

Tulare County Employees' Retirement Association

Actuarial Valuation Report as of June 30, 2019

Produced by Cheiron

October 2019

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October 29, 2019

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, 2019. 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

A handwritten signature in blue ink, reading "Graham A. Schmidt".

Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary

A handwritten signature in blue ink, reading "Steven M. Hastings".

Steven M. Hastings, FSA, EA, FCA, MAAA
Consulting Actuary

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

FOREWORD

Cheiron has performed the actuarial valuation of the Tulare County Employees' Retirement Association as of June 30, 2019. 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 – Comprehensive Annual 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).

The results of this report rely on future plan experience conforming to the underlying assumptions. To the extent that actual plan experience deviates from the underlying assumptions, the results would vary accordingly.

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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 2020-2021, and,
- Information required by the GFOA for the Comprehensive Annual Financial Report.

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, 2020. 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 were based on the experience studies presented by Cheiron on June 28, 2017 and September 27, 2017. There are no assumption changes for this valuation. The discount rate remains 7.25% and the mortality improvement projection scale remains MP-2016. A summary of the assumptions and methods used in the current valuation is shown in Appendix B.

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION I – EXECUTIVE SUMMARY

Key Findings of this Valuation

The key results of the June 30, 2019 actuarial valuation are as follows:

- The average actuarially determined employer contribution rate increased from 13.51% of payroll to 13.79% 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. The largest factor affecting the employer contribution rate was an increase of 0.30% due to investment losses for the plan year ending June 30, 2019. On a Market Value of Assets basis, the Plan earned 5.6%, as compared to the prior year's 7.25% assumed return. However, on a smoothed (Actuarial Value of Assets) basis, the return was 6.5%. There was also an increase of 0.05% due to contributions being less than expected, which was offset by salary gains and demographic gains, which were mostly due to the ongoing transition of the active population towards Tier 4 (PEPRA) members.
- 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 \$133.3 million as of June 30, 2018 to \$142.9 million as of June 30, 2019. The \$9.5 million increase in the UAL was primarily due to the impact of investment losses, which increased the UAL by \$10.7 million for the plan year ending June 30, 2019, but which was offset by \$1.2 million in other UAL changes.
- The remaining balance of the June 30, 2015 UAL is being amortized over 15 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 16 years). Finally, the UAL loss for the plan year ending June 30, 2019 is being amortized as a new 19-year layer. A detailed reconciliation of the components of change in the UAL is shown in Table I-3.
- The System's funded ratio, the ratio of Actuarial Assets over Actuarial Liability, decreased from 92.0% last year to 91.8% as of June 30, 2019. On a market value basis, the funded ratio decreased from 89.4% last year to 88.3% 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 2018-2019 plan year, the actuarial liabilities of the System increased slightly less than expected. The liability gains were associated primarily with salary increases that were lower than expected and other favorable liability experience. These gains were partially offset by new entrants, more retirements than expected, and COLA increases that were higher than expected. In total, the liability gains decreased the Actuarial Liability by \$0.2 million.
- Overall participant membership increased compared to last year, from 9,805 to 10,013. The total active population increased from 4,581 to 4,619 and total projected payroll increased

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SECTION I – EXECUTIVE SUMMARY

from \$262,713,817 to \$272,415,593. The number of inactives increased from 2,032 to 2,082, while the number of retirees increased from 3,192 to 3,312.

- In Table IV-4 of this valuation we have disclosed a liability of \$116.0 million associated with future transfers to the Supplemental Retiree Benefit Reserve (SRBR). This amount 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 7.25% assumption. It has not been reflected in the calculation of the employer contribution rate. Future SRBR transfers will result in asset losses that are funded through the Plan's amortization method.

If the liability for future SRBR transfers were to be pre-funded, the employer contribution would be approximately \$9.7 million higher, or about 3.5% of pay. We have also disclosed a liability of \$99.0 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.

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SECTION I – EXECUTIVE SUMMARY

Table I-1 Summary of Key Valuation Results - Funded Status (in thousands)			
Valuation Date	June 30, 2018	June 30, 2019	% Change
Actuarial Liability	\$ 1,656,357	\$ 1,741,283	5.1%
Market Value of Assets	\$ 1,587,476	\$ 1,646,171	3.7%
Market Value of Assets (Excluding SRBR)	1,480,284	1,538,405	3.9%
Actuarial Value of Assets (Excluding SRBR)	1,523,030	1,598,431	5.0%
Unfunded Actuarial Liability (UAL)			
- based on Market Value of Assets	\$ 176,073	\$ 202,878	15.2%
- based on Actuarial Value of Assets	133,326	142,851	7.1%
Funding Ratio - Market value basis	89.4%	88.3%	-1.0%
Funding Ratio - Actuarial value basis	92.0%	91.8%	-0.2%
Expected Payroll	\$ 262,714	\$ 272,416	3.7%
Asset Leverage Ratio (Excluding SRBR)	5.6	5.6	0.2%
Actuarial Liability Leverage Ratio	6.3	6.4	1.4%
Interest on UAL (MVA basis)	\$ 12,765	\$ 14,709	15.2%
Interest Cost as Percent of Payroll	4.9%	5.4%	0.5%

Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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Table I-2			
Membership Total			
Item	June 30, 2018	June 30, 2019	% Change
Actives	4,581	4,619	0.8%
Inactives	2,032	2,082	2.5%
Members Receiving Benefits	3,192	3,312	3.8%
Total Members	9,805	10,013	2.1%
Ratio of Retired Members to Active Members	69.7%	71.7%	2.0%
Active Member Projected Payroll for FYE June 30, 2019 and 2020	\$ 262,713,817	\$ 272,415,593	3.7%
Average Pay per Active	\$ 57,349	\$ 58,977	2.8%

The Unfunded Actuarial Liability (UAL) for TCERA increased by \$9.5 million, from \$133.3 million to \$142.9 million. Table I-3 below presents the specific components of the change in the UAL.

The UAL was expected to decrease by \$2.7 million, due to the scheduled amortization payment being greater than the interest on the UAL. Liability experience gains decreased the UAL by an additional \$0.2 million and asset losses – i.e., the smoothed investment return below last year's assumed rate of 7.25% – increased the UAL by \$10.7 million. Contributions were slightly lower than expected, increasing the UAL by \$1.7 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, 6/30/2018	\$ 133,326
Expected change in unfunded actuarial liability	\$ (2,726)
Increase due to investment loss	10,746
Increase due to contributions less than expected	1,667
Decrease due to liability gain	(161)
Increase due to assumption changes	0
Total change in unfunded actuarial liability	\$ 9,525
Unfunded actuarial liability, 6/30/2019	\$ 142,851

Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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 0.29% for the June 30, 2019 valuation. The net employer normal cost rate decreased by 0.03% and the UAL rate increased by 0.32%. The average employee rate decreased by 0.01%, from 8.34% to 8.33%.

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. However, we would note that without further action, future investment experience related to the POB contribution will be shared amongst all TCERA employers.

Table I-4 Summary of Contributions				
	FYE 2020		FYE 2021	Change
<u>Contribution Rates</u>				
Net Employer Contribution Rate	13.51%		13.79%	0.29%
Estimated Employee Contribution Rate	<u>8.34%</u>		<u>8.33%</u>	-0.01%
Total Contribution Rate	21.85%		22.13%	0.28%
Estimated Net Employer Contributions (in thousands)	\$	36,549	\$	38,702
			\$	2,153
<u>Total Contribution Rate</u>				
Estimated Employee Contribution Rate	8.34%		8.33%	-0.01%
Employer Normal Cost Rate	<u>8.96%</u>		<u>8.92%</u>	-0.03%
Total Normal Cost Rate	17.30%		17.26%	-0.04%
UAL Rate				
Interest on Market Value UAL	4.86%		5.40%	0.54%
Principal on Market Value UAL	<u>-0.31%</u>		<u>-0.53%</u>	-0.22%
Total UAL Rate	4.55%		4.87%	0.32%
Total Contribution Rate	21.85%		22.13%	0.28%

Numbers may not add to totals due to rounding

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SECTION I – EXECUTIVE SUMMARY

Table I-5 summarizes the changes in the employer contribution rate. As discussed earlier in this section, the largest source of change was an increase of 0.30% of pay due to lower than expected investment returns on a smoothed basis. Another source of increase is contributions being less than expected, which was offset by salary and demographic gains. In aggregate, the employer contribution rate increased from 13.51% for FYE 2020 to 13.79% for FYE 2021.

Table I-5 Employer Contribution Reconciliation			
Item	Normal Cost	Amortization	Total
FYE 2020 Net Employer Contribution Rate	8.96%	4.55%	13.51%
Change due to asset loss	0.00%	0.30%	0.30%
Change due to contributions less than expected	0.00%	0.05%	0.05%
Change due to demographic gains and losses	-0.03%	0.00%	-0.03%
Change due to payroll less than expected	0.00%	-0.03%	-0.03%
Change due to assumption changes	0.00%	0.00%	0.00%
Total Change in Employer Rate	-0.03%	0.32%	0.29%
FYE 2021 Net Employer Contribution Rate	8.92%	4.87%	13.79%

Numbers may not add to totals due to rounding.

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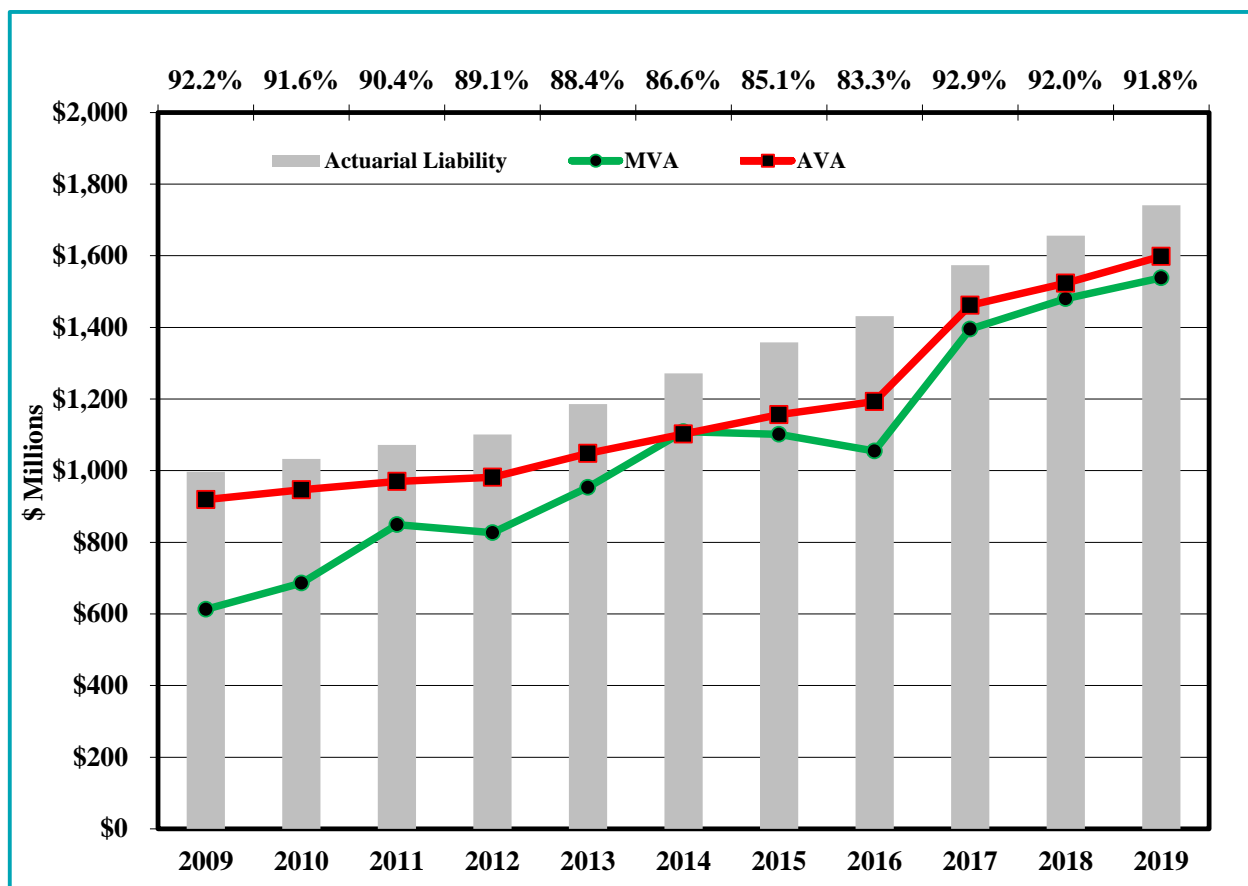
SECTION I – EXECUTIVE SUMMARY

B. 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 a current year's valuation result 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 had declined from 92.2% in 2009 to 83.3% in 2016, but increased to 92.9% as of June 30, 2017. The largest factor for the funding ratio decline was asset losses in 2008-2009, and the significant increase in the funded ratio in 2017 was due to the contribution from POB proceeds. For the 2019 plan year, the funding ratio decreased slightly for the second year in a row to 91.8%.



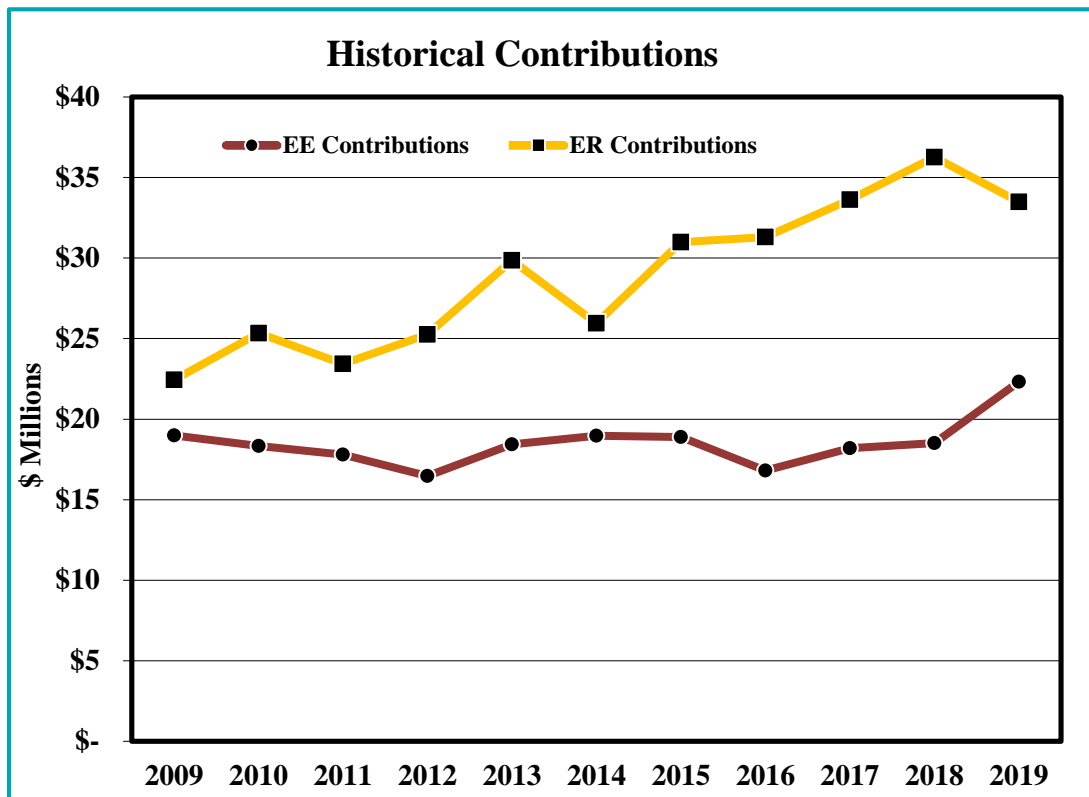
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SECTION I – EXECUTIVE SUMMARY

Contribution Trends

In the chart below, we present the historical trends for the TCERA employer and employee contributions. In the first year of the period, the employer and employee contributions were closer together, but the employer contribution rates rose 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.

Note that the employer contributions do not include the contribution from the POB proceeds that exceeded the regular actuarially determined amounts.



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SECTION I – EXECUTIVE SUMMARY

Cash Flows

The chart below shows the Plan's cash flow (contribution less benefit payments and 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 expenses, was close to zero for the first half of the period shown but has become more negative over the last few years. For the most recent year, the plan had negative cash flow of approximately 1.9% of assets (market value). 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.

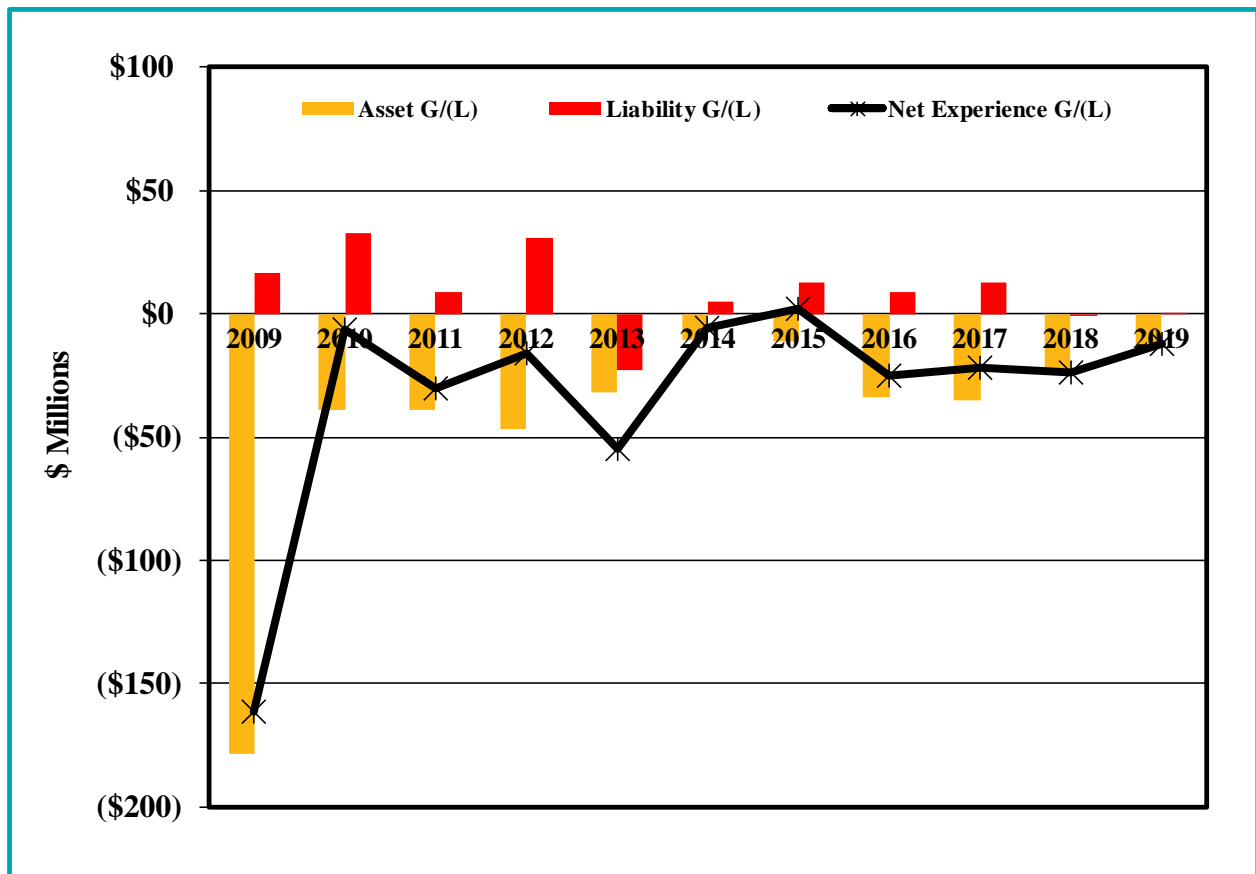
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SECTION I – EXECUTIVE SUMMARY

Gains and Losses

The chart below presents the pattern of annual gains and losses, broken into the investment and liability components. The investment gains and losses represent the changes on a smoothed basis (i.e., based on the Actuarial Value of Assets). The chart does not include any changes in TCERA's assets and liabilities attributable to changes to actuarial methods, assumptions or plan benefit changes.

