

Orange County Employees Retirement System

Actuarial Valuation and Review

As of December 31, 2020



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.

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June 4, 2021

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, 2020. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal year 2022-2023.

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

JY/jl

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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, 2020. 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, 2020, provided by OCERS;
- The assets of the Plan as of December 31, 2020, provided by OCERS;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board of Retirement for the December 31, 2020 valuation;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. adopted by the Board of Retirement for the December 31, 2020 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 (and reaffirmed in 2018). Details of the funding policy are provided in *Section 4, Exhibit I* 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, 2022 through June 30, 2023.

Section 1: Actuarial Valuation Summary

Valuation Highlights

- Pg. 28 1. The results of this valuation reflect changes in the actuarial assumptions as recommended by Segal and adopted by the Board for the December 31, 2020 valuation. These changes were documented in our Actuarial Experience Study and are also outlined in *Section 4, Exhibit I* of this report. These changes increased the Actuarial Accrued Liability by about \$24.3 million (or a 0.1% increase) and had a small impact on the average total (employer and member) Normal Cost. The average total (Normal Cost and UAAL) contribution rate increase for the employer and the member as a result of the assumption changes was 0.56% of payroll. However the employer rate impact of the assumption changes varied considerably for the various rate groups, as shown in *Section 4, Exhibit V*.
- Pgs. 162-164 2. This valuation incorporates a refinement in calculating some members' entry ages as used in Entry Age actuarial cost method calculations. In previous valuations, the Normal Cost was spread over a period including both the member's service with a reciprocal system (if any) and their OCERS service. Beginning with this valuation, the Normal Cost is spread over only the member's service period with OCERS. This refinement does not change the Present Value of Future Benefits but it increases the Normal Cost (NC) and decreases the Actuarial Accrued Liability (AAL) for members with reciprocal service. These changes result in a net increase in the average employer and member contribution rates of 0.11% and 0.01% of payroll, respectively.
3. Beginning with this valuation, we are valuing the actual COLA for the upcoming year (i.e. April 1, 2021) and the associated COLA banks. Under the prior methodology, the COLA for the upcoming year was based on the COLA increase assumption.
- Pg. 50 4. The ratio of the Valuation Value of Assets to Actuarial Accrued Liabilities increased from 73.2% to 76.5%. The funded ratio measured on a market value basis increased from 75.4% to 80.7%. The UAAL decreased from \$5,879.9 million as of December 31, 2019 to \$5,379.9 million as of December 31, 2020. The decrease in UAAL is primarily due to investment gains and COLA increases less than expected for calendar year 2021 partially offset by actual contributions less than expected, changes in actuarial assumptions adopted by the Board for this valuation and other actuarial losses. A complete reconciliation of the System's UAAL is provided in *Section 2, Subsection E*. 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*.
- Pg. 29
Pgs. 86-97
Pgs. 98-99 5. The average employer contribution rate calculated in this valuation decreased from 41.35% of payroll to 41.16% of payroll. This change was primarily due to investment gains and COLA increases less than expected for calendar year 2021 partially offset by actual contributions less than expected, changes in actuarial assumptions adopted by the Board for this valuation, growth in total payroll less than expected and other actuarial losses. A complete reconciliation of the System's average employer rate is provided in *Section 2, Subsection F*.
- Pg. 32 6. The average member rate calculated in this valuation has decreased from 12.18% of payroll to 12.16% 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, 2020. The detailed member rates are provided in *Section 4, Exhibit III* of this report.

Section 1: Actuarial Valuation Summary

7. The asset information as of December 31, 2020 is based on the preliminary unaudited financial statement provided by OCERS on April 2, 2021¹. Consistent with prior practice, the updated market value of assets has been reflected only in OCERS' December 31, 2020 financial reporting (GASB) valuation report.
- Pg. 25 8. The rate of return on the Market Value of Assets was 12.01% for the 2020 plan year. The return on the Valuation Value of Assets was 9.31% for the same period after considering the recognition of prior years' investment gains and losses. This resulted in an actuarial gain when measured against the assumed rate of return of 7.00%. This actuarial investment gain decreased the average employer contribution rate by 1.33% of payroll.
- Pg. 21 9. As indicated in *Section 2, Subsection B* of this report, the total unrecognized investment gain as of December 31, 2020 was \$969.3 million (as compared to an unrecognized gain of \$479.2 million in the December 31, 2019 valuation). This investment gain 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 losses that may occur after December 31, 2020. This implies that earning the assumed rate of investment return of 7.00% per year (net of expenses) on a market value basis will result in investment gains 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 decrease over the next few years. The potential impact associated with the net deferred investment gains may be illustrated as follows:
- a. If the net deferred gains in this year's valuation were recognized immediately and entirely in the Valuation Value of Assets, the funded ratio would increase from 76.5% to 80.7%.
For comparison purposes, if all of the net deferred gains in the December 31, 2019 valuation had been recognized immediately in the December 31, 2019 valuation, the funded ratio in last year's valuation would have increased from 73.2% to 75.4%.
 - b. If the net deferred gains in this year's valuation were recognized immediately and entirely in the Valuation Value of Assets, the average employer contribution rate would decrease from 41.2% of payroll to 37.6% of payroll.
For comparison purposes, if all the net deferred gains in the December 31, 2019 valuation had been recognized immediately in the December 31, 2019 valuation, the average employer contribution rate in last year's valuation would have decreased from 41.5% of payroll to 39.7% of payroll.
10. The actuarial valuation report as of December 31, 2020 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.
11. The balance in the O.C. Sanitation District UAAL Deferred Account has grown from \$12.1 million as of December 31, 2019 to \$13.4 million as of December 31, 2020. As of December 31, 2020, there was no transfer required from this account to pay off their UAAL.

¹ An updated financial statement was provided by OCERS on April 21, 2021 in which the market value of assets was higher by approximately \$129 million.

Section 1: Actuarial Valuation Summary

12. This report reflects the \$21.6 million in additional contributions made by OCFA towards their UAAL. The \$21.6 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, 2020 and used to reduce their UAAL rates for fiscal year 2022-2023.
13. 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, 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 2021.

14. 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.
15. 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, 2020, will be provided separately. 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.
16. 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. That decision has important implications for OCERS and its members. In particular, the decision requires pension systems like OCERS to exclude certain pay

¹ \$21.6 million in additional contributions were made by OCFA continuously throughout the year. After adjusting with interest, those contributions have a value of \$21.8 million as of December 31, 2020.

Section 1: Actuarial Valuation Summary

items from a legacy member's compensation earnable. It should be noted that neither the December 31, 2020 assets provided by OCERS nor the liabilities we calculated using the membership data provided by OCERS reflect the financial impact of the California Supreme Court decision.

17. It is important to note that this actuarial valuation is based on plan assets as of December 31, 2020. Due to the COVID-19 pandemic, market conditions have changed significantly since the onset of the Public Health Emergency. 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, 2020. While it is impossible to determine how the pandemic will affect market conditions and other demographic experience of the plan in future valuations, Segal is available to prepare projections of potential outcomes upon request.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results

	December 31, 2020		December 31, 2019	
	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)	15.13%	\$13,326	15.48%	\$13,636
• Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	40.82%	474,649	39.04%	453,974
• Rate Group #3 – Plans B, G, H and U (OCSD)	11.99%	9,039	11.70%	8,821
• Rate Group #5 – Plans A, B and U (OCTA)	31.48%	34,597	31.41%	34,518
• Rate Group #9 – Plans M, N and U (TCA)	13.07%	859	13.15%	864
• Rate Group #10 – Plans I, J, M, N and U (OCFA)	24.39%	8,223	26.40%	8,900
• Rate Group #11 – Plans M and N, future service, and U (Cemetery)	15.36%	276	14.85%	267
• Rate Group #12 – Plans G, H, future service, and U (Law Library)	13.24%	149	13.70%	154
• Rate Group #6 – Plans E, F and V (Probation)	56.85%	34,084	59.63%	35,750
• Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	63.25%	169,144	67.22%	179,760
• Rate Group #8 – Plans E, F, Q, R and V (OCFA)	40.65%	<u>63,447</u>	48.12%	<u>75,101</u>
All Categories Combined	41.16%	\$807,793	41.35%	\$811,745
Average Member Contribution Rates:				
• Rate Group #1 – Plans A, B and U (County and IHSS)	9.59%	\$8,446	9.72%	\$8,561
• Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	10.74%	124,892	10.70%	124,427
• Rate Group #3 – Plans B, G, H and U (OCSD)	11.43%	8,614	11.38%	8,577
• Rate Group #5 – Plans A, B and U (OCTA)	10.45%	11,484	10.34%	11,364
• Rate Group #9 – Plans M, N and U (TCA)	10.79%	709	10.77%	708
• Rate Group #10 – Plans I, J, M, N and U (OCFA)	11.12%	3,749	11.11%	3,746
• Rate Group #11 – Plans M and N, future service, and U (Cemetery)	10.05%	181	10.04%	181
• Rate Group #12 – Plans G, H, future service, and U (Law Library)	13.51%	152	13.40%	151
• Rate Group #6 – Plans E, F and V (Probation)	16.43%	9,851	16.63%	9,971
• Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	17.27%	46,182	17.35%	46,396
• Rate Group #8 – Plans E, F, Q, R and V (OCFA)	15.67%	<u>24,458</u>	15.96%	<u>24,911</u>
All Categories Combined	12.16%	\$238,718	12.18%	\$238,993

¹ Based on December 31, 2020 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, 2019 valuation to the corresponding projected payrolls reported as of December 31, 2020.

³ Average December 31, 2019 member contribution rates have been recalculated by applying the individual entry age based rates determined in the December 31, 2019 valuation to the System membership as of December 31, 2020.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results (continued)

		December 31, 2020 (\$ in '000s)	December 31, 2019 (\$ 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 	\$13,599,198 510,723 <u>8,795,054</u> \$22,904,975 528,397	\$12,631,182 500,271 <u>8,785,277</u> \$21,916,730 529,849
Assets as of December 31:	<ul style="list-style-type: none"> • Market Value of Assets (MVA)^{2,3} • Valuation Value of Assets (VVA)² 	\$18,494,378 17,525,201	\$16,516,024 16,036,953
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 	\$4,410,597 80.74% \$5,379,858 76.51%	\$5,400,706 75.36% \$5,879,861 73.17%
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% 2.75% 3.25% 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.

³ Based on the preliminary unaudited financial statement provided by OCERS for this valuation.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results (continued)

		December 31, 2020	December 31, 2019	Change From Prior Year
Demographic data as of December 31:	Active Members:			
	• Number of members	21,559	22,257	-3.1%
	• Average age	44.8	44.9	-0.1
	• Average service	12.5	12.5	0.0
	• Total projected compensation	\$1,962,868,150	\$1,952,534,335	0.5%
	• Average projected compensation	\$91,046	\$87,727	3.8%
	Retired Members and Beneficiaries:			
	• Number of members:			
	– Service retired	15,339	14,449	6.2%
	– Disability retired	1,525	1,505	1.3%
	– Beneficiaries	<u>2,555</u>	<u>2,466</u>	3.6%
	– Total	19,419	18,420	5.4%
	• Average age	70.2	70.1	0.1
	• Average monthly benefit ¹	\$4,251	\$4,077	4.3%
	Inactive Vested Members:			
	• Number of members ²	6,818	6,520	4.6%
	• Average age	45.0	44.7	0.3
	Total Members:	47,796	47,197	1.3%

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 of benefits	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 data	An actuarial valuation for a plan is based on data provided to the actuary by the System. 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.
Assets	The valuation is based on the Market Value of Assets as of the valuation date, as provided by the System. 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, termination, 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. The projected 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 the System. Segal is not responsible for the use or misuse of its report, particularly by any other party.

An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. 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 the System 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 System should look to their other advisors for expertise in these areas.

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

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: 2011 – 2020

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
2011	21,421	4,406	13,289	17,695	0.83	0.62
2012	21,256	4,415	13,947	18,362	0.86	0.66
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

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

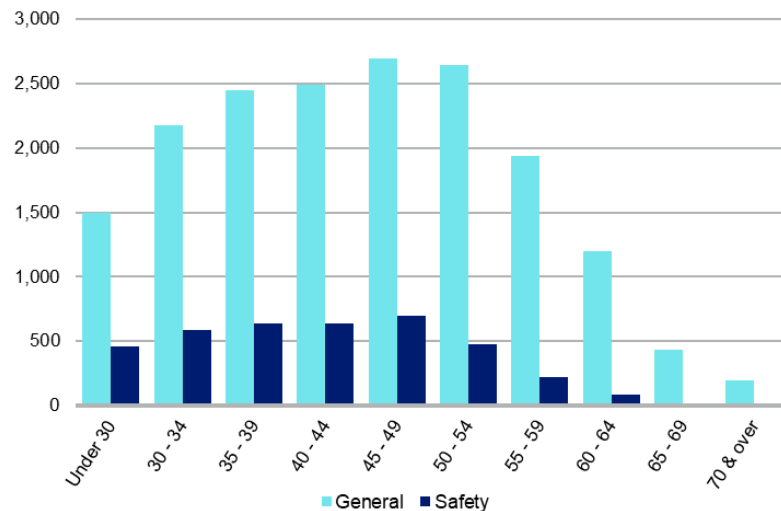
Active Members

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 21,559 active members with an average age of 44.8, average years of service of 12.5 years and average compensation of \$91,046. The 22,257 active members in the prior valuation had an average age of 44.9, average service of 12.5 years and average compensation of \$87,727.

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

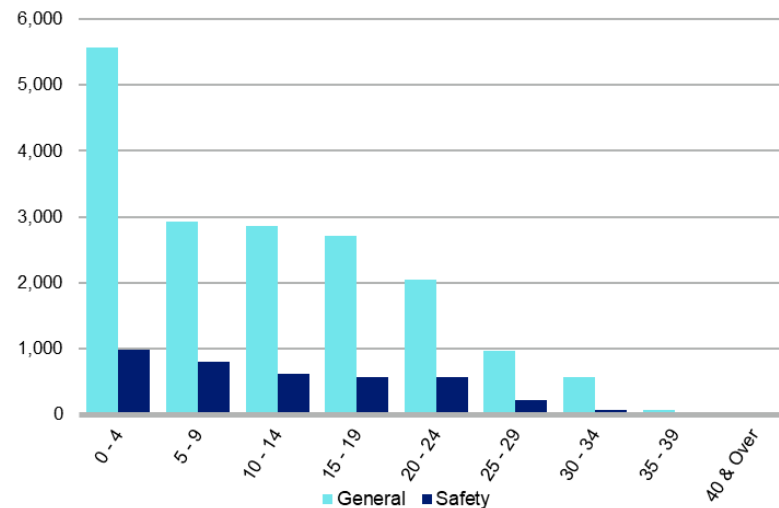
Distribution of Active Members as of December 31, 2020

Actives by Age



Average age	44.8
Prior year average age	44.9
Difference	-0.1

Actives by Years of Service



Average years of service	12.5
Prior year average years of service	12.5
Difference	0.0

Inactive Members

In this year's valuation, there were 6,818 members with a vested right to a deferred or immediate vested benefit or entitled to a return of their member contributions versus 6,520 in the prior valuation.

Section 2: Actuarial Valuation Results

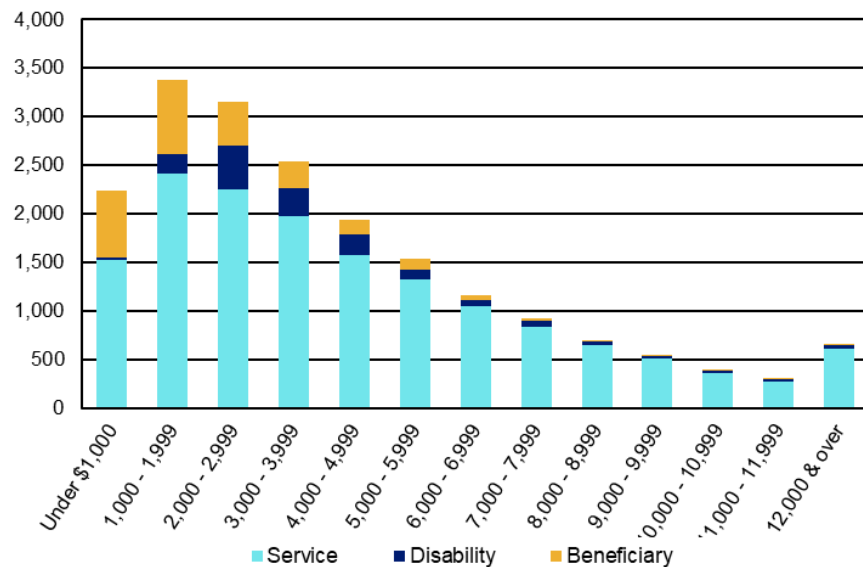
Retired Members and Beneficiaries

As of December 31, 2020, 16,864 retired members and 2,555 beneficiaries were receiving total monthly benefits of \$82,556,093. For comparison, in the previous valuation, there were 15,954 retired members and 2,466 beneficiaries receiving monthly benefits of \$75,094,136. These monthly benefits exclude benefits payable from the Supplemental Targeted Adjustment for Retirees Cost of Living Adjustment (STAR COLA).

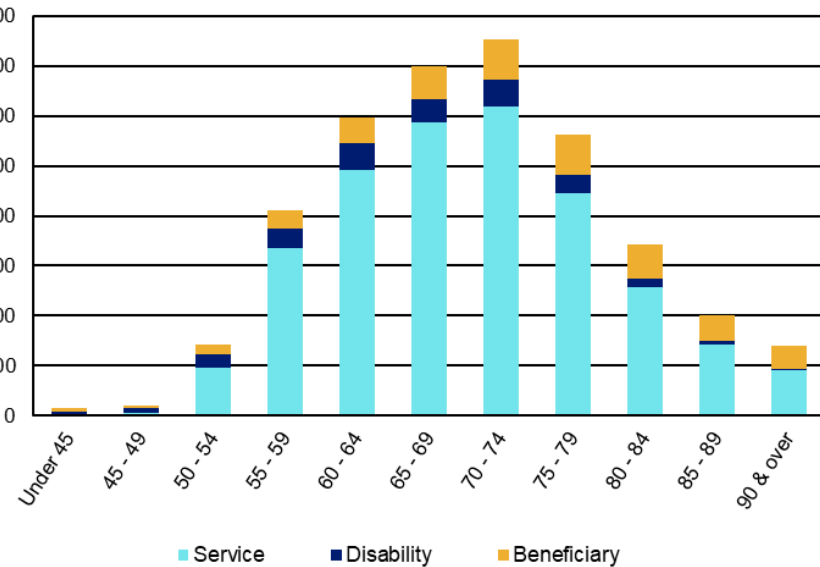
As of December 31, 2020, the average monthly benefit for retired members and beneficiaries is \$4,251, compared to \$4,077 in the previous valuation. The average age for retired members and beneficiaries is 70.2 in the current valuation, compared with 70.1 in the prior valuation.

