Beneficiary Deaths							(39)				(39)
Domestic Relations Orders									3		3
Deferred Domestic Relations Orders										4	4
Withdrawals Paid	(90)	(20)	(2)					(80)		(2)	(194)
Data Corrections							1	(1)			-
June 30, 2023	**4,505**	**599**	**683**	**115**	**233**	**2,808**	**460**	**1,330**	**66**	**21**	**10,820**

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of System Membership Since Prior Valuation
General Members

	Active	Deferred Vested	Deferred Vested - Transferred	Ordinary Disability	Duty Disability	Retired	Beneficiaries	Non-Vested Terminations Due Refund	QDRO	Deferred QDRO	Totals
June 30, 2022	**3,611**	**442**	**540**	**101**	**103**	**2,333**	**372**	**1,092**	**38**	**9**	**8,641**
New Entrants	531										531
Rehires	23	(2)	(1)			(1)		(18)			1
Duty Disabilities	(1)	(1)			5	(3)					-
Ordinary Disabilities	-	-		2		(2)					-
Retirements	(98)	(11)	(24)			133					-
Vested Terminations	(99)	99									-
Non-Vested Terminations and	(164)	(1)	(1)	(5)	-	(30)		159		-	(42)
Death without beneficiary											-
Death with beneficiary	-			(1)	(1)	(25)	27				-
Transfers	(22)	(14)	46					(12)			(2)
Beneficiary Deaths							(36)				(36)
Domestic Relations Orders									3		3
Deferred Domestic Relations Orders									-	4	4
Withdrawals Paid	(73)	(16)	(1)					(66)		-	(156)
Data Corrections	-	-	-	-	-	-	1	(1)	-		-
June 30, 2023	**3,708**	**496**	**559**	**97**	**107**	**2,405**	**364**	**1,154**	**41**	**13**	**8,944**

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of System Membership Since Prior Valuation
Safety Members

	Active	Deferred Vested	Deferred Vested - Transferred	Ordinary Disability	Duty Disability	Retired	Beneficiaries	Non-Vested Terminations Due Refund	QDRO	Deferred QDRO	Totals
June 30, 2022	**821**	**88**	**120**	**18**	**123**	**378**	**94**	**166**	**25**	**10**	**1,843**
New Entrants	74										74
Rehires	4	(2)	-			(1)		(2)			(1)
Duty Disabilities	(5)				6	(1)					-
Ordinary Disabilities											-
Retirements	(24)	(2)	(6)			32			-	-	-
Vested Terminations	(26)	27	(1)								-
Non-Vested Terminations and	(27)		-		(2)	(1)		27			(3)
Death without beneficiary											-
Death with beneficiary	-				(1)	(4)	5				-
Transfers	(3)	(4)	12					(1)			4
Beneficiary Deaths							(3)				(3)
Domestic Relations Orders									-	-	-
Deferred Domestic Relations Orders										-	-
Withdrawals Paid	(17)	(4)	(1)					(14)		(2)	(38)
Data Corrections		-		-	-	-	-	-			-
June 30, 2023	**797**	**103**	**124**	**18**	**126**	**403**	**96**	**176**	**25**	**8**	**1,876**

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

The methods and assumptions used in the actuarial valuation as of June 30, 2023 are outlined on the following pages.

A. Actuarial Methods

1. Actuarial Cost Method

The actuarial valuation is prepared using the Entry Age Actuarial Cost Method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age). For members who transferred between plans, entry age is based on original entry into the system. The normal cost for the Plan is based on the sum of the individual normal costs for each member (Individual Entry Age Method).

The UAL (or Surplus) is amortized as a percentage of the projected salaries of present and future members of TCERA. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. The UAL as of June 30, 2015 is being amortized over a closed 19-year period as a level percentage of payroll, assuming payroll increases of 3.00% per year, and subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

2. Valuation of Assets

Beginning in fiscal year 2009, the assets are valued using a 10-year smoothed method based on the difference between the expected market value and the actual market value of the assets, net of expenses, as of June 30 and December 31 of each year. The expected market value at the end of each period is the beginning market value increased with the net increase in the cash flow of funds, all increased with interest at the expected investment return rate assumption.

A 30% asset corridor limit is applied.

The contribution of $250 million expected to be made on or before June 30, 2018 from the proceeds of a POB was included in the 2017 valuation as a receivable in both the Market and Actuarial Values of Assets as of June 30, 2017. Accordingly, it was not recorded as a contribution during the fiscal year 2017-2018.

3. Changes in Actuarial Methods

None.

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions

The TCERA Board has the authority to select economic and demographic assumptions for the Plan. The assumptions used in this report reflect the results of an Experience Study performed by Cheiron covering the period July 1, 2020 through June 30, 2023, and adopted by the Board at their October 11, 2023 meeting; more details on the assumptions can be found in the Experience Study Report dated October 20, 2023.

1. **Rate of Return**

   Assets are assumed to earn 7.00% net of investment and administrative expenses. For purposes of determining the Low-Default-Risk Obligation Measure (LDROM), a discount rate of 5.00% was used, based on the FTSE Pension Liability Index as of the valuation date, rounded to the nearest 0.25%.

2. **Inflation**

   The Consumer Price Index (CPI) is assumed to increase at the rate of 2.75% per year. This assumption is also used to project the compensation limit for PEPRA members.

3. **Post Retirement COLA**

   Benefits are assumed to increase after retirement at the rate of 2.6% per year for Tier 1 participants and 2% per year for all participants in Tiers 2-4. An additional COLA of 0.4% per year (for a total COLA growth rate of 3.0%) is included for Tier 1 participants in pay status to reflect their accumulated COLA banks.

4. **Internal Revenue Code Limits and PEPRA Pensionable Compensation Limits**

   The maximum benefit and maximum compensation limitations under Internal Revenue Code Sections 415 and 401(a)(17), respectively, are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement. The PEPRA compensation limit, which was $146,042 for calendar year 2023 for members participating in Social Security, was applied.

5. **Interest on Member Contributions**

   The annual credited interest rate on member contributions is assumed to be 7.00%.

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

6. Family Composition

Percentage married for deferred vested terminations and all active members who retire, become disabled, or die during active service is shown below. Spouses of male members are assumed to be female and two years younger. Spouses of female members are assumed to be male and two years older. Actual spouse demographic data is reflected following benefit commencement.

Division	Gender	Percentage
General	Male	80%
General	Female	55%
Safety	Male	80%
Safety	Female	55%

87.5% of future retirees with eligible beneficiaries who do not have a service-related disability are assumed to elect the 60% Joint and Survivor allowance, with the remainder receiving an actuarially reduced form of benefit.

7. Increases in Pay

Wage inflation component: 3.00%

Additional longevity and promotion component:

Longevity and Promotion Increases		
Service	General	Safety
0	8.00%	9.00%
1	6.50%	6.00%
2	5.50%	5.00%
3	4.00%	3.50%
4	3.00%	2.50%
5	2.00%	2.00%
6	1.75%	1.25%
7	1.50%	1.25%
8	1.00%	1.25%
9	1.00%	1.25%
10	1.00%	1.25%
11	1.00%	1.25%
12	1.00%	1.25%
13	1.00%	1.25%
14	1.00%	1.25%
15+	0.50%	1.25%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

8. Sick Leave Service Credit Upon Service Retirement

Active members' service retirement benefits are adjusted by a percentage, 1% for General and 2% for Safety, for anticipated conversions of sick leave to retirement service credit.