The investment loss in 2008-2009 was by far the most significant gain or loss during the last 10 years. Since the Plan uses 10-year smoothing of asset gains and losses, the recognition of the 2008-2009 losses in the Actuarial Value of Assets continued through 2017-2018.



**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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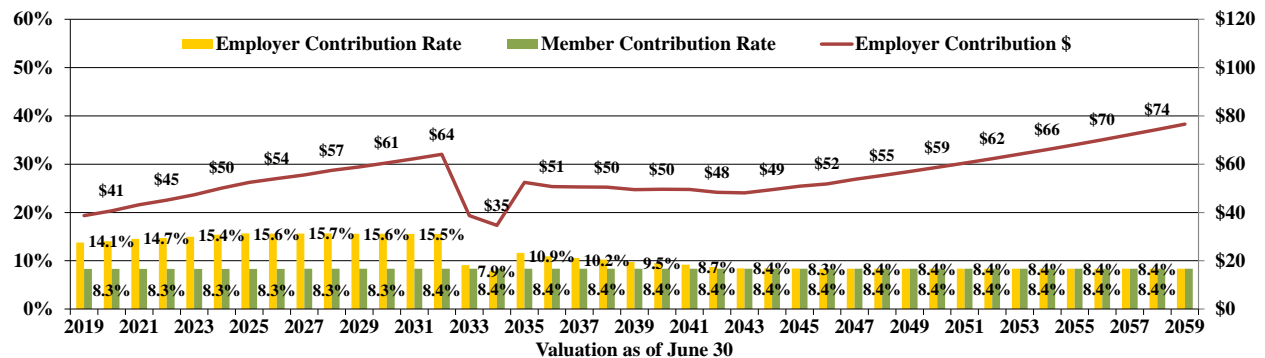
SECTION I – EXECUTIVE SUMMARY

C. 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, 2019 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 7.25%. 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), employee contribution rate (green bars), and the employer contribution in millions of dollars (red line) based on achieving the investment assumption **each year** for the next 40 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.

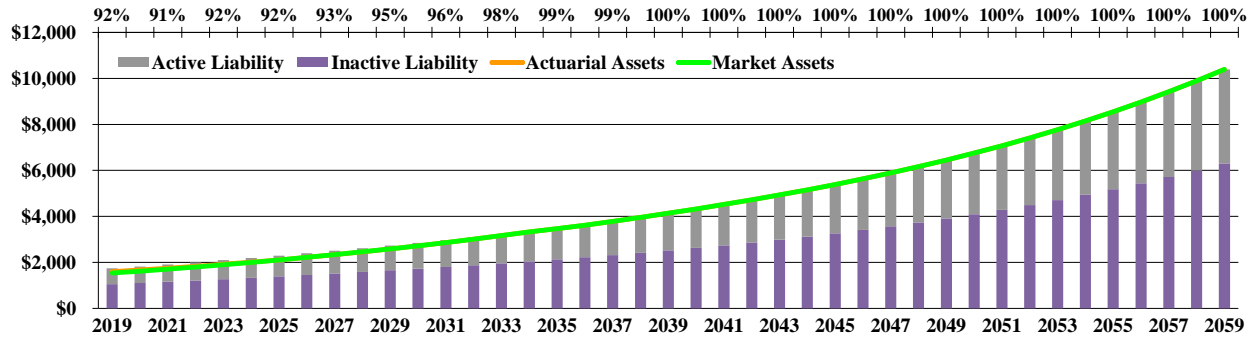
The contribution graph shows that the employer contribution rate is expected to increase slightly for several years as past investment losses are recognized, then experience some fluctuation as certain UAL layers drop off.



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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 2040 assuming the actuarial assumptions are achieved.

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 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.

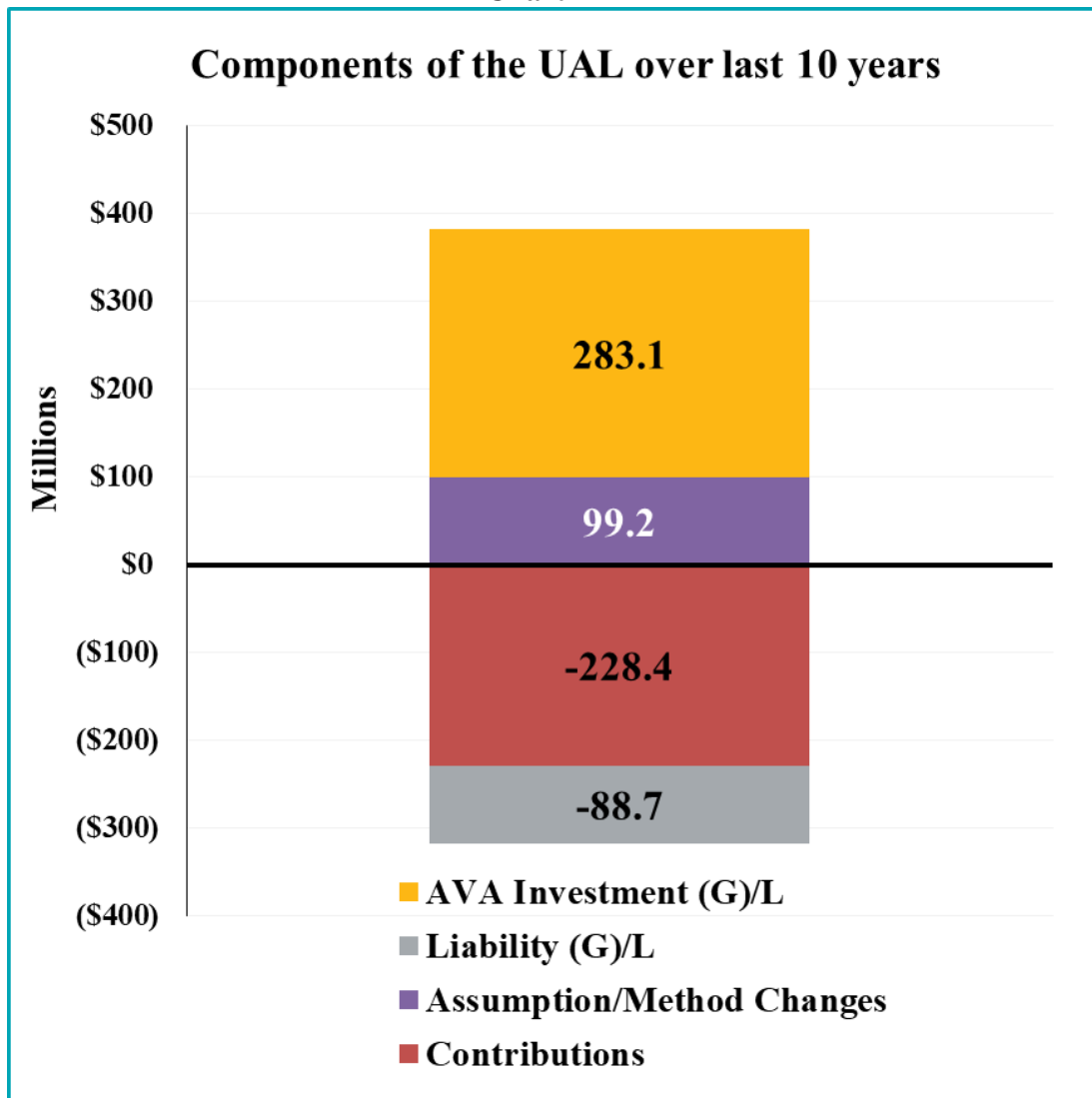
Contribution risk is the potential for actual future contributions to deviate from expected future contributions. There are different sources of contribution risk such as the sponsor choosing to not make contributions in accordance with the funding policy. As another example, the contribution requirement 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.

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SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The chart below shows the components contributing to the Unfunded Actuarial Liability (UAL) from July 1, 2009 through June 30, 2019. Over the last 10 years, the UAL has increased by approximately \$65 million. The investment losses (gold bar) of \$283 million on the actuarial value of assets (AVA) and assumption/method changes (purple bar) resulting in a total UAL increase of \$99 million are the primary sources in the UAL growth. Contributions in excess of the “tread water” level (red bar) of \$228 million, which include a pension obligation bond contribution of approximately \$250 million, have largely offset the UAL growth. Finally, net liability gains (gray bar) of \$89 million also decreased the UAL.

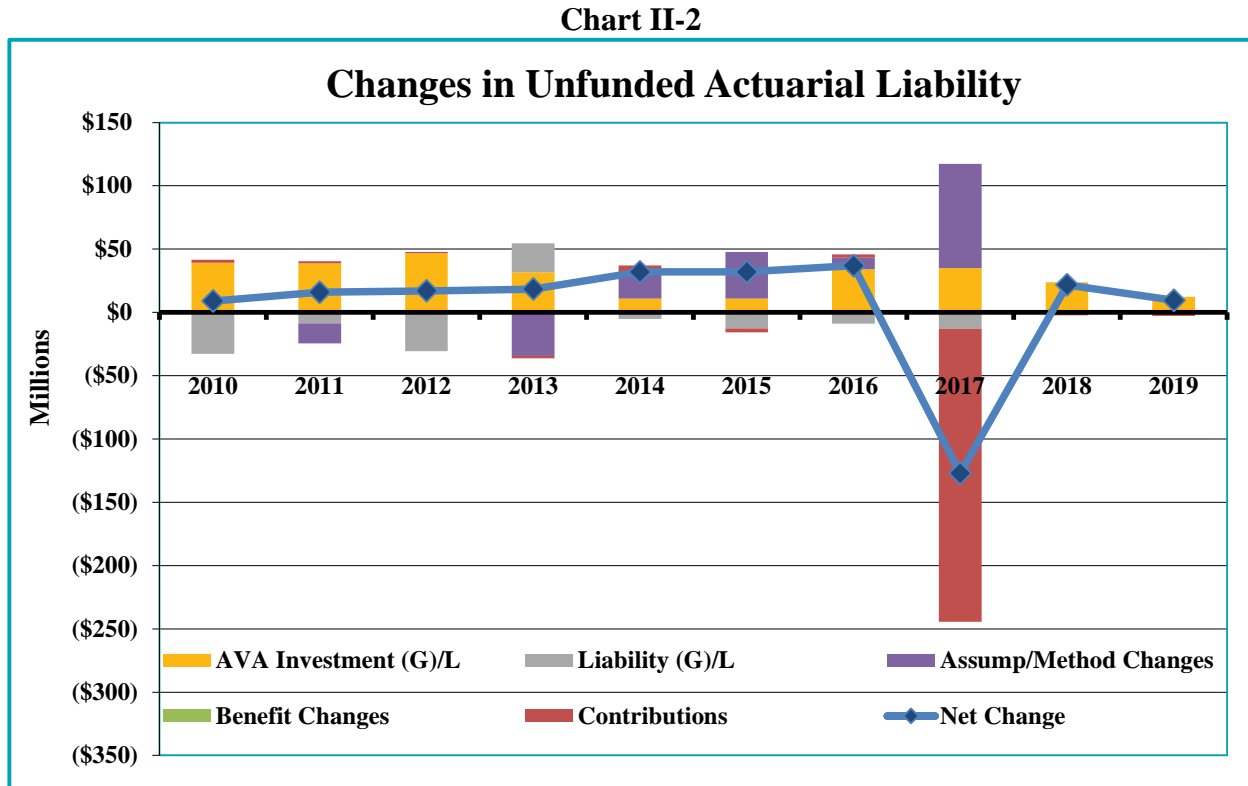
Chart II-1



**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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.



On a market value basis, the average annual geometric return over the 10-year period is 4.9%. That has resulted in investment losses on the AVA every year, increasing the UAL. As of June 30, 2019, there are approximately \$60 million of deferred losses that will be recognized over the next nine years. As a result, even if the Plan earns the expected return of 7.25%, there will be losses on the smoothed value of assets in the next few years.

Over the same time period, the assumed rate of return decreased from 7.90% to 7.25%. It is important to note that these changes simply reflect a downward revision to the estimate of future investment earnings and ultimately costs will be determined by actual investment earnings. Based on Verus's current capital market assumptions (including their inflation assumption of 2.00%) and the Plan's asset allocation, the expected average annual return is 6.78% compared to the Plan's current assumption of 7.25%, which is net of investment and administrative expenses. 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. There are no assumption changes effective with the June 30, 2018 and June 30, 2019 valuations.

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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 were above the tread water level by approximately \$2.3 million and \$2.7 million for the plan years ending in 2018 and 2019, respectively.

Table II-1

Unfunded Actuarial Liability (UAL) Change by Source							
June 30,	Contributions	Benefit Changes	Assumption/ Method Changes	Liability Experience	Investment Experience	Total UAL Change	
2010	\$ 2,387,485	\$ 0	\$ 0	\$ (32,639,370)	\$ 39,254,061	\$ 9,002,176	
2011	1,611,219	0	(15,647,348)	(8,770,947)	38,745,383	15,938,307	
2012	1,063,430	0	0	(30,721,453)	46,660,090	17,002,067	
2013	(1,843,981)	0	(34,420,710)	23,026,858	31,624,756	18,386,923	
2014	5,138,315	0	21,095,393	(5,070,085)	10,841,064	32,004,687	
2015	(3,043,058)	0	36,744,870	(12,668,401)	10,912,537	31,945,948	
2016	2,775,153	0	9,170,277	(8,948,443)	33,948,354	36,945,341	
2017	(231,452,683)	0	82,259,297	(12,982,692)	35,033,717	(127,142,361)	
2018	(2,307,142)	0	0	285,647	23,696,427	21,674,932	
2019	(2,726,065)	0	0	(161,312)	12,412,582	9,525,205	
Total	\$ (228,397,327)	\$ 0	\$ 99,201,779	\$ (88,650,198)	\$ 283,128,970	\$ 65,283,224	

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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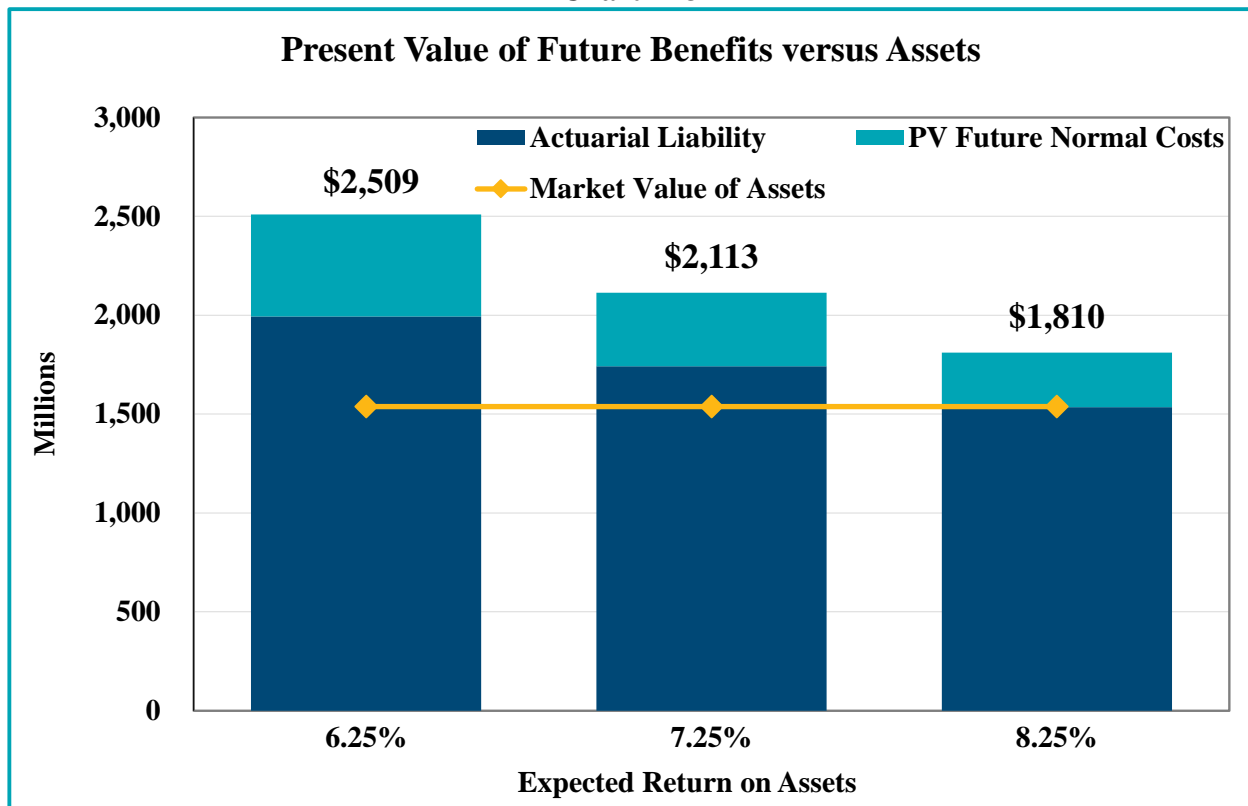
SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Assessing Costs and Risks

Sensitivity to Investment Returns

The chart below compares assets to the present value of all projected future benefits discounted at the current expected rate of return and at discount rates 100 basis points above and below the expected rate of return. The present value of future benefits is shown as a bar with the portion attributable to past service in dark blue (Actuarial Liability) and the portion attributable to future service in teal (Present Value of Future Normal Costs). The Market Value of Assets is shown by the gold line.

