

Orange County Employees Retirement System

Actuarial Valuation and Review

As of December 31, 2022



This report has been prepared at the request of the Board of Retirement to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Retirement and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

© 2023 by The Segal Group, Inc. All rights reserved.

Segal



180 Howard Street, Suite 1100
San Francisco, CA 94105-6147
segalco.com
T 415.263.8200

June 9, 2023

Board of Retirement
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of December 31, 2022. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal year 2024-2025.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the staff of the System. That assistance is gratefully acknowledged.

The actuarial calculations were directed under the supervision of Andy Yeung, ASA, MAAA, FCA and Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the System.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,
Segal

A handwritten signature in black ink, appearing to read "Paul Angelo", written over a horizontal line.

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

A handwritten signature in black ink, appearing to read "Andy Yeung", written over a horizontal line.

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

A handwritten signature in black ink, appearing to read "Todd Tauzer", written over a horizontal line.

Todd Tauzer, FSA, MAAA, FCA, CERA
Vice President and Actuary

JY/jl

Table of Contents

Section 1: Actuarial Valuation Summary	5
Purpose and Basis	5
Valuation Highlights.....	7
Summary of Key Valuation Results	11
Important Information About Actuarial Valuations	14
Section 2: Actuarial Valuation Results	16
A. Member Data	16
B. Financial Information.....	20
C. Actuarial Experience	23
D. Other Changes in the Actuarial Accrued Liability	28
E. Development of Unfunded Actuarial Accrued Liability	29
F. Recommended Contribution.....	30
G. Funded Status	49
H. Actuarial Balance Sheet.....	51
I. Volatility Ratios.....	52
J. Risk Assessment	54
Section 3: Supplemental Information	57
Exhibit A: Table of Plan Coverage.....	57
Exhibit B: Members in Active Service as of December 31, 2022.....	69
Exhibit C: Reconciliation of Member Data.....	81
Exhibit D: Summary Statement of Income and Expenses on a Market Value Basis.....	82
Exhibit E: Summary Statement of Plan Assets	83
Exhibit F: Summary of Reported Reserve Information as of December 31, 2022	84
Exhibit G: Development of the Fund through December 31, 2022	85
Exhibit H: Table of Amortization Bases.....	86

Table of Contents

Exhibit I: Projection of UAAL Balances and Payments.....	98
Exhibit J: Definition of Pension Terms	100
Section 4: Actuarial Valuation Basis.....	104
Exhibit 1: Actuarial Assumptions and Methods	104
Exhibit 2: Summary of Plan Provisions	119
Exhibit 3: Member Contribution Rates	129
Exhibit 4: Funded Percentages By Rate Group	152
Exhibit 5: Reconciliation of Employer Contribution Rates by Rate Group.....	153
Exhibit 6: Reconciliation of UAAL by Rate Group	156

Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal to present a valuation of the Orange County Employees Retirement System (“OCERS” or “the System”) as of December 31, 2022. The valuation was performed to determine whether the assets and contribution rates are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of current Plan assets to cover the estimated cost of settling the Plan’s accrued benefit obligations.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Plan, as administered by the Board of Retirement;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of December 31, 2022, provided by OCERS;
- The assets of the Plan as of December 31, 2022, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board of Retirement for the December 31, 2022 valuation;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. adopted by the Board of Retirement for the December 31, 2022 valuation; and
- The funding policy adopted by the Board of Retirement.

One of the general goals of an actuarial valuation is to establish contributions which fully fund the System’s liabilities, and which, as a percentage of payroll, remain as level as possible for each generation of active members. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

Section 1: Actuarial Valuation Summary

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to evaluate the System's liabilities and future contribution requirements. Our calculations are based upon member data and financial information provided to us by the System's staff. This information has not been audited by us, but it has been reviewed and found to be consistent, both internally and with prior year's information.

The contribution requirements are determined as a percentage of payroll. The System's employer rates provide for both Normal Cost and a contribution to amortize any unfunded or overfunded actuarial accrued liabilities. In this valuation, we have applied the funding policy adopted by the Board in 2014 (reaffirmed in 2018 and revised with some non-substantive changes in 2022). Details of the funding policy are provided in *Section 4, Exhibit 1* starting on page 104.

A schedule of current amortization balances and payments may be found in *Section 3, Exhibit H* starting on page 86. A graphical projection of the Unfunded Actuarial Accrued Liability (UAAL) amortization balances and payments has been included in *Section 3, Exhibit I* on pages 98 and 99.

The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2024 through June 30, 2025.

Section 1: Actuarial Valuation Summary

Valuation Highlights

- Pg. 50 1. The ratio of the Valuation Value of Assets to Actuarial Accrued Liabilities increased from 81.2% to 81.5%. The funded ratio measured on a market value basis decreased from 90.5% to 77.0%. The UAAL increased from \$4,527.3 million as of December 31, 2021 to \$4,695.0 million as of December 31, 2022. The increase in UAAL is primarily due to investment return (after smoothing) lower than the 7.00% return assumption, individual salary increases greater than expected, and COLA increases greater than expected in 2023.¹
- Pg. 29
Pgs. 156-158
Pgs. 86-97
Pgs. 98-99 A complete reconciliation of the System's UAAL is provided in *Section 2, Subsection E*. A complete reconciliation of the UAAL for each rate group is provided in *Section 4, Exhibit 6*. While all rate groups have losses from investment return (after smoothing) lower than the 7.00% return assumption and COLA increases greater than expected, some rate groups have gains while other rate groups have losses from individual salary increases. A schedule of the current UAAL amortization amounts is provided in *Section 3, Exhibit H*. A graphical projection of the UAAL amortization bases and payments is provided in *Section 3, Exhibit I*.
2. O.C. Superior Court has adopted Plan U for CalPEPRA member service earned effective July 1, 2023. This change decreased the UAAL by \$63,000. When amortized over the O.C. Superior Court's payroll, this impact is less than 0.01% of payroll. For that reason, we have included the reduction in UAAL as a gain/loss item throughout this report. Applicable employer and member rates shown in the December 31, 2021 year column also reflected the implementation of Plan U for O.C. Superior Court for their CalPEPRA members.
3. In this valuation, there were two minor refinements made to the valuation as recommended in the December 31, 2021 actuarial audit:
- a. use benefit service instead of eligibility service in determining 30-year member contribution cessation for Safety legacy members; and
 - b. use the new actual entry age information provided by OCERS to determine the member contribution rates.
- The refinements result in a net decrease of 0.04% in the average employer rate and a net increase of 0.04% in the average member contribution rate but no change to the individual member contribution rates.
- Pg. 31 4. The average employer contribution rate calculated in this valuation increased from 37.51% of payroll to 38.71% of payroll. This change was primarily due to investment return (after smoothing) lower than the 7.00% return assumption, individual salary increases greater than expected, COLA increases greater than expected in 2023, and the change in the 18-month delay adjustment from the prior valuation. A complete reconciliation of the System's average employer rate is provided in *Section 2, Subsection F*. A complete reconciliation of the employer contribution rate for each rate group is provided in *Section 4, Exhibit 5*.
- Pgs. 153-155 We note that the impact on contribution rates of the items noted in item 1 (i.e., investment return lower than the 7.00% return assumption, individual salary increases different than expected, and COLA increases greater than expected in 2023) is not uniform across the rate groups. That non-uniform impact is due to the particular demographics of the members within each rate group (e.g., the proportion of the retiree liability to the total liability within the rate group and negotiated salary increases for active members), as

¹ Actuarial loss from payment of higher than the 2.75% COLA assumption (based on current COLA banks, 3.00% COLAs are expected to be paid each April 1st starting 2023 and the following 18 years).

Section 1: Actuarial Valuation Summary

well as the ratio of the payroll to the assets and liabilities within each rate group. That non-uniform impact is exacerbated by the fact that some rate groups had higher total payroll growth while other rate groups have lower total payroll growth between the December 31, 2021 and the December 31, 2022 valuations.

While all other rate groups had changes in average employer contribution rates between (0.61%) of payroll and 2.25% of payroll, the average employer contribution rate for Rate Group #6 increased by 5.49% of payroll. This higher increase is primarily a result of the lower than expected payroll growth between the December 31, 2021 and December 31, 2022 valuations and the resulting larger change in the 18-month delay adjustment between those valuations. In particular, based on last year's UAAL amortization schedule for Rate Group #6, the total payment in that valuation was \$18,279,000. The total payroll for Rate Group #6 in the valuation was \$58,976,000, resulting in a UAAL contribution rate (prior to the adjustment for the 18-month delay) of 30.99% of payroll. If total payroll for Rate Group #6 had grown at the assumed 3.00%, the UAAL contribution rate in the current valuation for UAAL established prior to the current valuation would have remained 30.99% of payroll as the UAAL payments are expected to increase at 3.00% per annum, consistent with the total payroll growth assumption. However, while the amortization payments increased at 3.00% per annum to \$18,829,000, the total payroll for Rate Group #6 actually decreased by 4.1% to \$56,547,000 in the current valuation (there was also a decrease in the number of actives members in Rate Group #6 of 6.9%) resulting in a UAAL contribution rate (prior to the adjustment for the 18-month delay) of 33.29% of payroll, an increase of 2.30% of payroll from the prior valuation. In addition, when contribution rates increase, from one valuation to the next, the adjustment for the 18-month delay is generally an increase. Because of the large increase in the average employer contribution rate for Rate Group #6, the change in the 18-month delay adjustment between the prior and current valuation increased the average employer contribution rate by 0.84% in the current valuation.

- Pg. 32 5. The average member rate calculated in this valuation has increased from 12.06% of payroll to 12.08% of payroll. A complete reconciliation of the System's average member rate is provided in *Section 2, Subsection F*.

The individual member rates have been updated to reflect the valuation as of December 31, 2022. The detailed member rates are provided in *Section 4, Exhibit 3* of this report.

- Pg. 25 6. The rate of return on the Market Value of Assets was (9.71%) for the 2022 plan year. The return on the Valuation Value of Assets was 6.69% for the same period after considering the gradual recognition of current and prior years' investment gains and losses. This resulted in an actuarial loss when measured against the assumed rate of return of 7.00%. This actuarial investment loss increased the average employer contribution rate by 0.20% of payroll. As part of the review of the assumed long-term rate of return on investments and other assumptions in the next triennial experience study, we would examine the evolving expectations of future investment returns for various asset classes. This will allow us to assist the Board as they continue to monitor anticipated investment returns relative to the assumed long-term rate of return on investments of 7.00%.

- Pg. 21 7. As indicated in *Section 2, Subsection B* of this report, the total unrecognized investment loss as of December 31, 2022 was \$1,157.0 million (as compared to an unrecognized gain of \$2,250.0 million in the December 31, 2021 valuation). This investment loss will be recognized in the determination of the Actuarial Value of Assets for funding purposes over the next few years, and will offset a portion of any investment gains that may occur after December 31, 2022. This implies that earning the assumed rate of investment return of

Section 1: Actuarial Valuation Summary

7.00% per year (net of expenses) on a market value basis will result in investment losses on the Actuarial Value of Assets in the next few years. Therefore, if the actual market return is equal to the assumed 7.00% rate and all other actuarial assumptions are met, the employer contribution requirements would generally increase over the next few years. The potential impact associated with the net deferred investment losses may be illustrated as follows:

- a. If the net deferred losses in this year's valuation were recognized immediately and entirely in the Valuation Value of Assets, the funded ratio would decrease from 81.5% to 77.0%.

For comparison purposes, if all of the net deferred gains in the December 31, 2021 valuation had been recognized immediately in the December 31, 2021 valuation, the funded ratio in last year's valuation would have increased from 81.2% to 90.5%.

- b. If the net deferred losses in this year's valuation were recognized immediately and entirely in the Valuation Value of Assets, the average employer contribution rate would increase from 38.7% of payroll to 42.9% of payroll.

For comparison purposes, if all the net deferred gains in the December 31, 2021 valuation had been recognized immediately in the December 31, 2021 valuation, the average employer contribution rate in last year's valuation would have decreased from 37.8% of payroll to 29.4% of payroll.

8. The actuarial valuation report as of December 31, 2022 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the plan, while increases will decrease the actuarial cost of the plan.
9. The balance in the O.C. Sanitation District UAAL Deferred Account has decreased from \$15.6 million as of December 31, 2021 to \$14.4 million as of December 31, 2022. As of December 31, 2022, there was no transfer required from this account to pay off their UAAL.
10. This report reflects the \$11.8 million in additional contributions made by O.C. Fire Authority (OCFA) towards their UAAL. The \$11.8 million¹ of additional contributions made by OCFA has been amortized as a level percent of pay over a period of twenty years effective on December 31, 2022 and used to reduce their UAAL rates for fiscal year 2024-2025.
11. O.C. Sanitation District (Rate Group #3), Transportation Corridor Agency (Rate Group #9), and O.C. Law Library (Rate Group #12) remain overfunded as of December 31, 2022, but less than 120% funded. Under CalPEPRA, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met. Therefore, their contribution rates are set equal to their normal cost rates.
12. The Actuarial Standards Board approved Actuarial Standard of Practice No. 51 (ASOP 51) regarding risk assessment, which was first effective with OCERS' December 31, 2018 actuarial valuation. ASOP 51 requires actuaries to identify risks that "may reasonably be anticipated to significantly affect the plan's future financial condition". Investment risk, asset/liability mismatch risk, interest rate risk,

¹ \$11.8 million in additional contributions were made by OCFA continuously throughout the year. After adjusting with interest, those contributions have a value of \$12.2 million as of December 31, 2022.

Section 1: Actuarial Valuation Summary

longevity and other demographic risks and contribution risk are also cited as examples in ASOP 51. The standard does not require the actuary to evaluate the likelihood of contributing entities to make contributions when due, nor does it require the actuary to assess the likelihood or consequences of future changes in applicable law.

The actuary's assessment can be qualitative or quantitative (e.g., based on numerical demonstrations). The actuary may use non-numerical methods for assessing risks that might take the form of commentary about potential adverse experience and the likely effect on future results. While the standard does not require that every valuation include a quantitative risk assessment, the actuary may recommend that a more detailed risk assessment be performed. When making that decision, the actuary will take into account such factors as the Plan's design, maturity, size, funded status, asset allocation, cash flow, possible insolvency and current market conditions.

A copy of the risk assessment report including the analysis recommended by Segal in consultation with OCERS staff will be provided in a separate stand-alone report later in 2023.

13. Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the UAAL and the principal balance. The funding policy adopted by the Board meets this standard.
14. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the Plan's funding policy and measuring the progress of that funding policy. The Net Pension Liability (NPL) and Pension Expense under Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68, for inclusion in the plan and employer's financial statements as of December 31, 2022, are provided in separate reports. The accounting disclosures will utilize different methodologies from those employed in the funding valuation, as required by the GASB. However, the actuarially determined contribution in this valuation is expected to be used as the actuarially determined contribution (ADC) for GASB financial reporting.
15. On July 30, 2020, the California Supreme Court issued a decision in the case of Alameda County Deputy Sheriffs' Association et al. v. Alameda County Employees' Retirement Association (ACERA) and Board of Retirement of ACERA. Based on actions taken by the Board, our understanding is that the membership data provided in this valuation reflects reduced salary for affected active members and recalculated benefits due to the reduction in salary for a small number of payees. There were also refunds of contributions made to the members. The effect of the Alameda Decision will be reflected as gains and losses as revisions are made to the membership data and financial information provided for this and subsequent valuations.
16. It is important to note that this actuarial valuation is based on plan assets as of December 31, 2022. The plan's funded status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the plan year. Moreover, this actuarial valuation does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after December 31, 2022 due to COVID-19. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results

	December 31, 2022		December 31, 2021	
	Total Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Total Rate ^{2,3}	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Average Employer Contribution Rates:				
• Rate Group #1 – Plans A, B and U (County and IHSS)	13.71%	\$13,580	13.52%	\$13,389
• Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	38.44%	488,300	37.42%	475,284
• Rate Group #3 – Plans B, G, H and U (OCSD)	11.63%	9,343	11.62%	9,339
• Rate Group #5 – Plans A, B and U (OCTA)	30.28%	35,720	28.71%	33,876
• Rate Group #9 – Plans M, N and U (TCA)	12.02%	827	12.63%	869
• Rate Group #10 – Plans I, J, M, N and U (OCFA)	23.13%	7,937	21.97%	7,540
• Rate Group #11 – Plans M and N, future service, and U (Cemetery)	14.88%	302	13.40%	271
• Rate Group #12 – Plans G, H, future service, and U (Law Library)	12.77%	150	12.94%	152
• Rate Group #6 – Plans E, F and V (Probation)	58.26%	32,943	52.77%	29,838
• Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	60.35%	173,594	58.10%	167,125
• Rate Group #8 – Plans E, F, Q, R and V (OCFA)	35.41%	<u>59,747</u>	35.20%	<u>59,394</u>
All Categories Combined	38.71%	\$822,443	37.51%	\$797,077
Average Member Contribution Rates:				
• Rate Group #1 – Plans A, B and U (County and IHSS)	9.75%	\$9,655	9.81%	\$9,714
• Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	10.45%	132,713	10.41%	132,205
• Rate Group #3 – Plans B, G, H and U (OCSD)	11.23%	9,024	11.20%	9,000
• Rate Group #5 – Plans A, B and U (OCTA)	10.66%	12,577	10.70%	12,624
• Rate Group #9 – Plans M, N and U (TCA)	10.79%	743	10.90%	750
• Rate Group #10 – Plans I, J, M, N and U (OCFA)	11.00%	3,775	10.94%	3,754
• Rate Group #11 – Plans M and N, future service, and U (Cemetery)	10.27%	208	10.36%	210
• Rate Group #12 – Plans G, H, future service, and U (Law Library)	13.29%	156	13.36%	157
• Rate Group #6 – Plans E, F and V (Probation)	16.73%	9,460	16.72%	9,455
• Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	17.63%	50,714	17.59%	50,599
• Rate Group #8 – Plans E, F, Q, R and V (OCFA)	16.32%	<u>27,536</u>	16.45%	<u>27,755</u>
All Categories Combined	12.08%	\$256,561	12.06%	\$256,223

¹ Based on December 31, 2022 projected annual compensation.

² For those rate groups with plan specific contribution rates, the total rates shown above have been recalculated by applying the plan specific contribution rates determined in the December 31, 2021 valuation to the corresponding projected payrolls reported as of December 31, 2022.

³ Average December 31, 2021 member contribution rates have been recalculated by applying the individual entry age based rates determined in the December 31, 2021 valuation to the System membership as of December 31, 2022.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results (continued)

		December 31, 2022 (\$ in '000s)	December 31, 2021 (\$ in '000s)
Actuarial Accrued Liability as of December 31:	<ul style="list-style-type: none"> • Retired members and beneficiaries • Inactive vested members¹ • Active members • Total Actuarial Accrued Liability • Normal Cost for plan year beginning December 31 	\$15,847,604 574,151 <u>8,964,914</u> \$25,386,669 554,786	\$14,380,310 541,139 <u>9,094,624</u> \$24,016,073 544,838
Assets as of December 31:	<ul style="list-style-type: none"> • Market Value of Assets (MVA)² • Valuation Value of Assets (VVA)² 	\$19,534,631 20,691,659	\$21,738,794 19,488,761
Funded status as of December 31:	<ul style="list-style-type: none"> • Unfunded Actuarial Accrued Liability on Market Value of Assets basis • Funded percentage on MVA basis • Unfunded Actuarial Accrued Liability on Valuation Value of Assets basis • Funded percentage on VVA basis 	\$5,852,038 76.95% \$4,695,010 81.51%	\$2,277,279 90.52% \$4,527,312 81.15%
Key assumptions:	<ul style="list-style-type: none"> • Net investment return • Price inflation • Payroll growth increase • Cost of living adjustments 	7.00% 2.50% 3.00% 2.75%	7.00% 2.50% 3.00% 2.75%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes County Investment Account (funded by pension obligation bond proceeds held by OCERS), prepaid employer contributions account, O.C. Sanitation District UAAL Deferred Account (after transfer) and non-valuation reserves.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results (continued)

		December 31, 2022	December 31, 2021	Change From Prior Year
Demographic data as of December 31:	Active Members:			
	• Number of members	22,061	22,011	0.2%
	• Average age	44.5	44.9	-0.4
	• Average service	12.0	12.4	-0.4
	• Total projected compensation	\$2,124,679,380	\$2,052,705,840	3.5%
	• Average projected compensation	\$96,309	\$93,258	3.3%
	Retired Members and Beneficiaries:			
	• Number of members:			
	– Service retired	16,311	15,607	4.5%
	– Disability retired	1,588	1,561	1.7%
	– Beneficiaries	<u>2,779</u>	<u>2,658</u>	4.6%
	– Total	20,678	19,826	4.3%
	• Average age	70.4	70.4	0.0
	• Average monthly benefit ¹	\$4,563	\$4,379	4.2%
	Inactive Vested Members:			
	• Number of members ²	7,894	7,238	9.1%
	• Average age	44.9	45.0	-0.1
	Total Members:	50,633	49,075	3.2%

¹ Excludes monthly benefits payable from the STAR COLA.

² Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

Section 1: Actuarial Valuation Summary

Important Information About Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Plan Provisions	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant Information	An actuarial valuation for a plan is based on data provided to the actuary by OCERS. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Financial Information	The valuation is based on the Market Value of Assets as of the valuation date, as provided by OCERS. The System uses a “Valuation Value of Assets” that differs from market value to gradually reflect year-to-year changes in the Market Value of Assets in determining the contribution requirements.
Actuarial Assumptions	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments (if any). The forecasted benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the Plan’s assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.
Models	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

The actuarial valuation is prepared at the request of OCERS. Segal is not responsible for the use or misuse of its report, particularly by any other party.

An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan. Future contribution requirements may differ from those determined in the valuation because of:

- Differences between actual experience and anticipated experience;
- Changes in actuarial assumptions or methods;
- Changes in statutory provisions; and
- Differences between the contribution rates determined by the valuation and those adopted by the Board.

Some actuarial results in this report are not rounded, but that does not imply precision.

If OCERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.

Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.

Segal's report shall be deemed to be final and accepted by the System upon delivery and review. The System should notify Segal immediately of any questions or concerns about the final content.

As Segal has no discretionary authority with respect to the management or assets of OCERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to OCERS.

Section 2: Actuarial Valuation Results

A. Member Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive vested members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A, B, and C.*

Member Population: 2013 – 2022

Year Ended December 31	Active Members	Inactive Vested Members ¹	Retired Members and Beneficiaries	Total Non-Actives	Ratio of Non-Actives to Actives	Ratio of Retired Members and Beneficiaries to Actives
2013	21,368	4,613	14,505	19,118	0.89	0.68
2014	21,459	4,789	15,169	19,958	0.93	0.71
2015	21,525	5,091	15,810	20,901	0.97	0.73
2016	21,746	5,370	16,369	21,739	1.00	0.75
2017	21,721	5,803	16,947	22,750	1.05	0.78
2018	21,929	6,026	17,674	23,700	1.08	0.81
2019	22,257	6,520	18,420	24,940	1.12	0.83
2020	21,559	6,818	19,419	26,237	1.22	0.90
2021	22,011	7,238	19,826	27,064	1.23	0.90
2022	22,061	7,894	20,678	28,572	1.30	0.94

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

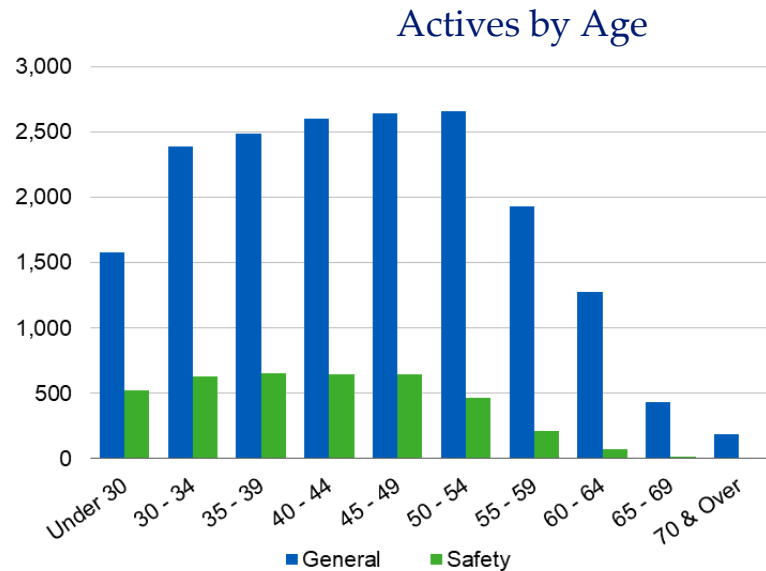
Section 2: Actuarial Valuation Results

Active Members

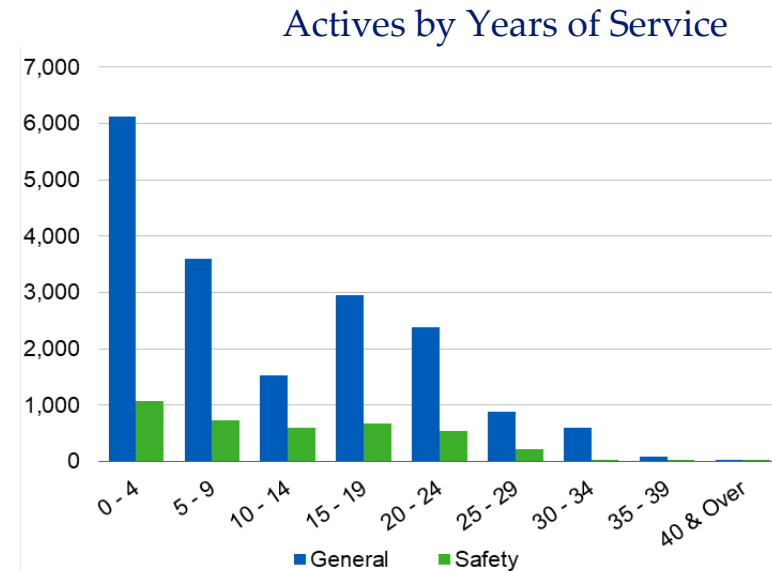
Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 22,061 active members with an average age of 44.5, average years of service of 12.0 years and average compensation of \$96,309. The 22,011 active members in the prior valuation had an average age of 44.9, average service of 12.4 years and average compensation of \$93,258.

Among the active members, there were none with unknown age information.

Distribution of Active Members as of December 31, 2022



Average age	44.5
Prior year average age	<u>44.9</u>
Difference	-0.4



Average years of service	12.0
Prior year average years of service	<u>12.4</u>
Difference	-0.4

Inactive Members

In this year's valuation, there were 7,894 members with a vested right to a deferred or immediate vested benefit or entitled to a return of their member contributions versus 7,238 in the prior valuation.

Section 2: Actuarial Valuation Results

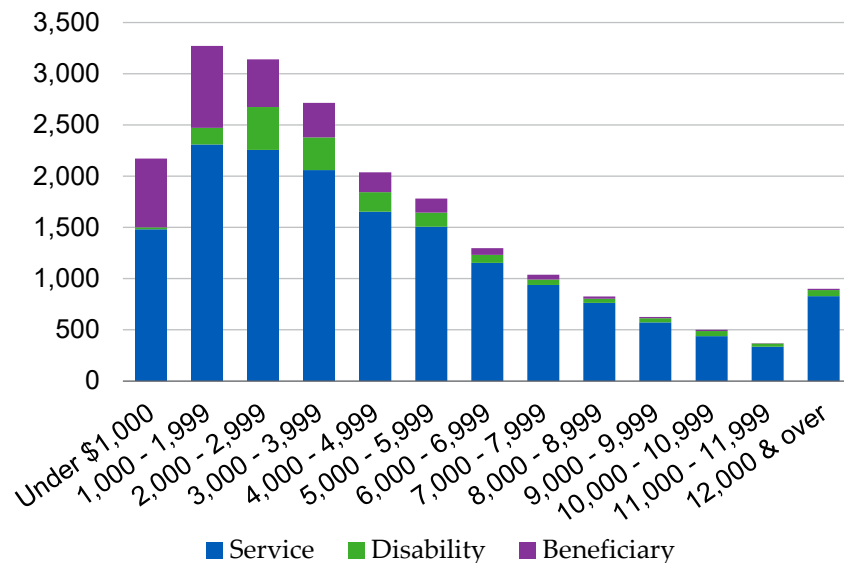
Retired Members and Beneficiaries

As of December 31, 2022, 17,899 retired members and 2,779 beneficiaries were receiving total monthly benefits of \$94,344,734. For comparison, in the previous valuation, there were 17,168 retired members and 2,658 beneficiaries receiving monthly benefits of \$86,808,866. These monthly benefits exclude benefits payable from the Supplemental Targeted Adjustment for Retirees Cost of Living Adjustment (STAR COLA).

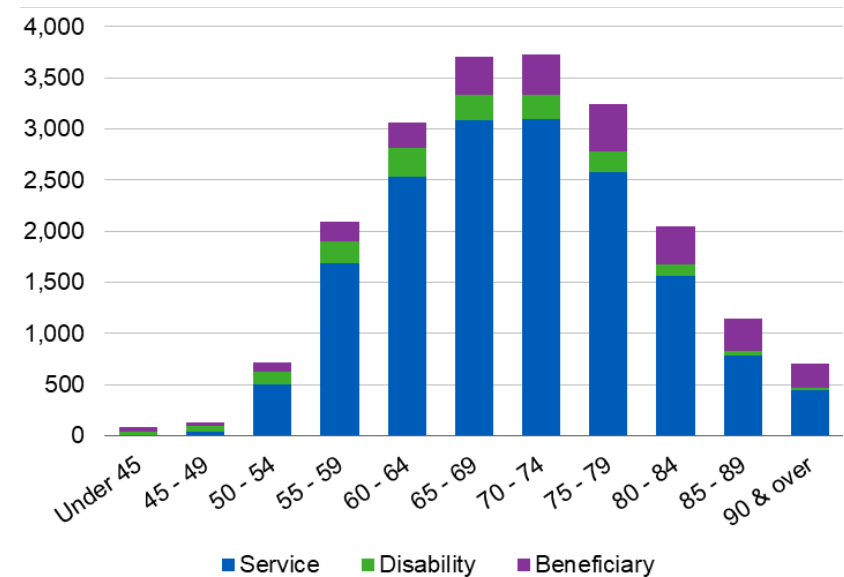
As of December 31, 2022, the average monthly benefit for retired members and beneficiaries is \$4,563, compared to \$4,379 in the previous valuation. The average age for retired members and beneficiaries is 70.4 in the current valuation, compared with 70.4 in the prior valuation.

Distribution of Retired Members and Beneficiaries as of December 31, 2022

Retired Members and Beneficiaries
by Type and Monthly Amount



Retired Members and Beneficiaries
by Type and Age



Section 2: Actuarial Valuation Results

Historical Plan Population

The chart below demonstrates the stability of the active population over the last ten years. The chart also shows the growth among the retired population over the same time period.