Distribution of Retired Members and Beneficiaries as of December 31, 2020

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: 2011 – 2020

Year Ended December 31	Active Members			Retired Members and Beneficiaries		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2011	21,421	45.4	13.0	13,289	69.0	\$3,099
2012	21,256	45.5	13.1	13,947	69.0	3,247
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

Section 2: Actuarial Valuation Results

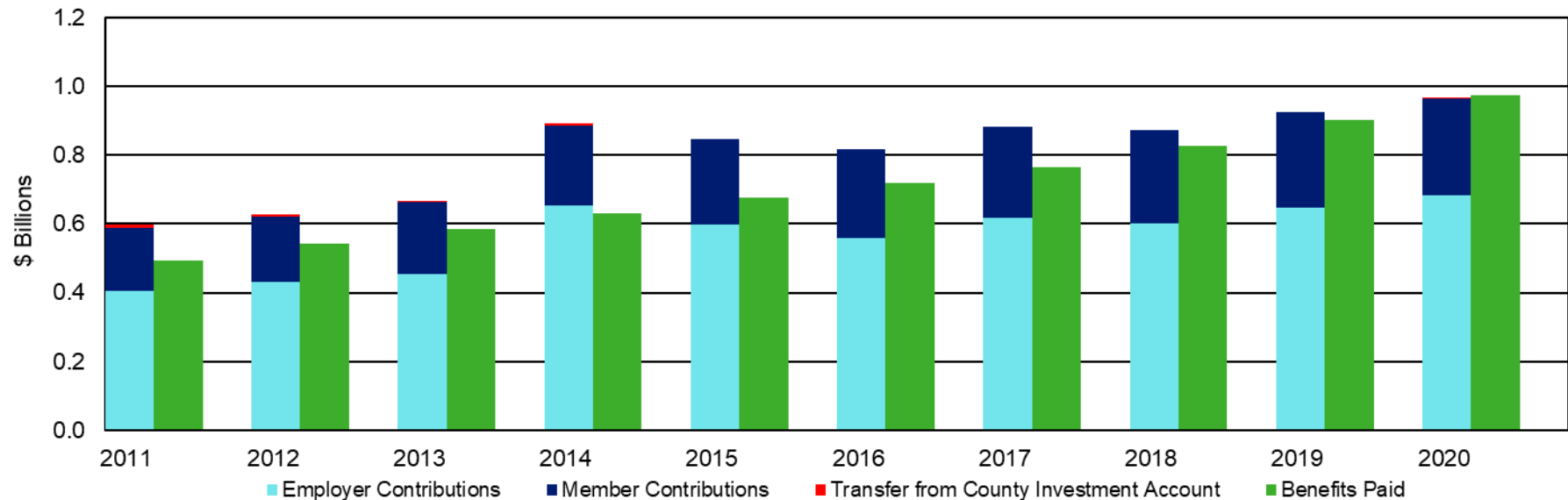
B. Financial Information

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, 2011 – 2020



Section 2: Actuarial Valuation Results

Determination of Actuarial Value of Assets for Year Ended December 31, 2020

1 Market Value of Assets^{1,2}						\$18,494,462,000
		Actual	Expected	Original	Percent	Unrecognized
2 Calculation of unrecognized return		Return	Return	Amount	Deferred	Amount
a)	Year ended December 31, 2016	\$1,010,548,000	\$840,469,000	\$170,079,000	0%	\$0
b)	Year ended December 31, 2017	1,878,172,000	920,426,000	957,746,000	20	191,549,000
c)	Year ended December 31, 2018	(361,321,000)	1,026,583,000	(1,387,904,000)	40	(555,162,000)
d)	Year ended December 31, 2019	2,123,258,000	1,004,779,000	1,118,479,000	60	671,087,000
e)	Year ended December 31, 2020	1,982,757,000	1,155,523,000	827,234,000	80	661,787,000
f)	Total unrecognized return ³					\$969,261,000
3 Actuarial Value of Assets (1) - (2f)						\$17,525,201,000
4	Ratio of Actuarial Value to Market Value					94.8%
5	Non-valuation reserves:					
a)	Unclaimed member deposit					\$0
b)	Medicare medical insurance reserve					84,000
c)	Subtotal					\$84,000
6 Valuation Value of Assets (3) – (5c)						\$17,525,117,000

Note: Results may be slightly off due to rounding.

¹ Excludes \$160,378,000 in County Investment Account (funded by pension obligation bond proceeds held by OCERS), \$293,948,000 in Prepaid Employer Contributions and \$13,433,000 in O.C. Sanitation District UAAL Deferred Account.

² Based on the preliminary unaudited financial statement provided by OCERS for this valuation.

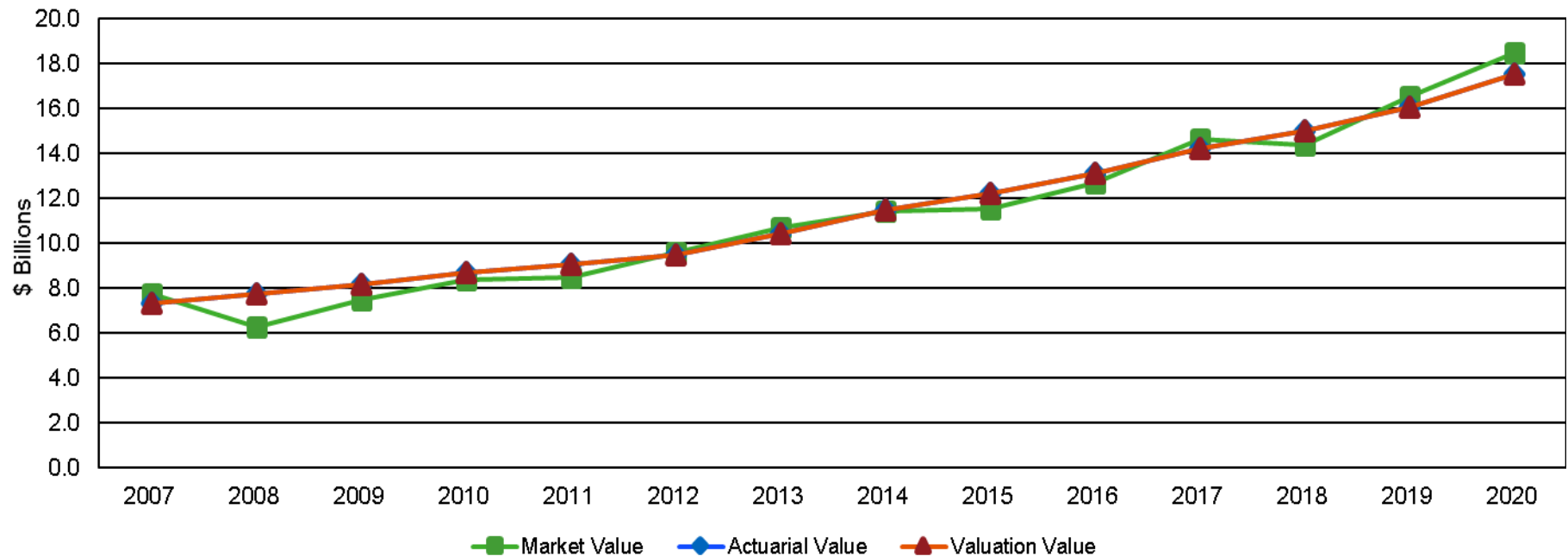
³ Deferred return as of December 31, 2020 recognized in each of the next four years:

(a)	Amount recognized on December 31, 2021	\$303,110,000
(b)	Amount recognized on December 31, 2022	111,562,000
(c)	Amount recognized on December 31, 2023	389,142,000
(d)	Amount recognized on December 31, 2024	165,447,000
(e)	Total unrecognized return as of December 31, 2020	\$969,261,000

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 – 2020



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 changes in actuarial assumptions reflected in this report.

The total gain is \$363.2 million, which includes \$370.7 million from investment gains, a net loss of \$84.8 million from contribution experience (including a gain of \$25.3 million from additional UAAL payments from OCFA and anticipated payments from DOE and U.C.I.¹ and a loss of \$110.1 million from all other contribution experience) and \$77.4 million in gains from all other sources. The net experience variation from individual sources other than investments and contributions was 0.3% 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, 2020

1	Net gain from investments ²	\$370,675,000
2	Net loss from contribution experience ³	(84,834,000)
3	Net gain from other experience ³	<u>77,376,000</u>
4	Net experience gain: 1 + 2 + 3	\$363,217,000

¹ Segal provided separate letters for DOE and UCI with regard to their required UAAL contributions based on the Board's Declining Employer Payroll policy. These contributions have not been reflected in the 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 these two employers during the past calendar year.

² Details on next page.

³ 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 12.01% for the year ended December 31, 2020.

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 2020 plan year was 9.31%. Since the actual return for the year was more than the assumed return, the Plan experienced an actuarial gain during the year ended December 31, 2020 with regard to its investments.

Investment Experience for Year Ended December 31, 2020

	Market Value	Actuarial Value	Valuation Value
1 Net investment income	\$1,982,757,000	\$1,492,651,000	\$1,492,651,000
2 Average value of assets	\$16,507,467,000 ¹	\$16,028,312,000	\$16,028,228,000
3 Rate of return: 1 ÷ 2	12.01% ¹	9.31%	9.31%
4 Assumed rate of return	7.00%	7.00%	7.00%
5 Expected investment income: 2 x 4	\$1,155,523,000	\$1,121,982,000	\$1,121,976,000
6 Actuarial gain/(loss): 1 - 5	\$827,234,000	\$370,669,000	\$370,675,000

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 \$1,982,757,000 during 2020 after including both the administrative expenses and discount for prepaid contributions while excluding the income credited to County Investment Account and O.C. Sanitation District UAAL Deferred Account. Without these adjustments, the actual investment income was \$2,044,254,000.

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: 2011 – 2020

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
2011	\$3,236,000	0.04%	\$286,585,000	3.28%	\$287,241,000	3.29%
2012	1,014,471,000	11.92%	318,033,000	3.49%	318,043,000	3.49%
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%
Most recent five-year average return		9.37%	6.98%		6.98%	
Most recent ten-year average return		7.28%	6.32%		6.32%	

Note: Return on market value was calculated using a modified dollar-weighted approach based on pension plan assets net of accounting liabilities. Each year's yield is weighted by the average asset value in that year.

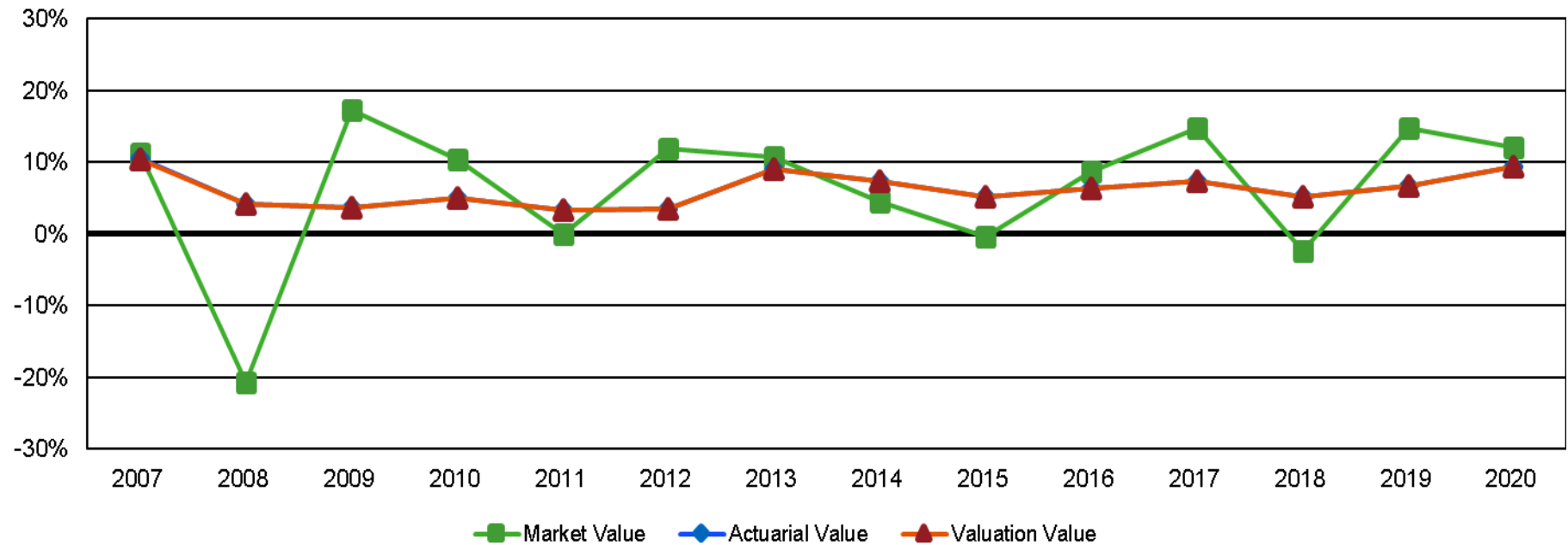
¹ Net of administrative and investment expenses.

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 – 2020



Section 2: Actuarial Valuation Results

Contributions

Contributions for the year ended December 31, 2020 totaled \$968.9 million, compared to the projected amount of \$1,050.4 million. This resulted in a net loss of \$84.8 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 gain from this other experience for the year ended December 31, 2020 amounted to \$77.4 million, which is 0.3% 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, 2020 is \$22.9 billion, an increase of \$1.0 billion, or 4.5%, 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

The assumption changes reflected in this report were based on the January 1, 2017 through December 31, 2019 Actuarial Experience Study report dated August 6, 2020 and PowerPoint presentation dated August 17, 2020.

- These changes primarily the retirement assumption for General and mortality assumption for Safety increased the Actuarial Accrued Liability by about \$24.3 million (or a 0.1% increase) and had a negligible impact on the total (employer and member) Normal Cost. The total (Normal Cost and UAAL) contribution rate increase for the employer and the member as a result of the assumption changes was 0.56% of payroll.
- The assumption changes include changes to inflation, merit and promotion salary increases, retirement from active employment, retirement age for inactive vested members, percent of members assumed to go on to work for a reciprocal system, reciprocal salary increases, pre-retirement mortality, healthy life post-retirement mortality, disabled life post-retirement mortality, termination (refund and deferred vested retirement), disability (service and non-service connected), and additional cashouts.

Method Changes

This valuation incorporates a refinement in calculating some member' entry ages used for the Entry Age actuarial cost method calculations. In previous valuations, the Normal Cost was spread over a longer period including both the member's service with a reciprocal system (if any) and their OCERS service. Beginning with this valuation, the Normal Cost is spread over only the member's service period with OCERS. This refinement does not change the Present Value of Future Benefits but it increased the Normal Cost and decreased the Actuarial Accrued Liability for members with reciprocal service.

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

Plan Provisions

There were no changes in plan provisions since the prior valuation.

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

Section 2: Actuarial Valuation Results

E. Development of Unfunded Actuarial Accrued Liability

Development for Year Ended December 31, 2020

1	Unfunded Actuarial Accrued Liability as of December 31, 2019	\$5,879,861,000
2	Normal Cost at middle of year	529,849,000
3	Expected employer and member contributions	(1,050,381,000)
4	Interest	<u>397,256,000</u>
5	Expected Unfunded Actuarial Accrued Liability at end of year	\$5,756,585,000
6	Changes due to:	
	a) Investment gains (after smoothing)	\$(370,675,000)
	b) Additional UAAL payments from OCFA and anticipated payments ¹ from DOE and U.C.I.	(25,295,000)
	c) Difference in actual versus expected contributions	110,129,000
	d) Difference in actual versus expected salary increases	(62,291,000)
	e) Effect of higher than expected COLA increases in 2020 ²	34,044,000
	f) Effect of lower than expected COLA increases in 2021 ³	(157,888,000)
	g) Changes in actuarial assumptions	24,273,000
	h) Effect of reallocating present value benefits between NC and AAL	(37,783,000)
	i) Other experience loss	<u>108,759,000</u>
	Total changes	\$(376,727,000)
7	Unfunded Actuarial Accrued Liability as of December 31, 2020	\$5,379,858,000

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

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

¹ Segal provided separate letters for DOE and UCI with regard to their required UAAL contributions based on the Board’s Declining Employer Payroll policy. These contributions have not been reflected in the 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 these two employers during the past calendar year.

² Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

³ Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

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, 2020, the average recommended employer contribution is 41.16% of compensation.