Chart II-3



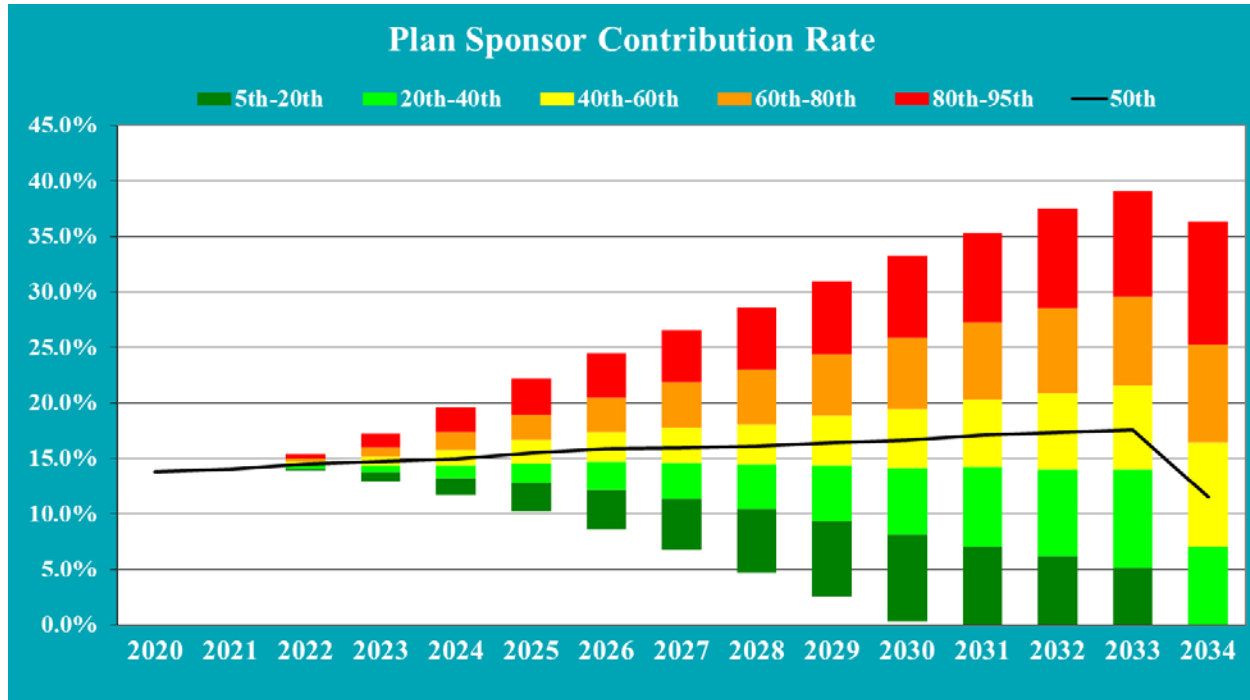
If investments return 7.25% annually, the Plan would need approximately \$2.1 billion in assets today to pay all projected benefits compared to current assets of \$1.5 billion (excluding values for Supplemental Retiree Benefit Reserve). If investment returns are only 6.25%, the Plan would need approximately \$2.5 billion in assets today, and if investment returns are 8.25%, the Plan would need approximately \$1.8 billion in assets today.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Sensitivity to Investment Returns - Stochastic Projections

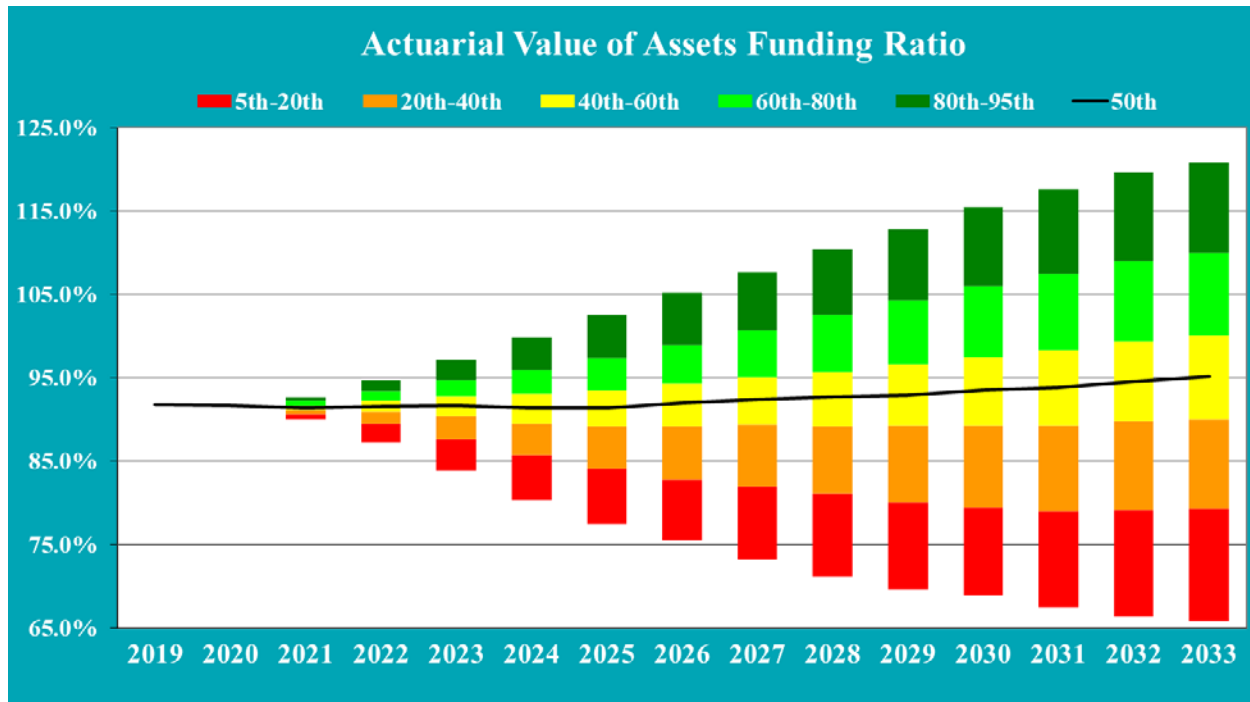
Stochastic projections serve to show the range of probable outcomes of various measurements. The graphs below and on the following page show the projected range of the employer contribution rate and of the funded ratio on an Actuarial Value of Assets basis. The range in both scenarios is driven by the volatility of investment returns, assumed to be based on a 11.6% standard deviation of annual returns, as indicated by Verus's current capital market assumptions.



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), which assumes actual investment returns will equal expected returns of 7.25% each year, aligns with the projections discussed in subsection D. of the Executive Summary of this report. In the most pessimistic scenario shown, the 95th percentile, the projected employer contribution rate approaches 40% of pay in 2033. Conversely, the most optimistic scenario shown, the 5th percentile, the projected employer contribution rate declines to 0% in 2031.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION II – RISK IDENTIFICATION AND ASSESSMENT



The graph above shows the projection of the funded ratio based on the actuarial value of assets. While the baseline-funded ratio (black line) is projected to be approximately 95% 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 65% funded on an Actuarial Value of Assets basis, as long as the actuarially determined contributions continue to be made.

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Plan Maturity Measures

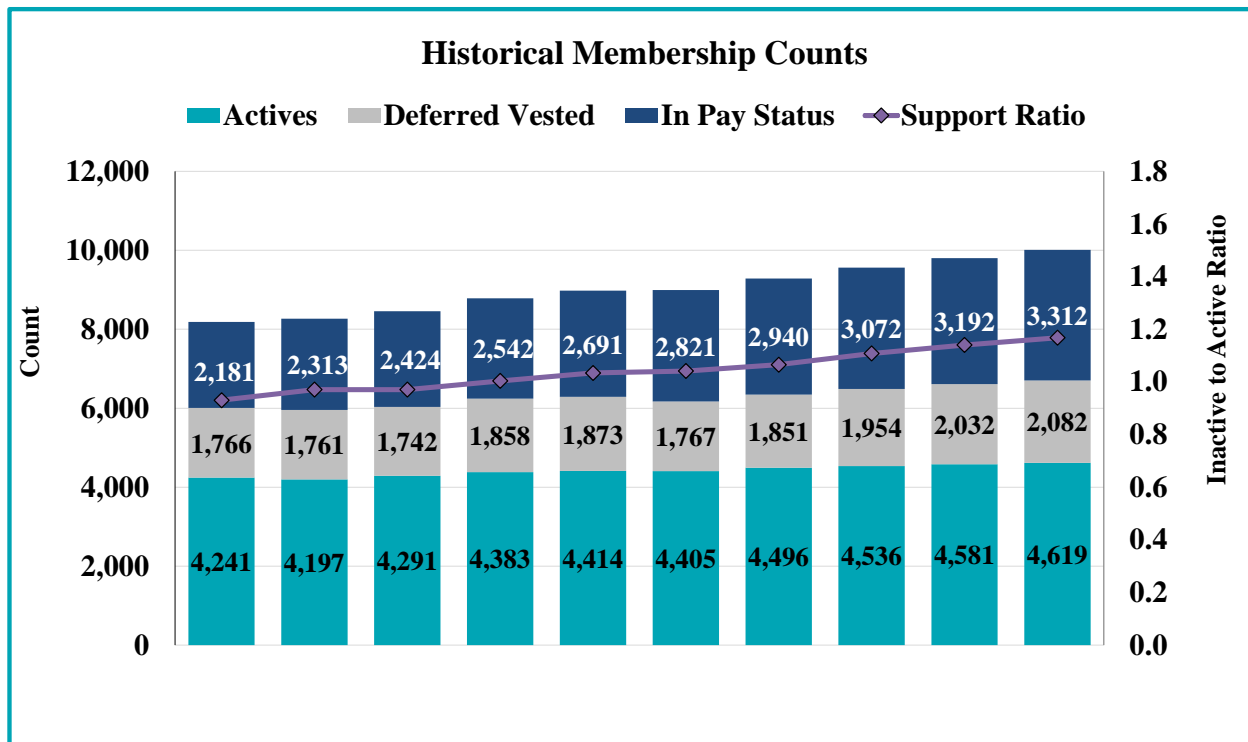
The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the Plan compared to other plans and how the maturity has changed over time.

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 inactive members (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 2010 to 2019. The inactive membership level was only about 93% of the active membership level in 2010, so the Support Ratio was approximately 0.9. During the past few years, the growth in retired membership has exceeded the growth in active membership, increasing the Support Ratio to approximately 1.2. That means for 2019, there are approximately 1.2 inactive members per active member.

Chart II-4



**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

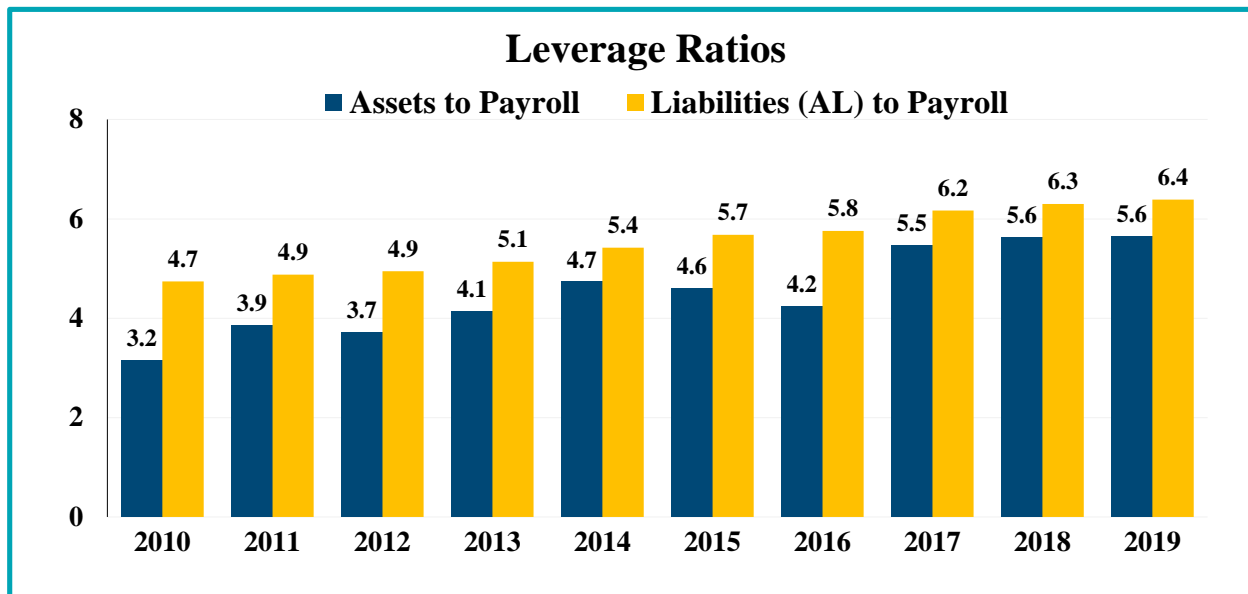
SECTION II – RISK IDENTIFICATION AND ASSESSMENT

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. Both leverage ratios have gradually increased since 2010, but the asset to payroll ratio declined in 2015 and 2016 before increasing and remaining relatively stable after the large pension obligation bond contribution for 2017.

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.

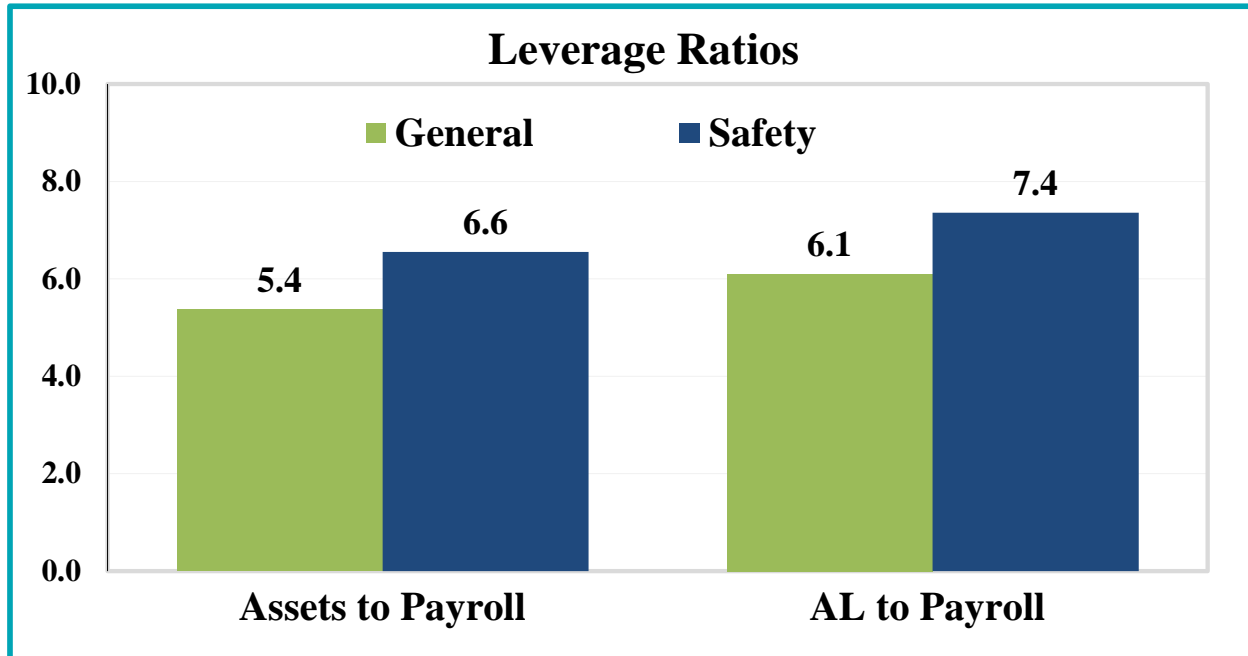
As the Plan becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the asset leverage ratio would be close to 6.4 times payroll, or the Actuarial Liability (AL) leverage ratio.

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Chart II-6



The General asset leverage ratio of 5.4 means that if the Plan's assets lose 10% of their value, which is a 17.25% actuarial loss compared to the expected return of 7.25%, the loss would be equivalent to 93% of payroll (17.25% times 5.4). The same investment loss for the Safety group with an asset ratio of 6.6 would be equivalent to approximately 114% 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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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, 2018 and June 30, 2019;
- 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 each asset value as of June 30, 2018 and June 30, 2019.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION III – ASSETS

Table III-1 Statement of Assets at Market Value		
	June 30, 2018*	June 30, 2019*
Cash and Securities Lending Collateral:		
Cash and Short Term Investments	\$ 275,907,000	\$ 48,422,000
Collateral on Loaned Securities	60,537,000	57,325,000
Total Cash and Securities Lending Collateral	\$ 336,444,000	\$ 105,747,000
Receivables:		
Sales of Investments	\$ 19,248,000	\$ 38,890,000
Interest and Dividends	2,198,000	2,653,000
Employee and Employer Contributions	1,242,000	1,446,000
Other Receivables	26,000	20,000
Total Receivables	\$ 22,714,000	\$ 43,009,000
Investments, at Fair Value:		
U.S. Government Obligations	\$ 76,387,000	\$ 99,958,000
Global Bonds	82,409,000	108,505,000
Domestic Corporate Bonds	217,775,000	236,745,000
Domestic Stocks	304,005,000	346,026,000
International Stocks	319,175,000	375,098,000
Real Estate	117,844,000	141,552,000
Commodities	41,679,000	63,922,000
Alternative Investments (Hedge Funds, Private Equity, Futures)	171,415,000	225,084,000
Total Investments, at Fair Value	\$ 1,330,689,000	\$ 1,596,890,000
Capital Assets		
Land	\$ 370,000	\$ 370,000
Building, Office Equipment and Furniture Net of Accumulated Depreciation	761,000	731,000
Intangible Assets, Pension Administration System Net of Accumulated Depreciation	1,213,000	910,000
Total Capital Assets	\$ 2,344,000	\$ 2,011,000
Total Assets	\$ 1,692,191,000	\$ 1,747,657,000
Current Liabilities:		
Purchase of Investments	\$ 39,573,000	\$ 40,140,000
Obligations under Security Lending Program	60,537,000	57,325,000
Refunds Payable	2,626,000	2,549,000
Accounts Payable	1,847,000	1,382,000
Total Current Liabilities	\$ 104,583,000	\$ 101,396,000
Long-Term Liabilities:		
Compensated Absences	\$ 132,000	\$ 90,000
Total Long-Term Liabilities	\$ 132,000	\$ 90,000
Total Liabilities	\$ 104,715,000	\$ 101,486,000
Total Market Value of Assets for Valuation	\$ 1,587,476,000	\$ 1,646,171,000

*\$1,000 rounding reflected beginning with the year ending June 30, 2018. Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION III – ASSETS

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 shows the components of change in the Market Value of Assets during the fiscal years ending June 30, 2018 and June 30, 2019.