9. Termination

Years of Service	Rates of Termination	
	General	Safety
0	18.00%	13.00%
1	13.00%	12.00%
2	12.00%	8.00%
3	10.00%	8.00%
4	9.00%	8.00%
5	8.00%	6.00%
6	7.00%	6.00%
7	6.00%	6.00%
8	6.00%	6.00%
9	5.00%	6.00%
10	4.00%	4.00%
11	4.00%	4.00%
12	4.00%	4.00%
13	3.50%	4.00%
14	3.50%	4.00%
15	2.50%	2.50%
16	2.50%	2.50%
17	2.50%	2.50%
18	2.50%	2.50%
19	2.50%	2.50%
20 and over	2.50%	2.50%

Rates of termination apply to active Members who terminate their employment. Rates are assumed not to apply after eligibility for retirement.

Former members with contributions on deposit are assumed to receive a retirement benefit commencing at the following ages:

General Members: Age 60
Safety Members: Age 55

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

10. Rates of Deferred Vested Termination

Rates of deferred vested termination are a percentage of the termination rates shown on the previous page.

Service	General Males	General Females	Safety
5-10	75%	55%	60%
10-15	80%	65%	60%
15-20	80%	75%	80%
20+	80%	75%	100%

11. Reciprocal Transfers

60% of General and 65% of Safety deferred vested terminated members that leave their member contributions on deposit with the Plan are assumed to be reciprocal.

Reciprocal members are assumed to remain with the reciprocal agency until retirement, and receive annual salary increases of 3.50% for General members and 4.25% for Safety members.

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

12. Rates of Disability

Disability rates of active participants are shown below.

Rates of Disability						
	General - Males		General - Females		Safety	
Age	Ordinary	Duty	Ordinary	Duty	Ordinary	Duty
20	0.000%	0.010%	0.000%	0.010%	0.000%	0.110%
21	0.000%	0.010%	0.000%	0.010%	0.000%	0.120%
22	0.000%	0.010%	0.000%	0.010%	0.000%	0.130%
23	0.000%	0.010%	0.000%	0.010%	0.000%	0.140%
24	0.000%	0.010%	0.000%	0.010%	0.000%	0.150%
25	0.010%	0.010%	0.010%	0.010%	0.050%	0.170%
26	0.010%	0.010%	0.010%	0.010%	0.050%	0.200%
27	0.010%	0.010%	0.010%	0.010%	0.050%	0.250%
28	0.010%	0.010%	0.010%	0.010%	0.050%	0.300%
29	0.010%	0.010%	0.010%	0.010%	0.050%	0.350%
30	0.010%	0.010%	0.010%	0.010%	0.050%	0.400%
31	0.010%	0.010%	0.010%	0.010%	0.050%	0.450%
32	0.010%	0.010%	0.010%	0.010%	0.050%	0.500%
33	0.010%	0.010%	0.010%	0.010%	0.050%	0.520%
34	0.010%	0.010%	0.010%	0.010%	0.050%	0.540%
35	0.020%	0.020%	0.080%	0.020%	0.050%	0.560%
36	0.020%	0.020%	0.080%	0.020%	0.050%	0.580%
37	0.020%	0.020%	0.080%	0.020%	0.050%	0.600%
38	0.030%	0.030%	0.120%	0.030%	0.050%	0.620%
39	0.030%	0.030%	0.130%	0.030%	0.050%	0.640%
40	0.030%	0.030%	0.140%	0.030%	0.075%	0.660%
41	0.040%	0.045%	0.160%	0.045%	0.075%	0.670%
42	0.040%	0.045%	0.170%	0.045%	0.080%	0.680%
43	0.040%	0.045%	0.180%	0.045%	0.085%	0.690%
44	0.050%	0.050%	0.190%	0.050%	0.090%	0.700%
45	0.050%	0.055%	0.200%	0.055%	0.095%	0.750%
46	0.050%	0.060%	0.220%	0.060%	0.100%	0.800%
47	0.060%	0.070%	0.240%	0.070%	0.150%	0.850%
48	0.070%	0.080%	0.260%	0.080%	0.200%	0.900%
49	0.080%	0.090%	0.280%	0.090%	0.250%	0.950%
50	0.090%	0.100%	0.300%	0.100%	0.300%	1.000%
51	0.100%	0.150%	0.320%	0.150%	0.350%	1.250%
52	0.120%	0.200%	0.340%	0.200%	0.400%	1.500%
53	0.140%	0.250%	0.360%	0.250%	0.450%	1.750%
54	0.160%	0.300%	0.380%	0.300%	0.500%	2.000%
55	0.180%	0.350%	0.400%	0.350%	0.550%	2.250%
56	0.200%	0.400%	0.420%	0.400%	0.600%	2.300%
57	0.220%	0.450%	0.440%	0.450%	0.650%	2.350%
58	0.240%	0.500%	0.480%	0.500%	0.700%	2.400%
59	0.260%	0.550%	0.520%	0.550%	0.750%	2.450%
60	0.280%	0.600%	0.540%	0.600%	0.000%	0.000%
61	0.300%	0.650%	0.560%	0.650%	0.000%	0.000%
62	0.320%	0.700%	0.600%	0.700%	0.000%	0.000%
63	0.340%	0.750%	0.620%	0.750%	0.000%	0.000%
64	0.360%	0.800%	0.640%	0.800%	0.000%	0.000%
65 and over	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

13. Rates of Mortality for Healthy Lives

Mortality rates for General actives, retirees, beneficiaries (both General and Safety), terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014, with no additional changes for males and an adjustment of 10% for females to reflect Plan experience.

Mortality rates for Safety actives, retirees, terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables with blue-collar adjustment, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014, and increased by 5% for both males and females to reflect Plan experience.

14. Rates of Mortality for Retired Disabled Lives

Mortality rates for disabled retirees are based on the sex distinct Retired Pensioner (RP) 2014 Disabled Retiree Mortality Table, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014.

15. Duty-Related Deaths (Safety Employees Only)

Percentage of deaths assumed to be duty related	
Age	
20-24	37%
25-30	42%
31-34	45%
35-43	50%
44-45	52%
46-47	54%
48-49	56%
50-54	58%
55-56	60%
57-58	62%
59	63%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

16. Rates of Retirement

Rates of retirement are based on age and service according to the following below.

	General Years of Service		Safety Years of Service	
Age	Less than 30	30 or more	Less than 20	20 or more
45	0.00%	0.00%	7.00%	7.00%
46	0.00%	0.00%	7.00%	7.00%
47	0.00%	0.00%	7.00%	7.00%
48	0.00%	0.00%	7.00%	7.00%
49	0.00%	0.00%	7.00%	7.00%
50	5.00%	10.00%	7.00%	7.00%
51	5.00%	10.00%	7.00%	7.00%
52	5.00%	10.00%	7.00%	7.00%
53	5.00%	10.00%	7.00%	7.00%
54	5.00%	10.00%	7.00%	7.00%
55	6.00%	10.00%	10.00%	18.00%
56	6.00%	10.00%	10.00%	18.00%
57	6.00%	10.00%	10.00%	18.00%
58	6.00%	10.00%	10.00%	18.00%
59	6.00%	10.00%	10.00%	18.00%
60	15.00%	20.00%	20.00%	40.00%
61	15.00%	20.00%	20.00%	40.00%
62	15.00%	20.00%	20.00%	40.00%
63	15.00%	20.00%	20.00%	40.00%
64	15.00%	20.00%	20.00%	40.00%
65	35.00%	35.00%	40.00%	75.00%
66	35.00%	35.00%	40.00%	75.00%
67	35.00%	35.00%	40.00%	75.00%
68	35.00%	35.00%	40.00%	75.00%
69	35.00%	35.00%	40.00%	75.00%
70	35.00%	35.00%	100.00%	100.00%
71	35.00%	35.00%	100.00%	100.00%
72	35.00%	35.00%	100.00%	100.00%
73	35.00%	35.00%	100.00%	100.00%
74	35.00%	35.00%	100.00%	100.00%
75 and over	100.00%	100.00%	100.00%	100.00%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