Member Data Statistics: 2013 – 2022

Year Ended December 31	Active Members			Retired Members and Beneficiaries		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2013	21,368	45.6	13.2	14,505	69.2	\$3,366
2014	21,459	45.6	13.2	15,169	69.4	3,455
2015	21,525	45.5	13.1	15,810	69.5	3,560
2016	21,746	45.4	12.9	16,369	69.7	3,637
2017	21,721	45.3	12.9	16,947	69.8	3,745
2018	21,929	45.1	12.8	17,674	70.0	3,913
2019	22,257	44.9	12.5	18,420	70.1	4,077
2020	21,559	44.8	12.5	19,419	70.2	4,251
2021	22,011	44.9	12.4	19,826	70.4	4,379
2022	22,061	44.5	12.0	20,678	70.4	4,563

Section 2: Actuarial Valuation Results

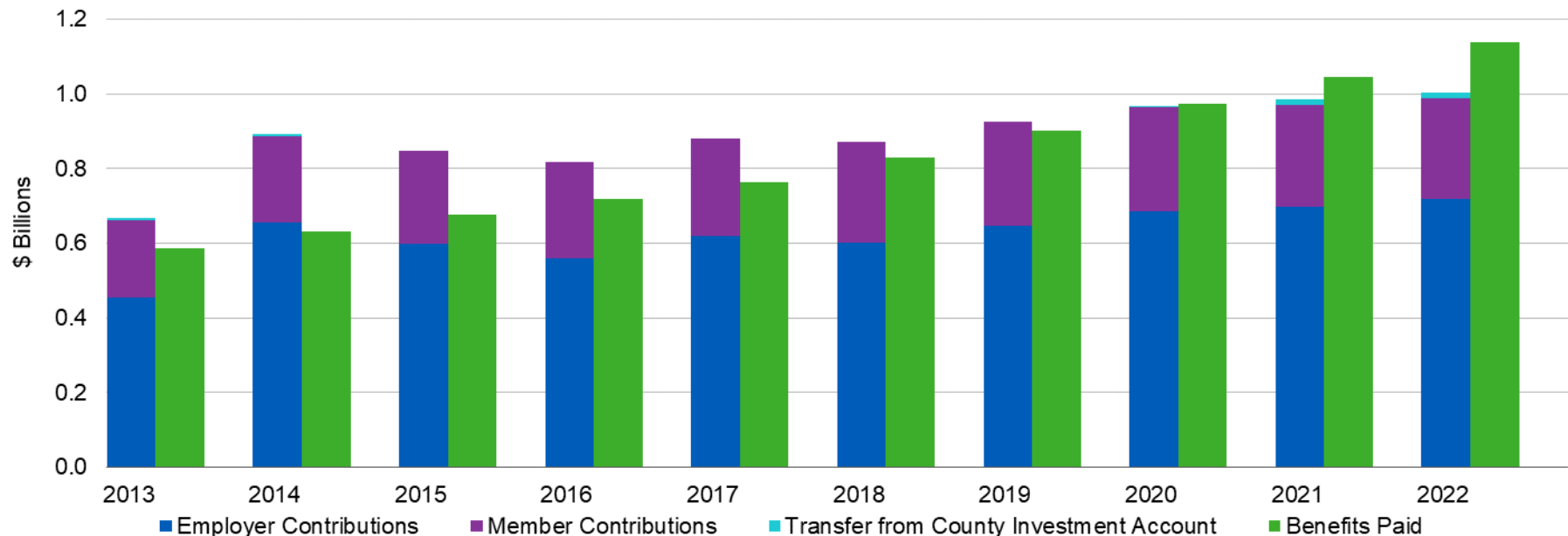
B. Financial Information

Retirement plan funding anticipates that, over the long term, both contributions and investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

Additional financial information, including a summary of transactions for the valuation year, is presented in *Section 3, Exhibits D, E, F and G.*

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the valuation asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Comparison of Contributions Made with Benefits for Years Ended December 31, 2013 – 2022



Section 2: Actuarial Valuation Results

Determination of Actuarial Value of Assets for Year Ended December 31, 2022

1 Market Value of Assets¹						\$ 19,534,631,000
		Actual	Expected	Original	Percent	Unrecognized
2 Calculation of unrecognized return		Return	Return	Amount	Deferred	Amount
a.	Year ended December 31, 2018	\$(361,321,000)	\$1,026,583,000	\$(1,387,904,000)	0%	\$0
b.	Year ended December 31, 2019	2,123,258,000	1,004,779,000	1,118,479,000	20	223,696,000
c.	Year ended December 31, 2020	1,982,757,000	1,155,523,000	827,234,000	40	330,894,000
d.	Year ended December 31, 2021	3,273,348,000	1,293,495,000	1,979,853,000	60	1,187,912,000
e.	Year ended December 31, 2022	(2,106,139,000)	1,518,273,000	(3,624,412,000)	80	<u>(2,899,530,000)</u>
f.	Total unrecognized return ²					\$(1,157,028,000)
3 Actuarial Value of Assets 1 - 2f						\$20,691,659,000
4	Ratio of Actuarial Value to Market Value					105.9%
5	Non-valuation reserves:					
a.	Unclaimed member deposit					\$0
b.	Medicare medical insurance reserve					<u>0</u>
c.	Subtotal					\$0
6 Valuation Value of Assets 3 – 5c						\$20,691,659,000

Note: Results may be slightly off due to rounding.

Consistent with OCERS Actuarial Funding Policy, Segal has reviewed the pattern of recognition of net deferred investment gains or losses provided in footnote (2) and determined, based on our professional judgement, that the pattern of such recognition is not so markedly non-level as to warrant additional study or action by the Board.

¹ Excludes \$140,992,000 in County Investment Account (funded by pension obligation bond proceeds held by OCERS), \$320,009,000 in Prepaid Employer Contributions and \$14,398,000 in O.C. Sanitation District UAAL Deferred Account.

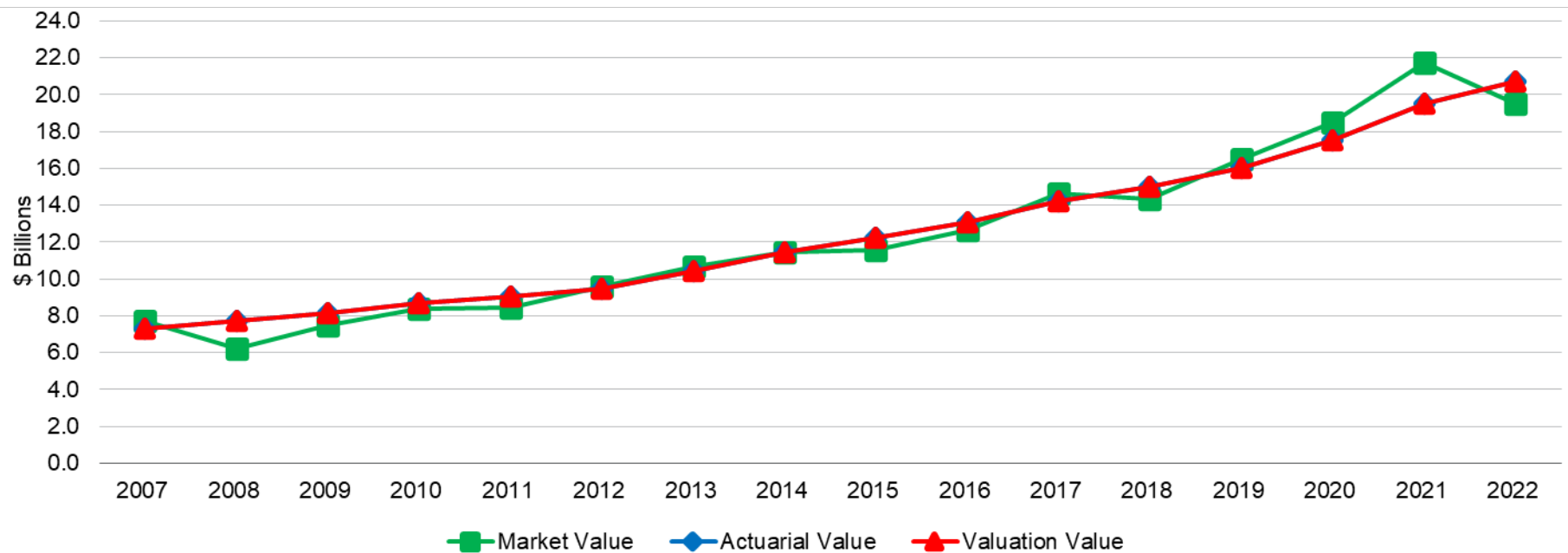
² Deferred return as of December 31, 2022 recognized in each of the next four years:

(a)	Amount recognized on December 31, 2023	\$60,231,000
(b)	Amount recognized on December 31, 2024	(163,465,000)
(c)	Amount recognized on December 31, 2025	(328,912,000)
(d)	Amount recognized on December 31, 2026	<u>(724,882,000)</u>
(e)	Total unrecognized return as of December 31, 2022	\$(1,157,028,000)

Section 2: Actuarial Valuation Results

The Market Value, Actuarial Value and Valuation Value of Assets are representations of the Plan's financial status. As investment gains and losses are gradually taken into account, the Actuarial Value of Assets tracks the Market Value of Assets. The Valuation Value of Assets is the actuarial value, excluding any non-valuation reserves. The Valuation Value of Assets is significant because the Plan's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

Market Value, Actuarial Value, and Valuation Value of Assets as of December 31, 2007 – 2022



Section 2: Actuarial Valuation Results

C. Actuarial Experience

To calculate any actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the actuarially determined contribution will decrease from the previous year. On the other hand, the actuarially determined contribution will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years. There are no changes in actuarial assumptions reflected in this report.

The total loss is \$351.6 million, which includes \$59.8 million from investment losses, a net gain of \$17.9 million from contribution experience (including a gain of \$16.5 million from additional UAAL contributions from OCFA and CRPD¹, and anticipated payments from DOE and U.C.I.² and a gain of \$1.4 million from all other contribution experience) and \$309.6 million in losses from all other sources. The net experience variation from individual sources other than investments and contributions was 1.2% of the Actuarial Accrued Liability. A discussion of the major components of the actuarial experience is on the following pages.

Actuarial Experience for Year Ended December 31, 2022

1	Net loss from investments ³	\$59,849,000
2	Net gain from contribution experience ⁴	(17,909,000)
3	Net loss from other experience ⁴	<u>309,635,000</u>
4	Net experience loss: 1 + 2 + 3	\$351,575,000

¹ Segal provided separate letters for O.C. Vector Control and Cypress Recreation and Parks with regard to their updated withdrawal liabilities based on the Board's Withdrawing Employer Policy. While no contributions were made by O.C. Vector Control during the past calendar year, because O.C. Vector Control had no withdrawal liability as of December 31, 2021, Cypress Recreation and Parks did pay a lump sum of \$595,600 to pay off their UAAL determined in the December 31, 2021 withdrawal study.

² Segal also provided separate letters for DOE and U.C.I. with regard to their required UAAL contributions based on the Board's Declining Employer Payroll policy. These contributions have not been reflected in the contribution rates developed in this valuation.

³ Details on next page.

⁴ See *Subsection E* for further details. Does not include the effect of plan or assumption changes, if any.

Section 2: Actuarial Valuation Results

Investment Experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Plan's investment policy. The rate of return on the Market Value of Assets was (9.71%) for the year ended December 31, 2022.

For valuation purposes, the assumed rate of return on the Valuation Value of Assets is 7.00%. The actual rate of return on a valuation basis for the 2022 plan year was 6.69%. Since the actual return for the year was less than the assumed return, the Plan experienced an actuarial loss during the year ended December 31, 2022 with regard to its investments.

Investment Experience for Year Ended December 31, 2022

	Market Value	Actuarial Value	Valuation Value
1 Net investment income	\$(2,106,139,000)	\$1,300,922,000	1,300,922,000
2 Average value of assets	\$21,689,619,000	\$19,439,586,000	\$19,439,586,000
3 Rate of return: 1 ÷ 2	(9.71%) ¹	6.69%	6.69%
4 Assumed rate of return	7.00%	7.00%	7.00%
5 Expected investment income: 2 x 4	\$1,518,273,000	\$1,360,771,000	1,360,771,000
6 Actuarial gain/(loss): 1 - 5	\$(3,624,412,000)	\$(59,849,000)	\$(59,849,000)

¹ Return on market value was calculated using a modified dollar-weighted approach based on pension plan assets net of accounting liabilities. Actual investment income on net pension plan assets was \$(2,106,139,000) during 2022 after including both the administrative expenses and discount for prepaid contributions while excluding the amount credited to County Investment Account and O.C. Sanitation District UAAL Deferred Account. Without these adjustments, the actual investment income was \$(2,058,589,000).

Section 2: Actuarial Valuation Results

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial and valuation basis compared to the actual market value investment return for the last ten years, including averages over select time periods.

Investment Return – Market Value, Actuarial Value and Valuation Value: 2013 – 2022

Year Ended December 31	Market Value Investment Return ¹		Actuarial Value Investment Return ¹		Valuation Value Investment Return ¹	
	Amount ²	Percent	Amount ²	Percent	Amount ²	Percent
2013	\$1,031,118,000	10.73%	\$866,402,000	9.11%	\$866,402,000	9.11%
2014	487,104,000	4.52%	771,049,000	7.34%	771,174,000	7.34%
2015	(51,601,000)	(0.45%)	606,190,000	5.26%	606,191,000	5.26%
2016	1,010,548,000	8.72%	776,627,000	6.33%	776,628,000	6.33%
2017	1,878,172,000	14.79%	977,128,000	7.44%	977,130,000	7.44%
2018	(361,321,000)	(2.46%)	738,790,000	5.20%	738,791,000	5.20%
2019	2,123,258,000	14.79%	999,388,000	6.66%	999,389,000	6.66%
2020	1,982,757,000	12.01%	1,492,651,000	9.31%	1,492,651,000	9.31%
2021	3,273,348,000	17.71%	1,992,576,000	11.38%	1,992,660,000	11.38%
2022	(2,106,139,000)	(9.71%)	1,300,922,000	6.69%	1,300,922,000	6.69%
Most recent five-year average return		5.92%	7.83%		7.83%	
Most recent ten-year average return		6.72%	7.46%		7.46%	

Note: Return on market value was calculated using a modified dollar-weighted approach based on pension plan assets net of accounting liabilities.

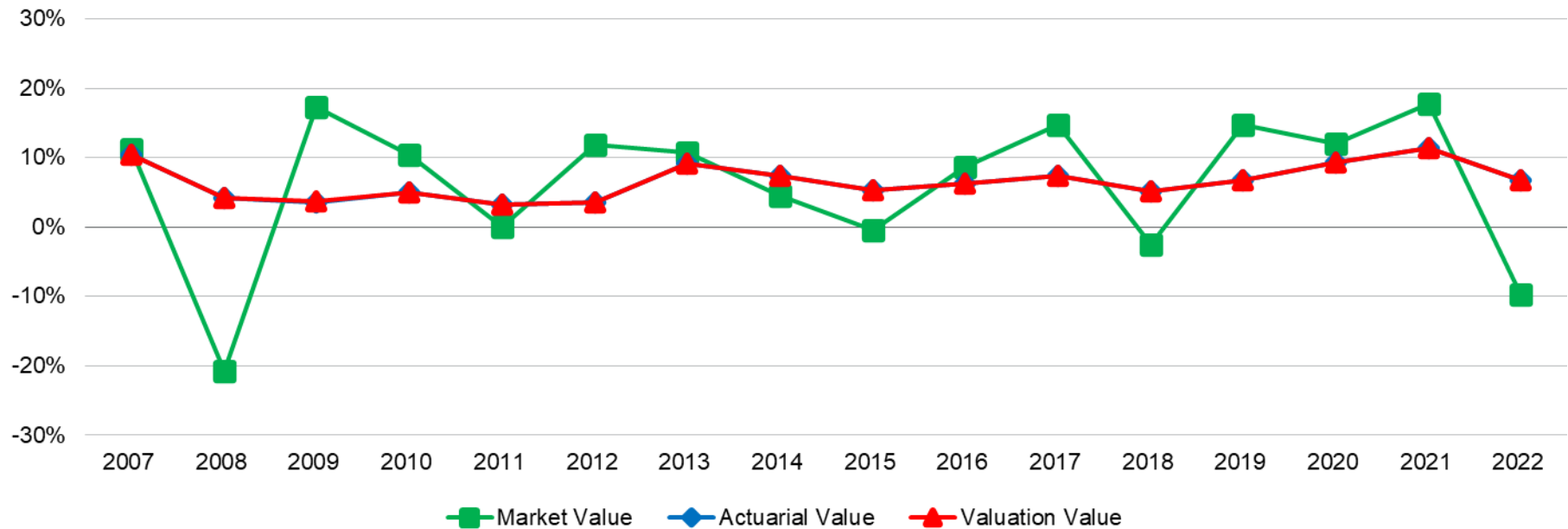
¹ Net of administrative and investment expenses.

² The dollar amount of return on market value is net of the return on the County Investment Account (funded by pension obligation bond proceeds held by OCERS), prepaid employer contributions account and O.C. Sanitation District UAAL Deferred Account (after transfer), if any.

Section 2: Actuarial Valuation Results

Section 2, Subsection B described the actuarial asset valuation method that gradually recognizes fluctuations in the market value rate of return. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs.

Market, Actuarial and Valuation Rates of Return for Years Ended December 31, 2007 – 2022



Section 2: Actuarial Valuation Results

Contributions

Contributions for the year ended December 31, 2022 totaled \$1,041.7 million, compared to the projected amount of \$1,024.4 million. This resulted in a net gain of \$17.9 million from contribution experience for the year, when adjusted for timing.

Non-Investment Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected),
- salary increases (greater or smaller than projected), and
- cost-of-living adjustments (COLAs) higher or lower than anticipated.

The net loss from this other experience for the year ended December 31, 2022 amounted to \$309.6 million, which is 1.2% of the Actuarial Accrued Liability. See *Subsection E* for a detailed development of the Unfunded Actuarial Accrued Liability.

Section 2: Actuarial Valuation Results

D. Other Changes in the Actuarial Accrued Liability

The Actuarial Accrued Liability as of December 31, 2022 is \$25.4 billion, an increase of \$1.4 billion, or 5.7%, from the Actuarial Accrued Liability as of the prior valuation date. The liability is expected to grow each year with Normal Cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection).

Actuarial Assumptions and Methods

In this valuation, there were two minor refinements made to the valuation as recommended in the December 31, 2021 actuarial audit:

- use benefit service instead of eligibility service in determining 30-year member contribution cessation for Safety legacy members; and
- use the new actual entry age provided by OCERS to determine the member contribution rates.

The refinements result in a net decrease of 0.04% in the average employer rate and a net increase of 0.04% in the average member contribution rate but no change to the individual member contribution rates.

Details on actuarial assumptions and methods are in *Section 4, Exhibit 1*.

Plan Provisions

O.C. Superior Court adopted Plan U for CalPEPRA member service earned effective July 1, 2023. This change decreased the UAAL by \$63,000. When amortized over the O.C. Superior Court's payroll, this impact is less than 0.01% of payroll. For that reason, we have included this reduction in UAAL as a gain/loss item in this valuation.

A summary of plan provisions is in *Section 4, Exhibit 2*.

Section 2: Actuarial Valuation Results

E. Development of Unfunded Actuarial Accrued Liability

Development for Year Ended December 31, 2022

1	Unfunded Actuarial Accrued Liability as of December 31, 2021	\$4,527,312,000
2	Normal Cost at middle of year	544,838,000
3	Expected employer and member contributions	(1,024,377,000)
4	Interest	<u>295,662,000</u>
5	Expected Unfunded Actuarial Accrued Liability at end of year	\$4,343,435,000
6	Changes due to:	
a.	Difference in actual versus expected contributions	\$(1,399,000)
b.	Additional UAAL contributions from OCFA and CRPD, and anticipated payments ¹ from DOE and U.C.I.	(16,510,000)
c.	Investment losses (after smoothing)	59,849,000
d.	Difference in actual versus expected salary increases	27,467,000
e.	Higher than expected COLA increases in 2023 ²	261,281,000
f.	Other losses	<u>20,887,000</u>
	Total changes	\$351,575,000
7	Unfunded Actuarial Accrued Liability as of December 31, 2022	\$4,695,010,000

Note: The sum of items 6a and 6b equals the “Net gain from contribution experience” shown in *Subsection C*.

The sum of items 6d, 6e and 6f equals the “Net loss from other experience” shown in *Subsection C*.

¹ Segal provided separate letters for DOE and U.C.I. with regard to their required UAAL contributions based on the Board’s Declining Employer Payroll policy. These contributions have not been reflected in the contribution rates developed in this valuation. Segal also provided separate letters for O.C. Vector Control and Cypress Recreation and Parks with regard to their updated withdrawal liabilities based on the Board’s Withdrawing Employer Policy, although no contributions were made by O.C. Vector Control during the past calendar year, because O.C. Vector Control had no withdrawal liability as of December 31, 2021.

² Actuarial loss from payment of higher than the 2.75% COLA assumption (based on the current COLA banks, 3.00% COLAs are expected to be paid each April 1st starting 2023 and the following 18 years).

Section 2: Actuarial Valuation Results

F. Recommended Contribution

The recommended contribution is equal to the employer Normal Cost payment and a payment on the Unfunded Actuarial Accrued Liability. As of December 31, 2022, the average recommended employer contribution is 38.71% of compensation.

The Board sets the funding policy used to calculate the recommended contribution based on layered amortization periods. See *Section 4, Exhibit 1* for further details on the funding policy.

The contribution requirement as of December 31, 2022 is based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

Average Recommended Employer Contribution for Year Ended December 31

	2022		2021	
	Amount (\$ in '000s)	% of Projected Compensation	Amount (\$ in '000s)	% of Projected Compensation
1 Total normal cost	\$554,786	26.12%	\$544,838	26.54%
2 Expected member normal cost contributions	(256,561)	(12.08%)	(248,005)	(12.08%)
3 Employer normal cost: (1) + (2)	\$298,225	14.04%	\$296,833	14.46%
4 Actuarial accrued liability	25,386,669		24,016,073	
5 Valuation Value of Assets	20,691,659		19,488,761	
6 Unfunded actuarial accrued liability (UAAL): (4) - (5)	\$4,695,010		\$4,527,312	
7 Payment on UAAL	\$524,218	24.67%	\$479,539	23.36%
9 Projected compensation	\$2,124,678		\$2,052,706	
10 Total average recommended employer contribution: (3) + (7)	\$822,443	38.71%	\$776,372	37.82%

Note: Contributions are assumed to be paid at the middle of the year.

Section 2: Actuarial Valuation Results

Reconciliation of Average Recommended Employer Contribution Rate

The chart below details the changes in the average recommended employer contribution from the prior valuation to the current year's valuation.

Reconciliation from December 31, 2021 to December 31, 2022

	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Average Recommended Employer Contribution Rate as of December 31, 2021	37.51%	\$797,077
1 Effect of investment loss (after smoothing)	0.20%	\$4,249
2 Effect of additional UAAL contributions from OCFA	(0.04%)	(850)
3 Effect of difference in actual versus expected contributions	0.00%	0
4 Effect of higher than expected COLA increases in 2023 ²	0.89%	18,910
5 Effect of difference in actual versus expected salary increases	0.09%	1,912
6 Effect of growth in total payroll more than expected	(0.18%)	(3,824)
7 Effect of other experience losses ³	0.37%	7,731
8 Effect of method refinements as a result of actuarial audit	(0.04%)	(850)
9 Effect of minimum funding requirement ⁴	<u>(0.09%)</u>	<u>(1,912)</u>
Total change	1.20%	\$25,366
Average Recommended Employer Contribution Rate as of December 31, 2022	38.71%	\$822,443

¹ Based on December 31, 2022 projected compensation of \$2,124,678,000.

² Actuarial loss from payment of higher than the 2.75% COLA assumption (based on the current COLA banks, 3.00% COLAs are expected to be paid each April 1st starting 2023 and the following 18 years).

³ Includes an adjustment of 0.31% to reflect the anticipated contribution loss due to the 18-month delay between date of valuation and date of rate implementation.

⁴ RG #3, RG #9 and RG #12 were overfunded as of December 31, 2022. Under CalPEPRA, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met.

Section 2: Actuarial Valuation Results

Reconciliation of Average Recommended Member Contribution Rate

The chart below details the changes in the average recommended member contribution rate from the prior valuation to the current year's valuation.

Reconciliation from December 31, 2021 to December 31, 2022

	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Average Recommended Member Contribution Rate as of December 31, 2021²	12.06%	\$256,223
1 Effect of changes in member demographics	(0.02%)	\$(512)
2 Effect of method refinement as a result of actuarial audit ³	<u>0.04%</u>	<u>850</u>
Total change	0.02%	\$338
Average Recommended Member Contribution Rate as of December 31, 2022	12.08%	\$256,561

¹ Based on December 31, 2022 projected annual compensation of \$2,124,678,000.

² Rates have been recalculated by applying the individual entry age based rates determined in the December 31, 2021 valuation to the System membership as of December 31, 2022.

³ This adjustment only affects the average member rate and has no impact on the individual member rates.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #1 – Plans A and B (2.0% @ 57 and 1.64% @ 57 – County and IHSS)				
Normal Cost	10.26%	\$3,290	10.42%	\$3,341
UAAL ²	3.61%	1,157	3.33%	1,068
Total Contribution	13.87%	\$4,447	13.75%	\$4,409
Rate Group #1 – Plan U (2.5% @ 67 PEPRAs)³				
Normal Cost	10.03%	\$6,716	10.08%	\$6,750
UAAL ²	3.61%	2,417	3.33%	2,230
Total Contribution	13.64%	\$9,133	13.41%	\$8,980
Rate Group #1 – Plans A, B and U Combined				
Normal Cost	10.10%	\$10,006	10.19%	\$10,091
UAAL ²	3.61%	3,574	3.33%	3,298
Total Contribution	13.71%	\$13,580	13.52%	\$13,389

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #2 – Plans I and J (2.7% @ 55 – non-Children and Families Commission)				
Normal Cost	14.57%	\$98,904	14.67%	\$99,583
UAAL ²	27.14%	184,232	26.14%	177,444
Total Contribution	41.71%	\$283,136	40.81%	\$277,027
Rate Group #2 – Plans I and J (2.7% @ 55 – Children and Families Commission)				
Normal Cost	14.57%	\$72	14.67%	\$73
UAAL ^{2,3}	4.79%	24	3.50%	17
Total Contribution	19.36%	\$96	18.17%	\$90
Rate Group #2 – Plans O and P (1.62% @ 65)				
Normal Cost	6.17%	\$884	6.22%	\$891
UAAL ²	27.14%	3,889	26.14%	3,746
Total Contribution	33.31%	\$4,773	32.36%	\$4,637
Rate Group #2 – Plan S (2.0% @ 57)				
Normal Cost ⁴	15.97%	\$269	16.61%	\$279
UAAL ²	27.14%	456	26.14%	440
Total Contribution	43.11%	\$725	42.75%	\$719
Rate Group #2 – Plan T (1.62% @ 65 PEPRAs)⁵				
Normal Cost ⁶	7.29%	\$34,200	7.09%	\$33,262
UAAL ²	27.14%	127,323	26.14%	122,632
Total Contribution	34.43%	\$161,523	33.23%	\$155,894

Note: For Orange County Employees Retirement System (the employer) with future service only benefit improvements under 2.7% @ 55, refer to the employer rates on page 46.

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.

⁴ The decrease in the employer Normal Cost rate from last year to this year is primarily due to the change in the average entry age from 43.5 to 41.4.

⁵ Applicable for members hired on or after January 1, 2013 except for County Attorneys, SJC members, OCERS management members, Superior Court members, and Children and Families members.

⁶ Normal Cost rate has been adjusted to reflect the implementation of Plan U by O.C. Superior Court for their PEPRAs members.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #2 – Plan U (2.5% @ 67 PEPRA, non-Children and Families Commission)²				
Normal Cost ³	9.24%	\$9,585	9.17%	\$9,512
UAAL ⁴	<u>27.14%</u>	<u>28,153</u>	<u>26.14%</u>	<u>27,116</u>
Total Contribution	36.38%	\$37,738	35.31%	\$36,628
Rate Group #2 – Plan U (2.5% @ 67 PEPRA, Children and Families Commission)⁵				
Normal Cost	9.24%	\$140	9.17%	\$139
UAAL ^{4,6}	<u>4.79%</u>	<u>72</u>	<u>3.50%</u>	<u>53</u>
Total Contribution	14.03%	\$212	12.67%	\$192
Rate Group #2 – Plan W (1.62% @ 65 PEPRA)⁷				
Normal Cost ⁸	7.82%	\$22	8.95%	\$25
UAAL ⁴	<u>27.14%</u>	<u>75</u>	<u>26.14%</u>	<u>72</u>
Total Contribution	34.96%	\$97	35.09%	\$97
Rate Group #2 – Plans I, J, O, P, S, T, U and W Combined				
Normal Cost	11.34%	\$144,076	11.32%	\$143,764
UAAL ⁴	<u>27.10%</u>	<u>344,224</u>	<u>26.10%</u>	<u>331,520</u>
Total Contribution	38.44%	\$488,300	37.42%	\$475,284

Note: For Orange County Employees Retirement System (the employer) with future service only benefit improvements under 2.7% @ 55, refer to the employer rates on page 46.

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² Applicable for County Attorneys, SJC members, OCERS management members, and Superior Court members hired on or after January 1, 2013.

³ Normal Cost rate has been adjusted to reflect the implementation of Plan U by O.C. Superior Court for their PEPRA members.

⁴ UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

⁵ Applicable for Children and Family members hired on or after January 1, 2013.

⁶ UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.

⁷ Applicable for SJC members hired on or after January 1, 2016 and not electing Plan U.

⁸ The decrease in the employer Normal Cost rate from last year to this year is primarily due to the change in the average entry age from 58.0 to 43.2.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #3 – Plans G and H (2.5% @ 55 – OCSD)				
Normal Cost	13.36%	\$4,490	13.47%	\$4,527
UAAL ^{2,3}	0.00%	0	0.00%	0
Total Contribution	13.36%	\$4,490	13.47%	\$4,527
Rate Group #3 – Plan B (1.64% @ 57 – OCSD)				
Normal Cost	12.81%	\$865	13.09%	\$884
UAAL ^{2,3}	0.00%	0	0.00%	0
Total Contribution	12.81%	\$865	13.09%	\$884
Rate Group #3 – Plan U (2.5% @ 67 PEPR A)⁴				
Normal Cost	9.97%	\$3,988	9.82%	\$3,928
UAAL ^{2,3}	0.00%	0	0.00%	0
Total Contribution	9.97%	\$3,988	9.82%	\$3,928
Rate Group #3 – Plans B, G, H and U Combined				
Normal Cost	11.63%	\$9,343	11.62%	\$9,339
UAAL ^{2,3}	0.00%	0	0.00%	0
Total Contribution	11.63%	\$9,343	11.62%	\$9,339

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Under CalPEPRA, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met.

⁴ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #5 – Plans A and B (2.0% @ 57 and 1.64% @ 57 – OCTA)				
Normal Cost	12.32%	\$9,338	12.54%	\$9,505
UAAL ²	18.11%	13,727	16.37%	12,408
Total Contribution	30.43%	\$23,065	28.91%	\$21,913
Rate Group #5 – Plan U (2.5% @ 67 PEPRA)³				
Normal Cost	11.89%	\$5,016	11.99%	\$5,058
UAAL ²	18.11%	7,639	16.37%	6,905
Total Contribution	30.00%	\$12,655	28.36%	\$11,963
Rate Group #5 – Plans A, B and U Combined				
Normal Cost	12.17%	\$14,354	12.34%	\$14,563
UAAL ²	18.11%	21,366	16.37%	19,313
Total Contribution	30.28%	\$35,720	28.71%	\$33,876

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2015.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #9 – Plans M and N (2.0% @ 55 – TCA)				
Normal Cost ²	13.95%	\$372	14.89%	\$397
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	13.95%	\$372	14.89%	\$397
Rate Group #9 – Plan U (2.5% @ 67 PEPRAs)⁵				
Normal Cost	10.79%	\$455	11.18%	\$472
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	10.79%	\$455	11.18%	\$472
Rate Group #9 – Plans M, N and U Combined				
Normal Cost	12.02%	\$827	12.63%	\$869
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	12.02%	\$827	12.63%	\$869

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² The decrease in the employer Normal Cost rate from last year to this year is primarily due to the change in the average entry age from 37.2 to 35.9.

³ UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

⁴ Under CalPEPRA, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met.

⁵ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #10 – Plans I and J (2.7% @ 55 – OCFA)				
Normal Cost	14.99%	\$1,470	15.25%	\$1,495
UAAL ²	10.50%	1,030	9.37%	919
Total Contribution	25.49%	\$2,500	24.62%	\$2,414
Rate Group #10 – Plans M and N (2.0% @ 55 – OCFA)				
Normal Cost	17.22%	\$993	16.98%	\$979
UAAL ²	10.50%	605	9.37%	540
Total Contribution	27.72%	\$1,598	26.35%	\$1,519
Rate Group #10 – Plan U (2.5% @ 67 PEPRA)³				
Normal Cost	9.98%	\$1,871	9.87%	\$1,850
UAAL ²	10.50%	1,968	9.37%	1,757
Total Contribution	20.48%	\$3,839	19.24%	\$3,607
Rate Group #10 – Plans I, J, M, N and U Combined				
Normal Cost	12.63%	\$4,334	12.60%	\$4,324
UAAL ²	10.50%	3,603	9.37%	3,216
Total Contribution	23.13%	\$7,937	21.97%	\$7,540

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #11 – Plans M and N, future service (2.0% @ 55 – Cemetery)				
Normal Cost	12.67%	\$155	12.71%	\$155
UAAL ²	2.45%	30	1.02%	12
Total Contribution	15.12%	\$185	13.73%	\$167
Rate Group #11 – Plan U (2.5% @ 67 PEPRA)³				
Normal Cost	12.04%	\$97	11.97%	\$96
UAAL ²	2.45%	20	1.02%	8
Total Contribution	14.49%	\$117	12.99%	\$104
Rate Group #11 – Plans M, N and U Combined				
Normal Cost	12.43%	\$252	12.38%	\$251
UAAL ²	2.45%	50	1.02%	20
Total Contribution	14.88%	\$302	13.40%	\$271

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #12 – Plans G and H, future service (2.5% @ 55 – Law Library)				
Normal Cost	13.49%	\$121	13.79%	\$123
UAAL ^{2,3,4}	0.00%	0	0.00%	0
Total Contribution	13.49%	\$121	13.79%	\$123
Rate Group #12 – Plan U (2.5% @ 67 PEPRAs)⁵				
Normal Cost	10.48%	\$29	10.48%	\$29
UAAL ^{2,3,4}	0.00%	0	0.00%	0
Total Contribution	10.48%	\$29	10.48%	\$29
Rate Group #12 – Plans G, H, future service, and U Combined				
Normal Cost	12.77%	\$150	12.94%	\$152
UAAL ^{2,3,4}	0.00%	0	0.00%	0
Total Contribution	12.77%	\$150	12.94%	\$152

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.

⁴ Under CalPEPRA, the employer's contribution rate cannot be less than the Normal Cost unless the funded ratio is over 120% and other conditions in CalPEPRA are met.

⁵ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #6 – Plans E and F (3% @ 50 – Probation)				
Normal Cost	22.65%	\$11,098	23.16%	\$11,347
UAAL ²	36.48%	17,874	30.55%	14,968
Total Contribution	59.13%	\$28,972	53.71%	\$26,315
Rate Group #6 – Plan V (2.7% @ 57 PEPRA)³				
Normal Cost	16.11%	\$1,216	16.11%	\$1,216
UAAL ²	36.48%	2,755	30.55%	2,307
Total Contribution	52.59%	\$3,971	46.66%	\$3,523
Rate Group #6 – Plans E, F and V Combined				
Normal Cost	21.78%	\$12,314	22.22%	\$12,563
UAAL ²	36.48%	20,629	30.55%	17,275
Total Contribution	58.26%	\$32,943	52.77%	\$29,838

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #7 – Plans E and F (3% @ 50 – Law Enforcement)				
Normal Cost	26.26%	\$29,564	26.62%	\$29,969
UAAL ²	37.86%	42,623	35.53%	40,000
Total Contribution	64.12%	\$72,187	62.15%	\$69,969
Rate Group #7 – Plans Q and R (3% @ 55 – Law Enforcement)				
Normal Cost	24.38%	\$13,476	24.74%	\$13,675
UAAL ²	37.86%	20,927	35.53%	19,640
Total Contribution	62.24%	\$34,403	60.27%	\$33,315
Rate Group #7 – Plan V (2.7% @ 57 PEPRA)³				
Normal Cost	18.07%	\$21,648	17.76%	\$21,276
UAAL ²	37.86%	45,356	35.53%	42,565
Total Contribution	55.93%	\$67,004	53.29%	\$63,841
Rate Group #7 – Plans E, F, Q, R and V Combined				
Normal Cost	22.49%	\$64,688	22.57%	\$64,920
UAAL ²	37.86%	108,906	35.53%	102,205
Total Contribution	60.35%	\$173,594	58.10%	\$167,125

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #8 – Plans E and F (3% @ 50 – OCFA)				
Normal Cost	25.93%	\$22,225	27.09%	\$23,219
UAAL ²	12.96%	11,108	12.35%	10,585
Total Contribution	38.89%	\$33,333	39.44%	\$33,804
Rate Group #8 – Plans Q and R (3% @ 55 – OCFA)				
Normal Cost	26.48%	\$6,165	26.65%	\$6,205
UAAL ²	12.96%	3,017	12.35%	2,875
Total Contribution	39.44%	\$9,182	39.00%	\$9,080
Rate Group #8 – Plan V (2.7% @ 57 PEPRA)³				
Normal Cost	15.89%	\$9,491	15.29%	\$9,133
UAAL ²	12.96%	7,741	12.35%	7,377
Total Contribution	28.85%	\$17,232	27.64%	\$16,510
Rate Group #8 – Plans E, F, Q, R and V Combined				
Normal Cost	22.45%	\$37,881	22.85%	\$38,557
UAAL ²	12.96%	21,866	12.35%	20,837
Total Contribution	35.41%	\$59,747	35.20%	\$59,394

¹ Amounts are based on December 31, 2022 projected compensation as shown on the page 45.

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

³ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Groups #1 – #12 Combined				
Normal Cost	14.04%	\$298,225	14.09%	\$299,393
UAAL ²	24.67%	524,218	23.42%	497,684
Total Contribution	38.71%	\$822,443	37.51%	\$797,077

¹ Amounts are based on December 31, 2022 projected compensation (\$ in '000s):

General Employers		General Employers		Safety Employers	
Rate Group #1 – Plans A and B	\$32,062	Rate Group #3 – Plans G and H	\$33,605	Rate Group #6 – Plans E and F	\$48,996
Rate Group #1 – Plan U	66,963	Rate Group #3 – Plan B	6,752	Rate Group #6 – Plan V	7,551
Rate Group #2 – Plans I and J		Rate Group #3 – Plan U	40,002	Rate Group #7 – Plans E and F	112,580
non-Children and Families Commission	678,822	Rate Group #5 – Plans A and B	75,798	Rate Group #7 – Plans Q and R	55,276
Rate Group #2 – Plans I and J		Rate Group #5 – Plan U	42,183	Rate Group #7 – Plan V	119,799
Children and Families Commission	497	Rate Group #9 – Plans M and N	2,665	Rate Group #8 – Plans E and F	85,711
Rate Group #2 – Plans O and P	14,329	Rate Group #9 – Plan U	4,218	Rate Group #8 – Plans Q and R	23,282
Rate Group #2 – Plan S	1,682	Rate Group #10 – Plans I and J	9,805	Rate Group #8 – Plan V	59,730
Rate Group #2 – Plan T	469,135	Rate Group #10 – Plans M and N	5,766		
Rate Group #2 – Plan U		Rate Group #10 – Plan U	18,747		
non-Children and Families Commission	103,733	Rate Group #11 – Plans M and N	1,222		
Rate Group #2 – Plan U		Rate Group #11 – Plan U	806		
Children and Families Commission	1,511	Rate Group #12 – Plans G and H	894		
Rate Group #2 – Plan W	275	Rate Group #12 – Plan U	281		
				Total Combined	\$2,124,678

² UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2022 Actuarial Valuation		December 31, 2021 Actuarial Valuation	
	Contribution Rate ¹	Contribution Rate ²	Contribution Rate ¹	Contribution Rate ²
Rate Group #2 – Plans I and J (2.7% @ 55 – OCERS)				
Normal Cost	14.57%	14.57%	14.67%	14.67%
UAAL ³	<u>25.92%</u>	<u>27.14%</u>	<u>24.85%</u>	<u>26.14%</u>
Total Contributions	40.49%	41.71%	39.52%	40.81%
Rate Group #2 – Plan U (2.5% @ 67 PEPRA – OCERS)⁴				
Normal Cost	9.24%	9.24%	9.17%	9.17%
UAAL ³	<u>25.92%</u>	<u>27.14%</u>	<u>24.85%</u>	<u>26.14%</u>
Total Contributions	35.16%	36.38%	34.02%	35.31%

¹ These rates are after reflecting future service only benefit improvements under 2.7% @ 55.

² These rates are before reflecting future service only benefit improvements under 2.7% @ 55.

³ UAAL rate has been adjusted to reflect 18-month delay between date of valuation and date of rate implementation.

⁴ Applicable for Orange County Employees Retirement System members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

“Pick-Up” Discount Percentages for Non-PEPRA Tier Members

For every dollar of member contribution “picked up” by the employer for non-PEPRA tier members and not deposited in the member’s contribution account, the employer can contribute less than a dollar. This is because the “pick-up” amount is not deposited in the member’s contribution account and so is not payable to a member who withdraws his or her contributions following termination of employment, and is not payable as an additional death benefit. The contribution discount percentages are as follows:

	December 31, 2022 Pick Up Percentage		December 31, 2021 Pick Up Percentage	
General Members				
Rate Group #1 Plan A/B (County and IHSS)	Plan A: N/A	Plan B: 98.94%	Plan A: N/A	Plan B: 98.90%
Rate Group #2 (2.7% @ 55 – non-OCFA)	Plan I: 100.00%	Plan J: 99.06%	Plan I: 99.43%	Plan J: 99.01%
Rate Group #2 (1.62% @ 65)	Plan O: N/A	Plan P: 98.52%	Plan O: N/A	Plan P: 98.41%
Rate Group #2 (2.0% @ 57)		Plan S: 98.76%		Plan S: 98.76%
Rate Group #3 (2.5% @ 55 – OCSD)	Plan G: N/A	Plan H: 99.13%	Plan G: N/A	Plan H: 99.11%
Rate Group #3 (1.64% @ 57 – OCSD)		Plan B: 98.53%		Plan B: 98.52%
Rate Group #5 Plan A/B (OCTA)	Plan A: 100.00%	Plan B: 98.62%	Plan A: 100.00%	Plan B: 98.53%
Rate Group #9 (2.0% @ 55 – TCA)	Plan M: N/A	Plan N: 98.81%	Plan M: N/A	Plan N: 98.85%
Rate Group #10 (2.7% @ 55 – OCFA)	Plan I: N/A	Plan J: 99.17%	Plan I: N/A	Plan J: 99.13%
Rate Group #10 (2.0% @ 55 – OCFA)	Plan M: N/A	Plan N: 98.85%	Plan M: N/A	Plan N: 98.52%
Rate Group #11 (2.0% @ 55 – Cemetery)	Plan M: N/A	Plan N: 99.30%	Plan M: N/A	Plan N: 99.10%
Rate Group #12 (2.5% @ 55 – Law Library)	Plan G: N/A	Plan H: 99.41%	Plan G: N/A	Plan H: 99.14%
Safety Members				
Rate Group #6 (3.0% @ 50 – Probation)	Plan E: N/A	Plan F: 99.83%	Plan E: N/A	Plan F: 99.81%
Rate Group #7 (3.0% @ 50 – Law Enforcement)	Plan E: N/A	Plan F: 99.91%	Plan E: N/A	Plan F: 99.90%
Rate Group #7 (3.0% @ 55 – Law Enforcement)	Plan Q: N/A	Plan R: 99.80%	Plan Q: N/A	Plan R: 99.78%
Rate Group #8 (3.0% @ 50 – OCFA)	Plan E: N/A	Plan F: 99.89%	Plan E: N/A	Plan F: 99.87%
Rate Group #8 (3.0% @ 55 – OCFA)	Plan Q: N/A	Plan R: 99.84%	Plan Q: N/A	Plan R: 99.80%

Section 2: Actuarial Valuation Results

“Pick-Up” Average Entry Age

The following table provides the average entry age by employer used in determining the “pick-up” contributions under Section 31581.1.

Employer	Code	Average Entry Age for All non PEPRA Members
General		
Orange County	101	30
Cemetery District	102	27
Law Library	103	40
Retirement System	105	30
OCFA	106	32
Transportation Corridor Agency	109	36
City of San Juan Capistrano	110	32
Sanitation District	111	33
OCTA	112	34
Children & Families Commission	118	28
Local Agency Formation Commission	119	38
Superior Court	121	31
IHSS Public Authority	122	44
Safety		
Probation	101	26
Law Enforcement	101	26
OCFA	106	28

Section 2: Actuarial Valuation Results

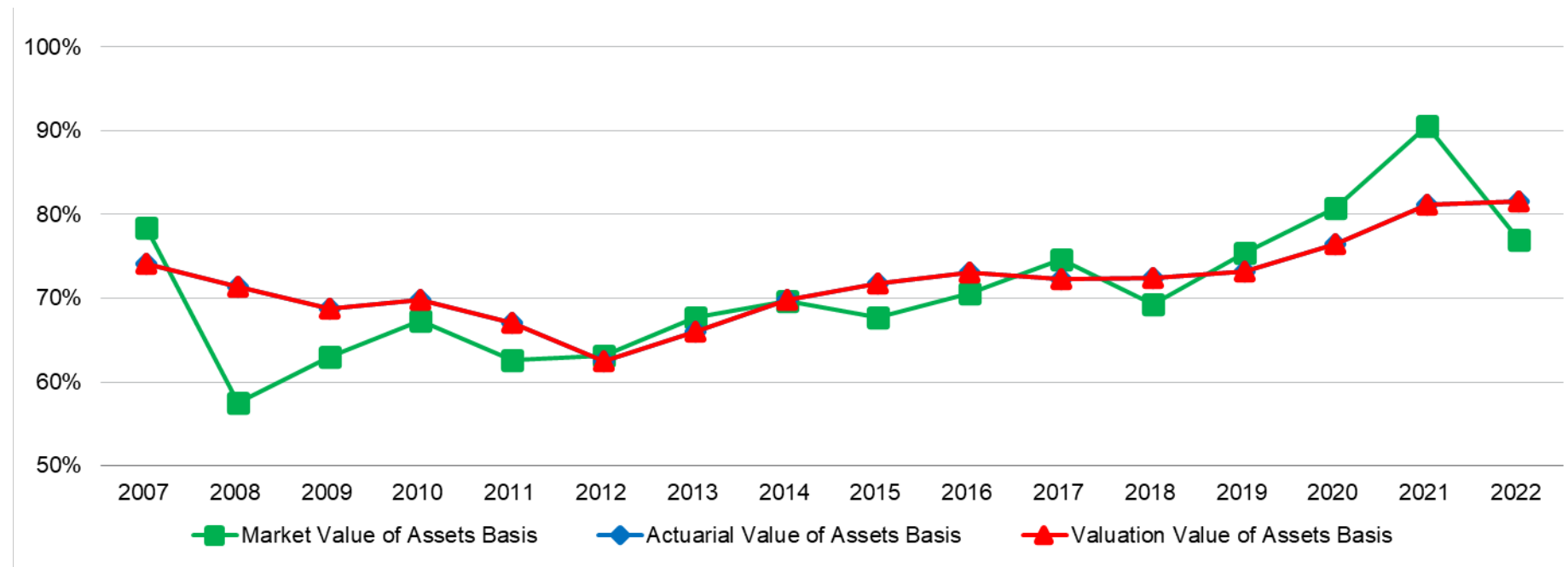
G. Funded Status

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. These ratios compare the Market and Valuation Value of Assets to the Actuarial Accrued Liability of the Plan. Higher ratios indicate a relatively well-funded plan while lower ratios may indicate recent changes to actuarial assumptions, funding of the plan below actuarial requirements, poor asset performance, or a variety of other changes.

The chart below depicts a history of the funded ratio for the Plan. The chart on the next page shows the Plan's schedule of funding progress for the last ten years.

The funded status measures shown in this valuation are appropriate for assessing the need for or amount of future contributions. However, they are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. As the chart below shows, the measures are different depending on whether the Market or Valuation Value of Assets is used.

Funded Ratio for Years Ended December 31, 2007 – 2022



Section 2: Actuarial Valuation Results

Schedule of Funding Progress for Years Ended December 31, 2013 – 2022

Actuarial Valuation Date as of December 31	Valuation Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (%) (a) / (b)	Projected Covered Payroll (c)	UAAL as a Percentage of Projected Covered Payroll (%) [(b) - (a)] / (c)
2013	\$10,417,125,000	\$15,785,042,000	\$5,367,917,000	65.99%	\$1,604,496,000	334.55%
2014	11,449,911,000	16,413,124,000	4,963,213,000	69.76%	1,648,160,000	301.14%
2015	12,228,009,000	17,050,357,000	4,822,348,000	71.72%	1,633,112,000	295.29%
2016	13,102,978,000	17,933,461,000	4,830,483,000	73.06%	1,759,831,000	274.49%
2017	14,197,125,000	19,635,427,000	5,438,302,000	72.30%	1,811,877,000	300.15%
2018	14,994,420,000	20,703,349,000	5,708,929,000	72.43%	1,875,370,000	304.42%
2019	16,036,869,000	21,916,730,000	5,879,861,000	73.17%	1,952,534,000	301.14%
2020	17,525,117,000	22,904,975,000	5,379,858,000	76.51%	1,962,869,000	274.08%
2021	19,488,761,000	24,016,073,000	4,527,312,000	81.15%	2,052,706,000	220.55%
2022	20,691,659,000	25,386,669,000	4,695,010,000	81.51%	2,124,678,000	220.98%

For informational purposes only, we have also developed the funded ratio determined using the historical market value of assets after adjustment for amounts in the County Investment Account (funded by pension obligation bond proceeds held by OCERS), prepaid employer contributions, O.C. Sanitation District UAAL Deferred Account (after transfer), unclaimed member reserve and Medicare Medical Insurance Reserve.

Actuarial Valuation Date December 31	Funded Ratio Based on Net Market Value of Assets	Actuarial Valuation Date December 31	Funded Ratio Based on Net Market Value of Assets
2013	67.65%	2018	69.31%
2014	69.63%	2019	75.36%
2015	67.73%	2020	80.74%
2016	70.58%	2021	90.52%
2017	74.62%	2022	76.95%

Section 2: Actuarial Valuation Results

H. Actuarial Balance Sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the Actuarial Present Value of Future Benefits of the Plan.

Second, this Actuarial Present Value of Future Benefits is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer Normal Cost contributions, and the present value of future employer amortization payments for the Unfunded Actuarial Accrued Liability.

Actuarial Balance Sheet

	Year Ended	
	December 31, 2022 (\$ in '000s)	December 31, 2021 (\$ in '000s)
Actuarial present value of future benefits		
• Present value of benefits for retired members and beneficiaries	\$15,847,604	\$14,380,310
• Present value of benefits for inactive vested members ¹	574,151	541,139
• Present value of benefits for active members	<u>13,711,728</u>	<u>13,634,948</u>
Total actuarial present value of future benefits	\$30,133,483	\$28,556,397
Current and future assets		
• Total Valuation Value of Assets	\$20,691,659	\$19,488,761
• Present value of future contributions by members	2,249,521	2,112,467
• Present value of future employer contributions for:		
• Entry age normal cost	2,497,293	2,427,857
• Unfunded actuarial accrued liability	<u>4,695,010</u>	<u>4,527,312</u>
Total of current and future assets	\$30,133,483	\$28,556,397

¹ This includes members who chose to leave their contributions on deposit even though they have less than five years of service.

Section 2: Actuarial Valuation Results

I. Volatility Ratios

Retirement plans are subject to volatility in the level of required contributions. This volatility tends to increase as retirement plans become more mature.

The Asset Volatility Ratio (AVR), which is equal to the Market Value of Assets divided by total payroll, provides an indication of the potential contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of contribution volatility. This is a current measurement since it is based on the current level of assets.

The current AVR is about 9.2. This means that a 1% asset gain or loss (relative to the assumed investment return) translates to about 9.2% of one year's payroll. Since actuarial gains and losses are amortized over 20 years, there would be a 0.7% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

The Liability Volatility Ratio (LVR), which is equal to the Actuarial Accrued Liability divided by payroll, provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. This is because, over an extended period of time, the plan's assets should track the plan's liabilities.

The LVR also indicates how volatile contributions will be in response to changes in the Actuarial Accrued Liability due to actual experience or to changes in actuarial assumptions. The current total plan LVR is about 11.9, but is 10.6 for General compared to 16.1 for Safety. This means that assumption changes will have a greater impact on employer contribution rates for Safety than for General.

The chart on the next page shows how the asset and liability volatility ratios have varied over time.

Section 2: Actuarial Valuation Results

Volatility Ratios for Years Ended 2013 – 2022

Year Ended December 31	Asset Volatility Ratio			Liability Volatility Ratio		
	General	Safety	Total	General	Safety	Total
2013	6.0	8.9	6.7	9.0	12.6	9.8
2014	6.2	9.4	6.9	8.9	13.6	10.0
2015	6.3	9.6	7.1	9.3	14.3	10.4
2016	6.4	9.9	7.2	9.0	14.2	10.2
2017	7.2	11.0	8.1	9.6	14.8	10.8
2018	6.8	10.5	7.7	9.8	15.2	11.0
2019	7.5	11.5	8.5	9.9	15.3	11.2
2020	8.4	12.7	9.4	10.5	15.2	11.7
2021	9.3	14.5	10.6	10.5	15.4	11.7
2022	8.0	12.9	9.2	10.6	16.1	11.9

Section 2: Actuarial Valuation Results

J. Risk Assessment

Because the actuarial valuation results are dependent on a fixed set of assumptions and data as of a specific date, there is risk that emerging results may differ, perhaps significantly, as actual experience is fluid and will not exactly track current assumptions. This potential divergence may have a significant impact on the future financial condition of the plan.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a concise discussion of some of the primary risks that may affect the Plan's future financial condition. We recommend a more detailed assessment of the risks to provide the Board with a better understanding of the risks inherent in the Plan that can inform both financial preparation and future decision making. This assessment would enable us to work with the Board to highlight and illustrate particular risks or potential future outcomes they may be interested in discussing and could include scenario testing, sensitivity testing, stress testing and stochastic modeling. As noted in the valuation highlights section of this report the results of our more detailed risk assessment will be provided in a separate stand-alone report. We will include within that report investment scenarios that demonstrate the effects of short-term market volatility on funded status and contribution rates, which may aid in illustrating the effect on the Plan of market volatility that can result from events such as COVID-19.

This section provides descriptions and basic assessments of the primary risks that are likely to have an ongoing influence on the Plan's financial health, as well as a discussion of historical trends and maturity measures:

Risk Assessments

- Asset/Liability Mismatch Risk (the potential that future plan experience does not affect asset and liability values in the same way, causing them to diverge)

The most significant asset/liability mismatch risk to the Plan is investment risk, as discussed below. In fact, investment risk has the potential to impact asset/liability mismatch in two ways. The first mismatch is evident in annual valuations: when asset values deviate from assumptions they are typically independent from liability changes. The second mismatch can be caused when systemic asset deviations from assumptions may signal the need for an assumption change, which causes liability values and contribution rates to move in the opposite direction from any change in the expected experience of asset growth rates.

Asset/liability mismatch can also be caused by demographic assumption risk such as longevity, which affects liabilities but have no impact on asset levels. This risk is also discussed below.

- Investment Risk (the risk that investment returns will be different than expected)

The investment return assumption is a long-term, static assumption for valuation purposes even though in reality market experience can be quite volatile in any given year. That volatility can cause significant changes in the financial condition of the Plan, affecting both funded status and contribution rates. The inherent year-to-year volatility is reduced by smoothing through the Actuarial Value of Assets,

Section 2: Actuarial Valuation Results

however investment experience can still have a sizable impact. As discussed in *Section 2, Subsection I, Volatility Ratios*, on page 52, a 1% asset gain or loss (relative to the assumed investment return) translates to about 9.2% of one-year's payroll. Since actuarial gains and losses are amortized over 20 years, there would be a 0.7% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

The year-by-year market value rate of return over the last 10 years has ranged from a low of (9.71%) to a high of 17.71%.

- Longevity Risk (the risk that mortality experience will be different than expected)

The actuarial valuation includes current life expectancy assumptions and an expectation of future improvement in life expectancy, which are significant assumptions given the relatively long duration of liabilities for pension plans. Emerging plan experience that does not match these expectations will result in increases or decreases in the actuarially determined contribution over time. This risk can be reduced by using tables appropriate for the Plan (public experience tables) that are weighted by benefit levels, and by using generational mortality projections. Effective with the December 31, 2020 valuation, the Board has adopted amount-weighted mortality tables with the generational mortality projections.

- Other Risks

In addition to longevity, the valuation includes a variety of other assumptions that are unlikely to match future experience exactly. One example is projected salary scales over time. As salary is central to the determination of benefits paid in retirement, deviations from the projected salary scales could have a material impact on the benefits anticipated for each member. Examples of demographic assumptions include retirement, termination and disability assumptions, and will likely vary in significance for different groups (for example, disability assumptions are typically more significant for Safety groups).

Some plans also carry significant contribution risk, defined as the potential for actual future contributions deviating from expected future contributions. However, the employer has a proven track-record of making the Actuarially Determined Contributions based on the Board's Actuarial Funding Policy, so contribution risk is minimal.

Evaluation of Historical Trends

Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Over the past ten years:

- The funded percentage on the Valuation Value of Assets has increased from 66.0% to 81.5%. This is primarily due to contributions made to amortize the UAAL (i.e., amortizing each gain/loss layer of UAAL over 20 years). For a more detailed history see *Section 2, Subsection G, Funded Status* starting on page 50.

Section 2: Actuarial Valuation Results

- The geometric average investment return on the Valuation Value of Assets over the last 10 years was 7.46%. This includes a high of 11.38% return and a low of 5.20%. The average over the last 5 years was 7.83%. For more details see the Investment Return table in *Section 2, Subsection C* on page 25.
- Beyond investment losses, the primary source of new UAAL was the strengthening of assumptions through multiple assumption changes. While the assumption changes in 2014 decreased the unfunded liability by \$103 million, the assumption changes in 2017 that changed the discount rate from 7.25% to 7.00% (as well as various other changes) added \$822 million in unfunded liability, and the assumption changes in 2020 added \$24.3 million in unfunded liability. For more details on unfunded liability changes see *Section 3, Exhibit H, Table of Amortization Bases* starting on page 86. A graphical representation of historical changes in UAAL by source will be included in the stand-alone risk assessment report.
- The plan's funding policy effectively deals with these unfunded liabilities over time. This can be seen most clearly in the *Section 3, Exhibit I, Projection of UAAL Balances and Payments* provided on pages 98 and 99.

Maturity Measures

In the last 10 years the ratio of members in pay status to active participants has increased from 0.68 to 0.94. An increased ratio indicates that the plan has grown in maturity over time. This is to be expected, but is also informative to understanding plan sensitivity to particular risks. For more details see *Section 2, Subsection A, Member Data* on page 16.

As pension plans mature, the cash needed to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities. For the past year benefits paid were \$98.0 million more than contributions received. Plans with high levels of negative cash flows may have a need for a larger allocation to income generating assets, which can create a drag on investment return. However, the Plan currently has a low level of negative cash flow and is relatively well funded (at an 81.5% funded ratio). For more details on historical cash flows see the Comparison of Contributions Made with Benefits in *Section 2, Subsection B* on page 20.

A further discussion of plan maturity measures and how they relate to changes in assets and liabilities is included in *Section 2, Subsection I, Volatility Ratios* on page 53.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage

Total Plan

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	22,061	22,011	0.2%
• Average age	44.5	44.9	-0.4
• Average years of service	12.0	12.4	-0.4
• Total projected compensation	\$2,124,679,380	\$2,052,705,840	3.5%
• Average projected compensation	\$96,309	\$93,258	3.3%
• Account balances	\$3,387,061,008	\$3,364,884,418	0.7%
• Total active vested members	15,326	15,718	-2.5%
Inactive vested members:¹			
• Number	7,894	7,238	9.1%
• Average age	44.9	45.0	-0.1
Retired members:			
• Number in pay status	16,311	15,607	4.5%
• Average age	70.3	70.3	0.0
• Average monthly benefit ²	\$4,909	\$4,717	4.1%
Disabled members:			
• Number in pay status	1,588	1,561	1.7%
• Average age	66.4	66.2	0.2
• Average monthly benefit ²	\$4,611	\$4,360	5.8%
Beneficiaries:			
• Number in pay status	2,779	2,658	4.6%
• Average age	73.4	73.3	0.1
• Average monthly benefit ²	\$2,499	\$2,402	4.0%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #1 for Plans A, B and U (County and IHSS)¹

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	1,619	1,692	-4.3%
• Average age	42.8	43.2	-0.4
• Average years of service	8.6	8.8	-0.2
• Total projected compensation	\$99,025,407	\$98,969,172	0.1%
• Average projected compensation	\$61,165	\$58,492	4.6%
• Account balances	\$71,263,922	\$71,111,381	0.2%
• Total active vested members	818	929	-11.9%
Inactive vested members:²			
• Number	761	653	16.5%
• Average age	43.0	42.7	0.3
Retired members:			
• Number in pay status	710	683	4.0%
• Average age	75.0	75.1	-0.1
• Average monthly benefit ³	\$2,969	\$2,919	1.7%
Disabled members:			
• Number in pay status	37	36	2.8%
• Average age	68.2	68.7	-0.5
• Average monthly benefit ³	\$2,720	\$2,655	2.4%
Beneficiaries:			
• Number in pay status	99	102	-2.9%
• Average age	76.6	76.4	0.2
• Average monthly benefit ³	\$1,562	\$1,522	2.6%

¹ Includes payees from Vector Control, Cypress Recreation and Parks, U.C.I. and DOE.

² Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

³ Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #2 for Plans I, J, O, P, S, T, U and W

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	14,271	14,079	1.4%
• Average age	45.0	45.3	-0.3
• Average years of service	12.1	12.5	-0.4
• Total projected compensation	\$1,269,983,733	\$1,216,412,072	4.4%
• Average projected compensation	\$88,991	\$86,399	3.0%
• Account balances	\$2,243,968,625	\$2,232,777,732	0.5%
• Total active vested members	9,940	10,112	-1.7%
Inactive vested members:¹			
• Number	5,341	4,871	9.6%
• Average age	44.8	45.0	-0.2
Retired members:			
• Number in pay status	10,956	10,586	3.5%
• Average age	71.4	71.3	0.1
• Average monthly benefit ²	\$4,394	\$4,222	4.1%
Disabled members:			
• Number in pay status	553	556	-0.5%
• Average age	67.9	67.5	0.4
• Average monthly benefit ²	\$2,932	\$2,860	2.5%
Beneficiaries:			
• Number in pay status	1,689	1,630	3.6%
• Average age	75.4	75.4	0.0
• Average monthly benefit ²	\$2,237	\$2,165	3.3%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #3 for Plans B, G, H and U (OCSD)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	605	620	-2.4%
• Average age	46.4	46.8	-0.4
• Average years of service	11.4	11.8	-0.4
• Total projected compensation	\$80,358,365	\$78,995,802	1.7%
• Average projected compensation	\$132,824	\$127,413	4.2%
• Account balances	\$96,144,378	\$99,927,074	-3.8%
• Total active vested members	431	439	-1.8%
Inactive vested members:¹			
• Number	145	135	7.4%
• Average age	48.2	48.6	-0.4
Retired members:			
• Number in pay status	491	453	8.4%
• Average age	68.9	68.9	0.0
• Average monthly benefit ²	\$6,512	\$6,290	3.5%
Disabled members:			
• Number in pay status	20	20	0.0%
• Average age	67.9	66.9	1.0
• Average monthly benefit ²	\$4,114	\$3,994	3.0%
Beneficiaries:			
• Number in pay status	92	91	1.1%
• Average age	71.3	70.6	0.7
• Average monthly benefit ²	\$2,721	\$2,624	3.7%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #5 for Plans A, B and U (OCTA)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	1,279	1,315	-2.7%
• Average age	49.7	50.1	-0.4
• Average years of service	12.7	12.8	-0.1
• Total projected compensation	\$117,981,140	\$108,629,267	8.6%
• Average projected compensation	\$92,245	\$82,608	11.7%
• Account balances	\$142,048,966	\$142,457,720	-0.3%
• Total active vested members	863	917	-5.9%
Inactive vested members:¹			
• Number	740	700	5.7%
• Average age	50.0	49.7	0.3
Retired members:			
• Number in pay status	1,085	1,046	3.7%
• Average age	71.6	71.4	0.2
• Average monthly benefit ²	\$3,058	\$2,907	5.2%
Disabled members:			
• Number in pay status	266	268	-0.7%
• Average age	68.4	67.8	0.6
• Average monthly benefit ²	\$2,692	\$2,610	3.1%
Beneficiaries:			
• Number in pay status	217	202	7.4%
• Average age	73.4	73.0	0.4
• Average monthly benefit ²	\$1,571	\$1,541	1.9%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #9 for Plans M, N and U (TCA)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	55	61	-9.8%
• Average age	47.7	49.3	-1.6
• Average years of service	8.6	9.1	-0.5
• Total projected compensation	\$6,883,620	\$7,477,529	-7.9%
• Average projected compensation	\$125,157	\$122,582	2.1%
• Account balances	\$5,891,948	\$6,578,561	-10.4%
• Total active vested members	33	37	-10.8%
Inactive vested members:¹			
• Number	75	73	2.7%
• Average age	47.2	47.2	0.0
Retired members:			
• Number in pay status	63	54	16.7%
• Average age	69.8	70.2	-0.4
• Average monthly benefit ²	\$3,472	\$3,382	2.7%
Disabled members:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit ²	N/A	N/A	N/A
Beneficiaries:			
• Number in pay status	7	5	40.0%
• Average age	71.9	74.5	-2.6
• Average monthly benefit ²	\$889	\$836	6.3%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #10 for Plans I, J, M, N and U (OCFA)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	316	322	-1.9%
• Average age	44.2	44.5	-0.3
• Average years of service	10.2	10.1	0.1
• Total projected compensation	\$34,319,033	\$34,703,406	-1.1%
• Average projected compensation	\$108,605	\$107,775	0.8%
• Account balances	\$33,289,999	\$33,809,636	-1.5%
• Total active vested members	200	198	1.0%
Inactive vested members:¹			
• Number	254	240	5.8%
• Average age	43.0	42.5	0.5
Retired members:			
• Number in pay status	209	195	7.2%
• Average age	67.2	67.0	0.2
• Average monthly benefit ²	\$5,071	\$4,891	3.7%
Disabled members:			
• Number in pay status	12	13	-7.7%
• Average age	64.6	64.7	-0.1
• Average monthly benefit ²	\$3,648	\$3,519	3.7%
Beneficiaries:			
• Number in pay status	14	14	0.0%
• Average age	65.7	65.3	0.4
• Average monthly benefit ²	\$1,923	\$1,825	5.4%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #11 for Plans M and N, Future Service, and U (Cemetery)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	25	25	0.0%
• Average age	50.5	49.1	1.4
• Average years of service	15.6	15.2	0.4
• Total projected compensation	\$2,028,678	\$1,863,731	8.9%
• Average projected compensation	\$81,147	\$74,549	8.9%
• Account balances	\$2,839,047	\$2,580,335	10.0%
• Total active vested members	20	18	11.1%
Inactive vested members:¹			
• Number	4	5	-20.0%
• Average age	35.6	40.7	-5.1
Retired members:			
• Number in pay status	7	7	0.0%
• Average age	71.9	74.3	-2.4
• Average monthly benefit ²	\$3,450	\$3,311	4.2%
Disabled members:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit ²	N/A	N/A	N/A
Beneficiaries:			
• Number in pay status	6	5	20.0%
• Average age	78.0	75.8	2.2
• Average monthly benefit ²	\$1,609	\$1,622	-0.8%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #12 for Plans G, H, Future Service, and U (Law Library)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	14	14	0.0%
• Average age	58.1	57.1	1.0
• Average years of service	19.0	18.0	1.0
• Total projected compensation	\$1,174,795	\$1,130,137	4.0%
• Average projected compensation	\$83,914	\$80,724	4.0%
• Account balances	\$3,320,423	\$3,020,012	9.9%
• Total active vested members	12	12	0.0%
Inactive vested members:¹			
• Number	3	3	0.0%
• Average age	48.4	47.4	1.0
Retired members:			
• Number in pay status	13	13	0.0%
• Average age	73.7	72.7	1.0
• Average monthly benefit ²	\$3,431	\$3,331	3.0%
Disabled members:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit ²	N/A	N/A	N/A
Beneficiaries:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit ²	N/A	N/A	N/A

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #6 for Plans E, F and V (Probation)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	616	662	-6.9%
• Average age	44.8	45.0	-0.2
• Average years of service	17.9	17.9	0.0
• Total projected compensation	\$56,547,543	\$58,975,634	-4.1%
• Average projected compensation	\$91,798	\$89,087	3.0%
• Account balances	\$150,801,591	\$154,955,289	-2.7%
• Total active vested members	535	592	-9.6%
Inactive vested members:¹			
• Number	227	220	3.2%
• Average age	44.0	43.7	0.3
Retired members:			
• Number in pay status	499	449	11.1%
• Average age	65.1	65.3	-0.2
• Average monthly benefit ²	\$5,995	\$5,816	3.1%
Disabled members:			
• Number in pay status	39	38	2.6%
• Average age	53.6	53.4	0.2
• Average monthly benefit ²	\$3,169	\$3,080	2.9%
Beneficiaries:			
• Number in pay status	50	44	13.6%
• Average age	67.5	66.7	0.8
• Average monthly benefit ²	\$2,790	\$2,661	4.8%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #7 for Plans E, F, Q, R and V (Law Enforcement)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	2,049	2,035	0.7%
• Average age	40.3	40.7	-0.4
• Average years of service	11.9	12.5	-0.6
• Total projected compensation	\$287,654,395	\$278,340,549	3.3%
• Average projected compensation	\$140,388	\$136,777	2.6%
• Account balances	\$412,272,223	\$403,896,236	2.1%
• Total active vested members	1,570	1,550	1.3%
Inactive vested members:¹			
• Number	215	222	-3.2%
• Average age	41.4	41.6	-0.2
Retired members:			
• Number in pay status	1,742	1,640	6.2%
• Average age	64.5	64.7	-0.2
• Average monthly benefit ²	\$8,048	\$7,815	3.0%
Disabled members:			
• Number in pay status	405	392	3.3%
• Average age	64.4	64.5	-0.1
• Average monthly benefit ²	\$6,324	\$5,984	5.7%
Beneficiaries:			
• Number in pay status	457	425	7.5%
• Average age	69.4	69.2	0.2
• Average monthly benefit ²	\$3,680	\$3,498	5.2%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage (continued)

Rate Group #8 for Plans E, F, Q, R and V (OCFA)

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	1,212	1,186	2.2%
• Average age	41.1	42.0	-0.9
• Average years of service	12.4	13.1	-0.7
• Total projected compensation	\$168,722,671	\$167,208,543	0.9%
• Average projected compensation	\$139,210	\$140,985	-1.3%
• Account balances	\$225,219,886	\$213,770,440	5.4%
• Total active vested members	904	914	-1.1%
Inactive vested members:¹			
• Number	129	116	11.2%
• Average age	39.4	41.2	-1.8
Retired members:			
• Number in pay status	535	480	11.5%
• Average age	66.7	66.6	0.1
• Average monthly benefit ²	\$9,265	\$9,179	0.9%
Disabled members:			
• Number in pay status	256	238	7.6%
• Average age	65.8	65.5	0.3
• Average monthly benefit ²	\$8,101	\$7,697	5.2%
Beneficiaries:			
• Number in pay status	148	140	5.7%
• Average age	65.4	65.0	0.4
• Average monthly benefit ²	\$3,757	\$3,627	3.6%

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

² Excludes monthly benefits payable from the STAR COLA.

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation

Total Plan

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	343	339	3	—	—	—	—	—	—	—
	\$66,614	\$66,595	\$69,842	—	—	—	—	—	—	—
25 – 29	1,764	1,526	237	1	—	—	—	—	—	—
	\$77,873	\$74,148	\$101,632	\$130,538	—	—	—	—	—	—
30 – 34	3,017	1,822	1,045	137	13	—	—	—	—	—
	\$86,343	\$78,630	\$94,963	\$120,803	\$111,307	—	—	—	—	—
35 – 39	3,147	1,201	1,032	501	407	6	—	—	—	—
	\$96,107	\$87,534	\$98,130	\$111,103	\$97,567	\$113,097	—	—	—	—
40 – 44	3,248	756	660	525	998	304	5	—	—	—
	\$101,465	\$89,550	\$99,508	\$111,140	\$107,486	\$98,901	\$99,484	—	—	—
45 – 49	3,285	547	463	323	855	914	179	4	—	—
	\$103,159	\$87,887	\$95,966	\$115,627	\$106,375	\$106,553	\$113,898	\$73,584	—	—
50 – 54	3,125	446	328	270	606	798	461	214	2	—
	\$105,637	\$97,163	\$97,088	\$110,928	\$105,061	\$107,940	\$116,936	\$98,408	\$107,034	—
55 – 59	2,140	349	272	175	372	474	252	216	29	1
	\$100,640	\$95,579	\$102,712	\$111,344	\$95,760	\$98,029	\$108,668	\$102,781	\$97,206	\$97,864
60 – 64	1,353	161	199	144	260	272	140	134	36	7
	\$96,610	\$90,876	\$101,066	\$112,526	\$95,044	\$90,532	\$101,866	\$90,566	\$94,100	\$92,343
65 – 69	451	43	79	38	82	90	44	48	16	11
	\$90,972	\$82,480	\$88,155	\$95,602	\$83,980	\$93,964	\$104,272	\$88,263	\$94,050	\$110,174
70 & over	188	9	20	17	36	58	12	19	9	8
	\$84,338	\$74,551	\$99,304	\$95,771	\$78,300	\$83,772	\$77,483	\$80,724	\$79,874	\$88,814
Total	22,061	7,200	4,338	2,131	3,629	2,916	1,093	635	92	27
	\$96,309	\$82,708	\$97,684	\$112,126	\$102,807	\$102,427	\$111,579	\$96,788	\$93,960	\$98,766

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #1 for Plans A, B and U (County and IHSS)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	39	39	—	—	—	—	—	—	—	—
	\$76,885	\$76,885	—	—	—	—	—	—	—	—
25 – 29	181	176	5	—	—	—	—	—	—	—
	\$62,457	\$62,199	\$71,563	—	—	—	—	—	—	—
30 – 34	287	226	61	—	—	—	—	—	—	—
	\$57,812	\$56,174	\$63,879	—	—	—	—	—	—	—
35 – 39	242	131	77	14	20	—	—	—	—	—
	\$59,231	\$55,766	\$63,262	\$63,080	\$63,722	—	—	—	—	—
40 – 44	207	80	57	21	32	17	—	—	—	—
	\$61,217	\$56,737	\$63,265	\$65,016	\$64,203	\$65,111	—	—	—	—
45 – 49	207	70	36	7	45	41	8	—	—	—
	\$61,299	\$55,403	\$63,546	\$64,530	\$64,536	\$64,896	\$63,295	—	—	—
50 – 54	179	45	28	13	36	32	15	10	—	—
	\$62,008	\$54,916	\$63,023	\$65,301	\$63,761	\$64,224	\$66,683	\$66,378	—	—
55 – 59	125	26	28	8	17	21	7	15	3	—
	\$62,245	\$54,018	\$62,821	\$63,686	\$64,561	\$63,982	\$64,607	\$68,083	\$64,357	—
60 – 64	96	10	25	13	9	15	6	17	1	—
	\$62,783	\$53,145	\$62,839	\$62,886	\$63,600	\$64,732	\$64,560	\$65,476	\$63,366	—
65 – 69	42	4	13	3	7	3	5	7	—	—
	\$63,020	\$54,913	\$62,807	\$64,541	\$65,782	\$63,798	\$65,802	\$62,316	—	—
70 & over	14	1	3	1	2	2	1	3	1	—
	\$62,966	\$59,157	\$61,773	\$63,539	\$63,637	\$61,531	\$63,366	\$65,911	\$62,078	—
Total	1,619	808	333	80	168	131	42	52	5	—
	\$61,165	\$58,229	\$63,411	\$64,166	\$64,203	\$64,518	\$65,204	\$66,001	\$63,703	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #2 for Plans I, J, O, P, S, T, U and W

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	191	188	2	—	—	—	—	—	—	—
	\$56,846	\$56,777	\$60,024	—	—	—	—	—	—	—
25 – 29	1,029	919	110	—	—	—	—	—	—	—
	\$67,900	\$66,994	\$75,467	—	—	—	—	—	—	—
30 – 34	1,878	1,168	664	39	7	—	—	—	—	—
	\$77,671	\$74,915	\$82,269	\$81,649	\$79,323	—	—	—	—	—
35 – 39	1,989	769	690	262	263	5	—	—	—	—
	\$87,543	\$84,644	\$91,228	\$91,851	\$81,832	\$99,708	—	—	—	—
40 – 44	2,096	490	445	336	623	198	4	—	—	—
	\$93,211	\$86,496	\$93,426	\$100,117	\$96,568	\$87,218	\$85,531	—	—	—
45 – 49	2,139	351	346	200	550	576	113	3	—	—
	\$94,668	\$85,928	\$91,584	\$100,801	\$97,127	\$96,950	\$97,406	\$72,107	—	—
50 – 54	2,131	259	214	179	431	563	310	174	1	—
	\$98,727	\$91,359	\$92,648	\$100,479	\$99,945	\$102,140	\$102,397	\$94,868	\$81,912	—
55 – 59	1,461	210	173	114	258	350	189	150	17	—
	\$94,759	\$92,345	\$96,332	\$96,497	\$91,673	\$94,882	\$100,544	\$94,807	\$76,516	—
60 – 64	917	117	118	77	191	203	101	85	22	3
	\$92,713	\$91,005	\$94,089	\$100,827	\$92,823	\$90,013	\$95,694	\$90,296	\$87,753	\$77,286
65 – 69	291	24	46	22	57	68	28	28	12	6
	\$86,591	\$80,885	\$86,158	\$89,566	\$81,028	\$90,294	\$96,936	\$89,782	\$73,401	\$75,903
70 & over	149	8	14	11	30	50	8	16	6	6
	\$82,914	\$76,476	\$99,443	\$83,898	\$80,416	\$82,206	\$80,371	\$83,502	\$76,639	\$77,616
Total	14,271	4,504	2,822	1,240	2,410	2,013	753	456	58	15
	\$88,991	\$78,529	\$89,372	\$97,332	\$94,252	\$95,801	\$99,757	\$93,135	\$80,240	\$76,865

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #3 for Plans B, G, H and U (OCSD)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	1	1	—	—	—	—	—	—	—	—
	\$101,903	\$101,903	—	—	—	—	—	—	—	—
25 – 29	21	20	1	—	—	—	—	—	—	—
	\$104,332	\$104,382	\$103,317	—	—	—	—	—	—	—
30 – 34	72	49	20	3	—	—	—	—	—	—
	\$114,495	\$113,763	\$114,080	\$129,216	—	—	—	—	—	—
35 – 39	98	56	28	10	4	—	—	—	—	—
	\$124,475	\$120,060	\$128,385	\$133,967	\$135,188	—	—	—	—	—
40 – 44	97	30	26	16	24	1	—	—	—	—
	\$133,601	\$116,799	\$138,569	\$137,875	\$147,309	\$111,091	—	—	—	—
45 – 49	84	19	22	14	23	6	—	—	—	—
	\$138,224	\$125,875	\$136,873	\$150,751	\$141,927	\$138,856	—	—	—	—
50 – 54	86	12	18	11	14	16	7	8	—	—
	\$143,101	\$143,137	\$141,991	\$148,161	\$135,373	\$146,804	\$148,370	\$140,097	—	—
55 – 59	75	8	13	11	17	7	8	11	—	—
	\$147,636	\$146,457	\$125,842	\$131,406	\$158,898	\$124,632	\$200,294	\$149,416	—	—
60 – 64	53	8	11	12	8	5	6	3	—	—
	\$136,365	\$111,413	\$147,553	\$126,180	\$131,683	\$156,810	\$146,518	\$160,720	—	—
65 – 69	13	2	2	—	3	3	3	—	—	—
	\$146,015	\$131,097	\$126,842	—	\$134,781	\$145,081	\$180,910	—	—	—
70 & over	5	—	—	1	1	2	—	—	1	—
	\$109,673	—	—	\$147,200	\$71,039	\$110,771	—	—	\$108,585	—
Total	605	205	141	78	94	40	24	22	1	—
	\$132,824	\$119,149	\$132,356	\$138,211	\$143,254	\$140,159	\$169,283	\$147,569	\$108,585	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #5 for Plans A, B and U (OCTA)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	19	19	—	—	—	—	—	—	—	—
	\$65,471	\$65,471	—	—	—	—	—	—	—	—
25 – 29	64	56	8	—	—	—	—	—	—	—
	\$75,922	\$74,032	\$89,151	—	—	—	—	—	—	—
30 – 34	101	71	27	3	—	—	—	—	—	—
	\$81,350	\$77,894	\$87,314	\$109,462	—	—	—	—	—	—
35 – 39	104	60	27	14	3	—	—	—	—	—
	\$89,178	\$85,909	\$89,462	\$102,500	\$89,840	—	—	—	—	—
40 – 44	139	49	29	12	42	7	—	—	—	—
	\$97,823	\$91,606	\$95,917	\$110,070	\$99,590	\$117,648	—	—	—	—
45 – 49	156	53	17	18	43	23	2	—	—	—
	\$93,460	\$79,429	\$90,646	\$109,669	\$101,357	\$100,416	\$93,555	—	—	—
50 – 54	203	51	33	26	43	36	6	8	—	—
	\$96,194	\$84,193	\$93,363	\$113,308	\$103,824	\$91,981	\$105,109	\$100,030	—	—
55 – 59	227	53	25	16	53	40	14	20	5	1
	\$92,538	\$69,545	\$107,807	\$137,352	\$87,171	\$93,352	\$90,438	\$109,380	\$104,320	\$97,864
60 – 64	185	18	17	11	48	36	15	24	12	4
	\$96,267	\$74,874	\$102,407	\$127,012	\$97,689	\$85,999	\$105,217	\$95,124	\$105,229	\$103,635
65 – 69	69	9	11	9	11	8	5	13	2	1
	\$96,899	\$66,935	\$102,942	\$107,840	\$78,902	\$94,660	\$126,011	\$98,963	\$169,345	\$100,236
70 & over	12	—	2	2	1	4	2	—	—	1
	\$98,426	—	\$118,795	\$102,404	\$91,883	\$100,960	\$77,118	—	—	\$88,757
Total	1,279	439	196	111	244	154	44	65	19	7
	\$92,245	\$79,050	\$95,387	\$115,085	\$96,492	\$93,738	\$101,056	\$100,882	\$111,739	\$100,200

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #9 for Plans M, N and U (TCA)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	2	2	—	—	—	—	—	—	—	—
	\$69,751	\$69,751	—	—	—	—	—	—	—	—
25 – 29	3	3	—	—	—	—	—	—	—	—
	\$87,381	\$87,381	—	—	—	—	—	—	—	—
30 – 34	4	4	—	—	—	—	—	—	—	—
	\$134,808	\$134,808	—	—	—	—	—	—	—	—
35 – 39	8	4	4	—	—	—	—	—	—	—
	\$107,340	\$108,098	\$106,583	—	—	—	—	—	—	—
40 – 44	5	2	2	—	1	—	—	—	—	—
	\$109,138	\$145,718	\$92,331	—	\$69,591	—	—	—	—	—
45 – 49	7	2	1	1	2	1	—	—	—	—
	\$135,418	\$150,680	\$117,536	\$187,506	\$133,322	\$74,882	—	—	—	—
50 – 54	10	2	5	1	1	—	1	—	—	—
	\$144,015	\$73,959	\$149,972	\$141,386	\$290,568	—	\$110,421	—	—	—
55 – 59	7	2	1	1	1	2	—	—	—	—
	\$119,182	\$125,014	\$130,806	\$156,566	\$93,176	\$101,850	—	—	—	—
60 – 64	7	1	2	1	1	2	—	—	—	—
	\$140,088	\$175,250	\$104,983	\$58,734	\$273,904	\$131,380	—	—	—	—
65 – 69	2	1	—	—	—	—	1	—	—	—
	\$167,680	\$175,250	—	—	—	—	\$160,111	—	—	—
70 & over	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
Total	55	23	15	4	6	5	2	—	—	—
	\$125,157	\$118,022	\$121,278	\$136,048	\$165,647	\$108,269	\$135,266	—	—	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #10 for Plans I, J, M, N and U (OCFA)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	4	4	—	—	—	—	—	—	—	—
	\$60,649	\$60,649	—	—	—	—	—	—	—	—
25 – 29	24	21	3	—	—	—	—	—	—	—
	\$84,061	\$83,550	\$87,638	—	—	—	—	—	—	—
30 – 34	46	33	13	—	—	—	—	—	—	—
	\$91,388	\$88,007	\$99,969	—	—	—	—	—	—	—
35 – 39	47	29	15	2	1	—	—	—	—	—
	\$98,718	\$91,807	\$107,279	\$117,044	\$134,075	—	—	—	—	—
40 – 44	52	23	16	4	7	2	—	—	—	—
	\$107,005	\$100,930	\$116,349	\$110,088	\$104,141	\$105,965	—	—	—	—
45 – 49	44	17	8	3	10	6	—	—	—	—
	\$122,571	\$134,426	\$112,784	\$86,189	\$123,558	\$118,582	—	—	—	—
50 – 54	46	8	18	4	4	7	3	2	—	—
	\$125,176	\$94,900	\$129,280	\$140,168	\$141,779	\$111,568	\$192,719	\$92,462	—	—
55 – 59	28	5	3	2	3	11	2	2	—	—
	\$116,883	\$129,146	\$139,721	\$120,187	\$95,600	\$101,700	\$155,741	\$125,238	—	—
60 – 64	13	—	5	3	1	1	2	1	—	—
	\$153,259	—	\$124,626	\$212,574	\$70,017	\$80,374	\$231,864	\$117,387	—	—
65 – 69	11	1	3	—	1	6	—	—	—	—
	\$106,512	\$64,627	\$99,045	—	\$89,928	\$119,990	—	—	—	—
70 & over	1	—	—	—	1	—	—	—	—	—
	\$63,177	—	—	—	\$63,177	—	—	—	—	—
Total	316	141	84	18	28	33	7	5	—	—
	\$108,605	\$96,737	\$114,310	\$131,765	\$113,417	\$109,801	\$193,338	\$110,557	—	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #11 for Plans M AND N, Future Service, and U (Cemetery)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
25 – 29	2	2	—	—	—	—	—	—	—	—
	\$54,069	\$54,069	—	—	—	—	—	—	—	—
30 – 34	1	—	1	—	—	—	—	—	—	—
	\$58,543	—	\$58,543	—	—	—	—	—	—	—
35 – 39	1	—	1	—	—	—	—	—	—	—
	\$57,613	—	\$57,613	—	—	—	—	—	—	—
40 – 44	3	—	—	1	1	1	—	—	—	—
	\$86,229	—	—	\$85,105	\$84,011	\$89,571	—	—	—	—
45 – 49	3	1	—	—	1	1	—	—	—	—
	\$82,500	\$64,531	—	—	\$66,602	\$116,367	—	—	—	—
50 – 54	3	2	1	—	—	—	—	—	—	—
	\$81,408	\$61,611	\$121,001	—	—	—	—	—	—	—
55 – 59	8	—	2	—	2	—	2	2	—	—
	\$86,866	—	\$73,546	—	\$139,773	—	\$67,128	\$67,015	—	—
60 – 64	2	—	1	—	—	—	1	—	—	—
	\$90,540	—	\$64,714	—	—	—	\$116,367	—	—	—
65 – 69	2	—	1	—	—	—	—	—	1	—
	\$88,985	—	\$61,602	—	—	—	—	—	\$116,367	—
70 & over	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
Total	25	5	7	1	4	2	3	2	1	—
	\$81,147	\$59,178	\$72,938	\$85,105	\$107,540	\$102,969	\$83,541	\$67,015	\$116,367	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #12 for Plans G, H, Future Service, and U (Law Library)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
25 – 29	1	1	—	—	—	—	—	—	—	—
	\$48,865	\$48,865	—	—	—	—	—	—	—	—
30 – 34	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
35 – 39	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
40 – 44	1	—	1	—	—	—	—	—	—	—
	\$68,187	—	\$68,187	—	—	—	—	—	—	—
45 – 49	2	—	—	—	2	—	—	—	—	—
	\$96,980	—	—	—	\$96,980	—	—	—	—	—
50 – 54	2	1	—	—	—	1	—	—	—	—
	\$116,516	\$163,811	—	—	—	\$69,222	—	—	—	—
55 – 59	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
60 – 64	3	—	—	—	—	2	—	1	—	—
	\$91,537	—	—	—	—	\$97,238	—	\$80,134	—	—
65 – 69	2	—	—	1	—	—	1	—	—	—
	\$72,809	—	—	\$57,247	—	—	\$88,372	—	—	—
70 & over	3	—	—	—	1	—	1	—	1	—
	\$70,174	—	—	—	\$52,930	—	\$69,222	—	\$88,372	—
Total	14	2	1	1	3	3	2	1	1	—
	\$83,914	\$106,338	\$68,187	\$57,247	\$82,296	\$87,899	\$78,797	\$80,134	\$88,372	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #6 for Plans E, F and V (Probation)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	7	7	—	—	—	—	—	—	—	—
	\$59,227	\$59,227	—	—	—	—	—	—	—	—
25 – 29	36	36	—	—	—	—	—	—	—	—
	\$65,942	\$65,942	—	—	—	—	—	—	—	—
30 – 34	35	26	4	5	—	—	—	—	—	—
	\$77,504	\$73,730	\$78,488	\$96,344	—	—	—	—	—	—
35 – 39	54	11	14	5	24	—	—	—	—	—
	\$84,577	\$73,737	\$84,128	\$80,430	\$90,671	—	—	—	—	—
40 – 44	133	6	1	6	85	35	—	—	—	—
	\$91,073	\$84,988	\$80,190	\$83,074	\$90,757	\$94,566	—	—	—	—
45 – 49	198	—	—	7	49	123	18	1	—	—
	\$95,501	—	—	\$77,753	\$91,018	\$96,081	\$111,614	\$78,016	—	—
50 – 54	118	1	2	—	14	50	46	5	—	—
	\$102,472	\$81,934	\$71,709	—	\$79,479	\$95,111	\$118,804	\$106,612	—	—
55 – 59	25	1	—	—	4	12	4	4	—	—
	\$99,541	\$78,480	—	—	\$86,205	\$93,493	\$104,685	\$131,143	—	—
60 – 64	8	1	—	1	—	3	3	—	—	—
	\$89,852	\$99,773	—	\$78,137	—	\$84,158	96,144	—	—	—
65 – 69	2	—	—	—	1	1	—	—	—	—
	\$79,182	—	—	—	\$79,312	\$79,052	—	—	—	—
70 & over	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
Total	616	89	21	24	177	224	71	10	—	—
	\$91,798	\$70,637	\$81,684	\$83,530	\$89,758	\$95,253	\$115,228	\$113,565	—	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #7 for Plans E, F, Q, R and V (Law Enforcement)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	44	43	1	—	—	—	—	—	—	—
	\$94,862	\$94,987	\$89,479	—	—	—	—	—	—	—
25 – 29	287	191	95	1	—	—	—	—	—	—
	\$112,747	\$104,264	\$129,615	\$130,538	—	—	—	—	—	—
30 – 34	385	109	187	84	5	—	—	—	—	—
	\$128,438	\$108,923	\$134,044	\$139,894	\$151,741	—	—	—	—	—
35 – 39	378	44	100	158	75	1	—	—	—	—
	\$137,600	\$119,507	\$134,677	\$140,163	\$146,150	\$180,041	—	—	—	—
40 – 44	288	24	35	72	122	34	1	—	—	—
	\$147,929	\$122,547	\$142,638	\$143,144	\$152,060	\$166,383	\$155,294	—	—	—
45 – 49	274	20	17	24	77	103	33	—	—	—
	\$158,857	\$135,296	\$151,573	\$150,453	\$149,869	\$168,728	\$173,167	—	—	—
50 – 54	223	51	4	8	33	66	58	2	1	—
	\$163,309	\$149,195	\$155,387	\$159,396	\$156,959	\$164,474	\$180,601	\$135,182	\$132,155	—
55 – 59	124	41	27	1	10	17	17	9	2	—
	\$158,218	\$152,588	\$166,111	\$165,699	\$152,014	\$147,568	\$162,744	\$171,241	\$187,831	—
60 – 64	38	5	16	8	1	2	4	1	1	—
	\$162,207	\$152,533	\$170,141	\$167,107	\$180,095	\$133,775	\$155,920	\$139,838	\$130,915	—
65 – 69	7	2	2	1	2	—	—	—	—	—
	\$165,458	\$140,640	\$171,361	\$168,437	\$182,882	—	—	—	—	—
70 & over	1	—	1	—	—	—	—	—	—	—
	\$170,974	—	\$170,974	—	—	—	—	—	—	—
Total	2,049	530	485	357	325	223	113	12	4	—
	\$140,388	\$116,388	\$137,832	\$142,551	\$150,944	\$165,236	\$174,646	\$162,615	\$159,683	—

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2022 by Age, Years of Service, and Average Projected Compensation (continued)

Rate Group #8 for Plans E, F, Q, R and V (OCFA)

Age	Years of Service									
	Total	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 & over
Under 25	36	36	—	—	—	—	—	—	—	—
	\$74,339	\$74,339	—	—	—	—	—	—	—	—
25 – 29	116	101	15	—	—	—	—	—	—	—
	\$103,229	\$98,413	\$135,655	—	—	—	—	—	—	—
30 – 34	208	136	68	3	1	—	—	—	—	—
	\$118,343	\$108,308	\$137,289	\$138,948	\$133,023	—	—	—	—	—
35 – 39	226	97	76	36	17	—	—	—	—	—
	\$134,438	\$120,514	\$140,832	\$143,273	\$166,593	—	—	—	—	—
40 – 44	227	52	48	57	61	9	—	—	—	—
	\$148,926	\$129,253	\$144,233	\$148,892	\$167,018	\$165,212	—	—	—	—
45 – 49	171	14	16	49	53	34	5	—	—	—
	\$165,396	\$148,351	\$144,237	\$164,284	\$174,359	\$165,976	\$192,787	—	—	—
50 – 54	124	14	5	28	30	27	15	5	—	—
	\$166,195	\$164,644	\$130,761	\$162,965	\$159,531	\$164,987	\$191,097	\$195,849	—	—
55 – 59	60	3	—	22	7	14	9	3	2	—
	\$169,297	\$157,389	—	\$171,330	\$146,843	\$168,132	\$158,865	\$225,673	\$213,929	—
60 – 64	31	1	4	18	1	3	2	2	—	—
	\$139,375	\$175,250	\$113,645	\$144,435	\$143,221	\$147,761	\$129,642	\$122,581	—	—
65 – 69	10	—	1	2	—	1	1	—	1	4
	\$145,207	—	\$96,992	\$136,289	—	\$133,830	\$123,484	—	\$168,931	\$164,064
70 & over	3	—	—	2	—	—	—	—	—	1
	\$148,577	—	—	\$144,839	—	—	—	—	—	\$156,053
Total	1,212	454	233	217	170	88	32	10	3	5
	\$139,210	\$111,864	\$139,528	\$154,866	\$166,772	\$164,951	\$176,342	\$190,143	\$198,930	\$162,462

Section 3: Supplemental Information

Exhibit C: Reconciliation of Member Data

	Active Members	Inactive Vested Members ¹	Retired Members	Disabled Members	Beneficiaries	Total
Number as of December 31, 2021	22,011	7,238	15,607	1,561	2,658	49,075
• New members	1,963	202	N/A	N/A	236	2,401
• Terminations – with vested rights	(823)	823	N/A	N/A	N/A	0
• Contribution refunds	(167)	(117)	N/A	N/A	N/A	(284)
• Retirements	(903)	(192)	1,095	N/A	N/A	0
• New disabilities	(45)	(3)	(19)	67	N/A	0
• Return to work	54	(51)	(3)	0	N/A	0
• Died with or without beneficiary	(29)	(6)	(365)	(38)	(109)	(547)
• Data adjustments	<u>0</u>	<u>0</u>	<u>(4)</u>	<u>(2)</u>	<u>(6)</u>	<u>(12)</u>
Number as of December 31, 2022	22,061	7,894	16,311	1,588	2,779	50,633

¹ Includes members who chose to leave their contributions on deposit even though they have less than five years of service.