Table III-2 Changes in Market Values		
	June 30, 2018*	June 30, 2019*
Additions:		
Contributions		
Employer	\$ 36,263,000	\$ 33,494,000
Plan Member	18,512,000	22,325,000
Total Contributions	<u>\$ 54,775,000</u>	<u>\$ 55,819,000</u>
Investment Income		
Net Appreciation/(Depreciation) in		
Fair Value of Investments	\$ 87,044,000	\$ 78,961,000
Interest	6,091,000	9,522,000
Dividends	3,564,000	4,460,000
Real Estate Operating Income	3,630,000	3,918,000
Other Investment Income	3,189,000	1,905,000
Total Investment Activity Income/(Loss)	<u>\$ 103,518,000</u>	<u>\$ 98,766,000</u>
Less Expenses from Investing Activities	<u>8,010,000</u>	<u>8,301,000</u>
Net Investing Activity Income/(Loss)	<u>\$ 95,508,000</u>	<u>\$ 90,465,000</u>
From Securities Lending Activities		
Securities Lending Income	\$ 1,014,000	\$ 1,516,000
Less Expenses from Securities Lending Income		
Management Fee	\$ 12,000	\$ 12,000
Borrower Rebate	840,000	1,379,000
Net Securities Lending Income	<u>\$ 162,000</u>	<u>\$ 125,000</u>
Total Net Investment Income/(Loss)	<u>\$ 95,670,000</u>	<u>\$ 90,590,000</u>
Other Income	\$ 17,087,000	\$ 189,000
Total Additions	\$ 167,532,000	\$ 146,598,000

*\$1,000 rounding reflected beginning with the year ending June 30, 2018. Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION III – ASSETS

**Table III-2
Changes in Market Values (Continued)**

	June 30, 2018	June 30, 2019*
Deductions:		
Benefits	\$ 77,083,000	\$ 82,236,000
Refunds of Contributions	3,633,000	2,861,000
Administrative Expenses	2,666,000	2,806,000
Total Deductions	\$ 83,382,000	\$ 87,903,000
Net Increase/(Decrease)	\$ 84,150,000	\$ 58,695,000
<u>Net Assets Held in Trust for Pension Benefits</u>		
Beginning of Year	\$ 1,503,326,000	\$ 1,587,476,000
End of Year for Valuation	\$ 1,587,476,000	\$ 1,646,171,000
Approximate Return***	7.39%	5.59%

*\$1,000 rounding reflected beginning with the year ending June 30, 2018. Numbers may not add to totals due to rounding.

**Net of investment and administrative expenses.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION III – ASSETS

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.

Table III-3 Development of Actuarial Value of Assets for June 30, 2019						
Six month Period	Total Actual Market	Expected Market	Investment	Deferred	Deferred	
From To	Return (net)	Return (net)	Gain (Loss)	Factor	Return	
1/10 6/10	\$ (33,675,854)	\$ 33,673,605	\$ (67,349,458)	0.05	\$ (3,367,473)	
7/10 12/10	130,581,862	32,462,428	98,119,434	0.10	9,811,943	
1/11 6/11	49,953,925	37,183,527	12,770,398	0.15	1,915,560	
7/11 12/11	(58,996,703)	39,029,015	(98,025,719)	0.20	(19,605,144)	
1/12 6/12	46,133,182	36,032,847	10,100,335	0.25	2,525,084	
7/12 12/12	61,934,352	38,223,420	23,710,932	0.30	7,113,280	
1/13 6/13	45,446,072	39,915,825	5,530,247	0.35	1,935,587	
7/13 12/13	114,083,453	41,675,731	72,407,722	0.40	28,963,089	
1/14 6/14	62,482,815	45,022,478	17,460,337	0.45	7,857,152	
7/14 12/14	(17,886,044)	46,676,782	(64,562,826)	0.50	(32,281,413)	
1/15 6/15	26,507,383	44,856,580	(18,349,197)	0.55	(10,092,058)	
7/15 12/15	(45,631,715)	45,909,756	(91,541,471)	0.60	(54,924,883)	
1/16 6/16	24,729,226	43,045,278	(18,316,052)	0.65	(11,905,434)	
7/16 12/16	44,835,718	44,015,787	819,931	0.70	573,952	
1/17 6/17	84,564,705	42,691,625	41,873,080	0.75	31,404,810	
7/17 12/17	79,943,304	45,809,189	34,134,115	0.80	27,307,292	
1/18 6/18	11,201,303	48,460,635	(37,259,332)	0.85	(31,670,432)	
7/18 12/18	(54,685,836)	56,898,055	(111,583,891)	0.90	(100,425,502)	
1/19 6/19	143,284,434	53,981,060	89,303,374	0.95	84,838,205	
1. Total deferred return					(60,026,386)	
2. Market Value of Assets (includes SRBR)					1,646,171,000	
3. Actuarial Value of Assets for Funding Ratio (2. - 1.)					1,706,197,386	
4. Non-valuation reserves and designations:						
a. Supplemental Retiree Benefit Reserve (SRBR)					107,766,000	
5. Preliminary Actuarial Value of Assets (3. - 4.)					1,598,431,386	
6. Corridor Limit						
a. 70% of Market Value of Assets excluding SRBR					1,076,883,500	
b. 130% of Market Value of Assets excluding SRBR					1,999,926,500	
7. Actuarial Value of Assets after Corridor					1,598,431,386	

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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, 2018 and June 30, 2019			
		FYE 2018*	FYE 2019*
1. Member Deposit Reserve	\$	287,078,000	\$ 301,935,000
2. Employer Advance Reserve		781,335,000	817,209,000
3. Retiree Reserve		405,175,000	426,060,000
4. Supplemental Retiree Benefit Reserve		107,192,000	107,766,000
5. Contingency Reserve		48,895,000	50,671,000
6. Market Stabilization Reserve		(45,232,000)	(60,026,000)
7. TCERA Property, Inc. Retained Earnings		535,000	660,000
8. Other Reserves		2,498,000	1,896,000
Total Reserves	\$	1,587,476,000	\$ 1,646,171,000

**\$1,000 rounding reflected beginning with the year ending June 30, 2018. Numbers may not add to totals due to rounding.*

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION III – ASSETS

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**
2010	10.3%	3.6%	1.1%
2011	21.8%	3.8%	3.6%
2012	-1.3%	3.1%	1.7%
2013	11.1%	4.6%	1.8%
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%	4.6%
Compound Average	7.9%	4.9%	2.0%

* Net of investment and administrative expenses.

** Based on All Urban Consumers - U.S. City Average, June indices.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION IV – LIABILITIES

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

- **Disclosure** of System liabilities at June 30, 2018 and June 30, 2019;
- 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**.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION IV – LIABILITIES

Table IV-1 Present Value of Future Benefits and Actuarial Liability (in thousands)				
Item	General	Safety	June 30, 2019 Total	June 30, 2018 Total
Present Value of Future Benefits (PVFB)				
Actives	\$ 748,267	\$ 308,902	\$ 1,057,169	\$ 1,018,137
Terminated Vested	103,648	27,530	131,178	127,074
Retirees	582,047	165,842	747,889	699,120
Disabled	53,446	55,484	108,930	107,038
Beneficiaries	<u>43,937</u>	<u>24,272</u>	<u>68,208</u>	<u>63,571</u>
Total PVFB	\$ 1,531,343	\$ 582,030	\$ 2,113,374	\$ 2,014,940
Actuarial Liability				
Total Present Value of Benefits	\$ 1,531,343	\$ 582,030	\$ 2,113,374	\$ 2,014,940
Present Value of Future Normal Costs				
Employer Portion	132,545	64,503	197,048	190,248
Employee Portion	<u>119,885</u>	<u>55,158</u>	<u>175,043</u>	<u>168,336</u>
Actuarial Liability	\$ 1,278,913	\$ 462,370	\$ 1,741,283	\$ 1,656,357
Actuarial Value of Assets	\$ 1,170,851	\$ 427,580	\$ 1,598,431	\$ 1,523,030
Funded Ratio	91.6%	92.5%	91.8%	92.0%
Unfunded Actuarial Liability/(Surplus)	\$ 108,062	\$ 34,789	\$ 142,851	\$ 133,326

Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION IV – LIABILITIES

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

Table IV-2 Development of 2019 Experience Gain/(Loss) (in thousands)	
Item	Cost
1. Unfunded Actuarial Liability at June 30, 2018	\$ 133,326
2. Middle of year actuarial liability payment	(11,966)
3. Interest to end of year on 1 and 2	9,240
4. Impact of assumption changes	0
5. Expected Unfunded Actuarial Liability at June 30, 2019	\$ 130,600
6. Actual Unfunded Liability at June 30, 2019 (AVA basis)	142,851
7. Net Gain/(Loss): (5 - 6)	\$ (12,251)
8. Portion of net gain/(loss) due to:	
a. Investment experience loss	\$ (10,746)
b. Contributions less than expected	(1,667)
c. New entrant loss	(1,588)
d. Inactive mortality gain	31
e. COLAs more than expected	(1,171)
f. Salaries less than expected	697
g. Retirements	(2,095)
h. Terminations	(1,044)
i. Other experience	5,332
j Total gain/(loss)	\$ (12,251)

Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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, 2019 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, 2019		
	June 30, 2018	June 30, 2019
Level One		
1. Current Retirees	\$ 56,181,622	\$ 57,858,377
2. Inactive Members	2,348,088	2,216,918
3. Active members	<u>37,225,982</u>	<u>37,226,796</u>
4. Subtotal	\$ 95,755,692	\$ 97,302,091
Level Two		
5. Supplemental COLA for those who have lost at least 15% of Purchasing Power	\$ 810,834	\$ 797,753
Level Three		
6. Supplemental Spousal Death Benefit	\$ 3,601,253	\$ 3,449,188
7. Total SRBR Combined Liability: (4) + (5) + (6)	\$ 100,167,779	\$ 101,549,032
8. Supplemental Retiree Benefit Reserve: (SRBR)	<u>107,192,000</u>	<u>107,766,000</u>
9. Net Reserve: (8) - (7)	\$ 7,024,221	\$ 6,216,968

Numbers may not add to totals due to rounding.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION IV – LIABILITIES

The top portion of Table IV-4 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 (\$99.0 million) as well as the accrued portion of the present value of future transfers to the SRBR (\$116.0 million). In addition, the SRBR balance of \$107.8 million as of June 30, 2019 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.

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.

Table IV-4 Disclosure of SRBR Liabilities (in thousands)	
Valuation Date	June 30, 2019
<u>Without SRBR</u>	
Actuarial Liability (Excluding SRBR)	\$ 1,741,283
Actuarial Value of Assets (Excluding SRBR)	1,598,431
Market Value of Assets (Excluding SRBR)	1,538,405
Funded Ratio - Actuarial Value Basis	91.8%
Funded Ratio - Market Value Basis	88.3%
<u>With SRBR</u>	
Actuarial Liability (Excluding SRBR)	\$ 1,741,283
Liability Associated with Current SRBR Balance	99,006
Liability from Future Transfers	116,024
Total Liability with SRBR	\$ 1,956,313
Actuarial Value of Assets (Including SRBR)	\$ 1,706,197
Market Value of Assets (Including SRBR)	1,646,171
Funded Ratio - Actuarial Value Basis	87.2%
Funded Ratio - Market Value Basis	84.1%

Numbers may not add to totals due to rounding.

TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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. 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 15 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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2021 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, 2019 for FYE 2021				
	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Total Normal Cost Rate	15.46%	16.25%	14.42%	15.53%
2. Member Contribution Rate	<u>1.46%</u>	<u>7.92%</u>	<u>7.21%</u>	<u>7.61%</u>
3. Employer Normal Cost Rate (1-2)	14.00%	8.33%	7.21%	7.92%
4. UAL Amortization	<u>4.20%</u>	<u>4.20%</u>	<u>4.20%</u>	<u>4.20%</u>
5. Net Employer Contribution Rate (3+4)	18.20%	12.53%	11.41%	12.12%
General (Non-County)				
1. Total Normal Cost Rate	15.46%	16.25%	14.42%	15.53%
2. Member Contribution Rate	<u>1.46%</u>	<u>7.92%</u>	<u>7.21%</u>	<u>7.61%</u>
3. Employer Normal Cost Rate (1-2)	14.00%	8.33%	7.21%	7.92%
4. UAL Amortization	<u>11.57%</u>	<u>11.57%</u>	<u>11.57%</u>	<u>11.57%</u>
5. Net Employer Contribution Rate (3+4)	25.57%	19.90%	18.78%	19.49%
Safety (County)				
1. Total Normal Cost Rate	N/A	22.26%	24.43%	22.96%
2. Member Contribution Rate	<u>N/A</u>	<u>10.00%</u>	<u>12.21%</u>	<u>10.71%</u>
3. Employer Normal Cost Rate (1-2)	N/A	12.26%	12.21%	12.25%
4. UAL Amortization	<u>N/A</u>	<u>5.17%</u>	<u>5.17%</u>	<u>5.17%</u>
5. Net Employer Contribution Rate (3+4)	N/A	17.43%	17.38%	17.42%

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SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2020 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, 2018 for FYE 2020				
	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Total Normal Cost Rate	13.61%	16.31%	14.40%	15.63%
2. Member Contribution Rate	<u>0.53%</u>	<u>8.00%</u>	<u>7.20%</u>	<u>7.69%</u>
3. Employer Normal Cost Rate (1-2)	13.08%	8.31%	7.20%	7.94%
4. UAL Amortization	<u>3.83%</u>	<u>3.83%</u>	<u>3.83%</u>	<u>3.83%</u>
5. Net Employer Contribution Rate (3+4)	16.91%	12.14%	11.03%	11.77%
General (Non-County)				
1. Total Normal Cost Rate	13.61%	16.31%	14.40%	15.63%
2. Member Contribution Rate	<u>0.53%</u>	<u>8.00%</u>	<u>7.20%</u>	<u>7.69%</u>
3. Employer Normal Cost Rate (1-2)	13.08%	8.31%	7.20%	7.94%
4. UAL Amortization	<u>11.20%</u>	<u>11.20%</u>	<u>11.20%</u>	<u>11.20%</u>
5. Net Employer Contribution Rate (3+4)	24.28%	19.51%	18.40%	19.14%
Safety (County)				
1. Total Normal Cost Rate	N/A	22.48%	24.25%	22.93%
2. Member Contribution Rate	<u>N/A</u>	<u>10.02%</u>	<u>12.12%</u>	<u>10.56%</u>
3. Employer Normal Cost Rate (1-2)	N/A	12.46%	12.12%	12.37%
4. UAL Amortization	<u>N/A</u>	<u>5.12%</u>	<u>5.12%</u>	<u>5.12%</u>
5. Net Employer Contribution Rate (3+4)	N/A	17.58%	17.24%	17.49%

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SECTION V – CONTRIBUTIONS

The combined General and Safety employer contribution rates for FYE 2021 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, 2019 for FYE 2021 with Social Security Integration				
	Tier 1	Tier 2 & 3	Tier 4	Total
General and Safety				
1. Employer Normal Cost Rate:	14.00%	9.32%	8.21%	8.92%
a. Rate on first \$161.54 of biweekly compensation	9.54%	6.36%		
b. Rate on biweekly compensation in excess of \$161.54	14.31%	9.54%		
2. UAL Rate:	4.78%	4.88%	4.86%	4.87%
a. Rate on first \$161.54 of biweekly compensation	3.26%	3.33%		
b. Rate on biweekly compensation in excess of \$161.54	4.89%	4.99%		
3. Total Rate (1 + 2):	18.78%	14.20%	13.07%	13.79%
a. Rate on first \$161.54 of biweekly compensation	12.80%	9.69%		
b. Rate on biweekly compensation in excess of \$161.54	19.20%	14.54%		

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The employer contribution rates for FYE 2021 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, 2019 for FYE 2021 with Social Security Integration				
	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Employer Normal Cost Rate:	14.00%	8.33%	7.21%	7.92%
a. Rate on first \$161.54 of biweekly compensation	9.54%	5.69%		
b. Rate on biweekly compensation in excess of \$161.54	14.31%	8.54%		
2. UAL Rate:	4.20%	4.20%	4.20%	4.20%
a. Rate on first \$161.54 of biweekly compensation	2.86%	2.87%		
b. Rate on biweekly compensation in excess of \$161.54	4.29%	4.30%		
3. Total Rate (1 + 2):	18.20%	12.53%	11.41%	12.12%
a. Rate on first \$161.54 of biweekly compensation	12.41%	8.56%		
b. Rate on biweekly compensation in excess of \$161.54	18.61%	12.84%		
General (Non-County)				
1. Employer Normal Cost Rate:	14.00%	8.33%	7.21%	7.92%
a. Rate on first \$161.54 of biweekly compensation	9.54%	5.69%		
b. Rate on biweekly compensation in excess of \$161.54	14.31%	8.54%		
2. UAL Rate:	11.57%	11.57%	11.57%	11.57%
a. Rate on first \$161.54 of biweekly compensation	7.88%	7.90%		
b. Rate on biweekly compensation in excess of \$161.54	11.83%	11.86%		
3. Total Rate (1 + 2):	25.57%	19.90%	18.78%	19.49%
a. Rate on first \$161.54 of biweekly compensation	17.43%	13.60%		
b. Rate on biweekly compensation in excess of \$161.54	26.14%	20.39%		
Safety (County)				
1. Employer Normal Cost Rate:	N/A	12.26%	12.21%	12.25%
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	12.50%		
2. UAL Rate:	N/A	5.17%	5.17%	5.17%
a. Rate on first \$161.54 of biweekly compensation	N/A	3.52%		
b. Rate on biweekly compensation in excess of \$161.54	N/A	5.27%		
3. Total Rate (1 + 2):	N/A	17.43%	17.38%	17.42%
a. Rate on first \$161.54 of biweekly compensation	N/A	11.85%		
b. Rate on biweekly compensation in excess of \$161.54	N/A	17.78%		

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SECTION V – CONTRIBUTIONS

Table V-3 below shows information on each layer of the June 30, 2019 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, 2019 Actuarial Valuation**

Type of Base	Date Established	Initial Amount	Initial Amortization Years	June 30, 2019 Outstanding Balance	Remaining Amortization Years	Amortization Amount
1. Initial UAL	6/30/2015	201,848,216	19	193,187,346	15	17,434,122
2. (Gain)/Loss Base	6/30/2016	38,033,040	19	36,968,028	16	3,184,841
3. (Gain)/Loss Base	6/30/2017	25,611,386	19	25,191,353	17	2,079,673
4. Assumption Change Base	6/30/2017	82,259,297	19	80,910,226	17	6,679,546
5. POB Contribution Base	6/30/2017	(233,100,233)	19	(229,277,337)	17	(18,927,998)
6. (Gain)/Loss Base	6/30/2018	23,781,349	19	23,620,449	18	1,874,827
7. (Gain)/Loss Base	6/30/2019	12,251,268	19	<u>12,251,268</u>	19	<u>937,710</u>
Total				\$ 142,851,333		\$ 13,262,721

Numbers may not add to totals due to rounding.