17. Disclosures Regarding Models Used

In accordance with Actuarial Standard of Practice (ASOP) No. 56 *Modeling*, the following disclosures are made:

a. Valuation Software

Cheiron utilizes ProVal, an actuarial valuation software program leased from Winklevoss Technologies (WinTech), to calculate liabilities and projected benefit payments. We have reviewed the underlying workings of this model to the degree feasible and consistent with ASOP No. 56 and believe them to be appropriate for the purposes of the valuation.

b. Projections

This valuation report includes projections of future contributions and funded status for the purpose of assisting the Retirement Board and the sponsors of the System with the management of the Fund.

Deterministic projections in this valuation report were developed using P-scan, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the System. P-scan uses standard roll-forward techniques that implicitly assume a stable active population. Because P-scan does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent.

Stochastic projections and related calculations (including the estimation of future SRBR transfers) in this valuation report were developed using R-scan, our proprietary tool for assessing the probability of different outcomes based on a range of potential investment returns. We relied on Cheiron colleagues for the development of the model. The stochastic projections of investment returns assume that each future year's investment return is independent from all other years and is identically distributed according to a lognormal distribution. The standard deviation used in the stochastic projection of investment returns is based on information provided by the System's investment consultant.

The projections are based on the same census data and financial information as of June 30, 2023 as disclosed in this actuarial valuation. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of June 30, 2023 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after June 30, 2023.

The projections assume that all future assumptions are met except where specifically indicated. The future outcomes become increasingly uncertain over time, and therefore the

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

general trends and not the absolute values should be considered in the review of these projections. Further, for the purpose of these projections, we have only reflected the impact of new entrants entering the plan in aggregate and have not developed individual liabilities or detailed profiles related to these potential new entrants. We feel this is appropriate for the purpose of these projections, but if they were to be used for other purposes, this may not be appropriate and alternative projections may need to be developed.

18. Changes in Assumptions

There were changes in assumptions related to mortality rates, termination rates and related assumptions, family composition and benefit elections, and the longevity/promotion components of pay increases as the result of an Experience Study.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

All actuarial calculations are based on our understanding of the statutes governing the TCERA as contained in the County Employees Retirement Law (CERL) of 1937, with provisions adopted by the County Board of Supervisors, a district Board of Directors, or the TCERA Board, effective through June 30, 2023. The benefit and contribution provisions of this law are summarized briefly below, (*along with corresponding references to the State Code*). This summary does not attempt to cover all the detailed provisions of the law.

There have been no changes to the Plan provisions since the prior valuation.

A. Membership in Retirement Plans

The County has established several defined benefit tiers based primarily on a member's date of entry into TCERA and in some cases, bargaining unit. There are two types of TCERA members:

Safety members: Employees whose principal duty is active law enforcement or active fire suppression are eligible to be Safety members. Membership in a particular tier depends upon date of entry to the system.

General members: All non-Safety employees are eligible to be General members. Membership in a particular tier depends primarily upon date of entry to the system.

Tier 1: General and Safety employees hired on or before December 31, 1979.

Tier 2: General and Safety employees hired on or after January 1, 1980 through December 31, 1989.

Tier 3: General and Safety employees hired on or after January 1, 1990 through December 31, 2012.

Tier 4 (PEPRA): All new members hired on or after January 1, 2013. Employees who transfer from and are eligible for reciprocity with another public employer will not be PEPRA members if their service in the reciprocal system was under a pre-PEPRA tier.

B. Member Contributions

Basic: Contributions are based on the entry age and class of each member and are required of all members. See Appendix F for details on this calculation. Current member rates are shown in the Appendix. (*31621.5, 31621.2, 31639.5, 31639.25*)

Contributions cease for all non-PEPRA members credited with 30 years of service. (*31625, 31625.2*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Tier 4: PEPRA members must contribute half of the normal cost of the Plan. Contributions for these members will be based on the Normal Cost associated with their benefits; General and Safety members will pay different rates.

Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Retirement on amounts that have been on deposit for at least six months. (*31591, 31700*)

Cost-of-Living: The following loads are applied to Tier 2 and 3 Basic rates to pay for the employee portion of Cost-of-Living Adjustments. For PEPRA members, the cost of COLAs is included in the normal cost, of which they contribute half. There are no more Tier 1 members currently contributing to the Plan.

	Tier 2-3
2022 Actual	25.29% (General) 31.01% (Safety)
2023 Actual	23.27% (General) 29.21% (Safety)

C. Employer Contributions:

The employer (County or District) contributes to the retirement fund a percentage of the total compensation provided for all members based on an actuarial investigation, valuation, and recommendation of the actuary. (*31453*, *31453.5*, *31453.6*, *31454*, *31454.1*, *31581*)

D. Service Retirement Allowance:

Eligibility:

General Plan members:

Tiers 1-3: Age 50 with 10 years of service;
Any age with 30 years of service; or
Age 70 regardless of service. (*31672, 31672.1)*

Tier 4 (PEPRA): Age 52 with 5 years of service.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Safety Plan members:

Tiers 1-3: Age 50 with 10 years of service;
Any age with 20 years of service. (*31663.25*)

Tier 4 (PEPRA): Age 50 with 5 years of service.

Final Compensation:

Tier 1: Monthly average of a member's highest 12 consecutive months of compensation. (*31462.1*)

Tiers 2-3: Monthly average of a member's highest 36 consecutive months of compensation. (*31462*)

Tier 4 (PEPRA): Monthly average of a member's highest 36 consecutive months of compensation, limited to the Social Security Wage Base on January 1, 2013, adjusted based on the annual change in the CPI-U each January 1 thereafter.

Compensation Limit: The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code. (*31671*)

Integration with Social Security: General and Safety Tier 1-3 members' benefits are integrated with Social Security. Benefits payable from the first $161.54 of bi-weekly compensation are reduced by 1/3.