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

The contribution requirement as of December 31, 2020 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

	2020		2019	
	Amount (\$ in '000s)	% of Projected Compensation	Amount (\$ in '000s)	% of Projected Compensation
1 Total normal cost	\$528,397	26.92%	\$529,849	27.14%
2 Expected member normal cost contributions	(238,718)	(12.16%)	(240,270)	(12.31%)
3 Employer normal cost: (1) + (2)	\$289,679	14.76%	\$289,579	14.83%
4 Actuarial accrued liability	22,904,975		21,916,730	
5 Valuation Value of Assets	17,525,117		16,036,869	
6 Unfunded actuarial accrued liability (UAAL): (4) - (5)	\$5,379,858		\$5,879,861	
7 Payment on UAAL	\$518,114	26.40%	\$520,532	26.66%
9 Projected compensation	\$1,962,869		\$1,952,534	
10 Total average recommended employer contribution: (3) + (7)	\$807,793	41.16%	\$810,111	41.49%

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, 2019 to December 31, 2020

	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Average Recommended Employer Contribution as of December 31, 2019	41.35%	\$811,745
1 Effect of investment gain (after smoothing)	(1.33%)	\$(26,106)
2 Effect of additional UAAL contributions from OCFA and anticipated payments ² from DOE and U.C.I.	(0.08%)	(1,570)
3 Effect of difference in actual versus expected contributions	0.40%	7,851
4 Effect of higher than expected COLA increases in 2020 ³	0.12%	2,355
5 Effect of lower than expected COLA increases in 2021 ⁴	(0.69%)	(13,544)
6 Effect of difference in actual versus expected salary increases	(0.23%)	(4,515)
7 Effect of growth in total payroll less than expected	0.58%	11,385
8 Effect of other experience losses ⁵	0.25%	4,684
9 Effect of changes in actuarial assumptions	0.58%	11,385
10 Effect of reallocating present value benefits between NC and AAL, increase in NC	0.23%	4,515
11 Effect of reallocating present value benefits between NC and AAL, decrease in UAAL	(0.12%)	(2,355)
12 Effect of minimum funding requirement ⁶	<u>0.10%</u>	<u>1,963</u>
Total change	(0.19%)	\$(3,952)
Average Recommended Employer Contribution as of December 31, 2020	41.16%	\$807,793

¹ Based on December 31, 2020 projected annual compensation of \$1,962,869,000.

² Segal provided separate letters for DOE and UCI with regard to their required UAAL contributions based on the Board's Declining Employer Payroll policy. These contributions have not been reflected in the 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 these two employers during the past calendar year.

³ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

⁴ Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

⁵ Includes an adjustment of (0.10%) to reflect the anticipated contribution loss due to the 18-month delay between date of valuation and date of rate implementation.

⁶ 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, 2019 to December 31, 2020

	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Average Recommended Member Contribution as of December 31, 2019²	12.18%	\$238,993
1 Effect of changes in actuarial assumptions	(0.02%)	\$(393)
2 Effect of reallocating present value benefits between NC and AAL, increase in NC	0.01%	196
3 Effect of changes in member demographics	<u>(0.01%)</u>	<u>(78)</u>
Total change	(0.02%)	\$(275)
Average Recommended Member Contribution as of December 31, 2020	12.16%	\$238,718

¹ Based on December 31, 2020 projected annual compensation of \$1,962,869,000.

² Rates have been recalculated by applying the individual entry age based rates determined in the December 31, 2019 valuation to the System membership as of December 31, 2020.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate

	December 31, 2020 Actuarial Valuation		December 31, 2019 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 1.6667% @ 57.5 – County and IHSS)				
Normal Cost	10.38%	\$3,950	10.68%	\$4,065
UAAL ²	5.03%	1,914	5.16%	1,964
Total Contribution	15.41%	\$5,864	15.84%	\$6,029
Rate Group #1 – Plan U (2.5% @ 67 PEPRA)³				
Normal Cost	9.89%	\$4,946	10.05%	\$5,026
UAAL ²	5.03%	2,516	5.16%	2,581
Total Contribution	14.92%	\$7,462	15.21%	\$7,607
Rate Group #1 – Plans A, B and U Combined				
Normal Cost	10.10%	\$8,896	10.32%	\$9,091
UAAL ²	5.03%	4,430	5.16%	4,545
Total Contribution	15.13%	\$13,326	15.48%	\$13,636

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount (\$ in '000s) ¹	Contribution Rate	Estimated Annual Dollar Amount (\$ in '000s) ¹
Rate Group #2 – Plans I and J (2.7% @ 55 – non-OCFA, non-Children and Families Commission)				
Normal Cost	14.69%	\$106,802	14.34%	\$104,257
UAAL ²	28.97%	210,623	27.38%	199,063
Total Contribution	43.66%	\$317,425	41.72%	\$303,320
Rate Group #2 – Plans I and J (2.7% @ 55 – non-OCFA, Children and Families Commission)				
Normal Cost	14.69%	\$66	14.34%	\$64
UAAL ^{2,3}	5.98%	27	5.36%	24
Total Contribution	20.67%	\$93	19.70%	\$88
Rate Group #2 – Plans O and P (1.62% @ 65)				
Normal Cost	6.26%	\$952	6.10%	\$928
UAAL ²	28.97%	4,405	27.38%	4,164
Total Contribution	35.23%	\$5,357	33.48%	\$5,092
Rate Group #2 – Plan S (2.0% @ 57)				
Normal Cost ⁴	16.45%	\$337	12.61%	\$258
UAAL ²	28.97%	594	27.38%	561
Total Contribution	45.42%	\$931	39.99%	\$819
Rate Group #2 – Plan T (1.62% @ 65 PEPR A)⁵				
Normal Cost	7.06%	\$27,232	7.14%	\$27,541
UAAL ²	28.97%	111,745	27.38%	105,612
Total Contribution	36.03%	\$138,977	34.52%	\$133,153

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, 2020 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 increase in the employer Normal Cost rate from last year to this year is primarily due to reallocating Present Value of Benefits between Normal Cost and Actuarial Accrued Liability which resulted in the average entry age increasing from 33.8 to 40.6.

⁵ Applicable for members hired on or after January 1, 2013 except for County Attorneys, San Juan Capistrano members, OCERS management members and Children and Families members.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2020 Actuarial Valuation		December 31, 2019 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	8.37%	\$2,614	8.81%	\$2,752
UAAL ³	<u>28.97%</u>	<u>9,048</u>	<u>27.38%</u>	<u>8,552</u>
Total Contribution	37.34%	\$11,662	36.19%	\$11,304
Rate Group #2 – Plan U (2.5% @ 67 PEPRA, Children and Families Commission)²				
Normal Cost	8.37%	\$85	8.81%	\$89
UAAL ^{3,4}	<u>5.98%</u>	<u>61</u>	<u>5.36%</u>	<u>54</u>
Total Contribution	14.35%	\$146	14.17%	\$143
Rate Group #2 – Plan W (1.62% @ 65 PEPRA)⁵				
Normal Cost	8.43%	\$13	8.54%	\$13
UAAL ³	<u>28.97%</u>	<u>45</u>	<u>27.38%</u>	<u>42</u>
Total Contribution	37.40%	\$58	35.92%	\$55
Rate Group #2 – Plans I, J, O, P, S, T, U and W Combined				
Normal Cost	11.88%	\$138,101	11.69%	\$135,902
UAAL ³	<u>28.94%</u>	<u>336,548</u>	<u>27.35%</u>	<u>318,072</u>
Total Contribution	40.82%	\$474,649	39.04%	\$453,974

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, 2020 projected compensation as shown on the page 45.

² Applicable for County Attorneys, San Juan Capistrano members, OCERS management members and Children and Families members hired on or after January 1, 2013.

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

⁴ UAAL rate has been adjusted to reflect future service only benefit improvement under 2.7% @ 55.

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

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2020 Actuarial Valuation		December 31, 2019 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate ²	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Group #3 – Plans G and H (2.5% @ 55 – OCSD)				
Normal Cost	13.46%	\$5,194	13.22%	\$5,101
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	13.46%	\$5,194	13.22%	\$5,101
Rate Group #3 – Plan B (1.64% @ 57 – OCSD)				
Normal Cost ⁵	13.25%	\$854	11.23%	\$723
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	13.25%	\$854	11.23%	\$723
Rate Group #3 – Plan U (2.5% @ 67 PEPR A)⁶				
Normal Cost	9.86%	\$2,991	9.88%	\$2,997
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	9.86%	\$2,991	9.88%	\$2,997
Rate Group #3 – Plans B, G, H and U Combined				
Normal Cost	11.99%	\$9,039	11.70%	\$8,821
UAAL ^{3,4}	0.00%	0	0.00%	0
Total Contribution	11.99%	\$9,039	11.70%	\$8,821

¹ Amounts are based on December 31, 2020 projected compensation as shown on the page 45.

² These rates are after adjustment for \$18,631,000 asset transfer from O.C. Sanitation District UAAL Deferred Account.

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 The increase in the employer Normal Cost rate from last year to this year is primarily due to reallocating Present Value of Benefits between Normal Cost and Actuarial Accrued Liability which resulted in the average entry age increasing from 33.3 to 38.4.

⁶ Applicable for members hired on or after January 1, 2013.

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2020 Actuarial Valuation		December 31, 2019 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 1.6667% @ 57.5 – OCTA)				
Normal Cost	12.59%	\$10,136	11.97%	\$9,636
UAAL ²	19.12%	15,393	19.54%	15,731
Total Contribution	31.71%	\$25,529	31.51%	\$25,367
Rate Group #5 – Plan U (2.5% @ 67 PEPRA)³				
Normal Cost	11.73%	\$3,448	11.59%	\$3,407
UAAL ²	19.12%	5,620	19.54%	5,744
Total Contribution	30.85%	\$9,068	31.13%	\$9,151
Rate Group #5 – Plans A, B and U Combined				
Normal Cost	12.36%	\$13,584	11.87%	\$13,043
UAAL ²	19.12%	21,013	19.54%	21,475
Total Contribution	31.48%	\$34,597	31.41%	\$34,518

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 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	14.95%	\$517	14.23%	\$492
UAAL ^{2,3}	0.00%	0	0.39%	13
Total Contribution	14.95%	\$517	14.62%	\$505
Rate Group #9 – Plan U (2.5% @ 67 PEPRA)⁴				
Normal Cost	10.98%	\$342	11.14%	\$347
UAAL ^{2,3}	0.00%	0	0.39%	12
Total Contribution	10.98%	\$342	11.53%	\$359
Rate Group #9 – Plans M, N and U Combined				
Normal Cost	13.07%	\$859	12.76%	\$839
UAAL ^{2,3}	0.00%	0	0.39%	25
Total Contribution	13.07%	\$859	13.15%	\$864

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 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	15.22%	\$1,865	14.75%	\$1,808
UAAL ²	11.49%	1,408	14.06%	1,723
Total Contribution	26.71%	\$3,273	28.81%	\$3,531
Rate Group #10 – Plans M and N (2.0% @ 55 – OCFA)				
Normal Cost ³	16.83%	\$905	13.68%	\$736
UAAL ²	11.49%	618	14.06%	756
Total Contribution	28.32%	\$1,523	27.74%	\$1,492
Rate Group #10 – Plan U (2.5% @ 67 PEPRA)⁴				
Normal Cost	9.82%	\$1,579	10.05%	\$1,616
UAAL ²	11.49%	1,848	14.06%	2,261
Total Contribution	21.31%	\$3,427	24.11%	\$3,877
Rate Group #10 – Plans I, J, M, N and U Combined				
Normal Cost	12.90%	\$4,349	12.34%	\$4,160
UAAL ²	11.49%	3,874	14.06%	4,740
Total Contribution	24.39%	\$8,223	26.40%	\$8,900

¹ Amounts are based on December 31, 2020 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 The increase in the employer Normal Cost rate from last year to this year is primarily due to reallocating Present Value of Benefits between Normal Cost and Actuarial Accrued Liability which resulted in the average entry age increasing from 33.7 to 39.4.

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

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2020 Actuarial Valuation		December 31, 2019 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	12.83%	\$154	11.62%	\$139
UAAL ²	2.85%	34	3.01%	36
Total Contribution	15.68%	\$188	14.63%	\$175
Rate Group #11 – Plan U (2.5% @ 67 PEPR)³				
Normal Cost	11.80%	\$71	12.25%	\$74
UAAL ²	2.85%	17	3.01%	18
Total Contribution	14.65%	\$88	15.26%	\$92
Rate Group #11 – Plans M, N and U Combined				
Normal Cost	12.51%	\$225	11.84%	\$213
UAAL ²	2.85%	51	3.01%	54
Total Contribution	15.36%	\$276	14.85%	\$267

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 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	13.88%	\$128	14.20%	\$131
UAAL ^{2,3,4}	0.00%	0	0.19%	2
Total Contribution	13.88%	\$128	14.39%	\$133
Rate Group #12 – Plan U (2.5% @ 67 PEPRAs)⁵				
Normal Cost	10.51%	\$21	10.37%	\$21
UAAL ^{2,3,4}	0.00%	0	0.19%	0
Total Contribution	10.51%	\$21	10.56%	\$21
Rate Group #12 – Plans G, H, future service, and U Combined				
Normal Cost	13.24%	\$149	13.51%	\$152
UAAL ^{2,3,4}	0.00%	0	0.19%	2
Total Contribution	13.24%	\$149	13.70%	\$154

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 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	23.39%	\$12,837	23.25%	\$12,760
UAAL ²	34.06%	18,692	36.92%	20,262
Total Contribution	57.45%	\$31,529	60.17%	\$33,022
Rate Group #6 – Plan V (2.7% @ 57 PEPRA)³				
Normal Cost	16.26%	\$826	16.82%	\$854
UAAL ²	34.06%	1,729	36.92%	1,874
Total Contribution	50.32%	\$2,555	53.74%	\$2,728
Rate Group #6 – Plans E, F and V Combined				
Normal Cost	22.79%	\$13,663	22.71%	\$13,614
UAAL ²	34.06%	20,421	36.92%	22,136
Total Contribution	56.85%	\$34,084	59.63%	\$35,750

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 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	26.66%	\$36,422	26.57%	\$36,299
UAAL ²	39.73%	54,278	43.65%	59,633
Total Contribution	66.39%	\$90,700	70.22%	\$95,932
Rate Group #7 – Plans Q and R (3% @ 55 – Law Enforcement)				
Normal Cost	24.23%	\$12,265	23.58%	\$11,936
UAAL ²	39.73%	20,111	43.65%	22,096
Total Contribution	63.96%	\$32,376	67.23%	\$34,032
Rate Group #7 – Plan V (2.7% @ 57 PEPRA)³				
Normal Cost	17.73%	\$14,215	18.46%	\$14,800
UAAL ²	39.73%	31,853	43.65%	34,996
Total Contribution	57.46%	\$46,068	62.11%	\$49,796
Rate Group #7 – Plans E, F, Q, R and V Combined				
Normal Cost	23.52%	\$62,902	23.57%	\$63,035
UAAL ²	39.73%	106,242	43.65%	116,725
Total Contribution	63.25%	\$169,144	67.22%	\$179,760

¹ Amounts are based on December 31, 2020 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, 2020 Actuarial Valuation		December 31, 2019 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	27.31%	\$26,210	27.48%	\$26,373
UAAL ²	16.36%	15,701	23.79%	22,832
Total Contribution	43.67%	\$41,911	51.27%	\$49,205
Rate Group #8 – Plans Q and R (3% @ 55 – OCFA)				
Normal Cost ³	27.25%	\$5,878	25.77%	\$5,559
UAAL ²	16.36%	3,529	23.79%	5,132
Total Contribution	43.61%	\$9,407	49.56%	\$10,691
Rate Group #8 – Plan V (2.7% @ 57 PEPRA)⁴				
Normal Cost	15.11%	\$5,824	15.66%	\$6,036
UAAL ²	16.36%	6,305	23.79%	9,169
Total Contribution	31.47%	\$12,129	39.45%	\$15,205
Rate Group #8 – Plans E, F, Q, R and V Combined				
Normal Cost	24.29%	\$37,912	24.33%	\$37,968
UAAL ²	16.36%	25,535	23.79%	37,133
Total Contribution	40.65%	\$63,447	48.12%	\$75,101

¹ Amounts are based on December 31, 2020 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 The increase in the employer Normal Cost rate from last year to this year is primarily due to reallocating Present Value of Benefits between Normal Cost and Actuarial Accrued Liability which resulted in the average entry age increasing from 32.0 to 35.7.