If the UAL payment above of \$13,262,721 is calculated based on a single-equivalent period with the June 30, 2019 UAL of \$142,851,000, the number of years to fully pay off the UAL would be approximately 14 years.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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 2019 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 2021	
General (County)	
1. General County Projected Payroll for FYE June 30, 2020	\$ 193,244,656
2. Total General Projected Payroll for FYE June 30, 2020	\$ 209,696,645
3. County Share (1 divided by 2)	92.1544%
4. UAL Payment, not including POB Contribution	\$ 24,270,588
5. UAL Payment for POB Contribution	\$ (14,255,092)
6. County Share of 4. (3 multiplied by 4)	\$ 22,366,411
7. County Share of 5. (100% of 5)	\$ (14,255,092)
8. Total General County UAL Payment (6+7)	\$ 8,111,319
9. General County UAL Rate (8 divided by 1)	4.20%
General (Non-County)	
1. General Non-County Projected Payroll for FYE June 30, 2020	\$ 16,451,989
2. Total General Projected Payroll for FYE June 30, 2020	\$ 209,696,645
3. Non-County Share (1 divided by 2)	7.8456%
4. UAL Payment, not including POB Contribution	\$ 24,270,588
5. UAL Payment for POB Contribution	\$ (14,255,092)
6. Non-County Share of 4. (3 multiplied by 4)	\$ 1,904,177
7. Non-County Share of 5. (0% of 5)	\$ 0
8. Total General Non-County UAL Payment (6+7)	\$ 1,904,177
9. General Non-County UAL Rate (8 divided by 1)	11.57%
Safety (County)	
1. County Safety Projected Payroll for FYE June 30, 2020	\$ 62,822,663
2. Total Safety Projected Payroll for FYE June 30, 2020	\$ 62,822,663
3. County Share (1 divided by 2)	100.0000%
4. UAL Payment, not including POB Contribution	\$ 7,920,131
5. UAL Payment for POB Contribution	\$ (4,672,906)
6. County Share of 4. (3 multiplied by 4)	\$ 7,920,131
7. County Share of 5. (100% of 5)	\$ (4,672,906)
8. Total County Safety UAL Payment (6+7)	\$ 3,247,225
9. County Safety UAL Rate (8 divided by 1)	5.17%

Numbers may not add to totals due to rounding.

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SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2021 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 below shows employee contribution rates for FYE 2021 at sample ages.

Table V-5 Detailed Employer Contribution Rate as of June 30, 2019 for FYE 2021										
Member Type	Tier	Normal Cost			UAL Amortization Cost			Total Cost		
		Basic Rate	COLA Rate	Total Rate	Basic Rate	COLA Rate	Total Rate	Basic Rate	COLA Rate	Total Rate
General (County)	1	11.47%	2.53%	14.00%	3.44%	0.76%	4.20%	14.91%	3.29%	18.20%
General (County)	2&3	6.93%	1.40%	8.33%	3.49%	0.71%	4.20%	10.43%	2.11%	12.53%
General (County)	4	5.93%	1.28%	7.21%	3.46%	0.74%	4.20%	9.39%	2.02%	11.41%
General (Non-County)	1	11.47%	2.53%	14.00%	9.48%	2.09%	11.57%	20.95%	4.63%	25.57%
General (Non-County)	2&3	6.93%	1.40%	8.33%	9.62%	1.95%	11.57%	16.56%	3.35%	19.90%
General (Non-County)	4	5.93%	1.28%	7.21%	9.52%	2.05%	11.57%	15.45%	3.33%	18.78%
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	9.95%	2.31%	12.26%	4.20%	0.97%	5.17%	14.15%	3.28%	17.43%
Safety (County)	4	9.84%	2.37%	12.21%	4.17%	1.00%	5.17%	14.01%	3.37%	17.38%

Table V-6 Employee Contribution Rate at Sample Ages as of June 30, 2019 for FYE 2021					
Member Type	Tier	Age 25	Age 35	Age 45	Single Rate
General	1	4.44%	5.55%	6.67%	N/A
General	2&3	6.99%	8.69%	10.45%	N/A
General	4	5.16%	7.33%	10.00%	N/A
Safety	1	N/A	N/A	N/A	N/A
Safety	2&3	9.77%	12.35%	14.03%	N/A
Safety	4	10.76%	14.57%	18.58%	N/A

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SECTION V – CONTRIBUTIONS

Table V-7 below shows projected annual employer contributions for FYE 2021, 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 2021				
Member Type	Tier	Normal Cost	UAL Amortization	Contributions Total
General (County)	1	\$ 133,934	\$ 40,169	\$ 174,103
General (County)	2&3	9,994,205	5,037,429	15,031,634
General (County)	4	5,628,914	3,278,984	8,907,898
General (Non-County)	1	11,403	9,421	20,823
General (Non-County)	2&3	850,862	1,181,419	2,032,281
General (Non-County)	4	479,221	769,014	1,248,235
Safety (County)	1	0	0	0
Safety (County)	2&3	5,341,458	2,252,373	7,593,832
Safety (County)	4	2,579,219	1,091,723	3,670,942

Numbers may not add to totals due to rounding.

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Table V-8 below shows a projection of the expected contributions 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 (%)
2019	\$ 25,018,099	\$ 13,660,603	\$ 38,678,702	13.8%	\$ 23,369,297	8.3%
2020	25,647,382	15,003,086	40,650,468	14.1%	24,071,220	8.3%
2021	26,304,190	16,909,494	43,213,683	14.5%	24,794,352	8.3%
2022	26,980,627	18,153,817	45,134,443	14.7%	25,542,290	8.3%
2023	27,681,616	19,597,655	47,279,271	15.0%	26,315,189	8.3%
2024	28,406,899	21,712,108	50,119,007	15.4%	27,111,451	8.3%
2025	29,157,935	23,332,175	52,490,110	15.7%	27,935,296	8.3%
2026	29,937,289	24,062,929	54,000,217	15.6%	28,785,248	8.3%
2027	30,743,392	24,815,346	55,558,737	15.6%	29,661,123	8.3%
2028	31,577,053	25,875,313	57,452,366	15.7%	30,565,519	8.3%
2029	32,439,446	26,449,327	58,888,773	15.6%	31,495,517	8.3%
2030	33,330,633	27,220,045	60,550,677	15.6%	32,456,205	8.3%
2031	34,253,031	28,028,342	62,281,373	15.6%	33,443,339	8.4%
2032	35,204,234	28,862,389	64,066,624	15.5%	34,457,961	8.4%
2033	36,116,991	2,553,648	38,670,639	9.1%	35,504,421	8.4%
2034	37,134,060	(2,480,478)	34,653,582	7.9%	36,579,772	8.4%
2035	38,185,106	14,252,550	52,437,656	11.6%	37,687,377	8.4%
2036	39,267,797	11,488,358	50,756,156	10.9%	38,824,727	8.4%
2037	40,384,178	10,188,729	50,572,906	10.6%	39,993,848	8.4%
2038	41,536,994	8,906,591	50,443,585	10.2%	41,197,604	8.4%
2039	42,727,995	6,694,510	49,422,505	9.7%	42,435,643	8.4%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION VI – COMPREHENSIVE ANNUAL 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, 2019.

In accordance with Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), 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	(A)	(B)	(C)			Portion of Actuarial Liabilities Covered by Reported Assets			
June 30,	Active/Inactive Member Contributions	Retirees And Beneficiaries	Remaining Active Members' Liabilities	Reported Assets		(A)	(B)	(C)	
2010	\$ 223,373	\$ 506,035	\$ 303,803	\$ 946,640		100%	100%	72%	
2011	228,275	546,553	297,316	969,636		100%	100%	66%	
2012	231,491	570,367	299,598	981,946		100%	100%	60%	
2013	238,200	621,125	326,732	1,048,160		100%	100%	58%	
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%	

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION VI – COMPREHENSIVE ANNUAL FINANCIAL REPORTING INFORMATION

**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, 2001	\$ 574,417	\$ 491,228	\$ (83,189)	116.9%	\$ 142,970	-58.2%
June 30, 2002	612,469	561,377	(51,092)	109.1%	158,263	-32.3%
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%

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

SECTION VI – COMPREHENSIVE ANNUAL FINANCIAL REPORTING INFORMATION

Table VI-3				
SCHEDULE OF EMPLOYER CONTRIBUTIONS				
(dollars in thousands)				
Year Ended June, 30	Actuarially Determined Contribution	Actual Contribution	Percentage Contributed	
2001	\$ 18,872	\$ 18,872	100%	
2002	6,186	6,186	100%	
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%	

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

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

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

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the Tulare County staff as of June 30, 2019. 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, 2018	June 30, 2019	Change	
Total (General & Safety)				
Count	4,581	4,619		0.8%
Average Age	41.8	41.8		-0.1%
Average Service	9.6	9.7		1.0%
Annual Projected Payroll	\$ 262,713,817	\$ 272,415,593		3.7%
Average Annual Pay	\$ 57,349	\$ 58,977		2.8%

SUMMARY OF INACTIVE MEMBERSHIP*				
	June 30, 2018	June 30, 2019	Change	
General				
Count	1,741	1,774		1.9%
Average Age	44.2	43.9		-0.7%
Total Contribution Balance	\$ 40,050,143	\$ 41,393,272		3.4%
Average Contribution Balance	\$ 23,004	\$ 23,333		1.4%
Safety				
Count	291	308		5.8%
Average Age	39.7	39.5		-0.4%
Total Contribution Balance	\$ 9,707,077	\$ 11,151,367		14.9%
Average Contribution Balance	\$ 33,358	\$ 36,206		8.5%
Total				
Count	2,032	2,082		2.5%
Average Age	43.6	43.3		-0.7%
Total Contribution Balance	\$ 49,757,220	\$ 52,544,639		5.6%
Average Contribution Balance	\$ 24,487	\$ 25,238		3.1%

*Includes unclaimed accounts.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED MEMBERSHIP				
		June 30, 2018	June 30, 2019	Change
General				
Count		2,658	2,749	3.4%
Average Age		70.7	70.9	0.3%
Total Annual Allowance	\$	55,107,749	\$ 59,081,180	7.2%
Average Annual Allowance	\$	20,733	\$ 21,492	3.7%
Safety				
Count		534	563	5.4%
Average Age		64.5	64.9	0.7%
Total Annual Allowance	\$	18,624,022	\$ 19,889,881	6.8%
Average Annual Allowance	\$	34,876	\$ 35,328	1.3%
Total				
Count		3,192	3,312	3.8%
Average Age		69.6	69.9	0.4%
Total Annual Allowance	\$	73,731,771	\$ 78,971,061	7.1%
Average Annual Allowance	\$	23,099	\$ 23,844	3.2%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE GENERAL MEMBERSHIP				
	June 30, 2018		June 30, 2019	Change
General Tier 1				
Count	16		13	-18.8%
Average Age	63.9		65.1	1.8%
Average Service	34.2		34.8	1.8%
Annual Projected Payroll	\$	1,085,586	\$ 1,007,983	-7.1%
Average Annual Pay	\$	67,849	\$ 77,537	14.3%
General Tier 2 & 3				
Count	2,146		2,009	-6.4%
Average Age	47.3		47.9	1.3%
Average Service	14.2		15.0	5.9%
Annual Projected Payroll	\$	130,674,232	\$ 126,303,821	-3.3%
Average Annual Pay	\$	60,892	\$ 62,869	3.2%
General Tier 4				
Count	1,546		1,704	10.2%
Average Age	35.5		35.9	1.2%
Average Service	2.4		2.9	19.1%
Annual Projected Payroll	\$	71,259,778	\$ 82,281,048	15.5%
Average Annual Pay	\$	46,093	\$ 48,287	4.8%
General Total				
Count	3,708		3,726	0.5%
Average Age	42.5		42.5	0.1%
Average Service	9.4		9.5	1.8%
Annual Projected Payroll	\$	203,019,596	\$ 209,592,852	3.2%
Average Annual Pay	\$	54,752	\$ 56,251	2.7%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE SAFETY MEMBERSHIP					
	June 30, 2018		June 30, 2019		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		602		550	-8.6%
Average Age		42.6		43.3	1.4%
Average Service		14.2		15.1	6.1%
Annual Projected Payroll	\$	44,280,283	\$	42,313,399	-4.4%
Average Annual Pay	\$	73,555	\$	76,933	4.6%
Safety Tier 4					
Count		271		343	26.6%
Average Age		30.9		31.4	1.6%
Average Service		2.4		2.7	13.3%
Annual Projected Payroll	\$	15,413,938	\$	20,509,342	33.1%
Average Annual Pay	\$	56,878	\$	59,794	5.1%
Safety Total					
Count		873		893	2.3%
Average Age		39.0		38.7	-0.8%
Average Service		10.5		10.3	-2.0%
Annual Projected Payroll	\$	59,694,221	\$	62,822,741	5.2%
Average Annual Pay	\$	68,378	\$	70,350	2.9%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED GENERAL MEMBERSHIP				
	June 30, 2018	June 30, 2019	Change	
Service Retirement				
Count	2,111	2,188		3.6%
Average Age	70.7	70.9		0.3%
Total Annual Allowance	\$ 46,236,407	\$ 49,865,736		7.8%
Average Annual Allowance	\$ 21,903	\$ 22,791		4.1%
Disability				
Count	200	205		2.5%
Average Age	63.8	64.1		0.4%
Total Annual Allowance	\$ 4,095,378	\$ 4,304,481		5.1%
Average Annual Allowance	\$ 20,477	\$ 20,997		2.5%
Beneficiaries				
Count	347	356		2.6%
Average Age	74.6	74.9		0.3%
Total Annual Allowance	\$ 4,775,964	\$ 4,910,963		2.8%
Average Annual Allowance	\$ 13,764	\$ 13,795		0.2%
Total				
Count	2,658	2,749		3.4%
Average Age	70.7	70.9		0.3%
Total Annual Allowance	\$ 55,107,749	\$ 59,081,180		7.2%
Average Annual Allowance	\$ 20,733	\$ 21,492		3.7%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED SAFETY MEMBERSHIP				
	June 30, 2018	June 30, 2019	Change	
Service Retirement				
Count	311	331		6.4%
Average Age	66.2	66.3		0.1%
Total Annual Allowance	\$ 12,707,792	\$ 13,600,293		7.0%
Average Annual Allowance	\$ 40,861	\$ 41,088		0.6%
Disability				
Count	130	130		0.0%
Average Age	58.5	59.2		1.3%
Total Annual Allowance	\$ 3,968,630	\$ 4,020,469		1.3%
Average Annual Allowance	\$ 30,528	\$ 30,927		1.3%
Beneficiaries				
Count	93	102		9.7%
Average Age	67.0	67.8		1.3%
Total Annual Allowance	\$ 1,947,600	\$ 2,269,119		16.5%
Average Annual Allowance	\$ 20,942	\$ 22,246		6.2%
Total				
Count	534	563		5.4%
Average Age	64.5	64.9		0.7%
Total Annual Allowance	\$ 18,624,022	\$ 19,889,881		6.8%
Average Annual Allowance	\$ 34,876	\$ 35,328		1.3%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2019 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	
	Average		Average		Average		Average		Average		Average		Average		Average		Average		Average		Average	
	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	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	1	89,747	1	89,747
60 to 64	0	0	1	114,297	0	0	0	0	0	0	0	0	0	0	0	0	1	47,317	4	72,747	6	75,433
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0	2	57,444	0	0	1	44,561	2	62,894	5	57,048
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	180,396	1	180,396
Total	0	0	1	114,297	0	0	0	0	0	0	0	0	2	57,444	0	0	2	45,939	8	85,865	13	77,537

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2019 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	
	Average		Average		Average		Average		Average		Average		Average		Average		Average		Average		Average	
	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	Comp.	No.	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	18	47,229	1	44,232	0	0	0	0	0	0	0	0	0	0	0	0	19	47,071
30 to 34	0	0	6	52,221	98	56,386	56	53,178	0	0	0	0	0	0	0	0	0	0	0	0	160	55,107
35 to 39	1	58,875	11	63,539	115	64,900	172	64,780	33	56,245	2	58,390	0	0	0	0	0	0	0	0	334	63,882
40 to 44	0	0	11	64,202	75	58,732	121	61,521	102	62,412	33	65,965	1	80,152	0	0	0	0	0	0	343	61,744
45 to 49	0	0	2	142,697	44	63,072	99	62,801	102	62,268	71	57,390	3	50,919	0	0	0	0	0	0	321	61,859
50 to 54	1	79,297	3	48,789	42	56,963	71	59,908	73	59,986	58	62,268	30	60,058	1	91,730	0	0	0	0	279	60,056
55 to 59	0	0	1	126,838	29	62,472	76	71,008	69	64,631	48	60,004	42	70,834	19	90,646	4	69,501	0	0	288	68,230
60 to 64	0	0	1	94,198	17	56,718	49	67,726	44	59,986	47	61,121	21	55,807	13	93,181	8	69,160	0	0	200	64,128
65 to 69	0	0	1	83,453	11	72,929	13	77,396	12	85,609	5	86,454	2	53,383	6	74,650	0	0	0	0	50	78,121
70 & up	0	0	1	85,453	3	134,266	3	60,729	3	38,463	3	70,611	1	44,025	1	41,715	0	0	0	0	15	72,227
Total	2	69,086	37	68,654	452	60,604	661	63,514	438	62,087	267	61,337	100	63,324	40	87,875	12	69,274	0	0	2,009	62,869