Monthly Allowance:

General Plan members:

Tier 1: Sum of (a) + (b):
(a) 1/60 x Final Compensation x Plan Age Factor x Years of Service prior to 7/1/2005 (*31676.11*); plus
(b) 1/50 x Final Compensation x Plan Age Factor x Years of Service after 7/1/2005 *(31676.12)*

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Tiers 2-3: Sum of (a) + (b):
(a) 1/60 x Final Compensation x Plan Age Factor x Years of Service prior to 7/1/2005 (*31676.1*); plus
(b) 1/50 x Final Compensation x Plan Age Factor x Years of Service after 7/1/2005 *(31676.12)*

Tier 4 (PEPRA): 2% x Final Compensation x PEPRA Age Factor x Years of Service

Safety Plan members:

Tiers 1-3: 2% x Final Compensation x Plan Age Factor x Years of Service *(31664)*

Tier 4 (PEPRA): 2% x Final Compensation x PEPRA Age Factor x Years of Service

Age Factors By Plan	General				Safety	
Code Section:	31676.11	31676.1	31676.12	PEPRA	31664	PEPRA
Label:	1.67% @ 55	1.67% @ 57.5	2% @ 57	2% @ 62	2% @ 50	2% @ 50
Base:	1.67%	1.67%	2.00%	2.00%	2.00%	2.00%
Age						
41					0.6258	
42					0.6625	
43					0.7004	
44					0.7397	
45					0.7805	
46					0.8226	
47					0.8678	
48					0.9085	
49					0.9522	
50	0.7454	0.7091	0.6681		1.0000	1.0000
51	0.7882	0.7457	0.7056		1.0516	1.0500
52	0.8346	0.7816	0.7454	0.5000	1.1078	1.1000
53	0.8850	0.8181	0.7882	0.5500	1.1692	1.1500
54	0.9399	0.8556	0.8346	0.6000	1.2366	1.2000
55	1.0000	0.8954	0.885	0.6500	1.3099	1.2500
56	1.0447	0.9382	0.9399	0.7000	1.3099	1.3000
57	1.1048	0.9846	1.0000	0.7500	1.3099	1.3500
58	1.1686	1.0350	1.0447	0.8000	1.3099	1.3500
59	1.2365	1.0899	1.1048	0.8500	1.3099	1.3500
60	1.3093	1.1500	1.1686	0.9000	1.3099	1.3500
61	1.3608	1.1947	1.2365	0.9500	1.3099	1.3500
62	1.4123	1.2548	1.3093	1.0000	1.3099	1.3500
63	1.4638	1.3186	1.3093	1.0500	1.3099	1.3500
64	1.5153	1.3865	1.3093	1.1000	1.3099	1.3500
65	1.5668	1.4593	1.3093	1.1500	1.3099	1.3500
66	1.5668	1.4593	1.3093	1.2000	1.3099	1.3500
67	1.5668	1.4593	1.3093	1.2500	1.3099	1.3500

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Maximum Allowance:

Allowance may not exceed 100% of Final Compensation.

Unmodified Retirement Allowance (Normal Form):

All Plans: Life Annuity payable to retired member with 60% continuance to an eligible spouse. (*31760.1*)

Eligible survivor includes certain domestic partners and dependent children. (*31780.2*) If there is no eligible survivor, any unpaid remainder of the member's accumulated contributions will be paid to the member's designated beneficiary.

Death after Retirement:

All Plans: Upon a member's death after retirement, a special lump sum of $5,000 is payable to an eligible survivor, or the member's estate. (*31789.3*)

All Allowances: All allowances are made on a pro-rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. (*31600*)

Supplemental Retiree Benefit Reserve:

The County has adopted the financial provisions of Article 5.5 of the 1937 Act for Tiers 1-3. The Article requires that in certain cases, a portion of investment earnings be allocated to a Supplemental Retiree Benefit Reserve (SRBR). Earnings allocated to the SRBR are to be used for the benefit of members in Tiers 1-3. Members of Tier 4 are not eligible for supplemental benefits. *(31618)*

Level 1: Members with at least 20 years of service are eligible for a supplemental benefit up to $250 a month. The multiplier in effect is as follows:

Period	Multiplier
Prior to July 1, 2013	$18.00
After July 1, 2013	$17.00
After July 1, 2014	$16.00
After July 1, 2015	$15.00
After July 1, 2016	$14.00
After July 1, 2017	$12.50

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Members with less than 20 years of service are eligible for benefits in accordance with the schedule below:

Years of Service	Percentage of Full Benefit
Less than 10	0.00%
10	50.0%
11	55.0%
12	60.0%
13	65.0%
14	70.0%
15	75.0%
16	80.0%
17	85.0%
18	90.0%
19	95.0%

Only years of service with Tulare County are included for this benefit. 50% of member's reduced allowance is payable to an eligible spouse, or minor children if no eligible spouse exists.

Level 2: In addition to the Level 1 benefit, a supplemental COLA is available to retirees and beneficiaries who have lost more than 15% of their purchasing power, measured by their COLA Banks. The design of this COLA is to allow retirees to retain at least 85% of their purchasing power.

Level 3: 60% of a service retirement or 100% of a service-connected disability is payable to a spouse not married to the member at retirement. The spouse must be at least age 55 at the member's date of retirement, must have been married for at least two years, and the member must have elected the Unmodified Allowance retirement option to be eligible for this benefit.

E. Service-Connected Disability Retirement Allowance

Eligibility:

All Plans: Any age and length of service; disability must result from occupational injury or disease, and member must be permanently incapacitated for the performance of duty. (*31720, 31720.5, 31720.6, 31720.7, 31720.9*)

Monthly Allowance:

All Plans: Greater of (1) 50% of final compensation, and (2) the service retirement allowance, if eligible to retire. (*31727.4*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Normal Form of Payment:

All Plans: Life Annuity payable to retired member with 100% continuance to an eligible spouse.

Death after Retirement:

All Plans: Upon a member's death after retirement, a special lump sum of $5,000 is payable to an eligible survivor, or the member's estate. (*31789.3*)

F. Non-Service-Connected Disability Retirement Allowance

Eligibility:

All Plans: Any age with five (5) years of service and permanently incapacitated for the performance of duty. (*31720*)

Monthly Allowance:

All Plans: The monthly allowance is equal to a service retirement allowance if the member is eligible to retire and the service retirement allowance exceeds the benefits described below. Otherwise, allowance equals 20% of Final Compensation, plus 2% for each year of service over five, with a maximum allowance of 40% of Final Compensation at 15 years of service. (*31727.7*)

Normal Form of Payment:

All Plans: Life Annuity with 60% continuance to a surviving spouse (or eligible children). (*31760.1*)

Death after Retirement:

All Plans: Upon a member's death after retirement, a special lump sum of $5,000 is payable to an eligible survivor, or the member's estate. (*31789.3*)

G. Service-Connected Death Benefits

Eligibility:

All Plans: Active members who die in service as a result of injury or disease arising out of and in the course of employment. (*31486.7, 31787*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Monthly Allowance:

All Plans: A monthly allowance is payable to an eligible survivor equal to the greater of the Member's Service Retirement Allowance or Non-Service-Connected Disability Allowance (if he is eligible for service retirement or non-service disability at his date of death), and (b) 50% x Final Compensation. (*31787*)

A lump sum is payable to an eligible survivor equal to 1/12 x final 12 months' Salary x years of service (up to max of 6 years). (*31781*)

H. Non-Service-Connected Death Benefits

Eligibility:

All Plans: Active members who die while in service but not as a result of injury or disease arising out of and in the course of employment.

Monthly Allowance:

All Plans: If an active member is eligible for Non-Service-Connected Disability at his date of death, then a monthly allowance is payable to an eligible survivor equal to 60% x the member's non-service connected disability allowance. Otherwise, the benefit is a refund of contributions. (*31781.1*)

I. Deferred Vested Benefits

Eligibility:

All other Plans: Member contributions must be left on deposit and the member must have terminated with five (5) years of service or entered a reciprocal agency. Members are eligible for service retirement when they reach service retirement eligibility (based on years of service at termination plus reciprocal service, if any). (*31700, 31701, 31702*)

Monthly Allowance:

All other Plans: Same as service retirement allowance; payable any time after the member would have been eligible for service retirement. (*31703, 31704, 31705*)

J. Cost-of-Living Increases

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the average annual Consumer Price Index (CPI), rounded to the nearest ½ of 1%. (*31870, 31870.1*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

All Plans (excluding Tier 1):

Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. (*31870*)

Tier 1:

Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase. (*31870.1*)

COLA Bank:

All Plans:

When the CPI exceeds the applicable percentage, the difference between the actual CPI and the maximum cost-of-living increase given in any year is credited to the COLA Accumulation (COLA Bank). It may be used in future years to provide cost-of-living increases when the CPI falls below the applicable percentage. (*31874, 31874.1, 31874.2, 31874.3*)

K. Optional Forms

In addition to the Unmodified Allowance, retirees may choose one of the following options:

Option 1: A slightly reduced monthly retirement allowance will be paid throughout the member's life, with the provision that accumulated contributions less the sum of the annuity portion of the payments received by the member will be paid upon death to the beneficiary.