Section 3: Supplemental Information

Exhibit D: Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended December 31, 2022	Year Ended December 31, 2021
Net assets at market value at the beginning of the year¹	\$21,738,794,000	\$18,494,462,000
Contribution income:		
• Employer contributions	\$719,691,000	\$698,791,000
• Member contributions	269,999,000	271,334,000
• Discount for prepaid contributions	37,039,000	31,520,000
• Transfer from County Investment Account ²	<u>14,962,000</u>	<u>15,077,000</u>
<i>Net contribution income</i>	\$1,041,691,000	\$1,016,722,000
Investment income:		
• Interest, dividends and other income	\$(1,936,411,000)	\$3,423,360,000
• Less investment and administrative fees	<u>(169,728,000)</u>	<u>(150,012,000)</u>
<i>Net investment income</i>	<u>\$(2,106,139,000)</u>	<u>\$3,273,348,000</u>
Total income available for benefits	\$(1,064,448,000)	\$4,290,070,000
Less benefit payments:		
• Benefits paid	\$(1,117,476,000)	\$(1,031,289,000)
• Withdrawal of contributions	<u>(22,239,000)</u>	<u>(14,449,000)</u>
<i>Net benefit payments</i>	<u>\$(1,139,715,000)</u>	<u>\$(1,045,738,000)</u>
Change in net assets at market value	\$(2,204,163,000)	\$3,244,332,000
Net assets at market value at the end of the year¹	\$19,534,631,000	\$21,738,794,000

Note: Results may be slightly off due to rounding.

¹ See footnote 1 on next page for further detail.

² Funded by pension obligation bond proceeds held by OCERS.

Section 3: Supplemental Information

Exhibit E: Summary Statement of Plan Assets

	December 31, 2022	December 31, 2021
Cash equivalents	\$401,414,000	\$360,440,000
Accounts receivable:		
• Contributions	\$15,437,000	\$25,981,000
• Investment income	14,940,000	14,570,000
• Securities settlements	137,974,000	63,610,000
• All other	<u>7,685,000</u>	<u>6,739,000</u>
Total accounts receivable	\$176,036,000	\$110,900,000
Investments:		
• Equities	\$11,818,959,000	\$13,723,987,000
• Fixed income investments	1,594,045,000	2,359,869,000
• Alternative investments and diversified credit	6,327,985,000	5,889,367,000
• Security lending collateral	197,093,000	190,517,000
• Fixed assets net of accumulated depreciation	<u>9,088,000</u>	<u>11,067,000</u>
Total investments at market value	<u>\$19,947,170,000</u>	<u>\$22,174,807,000</u>
Total assets	\$20,524,620,000	\$22,646,147,000
Accounts payable:		
• Securities settlements	\$(199,341,000)	\$(120,186,000)
• Securities lending liability	(197,093,000)	(190,517,000)
• All other	<u>(118,155,000)</u>	<u>(108,758,000)</u>
Total accounts payable	\$(514,589,000)	\$(419,461,000)
Net assets at market value¹	\$19,534,631,000	\$21,738,794,000
Net assets at actuarial value	\$20,691,659,000	\$19,488,761,000
Net assets at valuation value	\$20,691,659,000	\$19,488,761,000

Note: Results may be slightly off due to rounding.

¹ The market value excludes \$140,992,000 and \$167,745,000 as of December 31, 2022 and December 31, 2021, respectively, in the County Investment Account (funded by pension obligation bond proceeds held by OCERS), \$320,009,000 and \$304,504,000 as of December 31, 2022 and December 31, 2021, respectively, in the prepaid employer contributions account, \$14,398,000 and \$15,643,000 as of December 31, 2022 and December 31, 2021, respectively in the O.C. Sanitation District UAAL Deferred Account (after transfer).

Section 3: Supplemental Information

Exhibit F: Summary of Reported Reserve Information as of December 31, 2022

	Reserves
Used in Development of Valuation Value of Assets:	
• Active Members Reserve	\$3,794,046,000
• Retired Members Reserve	14,573,532,000
• Employer Advanced Reserve	3,428,140,000
• ERI Contribution Reserve	15,111,000
• STAR COLA Contribution Reserve	0
• Unrealized Appreciation/(Depreciation) Included in Valuation Value of Assets	(1,119,170,000)
Subtotal: Valuation Value of Assets	\$20,691,659,000
Not Used in Development of Valuation Value of Assets:	
• Unclaimed Member Deposit	\$0
• Medicare Medical Insurance Reserve	<u>0</u>
Subtotal	\$0
Subtotal: Actuarial Value of Assets	\$20,691,659,000
• Unrecognized Investment Income	(1,157,028,000)
Subtotal: Market Value of Assets (Net of County Investment Account ¹ and Prepaid Employer Contributions and O.C. Sanitation District UAAL Deferred Account)	\$19,534,631,000
• County Investment Account ¹	140,992,000
• Prepaid Employer Contributions	320,009,000
• O.C. Sanitation District UAAL Deferred Account	<u>14,398,000</u>
Total: Gross Market Value of Assets	\$20,010,030,000

Note: Results may be slightly off due to rounding.

¹ Funded by pension obligation bond proceeds held by OCERS.

Section 3: Supplemental Information

Exhibit G: Development of the Fund through December 31, 2022

Year Ended December 31	Employer Contributions ¹	Member Contributions	Net Investment Return ^{2,3}	Benefit Payments	Market Value of Assets at Year-End	Valuation Value of Assets at Year-End	Valuation Value as a Percent of Market Value
2013	\$458,487,000	\$209,301,000	\$1,031,118,000	\$586,273,000	\$10,679,507,000	\$10,417,125,000	97.54%
2014	659,634,000	232,656,000	487,104,000	630,678,000	11,428,223,000	11,449,911,000	100.19%
2015	598,599,000	249,271,000	(51,601,000)	675,963,000	11,548,529,000	12,228,009,000	105.88%
2016	558,020,000	258,297,000	1,010,548,000	717,976,000	12,657,418,000	13,102,978,000	103.52%
2017	619,067,000	262,294,000	1,878,172,000	764,344,000	14,652,607,000	14,197,125,000	96.89%
2018	616,712,000	270,070,000	(361,321,000)	828,278,000	14,349,790,000	14,994,420,000	104.49%
2019	664,589,000	279,373,000	2,123,258,000	900,902,000	16,516,108,000	16,036,869,000	97.10%
2020	689,538,000	279,384,000	1,982,757,000	973,325,000	18,494,462,000	17,525,117,000	94.76%
2021	745,388,000	271,334,000	3,273,348,000	1,045,738,000	21,738,794,000	19,488,761,000	89.65%
2022	771,692,000	269,999,000	(2,106,139,000)	1,139,715,000	19,534,631,000	20,691,659,000	105.92%

¹ Includes discount for prepaid contributions, asset transfers from County Investment Account and asset transfer from O.C. Sanitation District UAAL Deferred Account, if any.

² On a market basis, net of investment fees and administrative expenses.

³ Actual investment gains or losses on net pension plan assets includes both the administrative expenses and discount for prepaid contributions while excluding the investment gains or losses credited to County Investment Account and O.C. Sanitation District UAAL Deferred Account, if any.

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases

Rate Group #1 – Plans A, B and U (County and IHSS)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$70,164	11	\$59,985	\$6,794
December 31, 2013	Actuarial (gain) or loss	(5,744)	11	(4,911)	(556)
December 31, 2014	Actuarial (gain) or loss	(2,744)	12	(2,429)	(257)
December 31, 2014	Assumption changes	(6,545)	12	(5,790)	(612)
December 31, 2015	Actuarial (gain) or loss	(1,650)	13	(1,504)	(149)
December 31, 2016	Actuarial (gain) or loss	(9,719)	14	(9,064)	(850)
December 31, 2017	Actuarial (gain) or loss	(5,386)	15	(5,121)	(456)
December 31, 2017	Assumption changes	21,899	15	20,817	1,854
December 31, 2018	Actuarial (gain) or loss	44	16	43	4
December 31, 2019	Actuarial (gain) or loss	(6,588)	17	(6,446)	(524)
December 31, 2020	Entry Age method change	(222)	18	(219)	(17)
December 31, 2020	Actuarial (gain) or loss	(6,313)	18	(6,233)	(487)
December 31, 2020	Assumption changes	76	18	75	6
December 31, 2021	Actuarial (gain) or loss	(15,861)	19	(15,782)	(1,188)
December 31, 2022	Actuarial (gain) or loss	526	20	526	38
Subtotal				\$23,947	\$3,600
Rate Group #1 – Plans A, B and U for O.C. Vector Control ¹				\$17	
Rate Group #1 – Plans A, B and U for Department of Education ¹				\$3,191	
Rate Group #1 – Plans A, B and U for U.C.I. ¹				\$26,647	
Rate Group #1 – Plans A, B and U for Cypress Recreation and Parks ¹				\$(690)	
Rate Group #1 Subtotal				\$53,112	

¹ In determining the UAALs for the O.C. Vector Control District, Department of Education, U.C.I and Cypress Recreation and Parks, we first start by rolling forward the VVAs of these employers as of December 31, 2021 to December 31, 2022 to reflect the actual contributions, benefit payments and return on their VVAs during 2022. The AALs for these employers are obtained from internal valuation results.

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #2 – Plans I, J, O, P, S, T, U and W

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$3,438,555	11	\$2,939,676	\$332,952
December 31, 2013	Actuarial (gain) or loss	(173,790)	11	(148,575)	(16,828)
December 31, 2014	Actuarial (gain) or loss	(78,001)	12	(69,026)	(7,294)
December 31, 2014	Assumption changes	(246,714)	12	(218,327)	(23,071)
December 31, 2015	Actuarial (gain) or loss	(65,063)	13	(59,279)	(5,885)
December 31, 2016	Actuarial (gain) or loss	39,445	14	36,786	3,451
Subtotal ¹				\$2,481,255	\$283,325
December 31, 2017	Actuarial (gain) or loss	\$(59,911)	15	\$(56,950)	\$(5,073)
December 31, 2017	Assumption changes	481,098	15	457,318	40,736
December 31, 2018	Actuarial (gain) or loss	207,573	16	200,561	17,039
December 31, 2019	Actuarial (gain) or loss	186,003	17	181,982	14,801
December 31, 2020	Entry Age method change	(15,846)	18	(15,646)	(1,222)
December 31, 2020	Actuarial (gain) or loss	(118,155)	18	(116,664)	(9,115)
December 31, 2020	Assumption changes	183,272	18	180,959	14,138
December 31, 2021	Actuarial (gain) or loss	(330,889)	19	(329,231)	(24,782)
December 31, 2022	Actuarial (gain) or loss	195,127	20	195,127	14,189
Subtotal ²				\$697,456	\$60,711
Rate Group #2 Subtotal				\$3,178,711	\$344,036

Note:

We have made an adjustment to the amortization bases to reflect the \$1.7 million additional contributions made by Children and Families Commission to pay off their UAAL as of December 31, 2016. With that adjustment, we have reduced the amortization layers established on or before December 31, 2016 for Rate Group #2 by that amount on a pro-rata basis. The UAAL contribution rate for Children and Families Commission is determined based on the amortization layers established on or after December 31, 2017.

¹ This amount is spread over the payroll for all employers in Rate Group #2 excluding the payroll for Children and Families Commission.

² This amount is spread over the payroll for all employers in Rate Group #2 including the payroll for Children and Families Commission.

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #3 – Plans B, G, H and U (OCSD)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
Rate Group #3 Subtotal				\$(25,368)	\$0

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #5 – Plans A, B and U (OCTA)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$232,513	11	\$198,943	\$22,533
December 31, 2013	Actuarial (gain) or loss	(13,471)	11	(11,525)	(1,305)
December 31, 2014	Actuarial (gain) or loss	4,522	12	4,005	423
December 31, 2014	Assumption changes	(19,944)	12	(17,664)	(1,867)
December 31, 2015	Actuarial (gain) or loss	(933)	13	(851)	(84)
December 31, 2016	Actuarial (gain) or loss	(9,743)	14	(9,095)	(853)
December 31, 2017	Actuarial (gain) or loss	(9,948)	15	(9,456)	(842)
December 31, 2017	Assumption changes	43,481	15	41,331	3,682
December 31, 2018	Actuarial (gain) or loss	22,318	16	21,564	1,832
December 31, 2019	Actuarial (gain) or loss	12,234	17	11,970	974
December 31, 2020	Entry Age method change	(2,414)	18	(2,384)	(186)
December 31, 2020	Actuarial (gain) or loss	(30,867)	18	(30,477)	(2,381)
December 31, 2020	Assumption changes	4,801	18	4,740	370
December 31, 2021	Actuarial (gain) or loss	(49,440)	19	(49,192)	(3,703)
December 31, 2022	Actuarial (gain) or loss	37,213	20	37,213	2,706
Rate Group #5 Subtotal				\$189,122	\$21,299

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #9 – Plans M, N and U (TCA)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
Rate Group #9 Subtotal				\$(3,069)	\$0

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #10 – Plans I, J, M, N and U (OCFA)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$72,750	11	\$62,245	\$7,050
December 31, 2013	Actuarial (gain) or loss	(2,659)	11	(2,275)	(258)
December 31, 2014	Actuarial (gain) or loss	(3,755)	12	(3,326)	(351)
December 31, 2014	Assumption changes	(4,489)	12	(3,977)	(420)
December 31, 2015	Actuarial (gain) or loss	626	13	570	57
December 31, 2016	Actuarial (gain) or loss	134	14	125	12
December 31, 2017	Actuarial (gain) or loss	(15,281)	15	(14,526)	(1,294)
December 31, 2017	Assumption changes	9,159	15	8,707	776
December 31, 2018	Actuarial (gain) or loss	(6,934)	16	(6,700)	(569)
December 31, 2019	Actuarial (gain) or loss	76	17	74	6
December 31, 2020	Entry Age method change	(2,018)	18	(1,993)	(156)
December 31, 2020	Actuarial (gain) or loss	(12,238)	18	(12,084)	(944)
December 31, 2020	Assumption changes	3,814	18	3,766	294
December 31, 2021	Actuarial (gain) or loss	(10,169)	19	(10,118)	(762)
December 31, 2022	Actuarial (gain) or loss	2,038	20	2,038	148
Rate Group #10 Subtotal				\$22,526	\$3,589

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #11 – Plans M and N, future service, and U (Cemetery)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2017	Restart amortization & Assumption changes	\$281	15	\$266	\$24
December 31, 2018	Actuarial (gain) or loss	(244)	16	(235)	(20)
December 31, 2019	Actuarial (gain) or loss	613	17	600	49
December 31, 2020	Entry Age method change	(43)	18	(43)	(3)
December 31, 2020	Actuarial (gain) or loss	(178)	18	(176)	(14)
December 31, 2020	Assumption changes	218	18	215	17
December 31, 2021	Actuarial (gain) or loss	(394)	19	(392)	(30)
December 31, 2022	Actuarial (gain) or loss	337	20	<u>337</u>	<u>25</u>
Rate Group #11 Subtotal				\$572	\$48

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #12 – Plans G, H, future service, and U (Law Library)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
Rate Group #12 Subtotal				\$(1,128)	\$0

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #6 – Plans E, F and V (Probation)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$192,912	11	\$165,058	\$18,695
December 31, 2013	Actuarial (gain) or loss	(14,039)	11	(12,012)	(1,360)
December 31, 2014	Actuarial (gain) or loss	(2,596)	12	(2,300)	(243)
December 31, 2014	Assumption changes	36,260	12	32,115	3,394
December 31, 2015	Actuarial (gain) or loss	(10,703)	13	(9,760)	(969)
December 31, 2016	Actuarial (gain) or loss	13,799	14	12,880	1,208
December 31, 2017	Actuarial (gain) or loss	(6,566)	15	(6,242)	(556)
December 31, 2017	Assumption changes	50,030	15	47,557	4,236
December 31, 2018	Actuarial (gain) or loss	8,046	16	7,774	660
December 31, 2019	Actuarial (gain) or loss	8,063	17	7,890	642
December 31, 2020	Entry Age method change	(44)	18	(44)	(3)
December 31, 2020	Actuarial (gain) or loss	(14,580)	18	(14,396)	(1,125)
December 31, 2020	Assumption changes	(36,195)	18	(35,739)	(2,792)
December 31, 2021	Actuarial (gain) or loss	(39,490)	19	(39,292)	(2,958)
December 31, 2022	Actuarial (gain) or loss	21,662	20	<u>21,662</u>	<u>1,575</u>
Rate Group #6 Subtotal				\$175,151	\$20,404

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$988,833	11	\$846,062	\$95,826
December 31, 2013	Actuarial (gain) or loss	(51,652)	11	(44,194)	(5,005)
December 31, 2014	Actuarial (gain) or loss	(34,729)	12	(30,759)	(3,250)
December 31, 2014	Assumption changes	102,262	12	90,570	9,571
December 31, 2015	Actuarial (gain) or loss	23,666	13	21,580	2,142
December 31, 2016	Actuarial (gain) or loss	39,724	14	37,076	3,478
December 31, 2017	Actuarial (gain) or loss	(27,922)	15	(26,541)	(2,364)
December 31, 2017	Assumption changes	161,417	15	153,438	13,668
December 31, 2018	Actuarial (gain) or loss	69,329	16	66,987	5,691
December 31, 2019	Actuarial (gain) or loss	75,023	17	73,401	5,970
December 31, 2020	Entry Age method change	(4,900)	18	(4,838)	(378)
December 31, 2020	Actuarial (gain) or loss	(62,670)	18	(61,879)	(4,835)
December 31, 2020	Assumption changes	(88,103)	18	(86,992)	(6,797)
December 31, 2021	Actuarial (gain) or loss	(138,239)	19	(137,547)	(10,354)
December 31, 2022	Actuarial (gain) or loss	73,109	20	73,109	5,316
Rate Group #7 Subtotal				\$969,473	\$108,679

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

Rate Group #8 – Plans E, F, Q, R and V (OCFA)

Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012	Restart amortization	\$399,947	11	\$342,202	\$38,758
December 31, 2013	Actuarial (gain) or loss	(20,177)	11	(17,263)	(1,955)
December 31, 2014	Actuarial (gain) or loss	(35,400)	12	(31,353)	(3,313)
December 31, 2014	Assumption changes	35,957	12	31,847	3,365
December 31, 2015	Actuarial (gain) or loss	(22,228)	13	(20,270)	(2,012)
December 31, 2016	Actuarial (gain) or loss	(15,736)	14	(14,686)	(1,378)
December 31, 2017	Actuarial (gain) or loss	(43,031)	15	(40,905)	(3,644)
December 31, 2017	Assumption changes	53,637	15	50,986	4,542
December 31, 2018	Actuarial (gain) or loss	39,932	16	38,583	3,278
December 31, 2019	Actuarial (gain) or loss	16,317	17	15,965	1,299
December 31, 2020	Entry Age method change	(9,802)	18	(9,678)	(756)
December 31, 2020	Actuarial (gain) or loss	(73,621)	18	(72,692)	(5,679)
December 31, 2020	Assumption changes	(54,766)	18	(54,075)	(4,225)
December 31, 2021	Actuarial (gain) or loss	(78,824)	19	(78,429)	(5,904)
December 31, 2022	Actuarial (gain) or loss	(4,324)	20	(4,324)	(314)
Rate Group #8 Subtotal				\$135,908	\$22,062

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

All Rate Groups Combined

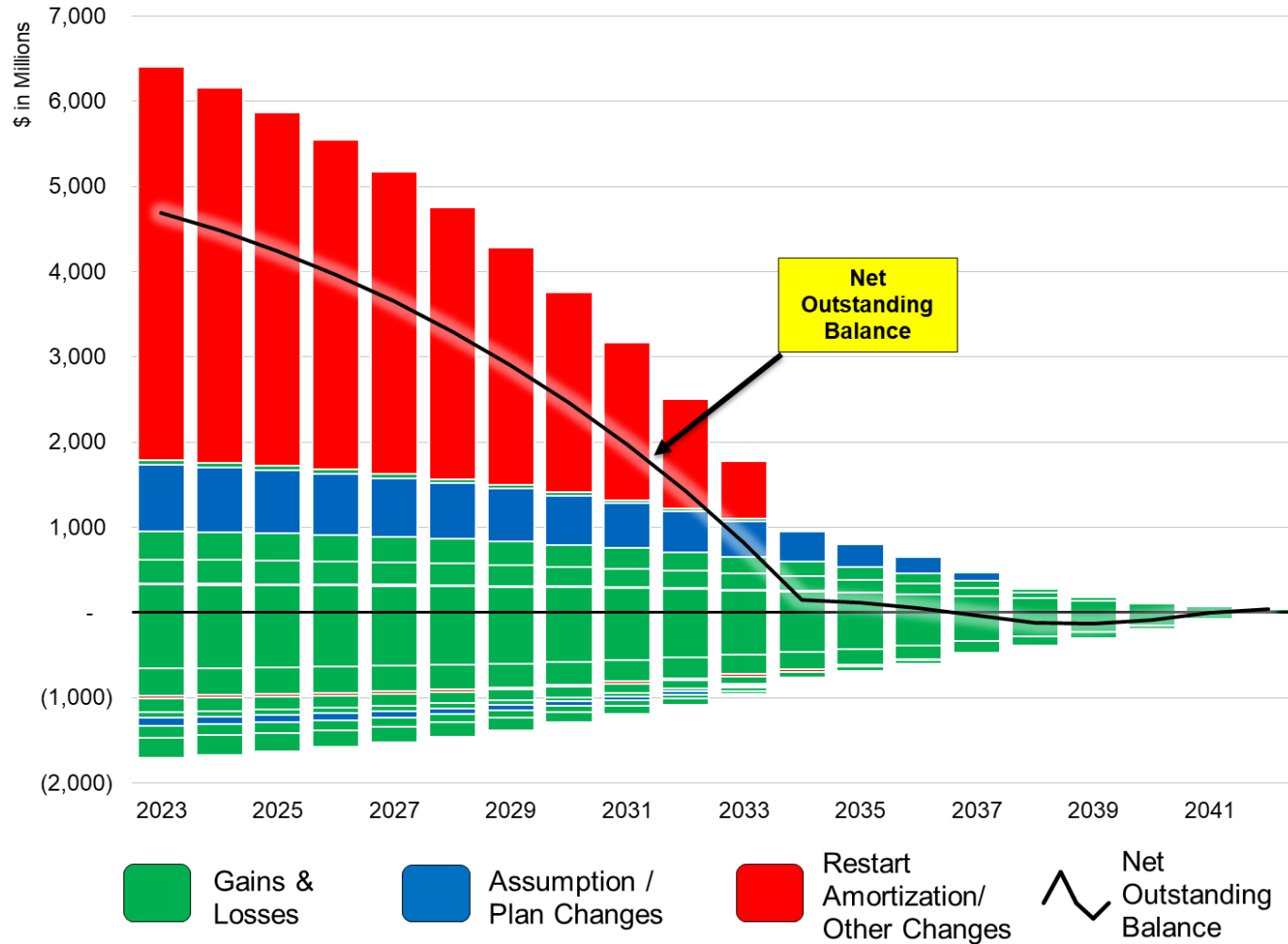
Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012 ¹	Restart amortization	\$5,395,674	11	\$4,614,171	\$522,608
December 31, 2013 ¹	Actuarial (gain) or loss	(281,532)	11	(240,755)	(27,267)
December 31, 2014 ¹	Actuarial (gain) or loss	(152,703)	12	(135,188)	(14,285)
December 31, 2014 ¹	Assumption changes	(103,213)	12	(91,226)	(9,640)
December 31, 2015 ¹	Actuarial (gain) or loss	(76,285)	13	(69,514)	(6,900)
December 31, 2016 ¹	Actuarial (gain) or loss	57,904	14	54,022	5,068
December 31, 2017 ¹	Actuarial (gain) or loss	(168,282)	15	(159,966)	(14,249)
December 31, 2017 ¹	Assumption changes	821,239	15	780,645	69,538
December 31, 2018 ¹	Actuarial (gain) or loss	340,064	16	328,577	27,915
December 31, 2019 ¹	Actuarial (gain) or loss	291,741	17	285,436	23,217
December 31, 2020 ¹	Entry Age method change	(35,289)	18	(34,845)	(2,721)
December 31, 2020 ¹	Actuarial (gain) or loss	(318,622)	18	(314,601)	(24,580)
December 31, 2020 ¹	Assumption changes	13,117	18	12,949	1,011
December 31, 2021 ¹	Actuarial (gain) or loss	(663,306)	19	(659,983)	(49,681)
December 31, 2022 ¹	Actuarial (gain) or loss	325,688	20	<u>325,688</u>	<u>23,683</u>
Subtotal				\$4,695,410	\$523,717
Rate Group #1 – Plans A, B and U for O.C. Vector Control				\$17	
Rate Group #1 – Plans A, B and U for Department of Education				\$3,191	
Rate Group #1 – Plans A, B and U for U.C.I.				\$26,647	
Rate Group #1 – Plans A, B and U for Cypress Recreation and Parks				\$(690)	
Rate Group #3 – Plans B, G, H and U (OCSD)				\$(25,368)	
Rate Group #9 – Plans M, N and U (TCA)				\$(3,069)	
Rate Group #12 – Plans G, H, future service, and U (Law Library)				\$(1,128)	
Total				\$4,695,010	

¹ Excludes O.C. Vector Control, Department of Education, U.C.I., Cypress Recreation and Parks, OCSD, TCA and Law Library.

Section 3: Supplemental Information

Exhibit I: Projection of UAAL Balances and Payments

Outstanding Balance of \$4.7 Billion in Net UAAL as of December 31, 2022¹

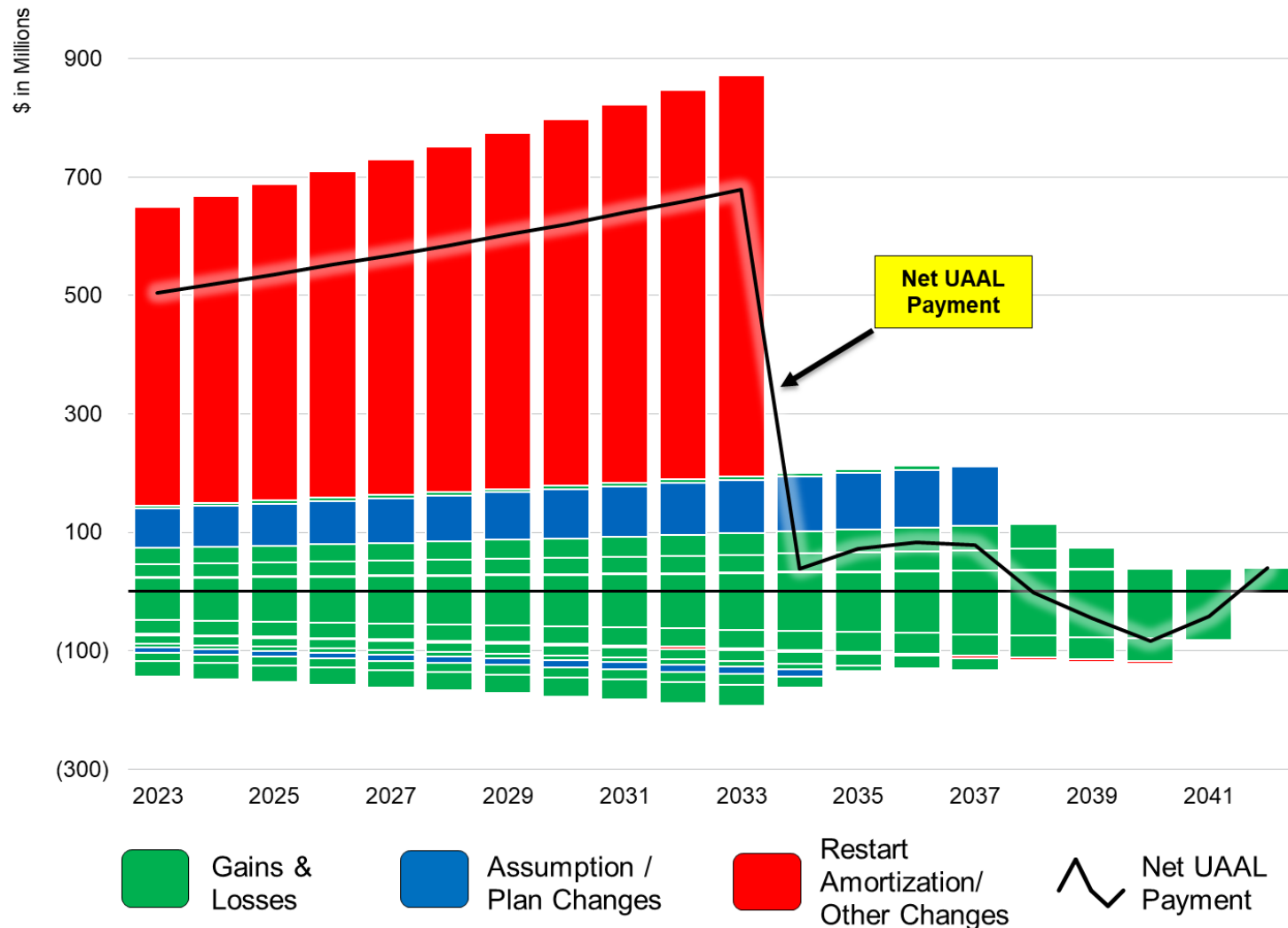


¹ As of December 31, 2036, the Net Outstanding Balance of OCERS' UAAL for all rate groups combined is projected to become negative even though the UAAL for some individual rate groups is still expected to be positive. Since this graph is for illustrative purposes only, we have not refined the Net UAAL amount in calendar years 2037 and thereafter to show only the UAAL for those rate groups that have a positive UAAL and are still required to make annual UAAL contributions as shown on page 99.