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2019 TIER 4																						
Attained Age	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	
	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	51	\$ 35,804	70	\$ 37,179	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	121	\$ 36,599
25 to 29	104	40,041	304	45,758	43	48,513	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	44,702
30 to 34	56	42,685	289	50,371	73	58,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	418	50,695
35 to 39	46	50,846	165	50,132	50	53,236	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261	50,853
40 to 44	25	46,251	101	53,919	29	51,624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	52,253
45 to 49	14	36,066	58	50,011	26	53,604	0	0	0	0	0	0	0	0	0	0	0	0	0	0	98	48,972
50 to 54	16	48,338	47	47,776	19	52,147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	48,899
55 to 59	12	61,611	47	51,423	13	56,856	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	54,102
60 to 64	3	44,728	24	49,217	11	57,740	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	51,330
65 to 69	0	0	4	78,754	3	41,841	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	62,934
70 & up	0	0	1	34,720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	34,720
Total	327	42,898	1,110	48,542	267	53,828	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,704	48,287

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2019																
TIER 1																
Attained Age	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	
	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
25 to 29	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
35 to 39	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
45 to 49	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
55 to 59	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
65 to 69	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
Total	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, 2019																
TIER 2 & 3																
Attained Age	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	
	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
25 to 29	0	0	1	72,950	10	64,716	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	42	66,091	30	72,817	1	67,457	0	0	0	0	0	0
35 to 39	0	0	3	73,339	34	68,798	86	74,808	8	71,280	0	0	0	0	0	0
40 to 44	0	0	2	77,995	19	71,151	55	76,133	28	79,769	7	81,360	0	0	0	0
45 to 49	0	0	0	0	9	68,555	32	77,170	32	78,967	32	88,393	2	101,107	0	0
50 to 54	0	0	0	0	5	71,500	6	69,691	17	77,066	26	83,853	14	90,203	8	135,202
55 to 59	0	0	1	79,069	2	75,522	7	86,768	5	81,758	6	75,451	4	88,420	4	89,116
60 to 64	0	0	0	0	1	85,817	0	0	3	67,261	4	67,663	1	63,323	2	75,140
65 to 69	0	0	0	0	1	68,812	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
Total	0	0	7	75,432	123	68,245	216	75,464	94	77,860	75	84,022	21	89,622	14	113,454

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2019																						
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	25	\$ 53,898	16	\$ 56,114	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	41	\$ 54,763
25 to 29	31	52,169	94	58,582	12	65,420	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	57,730
30 to 34	15	54,013	55	60,512	24	63,755	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	60,303
35 to 39	5	55,492	24	63,865	7	60,575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	62,063
40 to 44	1	42,593	6	66,893	5	63,105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	63,290
45 to 49	1	47,640	5	67,048	4	68,324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	65,618
50 to 54	2	65,114	1	122,784	2	74,618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	80,450
55 to 59	2	64,730	4	74,595	1	122,784	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	78,661
60 to 64	0	0	0	0	1	83,695	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	83,695
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	82	53,686	205	60,601	56	65,781	0	0	0	0	0	0	0	0	0	0	0	0	0	0	343	59,794

**Average Increases in Pay
(for upcoming year, based on valuation data)**

Longevity and Promotion Component	2.50%
Wage Inflation Component	<u>3.00%</u>
Total	5.50%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

**AGE DISTRIBUTION OF TOTAL INACTIVE PARTICIPANTS
PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2019**

Age	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	85	\$ 2,378,825	63	\$ 972,686	32	\$ 394,493	180	\$ 3,746,004
55-59	43	998,656	217	5,000,602	21	439,605	281	6,438,863
60-64	62	1,515,542	392	9,909,506	46	623,021	500	12,048,069
65-69	58	1,323,046	602	16,542,273	56	1,130,972	716	18,996,291
70-74	52	1,383,473	586	16,086,528	73	1,172,512	711	18,642,513
75-79	19	418,059	355	9,071,363	86	1,390,184	460	10,879,606
80 & Over	16	307,349	304	5,883,071	144	2,029,295	464	8,219,715
Total	335	\$ 8,324,950	2,519	\$ 63,466,029	458	\$ 7,180,082	3,312	\$ 78,971,061

**AGE DISTRIBUTION OF INACTIVE GENERAL PARTICIPANTS
PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2019**

Age	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	32	\$ 632,281	38	\$ 395,224	18	\$ 160,960	88	\$ 1,188,465
55-59	31	669,298	153	2,437,877	11	168,601	195	3,275,776
60-64	42	962,678	329	7,364,299	32	331,371	403	8,658,348
65-69	42	783,026	528	13,083,326	38	573,113	608	14,439,465
70-74	37	875,864	532	13,532,742	65	1,001,294	634	15,409,900
75-79	13	248,955	318	7,690,821	70	1,067,108	401	9,006,884
80 & Over	8	132,379	290	5,361,447	122	1,608,516	420	7,102,342
Total	205	\$ 4,304,481	2,188	\$ 49,865,736	356	\$ 4,910,963	2,749	\$ 59,081,180

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX A – MEMBERSHIP INFORMATION

AGE DISTRIBUTION OF INACTIVE SAFETY PARTICIPANTS PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2019								
Age	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	53	\$ 1,746,544	25	\$ 577,462	14	\$ 233,533	92	\$ 2,557,539
55-59	12	329,358	64	2,562,725	10	271,004	86	3,163,087
60-64	20	552,864	63	2,545,207	14	291,650	97	3,389,721
65-69	16	540,020	74	3,458,947	18	557,859	108	4,556,826
70-74	15	507,609	54	2,553,786	8	171,218	77	3,232,613
75-79	6	169,104	37	1,380,542	16	323,076	59	1,872,722
80 & Over	8	174,970	14	521,624	22	420,779	44	1,117,373
Total	130	\$ 4,020,469	331	\$ 13,600,293	102	\$ 2,269,119	563	\$ 19,889,881

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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		
2009	2,007	157	\$ 3,418,929	65	\$ 840,949	2,099	\$ 37,485,607	9.47%	\$ 17,859		
2010	2,099	170	\$ 4,343,830	88	\$ 334,218	2,181	\$ 41,495,219	10.70%	\$ 19,026		
2011	2,181	191	\$ 4,602,464	59	\$ 873,415	2,313	\$ 45,224,268	8.99%	\$ 19,552		
2012	2,313	181	\$ 4,736,189	70	\$ 985,645	2,424	\$ 48,974,812	8.29%	\$ 20,204		
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	\$ 5,449,907	54	\$ 53,334	3,312	\$ 78,971,061	7.11%	\$ 23,844		

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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, 2018	4,581	394	649	124	206	2,422	395	970	45	19	9,805
New Entrants	480										480
Rehires	12	(2)				(1)		(9)			-
Duty Disabilities	(5)	(1)			6						-
Ordinary Disabilities	(4)			4							-
Retirements	(101)	(17)	(33)			151					-
Vested Terminations	(65)	65									-
Non-Vested Terminations and Death without beneficiary	(156)		(5)	(1)	(1)	(33)		158			(38)
Death with beneficiary	(3)			(1)	(5)	(20)	29				-
Transfers	(36)	(10)	52					(6)			-
Beneficiary Deaths							(13)		(4)		(17)
Domestic Relations Orders									4	(2)	2
Deferred Domestic Relations Orders										4	4
Withdrawals Paid	(84)	(21)	(1)					(115)		(5)	(226)
Data Corrections				2	1		2	(2)			3
June 30, 2019	4,619	408	662	128	207	2,519	413	996	45	16	10,013

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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, 2018	3,708	340	541	107	93	2,111	319	850	28	10	8,107
New Entrants	386										386
Rehires	10	(2)						(8)			-
Duty Disabilities	(3)	(1)			4						-
Ordinary Disabilities	(3)			3							-
Retirements	(81)	(13)	(28)			122					-
Vested Terminations	(42)	42									-
Non-Vested Terminations and Death without beneficiary	(135)		(4)	(1)		(30)		136			(34)
Death with beneficiary	(3)			(1)	(2)	(15)	21				-
Transfers	(34)	(5)	40					(6)			(5)
Beneficiary Deaths							(12)		(4)		(16)
Domestic Relations Orders									2	(1)	1
Deferred Domestic Relations Orders										3	3
Withdrawals Paid	(77)	(14)						(101)		(3)	(195)
Data Corrections				1	1		2	(2)			2
June 30, 2019	3,726	347	549	109	96	2,188	330	869	26	9	8,249

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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, 2018	873	54	108	17	113	311	76	120	17	9	1,698
New Entrants	94										94
Rehires	2					(1)		(1)			-
Duty Disabilities	(2)				2						-
Ordinary Disabilities	(1)			1							-
Retirements	(20)	(4)	(5)			29					-
Vested Terminations	(23)	23									-
Non-Vested Terminations and Death without beneficiary	(21)		(1)		(1)	(3)		22			(4)
Death with beneficiary					(3)	(5)	8				-
Transfers	(2)	(5)	12								5
Beneficiary Deaths							(1)				(1)
Domestic Relations Orders									2	(1)	1
Deferred Domestic Relations Orders										1	1
Withdrawals Paid	(7)	(7)	(1)					(14)		(2)	(31)
Data Corrections				1		-					1
June 30, 2019	893	61	113	19	111	331	83	127	19	7	1,764

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

The methods and assumptions used in the actuarial valuation as of June 30, 2019 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 FY 2017-2018.

3. Changes in Actuarial Methods

None.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

**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, 2014 through June 30, 2017.

1. Rate of Return

Assets are assumed to earn 7.25% net of investment and administrative expenses.

2. Inflation

The Consumer Price Index (CPI) is assumed to increase at the rate of 3.00% per year.

3. Post Retirement COLA

Benefits are assumed to increase after retirement at the rate of 2.7% per year for Tier 1 and 2% per year for Tiers 2-4.

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 \$124,180 for calendar year 2019 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 7.25%.

6. Family Composition

Percentage married for all active members who retire, become disabled, or die during active service is shown below. Male members are assumed to be three years older than their wives, and female members are assumed to be two years younger than their husbands.

Division	Gender	Percentage
General	Males	85%
General	Female	65%
Safety	Male	90%
Safety	Female	70%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

7. Increases in Pay

Wage inflation component: 3.00% (this assumption is also used to project the compensation limit for PEPRA members)

Additional longevity and promotion component:

Longevity and Promotion Increases		
Service	General	Safety
0	8.00%	8.00%
1	6.50%	6.00%
2	5.50%	5.00%
3	4.00%	4.50%
4	3.00%	4.25%
5	2.00%	4.00%
6	1.75%	3.00%
7	1.50%	2.50%
8	1.00%	2.00%
9	1.00%	1.75%
10	1.00%	1.50%
11	1.00%	1.00%
12	1.00%	0.50%
13	1.00%	0.50%
14	1.00%	0.50%
15	1.00%	0.50%
16	1.00%	0.50%
17	1.00%	0.50%
18	1.00%	0.50%
19	1.00%	0.50%
20	1.00%	0.50%
21	1.00%	0.50%
22	1.00%	0.50%
23	1.00%	0.50%
24	1.00%	0.50%
25+	0.50%	0.50%

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

8. Termination

Age	Rates of Termination					
	General			Safety		
	Years of Service			Years of Service		
	Less than 3	3 to 5	5 or more	Less than 3	3 to 5	5 or more
20	15.00%	12.00%	10.00%	12.00%	7.00%	6.00%
21	15.00%	12.00%	10.00%	12.00%	7.00%	6.00%
22	15.00%	12.00%	10.00%	12.00%	7.00%	6.00%
23	15.00%	12.00%	10.00%	12.00%	7.00%	6.00%
24	15.00%	12.00%	10.00%	12.00%	7.00%	6.00%
25	15.00%	8.00%	8.00%	12.00%	7.00%	6.00%
26	15.00%	8.00%	8.00%	12.00%	7.00%	6.00%
27	15.00%	8.00%	8.00%	12.00%	7.00%	6.00%
28	15.00%	8.00%	8.00%	12.00%	7.00%	6.00%
29	15.00%	8.00%	8.00%	12.00%	7.00%	6.00%
30	15.00%	8.00%	6.00%	12.00%	7.00%	4.50%
31	15.00%	8.00%	6.00%	12.00%	7.00%	4.50%
32	15.00%	8.00%	6.00%	12.00%	7.00%	4.50%
33	15.00%	8.00%	6.00%	12.00%	7.00%	4.50%
34	15.00%	8.00%	6.00%	12.00%	7.00%	4.50%
35	15.00%	8.00%	5.00%	12.00%	7.00%	4.00%
36	15.00%	8.00%	5.00%	12.00%	7.00%	4.00%
37	15.00%	8.00%	5.00%	12.00%	7.00%	4.00%
38	15.00%	8.00%	5.00%	12.00%	7.00%	4.00%
39	15.00%	8.00%	5.00%	12.00%	7.00%	4.00%
40	14.25%	8.00%	5.00%	12.00%	7.00%	4.00%
41	14.25%	8.00%	5.00%	12.00%	7.00%	4.00%
42	14.25%	8.00%	5.00%	12.00%	7.00%	4.00%
43	14.25%	8.00%	5.00%	12.00%	7.00%	4.00%
44	14.25%	8.00%	5.00%	12.00%	7.00%	4.00%
45	13.50%	8.00%	5.00%	10.00%	6.00%	3.50%
46	13.50%	8.00%	5.00%	10.00%	6.00%	3.50%
47	13.50%	8.00%	5.00%	10.00%	6.00%	3.50%
48	13.50%	8.00%	5.00%	10.00%	6.00%	3.50%
49	13.50%	8.00%	5.00%	10.00%	6.00%	3.50%
50	12.75%	5.00%	5.00%	10.00%	6.00%	0.00%
51	12.75%	5.00%	5.00%	10.00%	6.00%	0.00%
52	12.75%	5.00%	5.00%	10.00%	6.00%	0.00%
53	12.75%	5.00%	5.00%	10.00%	6.00%	0.00%
54	12.75%	5.00%	5.00%	10.00%	6.00%	0.00%
55	12.00%	5.00%	5.00%	5.00%	6.00%	0.00%
56	12.00%	5.00%	5.00%	5.00%	6.00%	0.00%
57	12.00%	5.00%	5.00%	5.00%	6.00%	0.00%
58	12.00%	5.00%	5.00%	5.00%	6.00%	0.00%
59	12.00%	5.00%	5.00%	5.00%	6.00%	0.00%
60	11.25%	5.00%	5.00%	0.00%	0.00%	0.00%
61	11.25%	5.00%	5.00%	0.00%	0.00%	0.00%
62	11.25%	5.00%	5.00%	0.00%	0.00%	0.00%
63	11.25%	5.00%	5.00%	0.00%	0.00%	0.00%
64	11.25%	5.00%	5.00%	0.00%	0.00%	0.00%
65 and over	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

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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 53

9. 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%	50%	60%
10-20	85%	65%	60%
20+	85%	65%	100%

10. Reciprocal Transfers

65% of 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 5.00%.

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11. Rates of Disability

Disability rates of active participants are shown below.

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

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12. Rates of Mortality for Healthy Lives

Mortality rates for General actives, retirees, beneficiaries, 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-2016, and increased by 12.1% for males and 8.0% for females to reflect Plan experience.

Mortality rates for Safety actives, retirees, beneficiaries, 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-2016, and increased by 4.5% for males to reflect Plan experience.

13. Rates of Mortality for Retired Disabled Lives

Mortality rates for disabled retirees are based on the sex distinct Retired Pensioner (RP) 2014 Generational Disabled Annuitant Mortality Table, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2016.

14. 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%

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15. Rates of Retirement

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

Age	General Years of Service		Safety Years of Service	
	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%	7.00%	18.00%
56	6.00%	10.00%	7.00%	18.00%
57	6.00%	10.00%	7.00%	18.00%
58	6.00%	10.00%	7.00%	18.00%
59	6.00%	10.00%	7.00%	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%	20.00%	75.00%
66	35.00%	35.00%	20.00%	75.00%
67	35.00%	35.00%	20.00%	75.00%
68	35.00%	35.00%	20.00%	75.00%
69	35.00%	35.00%	20.00%	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%

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16. Changes in Assumptions

None.

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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, 2019. 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)

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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 1-3 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.

	Tier 1	Tier 2-3
2018 Actual	49.89% (General) 68.45% (Safety)	22.02% (General) 28.41% (Safety)
2019 Actual	49.89% (General) 68.45% (Safety)	22.02% (General) 28.41% (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.

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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) $1/60 \times \text{Final Compensation} \times \text{Plan Age Factor} \times \text{Years of Service prior to 7/1/2005}$ (31676.11); plus
(b) $1/50 \times \text{Final Compensation} \times \text{Plan Age Factor} \times \text{Years of Service after 7/1/2005}$ (31676.12)

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

Tier 4 (PEPRA): $2\% \times \text{Final Compensation} \times \text{PEPRA Age Factor} \times \text{Years of Service}$

Safety Plan members:

Tiers 1-3: $2\% \times \text{Final Compensation} \times \text{Plan Age Factor} \times \text{Years of Service (31664)}$

Tier 4 (PEPRA): $2\% \times \text{Final Compensation} \times \text{PEPRA Age Factor} \times \text{Years of Service}$

Code Section: Label: Base: Age	Age Factors By Plan General				Safety	
	31676.11	31676.1	31676.12	PEPRA	31664	PEPRA
	1.67% @ 55	1.67% @ 57.5	2% @ 57	2% @ 62	2% @ 50	2% @ 50
	1.67%	1.67%	2.00%	2.00%	2.00%	2.00%
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

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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. (31789.5)

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

Members with less than 20 years of service are eligible for benefits in accordance to the schedule on the following page:

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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 a beneficiary having an insurable interest in the life of the member.