Option 2: A reduced monthly retirement allowance will be paid to the member for life, with 100% of the allowance continued after death to the beneficiary.

Option 3: A reduced monthly retirement allowance will be paid to the member for life, with 50% of the allowance continued after death to the beneficiary.

Option 4: This option allows the member to name multiple beneficiaries and provides for a reduced monthly retirement allowance paid to the member for the member's lifetime with an actuarially calculated benefit continued throughout the life of the beneficiaries named at retirement.

APPENDIX D – GLOSSARY

1. **Actuarial Assumptions**

   Assumptions as to the occurrence of future events affecting pension costs such as mortality, withdrawal, disability, retirement, changes in compensation, and rates of investment return.

2. **Actuarial Cost Method**

   A procedure for determining the actuarial present value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a normal cost and an Actuarial Liability.

3. **Actuarial Gain (Loss)**

   The difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

4. **Actuarial Liability**

   The portion of the actuarial present value of projected benefits which will not be paid by future normal costs. It represents the value of the past normal costs with interest to the valuation date.

5. **Actuarial Present Value (Present Value)**

   The value as of a given date of a future amount or series of payments. The actuarial present value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made.

6. **Actuarial Valuation**

   The determination, as of a specified date, of the normal cost, Actuarial Liability, Actuarial Value of Assets, and related actuarial present values for a pension plan.

7. **Actuarial Value of Assets**

   The value of cash, investments, and other property belonging to a pension plan as used by the actuary for the purpose of an actuarial valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values.

8. **Actuarially Equivalent**

   Of equal actuarial present value, determined as of a given date, with each value based on the same set of actuarial assumptions.

APPENDIX D – GLOSSARY

9. Amortization Payment

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal Actuarial Cost Method

A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

11. Funded Ratio

The ratio of the Actuarial Value of Assets to the Actuarial Liability.

12. Normal Cost

That portion of the actuarial present value of pension plan benefits and expenses which is allocated to a valuation year by the actuarial cost method.

13. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of actuarial assumptions, taking into account such items as increases in future compensation and service credits.

14. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.

APPENDIX E – MEMBER CONTRIBUTION RATES

Assumptions used to develop member contribution rates match valuation assumptions detailed in Appendix B, other than mortality which is static for member contribution rates (projected to the year 2047 using MP-2021). Additionally, only service retirement benefits are included in Tiers 2-3 member basic rate development.

There are no longer any Tier 1 members making contributions to the Plan. The table below shows the applicable Code Section for Tier 2-3 member contribution rates as well as the corresponding annuity funded by the member.

Plan/Tier	Code Section	Member Contribution Provides Average Annuity	FAS Period
General Tier 2	31621.2	1/100 of Final Average Salary (FAS) at age 60	3 years
General Tier 3	31621.2	1/100 of Final Average Salary (FAS) at age 60	3 years
Safety Tier 2	31639.25	1/100 of Final Average Salary (FAS) at age 50	3 years
Safety Tier 3	31639.25	1/100 of Final Average Salary (FAS) at age 50	3 years

For Tiers 2 and 3, the COLA loads were applied to the Basic rates as described in the Summary of Plan Provisions. For PEPRA members, the cost of COLAs is included in the normal cost, of which they contribute half.

APPENDIX E – MEMBER CONTRIBUTION RATES

2023 Member Contribution Rates (for fiscal year ending 2025)

	General Tiers 2 and 3		Safety Tiers 2 and 3		Tier 4 Members	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	General	Safety
16	4.29%	6.44%	7.09%	10.64%	4.73%	9.98%
17	4.39%	6.58%	7.09%	10.64%	4.73%	9.98%
18	4.47%	6.71%	7.09%	10.64%	4.73%	9.98%
19	4.57%	6.85%	7.09%	10.64%	4.73%	9.98%
20	4.67%	7.00%	7.09%	10.64%	4.73%	9.98%
21	4.76%	7.14%	7.20%	10.80%	4.88%	10.30%
22	4.86%	7.29%	7.31%	10.96%	5.04%	10.61%
23	4.96%	7.44%	7.41%	11.12%	5.24%	10.93%
24	5.07%	7.60%	7.53%	11.29%	5.43%	11.25%
25	5.17%	7.76%	7.64%	11.46%	5.64%	11.57%
26	5.28%	7.92%	7.75%	11.63%	5.83%	11.89%
27	5.39%	8.08%	7.87%	11.81%	6.03%	12.21%
28	5.50%	8.25%	7.99%	11.98%	6.22%	12.53%
29	5.61%	8.42%	8.11%	12.16%	6.42%	12.83%
30	5.73%	8.59%	8.23%	12.35%	6.62%	13.13%
31	5.85%	8.77%	8.35%	12.53%	6.81%	13.48%
32	5.97%	8.95%	8.48%	12.72%	7.01%	13.81%
33	6.09%	9.13%	8.61%	12.92%	7.22%	14.14%
34	6.21%	9.32%	8.75%	13.12%	7.42%	14.47%
35	6.34%	9.51%	8.88%	13.32%	7.64%	14.81%
36	6.47%	9.71%	9.02%	13.53%	7.86%	15.15%
37	6.61%	9.91%	9.17%	13.75%	8.09%	15.47%
38	6.75%	10.12%	9.32%	13.98%	8.34%	15.81%
39	6.89%	10.33%	9.47%	14.21%	8.60%	16.15%
40	7.03%	10.55%	9.64%	14.46%	8.87%	16.52%
41	7.19%	10.78%	9.82%	14.73%	9.15%	16.91%
42	7.34%	11.01%	9.99%	14.98%	9.43%	17.32%
43	7.49%	11.23%	10.14%	15.21%	9.74%	17.75%
44	7.63%	11.45%	10.25%	15.37%	10.08%	18.22%
45	7.77%	11.65%	10.29%	15.43%	10.43%	18.69%
46	7.91%	11.86%	10.25%	15.38%	10.81%	19.06%
47	8.05%	12.08%	10.10%	15.15%	11.21%	19.43%
48	8.21%	12.31%	10.43%	15.64%	11.52%	19.82%
49	8.37%	12.55%	10.77%	16.16%	11.83%	20.21%
50	8.53%	12.79%	10.77%	16.16%	12.14%	20.21%
51	8.68%	13.02%	10.77%	16.16%	12.47%	20.21%
52	8.82%	13.23%	10.77%	16.16%	12.78%	20.21%
53	8.94%	13.41%	10.77%	16.16%	13.06%	20.21%
54	9.01%	13.52%	10.77%	16.16%	13.32%	20.21%
55	9.03%	13.54%	10.77%	16.16%	13.53%	20.21%
56	8.97%	13.45%	10.77%	16.16%	13.76%	20.21%
57	8.84%	13.26%	10.77%	16.16%	13.94%	20.21%
58	9.13%	13.70%	10.77%	16.16%	14.06%	20.21%
59	9.43%	14.15%	10.77%	16.16%	14.08%	20.21%
Assumptions:						
Interest:	7.00%		7.00%		7.00%	
Salary:	3.00% plus promotion		3.00% plus promotion		3.00% plus promotion	
COLA:	2.00%		2.00%		2.00%	
Mortality:	For General: Retired Pensioner (RP) 2014 Combined Healthy Table, projected to 2047 using MP-2021, unadjusted for males and increased by 10.0% for females to reflect Plan experience, and blended 30% male and 70% female For Safety: Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, projected to 2047 using MP-2021, increased by 5.0% for both males and females to reflect Plan experience, and blended 75% male and 25% female					

APPENDIX E – MEMBER CONTRIBUTION RATES

The tables on the next four pages show the 2023 member contribution rates split into the Basic and COLA components, by tier.