Section 3: Supplemental Information

Exhibit I: Projection of UAAL Balances and Payments (continued)

Annual Payments Required to Amortize \$4.7 Billion in Net UAAL as of December 31, 2022¹



¹ Please refer to footnote 1 on page 98 for annual UAAL contribution amount in calendar years 2037 and thereafter.

Section 3: Supplemental Information

Exhibit J: Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Pensioners and Beneficiaries:	The single-sum value of lifetime benefits to existing pensioners and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
Actuarially Equivalent:	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	<p>The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is:</p> <p>Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)</p> <p>Multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination, etc.) on which the payment is conditioned, and</p> <p>Discounted according to an assumed rate (or rates) of return to reflect the time value of money.</p>

Section 3: Supplemental Information

Actuarial Present Value of Future Plan Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).
Actuarial Value of Assets (AVA):	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Section 3: Supplemental Information

Assumptions or Actuarial Assumptions:	<p>The estimates upon which the cost of the Fund is calculated, including:</p> <p><u>Investment return</u> - the rate of investment yield that the Fund will earn over the long-term future;</p> <p><u>Mortality rates</u> - the death rates of employees and pensioners; life expectancy is based on these rates;</p> <p><u>Retirement rates</u> - the rate or probability of retirement at a given age or service;</p> <p><u>Disability rates</u> - the probability of disability retirement at a given age;</p> <p><u>Termination rates</u> - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement;</p> <p><u>Salary increase rates</u> - the rates of salary increase due to inflation and productivity growth.</p>
Closed Amortization Period:	<p>A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.</p>
Decrements:	<p>Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.</p>
Defined Benefit Plan:	<p>A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.</p>
Defined Contribution Plan:	<p>A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.</p>
Employer Normal Cost:	<p>The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.</p>
Experience Study:	<p>A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.</p>
Funded Ratio:	<p>The ratio of the Actuarial Value of Assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the AVA.</p>
Investment Return:	<p>The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.</p>

Section 3: Supplemental Information

Normal Cost:	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the actuarial assumptions are realized.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.
Valuation Value of Assets:	The Actuarial Value of Assets reduced by the value of non-valuation reserves.

Section 4: Actuarial Valuation Basis

Exhibit 1: Actuarial Assumptions and Methods

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the January 1, 2017 through December 31, 2019 Actuarial Experience Study dated August 6, 2020 and PowerPoint presentation dated August 17, 2020. Unless otherwise noted, all actuarial assumptions and methods shown below apply to members for all tiers. These assumptions were adopted by the Board.
<u>Economic Assumptions</u>	
Net Investment Return:	7.00%; net of administrative and investment expenses. Based on the Actuarial Experience Study referenced above, expected administrative and investment expenses represent about 0.85% of the Actuarial Value of Assets.
Member Contribution Crediting Rate:	5.00%, compounded semi-annually.
Cost of Living Adjustments (COLA):	Retiree COLA increases of 2.75% per year. For members that have COLA banks, we assume they receive 3.00% COLA increases until their COLA banks are exhausted and 2.75% thereafter. The actual COLA granted by OCERS on April 1, 2023 has been reflected for non-active members in the December 31, 2022 valuation.
Payroll Growth:	Inflation of 2.50% per year plus “across the board” real salary increases of 0.50% per year.
Increase in Section 7522.10 Compensation Limit:	Increase of 2.50% per year from the valuation date.

Section 4: Actuarial Valuation Basis

Salary Increases:

- The annual rate of compensation increase includes: inflation at 2.50%, plus “across the board” salary increases of 0.50% per year, plus the following merit and promotion increases:

Years of Service	Rate (%)	
	General	Safety
Less than 1	8.00	12.00
1 - 2	7.25	10.00
2 - 3	6.25	8.50
3 - 4	5.25	7.50
4 - 5	4.25	6.50
5 - 6	3.50	5.50
6 - 7	2.75	5.00
7 - 8	2.50	4.00
8 - 9	1.70	3.00
9 - 10	1.70	2.50
10 - 11	1.60	1.85
11 - 12	1.60	1.85
12 - 13	1.50	1.85
13 - 14	1.50	1.85
14 - 15	1.25	1.85
15 - 16	1.25	1.60
16 - 17	1.00	1.60
17 - 18	1.00	1.60
18 - 19	1.00	1.60
19 - 20	1.00	1.60
20 & Over	1.00	1.60

In addition to the individual salary increase assumptions, we have applied an average of two hours of additional salary annually for leap-year salary adjustment.

Section 4: Actuarial Valuation Basis

Demographic Assumptions:

Post-Retirement Mortality Rates:

Healthy

- **General Members:** Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females) with rates increased by 5%, projected generationally with the two-dimensional mortality improvement scale MP-2019
- **Safety Members:** Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2019

Disabled

- **General Members:** Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) with rates decreased by 5%, projected generationally with the two-dimensional mortality improvement scale MP-2019
- **Safety Members:** Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2019

All Beneficiaries

- Pub-2010 General Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females) with rates increased by 5%, projected generationally with the two-dimensional mortality improvement scale MP-2019

The Pub-2010 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Section 4: Actuarial Valuation Basis

Pre-Retirement Mortality Rates:

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

Age	Rate (%) ¹			
	General		Safety	
	Male	Female	Male	Female
20	0.04	0.01	0.04	0.02
25	0.02	0.01	0.03	0.02
30	0.03	0.01	0.04	0.02
35	0.04	0.02	0.04	0.03
40	0.06	0.03	0.05	0.04
45	0.09	0.05	0.07	0.06
50	0.13	0.08	0.10	0.08
55	0.19	0.11	0.15	0.11
60	0.28	0.17	0.23	0.14
65	0.41	0.27	0.35	0.20
70	0.61	0.44	0.66	0.39

All General pre-retirement deaths are assumed to be non-service connected. For Safety, 90% of pre-retirement deaths are assumed to be non-service connected. The other 10% are assumed to be service connected.

¹ Generational projections beyond the base year (2010) are not reflected in the above mortality rates.

Mortality Rates for Member Contributions:

- **General Members:** Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females) with rates increased by 5%, projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP 2019, weighted 40% male and 60% female
- **Safety Members:** Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected 30 years (from 2010) with the two-dimensional mortality improvement scale MP-2019, weighted 80% male and 20% female

Section 4: Actuarial Valuation Basis

Disability Incidence:

Age	Rate (%)			
	General All Other	General OCTA	Safety Law & Fire	Safety Probation
20	0.00	0.00	0.00	0.00
25	0.00	0.00	0.01	0.03
30	0.01	0.03	0.07	0.08
35	0.03	0.20	0.19	0.10
40	0.08	0.39	0.31	0.13
45	0.14	0.48	0.44	0.21
50	0.20	0.53	1.10	0.28
55	0.27	0.70	2.70	0.42
60	0.33	1.22	5.00	0.20

65% of General All Other disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected.

80% of General OCTA disabilities are assumed to be service connected disabilities. The other 20% are assumed to be non-service connected.

100% of Safety Law Enforcement and Fire disabilities are assumed to be service connected disabilities.

75% of Safety Probation disabilities are assumed to be service connected disabilities. The other 25% are assumed to be non-service connected.

Section 4: Actuarial Valuation Basis

Termination:

Years of Service	Rate (%)			
	General All Other	General OCTA	Safety Law & Fire	Safety Probation
Less than 1	11.00	17.00	4.25	14.00
1 – 2	7.25	11.50	2.75	13.00
2 – 3	6.50	9.00	2.25	11.00
3 – 4	5.50	8.50	1.75	5.00
4 – 5	5.00	8.00	1.50	4.00
5 – 6	4.50	7.00	1.25	3.25
6 – 7	4.00	4.25	1.00	2.75
7 – 8	3.50	4.00	0.95	2.75
8 – 9	3.25	3.25	0.90	2.50
9 – 10	3.00	3.00	0.85	1.75
10 – 11	2.50	2.75	0.80	1.50
11 – 12	2.00	2.50	0.75	1.50
12 – 13	2.00	2.50	0.70	1.25
13 – 14	2.00	2.25	0.65	1.00
14 – 15	1.50	2.25	0.60	0.75
15 – 16	1.40	2.25	0.55	0.75
16 – 17	1.30	2.00	0.50	0.75
17 – 18	1.20	1.80	0.45	0.75
18 – 19	1.10	1.60	0.40	0.50
19 – 20	1.00	1.40	0.30	0.25
20 & Over	0.75	1.20	0.15	0.15

Election for Withdrawal of Contributions

Years of Service	Rate (%)			
	General All Other	General OCTA	Safety Law & Fire	Safety Probation
Less than 5	30.00	40.00	20.00	25.00
5 – 9	25.00	30.00	20.00	25.00
10 – 14	25.00	25.00	10.00	25.00
15 & Over	17.50	15.00	10.00	15.00

Section 4: Actuarial Valuation Basis

Retirement Rates:

Age	Rate (%) ¹			
	General Enhanced		General Non-Enhanced ²	
	Less than 30 Years of Service	Greater than 30 Years of Service	Less than 30 Years of Service	Greater than 30 Years of Service
49	0.00	30.00	0.00	25.00
50	2.00	4.00	3.00	3.00
51	2.00	4.00	3.00	3.00
52	2.50	5.00	2.00	2.00
53	2.50	5.00	3.50	3.50
54	7.00	14.00	2.75	2.75
55	12.00	30.00	3.25	3.25
56	9.00	19.00	3.50	3.50
57	9.00	18.00	5.00	5.00
58	9.00	18.00	5.50	5.50
59	10.00	20.00	6.50	6.50
60	11.00	20.00	9.00	13.50
61	11.00	20.00	9.00	13.50
62	13.00	20.00	9.00	18.00
63	13.00	22.00	9.50	19.00
64	16.00	24.00	10.00	20.00
65	24.00	28.00	22.00	26.40
66	24.00	30.00	25.00	30.00
67	24.00	30.00	25.00	30.00
68	22.00	27.50	30.00	27.50
69	22.00	27.50	30.00	27.50
70	25.00	27.50	20.00	27.50
71	25.00	27.50	20.00	27.50
72	25.00	27.50	20.00	27.50
73	20.00	27.50	20.00	27.50
74	20.00	27.50	20.00	27.50
75	100.00	100.00	100.00	100.00

¹ The retirement rates only apply to members that are eligible to retire at the age shown.

² These assumptions are also used for the CalPEPRA 1.62% @ 65 formula (Plan T and Plan W).

Section 4: Actuarial Valuation Basis

Retirement Rates (continued):

Age	Rate (%) ¹					
	Safety Law (31664.1)		Safety Fire (31664.1)		Safety Probation (31664.1)	
	Less than 30 Years of Service	Greater than 30 Years of Service	Less than 30 Years of Service	Greater than 30 Years of Service	Less than 30 Years of Service	Greater than 30 Years of Service
45	1.00	16.00	2.00	10.00	3.00	5.00
46	1.00	16.00	2.00	10.00	3.00	5.00
47	1.00	16.00	2.00	10.00	3.00	5.00
48	1.00	16.00	2.00	10.00	3.00	5.00
49	11.00	16.00	2.00	10.00	3.00	5.00
50	16.00	16.00	4.00	10.00	9.00	12.00
51	16.00	16.00	4.00	10.00	7.00	10.00
52	17.00	16.00	4.00	10.00	5.00	9.00
53	19.00	30.00	9.00	20.00	7.00	9.00
54	24.00	30.00	12.00	25.00	7.00	12.00
55	24.00	30.00	12.00	25.00	12.00	30.00
56	22.00	30.00	12.00	25.00	18.00	30.00
57	22.00	30.00	18.00	25.00	25.00	30.00
58	22.00	40.00	18.00	30.00	25.00	30.00
59	22.00	40.00	18.00	30.00	18.00	30.00
60	30.00	40.00	18.00	30.00	20.00	40.00
61	30.00	40.00	18.00	30.00	20.00	40.00
62	30.00	40.00	18.00	35.00	20.00	40.00
63	30.00	40.00	18.00	35.00	20.00	40.00
64	30.00	40.00	18.00	35.00	20.00	40.00
65	100.00	100.00	100.00	100.00	100.00	100.00

¹ The retirement rates only apply to members that are eligible to retire at the age shown.

Section 4: Actuarial Valuation Basis

Retirement Rates (continued):

Age	Rate (%) ¹		
	General SJC (31676.12)	Safety Law (31664.2)	Safety Fire (31664.2)
50	4.00	11.50	8.00
51	4.00	12.00	9.00
52	4.00	12.70	10.00
53	4.00	17.90	12.00
54	4.00	18.80	14.00
55	4.00	35.00	23.00
56	5.00	25.00	22.00
57	6.00	25.00	25.00
58	7.00	25.00	25.00
59	9.00	30.00	35.00
60	10.00	40.00	40.00
61	12.00	40.00	40.00
62	13.00	40.00	40.00
63	13.00	40.00	40.00
64	19.00	40.00	40.00
65	20.00	100.00	100.00
66	25.00	100.00	100.00
67	25.00	100.00	100.00
68	25.00	100.00	100.00
69	25.00	100.00	100.00
70	45.00	100.00	100.00
71	45.00	100.00	100.00
72	45.00	100.00	100.00
73	45.00	100.00	100.00
74	45.00	100.00	100.00
75	100.00	100.00	100.00

¹ The retirement rates only apply to members that are eligible to retire at the age shown.

Section 4: Actuarial Valuation Basis

Retirement Rates (continued):

Age	Rate (%) ¹			
	CalPEPRA 2.5% @ 67 General Formula	CalPEPRA 2.7% @ 57 Safety Formula Probation	CalPEPRA 2.7% @ 57 Safety Formula Law	CalPEPRA 2.7% @ 57 Safety Formula Fire
50	0.00	3.00	11.00	6.00
51	0.00	3.00	11.50	6.50
52	6.00	3.50	12.00	8.00
53	2.00	3.50	16.00	10.00
54	2.00	6.00	17.00	11.50
55	2.50	12.00	29.00	20.00
56	3.50	12.00	19.00	19.00
57	5.50	15.00	19.00	21.00
58	7.50	25.00	23.00	24.00
59	7.50	25.00	26.00	30.00
60	7.50	40.00	40.00	40.00
61	7.50	40.00	40.00	40.00
62	14.00	40.00	40.00	40.00
63	14.00	40.00	40.00	40.00
64	14.00	40.00	40.00	40.00
65	20.00	100.00	100.00	100.00
66	22.00	100.00	100.00	100.00
67	23.00	100.00	100.00	100.00
68	23.00	100.00	100.00	100.00
69	23.00	100.00	100.00	100.00
70	25.00	100.00	100.00	100.00
71	25.00	100.00	100.00	100.00
72	25.00	100.00	100.00	100.00
73	25.00	100.00	100.00	100.00
74	25.00	100.00	100.00	100.00
75	100.00	100.00	100.00	100.00

¹ The retirement rates only apply to members that are eligible to retire at the age shown.

Section 4: Actuarial Valuation Basis

Retirement Age and Benefit for Deferred Vested Members:	General Retirement Age: 59 Safety Retirement Age: 54 Future deferred vested members who terminate with less than five years of service and are not vested are assumed to retire at age 70 for both General and Safety if they decide to leave their contributions on deposit. 15% of future General and 20% of future Safety deferred vested members are assumed to continue to work for a reciprocal employer. For reciprocals, 4.00% and 4.60% compensation increases are assumed per annum for General and Safety, respectively.
Liability Calculation for Current Deferred Vested Members:	Liability for a current deferred vested member is calculated based on salary (adjusted with the additional cashout assumptions for non-CalPEPRA members), service, and eligibility for reciprocal benefit as provided by the Retirement System. For those members without salary information that have 3 or more years of service, we used an average salary. For those members without salary information that have less than 3 years of service or for those members without service information, we assumed a refund of account balance.
Future Benefit Accruals:	1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Form of Payment:	All active and inactive members are assumed to elect the unmodified option at retirement.
Percent Married:	For all active and inactive members, 75% of male members and 55% of female members are assumed to be married at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.

Section 4: Actuarial Valuation Basis

Cashout Assumptions:

Additional compensation amounts are expected to be received during a member's final average earnings period. The percentages used in this valuation are:

Years of Service	Rate (%)	
	Final One Year Salary	Final Three Year Salary
General Non-CalPEPRA	3.00%	2.90%
Safety Probation Non-CalPEPRA	3.80%	3.40%
Safety Law Non-CalPEPRA	N/A	6.90%
Safety Fire Non-CalPEPRA	N/A	1.50%
General CalPEPRA	N/A	N/A
Safety Probation CalPEPRA	N/A	N/A
Safety Law CalPEPRA	N/A	N/A
Safety Fire CalPEPRA	N/A	N/A

The additional cashout assumptions are the same for service and disability retirements.

Actuarial Funding Policy

Actuarial Cost Method:

Entry Age Actuarial Cost Method. Entry Age is the age on the valuation date minus the lesser of years of employment or years of benefit service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated as a level percentage of compensation. The normal cost rate is calculated assuming their Entry Age is the date they entered service with OCERS.

Please note that for Probation members who have prior benefit service in another General OCERS plan, the normal cost rate for the current plan is calculated assuming their Entry Age is the date they entered service with their current plan.

Actuarial Value of Assets:

Market value of assets (MVA) less unrecognized returns in each of the last five annual accounting periods. Unrecognized returns are equal to the difference between the actual market return and the expected return on the market value, and are recognized annually over a five-year period.

Valuation Value of Assets:

The Actuarial Value of Assets reduced by the value of the non-valuation reserves.

Amortization Policy:

Effective December 31, 2013, the outstanding balance of the UAAL from the December 31, 2012 valuation was combined and re-amortized over a declining 20-year period (11 years remaining as of December 31, 2022).

Any new UAAL resulting from plan amendments are amortized over separate decreasing 15-year periods; early retirement incentive programs (ERIPs) are amortized over separate decreasing 5-year periods; assumption and method changes are amortized over separate decreasing 20-year periods; and experience gains/losses are also amortized over separate decreasing 20-year periods.

Section 4: Actuarial Valuation Basis

Other Actuarial Methods

Employer Contributions:

Employer contributions consist of two components:

Normal Cost

The annual contribution rate that, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement-related benefits. Accumulation includes annual crediting of interest at the assumed investment earning rate. The contribution rate is determined as a level percentage of the member's compensation.

Contribution to the Unfunded Actuarial Accrued Liability (UAAL)

The annual contribution rate that, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. Accumulation includes annual crediting of interest at the assumed investment earning rate. The contribution (or rate credit in the case of a negative UAAL) is calculated to remain as a level percentage of future active member payroll (including payroll for new members as they enter the System) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments (credits) are scheduled to increase at the annual payroll growth rate assumption

The amortization policy is described on the previous page.

The recommended employer contributions are provided in *Section 2, Subsection F*.

Member Contributions:

Non-CalPEPRA Members

Articles 6 and 6.8 of the 1937 Act define the methodology to be used in the calculation of member basic contribution rates for General members and Safety members, respectively. The basic contribution rate is determined so that the accumulation of a member's basic contributions made in a given year until a certain age will be sufficient to fund an annuity at that age that is equal to:

- 1/200 of Final Average Salary for General Plan A;
- 1/120 of Final Average Salary for General Plan B;
- 1/100 of Final Average Salary for General Plans G, H, I, J, and S;
- 1/120 of Final Average Salary for General Plans M, N, O, and P;
- 1/200 of Final Average Salary for Safety Plans E and Q, and;
- 1/100 of Final Average Salary for Safety Plans F and R.

The annuity age is 60 for General Plans A, B, M, N, O, P and S, 55 for Plans G, H, I, and J, and 50 for Safety Plans E, F, Q, and R. It is assumed that contributions are made annually at the same rate, starting at entry age.

Section 4: Actuarial Valuation Basis

In addition to the basic contributions, members also pay one-half of the total normal cost necessary to fund cost-of-living benefits which is calculated separately for each rate group, with the exception of Rate Groups #9 and #11, which are developed on a combined or pooled basis as described in our Cost Sharing Structure letter dated July 30, 2010. Within each rate group, the COLA normal cost is either pooled for Tiers 1 and 2 because the same 3% COLA is provided for both Tiers, or it differs by a set formula based on past practice we carried over from the OCERS' prior actuary. Accumulation includes crediting of interest at the assumed investment earnings rate.

Effective with the December 31, 2014 valuation, for determining the cost of the total benefit (i.e., basic and COLA components), the effect of the assumed additional cashouts are recognized in the valuation as an employer and member cost.

CalPEPRA Members

Pursuant to Section 7522.30(a) of the Government Code, members in Plans T, U, V and W are required to contribute at least 50% of the Normal Cost rate. We have assumed that exactly 50% of the Normal Cost would be paid by the new members. Also of note is that based on our recommendation, OCERS decided to use the discretion made available by AB1380 to not round the member's contribution rate to the nearest ¼% as previously required by CalPEPRA.

For members in Plan T and Plan W, their basic rates have been calculated using a methodology similar to that used for Plan P. For members in Plan U or Plan V, their basic rates have been calculated using a methodology outlined in our letter dated December 4, 2012 that was previously approved by the Board.

The member contribution rates for all members are provided in *Section 4, Exhibit 3*.

Internal Revenue Code Section 415:

Section 415 of the Internal Revenue Code (IRC) specifies the maximum benefits that may be paid to an individual from a defined benefit plan and the maximum amounts that may be allocated each year to an individual's account in a defined contribution plan.

A qualified pension plan may not pay benefits in excess of the Section 415 limits. The ultimate penalty for non-compliance is disqualification: active participants could be taxed on their vested benefits and the IRS may seek to tax the income earned on the plan's assets.

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar limit of \$160,000 indexed for inflation. That limit is \$265,000 for 2023. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

Non-CalPEPRA benefits in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m).

Legal Counsel's review and interpretation of the law and regulations should be sought on any questions in this regard.

Non-CalPEPRA contribution rates determined in this valuation have not been reduced for the Section 415 limitations. Actual limitations will result in gains as they occur.

Section 4: Actuarial Valuation Basis

Changed Actuarial Assumptions and Methods:

There have been no changes in actuarial assumptions since the last valuation.

Section 4: Actuarial Valuation Basis

Exhibit 2: Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year:	January 1 through December 31
Membership Eligibility:	Membership with OCERS begins with the day of employment in an eligible position by the County or a participating employer.
Non-CalPEPRA General Plans	<u>2.5% @ 55 Plans (Orange County Sanitation District⁽¹⁾ and Law Library⁽²⁾)</u>
Plan G	General members hired before September 21, 1979.
Plan H	General members hired on or after September 21, 1979.
	<u>2.7% @ 55 Plans (City of San Juan Capistrano, Orange County Members except bargaining unit AFSCME members, Orange County Superior Court, Local Agency Formation Commission⁽²⁾, Orange County Employees Retirement System⁽³⁾, Children and Families Commission⁽⁴⁾ and Orange County OCFA)</u>
Plan I	General members hired before September 21, 1979.
Plan J	General members hired on or after September 21, 1979.
	<u>2.0% @ 55 Plans (Transportation Corridor Agency, Cemetery District⁽⁵⁾ and General OCFA)</u>
Plan M	General members hired before September 21, 1979 and General OCFA members hired on or after July 1, 2011.
Plan N	General members hired on or after September 21, 1979.
	<u>1.62% @ 65 Plans (Orange County Members, Orange County Superior Court, Local Agency Formation Commission and County Managers unit)</u>
Plan O	County OCEA members and Superior Court members rehired on or after May 7, 2010, LAFCO members rehired on or after July 1, 2010 and County Managers unit members rehired on or after August 17, 2010 and not electing to rejoin Plan I.
Plan P	County OCEA members and Superior Court members hired on or after May 7, 2010, LAFCO members hired on or after July 1, 2010 and County Managers unit members hired on or after August 17, 2010 and not electing Plan J.
	⁽¹⁾ Sanitation District members within Supervisors and Professional unit hired on or after October 1, 2010 are in Plan B.
	⁽²⁾ Improvement is prospective only for service after June 23, 2005.
	⁽³⁾ Improvement for management members is prospective only for service after June 30, 2005.
	⁽⁴⁾ Improvement is prospective only for service after December 22, 2005.
	⁽⁵⁾ Improvement is prospective only for service after December 7, 2007.

Section 4: Actuarial Valuation Basis

<i>Plan S</i>	<p><u>2.0% @ 57 Plan (City of San Juan Capistrano)</u></p> <p>General members hired on or after July 1, 2012.</p> <p><u>All Other General Employers</u></p>
<i>Plan A</i>	General members hired before September 21, 1979.
<i>Plan B</i>	General members hired on or after September 21, 1979 and Sanitation District members within Supervisors and Professional unit hired on or after October 1, 2010.
Non-CalPEPRA Safety Plans	<u>3.0% @ 50 Plans (Law Enforcement, OCFA and Probation Members)</u>
<i>Plan E</i>	Safety members hired before September 21, 1979.
<i>Plan F</i>	Safety members hired on or after September 21, 1979 and before April 9, 2010 for Law Enforcement, before July 1, 2011 for Safety members of OCFA Executive Management, and before July 1, 2012 for other OCFA Safety members.
	<u>3% @ 55 Plans (Law Enforcement, OCFA)</u>
<i>Plan Q</i>	Safety Law Enforcement members rehired on or after April 9, 2010, Safety members of OCFA Executive Management rehired on or after July 1, 2011, and other OCFA Safety members rehired on or after July 1, 2012 and previously in Plan E.
<i>Plan R</i>	Safety Law Enforcement members hired on or after April 9, 2010, Safety members of OCFA Executive Management hired on or after July 1, 2011, and other OCFA Safety members hired on or after July 1, 2012.
	<u>1.62% @ 65 Plan (Orange County Members except County Attorneys, Orange County Employees Retirement System except Management Members, Local Agency Formation Commission, and Orange County Superior Court)</u>
CalPEPRA General Plans	
<i>Plan T</i>	General members with membership dates on or after January 1, 2013.
	<u>2.5% @ 67 Plan (All Other General Employers, Orange County Attorneys, Orange County Superior Court⁽¹⁾, Orange County Employees Retirement System Management Members)</u>
<i>Plan U</i>	General Non-Orange County Transportation Authority members with membership dates on or after January 1, 2013 and Orange County Transportation Authority members with membership dates on or after January 1, 2015.
	⁽¹⁾ Improvement is prospective only for service after July 1, 2023.
	<u>1.62% @ 65 Plan (City of San Juan Capistrano)</u>
<i>Plan W</i>	General members with membership dates on or after January 1, 2016 and not electing Plan U.

Section 4: Actuarial Valuation Basis

<p>CalPEPRA Safety Plans <i>Plan V</i></p>	<p><u>2.7% @ 57 Plan (Law Enforcement, OCFA and Probation Members)</u> Safety members with membership dates on or after January 1, 2013.</p>	
<p>Final Compensation for Benefit Determination:</p> <p><i>Plans A, E, G, I, M, O and Q</i></p> <p><i>Plans B, F, H, J, N, P, R and S</i></p> <p><i>Plans T</i></p> <p><i>Plans U, V and W</i></p>	<p>Highest consecutive 12 months of compensation earnable (§31462.1) (FAS1).</p> <p>Highest consecutive 36 months of compensation earnable (§31462) (FAS3).</p> <p>Highest consecutive 36 months of pensionable compensation (§7522.32 and §7522.34) (FAS3).</p> <p>Highest consecutive 36 months of pensionable compensation (§7522.10(c), §7522.32 and §7522.34) (FAS3).</p>	
<p>Service:</p>	<p>Years of service (Yrs) are generally based on a member's employment during a period of time for which deductions are made from their compensation.</p>	
<p>Service Retirement Eligibility:</p> <p><i>General</i></p> <p><i>Plans A, B, G, H, I, J, M, N, O, P, S, T and W</i></p> <p><i>Plan U</i></p> <p><i>Safety</i></p> <p><i>Plans E, F, Q and R</i></p> <p><i>Plan V</i></p>	<p>Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years regardless of age (§31672). All part time members over age 55 with 10 years of employment may retire with 5 years of service.</p> <p>Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service (§31672.3).</p> <p>Age 50 with 10 years of service, or age 70 regardless of service, or after 20 years regardless of age (§31663.25). All part time members over age 55 with 10 years of employment may retire with 5 years of service.</p> <p>Age 50 with 5 years of service (§7522.25(d)) or age 70 regardless of service (§31672.3).</p>	
<p>Benefit Formula:</p> <p><i>General Plan G</i> <i>2.5% @ 55 (§31676.18)</i></p>	<p>Retirement Age</p> <p>50</p> <p>55</p> <p>60</p> <p>62⁽¹⁾</p> <p>65 and over⁽¹⁾</p>	<p>Benefit Formula</p> <p>2.00% x FAS1 x Yrs</p> <p>2.50% x FAS1 x Yrs</p> <p>2.50% x FAS1 x Yrs</p> <p>2.62% x FAS1 x Yrs</p> <p>2.62% x FAS1 x Yrs</p>
<p>⁽¹⁾ Reflects benefit factors from Plan A as they provide a better benefit than those under 2.5% @ 55.</p>		

Section 4: Actuarial Valuation Basis

General Plan H
2.5% @ 55 (§31676.18)

Retirement Age
50
55 and over

Benefit Formula
2.00% x FAS3 x Yrs
2.50% x FAS3 x Yrs

General Plan I
2.7% @ 55 (§31676.19)

Retirement Age
50
55 and over

Benefit Formula
2.00% x FAS1 x Yrs
2.70% x FAS1 x Yrs

General Plan J
2.7% @ 55 (§31676.19)

Retirement Age
50
55 and over

Benefit Formula
2.00% x FAS3 x Yrs
2.70% x FAS3 x Yrs

General Plan M
2.0% @ 55 (§31676.16)

Retirement Age
50
55
60⁽²⁾
62⁽²⁾
65 and over⁽²⁾

Benefit Formula
1.43% x FAS1 x Yrs
2.00% x FAS1 x Yrs
2.34% x FAS1 x Yrs
2.62% x FAS1 x Yrs
2.62% x FAS1 x Yrs

⁽²⁾ Reflects benefit factors from Plan A as they provide a better benefit than those under 2.0% @ 55.

General Plan N
2.0% @ 55 (§31676.16)

Retirement Age
50
55
60
62
65 and over⁽¹⁾

Benefit Formula
1.43% x FAS3 x Yrs
2.00% x FAS3 x Yrs
2.26% x FAS3 x Yrs
2.37% x FAS3 x Yrs
2.43% x FAS3 x Yrs

⁽¹⁾ Reflects benefit factors from Plan B as they provide a better benefit than those under 2.0% @ 55.