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

Section 2: Actuarial Valuation Results

Recommended Employer Contribution Rate (continued)

	December 31, 2020 Actuarial Valuation		December 31, 2019 Actuarial Valuation	
	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)	Contribution Rate	Estimated Annual Dollar Amount ¹ (\$ in '000s)
Rate Groups #1 – #12				
Normal Cost	14.76%	\$289,679	14.61%	\$286,838
UAAL ²	26.40%	518,114	26.74%	524,907
Total Contribution	41.16%	\$807,793	41.35%	\$811,745

¹ Amounts are based on December 31, 2020 projected compensation (\$ in '000s):

General Employers		General Employers		Safety Employers	
Rate Group #1 – Plans A and B	\$38,058	Rate Group #3 – Plans G and H	\$38,587	Rate Group #6 – Plans E and F	\$54,881
Rate Group #1 – Plan U	50,013	Rate Group #3 – Plan B	6,442	Rate Group #6 – Plan V	5,077
Rate Group #2 – Plans I and J		Rate Group #3 – Plan U	30,337	Rate Group #7 – Plans E and F	136,616
non-Children and Families Commission	727,039	Rate Group #5 – Plans A and B	80,505	Rate Group #7 – Plans Q and R	50,620
Rate Group #2 – Plans I and J		Rate Group #5 – Plan U	29,394	Rate Group #7 – Plan V	80,174
Children and Families Commission	446	Rate Group #9 – Plans M and N	3,459	Rate Group #8 – Plans E and F	95,971
Rate Group #2 – Plans O and P	15,207	Rate Group #9 – Plan U	3,114	Rate Group #8 – Plans Q and R	21,570
Rate Group #2 – Plan S	2,049	Rate Group #10 – Plans I and J	12,256	Rate Group #8 – Plan V	38,542
Rate Group #2 – Plan T	385,727	Rate Group #10 – Plans M and N	5,379		
Rate Group #2 – Plan U		Rate Group #10 – Plan U	16,082		
non-Children and Families Commission	31,234	Rate Group #11 – Plans M and N	1,197		
Rate Group #2 – Plan U		Rate Group #11 – Plan U	602		
Children and Families Commission	1,012	Rate Group #12 – Plans G and H	921		
Rate Group #2 – Plan W	154	Rate Group #12 – Plan U	204		
				Total Combined	\$1,962,869

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, 2020 Actuarial Valuation		December 31, 2019 Actuarial Valuation	
	Contribution Rate ¹	Contribution Rate ²	Contribution Rate ¹	Contribution Rate ²
Rate Group #2 – Plans I and J (2.7% @ 55 – non-OCFA)				
Normal Cost	14.69%	14.69%	14.34%	14.34%
UAAL ³	<u>27.72%</u>	<u>28.97%</u>	<u>26.16%</u>	<u>27.38%</u>
Total Contributions	42.41%	43.66%	40.50%	41.72%
Rate Group #2 – Plan U (2.5% @ 67 PEPRA)⁴				
Normal Cost	8.37%	8.37%	8.81%	8.81%
UAAL ³	<u>27.72%</u>	<u>28.97%</u>	<u>26.16%</u>	<u>27.38%</u>
Total Contributions	36.09%	37.34%	34.97%	36.19%

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, 2020 Pick Up Percentage		December 31, 2019 Pick Up Percentage	
General Members				
Rate Group #1 Plan A/B (County and IHSS)	Plan A: N/A	Plan B: 98.80%	Plan A: 100.00%	Plan B: 98.37%
Rate Group #2 (2.7% @ 55 – non-OCFA)	Plan I: 99.38%	Plan J: 98.95%	Plan I: 99.40%	Plan J: 98.52%
Rate Group #2 (1.62% @ 65)	Plan O: N/A	Plan P: 98.28%	Plan O: N/A	Plan P: 97.76%
Rate Group #2 (2.0% @ 57)		Plan S: 98.54%		Plan S: 97.94%
Rate Group #3 (2.5% @ 55 – OCSD)	Plan G: N/A	Plan H: 99.05%	Plan G: 100.00%	Plan H: 98.67%
Rate Group #3 (1.64% @ 57 – OCSD)		Plan B: 98.38%		Plan B: 97.83%
Rate Group #5 Plan A/B (OCTA)	Plan A: 100.00%	Plan B: 98.43%	Plan A: 100.00%	Plan B: 97.77%
Rate Group #9 (2.0% @ 55 – TCA)	Plan M: N/A	Plan N: 98.76%	Plan M: N/A	Plan N: 98.59%
Rate Group #10 (2.7% @ 55 – OCFA)	Plan I: N/A	Plan J: 99.10%	Plan I: N/A	Plan J: 98.71%
Rate Group #10 (2.0% @ 55 – OCFA)	Plan M: N/A	Plan N: 98.19%	Plan M: N/A	Plan N: 97.70%
Rate Group #11 (2.0% @ 55 – Cemetery)	Plan M: N/A	Plan N: 99.14%	Plan M: N/A	Plan N: 98.69%
Rate Group #12 (2.5% @ 55 – Law Library)	Plan G: N/A	Plan H: 99.23%	Plan G: N/A	Plan H: 98.82%
Safety Members				
Rate Group #6 (3.0% @ 50 – Probation)	Plan E: N/A	Plan F: 99.79%	Plan E: N/A	Plan F: 99.49%
Rate Group #7 (3.0% @ 50 – Law Enforcement)	Plan E: N/A	Plan F: 99.89%	Plan E: N/A	Plan F: 99.73%
Rate Group #7 (3.0% @ 55 – Law Enforcement)	Plan Q: N/A	Plan R: 99.75%	Plan Q: N/A	Plan R: 99.47%
Rate Group #8 (3.0% @ 50 – OCFA)	Plan E: N/A	Plan F: 99.86%	Plan E: N/A	Plan F: 99.66%
Rate Group #8 (3.0% @ 55 – OCFA)	Plan Q: N/A	Plan R: 99.77%	Plan Q: N/A	Plan R: 99.33%

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	31
Cemetery District	102	28
Law Library	103	41
Retirement System	105	31
OCFA	106	33
Transportation Corridor Agency	109	36
City of San Juan Capistrano	110	32
Sanitation District	111	33
OCTA	112	35
Children & Families Commission	118	28
Local Agency Formation Commission	119	38
Superior Court	121	32
IHSS Public Authority	122	45
Safety		
Probation	101	27
Law Enforcement	101	27
OCFA	106	29

Section 2: Actuarial Valuation Results

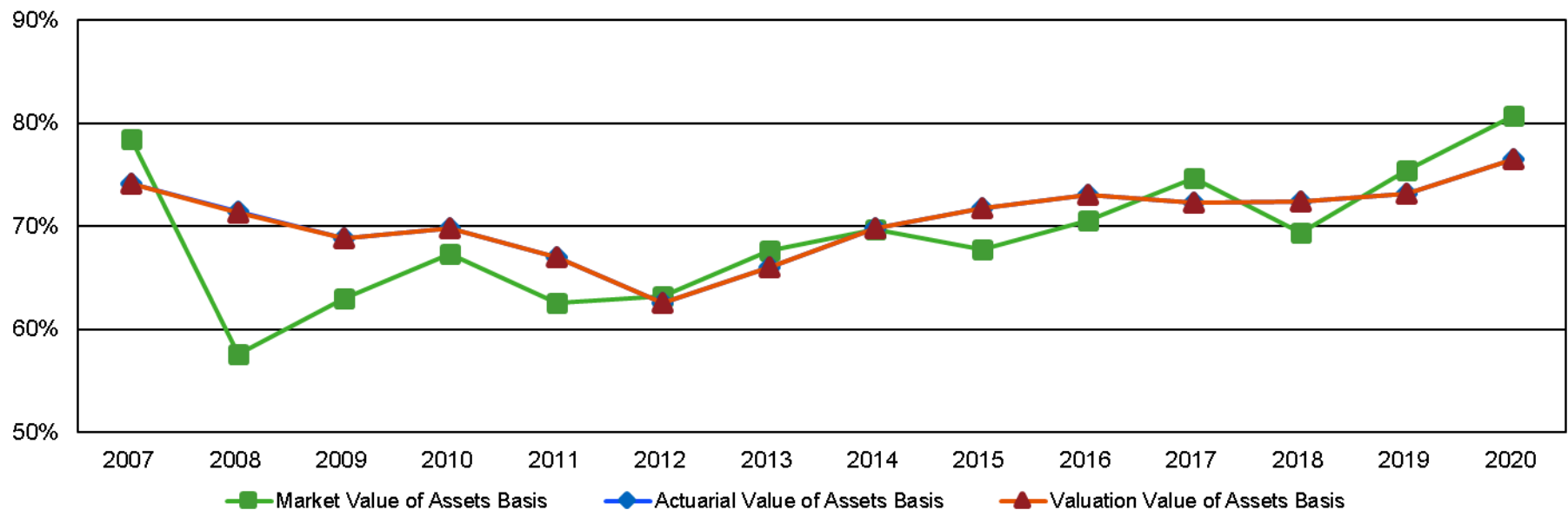
G. Funded Status

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 – 2020



Section 2: Actuarial Valuation Results

Schedule of Funding Progress for Years Ended December 31, 2011 – 2020

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)
2011	\$9,064,355,000	\$13,522,978,000	\$4,458,623,000	67.03%	\$1,619,474,000	275.31%
2012	9,469,208,000	15,144,888,000	5,675,680,000	62.52%	1,609,600,000	352.55%
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%

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
2011	62.60%	2016	70.58%
2012	63.17%	2017	74.62%
2013	67.65%	2018	69.31%
2014	69.63%	2019	75.36%
2015	67.73%	2020	80.74%

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, 2020 (\$ in '000s)	December 31, 2019 (\$ in '000s)
Actuarial present value of future benefits		
• Present value of benefits for retired members and beneficiaries	\$13,599,198	\$12,631,182
• Present value of benefits for inactive vested members ¹	510,723	500,271
• Present value of benefits for active members	<u>13,222,881</u>	<u>13,405,109</u>
Total actuarial present value of future benefits	<u>\$27,332,802</u>	<u>\$26,536,562</u>
Current and future assets		
• Total Valuation Value of Assets	\$17,525,117	\$16,036,869
• Present value of future contributions by members	2,038,761	2,130,254
• Present value of future employer contributions for:		
• Entry age normal cost	2,389,066	2,489,578
• Unfunded actuarial accrued liability	<u>5,379,858</u>	<u>5,879,861</u>
Total of current and future assets	<u>\$27,332,802</u>	<u>\$26,536,562</u>

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 9.4. This means that a 1% asset gain or loss (relative to the assumed investment return) translates to about 9.4% 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 11.7, but is 10.5 for General compared to 15.2 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 2011 – 2020

Year Ended December 31	Asset Volatility Ratio			Liability Volatility Ratio		
	General	Safety	Total	General	Safety	Total
2011	4.7	7.1	5.2	7.6	10.9	8.4
2012	5.3	8.1	5.9	8.6	12.3	9.4
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

Section 2: Actuarial Valuation Results

J. Risk Assessment

Since 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 9.4% 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 -2.46% to a high of 14.79%.

- 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 this 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 67.0% to 76.5%. 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 Actuarial Value of Assets over the last 10 years was 6.32%. This includes a high of 9.31% return and a low of 3.28%. The average over the last 5 years was 6.98%. 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 this valuation (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 0.62 to 0.90. 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. Over the past year, benefits paid were \$4.4 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 a 76.5% 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
	2020	2019	
Active members in valuation:			
• Number	21,559	22,257	-3.1%
• Average age	44.8	44.9	-0.1
• Average years of service	12.5	12.5	0.0
• Total projected compensation	\$1,962,868,150	\$1,952,534,335	0.5%
• Average projected compensation	\$91,046	\$87,727	3.8%
• Account balances	\$3,167,834,564	\$3,116,706,969	1.6%
• Total active vested members	15,436	15,717	-1.8%
Inactive vested members:¹			
• Number	6,818	6,520	4.6%
• Average age	45.0	44.7	0.3
Retired members:			
• Number in pay status	15,339	14,449	6.2%
• Average age	70.0	70.1	-0.1
• Average monthly benefit ²	\$4,592	\$4,413	4.1%
Disabled members:			
• Number in pay status	1,525	1,505	1.3%
• Average age	66.1	65.7	0.4
• Average monthly benefit ²	\$4,109	\$3,911	5.1%
Beneficiaries:			
• Number in pay status	2,555	2,466	3.6%
• Average age	73.3	73.1	0.2
• Average monthly benefit ²	\$2,293	\$2,205	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
	2020	2019	
Active members in valuation:			
• Number	1,530	1,650	-7.3%
• Average age	43.3	42.9	0.4
• Average years of service	9.8	9.3	0.5
• Total projected compensation	\$88,071,531	\$90,620,091	-2.8%
• Average projected compensation	\$57,563	\$54,921	4.8%
• Account balances	\$67,213,838	\$64,253,545	4.6%
• Total active vested members	963	970	-0.7%
Inactive vested members:²			
• Number	613	581	5.5%
• Average age	42.2	41.9	0.3
Retired members:			
• Number in pay status	685	650	5.4%
• Average age	74.9	75.2	-0.3
• Average monthly benefit ³	\$2,852	\$2,768	3.0%
Disabled members:			
• Number in pay status	39	38	2.6%
• Average age	68.7	68.1	0.6
• Average monthly benefit ³	\$2,515	\$2,438	3.2%
Beneficiaries:			
• Number in pay status	97	98	-1.0%
• Average age	76.7	76.7	0.0
• Average monthly benefit ³	\$1,523	\$1,571	-3.1%

¹ Includes payees from Vector Control, Cypress Parks and Recreation, 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
	2020	2019	
Active members in valuation:			
• Number	13,845	14,339	-3.4%
• Average age	45.2	45.4	-0.2
• Average years of service	12.5	12.6	-0.1
• Total projected compensation	\$1,162,867,995	\$1,160,247,859	0.2%
• Average projected compensation	\$83,992	\$80,916	3.8%
• Account balances	\$2,113,790,709	\$2,114,331,924	0.0%
• Total active vested members	9,842	10,068	-2.2%
Inactive vested members:¹			
• Number	4,568	4,371	4.5%
• Average age	45.0	44.7	0.3
Retired members:			
• Number in pay status	10,449	9,828	6.3%
• Average age	71.0	71.1	-0.1
• Average monthly benefit ²	\$4,111	\$3,939	4.4%
Disabled members:			
• Number in pay status	562	570	-1.4%
• Average age	67.6	67.0	0.6
• Average monthly benefit ²	\$2,760	\$2,666	3.5%
Beneficiaries:			
• Number in pay status	1,591	1,553	2.4%
• Average age	75.4	75.2	0.2
• Average monthly benefit ²	\$2,059	\$1,983	3.8%

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

Category	Year Ended December 31		Change From Prior Year
	2020	2019	
Active members in valuation:			
• Number	618	608	1.6%
• Average age	47.0	47.3	-0.3
• Average years of service	11.8	12.3	-0.5
• Total projected compensation	\$75,365,517	\$76,392,296	-1.3%
• Average projected compensation	\$121,951	\$125,645	-2.9%
• Account balances	\$96,444,778	\$95,709,705	0.8%
• Total active vested members	430	432	-0.5%
Inactive vested members:¹			
• Number	136	135	0.7%
• Average age	47.9	46.7	1.2
Retired members:			
• Number in pay status	435	410	6.1%
• Average age	68.6	68.4	0.2
• Average monthly benefit ²	\$6,124	\$5,823	5.2%
Disabled members:			
• Number in pay status	19	19	0.0%
• Average age	66.9	65.9	1.0
• Average monthly benefit ²	\$3,945	\$3,830	3.0%
Beneficiaries:			
• Number in pay status	85	79	7.6%
• Average age	70.6	70.2	0.4
• Average monthly benefit ²	\$2,524	\$2,536	-0.5%

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
	2020	2019	
Active members in valuation:			
• Number	1,322	1,350	-2.1%
• Average age	49.7	49.6	0.1
• Average years of service	12.7	12.8	-0.1
• Total projected compensation	\$109,899,068	\$112,979,357	-2.7%
• Average projected compensation	\$83,131	\$83,688	-0.7%
• Account balances	\$136,034,765	\$134,348,956	1.3%
• Total active vested members	925	959	-3.5%
Inactive vested members:¹			
• Number	650	636	2.2%
• Average age	50.0	49.7	0.3
Retired members:			
• Number in pay status	1,029	992	3.7%
• Average age	71.0	70.6	0.4
• Average monthly benefit ²	\$2,819	\$2,659	6.0%
Disabled members:			
• Number in pay status	267	268	-0.4%
• Average age	67.3	66.9	0.4
• Average monthly benefit ²	\$2,551	\$2,483	2.7%
Beneficiaries:			
• Number in pay status	193	187	3.2%
• Average age	72.3	72.3	0.0
• Average monthly benefit ²	\$1,542	\$1,452	6.2%

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

Category	Year Ended December 31		Change From Prior Year
	2020	2019	
Active members in valuation:			
• Number	54	61	-11.5%
• Average age	49.5	48.7	0.8
• Average years of service	9.9	9.2	0.7
• Total projected compensation	\$6,572,806	\$7,334,734	-10.4%
• Average projected compensation	\$121,719	\$120,242	1.2%
• Account balances	\$6,005,807	\$5,992,102	0.2%
• Total active vested members	36	33	9.1%
Inactive vested members:¹			
• Number	72	67	7.5%
• Average age	46.5	45.8	0.7
Retired members:			
• Number in pay status	54	51	5.9%
• Average age	69.9	69.5	0.4
• Average monthly benefit ²	\$3,298	\$3,276	0.7%
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	4	4	0.0%
• Average age	73.0	72.0	1.0
• Average monthly benefit ²	\$493	\$478	3.1%

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
	2020	2019	
Active members in valuation:			
• Number	325	310	4.8%
• Average age	44.1	44.7	-0.6
• Average years of service	9.5	10.2	-0.7
• Total projected compensation	\$33,716,592	\$31,598,713	6.7%
• Average projected compensation	\$103,743	\$101,931	1.8%
• Account balances	\$31,403,494	\$30,922,866	1.6%
• Total active vested members	182	173	5.2%
Inactive vested members:¹			
• Number	234	209	12.0%
• Average age	41.8	41.9	-0.1
Retired members:			
• Number in pay status	187	172	8.7%
• Average age	66.6	66.4	0.2
• Average monthly benefit ²	\$4,794	\$4,662	2.8%
Disabled members:			
• Number in pay status	11	11	0.0%
• Average age	65.5	62.2	3.3
• Average monthly benefit ²	\$3,358	\$3,004	11.8%
Beneficiaries:			
• Number in pay status	13	13	0.0%
• Average age	64.7	63.7	1.0
• Average monthly benefit ²	\$1,589	\$1,542	3.0%

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

Category	Year Ended December 31		Change From Prior Year
	2020	2019	
Active members in valuation:			
• Number	25	24	4.2%
• Average age	48.8	49.3	-0.5
• Average years of service	15.2	14.9	0.3
• Total projected compensation	\$1,798,756	\$1,674,297	7.4%
• Average projected compensation	\$71,950	\$69,762	3.1%
• Account balances	\$2,496,069	\$2,226,124	12.1%
• Total active vested members	17	16	6.3%
Inactive vested members:¹			
• Number	3	2	50.0%
• Average age	36.7	41.1	-4.4
Retired members:			
• Number in pay status	7	7	0.0%
• Average age	73.3	72.3	1.0
• Average monthly benefit ²	\$3,235	\$3,065	5.5%
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	5	6	-16.7%
• Average age	74.8	76.5	-1.7
• Average monthly benefit ²	\$1,583	\$1,501	5.5%

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
	2020	2019	
Active members in valuation:			
• Number	14	14	0.0%
• Average age	59.2	58.2	1.0
• Average years of service	18.4	17.4	1.0
• Total projected compensation	\$1,125,455	\$1,119,047	0.6%
• Average projected compensation	\$80,390	\$79,932	0.6%
• Account balances	\$2,939,753	\$2,652,511	10.8%
• Total active vested members	13	12	8.3%
Inactive vested members:¹			
• Number	3	3	0.0%
• Average age	46.4	45.4	1.0
Retired members:			
• Number in pay status	12	13	-7.7%
• Average age	72.1	72.7	-0.6
• Average monthly benefit ²	\$3,317	\$3,019	9.9%
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
	2020	2019	
Active members in valuation:			
• Number	679	736	-7.7%
• Average age	44.9	44.6	0.3
• Average years of service	17.7	17.2	0.5
• Total projected compensation	\$59,957,162	\$63,093,762	-5.0%
• Average projected compensation	\$88,302	\$85,725	3.0%
• Account balances	\$148,919,892	\$148,763,700	0.1%
• Total active vested members	620	669	-7.3%
Inactive vested members:¹			
• Number	219	222	-1.4%
• Average age	42.9	42.4	0.5
Retired members:			
• Number in pay status	427	376	13.6%
• Average age	65.1	65.6	-0.5
• Average monthly benefit ²	\$5,748	\$5,672	1.3%
Disabled members:			
• Number in pay status	36	33	9.1%
• Average age	54.3	55.6	-1.3
• Average monthly benefit ²	\$3,093	\$3,052	1.3%
Beneficiaries:			
• Number in pay status	37	28	32.1%
• Average age	64.6	65.3	-0.7
• Average monthly benefit ²	\$2,372	\$2,469	-3.9%