APPENDIX E – MEMBER CONTRIBUTION RATES

General Tiers 2 and 3						
	Basic Rate		COLA Rate		Total Rate	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54
16	3.48%	5.22%	0.81%	1.22%	4.29%	6.44%
17	3.56%	5.34%	0.83%	1.24%	4.39%	6.58%
18	3.63%	5.44%	0.84%	1.27%	4.47%	6.71%
19	3.70%	5.56%	0.86%	1.29%	4.57%	6.85%
20	3.79%	5.68%	0.88%	1.32%	4.67%	7.00%
21	3.86%	5.79%	0.90%	1.35%	4.76%	7.14%
22	3.94%	5.91%	0.92%	1.38%	4.86%	7.29%
23	4.02%	6.04%	0.94%	1.40%	4.96%	7.44%
24	4.11%	6.17%	0.96%	1.43%	5.07%	7.60%
25	4.20%	6.29%	0.98%	1.47%	5.17%	7.76%
26	4.28%	6.42%	1.00%	1.50%	5.28%	7.92%
27	4.37%	6.55%	1.02%	1.53%	5.39%	8.08%
28	4.46%	6.69%	1.04%	1.56%	5.50%	8.25%
29	4.55%	6.83%	1.06%	1.59%	5.61%	8.42%
30	4.65%	6.97%	1.08%	1.62%	5.73%	8.59%
31	4.74%	7.11%	1.10%	1.66%	5.85%	8.77%
32	4.84%	7.26%	1.13%	1.69%	5.97%	8.95%
33	4.94%	7.41%	1.15%	1.72%	6.09%	9.13%
34	5.04%	7.56%	1.17%	1.76%	6.21%	9.32%
35	5.14%	7.71%	1.20%	1.80%	6.34%	9.51%
36	5.25%	7.88%	1.22%	1.83%	6.47%	9.71%
37	5.36%	8.04%	1.25%	1.87%	6.61%	9.91%
38	5.47%	8.21%	1.27%	1.91%	6.75%	10.12%
39	5.59%	8.38%	1.30%	1.95%	6.89%	10.33%
40	5.71%	8.56%	1.33%	1.99%	7.03%	10.55%
41	5.83%	8.74%	1.36%	2.04%	7.19%	10.78%
42	5.95%	8.93%	1.39%	2.08%	7.34%	11.01%
43	6.07%	9.11%	1.41%	2.12%	7.49%	11.23%
44	6.19%	9.29%	1.44%	2.16%	7.63%	11.45%
45	6.30%	9.45%	1.47%	2.20%	7.77%	11.65%
46	6.41%	9.62%	1.49%	2.24%	7.91%	11.86%
47	6.53%	9.80%	1.52%	2.28%	8.05%	12.08%
48	6.66%	9.99%	1.55%	2.32%	8.21%	12.31%
49	6.79%	10.18%	1.58%	2.37%	8.37%	12.55%
50	6.92%	10.38%	1.61%	2.41%	8.53%	12.79%
51	7.04%	10.56%	1.64%	2.46%	8.68%	13.02%
52	7.15%	10.73%	1.67%	2.50%	8.82%	13.23%
53	7.25%	10.88%	1.69%	2.53%	8.94%	13.41%
54	7.31%	10.97%	1.70%	2.55%	9.01%	13.52%
55	7.32%	10.98%	1.70%	2.56%	9.03%	13.54%
56	7.27%	10.91%	1.69%	2.54%	8.97%	13.45%
57	7.17%	10.76%	1.67%	2.50%	8.84%	13.26%
58	7.41%	11.11%	1.72%	2.59%	9.13%	13.70%
59	7.65%	11.48%	1.78%	2.67%	9.43%	14.15%

Assumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, projected to 2047 using MP-2021, unadjusted for males and increased by 10.0% for females to reflect Plan experience, and blended 30% male and 70% female

APPENDIX E – MEMBER CONTRIBUTION RATES

General Tier 4			
Entry Age	Basic Rate	COLA Rate	Total Rate
16	3.85%	0.88%	4.73%
17	3.85%	0.88%	4.73%
18	3.85%	0.88%	4.73%
19	3.85%	0.88%	4.73%
20	3.85%	0.88%	4.73%
21	3.97%	0.91%	4.88%
22	4.10%	0.94%	5.04%
23	4.27%	0.97%	5.24%
24	4.43%	1.00%	5.43%
25	4.60%	1.04%	5.64%
26	4.76%	1.07%	5.83%
27	4.93%	1.10%	6.03%
28	5.09%	1.13%	6.22%
29	5.26%	1.16%	6.42%
30	5.43%	1.19%	6.62%
31	5.59%	1.22%	6.81%
32	5.76%	1.25%	7.01%
33	5.93%	1.29%	7.22%
34	6.11%	1.31%	7.42%
35	6.29%	1.35%	7.64%
36	6.48%	1.38%	7.86%
37	6.67%	1.42%	8.09%
38	6.88%	1.46%	8.34%
39	7.10%	1.50%	8.60%
40	7.33%	1.54%	8.87%
41	7.56%	1.59%	9.15%
42	7.80%	1.63%	9.43%
43	8.06%	1.68%	9.74%
44	8.35%	1.73%	10.08%
45	8.64%	1.79%	10.43%
46	8.95%	1.86%	10.81%
47	9.28%	1.93%	11.21%
48	9.56%	1.96%	11.52%
49	9.83%	2.00%	11.83%
50	10.10%	2.04%	12.14%
51	10.40%	2.07%	12.47%
52	10.67%	2.11%	12.78%
53	10.93%	2.13%	13.06%
54	11.17%	2.15%	13.32%
55	11.37%	2.16%	13.53%
56	11.59%	2.17%	13.76%
57	11.77%	2.17%	13.94%
58	11.90%	2.16%	14.06%
59	11.95%	2.13%	14.08%

Assumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, projected to 2047 using MP-2021, unadjusted for males and increased by 10.0% for females to reflect Plan experience, and blended 30% male and 70% female