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)

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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. (31789.5)

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. (31789.5)

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)

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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) $50\% \times \text{Final Compensation}$. (31787)

A lump sum is payable to an eligible survivor equal to $\frac{1}{12} \times \text{final 12 months' Salary} \times \text{years of service}$ (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 $60\% \times \text{the member's non-service connected disability allowance}$. 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

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

on changes in the average annual Consumer Price Index (CPI), rounded to the nearest ½ of 1%. (31870, 31870.1)

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.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Assumptions Used for Optional Forms:

Our understanding is that the following assumptions are used to calculate the reduced monthly retirement allowances for Options 1-4 described above.

General

Mortality: RP-2000 Healthy Annuitant Mortality Table with adjustment for white-collar workers (healthy), RP-2000 Disabled Annuitant Mortality Table (disabled)

Gender Blend: 1/3 male, 2/3 female

Discount Rate: 7.25% per annum

Post-Retirement COLA: 3% per annum (Tier 1), 2% per annum (Tiers 2-3)

Safety

Mortality: RP-2000 Healthy Annuitant Mortality Table with adjustment for blue-collar workers (healthy), RP-2000 Disabled Annuitant Mortality Table with 2-year setback (disabled)

Gender Blend: 5/6 male, 1/6 female

Discount Rate: 7.25% per annum

Post-Retirement COLA: 3% per annum (Tier 1), 2% per annum (Tiers 2-3)

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.

APPENDIX D – GLOSSARY

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.

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.

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APPENDIX E – MEMBER CONTRIBUTION RATES

The table below shows the applicable Code Section for Tier 1-3 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 1	31621.5	1/200 of Final Average Salary (FAS) at age 60	1 year
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 1	31639.5	1/200 of Final Average Salary (FAS) at age 50	1 year
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 1-3, the following COLA loads were applied to the Basic rates. Starting in 2015, based on discussion with TCERA staff, we developed separate loads for General and Safety.

	Tier 1	Tier 2-3
2018 Actual	49.89% (General) 68.45% (Safety)	22.02% (General) 28.41% (Safety)
2019 Actual	49.89% (General) 68.45% (Safety)	22.02% (General) 28.41% (Safety)

For PEPRAs, the cost of COLAs is included in the normal cost, of which they contribute half.

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APPENDIX E – MEMBER CONTRIBUTION RATES

2019 Member Contribution Rates (for fiscal year ending 2021)

Entry Age	General Tier 1		General Tiers 2 and 3		Safety Tier 1		Safety Tiers 2 and 3		Tier 4 Members	
	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	2.47%	3.71%	3.89%	5.84%	4.06%	6.09%	5.99%	8.98%	4.10%	8.96%
17	2.53%	3.80%	3.99%	5.98%	4.06%	6.09%	5.99%	8.98%	4.10%	8.96%
18	2.59%	3.89%	4.08%	6.12%	4.06%	6.09%	5.99%	8.98%	4.10%	8.96%
19	2.65%	3.98%	4.17%	6.26%	4.06%	6.09%	5.99%	8.98%	4.10%	8.96%
20	2.71%	4.07%	4.27%	6.40%	4.06%	6.09%	5.99%	8.98%	4.10%	8.96%
21	2.77%	4.16%	4.37%	6.55%	4.15%	6.23%	6.12%	9.18%	4.31%	9.31%
22	2.84%	4.26%	4.47%	6.70%	4.25%	6.37%	6.26%	9.39%	4.53%	9.66%
23	2.91%	4.36%	4.57%	6.86%	4.34%	6.51%	6.40%	9.60%	4.73%	10.02%
24	2.97%	4.46%	4.67%	7.01%	4.44%	6.66%	6.55%	9.82%	4.94%	10.39%
25	3.04%	4.56%	4.79%	7.18%	4.54%	6.81%	6.69%	10.04%	5.16%	10.76%
26	3.11%	4.66%	4.89%	7.34%	4.65%	6.97%	6.85%	10.27%	5.37%	11.12%
27	3.18%	4.77%	5.01%	7.51%	4.75%	7.13%	7.00%	10.50%	5.58%	11.49%
28	3.25%	4.88%	5.12%	7.68%	4.86%	7.29%	7.16%	10.74%	5.79%	11.86%
29	3.33%	4.99%	5.24%	7.86%	4.97%	7.46%	7.33%	10.99%	6.01%	12.22%
30	3.41%	5.11%	5.36%	8.04%	5.09%	7.63%	7.50%	11.25%	6.23%	12.57%
31	3.48%	5.22%	5.48%	8.22%	5.21%	7.81%	7.67%	11.51%	6.44%	12.97%
32	3.57%	5.35%	5.61%	8.41%	5.33%	8.00%	7.86%	11.79%	6.65%	13.36%
33	3.65%	5.47%	5.73%	8.59%	5.46%	8.19%	8.05%	12.07%	6.87%	13.75%
34	3.73%	5.60%	5.84%	8.76%	5.60%	8.40%	8.25%	12.37%	7.10%	14.15%
35	3.80%	5.70%	5.95%	8.93%	5.74%	8.61%	8.46%	12.69%	7.33%	14.57%
36	3.87%	5.80%	6.06%	9.09%	5.89%	8.84%	8.67%	13.00%	7.57%	14.93%
37	3.94%	5.91%	6.17%	9.26%	6.05%	9.08%	8.86%	13.29%	7.82%	15.28%
38	4.01%	6.02%	6.29%	9.43%	6.19%	9.29%	9.03%	13.55%	8.08%	15.63%
39	4.09%	6.13%	6.40%	9.60%	6.32%	9.48%	9.19%	13.79%	8.34%	16.01%
40	4.16%	6.24%	6.52%	9.78%	6.43%	9.65%	9.34%	14.01%	8.60%	16.41%
41	4.24%	6.36%	6.64%	9.96%	6.55%	9.83%	9.46%	14.19%	8.86%	16.79%
42	4.32%	6.48%	6.77%	10.15%	6.65%	9.97%	9.55%	14.32%	9.12%	17.20%
43	4.40%	6.60%	6.89%	10.34%	6.73%	10.09%	9.59%	14.39%	9.41%	17.65%
44	4.49%	6.73%	7.03%	10.54%	6.75%	10.13%	9.61%	14.42%	9.71%	18.11%
45	4.57%	6.86%	7.16%	10.74%	6.78%	10.17%	9.61%	14.42%	10.00%	18.58%
46	4.66%	6.99%	7.30%	10.95%	6.79%	10.19%	9.58%	14.37%	10.36%	18.95%
47	4.75%	7.13%	7.44%	11.16%	6.79%	10.19%	9.48%	14.22%	10.72%	19.32%
48	4.85%	7.27%	7.59%	11.39%	6.76%	10.14%	9.80%	14.70%	11.02%	19.68%
49	4.95%	7.43%	7.75%	11.63%	6.65%	9.97%	10.13%	15.20%	11.31%	20.05%
50	5.06%	7.59%	7.91%	11.87%	6.65%	9.97%	10.13%	15.20%	11.60%	20.05%
51	5.17%	7.76%	8.07%	12.10%	6.65%	9.97%	10.13%	15.20%	11.89%	20.05%
52	5.28%	7.92%	8.21%	12.31%	6.65%	9.97%	10.13%	15.20%	12.16%	20.05%
53	5.38%	8.07%	8.33%	12.49%	6.65%	9.97%	10.13%	15.20%	12.44%	20.05%
54	5.49%	8.23%	8.41%	12.62%	6.65%	9.97%	10.13%	15.20%	12.69%	20.05%
55	5.56%	8.34%	8.43%	12.65%	6.65%	9.97%	10.13%	15.20%	12.90%	20.05%
56	5.60%	8.40%	8.40%	12.60%	6.65%	9.97%	10.13%	15.20%	13.12%	20.05%
57	5.59%	8.38%	8.29%	12.44%	6.65%	9.97%	10.13%	15.20%	13.31%	20.05%
58	5.54%	8.31%	8.57%	12.86%	6.65%	9.97%	10.13%	15.20%	13.47%	20.05%
59	5.45%	8.17%	8.87%	13.31%	6.65%	9.97%	10.13%	15.20%	13.56%	20.05%
Assumptions:										
Interest:	7.25%		7.25%		7.25%		7.25%		7.25%	
Salary:	3.00%		3.00%		3.00%		3.00%		3.00%	
COLA:	2.70%		2.00%		2.70%		2.00%		2.00%	
Mortality:	For General: Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2016, in 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 Pro increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female									

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX E – MEMBER CONTRIBUTION RATES

The tables on the next six pages show the 2019 member contribution rates split into the Basic and COLA components, by tier.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX E – MEMBER CONTRIBUTION RATES

Entry Age	General Tier 1					
	Basic Rate		COLA Rate		Total Rate	
	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54
16	1.65%	2.48%	0.82%	1.23%	2.47%	3.71%
17	1.69%	2.54%	0.84%	1.26%	2.53%	3.80%
18	1.73%	2.60%	0.86%	1.29%	2.59%	3.89%
19	1.77%	2.66%	0.88%	1.32%	2.65%	3.98%
20	1.81%	2.72%	0.90%	1.35%	2.71%	4.07%
21	1.85%	2.78%	0.92%	1.38%	2.77%	4.16%
22	1.89%	2.84%	0.95%	1.42%	2.84%	4.26%
23	1.94%	2.91%	0.97%	1.45%	2.91%	4.36%
24	1.98%	2.98%	0.99%	1.48%	2.97%	4.46%
25	2.03%	3.04%	1.01%	1.52%	3.04%	4.56%
26	2.07%	3.11%	1.03%	1.55%	3.11%	4.66%
27	2.12%	3.18%	1.06%	1.59%	3.18%	4.77%
28	2.17%	3.26%	1.08%	1.62%	3.25%	4.88%
29	2.22%	3.33%	1.11%	1.66%	3.33%	4.99%
30	2.27%	3.41%	1.13%	1.70%	3.41%	5.11%
31	2.32%	3.48%	1.16%	1.74%	3.48%	5.22%
32	2.38%	3.57%	1.19%	1.78%	3.57%	5.35%
33	2.43%	3.65%	1.21%	1.82%	3.65%	5.47%
34	2.49%	3.74%	1.24%	1.86%	3.73%	5.60%
35	2.54%	3.80%	1.26%	1.90%	3.80%	5.70%
36	2.58%	3.87%	1.29%	1.93%	3.87%	5.80%
37	2.63%	3.94%	1.31%	1.97%	3.94%	5.91%
38	2.68%	4.02%	1.34%	2.00%	4.01%	6.02%
39	2.73%	4.09%	1.36%	2.04%	4.09%	6.13%
40	2.78%	4.16%	1.38%	2.08%	4.16%	6.24%
41	2.83%	4.24%	1.41%	2.12%	4.24%	6.36%
42	2.88%	4.32%	1.44%	2.16%	4.32%	6.48%
43	2.94%	4.40%	1.46%	2.20%	4.40%	6.60%
44	2.99%	4.49%	1.49%	2.24%	4.49%	6.73%
45	3.05%	4.58%	1.52%	2.28%	4.57%	6.86%
46	3.11%	4.66%	1.55%	2.33%	4.66%	6.99%
47	3.17%	4.76%	1.58%	2.37%	4.75%	7.13%
48	3.23%	4.85%	1.61%	2.42%	4.85%	7.27%
49	3.30%	4.96%	1.65%	2.47%	4.95%	7.43%
50	3.38%	5.06%	1.68%	2.53%	5.06%	7.59%
51	3.45%	5.18%	1.72%	2.58%	5.17%	7.76%
52	3.52%	5.28%	1.76%	2.64%	5.28%	7.92%
53	3.59%	5.38%	1.79%	2.69%	5.38%	8.07%
54	3.66%	5.49%	1.83%	2.74%	5.49%	8.23%
55	3.71%	5.56%	1.85%	2.78%	5.56%	8.34%
56	3.74%	5.60%	1.86%	2.80%	5.60%	8.40%
57	3.73%	5.59%	1.86%	2.79%	5.59%	8.38%
58	3.70%	5.54%	1.84%	2.77%	5.54%	8.31%
59	3.63%	5.45%	1.81%	2.72%	5.45%	8.17%
Assumptions:						
Interest:	7.25%					
Salary:	3.00%					
COLA:	2.70%					
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2016, increased by 12.1% for males and 8.0% for females to reflect Plan experience, and blended 30% male and 70% female					

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX E – MEMBER CONTRIBUTION RATES

General Tiers 2 and 3						
Entry Age	Basic Rate		COLA Rate		Total Rate	
	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54
16	3.19%	4.79%	0.70%	1.05%	3.89%	5.84%
17	3.27%	4.90%	0.72%	1.08%	3.99%	5.98%
18	3.34%	5.02%	0.74%	1.10%	4.08%	6.12%
19	3.42%	5.13%	0.75%	1.13%	4.17%	6.26%
20	3.50%	5.25%	0.77%	1.15%	4.27%	6.40%
21	3.58%	5.37%	0.79%	1.18%	4.37%	6.55%
22	3.66%	5.49%	0.81%	1.21%	4.47%	6.70%
23	3.75%	5.62%	0.83%	1.24%	4.57%	6.86%
24	3.83%	5.75%	0.84%	1.26%	4.67%	7.01%
25	3.92%	5.88%	0.86%	1.30%	4.79%	7.18%
26	4.01%	6.02%	0.88%	1.32%	4.89%	7.34%
27	4.10%	6.15%	0.90%	1.36%	5.01%	7.51%
28	4.20%	6.29%	0.92%	1.39%	5.12%	7.68%
29	4.29%	6.44%	0.95%	1.42%	5.24%	7.86%
30	4.39%	6.59%	0.97%	1.45%	5.36%	8.04%
31	4.49%	6.74%	0.99%	1.48%	5.48%	8.22%
32	4.59%	6.89%	1.01%	1.52%	5.61%	8.41%
33	4.69%	7.04%	1.03%	1.55%	5.73%	8.59%
34	4.79%	7.18%	1.05%	1.58%	5.84%	8.76%
35	4.88%	7.32%	1.07%	1.61%	5.95%	8.93%
36	4.97%	7.45%	1.09%	1.64%	6.06%	9.09%
37	5.06%	7.59%	1.11%	1.67%	6.17%	9.26%
38	5.15%	7.73%	1.13%	1.70%	6.29%	9.43%
39	5.25%	7.87%	1.15%	1.73%	6.40%	9.60%
40	5.34%	8.02%	1.18%	1.76%	6.52%	9.78%
41	5.44%	8.16%	1.20%	1.80%	6.64%	9.96%
42	5.55%	8.32%	1.22%	1.83%	6.77%	10.15%
43	5.65%	8.47%	1.24%	1.87%	6.89%	10.34%
44	5.76%	8.64%	1.27%	1.90%	7.03%	10.54%
45	5.87%	8.80%	1.29%	1.94%	7.16%	10.74%
46	5.98%	8.97%	1.32%	1.98%	7.30%	10.95%
47	6.10%	9.15%	1.34%	2.01%	7.44%	11.16%
48	6.22%	9.33%	1.37%	2.06%	7.59%	11.39%
49	6.35%	9.53%	1.40%	2.10%	7.75%	11.63%
50	6.49%	9.73%	1.43%	2.14%	7.91%	11.87%
51	6.61%	9.92%	1.46%	2.18%	8.07%	12.10%
52	6.73%	10.09%	1.48%	2.22%	8.21%	12.31%
53	6.82%	10.24%	1.50%	2.25%	8.33%	12.49%
54	6.90%	10.34%	1.52%	2.28%	8.41%	12.62%
55	6.91%	10.37%	1.52%	2.28%	8.43%	12.65%
56	6.88%	10.33%	1.52%	2.27%	8.40%	12.60%
57	6.80%	10.20%	1.50%	2.24%	8.29%	12.44%
58	7.03%	10.54%	1.55%	2.32%	8.57%	12.86%
59	7.27%	10.91%	1.60%	2.40%	8.87%	13.31%
Assumptions:						
Interest:	7.25%					
Salary:	3.00%					
COLA:	2.00%					
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2016, increased by 12.1% for males and 8.0% for females to reflect Plan experience, and blended 30% male and 70% female					

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX E – MEMBER CONTRIBUTION RATES

General Tier 4			
Entry Age	Basic Rate	COLA Rate	Total Rate
16	3.44%	0.66%	4.10%
17	3.44%	0.66%	4.10%
18	3.44%	0.66%	4.10%
19	3.44%	0.66%	4.10%
20	3.44%	0.66%	4.10%
21	3.61%	0.70%	4.31%
22	3.78%	0.75%	4.53%
23	3.95%	0.78%	4.73%
24	4.13%	0.81%	4.94%
25	4.31%	0.85%	5.16%
26	4.48%	0.89%	5.37%
27	4.66%	0.92%	5.58%
28	4.84%	0.95%	5.79%
29	5.02%	0.99%	6.01%
30	5.20%	1.03%	6.23%
31	5.38%	1.06%	6.44%
32	5.56%	1.09%	6.65%
33	5.75%	1.12%	6.87%
34	5.94%	1.16%	7.10%
35	6.13%	1.20%	7.33%
36	6.34%	1.23%	7.57%
37	6.55%	1.27%	7.82%
38	6.77%	1.31%	8.08%
39	6.99%	1.35%	8.34%
40	7.20%	1.40%	8.60%
41	7.42%	1.44%	8.86%
42	7.64%	1.48%	9.12%
43	7.89%	1.52%	9.41%
44	8.13%	1.58%	9.71%
45	8.37%	1.63%	10.00%
46	8.67%	1.69%	10.36%
47	8.96%	1.76%	10.72%
48	9.23%	1.79%	11.02%
49	9.48%	1.83%	11.31%
50	9.73%	1.87%	11.60%
51	9.99%	1.90%	11.89%
52	10.24%	1.92%	12.16%
53	10.48%	1.96%	12.44%
54	10.71%	1.98%	12.69%
55	10.90%	2.00%	12.90%
56	11.12%	2.00%	13.12%
57	11.30%	2.01%	13.31%
58	11.46%	2.01%	13.47%
59	11.56%	2.00%	13.56%
Assumptions:			
Interest:	7.25%		
Salary:	3.00%		
COLA:	2.00%		
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2016, increased by 12.1% for males and 8.0% for females to reflect Plan experience, and blended 30% male and 70% female		

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX E – MEMBER CONTRIBUTION RATES