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

Category	Year Ended December 31		Change From Prior Year
	2020	2019	
Active members in valuation:			
• Number	2,015	2,059	-2.1%
• Average age	40.7	40.5	0.2
• Average years of service	12.6	12.6	0.0
• Total projected compensation	\$267,410,289	\$259,968,109	2.9%
• Average projected compensation	\$132,710	\$126,259	5.1%
• Account balances	\$374,198,807	\$348,748,071	7.3%
• Total active vested members	1,523	1,554	-2.0%
Inactive vested members:¹			
• Number	209	194	7.7%
• Average age	43.0	43.3	-0.3
Retired members:			
• Number in pay status	1,572	1,489	5.6%
• Average age	64.3	64.2	0.1
• Average monthly benefit ²	\$7,672	\$7,412	3.5%
Disabled members:			
• Number in pay status	378	370	2.2%
• Average age	64.3	63.8	0.5
• Average monthly benefit ²	\$5,627	\$5,465	3.0%
Beneficiaries:			
• Number in pay status	402	385	4.4%
• Average age	69.1	68.5	0.6
• Average monthly benefit ²	\$3,369	\$3,250	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 #8 for Plans E, F, Q, R and V (OCFA)

Category	Year Ended December 31		Change From Prior Year
	2020	2019	
Active members in valuation:			
• Number	1,132	1,106	2.4%
• Average age	42.2	42.5	-0.3
• Average years of service	13.1	12.5	0.6
• Total projected compensation	\$156,082,978	\$147,506,069	5.8%
• Average projected compensation	\$137,882	\$133,369	3.4%
• Account balances	\$188,386,653	\$168,757,464	11.6%
• Total active vested members	885	831	6.5%
Inactive vested members:¹			
• Number	111	100	11.0%
• Average age	40.5	41.0	-0.5
Retired members:			
• Number in pay status	481	460	4.6%
• Average age	65.8	65.3	0.5
• Average monthly benefit ²	\$8,942	\$8,780	1.8%
Disabled members:			
• Number in pay status	213	196	8.7%
• Average age	65.5	65.2	0.3
• Average monthly benefit ²	\$7,444	\$7,035	5.8%
Beneficiaries:			
• Number in pay status	128	113	13.3%
• Average age	64.3	63.4	0.9
• Average monthly benefit ²	\$3,514	\$3,380	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 B: Members in Active Service as of December 31, 2020 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	279	278	1	--	--	--	--	--	--	--
	\$65,958	\$65,817	\$104,923	--	--	--	--	--	--	--
25 – 29	1,682	1,462	216	4	--	--	--	--	--	--
	71,325	69,374	83,876	\$106,462	--	--	--	--	--	--
30 – 34	2,760	1,663	905	187	5	--	--	--	--	--
	81,906	76,121	90,925	90,139	\$65,588	--	--	--	--	--
35 – 39	3,086	1,108	854	849	268	7	--	--	--	--
	89,673	82,123	95,473	94,075	88,653	\$82,206	--	--	--	--
40 – 44	3,128	641	556	815	855	260	1	--	--	--
	94,350	83,895	94,815	100,654	95,570	95,318	\$105,391	--	--	--
45 – 49	3,392	526	367	612	796	861	216	14	--	--
	98,851	88,763	96,435	95,585	98,946	106,104	106,874	\$108,594	--	--
50 – 54	3,124	416	288	415	562	694	506	240	3	--
	99,522	87,352	100,769	93,496	98,143	105,858	106,898	99,271	\$68,869	--
55 – 59	2,162	279	269	315	392	421	246	205	34	1
	95,366	93,315	101,571	93,540	89,254	95,951	96,099	102,841	93,080	\$88,496
60 – 64	1,292	137	200	177	251	232	136	125	26	8
	91,356	85,618	104,592	86,468	85,893	92,906	90,293	92,849	91,419	87,770
65 – 69	454	47	57	67	104	78	47	35	15	4
	89,010	108,660	85,106	85,227	83,526	99,422	80,583	80,232	88,626	93,993
70 & over	200	7	23	25	40	51	27	16	6	5
	78,746	74,528	89,191	70,812	86,334	72,760	73,494	87,330	66,258	92,512
Total	21,559	6,564	3,736	3,466	3,273	2,604	1,179	635	84	18
	\$91,046	\$78,839	\$94,838	\$94,845	\$94,227	\$101,227	\$100,910	\$98,014	\$88,990	\$90,510

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	30	30	--	--	--	--	--	--	--	--
	\$66,514	\$66,514	--	--	--	--	--	--	--	--
25 – 29	157	143	14	--	--	--	--	--	--	--
	53,434	53,167	\$56,157	--	--	--	--	--	--	--
30 – 34	260	155	96	8	1	--	--	--	--	--
	56,104	53,276	60,441	\$59,758	\$48,890	--	--	--	--	--
35 – 39	229	94	83	35	15	2	--	--	--	--
	56,819	52,382	59,102	60,944	61,482	\$63,511	--	--	--	--
40 – 44	217	54	71	29	45	18	--	--	--	--
	58,076	51,458	59,717	60,361	61,010	60,445	--	--	--	--
45 – 49	186	36	29	34	45	34	7	1	--	--
	58,930	51,888	59,870	61,364	60,908	60,501	\$58,852	\$60,533	--	--
50 – 54	167	29	27	27	29	23	24	8	--	--
	58,878	50,552	58,838	59,535	60,026	62,363	62,030	63,333	--	--
55 – 59	123	18	39	13	18	13	13	7	2	--
	58,375	50,567	58,624	59,445	59,488	60,270	62,528	60,627	\$59,652	--
60 – 64	106	10	31	12	15	6	20	11	1	--
	58,925	51,129	59,385	58,634	58,815	60,423	60,677	61,121	59,586	--
65 – 69	37	2	9	4	9	2	5	4	2	--
	59,795	50,056	59,919	62,574	60,957	58,343	60,150	58,292	61,764	--
70 & over	18	1	4	3	1	5	1	3	--	--
	58,535	34,625	58,620	60,060	57,169	57,541	66,465	64,338	--	--
Total	1,530	572	403	165	178	103	70	34	5	--
	\$57,563	\$53,232	\$59,453	\$60,377	\$60,432	\$60,746	\$61,347	\$61,474	\$60,483	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	154	154	--	--	--	--	--	--	--	--
	\$56,510	\$56,510	--	--	--	--	--	--	--	--
25 – 29	1,005	884	120	1	--	--	--	--	--	--
	62,308	61,883	\$65,339	\$74,867	--	--	--	--	--	--
30 – 34	1,711	1,096	502	110	3	--	--	--	--	--
	73,842	72,062	78,916	68,594	\$67,500	--	--	--	--	--
35 – 39	1,960	717	513	549	176	5	--	--	--	--
	81,161	76,901	86,737	82,542	77,714	\$89,685	--	--	--	--
40 – 44	1,984	439	324	544	511	165	1	--	--	--
	87,170	81,580	87,942	92,620	87,461	81,546	\$105,391	--	--	--
45 – 49	2,195	351	236	436	521	506	133	12	--	--
	90,572	86,374	88,140	89,151	93,785	92,924	87,546	\$107,586	--	--
50 – 54	2,112	245	173	307	387	483	337	177	3	--
	92,070	83,059	92,077	89,743	93,831	97,717	92,532	88,829	\$68,869	--
55 – 59	1,426	166	140	236	249	310	167	133	25	--
	89,133	90,749	91,519	88,872	85,939	92,313	84,544	91,450	78,210	--
60 – 64	842	94	94	129	160	182	85	82	13	3
	88,018	88,365	95,601	83,532	86,406	91,535	84,074	88,361	72,894	\$72,845
65 – 69	302	31	27	50	62	66	32	23	8	3
	88,193	108,466	83,584	84,957	78,706	99,794	80,192	80,594	81,993	75,060
70 & over	154	6	13	21	32	43	19	10	6	4
	78,415	81,179	78,058	71,748	91,036	72,291	68,900	94,881	66,258	97,550
Total	13,845	4,183	2,142	2,383	2,101	1,760	774	437	55	10
	\$83,992	\$74,402	\$85,083	\$86,968	\$88,893	\$92,666	\$87,949	\$89,759	\$75,690	\$83,391

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	--	--	--	--	--	--	--	--
	\$86,718	\$86,718	--	--	--	--	--	--	--	--
25 – 29	24	24	--	--	--	--	--	--	--	--
	98,305	98,305	--	--	--	--	--	--	--	--
30 – 34	69	49	19	1	--	--	--	--	--	--
	102,574	101,212	\$106,206	\$100,306	--	--	--	--	--	--
35 – 39	99	55	24	15	5	--	--	--	--	--
	116,343	106,221	129,051	131,386	\$121,566	--	--	--	--	--
40 – 44	84	26	21	19	18	--	--	--	--	--
	123,510	112,092	123,283	134,387	128,785	--	--	--	--	--
45 – 49	84	23	18	22	13	4	4	--	--	--
	125,684	122,042	130,123	120,205	122,714	\$149,879	\$142,247	--	--	--
50 – 54	92	18	9	11	11	14	19	10	--	--
	133,572	118,425	139,636	134,446	137,760	128,522	155,811	\$114,622	--	--
55 – 59	90	14	11	17	18	8	13	9	--	--
	132,327	116,619	125,726	126,297	137,954	130,986	158,889	127,788	--	--
60 – 64	48	5	9	10	9	7	5	3	--	--
	129,346	101,652	128,346	122,494	111,099	152,456	141,986	181,103	--	--
65 – 69	19	5	1	3	6	--	3	1	--	--
	115,963	135,350	102,162	89,599	121,201	--	110,761	96,096	--	--
70 & over	8	--	1	--	2	1	3	1	--	--
	97,708	--	134,705	--	74,336	131,993	90,718	94,142	--	--
Total	618	220	113	98	82	34	47	24	--	--
	\$121,951	\$108,719	\$124,584	\$126,415	\$126,775	\$136,644	\$147,007	\$126,244	--	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	16	16	--	--	--	--	--	--	--	--
	\$63,789	\$63,789	--	--	--	--	--	--	--	--
25 – 29	69	62	7	--	--	--	--	--	--	--
	64,130	63,376	\$70,805	--	--	--	--	--	--	--
30 – 34	93	65	26	2	--	--	--	--	--	--
	70,545	65,920	80,823	\$87,217	--	--	--	--	--	--
35 – 39	100	56	18	21	5	--	--	--	--	--
	82,743	77,171	91,429	88,670	\$88,995	--	--	--	--	--
40 – 44	153	47	33	28	39	6	--	--	--	--
	85,698	78,788	91,879	84,370	86,106	\$109,368	--	--	--	--
45 – 49	171	52	23	30	44	17	5	--	--	--
	84,453	70,066	93,618	93,731	84,439	93,898	\$104,261	--	--	--
50 – 54	215	57	34	31	51	23	9	10	--	--
	85,426	68,249	97,244	96,112	82,646	88,917	113,584	\$90,840	--	--
55 – 59	249	38	23	32	71	35	22	23	4	1
	86,085	63,162	100,759	102,485	79,536	84,501	101,228	91,402	\$103,926	\$88,496
60 – 64	177	14	16	18	55	23	17	22	8	4
	87,008	60,339	90,358	88,406	81,373	80,989	113,902	97,941	92,311	87,705
65 – 69	67	5	16	8	17	8	5	5	3	--
	87,675	94,800	92,075	74,632	86,500	108,070	78,987	76,920	71,796	--
70 & over	12	--	2	1	3	2	2	1	--	1
	82,397	--	107,467	83,425	73,563	91,267	69,226	76,367	--	72,361
Total	1,322	412	198	171	285	114	60	61	15	6
	\$83,131	\$69,204	\$91,847	\$92,056	\$82,622	\$89,166	\$104,005	\$92,235	\$91,305	\$85,280

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
25 – 29	1	1	--	--	--	--	--	--	--	--
	\$65,531	\$65,531	--	--	--	--	--	--	--	--
30 – 34	1	1	--	--	--	--	--	--	--	--
	77,007	77,007	--	--	--	--	--	--	--	--
35 – 39	9	7	2	--	--	--	--	--	--	--
	111,299	115,500	\$96,595	--	--	--	--	--	--	--
40 – 44	5	2	2	--	1	--	--	--	--	--
	97,121	92,261	122,404	--	\$56,274	--	--	--	--	--
45 – 49	9	5	1	1	2	--	--	--	--	--
	107,983	110,001	111,587	\$128,375	90,940	--	--	--	--	--
50 – 54	12	1	6	2	1	1	1	--	--	--
	150,016	123,228	161,639	156,497	101,055	\$193,731	\$99,348	--	--	--
55 – 59	11	1	2	2	5	1	--	--	--	--
	136,074	153,671	154,040	67,350	147,494	162,894	--	--	--	--
60 – 64	6	--	3	--	2	1	--	--	--	--
	112,353	--	116,909	--	87,732	147,930	--	--	--	--
65 – 69	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	54	18	16	5	11	3	1	--	--	--
	\$121,719	\$109,026	\$136,139	\$115,214	\$113,831	\$168,185	\$99,348	--	--	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	6	6	--	--	--	--	--	--	--	--
	\$62,981	\$62,981	--	--	--	--	--	--	--	--
25 – 29	34	32	2	--	--	--	--	--	--	--
	78,396	77,578	\$91,495	--	--	--	--	--	--	--
30 – 34	40	30	10	--	--	--	--	--	--	--
	88,959	84,847	101,294	--	--	--	--	--	--	--
35 – 39	48	31	11	4	2	--	--	--	--	--
	95,362	93,129	102,654	\$110,900	\$58,795	--	--	--	--	--
40 – 44	46	23	11	8	4	--	--	--	--	--
	104,808	99,481	105,713	119,518	103,532	--	--	--	--	--
45 – 49	48	20	8	4	9	5	2	--	--	--
	116,526	116,106	120,611	107,639	119,103	\$118,859	\$104,737	--	--	--
50 – 54	39	9	7	3	6	7	5	2	--	--
	121,588	89,727	146,298	120,697	127,666	136,514	125,430	\$99,745	--	--
55 – 59	35	4	4	5	9	10	2	1	--	--
	111,822	126,907	125,096	129,054	83,537	120,754	91,263	118,587	--	--
60 – 64	20	6	3	1	6	2	2	--	--	--
	125,459	96,048	191,130	90,788	119,158	87,359	189,523	--	--	--
65 – 69	7	1	2	--	4	--	--	--	--	--
	113,762	153,671	103,782	--	108,775	--	--	--	--	--
70 & over	2	--	--	--	1	--	1	--	--	--
	80,921	--	--	--	62,671	--	99,170	--	--	--
Total	325	162	58	25	41	24	12	3	--	--
	\$103,743	\$92,272	\$116,522	\$117,138	\$105,712	\$122,173	\$124,780	\$106,025	--	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	2	2	--	--	--	--	--	--	--	--
	\$49,192	\$49,192	--	--	--	--	--	--	--	--
25 – 29	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
30 – 34	1	1	--	--	--	--	--	--	--	--
	51,182	51,182	--	--	--	--	--	--	--	--
35 – 39	3	1	--	1	1	--	--	--	--	--
	60,168	51,880	--	\$57,217	\$71,408	--	--	--	--	--
40 – 44	3	--	--	2	--	1	--	--	--	--
	68,262	--	--	63,087	--	\$78,612	--	--	--	--
45 – 49	2	1	--	--	--	1	--	--	--	--
	104,613	104,601	--	--	--	104,626	--	--	--	--
50 – 54	7	1	2	1	1	1	--	1	--	--
	77,506	53,566	\$62,924	169,816	77,753	57,490	--	\$58,069	--	--
55 – 59	3	--	--	--	--	1	1	1	--	--
	73,242	--	--	--	--	57,474	\$104,626	57,628	--	--
60 – 64	2	1	--	--	--	1	--	--	--	--
	65,534	59,588	--	--	--	71,481	--	--	--	--
65 – 69	2	1	--	--	--	--	--	1	--	--
	80,667	56,709	--	--	--	--	--	104,626	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	25	8	2	4	2	5	1	3	--	--
	\$71,950	\$59,489	\$62,924	\$88,302	\$74,581	\$73,936	\$104,626	\$73,441	--	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
30 – 34	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
35 – 39	1	--	1	--	--	--	--	--	--	--
	\$56,069	--	\$56,069	--	--	--	--	--	--	--
40 – 44	1	--	--	1	--	--	--	--	--	--
	107,521	--	--	\$107,521	--	--	--	--	--	--
45 – 49	3	1	--	--	1	1	--	--	--	--
	97,254	\$148,196	--	--	\$77,032	\$66,534	--	--	--	--
50 – 54	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
55 – 59	2	--	--	--	1	--	1	--	--	--
	92,019	--	--	--	107,006	--	\$77,032	--	--	--
60 – 64	2	--	--	1	--	1	--	--	--	--
	66,051	--	--	55,069	--	77,032	--	--	--	--
65 – 69	3	--	--	--	1	1	1	--	--	--
	72,671	--	--	--	66,534	66,534	84,944	--	--	--
70 & over	2	--	--	--	1	--	--	1	--	--
	67,975	--	--	--	51,006	--	--	\$84,944	--	--
Total	14	1	1	2	4	3	2	1	--	--
	\$80,390	\$148,196	\$56,069	\$81,295	\$75,395	\$70,033	\$80,988	\$84,944	--	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	1	1	--	--	--	--	--	--	--	--
	\$65,455	\$65,455	--	--	--	--	--	--	--	--
25 – 29	28	28	--	--	--	--	--	--	--	--
	64,895	64,895	--	--	--	--	--	--	--	--
30 – 34	38	20	14	3	1	--	--	--	--	--
	73,116	67,753	\$80,039	\$75,417	\$76,550	--	--	--	--	--
35 – 39	83	11	9	44	19	--	--	--	--	--
	81,189	78,194	75,108	82,381	83,045	--	--	--	--	--
40 – 44	183	--	3	36	120	24	--	--	--	--
	88,096	--	71,430	83,127	87,978	\$98,223	--	--	--	--
45 – 49	196	1	2	14	54	107	18	--	--	--
	93,067	66,235	62,547	78,837	84,643	95,714	\$118,551	--	--	--
50 – 54	102	3	--	6	19	37	30	7	--	--
	94,376	75,403	--	73,999	83,876	92,090	105,889	\$111,220	--	--
55 – 59	33	2	1	--	6	14	3	6	1	--
	97,055	83,812	68,957	--	82,804	90,457	103,011	107,711	\$247,720	--
60 – 64	10	1	1	1	1	2	2	1	1	--
	91,102	91,225	114,704	76,547	92,802	83,678	91,886	92,310	92,310	--
65 – 69	4	--	--	--	3	--	1	--	--	--
	88,924	--	--	--	82,444	--	108,361	--	--	--
70 & over	1	--	--	--	--	--	1	--	--	--
	98,991	--	--	--	--	--	98,991	--	--	--
Total	679	67	30	104	223	184	55	14	2	--
	\$88,302	\$69,388	\$77,319	\$81,422	\$86,157	\$94,782	\$109,286	\$108,365	\$170,015	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	54	53	1	--	--	--	--	--	--	--
	\$89,755	\$89,469	\$104,923	--	--	--	--	--	--	--
25 – 29	262	197	62	3	--	--	--	--	--	--
	104,273	99,580	118,571	\$116,993	--	--	--	--	--	--
30 – 34	370	126	192	52	--	--	--	--	--	--
	119,783	103,324	127,423	131,452	--	--	--	--	--	--
35 – 39	342	41	129	138	34	--	--	--	--	--
	130,260	112,435	130,111	133,800	\$137,949	--	--	--	--	--
40 – 44	252	16	34	83	81	38	--	--	--	--
	139,503	116,983	131,398	133,430	145,794	\$156,094	--	--	--	--
45 – 49	328	13	17	35	66	157	40	--	--	--
	149,493	128,326	136,497	138,018	141,536	155,105	\$163,036	--	--	--
50 – 54	258	43	10	15	34	80	62	14	--	--
	153,510	138,122	154,245	141,986	151,082	152,932	165,313	\$169,528	--	--
55 – 59	104	33	16	7	6	15	12	14	1	--
	151,055	143,980	152,769	157,168	134,573	144,392	159,991	161,777	\$255,857	--
60 – 64	38	3	22	5	--	5	2	1	--	--
	152,018	146,122	158,023	157,392	--	135,496	133,379	130,625	--	--
65 – 69	6	2	--	2	2	--	--	--	--	--
	156,863	141,668	--	173,120	155,802	--	--	--	--	--
70 & over	1	--	1	--	--	--	--	--	--	--
	153,671	--	153,671	--	--	--	--	--	--	--
Total	2,015	527	484	340	223	295	116	29	1	--
	\$132,710	\$108,046	\$130,394	\$135,057	\$143,932	\$153,766	\$163,427	\$164,445	\$255,857	--