APPENDIX E – MEMBER CONTRIBUTION RATES

Safety Tiers 2 and 3						
	Basic Rate		COLA Rate		Total Rate	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54
16	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
17	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
18	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
19	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
20	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
21	5.57%	8.36%	1.63%	2.44%	7.20%	10.80%
22	5.66%	8.48%	1.65%	2.48%	7.31%	10.96%
23	5.74%	8.61%	1.68%	2.51%	7.41%	11.12%
24	5.83%	8.74%	1.70%	2.55%	7.53%	11.29%
25	5.91%	8.87%	1.73%	2.59%	7.64%	11.46%
26	6.00%	9.00%	1.75%	2.63%	7.75%	11.63%
27	6.09%	9.14%	1.78%	2.67%	7.87%	11.81%
28	6.18%	9.27%	1.81%	2.71%	7.99%	11.98%
29	6.27%	9.41%	1.83%	2.75%	8.11%	12.16%
30	6.37%	9.56%	1.86%	2.79%	8.23%	12.35%
31	6.47%	9.70%	1.89%	2.83%	8.35%	12.53%
32	6.56%	9.84%	1.92%	2.88%	8.48%	12.72%
33	6.67%	10.00%	1.95%	2.92%	8.61%	12.92%
34	6.77%	10.15%	1.98%	2.97%	8.75%	13.12%
35	6.87%	10.31%	2.01%	3.01%	8.88%	13.32%
36	6.98%	10.47%	2.04%	3.06%	9.02%	13.53%
37	7.09%	10.64%	2.07%	3.11%	9.17%	13.75%
38	7.21%	10.82%	2.11%	3.16%	9.32%	13.98%
39	7.33%	11.00%	2.14%	3.21%	9.47%	14.21%
40	7.46%	11.19%	2.18%	3.27%	9.64%	14.46%
41	7.60%	11.40%	2.22%	3.33%	9.82%	14.73%
42	7.73%	11.59%	2.26%	3.39%	9.99%	14.98%
43	7.85%	11.77%	2.29%	3.44%	10.14%	15.21%
44	7.93%	11.90%	2.32%	3.47%	10.25%	15.37%
45	7.96%	11.94%	2.33%	3.49%	10.29%	15.43%
46	7.94%	11.90%	2.32%	3.48%	10.25%	15.38%
47	7.82%	11.73%	2.28%	3.42%	10.10%	15.15%
48	8.07%	12.10%	2.36%	3.54%	10.43%	15.64%
49	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
50	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
51	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
52	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
53	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
54	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
55	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
56	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
57	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
58	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
59	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%

sumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, projected to 2047 using MP-2021, increased by 5.0% for both males and females to reflect Plan experience, and blended 75% male and 25% female

APPENDIX E – MEMBER CONTRIBUTION RATES

	Safety Tier 4		
Entry Age	**Basic Rate**	**COLA Rate**	**Total Rate**
16	7.98%	2.00%	9.98%
17	7.98%	2.00%	9.98%
18	7.98%	2.00%	9.98%
19	7.98%	2.00%	9.98%
20	7.98%	2.00%	9.98%
21	8.24%	2.06%	10.30%
22	8.49%	2.12%	10.61%
23	8.75%	2.18%	10.93%
24	9.01%	2.24%	11.25%
25	9.28%	2.29%	11.57%
26	9.54%	2.35%	11.89%
27	9.80%	2.41%	12.21%
28	10.06%	2.47%	12.53%
29	10.31%	2.52%	12.83%
30	10.56%	2.57%	13.13%
31	10.85%	2.63%	13.48%
32	11.12%	2.69%	13.81%
33	11.40%	2.74%	14.14%
34	11.67%	2.80%	14.47%
35	11.96%	2.85%	14.81%
36	12.24%	2.91%	15.15%
37	12.51%	2.96%	15.47%
38	12.79%	3.02%	15.81%
39	13.08%	3.07%	16.15%
40	13.39%	3.13%	16.52%
41	13.71%	3.20%	16.91%
42	14.05%	3.27%	17.32%
43	14.41%	3.34%	17.75%
44	14.79%	3.43%	18.22%
45	15.19%	3.50%	18.69%
46	15.52%	3.54%	19.06%
47	15.85%	3.58%	19.43%
48	16.20%	3.62%	19.82%
49	16.56%	3.65%	20.21%
50	16.56%	3.65%	20.21%
51	16.56%	3.65%	20.21%
52	16.56%	3.65%	20.21%
53	16.56%	3.65%	20.21%
54	16.56%	3.65%	20.21%
55	16.56%	3.65%	20.21%
56	16.56%	3.65%	20.21%
57	16.56%	3.65%	20.21%
58	16.56%	3.65%	20.21%
59	16.56%	3.65%	20.21%

Assumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, projected to 2047 using MP-2021, increased by 5.0% for both males and females to reflect Plan experience, and blended 75% male and 25% female

APPENDIX E – MEMBER CONTRIBUTION RATES

2022 Member Contribution Rates (for fiscal year ending 2024)

	General Tier 1		General Tiers 2 and 3		Safety Tier 1		Safety Tiers 2 and 3		Tier 4 Members	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54	General	Safety
16	2.69%	4.03%	4.34%	6.51%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
17	2.75%	4.12%	4.43%	6.64%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
18	2.81%	4.21%	4.52%	6.78%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
19	2.86%	4.29%	4.62%	6.93%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
20	2.92%	4.38%	4.71%	7.07%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
21	2.99%	4.48%	4.81%	7.22%	4.73%	7.09%	7.07%	10.60%	4.67%	10.01%
22	3.05%	4.57%	4.91%	7.37%	4.81%	7.21%	7.19%	10.78%	4.92%	10.39%
23	3.11%	4.66%	5.01%	7.52%	4.89%	7.33%	7.31%	10.96%	5.17%	10.77%
24	3.17%	4.76%	5.12%	7.68%	4.97%	7.45%	7.43%	11.14%	5.43%	11.16%
25	3.24%	4.86%	5.23%	7.84%	5.05%	7.57%	7.55%	11.33%	5.69%	11.55%
26	3.31%	4.96%	5.33%	8.00%	5.13%	7.70%	7.68%	11.52%	5.91%	11.92%
27	3.37%	5.06%	5.44%	8.16%	5.22%	7.83%	7.81%	11.72%	6.13%	12.29%
28	3.45%	5.17%	5.55%	8.33%	5.31%	7.96%	7.94%	11.91%	6.35%	12.66%
29	3.51%	5.27%	5.67%	8.50%	5.40%	8.10%	8.07%	12.11%	6.58%	13.01%
30	3.59%	5.38%	5.79%	8.68%	5.49%	8.24%	8.21%	12.32%	6.80%	13.36%
31	3.66%	5.49%	5.91%	8.86%	5.59%	8.38%	8.35%	12.53%	7.01%	13.74%
32	3.74%	5.61%	6.03%	9.04%	5.68%	8.52%	8.50%	12.75%	7.22%	14.12%
33	3.81%	5.72%	6.15%	9.23%	5.78%	8.67%	8.65%	12.97%	7.44%	14.49%
34	3.89%	5.84%	6.28%	9.42%	5.88%	8.82%	8.79%	13.19%	7.66%	14.87%
35	3.97%	5.96%	6.41%	9.61%	5.99%	8.98%	8.95%	13.43%	7.89%	15.25%
36	4.05%	6.08%	6.54%	9.81%	6.09%	9.14%	9.11%	13.67%	8.12%	15.61%
37	4.14%	6.21%	6.68%	10.02%	6.21%	9.31%	9.29%	13.93%	8.36%	15.96%
38	4.23%	6.34%	6.81%	10.22%	6.33%	9.49%	9.46%	14.19%	8.62%	16.32%
39	4.31%	6.47%	6.96%	10.44%	6.45%	9.67%	9.65%	14.47%	8.88%	16.69%
40	4.41%	6.61%	7.11%	10.66%	6.58%	9.87%	9.81%	14.72%	9.13%	17.09%
41	4.50%	6.75%	7.26%	10.89%	6.73%	10.09%	9.97%	14.95%	9.40%	17.48%
42	4.60%	6.90%	7.41%	11.12%	6.82%	10.23%	10.11%	15.16%	9.66%	17.89%
43	4.70%	7.05%	7.57%	11.35%	6.92%	10.38%	10.22%	15.33%	9.99%	18.36%
44	4.81%	7.21%	7.71%	11.57%	7.04%	10.56%	10.33%	15.49%	10.33%	18.83%
45	4.89%	7.33%	7.85%	11.77%	7.11%	10.66%	10.37%	15.56%	10.67%	19.31%
46	4.98%	7.47%	7.99%	11.99%	7.20%	10.80%	10.35%	15.52%	11.09%	19.70%
47	5.07%	7.60%	8.14%	12.21%	7.19%	10.79%	10.19%	15.28%	11.51%	20.11%
48	5.17%	7.75%	8.29%	12.44%	7.15%	10.73%	10.52%	15.78%	11.85%	20.53%
49	5.27%	7.90%	8.45%	12.68%	6.99%	10.48%	10.87%	16.31%	12.19%	20.95%
50	5.38%	8.07%	8.62%	12.93%	6.99%	10.48%	10.87%	16.31%	12.52%	20.95%
51	5.49%	8.24%	8.77%	13.16%	6.99%	10.48%	10.87%	16.31%	12.86%	20.95%
52	5.60%	8.40%	8.91%	13.37%	6.99%	10.48%	10.87%	16.31%	13.18%	20.95%
53	5.70%	8.55%	9.03%	13.55%	6.99%	10.48%	10.87%	16.31%	13.50%	20.95%
54	5.80%	8.70%	9.11%	13.66%	6.99%	10.48%	10.87%	16.31%	13.79%	20.95%
55	5.87%	8.80%	9.12%	13.68%	6.99%	10.48%	10.87%	16.31%	14.03%	20.95%
56	5.91%	8.86%	9.06%	13.59%	6.99%	10.48%	10.87%	16.31%	14.29%	20.95%
57	5.88%	8.82%	8.93%	13.40%	6.99%	10.48%	10.87%	16.31%	14.49%	20.95%
58	5.82%	8.73%	9.23%	13.84%	6.99%	10.48%	10.87%	16.31%	14.64%	20.95%
59	5.71%	8.57%	9.53%	14.30%	6.99%	10.48%	10.87%	16.31%	14.71%	20.95%
Assumptions:										
Interest:	7.00%		7.00%		7.00%		7.00%		7.00%	
Salary:	3.00% plus promotion		3.00% plus promotion		3.00% plus promotion		3.00% plus promotion		3.00% plus promotion	
COLA:	2.60%		2.00%		2.60%		2.00%		2.00%	
Mortality:	For General: Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2019, increased by 2.2% for males and 8.0% for females to reflect Plan experience, and blended 30% male and 70% female For Safety: Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, with 20-year Generational improvement using Projection Scale MP-2019, increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female									