Entry Age	Safety Tier 1					
	Basic Rate		COLA Rate		Total Rate	
	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54
16	2.41%	3.62%	1.65%	2.47%	4.06%	6.09%
17	2.41%	3.62%	1.65%	2.47%	4.06%	6.09%
18	2.41%	3.62%	1.65%	2.47%	4.06%	6.09%
19	2.41%	3.62%	1.65%	2.47%	4.06%	6.09%
20	2.41%	3.62%	1.65%	2.47%	4.06%	6.09%
21	2.47%	3.70%	1.69%	2.53%	4.15%	6.23%
22	2.52%	3.78%	1.73%	2.59%	4.25%	6.37%
23	2.58%	3.86%	1.76%	2.65%	4.34%	6.51%
24	2.64%	3.95%	1.80%	2.71%	4.44%	6.66%
25	2.70%	4.04%	1.84%	2.77%	4.54%	6.81%
26	2.76%	4.14%	1.89%	2.83%	4.65%	6.97%
27	2.82%	4.23%	1.93%	2.90%	4.75%	7.13%
28	2.89%	4.33%	1.97%	2.96%	4.86%	7.29%
29	2.95%	4.43%	2.02%	3.03%	4.97%	7.46%
30	3.02%	4.53%	2.07%	3.10%	5.09%	7.63%
31	3.09%	4.64%	2.12%	3.17%	5.21%	7.81%
32	3.17%	4.75%	2.17%	3.25%	5.33%	8.00%
33	3.24%	4.86%	2.22%	3.33%	5.46%	8.19%
34	3.32%	4.99%	2.28%	3.41%	5.60%	8.40%
35	3.41%	5.11%	2.33%	3.50%	5.74%	8.61%
36	3.50%	5.25%	2.39%	3.59%	5.89%	8.84%
37	3.59%	5.39%	2.46%	3.69%	6.05%	9.08%
38	3.68%	5.52%	2.52%	3.77%	6.19%	9.29%
39	3.75%	5.63%	2.57%	3.85%	6.32%	9.48%
40	3.82%	5.73%	2.61%	3.92%	6.43%	9.65%
41	3.89%	5.84%	2.66%	3.99%	6.55%	9.83%
42	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
43	3.99%	5.99%	2.73%	4.10%	6.73%	10.09%
44	4.01%	6.01%	2.74%	4.12%	6.75%	10.13%
45	4.02%	6.04%	2.76%	4.13%	6.78%	10.17%
46	4.03%	6.05%	2.76%	4.14%	6.79%	10.19%
47	4.03%	6.05%	2.76%	4.14%	6.79%	10.19%
48	4.01%	6.02%	2.75%	4.12%	6.76%	10.14%
49	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
50	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
51	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
52	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
53	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
54	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
55	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
56	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
57	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
58	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
59	3.95%	5.92%	2.70%	4.05%	6.65%	9.97%
Assumptions:						
Interest:	7.25%					
Salary:	3.00%					
COLA:	2.70%					
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, with 20-year Generational improvement using Projection Scale MP-2016, increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female					

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX E – MEMBER CONTRIBUTION RATES

Safety Tiers 2 and 3						
Entry Age	Basic Rate		COLA Rate		Total Rate	
	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54	First \$161.54	Over \$161.54
16	4.66%	6.99%	1.32%	1.99%	5.99%	8.98%
17	4.66%	6.99%	1.32%	1.99%	5.99%	8.98%
18	4.66%	6.99%	1.32%	1.99%	5.99%	8.98%
19	4.66%	6.99%	1.32%	1.99%	5.99%	8.98%
20	4.66%	6.99%	1.32%	1.99%	5.99%	8.98%
21	4.77%	7.15%	1.35%	2.03%	6.12%	9.18%
22	4.88%	7.31%	1.38%	2.08%	6.26%	9.39%
23	4.98%	7.48%	1.42%	2.12%	6.40%	9.60%
24	5.10%	7.65%	1.45%	2.17%	6.55%	9.82%
25	5.21%	7.82%	1.48%	2.22%	6.69%	10.04%
26	5.33%	8.00%	1.51%	2.27%	6.85%	10.27%
27	5.45%	8.18%	1.55%	2.32%	7.00%	10.50%
28	5.58%	8.36%	1.58%	2.38%	7.16%	10.74%
29	5.71%	8.56%	1.62%	2.43%	7.33%	10.99%
30	5.84%	8.76%	1.66%	2.49%	7.50%	11.25%
31	5.98%	8.96%	1.70%	2.55%	7.67%	11.51%
32	6.12%	9.18%	1.74%	2.61%	7.86%	11.79%
33	6.27%	9.40%	1.78%	2.67%	8.05%	12.07%
34	6.42%	9.63%	1.82%	2.74%	8.25%	12.37%
35	6.59%	9.88%	1.87%	2.81%	8.46%	12.69%
36	6.75%	10.12%	1.92%	2.88%	8.67%	13.00%
37	6.90%	10.35%	1.96%	2.94%	8.86%	13.29%
38	7.03%	10.55%	2.00%	3.00%	9.03%	13.55%
39	7.16%	10.74%	2.03%	3.05%	9.19%	13.79%
40	7.27%	10.91%	2.07%	3.10%	9.34%	14.01%
41	7.37%	11.05%	2.09%	3.14%	9.46%	14.19%
42	7.43%	11.15%	2.11%	3.17%	9.55%	14.32%
43	7.47%	11.21%	2.12%	3.18%	9.59%	14.39%
44	7.49%	11.23%	2.13%	3.19%	9.61%	14.42%
45	7.49%	11.23%	2.13%	3.19%	9.61%	14.42%
46	7.46%	11.19%	2.12%	3.18%	9.58%	14.37%
47	7.38%	11.07%	2.10%	3.15%	9.48%	14.22%
48	7.63%	11.45%	2.17%	3.25%	9.80%	14.70%
49	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
50	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
51	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
52	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
53	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
54	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
55	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
56	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
57	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
58	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
59	7.89%	11.84%	2.24%	3.36%	10.13%	15.20%
Assumptions:						
Interest:	7.25%					
Salary:	3.00%					
COLA:	2.00%					
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, with 20-year Generational improvement using Projection Scale MP-2016, increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female					

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX E – MEMBER CONTRIBUTION RATES

Safety Tier 4			
Entry Age	Basic Rate	COLA Rate	Total Rate
16	7.29%	1.67%	8.96%
17	7.29%	1.67%	8.96%
18	7.29%	1.67%	8.96%
19	7.29%	1.67%	8.96%
20	7.29%	1.67%	8.96%
21	7.58%	1.73%	9.31%
22	7.86%	1.80%	9.66%
23	8.15%	1.87%	10.02%
24	8.45%	1.94%	10.39%
25	8.76%	2.00%	10.76%
26	9.05%	2.07%	11.12%
27	9.35%	2.14%	11.49%
28	9.65%	2.21%	11.86%
29	9.95%	2.27%	12.22%
30	10.25%	2.32%	12.57%
31	10.57%	2.40%	12.97%
32	10.89%	2.47%	13.36%
33	11.20%	2.55%	13.75%
34	11.53%	2.62%	14.15%
35	11.87%	2.70%	14.57%
36	12.17%	2.76%	14.93%
37	12.46%	2.82%	15.28%
38	12.76%	2.87%	15.63%
39	13.07%	2.94%	16.01%
40	13.41%	3.00%	16.41%
41	13.72%	3.07%	16.79%
42	14.06%	3.14%	17.20%
43	14.44%	3.21%	17.65%
44	14.83%	3.28%	18.11%
45	15.22%	3.36%	18.58%
46	15.55%	3.40%	18.95%
47	15.89%	3.43%	19.32%
48	16.22%	3.46%	19.68%
49	16.55%	3.50%	20.05%
50	16.55%	3.50%	20.05%
51	16.55%	3.50%	20.05%
52	16.55%	3.50%	20.05%
53	16.55%	3.50%	20.05%
54	16.55%	3.50%	20.05%
55	16.55%	3.50%	20.05%
56	16.55%	3.50%	20.05%
57	16.55%	3.50%	20.05%
58	16.55%	3.50%	20.05%
59	16.55%	3.50%	20.05%
Assumptions:			
Interest:	7.25%		
Salary:	3.00%		
COLA:	2.00%		
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, with 20-year Generational improvement using Projection Scale MP-2016, increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female		

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

APPENDIX E – MEMBER CONTRIBUTION RATES

2018 Member Contribution Rates (for fiscal year ending 2020)

Entry Age	General Tier 1		General Tiers 2 and 3		Safety Tier 1		Safety Tiers 2 and 3		Tier 4 Members	
	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	2.47%	3.71%	3.89%	5.84%	4.06%	6.09%	5.99%	8.98%	4.11%	8.92%
17	2.53%	3.80%	3.99%	5.98%	4.06%	6.09%	5.99%	8.98%	4.11%	8.92%
18	2.59%	3.89%	4.08%	6.12%	4.06%	6.09%	5.99%	8.98%	4.11%	8.92%
19	2.65%	3.98%	4.17%	6.26%	4.06%	6.09%	5.99%	8.98%	4.11%	8.92%
20	2.71%	4.07%	4.27%	6.40%	4.06%	6.09%	5.99%	8.98%	4.11%	8.92%
21	2.77%	4.16%	4.37%	6.55%	4.15%	6.23%	6.12%	9.18%	4.32%	9.27%
22	2.84%	4.26%	4.47%	6.70%	4.25%	6.37%	6.26%	9.39%	4.53%	9.62%
23	2.91%	4.36%	4.57%	6.86%	4.34%	6.51%	6.40%	9.60%	4.74%	9.97%
24	2.97%	4.46%	4.67%	7.01%	4.44%	6.66%	6.55%	9.82%	4.95%	10.34%
25	3.04%	4.56%	4.79%	7.18%	4.54%	6.81%	6.69%	10.04%	5.17%	10.71%
26	3.11%	4.66%	4.89%	7.34%	4.65%	6.97%	6.85%	10.27%	5.37%	11.07%
27	3.18%	4.77%	5.01%	7.51%	4.75%	7.13%	7.00%	10.50%	5.58%	11.43%
28	3.25%	4.88%	5.12%	7.68%	4.86%	7.29%	7.16%	10.74%	5.80%	11.80%
29	3.33%	4.99%	5.24%	7.86%	4.97%	7.46%	7.33%	10.99%	6.01%	12.15%
30	3.41%	5.11%	5.36%	8.04%	5.09%	7.63%	7.50%	11.25%	6.23%	12.51%
31	3.48%	5.22%	5.48%	8.22%	5.21%	7.81%	7.67%	11.51%	6.44%	12.90%
32	3.57%	5.35%	5.61%	8.41%	5.33%	8.00%	7.86%	11.79%	6.66%	13.29%
33	3.65%	5.47%	5.73%	8.59%	5.46%	8.19%	8.05%	12.07%	6.88%	13.68%
34	3.73%	5.60%	5.84%	8.76%	5.60%	8.40%	8.25%	12.37%	7.11%	14.08%
35	3.80%	5.70%	5.95%	8.93%	5.74%	8.61%	8.46%	12.69%	7.34%	14.50%
36	3.87%	5.80%	6.06%	9.09%	5.89%	8.84%	8.67%	13.00%	7.58%	14.85%
37	3.94%	5.91%	6.17%	9.26%	6.05%	9.08%	8.86%	13.29%	7.83%	15.20%
38	4.01%	6.02%	6.29%	9.43%	6.19%	9.29%	9.03%	13.55%	8.09%	15.55%
39	4.09%	6.13%	6.40%	9.60%	6.32%	9.48%	9.19%	13.79%	8.35%	15.93%
40	4.16%	6.24%	6.52%	9.78%	6.43%	9.65%	9.34%	14.01%	8.61%	16.33%
41	4.24%	6.36%	6.64%	9.96%	6.55%	9.83%	9.46%	14.19%	8.87%	16.71%
42	4.32%	6.48%	6.77%	10.15%	6.65%	9.97%	9.55%	14.32%	9.13%	17.11%
43	4.40%	6.60%	6.89%	10.34%	6.73%	10.09%	9.59%	14.39%	9.42%	17.56%
44	4.49%	6.73%	7.03%	10.54%	6.75%	10.13%	9.61%	14.42%	9.71%	18.02%
45	4.57%	6.86%	7.16%	10.74%	6.78%	10.17%	9.61%	14.42%	10.01%	18.49%
46	4.66%	6.99%	7.30%	10.95%	6.79%	10.19%	9.58%	14.37%	10.37%	18.86%
47	4.75%	7.13%	7.44%	11.16%	6.79%	10.19%	9.48%	14.22%	10.73%	19.22%
48	4.85%	7.27%	7.59%	11.39%	6.76%	10.14%	9.80%	14.70%	11.03%	19.58%
49	4.95%	7.43%	7.75%	11.63%	6.65%	9.97%	10.13%	15.20%	11.33%	19.95%
50	5.06%	7.59%	7.91%	11.87%	6.65%	9.97%	10.13%	15.20%	11.61%	19.95%
51	5.17%	7.76%	8.07%	12.10%	6.65%	9.97%	10.13%	15.20%	11.90%	19.95%
52	5.28%	7.92%	8.21%	12.31%	6.65%	9.97%	10.13%	15.20%	12.17%	19.95%
53	5.38%	8.07%	8.33%	12.49%	6.65%	9.97%	10.13%	15.20%	12.45%	19.95%
54	5.49%	8.23%	8.41%	12.62%	6.65%	9.97%	10.13%	15.20%	12.70%	19.95%
55	5.56%	8.34%	8.43%	12.65%	6.65%	9.97%	10.13%	15.20%	12.91%	19.95%
56	5.60%	8.40%	8.40%	12.60%	6.65%	9.97%	10.13%	15.20%	13.14%	19.95%
57	5.59%	8.38%	8.29%	12.44%	6.65%	9.97%	10.13%	15.20%	13.32%	19.95%
58	5.54%	8.31%	8.57%	12.86%	6.65%	9.97%	10.13%	15.20%	13.48%	19.95%
59	5.45%	8.17%	8.87%	13.31%	6.65%	9.97%	10.13%	15.20%	13.57%	19.95%
Assumptions:										
Interest:	7.25%		7.25%		7.25%		7.25%		7.25%	
Salary:	3.00%		3.00%		3.00%		3.00%		3.00%	
COLA:	2.70%		2.00%		2.70%		2.00%		2.00%	
Mortality:	For General: Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2016, in 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 Pro increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female									

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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, 2019 actuarial valuation.

General - Male

Demographic Assumption Rates - Age					
Age	Service Retirement		Mortality of Active Members Rate		Withdrawal (Termination)
	Rate*		Ordinary	Service	Rate**
25	0.000		0.000493	0.000000	0.0800
30	0.000		0.000489	0.000000	0.0800
35	0.000		0.000586	0.000000	0.0800
40	0.000		0.000692	0.000000	0.0800
45	0.000		0.001026	0.000000	0.0800
50	0.050		0.001752	0.000000	0.0500
55	0.060		0.002975	0.000000	0.0500
60	0.150		0.005173	0.000000	0.0500
65	0.350		0.009158	0.000000	0.0000
70	0.350		0.014948	0.000000	0.0000

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

***The Withdrawal Rates above assume at least 3 but less than 5 years of service.*

General - Female

Demographic Assumption Rates - Age					
Age	Service Retirement		Mortality of Active Members Rate		Withdrawal (Termination)
	Rate*		Ordinary	Service	Rate**
25	0.000		0.000177	0.000000	0.0800
30	0.000		0.000233	0.000000	0.0800
35	0.000		0.000312	0.000000	0.0800
40	0.000		0.000427	0.000000	0.0800
45	0.000		0.000683	0.000000	0.0800
50	0.050		0.001134	0.000000	0.0500
55	0.060		0.001776	0.000000	0.0500
60	0.150		0.002635	0.000000	0.0500
65	0.350		0.003881	0.000000	0.0000
70	0.350		0.006441	0.000000	0.0000

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

***The Withdrawal Rates above assume at least 3 but less than 5 years of service.*

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

Safety - Male

Demographic Assumption Rates - Age					
Age	Service Retirement		Mortality of Active Members Rate		Withdrawal (Termination)
	Rate*		Ordinary	Service	Rate**
25	0.000		0.000345	0.000250	0.0700
30	0.000		0.000342	0.000247	0.0700
35	0.000		0.000354	0.000354	0.0700
40	0.000		0.000418	0.000418	0.0700
45	0.070		0.000594	0.000644	0.0600
50	0.070		0.000888	0.001226	0.0600
55	0.070		0.001436	0.002153	0.0600
60	0.200		0.002309	0.003932	0.0000
65	0.200		0.004087	0.006960	0.0000
70	1.000		0.006431	0.010950	0.0000

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

**The Withdrawal Rates above assume at least 3 but less than 5 years of service.

Safety - Female

Demographic Assumption Rates - Age					
Age	Service Retirement		Mortality of Active Members Rate		Withdrawal (Termination)
	Rate*		Ordinary	Service	Rate**
25	0.000		0.000107	0.000077	0.0700
30	0.000		0.000140	0.000102	0.0700
35	0.000		0.000163	0.000163	0.0700
40	0.000		0.000222	0.000222	0.0700
45	0.070		0.000340	0.000369	0.0600
50	0.070		0.000494	0.000683	0.0600
55	0.070		0.000738	0.001106	0.0600
60	0.200		0.001013	0.001724	0.0000
65	0.200		0.001491	0.002539	0.0000
70	1.000		0.002440	0.004154	0.0000

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

**The Withdrawal Rates above assume at least 3 but less than 5 years of service.

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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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	0.050
10	0.150	0.050
15	0.150	0.050
20	0.150	0.050
25	0.150	0.050
30	0.200	0.050
35	0.200	0.050
40	0.200	0.050
45	0.200	0.050
50	0.200	0.050

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

***The Withdrawal Rates above apply to a member at age 40.*

General - Female

Demographic Assumption Rates - Years of Service*		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate**
5	0.150	0.050
10	0.150	0.050
15	0.150	0.050
20	0.150	0.050
25	0.150	0.050
30	0.200	0.050
35	0.200	0.050
40	0.200	0.050
45	0.200	0.050
50	0.200	0.050

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

***The Withdrawal Rates above apply to a member at age 40.*

**TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2019**

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	0.040
10	0.200	0.040
15	0.200	0.040
20	0.400	0.040
25	0.400	0.040
30	0.400	0.040
35	0.400	0.040
40	0.400	0.040
45	0.400	0.040
50	0.400	0.040

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

***The Withdrawal Rates above apply to a member at age 40.*

Safety - Female

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

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

***The Withdrawal Rates above apply to a member at age 40.*



Classic Values, Innovative Advice