Section 3: Supplemental Information

Exhibit B: Members in Active Service as of December 31, 2020 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	15	15	--	--	--	--	--	--	--	--
	\$80,560	\$80,560	--	--	--	--	--	--	--	--
25 – 29	102	91	11	--	--	--	--	--	--	--
	101,053	97,222	\$132,749	--	--	--	--	--	--	--
30 – 34	177	120	46	11	--	--	--	--	--	--
	116,988	108,834	133,712	\$136,006	--	--	--	--	--	--
35 – 39	212	95	64	42	11	--	--	--	--	--
	130,888	121,576	133,607	142,818	\$149,932	--	--	--	--	--
40 – 44	200	34	57	65	36	8	--	--	--	--
	145,988	124,191	145,150	149,607	160,036	\$151,970	--	--	--	--
45 – 49	170	23	33	36	41	29	7	1	--	--
	154,095	138,888	146,574	155,344	161,086	162,936	\$153,435	\$168,746	--	--
50 – 54	120	10	20	12	23	25	19	11	--	--
	163,734	135,141	163,907	147,106	160,768	165,631	172,810	193,769	--	--
55 – 59	86	3	33	3	9	14	12	11	1	--
	160,768	149,087	157,616	137,281	165,245	152,087	151,920	195,937	\$170,876	--
60 – 64	41	3	21	--	3	2	3	5	3	1
	144,665	131,197	141,659	--	131,145	143,182	148,035	153,452	179,624	\$132,803
65 – 69	7	--	2	--	--	1	--	1	2	1
	144,866	--	136,048	--	--	120,674	--	135,968	167,265	150,789
70 & over	2	--	2	--	--	--	--	--	--	--
	149,421	--	149,421	--	--	--	--	--	--	--
Total	1,132	394	289	169	123	79	41	29	6	2
	\$137,882	\$112,372	\$142,898	\$147,860	\$159,296	\$159,721	\$161,575	\$184,784	\$174,046	\$141,796

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, 2019	22,257	6,520	14,449	1,505	2,466	47,197
• New members	1,001	100	N/A	N/A	193	1,294
• Terminations – with vested rights	(511)	511	N/A	N/A	N/A	0
• Contribution refunds	(103)	(110)	N/A	N/A	N/A	(213)
• Retirements	(1,072)	(149)	1,221	N/A	N/A	0
• New disabilities	(30)	(3)	(24)	57	N/A	0
• Return to work	47	(42)	(3)	(2)	N/A	0
• Died with or without beneficiary	(29)	(9)	(306)	(34)	(96)	(474)
• Data adjustments	(1)	0	2	(1)	(8)	(8)
Number as of December 31, 2020	21,559	6,818	15,339	1,525	2,555	47,796

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

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

	Year Ended December 31, 2020	Year Ended December 31, 2019
Net assets at market value at the beginning of the year¹	\$16,516,108,000	\$14,349,790,000
Contribution income:		
• Employer contributions ²	\$659,807,000	\$642,540,000
• Member contributions	279,384,000	279,373,000
• Discount for prepaid contributions	24,731,000	22,049,000
• Transfer from County Investment Account ³	<u>5,000,000</u>	<u>0</u>
<i>Net contribution income</i>	\$968,922,000	\$943,962,000
Investment income:		
• Interest, dividends and other income	\$2,108,981,000	\$2,248,759,000
• Less investment and administrative fees	<u>(126,224,000)</u>	<u>(125,501,000)</u>
<i>Net investment income</i>	<u>\$1,982,757,000</u>	<u>\$2,123,258,000</u>
Total income available for benefits	\$2,951,679,000	\$3,067,220,000
Less benefit payments:		
• Benefits paid	\$(961,778,000)	\$(887,653,000)
• Withdrawal of contributions	<u>(11,547,000)</u>	<u>(13,249,000)</u>
<i>Net benefit payments</i>	<u>\$(973,325,000)</u>	<u>\$(900,902,000)</u>
Change in net assets at market value	\$1,978,354,000	\$2,166,318,000
Net assets at market value at the end of the year¹	\$18,494,462,000	\$16,516,108,000

Note: Results may be slightly off due to rounding.

¹ See footnote 1 on next page for further detail.

² Excludes \$29,884,000 in contributions towards O.C. Sanitation District UAAL Deferred Account as of December 31, 2019. Includes asset transfer of \$18,631,000 as of December 31, 2019 from O.C. Sanitation District UAAL Deferred Account to valuation assets.

³ Funded by pension obligation bond proceeds held by OCERS.

Section 3: Supplemental Information

Exhibit E: Summary Statement of Plan Assets

	December 31, 2020	December 31, 2019
Cash equivalents	\$470,809,000	\$415,160,000
Accounts receivable:		
• Contributions	\$13,354,000	\$24,104,000
• Investment income	19,342,000	18,054,000
• Securities settlements	87,852,000	335,681,000
• All other	<u>4,870,000</u>	<u>5,462,000</u>
Total accounts receivable	\$125,418,000	\$383,301,000
Investments:		
• Equities	\$10,931,514,000	\$8,291,819,000
• Fixed income investments	2,318,741,000	2,787,092,000
• Alternative investments and diversified credit	5,316,164,000	5,440,774,000
• Security lending collateral	233,940,000	192,379,000
• Fixed assets net of accumulated depreciation	<u>13,713,000</u>	<u>16,060,000</u>
Total investments at market value	<u>\$18,814,072,000</u>	<u>\$16,728,124,000</u>
Total assets	\$19,410,299,000	\$17,526,585,000
Accounts payable:		
• Securities settlements	\$(115,512,000)	\$(301,621,000)
• Securities lending liability	(233,940,000)	(192,379,000)
• All other	<u>(98,626,000)</u>	<u>(94,719,000)</u>
Total accounts payable	\$(448,078,000)	\$(588,719,000)
Net assets at market value¹	\$18,494,462,000	\$16,516,108,000
Net assets at actuarial value	\$17,525,201,000	\$16,036,953,000
Net assets at valuation value	\$17,525,117,000	\$16,036,869,000

Note: Results may be slightly off due to rounding.

¹ The market value excludes \$160,378,000 and \$150,416,000 as of December 31, 2020 and December 31, 2019, respectively, in the County Investment Account (funded by pension obligation bond proceeds held by OCERS), \$293,948,000 and \$259,285,000 as of December 31, 2020 and December 31, 2019, respectively, in the prepaid employer contributions account, \$13,433,000 and \$12,057,000 as of December 31, 2020 and December 31, 2019, 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, 2020

	Reserves
Used in Development of Valuation Value of Assets:	
• Active Members Reserve (Book Value)	\$3,494,518,000
• Retired Members Reserve (Book Value)	12,843,720,000
• Employer Advanced Reserve (Book Value)	2,853,007,000
• ERI Contribution Reserve	13,168,000
• STAR COLA Contribution Reserve	0
• Unrealized Appreciation/(Depreciation) Included in Valuation Value of Assets	<u>(1,679,296,000)</u>
Subtotal: Valuation Value of Assets	\$17,525,117,000
Not Used in Development of Valuation Value of Assets:	
• RMBR	\$0
• Unclaimed Member Deposit	0
• Medicare Medical Insurance Reserve	<u>84,000</u>
Subtotal	\$84,000
Subtotal: Actuarial Value of Assets	\$17,525,201,000
• Unrecognized Investment Income	<u>969,261,000</u>
Subtotal: Market Value of Assets (Net of County Investment Account ¹ and Prepaid Employer Contributions and O.C. Sanitation District UAAL Deferred Account)	\$18,494,462,000
• County Investment Account ¹	160,378,000
• Prepaid Employer Contributions	293,948,000
• O.C. Sanitation District UAAL Deferred Account	<u>13,433,000</u>
Total: Gross Market Value of Assets	\$18,962,221,000

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, 2020

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
2011	\$414,451,000	\$183,820,000	\$3,236,000	\$493,749,000	\$8,465,593,000	\$9,064,355,000	107.07%
2012	436,895,000	191,069,000	1,014,471,000	541,154,000	9,566,874,000	9,469,208,000	98.98%
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%

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 loss 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	13	\$64,510	\$6,404
December 31, 2013	Actuarial (gain) or loss	(5,744)	13	(5,281)	(524)
December 31, 2014	Actuarial (gain) or loss	(2,744)	14	(2,579)	(242)
December 31, 2014	Assumption changes	(6,545)	14	(6,149)	(577)
December 31, 2015	Actuarial (gain) or loss	(1,650)	15	(1,580)	(141)
December 31, 2016	Actuarial (gain) or loss	(9,719)	16	(9,433)	(801)
December 31, 2017	Actuarial (gain) or loss	(5,386)	17	(5,286)	(430)
December 31, 2017	Assumption changes	21,899	17	21,490	1,748
December 31, 2018	Actuarial (gain) or loss	44	18	44	3
December 31, 2019	Actuarial (gain) or loss	(6,588)	19	(6,565)	(494)
December 31, 2020	Entry Age method change	(222)	20	(222)	(16)
December 31, 2020	Actuarial (gain) or loss	(6,313)	20	(6,313)	(459)
December 31, 2020	Assumption changes	76	20	76	6
Subtotal				\$42,712	\$4,477
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for O.C. Vector Control ¹				\$(488)	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Department of Education ¹				\$3,054	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for U.C.I. ¹				\$29,974	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Cypress Recreation and Parks ¹				\$538	
Rate Group #1 Subtotal				\$75,790	

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, 2019 to December 31, 2020 to reflect the actual contributions, benefit payments and return on their VVAs during 2020. 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	13	\$3,161,445	\$313,840
December 31, 2013	Actuarial (gain) or loss	(173,790)	13	(159,784)	(15,862)
December 31, 2014	Actuarial (gain) or loss	(78,001)	14	(73,300)	(6,876)
December 31, 2014	Assumption changes	(246,714)	14	(231,843)	(21,747)
December 31, 2015	Actuarial (gain) or loss	(65,063)	15	(62,272)	(5,547)
December 31, 2016	Actuarial (gain) or loss	39,445	16	38,284	3,252
Subtotal ¹				\$2,672,530	\$267,060
December 31, 2017	Actuarial (gain) or loss	\$(59,911)	17	\$(58,789)	\$(4,782)
December 31, 2017	Assumption changes	481,098	17	472,091	38,397
December 31, 2018	Actuarial (gain) or loss	207,573	18	205,566	16,061
December 31, 2019	Actuarial (gain) or loss	186,003	19	185,349	13,952
December 31, 2020	Entry Age method change	(15,846)	20	(15,846)	(1,152)
December 31, 2020	Actuarial (gain) or loss	(118,155)	20	(118,155)	(8,592)
December 31, 2020	Assumption changes	183,272	20	183,272	13,327
Subtotal ²				\$853,488	\$67,211
Rate Group #2 Subtotal				\$3,526,018	\$334,271

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				\$(24,920)	\$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	13	\$213,951	\$21,239
December 31, 2013	Actuarial (gain) or loss	(13,471)	13	(12,395)	(1,230)
December 31, 2014	Actuarial (gain) or loss	4,522	14	4,253	399
December 31, 2014	Assumption changes	(19,944)	14	(18,758)	(1,760)
December 31, 2015	Actuarial (gain) or loss	(933)	15	(894)	(80)
December 31, 2016	Actuarial (gain) or loss	(9,743)	16	(9,465)	(804)
December 31, 2017	Actuarial (gain) or loss	(9,948)	17	(9,762)	(794)
December 31, 2017	Assumption changes	43,481	17	42,666	3,470
December 31, 2018	Actuarial (gain) or loss	22,318	18	22,102	1,727
December 31, 2019	Actuarial (gain) or loss	12,234	19	12,191	918
December 31, 2020	Entry Age method change	(2,414)	20	(2,414)	(176)
December 31, 2020	Actuarial (gain) or loss	(30,867)	20	(30,867)	(2,244)
December 31, 2020	Assumption changes	4,801	20	4,801	349
Rate Group #5 Subtotal				\$215,409	\$21,014

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				\$(1,333)	\$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	13	\$66,941	\$6,645
December 31, 2013	Actuarial (gain) or loss	(2,659)	13	(2,446)	(243)
December 31, 2014	Actuarial (gain) or loss	(3,755)	14	(3,532)	(331)
December 31, 2014	Assumption changes	(4,489)	14	(4,223)	(396)
December 31, 2015	Actuarial (gain) or loss	626	15	599	53
December 31, 2016	Actuarial (gain) or loss	134	16	130	11
December 31, 2017	Actuarial (gain) or loss	(15,281)	17	(14,995)	(1,220)
December 31, 2017	Assumption changes	9,159	17	8,988	731
December 31, 2018	Actuarial (gain) or loss	(6,934)	18	(6,867)	(537)
December 31, 2019	Actuarial (gain) or loss	76	19	76	6
December 31, 2020	Entry Age method change	(2,018)	20	(2,018)	(147)
December 31, 2020	Actuarial (gain) or loss	(12,238)	20	(12,238)	(890)
December 31, 2020	Assumption changes	3,814	20	3,814	277
Rate Group #10 Subtotal				\$34,229	\$3,959

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	17	\$275	\$22
December 31, 2018	Actuarial (gain) or loss	(244)	18	(241)	(19)
December 31, 2019	Actuarial (gain) or loss	613	19	611	46
December 31, 2020	Entry Age method change	(43)	20	(43)	(3)
December 31, 2020	Actuarial (gain) or loss	(178)	20	(178)	(13)
December 31, 2020	Assumption changes	218	20	218	16
Rate Group #11 Subtotal				\$642	\$49

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				\$(507)	\$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	13	\$177,510	\$17,622
December 31, 2013	Actuarial (gain) or loss	(14,039)	13	(12,919)	(1,282)
December 31, 2014	Actuarial (gain) or loss	(2,596)	14	(2,442)	(229)
December 31, 2014	Assumption changes	36,260	14	34,103	3,199
December 31, 2015	Actuarial (gain) or loss	(10,703)	15	(10,252)	(913)
December 31, 2016	Actuarial (gain) or loss	13,799	16	13,404	1,139
December 31, 2017	Actuarial (gain) or loss	(6,566)	17	(6,444)	(524)
December 31, 2017	Assumption changes	50,030	17	49,093	3,993
December 31, 2018	Actuarial (gain) or loss	8,046	18	7,968	623
December 31, 2019	Actuarial (gain) or loss	8,063	19	8,035	605
December 31, 2020	Entry Age method change	(44)	20	(44)	(3)
December 31, 2020	Actuarial (gain) or loss	(14,580)	20	(14,580)	(1,060)
December 31, 2020	Assumption changes	(36,195)	20	(36,195)	(2,632)
Rate Group #6 Subtotal				\$207,237	\$20,538