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

The tables on this page and the next three pages show selected demographic assumption rates based on age or service as reflected in the June 30, 2023 actuarial valuation. Termination rates are assumed not to apply after eligibility for retirement.

General - Male

Demographic Assumption Rates - Age				
		Mortality of Active Members Rate		Withdrawal (Termination)
Age	Service Retirement Rate*	Ordinary	Service	Rate**
25	0.000	0.000558	0.000000	0.0900
30	0.000	0.000585	0.000000	0.0900
35	0.000	0.000730	0.000000	0.0900
40	0.000	0.000840	0.000000	0.0900
45	0.000	0.001111	0.000000	0.0900
50	0.050	0.001663	0.000000	0.0900
55	0.060	0.002664	0.000000	0.0900
60	0.150	0.004704	0.000000	0.0900
65	0.350	0.008413	0.000000	0.0900
70	0.350	0.013366	0.000000	0.0900

**The Service Retirement Rates above assume less than 30 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

General - Female

Demographic Assumption Rates - Age				
		Mortality of Active Members Rate		Withdrawal (Termination)
Age	Service Retirement Rate*	Ordinary	Service	Rate**
25	0.000	0.000223	0.000000	0.0900
30	0.000	0.000305	0.000000	0.0900
35	0.000	0.000410	0.000000	0.0900
40	0.000	0.000513	0.000000	0.0900
45	0.000	0.000728	0.000000	0.0900
50	0.050	0.001117	0.000000	0.0900
55	0.060	0.001754	0.000000	0.0900
60	0.150	0.002741	0.000000	0.0900
65	0.350	0.004013	0.000000	0.0900
70	0.350	0.006377	0.000000	0.0900

**The Service Retirement Rates above assume less than 30 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

Safety - Male

	Demographic Assumption Rates - Age			
		Mortality of Active Members Rate		Withdrawal (Termination)
Age	Service Retirement Rate*	Ordinary	Service	Rate**
25	0.000	0.000440	0.000318	0.0800
30	0.000	0.000461	0.000334	0.0800
35	0.000	0.000496	0.000496	0.0800
40	0.000	0.000571	0.000571	0.0800
45	0.070	0.000725	0.000785	0.0800
50	0.070	0.000949	0.001311	0.0800
55	0.100	0.001448	0.002172	0.0800
60	0.200	0.002365	0.004028	0.0800
65	0.400	0.004229	0.007202	0.0800
70	1.000	0.006477	0.011029	0.0800

**The Service Retirement Rates above assume less than 20 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

Safety - Female

	Demographic Assumption Rates - Age			
		Mortality of Active Members Rate		Withdrawal (Termination)
Age	Service Retirement Rate*	Ordinary	Service	Rate**
25	0.000	0.000138	0.000100	0.0800
30	0.000	0.000189	0.000137	0.0800
35	0.000	0.000220	0.000220	0.0800
40	0.000	0.000275	0.000275	0.0800
45	0.070	0.000374	0.000406	0.0800
50	0.070	0.000502	0.000694	0.0800
55	0.100	0.000751	0.001126	0.0800
60	0.200	0.001086	0.001849	0.0800
65	0.400	0.001590	0.002706	0.0800
70	1.000	0.002490	0.004241	0.0800

**The Service Retirement Rates above assume less than 20 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

General - Male

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.150	0.080
10	0.150	0.040
15	0.150	0.025
20	0.150	0.025
25	0.150	0.025
30	0.200	0.025
35	0.200	0.025
40	0.200	0.025
45	0.200	0.025
50	0.200	0.025

**The Service Retirement Rates above apply to a member at age 60.*

General - Female

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.150	0.080
10	0.150	0.040
15	0.150	0.025
20	0.150	0.025
25	0.150	0.025
30	0.200	0.025
35	0.200	0.025
40	0.200	0.025
45	0.200	0.025
50	0.200	0.025

**The Service Retirement Rates above apply to a member at age 60.*

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

Safety - Male

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.200	0.060
10	0.200	0.040
15	0.200	0.025
20	0.400	0.025
25	0.400	0.025
30	0.400	0.025
35	0.400	0.025
40	0.400	0.025
45	0.400	0.025
50	0.400	0.025

**The Service Retirement Rates above apply to a member at age 60.*

Safety - Female

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.200	0.060
10	0.200	0.040
15	0.200	0.025
20	0.400	0.025
25	0.400	0.025
30	0.400	0.025
35	0.400	0.025
40	0.400	0.025
45	0.400	0.025
50	0.400	0.025

**The Service Retirement Rates above apply to a member at age 60.*

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