Section 4: Actuarial Valuation Basis

<i>General Plan O</i> 1.62% @ 65 (§31676.01)	Retirement Age	Benefit Formula
	50	0.79% x FAS1 x Yrs
	55	0.99% x FAS1 x Yrs
	60	1.28% x FAS1 x Yrs
	62	1.39% x FAS1 x Yrs
	65 and over	1.62% x FAS1 x Yrs
<i>General Plans P, T and W</i> 1.62% @ 65 (§31676.01)	Retirement Age	Benefit Formula
	50	0.79% x FAS3 x Yrs
	55	0.99% x FAS3 x Yrs
	60	1.28% x FAS3 x Yrs
	62	1.39% x FAS3 x Yrs
	65 and over	1.62% x FAS3 x Yrs
<i>General Plan S</i> 2.0% @ 57 (§31676.12)	Retirement Age	Benefit Formula
	50	1.34% x FAS3 x Yrs
	55	1.77% x FAS3 x Yrs
	60	2.34% x FAS3 x Yrs
	62	2.62% x FAS3 x Yrs
	65 and over	2.62% x FAS3 x Yrs
<i>General Plan A</i> 2.0% @ 57 (§31676.12)	Retirement Age	Benefit Formula
	50	1.34% x FAS1 x Yrs
	55	1.77% x FAS1 x Yrs
	60	2.34% x FAS1 x Yrs
	62	2.62% x FAS1 x Yrs
	65 and over	2.62% x FAS1 x Yrs

Section 4: Actuarial Valuation Basis

<i>General Plan B</i> 1.64% @ 57 (§31676.1)	Retirement Age	Benefit Formula
	50	1.18% x FAS3 x Yrs
	55	1.49% x FAS3 x Yrs
	60	1.92% x FAS3 x Yrs
	62	2.09% x FAS3 x Yrs
	65 and over	2.43% x FAS3 x Yrs
<i>General Plan U</i> 2.5% @ 67 (§7522.20(a))	Retirement Age	Benefit Formula
	52	1.00% x FAS3 x Yrs
	55	1.30% x FAS3 x Yrs
	60	1.80% x FAS3 x Yrs
	62	2.00% x FAS3 x Yrs
	65	2.30% x FAS3 x Yrs
	67 and over	2.50% x FAS3 x Yrs
<i>Safety Plan E</i> 3.0% @ 50 (§31664.1)	Retirement Age	Benefit Formula
50 and over	3.00% x FAS1 x Yrs	
<i>Safety Plan F</i> 3.0% @ 50 (§31664.1)	Retirement Age	Benefit Formula
50 and over	3.00% x FAS3 x Yrs	
<i>Safety Plan Q</i> 3.0% @ 55 (§31664.2)	Retirement Age	Benefit Formula
	50	2.29% x FAS1 x Yrs
	55 and over	3.00% x FAS1 x Yrs
<i>Safety Plan R</i> 3.0% @ 55 (§31664.2)	Retirement Age	Benefit Formula
	50	2.29% x FAS3 x Yrs
	55 and over	3.00% x FAS3 x Yrs
<i>Safety Plan V</i> 2.7% @ 57 (§7522.25(d))	Retirement Age	Benefit Formula
	50	2.00% x FAS3 x Yrs
	55	2.50% x FAS3 x Yrs
	57 and over	2.70% x FAS3 x Yrs

Section 4: Actuarial Valuation Basis

Maximum Benefit:

<i>Plans A, B, E, F, G, H, I, J, M, N, O, P, Q, R, S, T and W</i>	100% of Highest Average Compensation (§31676.01, §31676.1, §31676.12, §31676.16, §31676.18, §31676.19, §31664.1, §31664.2).
<i>Plans U and V</i>	None.

Ordinary Disability:

General

<i>Eligibility</i>	Five years of service (§31720).
<i>Benefit Formula</i>	Plans A, G, I, M and O: 1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 62, but the total benefit cannot be more than one-third of Final Compensation. (§31727.1). Plans B, H, J, N, P, S, T, U and W: 1.5% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 65, but the total benefit cannot be more than one-third of Final Compensation. (§31727). For all members, 100% of the Service Retirement benefit will be paid, if greater.

Safety

<i>Eligibility</i>	Five years of service (§31720).
<i>Benefit Formula</i>	1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 55, but the total benefit cannot be more than one-third of Final Compensation (§31727.2). For all members, 100% of the Service Retirement benefit will be paid, if greater.

Line-of-Duty Disability:

All Members

<i>Eligibility</i>	No age or service requirements (§31720).
<i>Benefit Formula</i>	50% of the Final Compensation or 100% of Service Retirement benefit, if greater (§31727.4).

Section 4: Actuarial Valuation Basis

Pre-Retirement Death:

All Members

<i>Eligibility</i>	None.
<i>Basic lump sum benefit</i>	Refund of member contributions with interest, plus one month's compensation for each year of service, to a maximum of six months' compensation (§31781). A lump sum benefit in the amount of \$1,000 is payable upon the death of a member (with 10 years of service) to his/her eligible beneficiary (§31790).
<i>Death in line of duty</i>	50% of Final Compensation or 100% of Service Retirement benefit, if greater, payable to spouse or minor children (§31787).

Vested Members

<i>Eligibility</i>	Five years of service.
<i>Basic benefit</i>	60% of the greater of Service or Ordinary Disability Retirement benefit payable to surviving eligible spouse (§31765.1, §31781.1), in lieu of the basic lump sum benefit above (§31781).

Death After Retirement:

All Members

<i>Service Retirement or Ordinary Disability Retirement</i>	Unless another option was selected at retirement, 60% of member's unmodified allowance continues to eligible spouse (§31760.1). A lump sum benefit amount of \$1,000 is payable upon the death of a member (with 10 years of service) to his/her eligible beneficiary (§31790). An eligible spouse is a surviving spouse who was married to the member at least one year prior to the date of retirement (§31760.1). Certain surviving spouses or domestic partners may also be eligible if marriage or domestic partnership was at least two years prior to the date of death and the surviving spouse or domestic partner has attained age 55.
<i>Line of Duty Disability</i>	Unless another option was selected at retirement, 100% of member's allowance continued to eligible spouse (§31786). A lump sum benefit in the amount of \$1,000 is payable upon the death of a member (with 10 years of service) to his/her eligible beneficiary (§31790).

Withdrawal Benefits:

<i>Less than Five Years of Service</i>	Refund of accumulated employee contributions with interest, or benefit at age 70 (§31628). Effective January 1, 2003, a member may also elect to leave contributions on deposit in the retirement fund (§31629.5).
<i>Five or More Years of Service</i>	Refund of accumulated employee contributions with interest. If contributions left on deposit, a member is entitled to earned benefits commencing at any time after eligible to retire (§31700).

Section 4: Actuarial Valuation Basis

Post-retirement Cost-of-Living Benefits:	Annual adjustment based on Consumer Price Index to a maximum of 3% per year; excess “banked” (\$31870.1).
Supplemental Benefit:	Non-vested supplemental COLA benefit is also paid by the System to eligible retirees and survivors. This benefit has been excluded from this valuation.
Member Contributions:	Please refer to <i>Section 4, Exhibit 3</i> for the specific rates.
<i>Plan A</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 60 equal to 1/200 of FAS1 (\$31621.5).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
<i>Plan B</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 60 equal to 1/120 of FAS3 (\$31621).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
<i>Plans G, H, I and J</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 55 equal to 1/100 of FAS3 (FAS1 for Plans G and I) (\$31621.8).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
<i>Plans M, N, O and P</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 60 equal to 1/120 of FAS3 (FAS1 for Plans M and O) (\$31621).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
<i>Plan S</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 60 equal to 1/100 of FAS3 (\$31621.2).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
<i>Plans E and Q</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 50 equal to 1/200 of FAS1 (\$31639.5).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
<i>Plans F and R</i>	
<i>Basic</i>	Entry-age based rates that provide for an annuity at age 50 equal to 1/100 of FAS3 (\$31639.25).
<i>Cost-of-Living</i>	Entry-age based rates that provide for one-half of future Cost-of-Living costs.

Section 4: Actuarial Valuation Basis

<i>Plans T, U, V and W</i>	Entry-age based rates that provide for one-half of the total Normal Cost rate.
Other Information:	Non-CalPEPRA Safety members with 30 or more years of benefit service are exempt from paying member contributions. This also applies for General members hired on or before March 7, 1973.
Changed Plan Provisions:	O.C. Superior Court adopted Plan U for CalPEPRA member service earned effective July 1, 2023.

Note: The summary of major plan provisions is designed to outline principal plan benefits as interpreted for purposes of the actuarial valuation. If the System should find the plan summary not in accordance with the actual provisions, the System should alert the actuary so they can both be sure the proper provisions are valued.

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates

General Tier 1 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan I (2.7% @ 55)		Plan A (OCTA)	
	Normal	Total	Normal	Total
15	7.31%	10.37%	3.17%	5.36%
16	7.31%	10.37%	3.17%	5.36%
17	7.44%	10.56%	3.23%	5.45%
18	7.57%	10.74%	3.29%	5.55%
19	7.71%	10.93%	3.34%	5.65%
20	7.84%	11.12%	3.40%	5.75%
21	7.98%	11.32%	3.46%	5.85%
22	8.12%	11.52%	3.53%	5.95%
23	8.27%	11.72%	3.59%	6.06%
24	8.41%	11.93%	3.65%	6.16%
25	8.56%	12.14%	3.72%	6.27%
26	8.71%	12.36%	3.78%	6.38%
27	8.87%	12.58%	3.85%	6.50%
28	9.02%	12.80%	3.92%	6.61%
29	9.19%	13.03%	3.98%	6.73%
30	9.35%	13.26%	4.06%	6.85%
31	9.52%	13.50%	4.13%	6.97%
32	9.69%	13.75%	4.20%	7.09%
33	9.87%	14.00%	4.28%	7.22%
34	10.05%	14.26%	4.35%	7.35%
35	10.24%	14.53%	4.43%	7.48%
36	10.44%	14.80%	4.51%	7.61%
37	10.64%	15.09%	4.59%	7.75%
38	10.85%	15.39%	4.68%	7.89%
39	11.04%	15.66%	4.76%	8.04%
40	11.24%	15.95%	4.85%	8.19%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 1 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan I (2.7% @ 55)		Plan A (OCTA)	
	Normal	Total	Normal	Total
41	11.43%	16.21%	4.94%	8.35%
42	11.62%	16.48%	5.04%	8.51%
43	11.82%	16.76%	5.14%	8.67%
44	12.02%	17.05%	5.23%	8.83%
45	12.24%	17.36%	5.33%	8.99%
46	12.47%	17.69%	5.41%	9.14%
47	12.64%	17.93%	5.51%	9.29%
48	12.81%	18.17%	5.60%	9.45%
49	12.92%	18.32%	5.70%	9.62%
50	12.97%	18.39%	5.80%	9.79%
51	12.93%	18.34%	5.91%	9.97%
52	12.80%	18.16%	5.99%	10.11%
53	12.57%	17.83%	6.07%	10.24%
54	12.16%	17.25%	6.12%	10.33%
55	12.16%	17.25%	6.14%	10.37%
56	12.16%	17.25%	6.13%	10.34%
57	12.16%	17.25%	6.07%	10.24%
58	12.16%	17.25%	5.95%	10.05%
59	12.16%	17.25%	5.76%	9.73%
60 & Over	12.16%	17.25%	5.76%	9.73%
COLA Loading:		41.84%		68.80%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

Additional Cashouts: See Section 4, Exhibit 1

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan J (2.7% @ 55 non OCFA)		Plan H (2.5% @ 55 OCSD)		Plan N (2.0% @ 55) ⁽¹⁾		Plan B (OCTA)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	7.02%	9.96%	7.02%	9.73%	5.08%	7.44%	5.08%	7.17%
16	7.02%	9.96%	7.02%	9.73%	5.08%	7.44%	5.08%	7.17%
17	7.15%	10.14%	7.15%	9.90%	5.17%	7.57%	5.17%	7.30%
18	7.27%	10.31%	7.27%	10.07%	5.26%	7.71%	5.26%	7.43%
19	7.40%	10.50%	7.40%	10.25%	5.35%	7.85%	5.35%	7.56%
20	7.53%	10.68%	7.53%	10.43%	5.45%	7.98%	5.45%	7.70%
21	7.66%	10.87%	7.66%	10.62%	5.54%	8.13%	5.54%	7.83%
22	7.80%	11.06%	7.80%	10.80%	5.64%	8.27%	5.64%	7.97%
23	7.93%	11.25%	7.93%	10.99%	5.74%	8.41%	5.74%	8.11%
24	8.07%	11.45%	8.07%	11.19%	5.84%	8.56%	5.84%	8.25%
25	8.22%	11.65%	8.22%	11.38%	5.95%	8.71%	5.95%	8.40%
26	8.36%	11.86%	8.36%	11.58%	6.05%	8.87%	6.05%	8.55%
27	8.51%	12.07%	8.51%	11.79%	6.16%	9.02%	6.16%	8.70%
28	8.66%	12.28%	8.66%	12.00%	6.26%	9.18%	6.26%	8.85%
29	8.81%	12.50%	8.81%	12.21%	6.37%	9.34%	6.37%	9.01%
30	8.97%	12.72%	8.97%	12.43%	6.49%	9.51%	6.49%	9.17%
31	9.13%	12.95%	9.13%	12.65%	6.60%	9.67%	6.60%	9.33%
32	9.30%	13.19%	9.30%	12.88%	6.72%	9.85%	6.72%	9.49%
33	9.47%	13.43%	9.47%	13.11%	6.84%	10.02%	6.84%	9.66%
34	9.64%	13.67%	9.64%	13.35%	6.96%	10.20%	6.96%	9.83%
35	9.82%	13.93%	9.82%	13.60%	7.08%	10.38%	7.08%	10.01%
36	10.00%	14.19%	10.00%	13.86%	7.21%	10.57%	7.21%	10.19%
37	10.19%	14.45%	10.19%	14.11%	7.34%	10.76%	7.34%	10.37%
38	10.37%	14.71%	10.37%	14.37%	7.47%	10.95%	7.47%	10.56%
39	10.54%	14.96%	10.54%	14.61%	7.61%	11.15%	7.61%	10.75%
40	10.72%	15.20%	10.72%	14.85%	7.75%	11.36%	7.75%	10.95%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan J (2.7% @ 55 non OCFA)		Plan H (2.5% @ 55 OCSD)		Plan N (2.0% @ 55) ⁽¹⁾		Plan B (OCTA)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
41	10.89%	15.44%	10.89%	15.08%	7.90%	11.58%	7.90%	11.16%
42	11.06%	15.69%	11.06%	15.32%	8.04%	11.79%	8.04%	11.36%
43	11.24%	15.94%	11.24%	15.57%	8.19%	12.00%	8.19%	11.57%
44	11.42%	16.20%	11.42%	15.82%	8.33%	12.20%	8.33%	11.76%
45	11.59%	16.44%	11.59%	16.06%	8.46%	12.40%	8.46%	11.95%
46	11.74%	16.65%	11.74%	16.26%	8.60%	12.60%	8.60%	12.14%
47	11.84%	16.80%	11.84%	16.41%	8.73%	12.80%	8.73%	12.34%
48	11.90%	16.89%	11.90%	16.49%	8.87%	13.00%	8.87%	12.54%
49	11.90%	16.88%	11.90%	16.49%	9.02%	13.22%	9.02%	12.74%
50	11.82%	16.77%	11.82%	16.38%	9.15%	13.41%	9.15%	12.93%
51	11.66%	16.53%	11.66%	16.15%	9.27%	13.58%	9.27%	13.09%
52	11.40%	16.17%	11.40%	15.80%	9.35%	13.70%	9.35%	13.21%
53	11.77%	16.70%	11.77%	16.31%	9.40%	13.78%	9.40%	13.28%
54	12.16%	17.25%	12.16%	16.85%	9.40%	13.77%	9.40%	13.28%
55	12.16%	17.25%	12.16%	16.85%	9.33%	13.68%	9.33%	13.19%
56	12.16%	17.25%	12.16%	16.85%	9.20%	13.49%	9.20%	13.00%
57	12.16%	17.25%	12.16%	16.85%	9.00%	13.20%	9.00%	12.72%
58	12.16%	17.25%	12.16%	16.85%	9.30%	13.62%	9.30%	13.13%
59	12.16%	17.25%	12.16%	16.85%	9.60%	14.08%	9.60%	13.57%
60 & Over	12.16%	17.25%	12.16%	16.85%	9.60%	14.08%	9.60%	13.57%
COLA Loading:		41.84%		38.54%		46.55%		41.28%

⁽¹⁾ Payable by members in Rate Group #9 and Rate Group #11.

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

Additional Cashouts: See Section 4, Exhibit 1

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan B (County and IHSS)		Plan J (2.7% @ 55 OCFA)		Plan P (1.62% @ 65)		Plan B (OCSD)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	5.08%	7.00%	7.02%	9.92%	5.08%	6.45%	5.08%	7.30%
16	5.08%	7.00%	7.02%	9.92%	5.08%	6.45%	5.08%	7.30%
17	5.17%	7.13%	7.15%	10.09%	5.17%	6.56%	5.17%	7.43%
18	5.26%	7.25%	7.27%	10.27%	5.26%	6.68%	5.26%	7.56%
19	5.35%	7.38%	7.40%	10.45%	5.35%	6.80%	5.35%	7.70%
20	5.45%	7.51%	7.53%	10.64%	5.45%	6.92%	5.45%	7.83%
21	5.54%	7.65%	7.66%	10.82%	5.54%	7.04%	5.54%	7.97%
22	5.64%	7.78%	7.80%	11.01%	5.64%	7.16%	5.64%	8.11%
23	5.74%	7.92%	7.93%	11.21%	5.74%	7.29%	5.74%	8.26%
24	5.84%	8.06%	8.07%	11.40%	5.84%	7.42%	5.84%	8.40%
25	5.95%	8.20%	8.22%	11.61%	5.95%	7.55%	5.95%	8.55%
26	6.05%	8.34%	8.36%	11.81%	6.05%	7.68%	6.05%	8.70%
27	6.16%	8.49%	8.51%	12.02%	6.16%	7.81%	6.16%	8.85%
28	6.26%	8.64%	8.66%	12.23%	6.26%	7.95%	6.26%	9.01%
29	6.37%	8.79%	8.81%	12.45%	6.37%	8.09%	6.37%	9.17%
30	6.49%	8.95%	8.97%	12.67%	6.49%	8.23%	6.49%	9.33%
31	6.60%	9.10%	9.13%	12.90%	6.60%	8.38%	6.60%	9.49%
32	6.72%	9.27%	9.30%	13.13%	6.72%	8.53%	6.72%	9.66%
33	6.84%	9.43%	9.47%	13.37%	6.84%	8.68%	6.84%	9.83%
34	6.96%	9.60%	9.64%	13.62%	6.96%	8.83%	6.96%	10.01%
35	7.08%	9.77%	9.82%	13.87%	7.08%	8.99%	7.08%	10.18%
36	7.21%	9.94%	10.00%	14.13%	7.21%	9.15%	7.21%	10.37%
37	7.34%	10.12%	10.19%	14.39%	7.34%	9.32%	7.34%	10.55%
38	7.47%	10.31%	10.37%	14.65%	7.47%	9.49%	7.47%	10.75%
39	7.61%	10.50%	10.54%	14.89%	7.61%	9.66%	7.61%	10.94%
40	7.75%	10.69%	10.72%	15.14%	7.75%	9.84%	7.75%	11.15%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan B (County and IHSS)		Plan J (2.7% @ 55 OCFA)		Plan P (1.62% @ 65)		Plan B (OCSD)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
41	7.90%	10.89%	10.89%	15.38%	7.90%	10.03%	7.90%	11.36%
42	8.04%	11.09%	11.06%	15.62%	8.04%	10.21%	8.04%	11.57%
43	8.19%	11.29%	11.24%	15.87%	8.19%	10.39%	8.19%	11.77%
44	8.33%	11.48%	11.42%	16.13%	8.33%	10.57%	8.33%	11.97%
45	8.46%	11.67%	11.59%	16.37%	8.46%	10.74%	8.46%	12.17%
46	8.60%	11.85%	11.74%	16.58%	8.60%	10.91%	8.60%	12.36%
47	8.73%	12.04%	11.84%	16.73%	8.73%	11.09%	8.73%	12.56%
48	8.87%	12.24%	11.90%	16.82%	8.87%	11.26%	8.87%	12.76%
49	9.02%	12.44%	11.90%	16.81%	9.02%	11.45%	9.02%	12.97%
50	9.15%	12.62%	11.82%	16.70%	9.15%	11.62%	9.15%	13.16%
51	9.27%	12.78%	11.66%	16.46%	9.27%	11.77%	9.27%	13.33%
52	9.35%	12.90%	11.40%	16.11%	9.35%	11.87%	9.35%	13.45%
53	9.40%	12.96%	11.77%	16.63%	9.40%	11.93%	9.40%	13.52%
54	9.40%	12.96%	12.16%	17.18%	9.40%	11.93%	9.40%	13.51%
55	9.33%	12.87%	12.16%	17.18%	9.33%	11.85%	9.33%	13.42%
56	9.20%	12.69%	12.16%	17.18%	9.20%	11.68%	9.20%	13.23%
57	9.00%	12.42%	12.16%	17.18%	9.00%	11.43%	9.00%	12.95%
58	9.30%	12.82%	12.16%	17.18%	9.30%	11.80%	9.30%	13.37%
59	9.60%	13.25%	12.16%	17.18%	9.60%	12.19%	9.60%	13.81%
60 & Over	9.60%	13.25%	12.16%	17.18%	9.60%	12.19%	9.60%	13.81%

COLA Loading: 37.91% 41.25% 26.94% 43.79%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

Additional Cashouts: See Section 4, Exhibit 1

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan N (OCFA)		Plan S (City of SJC)		Plan H (2.5% @ 55 Law Library)	
	Normal	Total	Normal	Total	Normal	Total
15	5.08%	7.98%	6.09%	8.87%	7.02%	9.67%
16	5.08%	7.98%	6.09%	8.87%	7.02%	9.67%
17	5.17%	8.12%	6.20%	9.02%	7.15%	9.84%
18	5.26%	8.26%	6.31%	9.19%	7.27%	10.01%
19	5.35%	8.41%	6.42%	9.35%	7.40%	10.19%
20	5.45%	8.56%	6.54%	9.51%	7.53%	10.37%
21	5.54%	8.71%	6.65%	9.68%	7.66%	10.55%
22	5.64%	8.86%	6.77%	9.85%	7.80%	10.73%
23	5.74%	9.02%	6.89%	10.03%	7.93%	10.92%
24	5.84%	9.18%	7.01%	10.20%	8.07%	11.11%
25	5.95%	9.34%	7.13%	10.38%	8.22%	11.31%
26	6.05%	9.50%	7.26%	10.56%	8.36%	11.51%
27	6.16%	9.67%	7.39%	10.75%	8.51%	11.71%
28	6.26%	9.84%	7.52%	10.94%	8.66%	11.92%
29	6.37%	10.01%	7.65%	11.13%	8.81%	12.13%
30	6.49%	10.19%	7.78%	11.33%	8.97%	12.35%
31	6.60%	10.37%	7.92%	11.53%	9.13%	12.57%
32	6.72%	10.55%	8.06%	11.73%	9.30%	12.80%
33	6.84%	10.74%	8.20%	11.94%	9.47%	13.03%
34	6.96%	10.93%	8.35%	12.15%	9.64%	13.27%
35	7.08%	11.13%	8.50%	12.37%	9.82%	13.52%
36	7.21%	11.33%	8.65%	12.59%	10.00%	13.77%
37	7.34%	11.53%	8.81%	12.82%	10.19%	14.02%
38	7.47%	11.74%	8.97%	13.05%	10.37%	14.27%
39	7.61%	11.96%	9.13%	13.29%	10.54%	14.51%
40	7.75%	12.18%	9.30%	13.54%	10.72%	14.75%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan N (OCFA)		Plan S (City of SJC)		Plan H (2.5% @ 55 Law Library)	
	Normal	Total	Normal	Total	Normal	Total
41	7.90%	12.41%	9.48%	13.79%	10.89%	14.98%
42	8.04%	12.64%	9.65%	14.05%	11.06%	15.22%
43	8.19%	12.86%	9.83%	14.30%	11.24%	15.47%
44	8.33%	13.08%	9.99%	14.54%	11.42%	15.72%
45	8.46%	13.29%	10.15%	14.78%	11.59%	15.95%
46	8.60%	13.50%	10.31%	15.01%	11.74%	16.16%
47	8.73%	13.72%	10.48%	15.25%	11.84%	16.30%
48	8.87%	13.94%	10.65%	15.49%	11.90%	16.39%
49	9.02%	14.17%	10.82%	15.75%	11.90%	16.38%
50	9.15%	14.38%	10.98%	15.98%	11.82%	16.27%
51	9.27%	14.56%	11.12%	16.18%	11.66%	16.05%
52	9.35%	14.69%	11.22%	16.33%	11.40%	15.70%
53	9.40%	14.77%	11.28%	16.41%	11.77%	16.21%
54	9.40%	14.76%	11.28%	16.41%	12.16%	16.74%
55	9.33%	14.66%	11.20%	16.30%	12.16%	16.74%
56	9.20%	14.46%	11.04%	16.07%	12.16%	16.74%
57	9.00%	14.14%	10.80%	15.72%	12.16%	16.74%
58	9.30%	14.60%	11.16%	16.23%	12.16%	16.74%
59	9.60%	15.09%	11.53%	16.77%	12.16%	16.74%
60 & Over	9.60%	15.09%	11.53%	16.77%	12.16%	16.74%
COLA Loading:		57.10%		45.51%		37.65%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

Additional Cashouts: See Section 4, Exhibit 1

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #1 (Plan U)		Rate Group #2 (Plan T)		Rate Group #2 (Plan U)		Rate Group #2 (Plan W)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	5.97%	8.09%	3.84%	5.15%	5.53%	7.50%	3.69%	4.83%
16	5.97%	8.09%	3.84%	5.15%	5.53%	7.50%	3.69%	4.83%
17	5.71%	7.73%	3.90%	5.24%	5.28%	7.17%	3.76%	4.92%
18	5.43%	7.36%	3.97%	5.33%	5.03%	6.82%	3.83%	5.00%
19	5.53%	7.49%	4.04%	5.43%	5.12%	6.94%	3.89%	5.09%
20	5.63%	7.63%	4.12%	5.53%	5.21%	7.07%	3.96%	5.18%
21	5.73%	7.76%	4.19%	5.62%	5.30%	7.20%	4.03%	5.27%
22	5.83%	7.90%	4.26%	5.72%	5.40%	7.32%	4.10%	5.37%
23	5.93%	8.04%	4.34%	5.82%	5.49%	7.46%	4.18%	5.46%
24	6.04%	8.19%	4.41%	5.93%	5.59%	7.59%	4.25%	5.56%
25	6.15%	8.33%	4.49%	6.03%	5.69%	7.72%	4.33%	5.66%
26	6.26%	8.48%	4.57%	6.14%	5.79%	7.86%	4.40%	5.76%
27	6.37%	8.63%	4.65%	6.25%	5.90%	8.00%	4.48%	5.86%
28	6.48%	8.78%	4.73%	6.36%	6.00%	8.14%	4.56%	5.96%
29	6.59%	8.94%	4.82%	6.47%	6.11%	8.29%	4.64%	6.07%
30	6.71%	9.10%	4.90%	6.58%	6.21%	8.43%	4.72%	6.18%
31	6.83%	9.26%	4.99%	6.70%	6.32%	8.58%	4.81%	6.28%
32	6.95%	9.42%	5.08%	6.82%	6.44%	8.73%	4.89%	6.40%
33	7.07%	9.59%	5.17%	6.94%	6.55%	8.89%	4.98%	6.51%
34	7.20%	9.76%	5.26%	7.07%	6.67%	9.04%	5.07%	6.63%
35	7.33%	9.93%	5.36%	7.19%	6.78%	9.20%	5.16%	6.75%
36	7.45%	10.10%	5.45%	7.32%	6.90%	9.37%	5.25%	6.87%
37	7.59%	10.28%	5.55%	7.46%	7.03%	9.53%	5.35%	6.99%
38	7.72%	10.47%	5.66%	7.59%	7.15%	9.70%	5.45%	7.12%
39	7.86%	10.65%	5.76%	7.74%	7.28%	9.88%	5.55%	7.26%
40	8.00%	10.84%	5.87%	7.88%	7.41%	10.05%	5.65%	7.39%
41	8.14%	11.04%	5.98%	8.03%	7.54%	10.23%	5.76%	7.53%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #1 (Plan U)		Rate Group #2 (Plan T)		Rate Group #2 (Plan U)		Rate Group #2 (Plan W)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
42	8.29%	11.24%	6.09%	8.18%	7.68%	10.42%	5.87%	7.67%
43	8.44%	11.44%	6.21%	8.33%	7.81%	10.60%	5.98%	7.81%
44	8.59%	11.65%	6.31%	8.47%	7.96%	10.80%	6.08%	7.95%
45	8.75%	11.86%	6.42%	8.62%	8.10%	11.00%	6.18%	8.08%
46	8.91%	12.08%	6.52%	8.76%	8.25%	11.20%	6.28%	8.21%
47	9.08%	12.31%	6.63%	8.90%	8.41%	11.41%	6.38%	8.35%
48	9.25%	12.54%	6.74%	9.05%	8.57%	11.63%	6.49%	8.49%
49	9.43%	12.78%	6.86%	9.21%	8.73%	11.85%	6.60%	8.63%
50	9.60%	13.01%	6.96%	9.35%	8.89%	12.06%	6.71%	8.77%
51	9.76%	13.24%	7.06%	9.48%	9.04%	12.27%	6.80%	8.89%
52	9.93%	13.46%	7.13%	9.58%	9.19%	12.48%	6.87%	8.98%
53	10.09%	13.68%	7.18%	9.64%	9.34%	12.68%	6.92%	9.04%
54	10.26%	13.90%	7.19%	9.66%	9.50%	12.89%	6.93%	9.06%
55	10.43%	14.13%	7.17%	9.62%	9.66%	13.10%	6.90%	9.02%
56	10.61%	14.38%	7.10%	9.53%	9.82%	13.33%	6.83%	8.94%
57	10.77%	14.60%	6.99%	9.38%	9.98%	13.54%	6.73%	8.80%
58	10.92%	14.81%	7.22%	9.69%	10.12%	13.73%	6.95%	9.09%
59	11.04%	14.96%	7.46%	10.01%	10.22%	13.87%	7.18%	9.39%
60	11.11%	15.06%	7.46%	10.01%	10.29%	13.96%	7.18%	9.39%
61	11.13%	15.09%	7.46%	10.01%	10.31%	13.99%	7.18%	9.39%
62	11.09%	15.03%	7.46%	10.01%	10.27%	13.93%	7.18%	9.39%
63	10.98%	14.88%	7.46%	10.01%	10.17%	13.80%	7.18%	9.39%
64	10.81%	14.66%	7.46%	10.01%	10.01%	13.59%	7.18%	9.39%
65	11.16%	15.13%	7.46%	10.01%	10.34%	14.03%	7.18%	9.39%
66 & Over	11.54%	15.64%	7.46%	10.01%	10.68%	14.49%	7.18%	9.39%
<i>COLA Loading:</i>		35.55%		34.25%		35.69%		30.77%

Section 4: Actuarial Valuation Basis

Interest: 7.00% per annum
COLA: 2.75%
Mortality: See *Section 4, Exhibit 1*
Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See *Section 4, Exhibit 1*)