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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	13	\$909,889	\$90,326
December 31, 2013	Actuarial (gain) or loss	(51,652)	13	(47,528)	(4,718)
December 31, 2014	Actuarial (gain) or loss	(34,729)	14	(32,663)	(3,064)
December 31, 2014	Assumption changes	102,262	14	96,177	9,021
December 31, 2015	Actuarial (gain) or loss	23,666	15	22,669	2,019
December 31, 2016	Actuarial (gain) or loss	39,724	16	38,587	3,278
December 31, 2017	Actuarial (gain) or loss	(27,922)	17	(27,399)	(2,228)
December 31, 2017	Assumption changes	161,417	17	158,395	12,883
December 31, 2018	Actuarial (gain) or loss	69,329	18	68,658	5,364
December 31, 2019	Actuarial (gain) or loss	75,023	19	74,759	5,627
December 31, 2020	Entry Age method change	(4,900)	20	(4,900)	(356)
December 31, 2020	Actuarial (gain) or loss	(62,670)	20	(62,670)	(4,557)
December 31, 2020	Assumption changes	(88,103)	20	(88,103)	(6,406)
Rate Group #7 Subtotal				\$1,105,871	\$107,189

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	13	\$368,017	\$36,533
December 31, 2013	Actuarial (gain) or loss	(20,177)	13	(18,566)	(1,843)
December 31, 2014	Actuarial (gain) or loss	(35,400)	14	(33,294)	(3,123)
December 31, 2014	Assumption changes	35,957	14	33,819	3,172
December 31, 2015	Actuarial (gain) or loss	(22,228)	15	(21,293)	(1,897)
December 31, 2016	Actuarial (gain) or loss	(15,736)	16	(15,285)	(1,299)
December 31, 2017	Actuarial (gain) or loss	(43,031)	17	(42,226)	(3,434)
December 31, 2017	Assumption changes	53,637	17	52,633	4,281
December 31, 2018	Actuarial (gain) or loss	39,932	18	39,546	3,090
December 31, 2019	Actuarial (gain) or loss	16,317	19	16,260	1,224
December 31, 2020	Entry Age method change	(9,802)	20	(9,802)	(713)
December 31, 2020	Actuarial (gain) or loss	(73,621)	20	(73,621)	(5,353)
December 31, 2020	Assumption changes	(54,766)	20	(54,766)	(3,982)
Rate Group #8 Subtotal				\$241,422	\$26,656

Section 3: Supplemental Information

Exhibit H: Table of Amortization Bases (continued)

All Rate Groups Combined

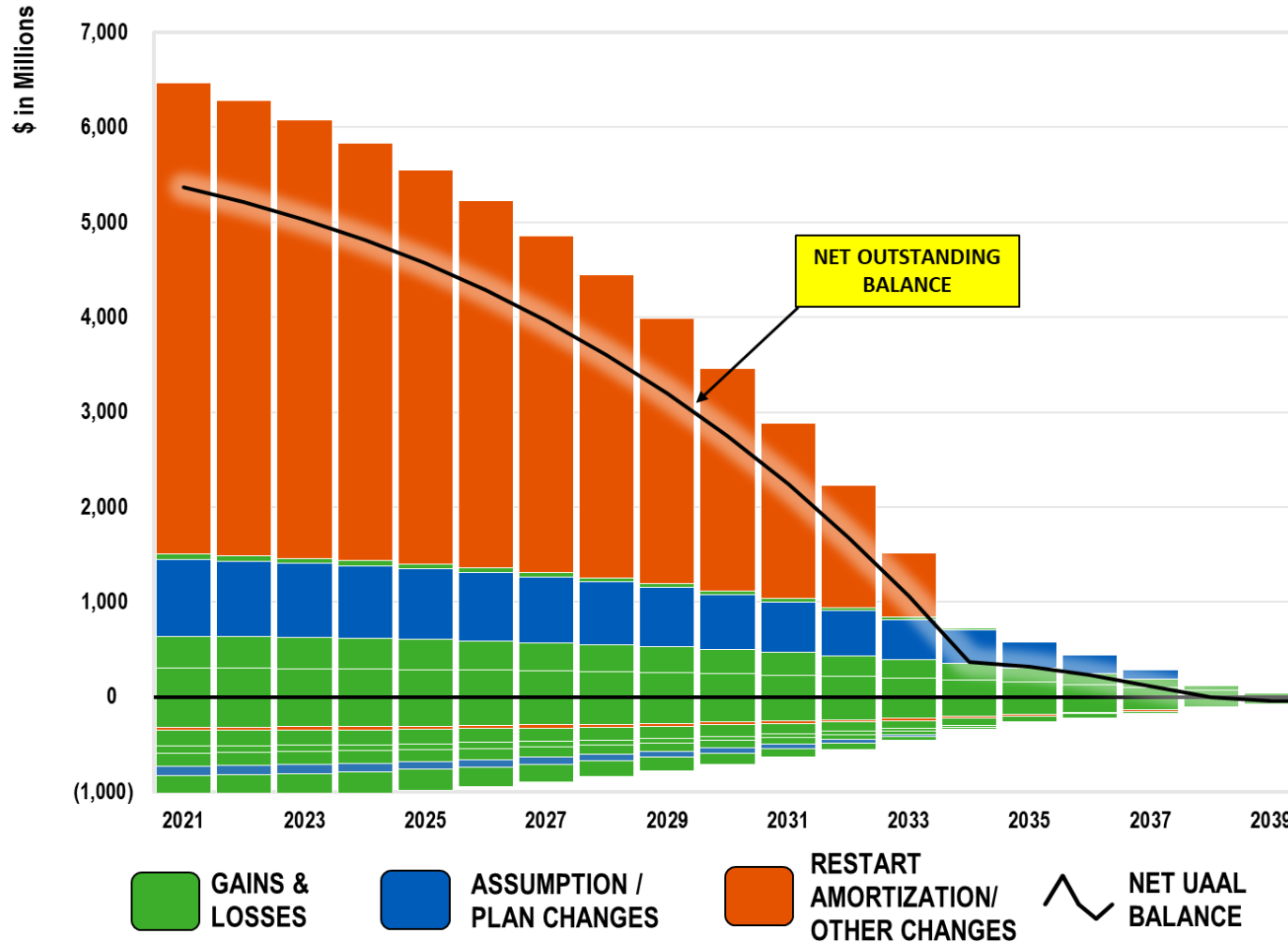
Date Established	Source	Initial Amount (\$ in '000s)	Years Remaining	Outstanding Balance (\$ in '000s)	Annual Payment (\$ in '000s)
December 31, 2012 ¹	Restart amortization	\$5,395,674	13	\$4,962,263	\$492,609
December 31, 2013 ¹	Actuarial (gain) or loss	(281,532)	13	(258,919)	(25,702)
December 31, 2014 ¹	Actuarial (gain) or loss	(152,703)	14	(143,557)	(13,466)
December 31, 2014 ¹	Assumption changes	(103,213)	14	(96,874)	(9,088)
December 31, 2015 ¹	Actuarial (gain) or loss	(76,285)	15	(73,023)	(6,506)
December 31, 2016 ¹	Actuarial (gain) or loss	57,904	16	56,222	4,776
December 31, 2017 ¹	Actuarial (gain) or loss	(168,707)	17	(165,133)	(13,431)
December 31, 2017 ¹	Assumption changes	821,677	17	805,863	65,544
December 31, 2018 ¹	Actuarial (gain) or loss	340,064	18	336,776	26,312
December 31, 2019 ¹	Actuarial (gain) or loss	291,741	19	290,716	21,884
December 31, 2020 ¹	Entry Age method change	(35,289)	20	(35,289)	(2,566)
December 31, 2020 ¹	Actuarial (gain) or loss	(318,622)	20	(318,622)	(23,168)
December 31, 2020 ¹	Assumption changes	13,117	20	13,117	955
Subtotal				\$5,373,540	\$518,153
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for O.C. Vector Control				\$(488)	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Department of Education				\$3,054	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for U.C.I.				\$29,974	
Rate Group #1 – Plans A, B and U (non-OCTA, non-OCSD) for Cypress Recreation and Parks				\$538	
Rate Group #3 – Plans B, G, H and U (OCSD)				\$(24,920)	
Rate Group #9 – Plans M, N and U (TCA)				\$(1,333)	
Rate Group #12 – Plans G, H, future service, and U (Law Library)				\$(507)	
Total				\$5,379,858	

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 \$5.4 Billion in Net UAAL as of December 31, 2020 ¹

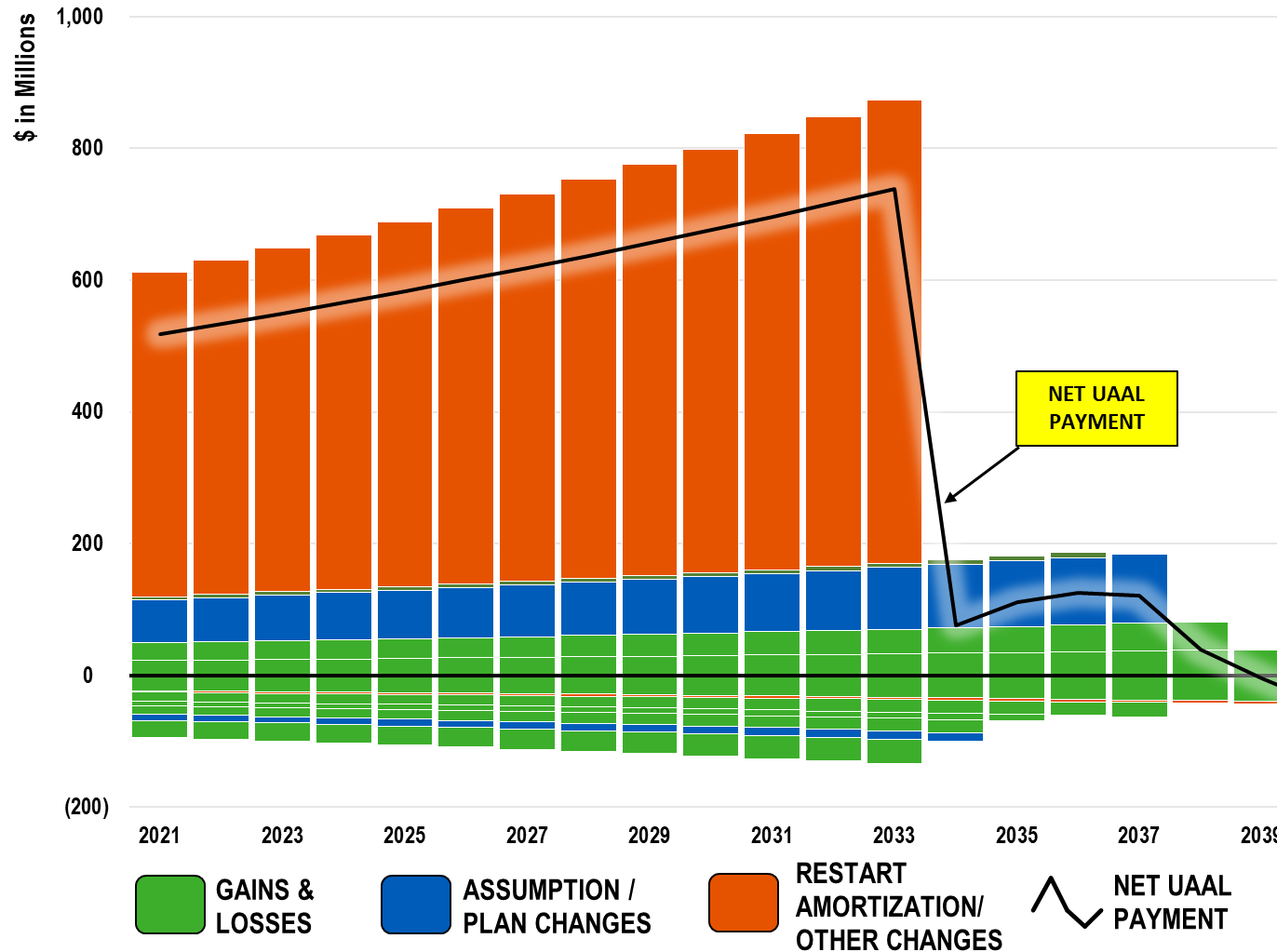


¹ As of December 31, 2037, the Net Outstanding Balance becomes fully amortized. Since this graph is for illustrative purposes only, the Net UAAL payment in calendar year 2037 was not adjusted to be set equal to the remaining UAAL balance.

Section 3: Supplemental Information

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

Annual Payments Required to Amortize \$5.4 Billion in Net UAAL as of December 31, 2020 ¹



¹ As of December 31, 2037, the Net Outstanding Balance becomes fully amortized. Since this graph is for illustrative purposes only, the Net UAAL payment in calendar year 2037 was not adjusted to be set equal to the remaining UAAL balance.

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>

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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 I: 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.
Consumer Price Index:	Increase of 2.50% per year, retiree COLA increases of 2.75% per year. The actual COLA granted by OCERS on April 1, 2021 has been reflected in the December 31, 2020 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
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 Probation (31664.1)
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:	<p>General Retirement Age: 59 Safety Retirement Age: 54</p> <p>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.</p>
Liability Calculation for Current Deferred Vested Members:	<p>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.</p>
Future Benefit Accruals:	<p>1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.</p>
Unknown Data for Members:	<p>Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.</p>
Form of Payment:	<p>All active and inactive members are assumed to elect the unmodified option at retirement.</p>
Percent Married:	<p>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.</p>
Age and Gender of Spouse:	<p>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.</p>

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 (13 years remaining as of December 31, 2020).

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 III*.

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 \$230,000 for 2021. 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:

A refinement to the Entry Age actuarial cost method was made. Before the refinement, Entry Age was calculated as the age of the member as of the valuation date minus years of employment, including non-OCERS reciprocal employers. After the refinement, only years of employment with OCERS employers are used.

Previously, these assumptions and methods were as follows:

Prior Actuarial Assumptions:

<i>Consumer Price Index:</i>	Increase of 2.75% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.
<i>Payroll Growth:</i>	Inflation of 2.75% per year plus “across the board” real salary increases of 0.50% per year.
<i>Increase in Section 7522.10 Compensation Limit:</i>	Increase of 2.75% per year from the valuation date.

Section 4: Actuarial Valuation Basis

Prior Actuarial Assumptions (continued):

Salary Increases:

- The annual rate of compensation increase includes: inflation at 2.75%, plus “across the board” salary increases of 0.50% per year, plus the following merit and promotion increases:

Years of Service	Rate (%)	
	General	Safety
Less than 1	9.00	14.00
1 - 2	7.25	10.00
2 - 3	6.00	7.75
3 - 4	5.00	6.00
4 - 5	4.00	5.50
5 - 6	3.50	4.50
6 - 7	2.50	3.75
7 - 8	2.25	3.25
8 - 9	1.75	2.50
9 - 10	1.50	2.25
10 - 11	1.50	1.75
11 - 12	1.50	1.75
12 - 13	1.50	1.75
13 - 14	1.50	1.75
14 - 15	1.50	1.75
15 - 16	1.50	1.75
16 - 17	1.00	1.50
17 - 18	1.00	1.50
18 - 19	1.00	1.50
19 - 20	1.00	1.50
20 & Over	1.00	1.50

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

Prior Actuarial Assumptions (continued):

Post-Retirement Mortality Rates:

Healthy

- **General Members and All Beneficiaries:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables, projected generationally with the two-dimensional MP-2016 projection scale, with no setback for males and females.
- **Safety Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables, projected generationally with the two-dimensional MP-2016 projection scale, setback four years for males and females.

Disabled

- **General Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables, projected generationally with the two-dimensional MP-2016 projection scale, set forward five years for males and females.
- **Safety Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables, projected generationally with the two-dimensional MP-2016 projection scale, with no setback for males and females.

The RP-2014 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Pre-Retirement Mortality Rates:

- **General and Safety Members:** Headcount-Weighted RP-2014 Employee Mortality Tables multiplied by 80%, projected generationally with the two-dimensional MP-2016 projection scale.

Age	Rate (%) ¹			
	General		Safety	
	Male	Female	Male	Female
25	0.05	0.02	0.05	0.02
30	0.05	0.02	0.05	0.02
35	0.05	0.03	0.05	0.03
40	0.06	0.04	0.06	0.04
45	0.10	0.07	0.10	0.07
50	0.17	0.11	0.17	0.11
55	0.27	0.17	0.27	0.17
60	0.45	0.24	0.45	0.24
65	0.78	0.36	0.78	0.36

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 (2014) are not reflected in the above mortality rates.

Section 4: Actuarial Valuation Basis

Prior Actuarial Assumptions (continued):

Mortality Rates for Member Contributions:

- **General Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables, projected 20 years with the two-dimensional mortality improvement Scale MP-2016, with no setback for males and females, weighted 40% male and 60% female.
- **Safety Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables, projected 20 years with the two-dimensional mortality improvement Scale MP-2016, setback four years for males and females, weighted 80% male and 20% female.

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	0.04	0.08
35	0.03	0.20	0.14	0.10
40	0.08	0.36	0.23	0.13
45	0.13	0.43	0.40	0.21
50	0.18	0.48	1.10	0.28
55	0.23	0.65	2.40	0.42
60	0.31	1.26	4.80	0.20

60% of General All Other disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected.