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.5% at 67 formula and the Plan W 1.62% at 65 formula, the compensation that can be taken into account for 2023 is equal to \$175,250 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2023 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #3 (Plan U)		Rate Group #5 (Plan U)		Rate Group #9 (Plan U)		Rate Group #10 (Plan U)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
15	5.68%	7.71%	6.49%	8.83%	5.71%	7.70%	5.87%	7.98%
16	5.68%	7.71%	6.49%	8.83%	5.71%	7.70%	5.87%	7.98%
17	5.43%	7.36%	6.20%	8.43%	5.46%	7.35%	5.61%	7.63%
18	5.16%	7.01%	5.90%	8.02%	5.19%	7.00%	5.34%	7.25%
19	5.26%	7.13%	6.00%	8.17%	5.28%	7.12%	5.43%	7.39%
20	5.35%	7.26%	6.11%	8.31%	5.38%	7.25%	5.53%	7.52%
21	5.45%	7.39%	6.22%	8.46%	5.48%	7.38%	5.63%	7.65%
22	5.55%	7.52%	6.33%	8.61%	5.57%	7.51%	5.73%	7.79%
23	5.64%	7.66%	6.44%	8.77%	5.67%	7.65%	5.83%	7.93%
24	5.75%	7.79%	6.56%	8.92%	5.77%	7.78%	5.94%	8.07%
25	5.85%	7.93%	6.68%	9.08%	5.88%	7.92%	6.04%	8.21%
26	5.95%	8.07%	6.79%	9.25%	5.98%	8.06%	6.15%	8.36%
27	6.06%	8.22%	6.92%	9.41%	6.09%	8.21%	6.26%	8.51%
28	6.16%	8.36%	7.04%	9.58%	6.20%	8.35%	6.37%	8.66%
29	6.27%	8.51%	7.16%	9.75%	6.31%	8.50%	6.48%	8.81%
30	6.38%	8.66%	7.29%	9.92%	6.42%	8.65%	6.60%	8.97%
31	6.50%	8.81%	7.42%	10.09%	6.53%	8.80%	6.71%	9.13%
32	6.61%	8.97%	7.55%	10.27%	6.65%	8.96%	6.83%	9.29%
33	6.73%	9.13%	7.68%	10.45%	6.76%	9.12%	6.95%	9.45%
34	6.85%	9.29%	7.82%	10.64%	6.88%	9.28%	7.07%	9.62%
35	6.97%	9.45%	7.96%	10.83%	7.00%	9.44%	7.20%	9.79%
36	7.09%	9.62%	8.10%	11.02%	7.13%	9.61%	7.33%	9.96%
37	7.22%	9.79%	8.24%	11.21%	7.25%	9.78%	7.46%	10.14%
38	7.35%	9.96%	8.39%	11.41%	7.38%	9.95%	7.59%	10.32%
39	7.48%	10.14%	8.54%	11.61%	7.51%	10.13%	7.72%	10.50%
40	7.61%	10.32%	8.69%	11.82%	7.65%	10.31%	7.86%	10.69%
41	7.75%	10.51%	8.84%	12.03%	7.78%	10.49%	8.00%	10.88%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #3 (Plan U)		Rate Group #5 (Plan U)		Rate Group #9 (Plan U)		Rate Group #10 (Plan U)	
	Normal	Total	Normal	Total	Normal	Total	Normal	Total
42	7.89%	10.70%	9.00%	12.25%	7.93%	10.68%	8.15%	11.08%
43	8.03%	10.89%	9.17%	12.47%	8.07%	10.88%	8.29%	11.28%
44	8.17%	11.09%	9.33%	12.70%	8.22%	11.07%	8.45%	11.48%
45	8.33%	11.29%	9.50%	12.93%	8.37%	11.28%	8.60%	11.69%
46	8.48%	11.50%	9.68%	13.17%	8.52%	11.49%	8.76%	11.91%
47	8.64%	11.72%	9.86%	13.42%	8.68%	11.70%	8.93%	12.14%
48	8.80%	11.94%	10.05%	13.68%	8.85%	11.93%	9.10%	12.37%
49	8.97%	12.17%	10.24%	13.93%	9.01%	12.15%	9.27%	12.60%
50	9.13%	12.39%	10.43%	14.19%	9.18%	12.37%	9.43%	12.83%
51	9.29%	12.60%	10.61%	14.43%	9.34%	12.58%	9.60%	13.05%
52	9.45%	12.81%	10.78%	14.67%	9.49%	12.80%	9.76%	13.27%
53	9.60%	13.02%	10.96%	14.91%	9.65%	13.00%	9.92%	13.48%
54	9.76%	13.24%	11.14%	15.16%	9.81%	13.22%	10.08%	13.71%
55	9.92%	13.46%	11.33%	15.41%	9.97%	13.44%	10.25%	13.94%
56	10.09%	13.69%	11.52%	15.68%	10.14%	13.67%	10.43%	14.18%
57	10.25%	13.90%	11.70%	15.92%	10.30%	13.89%	10.59%	14.40%
58	10.39%	14.10%	11.86%	16.14%	10.44%	14.08%	10.74%	14.60%
59	10.50%	14.24%	11.99%	16.31%	10.55%	14.22%	10.85%	14.75%
60	10.57%	14.34%	12.07%	16.42%	10.62%	14.32%	10.92%	14.85%
61	10.59%	14.36%	12.09%	16.45%	10.64%	14.35%	10.94%	14.88%
62	10.55%	14.31%	12.04%	16.39%	10.60%	14.29%	10.90%	14.82%
63	10.44%	14.17%	11.92%	16.23%	10.50%	14.15%	10.79%	14.67%
64	10.29%	13.96%	11.74%	15.98%	10.34%	13.94%	10.63%	14.45%
65	10.62%	14.41%	12.13%	16.50%	10.67%	14.39%	10.97%	14.92%
66 & Over	10.97%	14.89%	12.53%	17.05%	11.03%	14.87%	11.34%	15.42%
<i>COLA Loading:</i>		35.66%		36.06%		34.80%		35.98%

Section 4: Actuarial Valuation Basis

Interest: 7.00% per annum
COLA: 2.75%
Mortality: See *Section 4, Exhibit 1*
Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See *Section 4, Exhibit 1*)

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.5% at 67 formula and the Plan W 1.62% at 65 formula, the compensation that can be taken into account for 2023 is equal to \$175,250 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2023 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #11 (Plan U)		Rate Group #12 (Plan U)	
	Normal	Total	Normal	Total
15	6.37%	8.56%	6.01%	7.64%
16	6.37%	8.56%	6.01%	7.64%
17	6.09%	8.18%	5.74%	7.30%
18	5.79%	7.78%	5.46%	6.94%
19	5.90%	7.92%	5.56%	7.07%
20	6.00%	8.06%	5.66%	7.19%
21	6.11%	8.21%	5.76%	7.32%
22	6.22%	8.36%	5.87%	7.45%
23	6.33%	8.51%	5.97%	7.59%
24	6.44%	8.66%	6.08%	7.72%
25	6.56%	8.81%	6.19%	7.86%
26	6.68%	8.97%	6.30%	8.00%
27	6.79%	9.13%	6.41%	8.14%
28	6.91%	9.29%	6.52%	8.29%
29	7.04%	9.45%	6.64%	8.43%
30	7.16%	9.62%	6.75%	8.58%
31	7.29%	9.79%	6.87%	8.73%
32	7.42%	9.96%	6.99%	8.89%
33	7.55%	10.14%	7.12%	9.04%
34	7.68%	10.32%	7.24%	9.20%
35	7.82%	10.50%	7.37%	9.37%
36	7.95%	10.69%	7.50%	9.53%
37	8.10%	10.88%	7.64%	9.70%
38	8.24%	11.07%	7.77%	9.87%
39	8.39%	11.27%	7.91%	10.05%
40	8.54%	11.47%	8.05%	10.23%
41	8.69%	11.67%	8.19%	10.41%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #11 (Plan U)		Rate Group #12 (Plan U)	
	Normal	Total	Normal	Total
42	8.84%	11.88%	8.34%	10.60%
43	9.00%	12.10%	8.49%	10.79%
44	9.17%	12.32%	8.65%	10.99%
45	9.34%	12.54%	8.81%	11.19%
46	9.51%	12.78%	8.97%	11.40%
47	9.69%	13.02%	9.14%	11.61%
48	9.88%	13.27%	9.31%	11.83%
49	10.06%	13.51%	9.49%	12.05%
50	10.24%	13.76%	9.66%	12.28%
51	10.42%	14.00%	9.83%	12.49%
52	10.59%	14.23%	9.99%	12.70%
53	10.77%	14.46%	10.15%	12.90%
54	10.95%	14.70%	10.32%	13.12%
55	11.13%	14.95%	10.49%	13.33%
56	11.32%	15.21%	10.68%	13.56%
57	11.50%	15.44%	10.84%	13.78%
58	11.66%	15.66%	10.99%	13.97%
59	11.78%	15.82%	11.11%	14.11%
60	11.86%	15.93%	11.18%	14.21%
61	11.88%	15.96%	11.20%	14.23%
62	11.83%	15.89%	11.16%	14.18%
63	11.72%	15.74%	11.05%	14.04%
64	11.54%	15.50%	10.88%	13.83%
65	11.91%	16.00%	11.24%	14.28%
66 & Over	12.31%	16.54%	11.61%	14.75%
<i>COLA Loading:</i>		34.34%		27.06%

Section 4: Actuarial Valuation Basis

Interest: 7.00% per annum
COLA: 2.75%
Mortality: See *Section 4, Exhibit 1*
Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See *Section 4, Exhibit 1*)

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.5% at 67 formula and the Plan W 1.62% at 65 formula, the compensation that can be taken into account for 2023 is equal to \$175,250 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2023 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan F (OCFA)		Plan F (Law Enforcement)		Plan F (Probation)	
	Normal	Total	Normal	Total	Normal	Total
15	8.83%	14.40%	9.26%	15.57%	8.98%	14.86%
16	8.83%	14.40%	9.26%	15.57%	8.98%	14.86%
17	8.95%	14.60%	9.40%	15.79%	9.11%	15.07%
18	9.08%	14.81%	9.53%	16.01%	9.24%	15.29%
19	9.21%	15.02%	9.66%	16.23%	9.37%	15.51%
20	9.34%	15.24%	9.80%	16.46%	9.50%	15.73%
21	9.48%	15.46%	9.94%	16.70%	9.64%	15.95%
22	9.62%	15.68%	10.08%	16.94%	9.78%	16.18%
23	9.76%	15.91%	10.23%	17.18%	9.92%	16.42%
24	9.90%	16.15%	10.38%	17.43%	10.07%	16.66%
25	10.05%	16.39%	10.53%	17.69%	10.22%	16.91%
26	10.20%	16.64%	10.68%	17.95%	10.37%	17.16%
27	10.36%	16.89%	10.84%	18.22%	10.53%	17.42%
28	10.52%	17.15%	11.01%	18.49%	10.69%	17.69%
29	10.68%	17.42%	11.18%	18.78%	10.86%	17.97%
30	10.86%	17.71%	11.35%	19.07%	11.03%	18.26%
31	11.04%	18.00%	11.53%	19.38%	11.21%	18.55%
32	11.22%	18.30%	11.72%	19.70%	11.40%	18.87%
33	11.41%	18.61%	11.91%	20.01%	11.59%	19.18%
34	11.60%	18.92%	12.10%	20.33%	11.78%	19.49%
35	11.80%	19.24%	12.29%	20.65%	11.97%	19.81%
36	12.00%	19.57%	12.50%	21.00%	12.18%	20.15%
37	12.22%	19.94%	12.71%	21.36%	12.40%	20.52%
38	12.44%	20.29%	12.93%	21.72%	12.62%	20.88%
39	12.65%	20.62%	13.12%	22.04%	12.81%	21.20%
40	12.79%	20.87%	13.25%	22.26%	12.96%	21.44%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan F (OCFA)		Plan F (Law Enforcement)		Plan F (Probation)	
	Normal	Total	Normal	Total	Normal	Total
41	12.88%	21.00%	13.31%	22.36%	13.03%	21.56%
42	12.90%	21.04%	13.30%	22.34%	13.04%	21.58%
43	12.86%	20.97%	13.22%	22.20%	12.98%	21.49%
44	12.75%	20.79%	13.06%	21.94%	12.86%	21.28%
45	12.57%	20.50%	12.81%	21.52%	12.65%	20.94%
46	12.30%	20.06%	12.44%	20.90%	12.35%	20.44%
47	11.91%	19.43%	11.91%	20.01%	11.91%	19.71%
48	12.29%	20.04%	12.29%	20.65%	12.29%	20.34%
49	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
50	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
51	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
52	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
53	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
54	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
55	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
56	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
57	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
58	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
59	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
60 & Over	12.69%	20.69%	12.69%	21.32%	12.69%	21.00%
COLA Loading:		63.08%		68.02%		65.48%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

Additional Cashouts: See Section 4, Exhibit 1

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan R (OCFA)		Plan R (Law Enforcement)	
	Normal	Total	Normal	Total
15	8.83%	14.31%	9.26%	14.69%
16	8.83%	14.31%	9.26%	14.69%
17	8.95%	14.52%	9.40%	14.89%
18	9.08%	14.72%	9.53%	15.10%
19	9.21%	14.94%	9.66%	15.32%
20	9.34%	15.15%	9.80%	15.53%
21	9.48%	15.37%	9.94%	15.75%
22	9.62%	15.59%	10.08%	15.98%
23	9.76%	15.82%	10.23%	16.21%
24	9.90%	16.06%	10.38%	16.45%
25	10.05%	16.29%	10.53%	16.69%
26	10.20%	16.54%	10.68%	16.93%
27	10.36%	16.79%	10.84%	17.19%
28	10.52%	17.06%	11.01%	17.45%
29	10.68%	17.33%	11.18%	17.72%
30	10.86%	17.60%	11.35%	17.99%
31	11.04%	17.90%	11.53%	18.28%
32	11.22%	18.20%	11.72%	18.58%
33	11.41%	18.51%	11.91%	18.88%
34	11.60%	18.81%	12.10%	19.18%
35	11.80%	19.13%	12.29%	19.49%
36	12.00%	19.46%	12.50%	19.81%
37	12.22%	19.82%	12.71%	20.15%
38	12.44%	20.18%	12.93%	20.49%
39	12.65%	20.50%	13.12%	20.79%
40	12.79%	20.75%	13.25%	21.00%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan R (OCFA)		Plan R (Law Enforcement)	
	Normal	Total	Normal	Total
41	12.88%	20.88%	13.31%	21.09%
42	12.90%	20.92%	13.30%	21.08%
43	12.86%	20.85%	13.22%	20.95%
44	12.75%	20.68%	13.06%	20.70%
45	12.57%	20.38%	12.81%	20.30%
46	12.30%	19.94%	12.44%	19.72%
47	11.91%	19.31%	11.91%	18.88%
48	12.29%	19.93%	12.29%	19.48%
49	12.69%	20.58%	12.69%	20.11%
50	12.69%	20.58%	12.69%	20.11%
51	12.69%	20.58%	12.69%	20.11%
52	12.69%	20.58%	12.69%	20.11%
53	12.69%	20.58%	12.69%	20.11%
54	12.69%	20.58%	12.69%	20.11%
55	12.69%	20.58%	12.69%	20.11%
56	12.69%	20.58%	12.69%	20.11%
57	12.69%	20.58%	12.69%	20.11%
58	12.69%	20.58%	12.69%	20.11%
59	12.69%	20.58%	12.69%	20.11%
60 & Over	12.69%	20.58%	12.69%	20.11%
COLA Loading:		62.15%		58.51%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

Additional Cashouts: See Section 4, Exhibit 1

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

Safety CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #6 (Plan V)		Rate Group #7 (Plan V)		Rate Group #8 (Plan V)	
	Normal	Total	Normal	Total	Normal	Total
15	9.48%	13.34%	10.21%	14.50%	9.22%	13.18%
16	9.48%	13.34%	10.21%	14.50%	9.22%	13.18%
17	9.62%	13.53%	10.35%	14.71%	9.34%	13.37%
18	9.75%	13.72%	10.50%	14.91%	9.48%	13.56%
19	9.89%	13.91%	10.64%	15.12%	9.61%	13.75%
20	10.03%	14.11%	10.79%	15.34%	9.75%	13.94%
21	10.17%	14.31%	10.95%	15.55%	9.88%	14.14%
22	10.31%	14.51%	11.10%	15.77%	10.02%	14.34%
23	10.46%	14.72%	11.26%	16.00%	10.17%	14.54%
24	10.61%	14.93%	11.42%	16.23%	10.31%	14.75%
25	10.76%	15.14%	11.58%	16.46%	10.46%	14.96%
26	10.92%	15.36%	11.75%	16.70%	10.61%	15.18%
27	11.07%	15.58%	11.92%	16.94%	10.76%	15.40%
28	11.23%	15.80%	12.09%	17.18%	10.92%	15.62%
29	11.40%	16.04%	12.27%	17.43%	11.08%	15.85%
30	11.57%	16.27%	12.45%	17.69%	11.24%	16.08%
31	11.74%	16.51%	12.64%	17.95%	11.41%	16.32%
32	11.91%	16.76%	12.83%	18.22%	11.58%	16.56%
33	12.09%	17.02%	13.02%	18.50%	11.75%	16.82%
34	12.28%	17.28%	13.22%	18.78%	11.94%	17.08%
35	12.47%	17.55%	13.43%	19.08%	12.12%	17.34%
36	12.67%	17.83%	13.64%	19.38%	12.32%	17.62%
37	12.88%	18.12%	13.86%	19.70%	12.52%	17.91%
38	13.09%	18.42%	14.09%	20.03%	12.73%	18.20%
39	13.32%	18.74%	14.34%	20.37%	12.94%	18.52%
40	13.54%	19.05%	14.58%	20.72%	13.16%	18.83%
41	13.77%	19.38%	14.83%	21.06%	13.38%	19.15%

Section 4: Actuarial Valuation Basis

Exhibit 3: Member Contribution Rates (continued)

Safety CalPEPRA Members' Contribution Rates Based on the December 31, 2022 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group #6 (Plan V)		Rate Group #7 (Plan V)		Rate Group #8 (Plan V)	
	Normal	Total	Normal	Total	Normal	Total
42	14.00%	19.70%	15.08%	21.42%	13.61%	19.47%
43	14.25%	20.05%	15.34%	21.80%	13.85%	19.82%
44	14.52%	20.43%	15.63%	22.21%	14.11%	20.19%
45	14.79%	20.81%	15.92%	22.62%	14.37%	20.56%
46	15.03%	21.15%	16.18%	22.99%	14.61%	20.90%
47	15.22%	21.41%	16.38%	23.28%	14.79%	21.16%
48	15.33%	21.56%	16.50%	23.44%	14.90%	21.31%
49	15.36%	21.61%	16.54%	23.50%	14.93%	21.36%
50	15.32%	21.56%	16.50%	23.44%	14.89%	21.31%
51	15.21%	21.40%	16.38%	23.27%	14.79%	21.15%
52	15.02%	21.13%	16.17%	22.97%	14.60%	20.88%
53	14.73%	20.72%	15.86%	22.53%	14.31%	20.48%
54	14.31%	20.14%	15.41%	21.89%	13.91%	19.90%
55	14.77%	20.77%	15.90%	22.59%	14.35%	20.53%
56 & Over	15.25%	21.45%	16.41%	23.32%	14.82%	21.20%
<i>COLA Loading:</i>		40.69%		42.08%		43.06%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit 1

Salary Increase: Inflation (2.50%) + Across-the-Board Increase (0.50%) + Merit and Promotion (See Section 4, Exhibit 1)

It is our understanding that in the determination of pension benefits under the CalPEPRA 2.7% at 57 formula, the compensation that can be taken into account for 2023 is equal to \$175,250 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2023 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit 4: Funded Percentages By Rate Group

The funded percentages on a Valuation Value of Assets basis by rate group provided for informational purposes only are as follows:

	December 31, 2022 Valuation	December 31, 2021 Valuation
General Members		
Rate Group #1 – Plans A, B and U (County and IHSS) ¹	90.47%	90.08%
Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	77.45%	76.88%
Rate Group #3 – Plans B, G, H and U (OCSD)	102.84%	105.76%
Rate Group #5 – Plans A, B and U (OCTA)	83.59%	85.10%
Rate Group #9 – Plans M, N and U (TCA)	105.06%	107.50%
Rate Group #10 – Plans I, J, M, N and U (OCFA)	92.90%	92.54%
Rate Group #11 – Plans M and N, future service, and U (Cemetery)	96.10%	98.22%
Rate Group #12 – Plans G, H, future service, and U (Law Library)	108.98%	108.22%
Safety Members		
Rate Group #6 – Plans E, F and V (Probation)	83.63%	83.86%
Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	80.60%	80.15%
Rate Group #8 – Plans E, F, Q, R and V (OCFA)	93.86%	92.70%

¹ Includes payees from Vector Control, Cypress Recreation and Parks, U.C.I. and DOE.

Section 4: Actuarial Valuation Basis

Exhibit 5: Reconciliation of Employer Contribution Rates by Rate Group

The reconciliation of the employer contribution rates for the General Rate Groups #1 to #5 are as follows:

	RG #1	RG #2	RG #3	RG #5
Average Recommended Employer Contribution as of December 31, 2021	13.52%	37.42%	11.62%	28.71%
• Effect of investment loss (after smoothing)	0.08%	0.18%	0.24%	0.17%
• Effect of additional UAAL contributions	0.00%	0.00%	0.00%	0.00%
• Effect of difference in actual versus expected contributions	0.01%	0.09%	0.12%	(0.10%)
• Effect of higher than expected COLA increases in 2023 ¹	0.19%	0.76%	0.90%	0.64%
• Effect of difference in actual versus expected salary increases	(0.08%)	0.11%	0.19%	1.76%
• Effect of growth in total payroll (greater)/less than expected	0.10%	(0.35%)	0.00%	(0.86%)
• Effect of other experience (gain)/loss ^{2,3}	(0.09%)	0.27%	0.95%	0.00%
• Effect of method refinement as a result of actuarial audit	(0.02%)	(0.04%)	(0.03%)	(0.04%)
• Effect of adjusting the rate to NC (minimum full funding requirement)	<u>0.00%</u>	<u>0.00%</u>	<u>(2.36%)</u>	<u>0.00%</u>
Total change	0.19%	1.02%	0.01%	1.57%
Average Recommended Employer Contribution as of December 31, 2022	13.71%	38.44%	11.63%	30.28%

¹ Actuarial loss from payment of higher than the 2.75% COLA assumption (3.00% expected to be paid starting on each April 1st starting 2023 and the following 18 years).

² Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.

³ Effect of other experience (gains)/losses for RG #3 is 1.05% due to active retirement (gains)/losses.

Section 4: Actuarial Valuation Basis

Exhibit 5: Reconciliation of Employer Contribution Rates by Rate Group (continued)

The reconciliation of the employer contribution rates for the General Rate Groups #9 to #12 are as follows:

	RG #9	RG #10	RG #11	RG #12
Average Recommended Employer Contribution as of December 31, 2021	12.63%	21.97%	13.40%	12.94%
• Effect of investment loss (after smoothing)	0.20%	0.18%	0.15%	0.25%
• Effect of additional UAAL contributions	0.00%	0.00%	0.00%	0.00%
• Effect of difference in actual versus expected contributions	0.13%	(0.07%)	(0.13%)	0.01%
• Effect of higher than expected COLA increases in 2023 ¹	0.65%	0.73%	0.24%	0.48%
• Effect of difference in actual versus expected salary increases	0.43%	(0.62%)	1.85%	(0.37%)
• Effect of growth in total payroll (greater)/less than expected	0.00%	0.40%	(0.06%)	0.00%
• Effect of other experience (gain)/loss ^{2,3}	(0.46%)	0.57%	(0.52%)	(0.95%)
• Effect of method refinement as a result of actuarial audit	(0.02%)	(0.03%)	(0.05%)	0.00%
• Effect of adjusting the rate to NC (minimum full funding requirement)	<u>(1.54%)</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.41%</u>
Total change	(0.61%)	1.16%	1.48%	(0.17%)
Average Recommended Employer Contribution as of December 31, 2022	12.02%	23.13%	14.88%	12.77%

¹ Actuarial loss from payment of higher than the 2.75% COLA assumption (3.00% expected to be paid starting on each April 1st starting 2023 and the following 18 years).

² Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.

³ Effect of other experience (gains)/losses for RG #11 and RG #12 are -0.67% and -0.64%, respectively, due to active retirement (gains)/losses.

Section 4: Actuarial Valuation Basis

Exhibit 5: Reconciliation of Employer Contribution Rates by Rate Group (continued)

The reconciliation of the employer contribution rates for the Safety Rate Groups are as follows:

	RG #6 ¹	RG #7	RG #8
Average Recommended Employer Contribution as of December 31, 2021	52.77%	58.10%	35.20%
• Effect of investment loss (after smoothing)	0.33%	0.29%	0.26%
• Effect of additional UAAL contributions	0.00%	0.00%	(0.52%)
• Effect of difference in actual versus expected contributions	0.06%	(0.18%)	(0.42%)
• Effect of higher than expected COLA increases in 2023 ²	1.35%	1.60%	1.13%
• Effect of difference in actual versus expected salary increases	0.29%	0.12%	(1.11%)
• Effect of growth in total payroll (greater)/less than expected	2.30%	(0.12%)	0.27%
• Effect of other experience (gain)/loss ^{3,4}	1.22%	0.59%	0.63%
• Effect of method refinement as a result of actuarial audit	(0.06%)	(0.05%)	(0.03%)
• Effect of adjusting the rate to NC (minimum full funding requirement)	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
• Total change	5.49%	2.25%	0.21%
Average Recommended Employer Contribution as of December 31, 2022	58.26%	60.35%	35.41%

¹ The average employer contribution rate for RG #6 increased by 5.49% of payroll. This higher increase is primarily a result of the lower than expected payroll growth between the December 31, 2021 and December 31, 2022 valuations and the resulting larger change in the 18-month delay adjustment between those valuations. In particular, based on last year's UAAL amortization schedule for RG #6, the total payment in that valuation was \$18,279,000. The total payroll for RG #6 in the valuation was \$58,976,000, resulting in a UAAL contribution rate (prior to the adjustment for the 18-month delay) of 30.99% of payroll. If total payroll for RG #6 had grown at the assumed 3.00%, the UAAL contribution rate in the current valuation for UAAL established prior to the current valuation would have remained 30.99% of payroll as the UAAL payments are expected to increase at 3.00% per annum, consistent with the total payroll growth assumption. However, while the amortization payments increased at 3.00% per annum to \$18,829,000, the total payroll for RG #6 actually decreased by 4.1% to \$56,547,000 in the current valuation (there was also a decrease in the number of active members in RG #6 of 6.9%) resulting in a UAAL contribution rate (prior to the adjustment for the 18-month delay) of 33.29% of payroll, an increase of 2.30% of payroll from the prior valuation. In addition, when contribution rates increase, from one valuation to the next, the adjustment for the 18-month delay is generally an increase. Because of the large increase in the average employer contribution rate for RG #6, the change in the 18-month delay adjustment between the prior and current valuation increased the average employer contribution rate by 0.84% in the current valuation.

² Actuarial loss from payment of higher than the 2.75% COLA assumption (3.00% expected to be paid starting on each April 1st starting 2023 and the following 18 years).

³ Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience. The adjustments are 0.84%, 0.60%, and 0.52% for RG #6, RG #7, and RG #8, respectively.

⁴ Effect of other experience losses for RG #6 is 0.34% due to active retirement losses.

Section 4: Actuarial Valuation Basis

Exhibit 6: Reconciliation of UAAL by Rate Group

The reconciliation of UAAL for the General Rate Groups #1 to #5 are as follows (\$ in '000s):

	RG #1	RG #2	RG #3	RG #5
1 Unfunded Actuarial Accrued Liability as of December 31, 2021	\$53,950	\$3,097,129	\$(48,071)	\$159,372
2 Normal cost at middle of year	19,766	268,966	18,291	24,955
3 Expected employer and member contributions	(23,061)	(586,594)	(18,291)	(42,738)
4 Interest	<u>3,503</u>	<u>204,083</u>	<u>(3,365)</u>	<u>10,320</u>
5 Expected Unfunded Actuarial Accrued Liability as of December 31, 2022	\$54,158	\$2,983,584	\$(51,436)	\$151,909
6 Changes due to:				
a. Difference in actual versus expected contributions	\$166	\$15,405	\$1,277	\$(1,624)
b. Additional UAAL contributions from OCFA and CRPD, and anticipated payments from DOE and U.C.I.	(4,335)	0	0	0
c. Investment losses (after smoothing)	1,461	31,627	2,682	2,792
d. Difference in actual versus expected salary increases	(1,039)	18,684	2,135	28,618
e. Effect of higher than expected COLA increases in 2023 ¹	4,116	132,689	9,940	10,329
f. Other (gains)/losses	<u>(1,415)</u>	<u>(3,278)</u>	<u>10,034</u>	<u>(2,902)</u>
Total changes	\$(1,046)	\$195,127	\$26,068	\$37,213
7 Unfunded Actuarial Accrued Liability as of December 31, 2022	\$53,112	\$3,178,711	\$(25,368)	\$189,122

¹ Actuarial loss from payment of higher than the 2.75% COLA assumption (3.00% expected to be paid starting on each April 1st starting 2023 and the following 18 years).

Section 4: Actuarial Valuation Basis

Exhibit 6: Reconciliation of UAAL by Rate Group (continued)

The reconciliation of UAAL for the General Rate Groups #9 to #12 are as follows (\$ in '000s):

	RG #9	RG #10	RG #11	RG #12
1 Unfunded Actuarial Accrued Liability as of December 31, 2021	\$(4,231)	\$22,370	\$242	\$(992)
2 Normal cost at middle of year	1,779	8,320	422	296
3 Expected employer and member contributions	(1,779)	(11,572)	(441)	(296)
4 Interest	<u>(296)</u>	<u>1,370</u>	<u>12</u>	<u>(69)</u>
5 Expected Unfunded Actuarial Accrued Liability as of December 31, 2022	\$(4,527)	\$20,488	\$235	\$(1,061)
6 Changes due to:				
a. Difference in actual versus expected contributions	\$119	\$(349)	\$(36)	\$2
b. Additional UAAL contributions from OCFA and CRPD, and anticipated payments from DOE and U.C.I.	0	0	0	0
c. Investment losses (after smoothing)	185	853	41	40
d. Difference in actual versus expected salary increases	406	(2,903)	516	(59)
e. Effect of higher than expected COLA increases in 2023 ¹	617	3,424	68	77
f. Other (gains)/losses	<u>131</u>	<u>1,013</u>	<u>(252)</u>	<u>(127)</u>
Total changes	\$1,458	\$2,038	\$337	\$(67)
7 Unfunded Actuarial Accrued Liability as of December 31, 2022	\$(3,069)	\$22,526	\$572	\$(1,128)

¹ Actuarial loss from payment of higher than the 2.75% COLA assumption (3.00% expected to be paid starting on each April 1st starting 2023 and the following 18 years).

Section 4: Actuarial Valuation Basis

Exhibit 6: Reconciliation of UAAL by Rate Group (continued)

The reconciliation of UAAL for the Safety Rate Groups are as follows (\$ in '000s):

	RG #6	RG #7	RG #8
1 Unfunded Actuarial Accrued Liability as of December 31, 2021	\$161,071	\$934,471	\$152,001
2 Normal cost at middle of year	22,995	112,906	66,142
3 Expected employer and member contributions	(41,012)	(211,801)	(86,792)
4 Interest	<u>10,435</u>	<u>60,788</u>	<u>8,881</u>
5 Expected Unfunded Actuarial Accrued Liability as of December 31, 2022	\$153,489	\$896,364	\$140,232
6 Changes due to:			
a. Difference in actual versus expected contributions	\$483	\$(7,144)	\$(9,698)
b. Additional UAAL contributions from OCFA and CRPD, and anticipated payments from DOE and U.C.I.	0	0	(12,175)
c. Investment losses (after smoothing)	2,578	11,623	5,967
d. Difference in actual versus expected salary increases	2,277	4,579	(25,747)
e. Effect of higher than expected COLA increases in 2023 ¹	10,521	63,362	26,138
f. Other (gains)/losses	<u>5,803</u>	<u>689</u>	<u>11,191</u>
Total changes	\$21,662	\$73,109	\$(4,324)
7 Unfunded Actuarial Accrued Liability as of December 31, 2022	\$175,151	\$969,473	\$135,908

5768250v3/05794.002

¹ Actuarial loss from payment of higher than the 2.75% COLA assumption (3.00% expected to be paid starting on each April 1st starting 2023 and the following 18 years).