65% of General OCTA disabilities are assumed to be service connected disabilities. The other 35% 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

Prior Actuarial Assumptions (continued):

Termination:

Years of Service	Rate (%)			
	General All Other	General OCTA	Safety Law & Fire	Safety Probation
Less than 1	11.00	17.50	4.50	14.00
1 – 2	7.50	11.00	2.50	13.00
2 – 3	6.50	9.00	2.00	10.00
3 – 4	5.00	8.50	1.50	5.00
4 – 5	4.50	7.50	1.25	4.00
5 – 6	4.25	7.00	1.00	3.50
6 – 7	3.75	4.50	0.95	2.75
7 – 8	3.25	4.00	0.90	2.00
8 – 9	3.00	3.50	0.85	2.00
9 – 10	2.75	3.00	0.80	1.75
10 – 11	2.50	3.00	0.75	1.75
11 – 12	2.00	3.00	0.65	1.50
12 – 13	2.00	3.00	0.60	1.25
13 – 14	1.75	2.50	0.55	1.00
14 – 15	1.50	2.50	0.50	0.75
15 – 16	1.40	2.50	0.45	0.75
16 – 17	1.30	2.00	0.40	0.75
17 – 18	1.20	1.80	0.35	0.25
18 – 19	1.10	1.60	0.30	0.25
19 – 20	1.00	1.40	0.25	0.25
20 & Over	0.90	1.20	0.20	0.25

Election for Withdrawal of Contributions (%)

Years of Service	Rate (%)			
	General All Other	General OCTA	Safety Law & Fire	Safety Probation
Less than 5	35.00	40.00	20.00	25.00
5 – 9	30.00	35.00	20.00	25.00
10 – 14	25.00	30.00	20.00	25.00
15 & Over	20.00	20.00	20.00	25.00

Section 4: Actuarial Valuation Basis

Prior Actuarial Assumptions (continued):

Age	Rate (%) ¹			
	General Enhanced	General Non-Enhanced ²	General SJC (31676.12)	Safety Law (31664.1) ³
48	0.00	0.00	0.00	0.00
49	30.00	25.00	0.00	12.00
50	2.50	2.00	3.00	18.00
51	2.00	2.00	3.00	18.00
52	2.50	2.00	3.00	17.00
53	2.50	2.75	3.00	17.00
54	5.50	2.75	3.00	22.00
55	15.00	3.25	4.00	22.00
56	10.00	3.50	5.00	20.00
57	10.00	5.50	6.00	20.00
58	11.00	5.50	7.00	20.00
59	11.00	6.50	9.00	26.00
60	12.00	9.25	11.00	35.00
61	12.00	12.00	13.00	35.00
62	14.00	16.00	15.00	40.00
63	16.00	16.00	15.00	40.00
64	16.00	18.00	20.00	40.00
65	22.00	22.00	20.00	100.00
66	22.00	28.00	24.00	100.00
67	23.00	24.00	24.00	100.00
68	23.00	24.00	24.00	100.00
69	23.00	20.00	24.00	100.00
70	25.00	20.00	50.00	100.00
71	25.00	25.00	50.00	100.00
72	25.00	25.00	50.00	100.00
73	25.00	25.00	50.00	100.00
74	25.00	25.00	50.00	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.

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

³ Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

Section 4: Actuarial Valuation Basis

Prior Actuarial Assumptions (continued):

Retirement Rates (continued):

Age	Rate (%) ¹			
	Safety Law (31664.2) ²	Safety Fire (31664.1)	Safety Fire (31664.2)	Safety Probation ²
48	0.00	0.00	0.00	0.00
49	0.00	2.00	0.00	0.00
50	11.50	5.00	8.00	3.25
51	12.00	7.00	10.00	3.25
52	12.70	9.50	11.00	4.25
53	17.90	10.50	12.00	4.25
54	18.80	15.00	14.00	7.00
55	30.70	18.00	24.00	12.00
56	20.00	20.00	23.00	12.00
57	20.00	21.00	27.00	18.00
58	25.00	28.00	27.00	18.00
59	30.00	28.00	36.00	18.00
60	40.00	30.00	40.00	20.00
61	40.00	30.00	40.00	20.00
62	40.00	35.00	40.00	25.00
63	40.00	35.00	40.00	40.00
64	40.00	35.00	40.00	40.00
65	100.00	100.00	100.00	100.00
66	100.00	100.00	100.00	100.00
67	100.00	100.00	100.00	100.00
68	100.00	100.00	100.00	100.00
69	100.00	100.00	100.00	100.00
70	100.00	100.00	100.00	100.00
71	100.00	100.00	100.00	100.00
72	100.00	100.00	100.00	100.00
73	100.00	100.00	100.00	100.00
74	100.00	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.

² Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

Section 4: Actuarial Valuation Basis

Prior Actuarial Assumptions (continued):

Retirement Rates (continued):

Age	Rate (%) ¹			
	CalPEPRA 2.5% @ 67 General Formula	CalPEPRA 2.7% @ 57 Safety Formula Probation ²	CalPEPRA 2.7% @ 57 Safety Formula Law ²	CalPEPRA 2.7% @ 57 Safety Formula Fire
50	0.00	2.50	11.00	6.00
51	0.00	2.50	11.50	7.00
52	4.00	3.00	12.00	9.00
53	1.50	3.00	16.00	10.00
54	1.50	5.50	17.00	11.50
55	2.50	10.00	28.00	21.00
56	3.50	10.00	18.00	20.00
57	5.50	15.00	17.50	22.00
58	7.50	20.00	22.00	25.00
59	7.50	20.00	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	18.00	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.

² Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

Section 4: Actuarial Valuation Basis

Prior Actuarial Assumptions (continued):

Retirement Age and Benefit for Deferred Vested Members:

General Retirement Age: 59

Safety Retirement Age: 53

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 25% of future Safety deferred vested members are assumed to continue to work for a reciprocal employer. For reciprocals, 4.25% and 4.75% compensation increases are assumed per annum for General and Safety, respectively.

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%	2.80%
Safety Probation Non-CalPEPRA	3.80%	3.40%
Safety Law Non-CalPEPRA	5.20%	4.60%
Safety Fire Non-CalPEPRA	2.00%	1.70%
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.

Section 4: Actuarial Valuation Basis

Exhibit II: 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>
<i>Plan G</i>	General members hired before September 21, 1979.
<i>Plan H</i>	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>
<i>Plan I</i>	General members hired before September 21, 1979.
<i>Plan J</i>	General members hired on or after September 21, 1979.
	<u>2.0% @ 55 Plans (Transportation Corridor Agency, Cemetery District⁽⁵⁾ and General OCFA)</u>
<i>Plan M</i>	General members hired before September 21, 1979 and General OCFA members hired on or after July 1, 2011.
<i>Plan N</i>	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>
<i>Plan O</i>	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.
<i>Plan P</i>	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 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.
	<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.
CalPEPRA Safety Plans	<u>2.7% @ 57 Plan (Law Enforcement, OCFA and Probation Members)</u>
<i>Plan V</i>	Safety members with membership dates on or after January 1, 2013.

Section 4: Actuarial Valuation Basis

Final Compensation for Benefit Determination:	
<i>Plans A, E, G, I, M, O and Q</i>	Highest consecutive 12 months of compensation earnable (§31462.1) (FAS1).
<i>Plans B, F, H, J, N, P, R and S</i>	Highest consecutive 36 months of compensation earnable (§31462) (FAS3).
<i>Plans T</i>	Highest consecutive 36 months of pensionable compensation (§7522.32 and §7522.34) (FAS3).
<i>Plans U, V and W</i>	Highest consecutive 36 months of pensionable compensation (§7522.10(c), §7522.32 and §7522.34) (FAS3).
Service:	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.
Service Retirement Eligibility:	
<i>General</i>	
<i>Plans A, B, G, H, I, J, M, N, O, P, S, T and W</i>	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.
<i>Plan U</i>	Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service (§31672.3).
<i>Safety</i>	
<i>Plans E, F, Q and R</i>	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.
<i>Plan V</i>	Age 50 with 5 years of service (§7522.25(d)) or age 70 regardless of service (§31672.3).

Section 4: Actuarial Valuation Basis

Benefit Formula:

General Plan G

2.5% @ 55 (§31676.18)

Retirement Age	Benefit Formula
50	2.00% x FAS1 x Yrs
55	2.50% x FAS1 x Yrs
60	2.50% x FAS1 x Yrs
62 ⁽¹⁾	2.62% x FAS1 x Yrs
65 and over ⁽¹⁾	2.62% x FAS1 x Yrs

⁽¹⁾ Reflects benefit factors from Plan A as they provide a better benefit than those under 2.5% @ 55.

General Plan H

2.5% @ 55 (§31676.18)

Retirement Age	Benefit Formula
50	2.00% x FAS3 x Yrs
55 and over	2.50% x FAS3 x Yrs

General Plan I

2.7% @ 55 (§31676.19)

Retirement Age	Benefit Formula
50	2.00% x FAS1 x Yrs
55 and over	2.70% x FAS1 x Yrs

General Plan J

2.7% @ 55 (§31676.19)

Retirement Age	Benefit Formula
50	2.00% x FAS3 x Yrs
55 and over	2.70% x FAS3 x Yrs

General Plan M

2.0% @ 55 (§31676.16)

Retirement Age	Benefit Formula
50	1.43% x FAS1 x Yrs
55	2.00% x FAS1 x Yrs
60 ⁽²⁾	2.34% x FAS1 x Yrs
62 ⁽²⁾	2.62% x FAS1 x Yrs
65 and over ⁽²⁾	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.

Section 4: Actuarial Valuation Basis

General Plan N

2.0% @ 55 (§31676.16)

Retirement Age	Benefit Formula
50	1.43% x FAS3 x Yrs
55	2.00% x FAS3 x Yrs
60	2.26% x FAS3 x Yrs
62	2.37% x FAS3 x Yrs
65 and over ⁽¹⁾	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.

General Plan O

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

General Plans P, T and W

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

General Plan S

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

Section 4: Actuarial Valuation Basis

General Plan A
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

General Plan B (§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

General Plan U (§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

Safety Plan E
3.0% @ 50 (§31664.1)

Retirement Age	Benefit Formula
50 and over	3.00% x FAS1 x Yrs

Safety Plan F
3.0% @ 50 (§31664.1)

Retirement Age	Benefit Formula
50 and over	3.00% x FAS3 x Yrs

Safety Plan Q
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

Section 4: Actuarial Valuation Basis

<i>Safety Plan R</i> 3.0% @ 55 (§31664.2)	Retirement Age	Benefit Formula
	50	2.29% x FAS3 x Yrs
<i>Safety Plan V (§7522.25(d))</i>	55 and over	3.00% x FAS3 x Yrs
	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:	
<i>General</i>	
<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.
<i>Safety</i>	
<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:	
<i>All Members</i>	
<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:	
<i>All Members</i>	
<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).
<i>Vested Members</i>	
<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:	
<i>All Members</i>	
<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 Section 4, Exhibit III 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 service are exempt from paying member contributions. This also applies for General members hired on or before March 7, 1973.
Changes in Plan Provisions:	There have been no changes in plan provisions since the last valuation.

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 III: Member Contribution Rates

General Tier 1 Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan I (2.7% @ 55)		Plan A (OCTA)	
	Normal	Total	Normal	Total
15	7.31%	10.34%	3.17%	5.33%
16	7.31%	10.34%	3.17%	5.33%
17	7.44%	10.53%	3.23%	5.43%
18	7.57%	10.71%	3.29%	5.53%
19	7.71%	10.90%	3.34%	5.62%
20	7.84%	11.09%	3.40%	5.72%
21	7.98%	11.29%	3.46%	5.82%
22	8.12%	11.49%	3.53%	5.93%
23	8.27%	11.69%	3.59%	6.03%
24	8.41%	11.90%	3.65%	6.14%
25	8.56%	12.11%	3.72%	6.25%
26	8.71%	12.32%	3.78%	6.36%
27	8.87%	12.54%	3.85%	6.47%
28	9.02%	12.76%	3.92%	6.58%
29	9.19%	12.99%	3.98%	6.70%
30	9.35%	13.22%	4.06%	6.82%
31	9.52%	13.46%	4.13%	6.94%
32	9.69%	13.71%	4.20%	7.06%
33	9.87%	13.96%	4.28%	7.19%
34	10.05%	14.22%	4.35%	7.32%
35	10.24%	14.48%	4.43%	7.45%
36	10.44%	14.76%	4.51%	7.58%
37	10.64%	15.04%	4.59%	7.72%
38	10.85%	15.34%	4.68%	7.86%
39	11.04%	15.61%	4.76%	8.01%
40	11.24%	15.90%	4.85%	8.16%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General Tier 1 Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan I (2.7% @ 55)		Plan A (OCTA)	
	Normal	Total	Normal	Total
41	11.43%	16.16%	4.94%	8.31%
42	11.62%	16.44%	5.04%	8.47%
43	11.82%	16.71%	5.14%	8.64%
44	12.02%	17.01%	5.23%	8.79%
45	12.24%	17.31%	5.33%	8.95%
46	12.47%	17.64%	5.41%	9.10%
47	12.64%	17.88%	5.51%	9.26%
48	12.81%	18.11%	5.60%	9.41%
49	12.92%	18.27%	5.70%	9.58%
50	12.97%	18.34%	5.80%	9.75%
51	12.93%	18.29%	5.91%	9.93%
52	12.80%	18.11%	5.99%	10.07%
53	12.57%	17.77%	6.07%	10.20%
54	12.16%	17.20%	6.12%	10.29%
55	12.16%	17.20%	6.14%	10.33%
56	12.16%	17.20%	6.13%	10.30%
57	12.16%	17.20%	6.07%	10.20%
58	12.16%	17.20%	5.95%	10.01%
59	12.16%	17.20%	5.76%	9.69%
60 & Over	12.16%	17.20%	5.76%	9.69%
<i>COLA Loading:</i>		41.43%		68.12%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit I

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

Additional Cashouts: See Section 4, Exhibit I

Exhibit III: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2020 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%	9.93%	7.02%	9.70%	5.08%	7.43%	5.08%	7.15%
16	7.02%	9.93%	7.02%	9.70%	5.08%	7.43%	5.08%	7.15%
17	7.15%	10.11%	7.15%	9.87%	5.17%	7.56%	5.17%	7.28%
18	7.27%	10.28%	7.27%	10.05%	5.26%	7.70%	5.26%	7.41%
19	7.40%	10.47%	7.40%	10.22%	5.35%	7.83%	5.35%	7.54%
20	7.53%	10.65%	7.53%	10.40%	5.45%	7.97%	5.45%	7.67%
21	7.66%	10.84%	7.66%	10.59%	5.54%	8.11%	5.54%	7.81%
22	7.80%	11.03%	7.80%	10.77%	5.64%	8.25%	5.64%	7.95%
23	7.93%	11.22%	7.93%	10.96%	5.74%	8.40%	5.74%	8.09%
24	8.07%	11.42%	8.07%	11.15%	5.84%	8.55%	5.84%	8.23%
25	8.22%	11.62%	8.22%	11.35%	5.95%	8.70%	5.95%	8.38%
26	8.36%	11.82%	8.36%	11.55%	6.05%	8.85%	6.05%	8.52%
27	8.51%	12.03%	8.51%	11.76%	6.16%	9.01%	6.16%	8.67%
28	8.66%	12.25%	8.66%	11.96%	6.26%	9.17%	6.26%	8.83%
29	8.81%	12.46%	8.81%	12.18%	6.37%	9.33%	6.37%	8.98%
30	8.97%	12.69%	8.97%	12.39%	6.49%	9.49%	6.49%	9.14%
31	9.13%	12.91%	9.13%	12.62%	6.60%	9.66%	6.60%	9.30%
32	9.30%	13.15%	9.30%	12.84%	6.72%	9.83%	6.72%	9.46%
33	9.47%	13.39%	9.47%	13.08%	6.84%	10.00%	6.84%	9.63%
34	9.64%	13.63%	9.64%	13.32%	6.96%	10.18%	6.96%	9.80%
35	9.82%	13.89%	9.82%	13.57%	7.08%	10.36%	7.08%	9.98%
36	10.00%	14.15%	10.00%	13.82%	7.21%	10.55%	7.21%	10.16%
37	10.19%	14.41%	10.19%	14.07%	7.34%	10.74%	7.34%	10.34%
38	10.37%	14.67%	10.37%	14.33%	7.47%	10.93%	7.47%	10.53%
39	10.54%	14.91%	10.54%	14.57%	7.61%	11.14%	7.61%	10.72%
40	10.72%	15.16%	10.72%	14.81%	7.75%	11.34%	7.75%	10.92%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2020 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%	15.40%	10.89%	15.04%	7.90%	11.56%	7.90%	11.13%
42	11.06%	15.64%	11.06%	15.28%	8.04%	11.77%	8.04%	11.33%
43	11.24%	15.89%	11.24%	15.53%	8.19%	11.98%	8.19%	11.53%
44	11.42%	16.15%	11.42%	15.78%	8.33%	12.18%	8.33%	11.73%
45	11.59%	16.39%	11.59%	16.01%	8.46%	12.38%	8.46%	11.92%
46	11.74%	16.60%	11.74%	16.22%	8.60%	12.58%	8.60%	12.11%
47	11.84%	16.75%	11.84%	16.36%	8.73%	12.78%	8.73%	12.30%
48	11.90%	16.84%	11.90%	16.45%	8.87%	12.98%	8.87%	12.50%
49	11.90%	16.83%	11.90%	16.44%	9.02%	13.19%	9.02%	12.70%
50	11.82%	16.72%	11.82%	16.33%	9.15%	13.39%	9.15%	12.89%
51	11.66%	16.49%	11.66%	16.10%	9.27%	13.56%	9.27%	13.06%
52	11.40%	16.13%	11.40%	15.75%	9.35%	13.68%	9.35%	13.17%
53	11.77%	16.65%	11.77%	16.27%	9.40%	13.75%	9.40%	13.24%
54	12.16%	17.20%	12.16%	16.81%	9.40%	13.75%	9.40%	13.24%
55	12.16%	17.20%	12.16%	16.81%	9.33%	13.66%	9.33%	13.15%
56	12.16%	17.20%	12.16%	16.81%	9.20%	13.46%	9.20%	12.97%
57	12.16%	17.20%	12.16%	16.81%	9.00%	13.17%	9.00%	12.68%
58	12.16%	17.20%	12.16%	16.81%	9.30%	13.60%	9.30%	13.10%
59	12.16%	17.20%	12.16%	16.81%	9.60%	14.05%	9.60%	13.53%
60 & Over	12.16%	17.20%	12.16%	16.81%	9.60%	14.05%	9.60%	13.53%
COLA Loading:		41.43%		38.16%		46.30%		40.87%

⁽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 I

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

Additional Cashouts: See Section 4, Exhibit I

Exhibit III: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan B (non OCTA, non OCSD)		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%	7.01%	7.02%	9.87%	5.08%	6.39%	5.08%	7.08%
16	5.08%	7.01%	7.02%	9.87%	5.08%	6.39%	5.08%	7.08%
17	5.17%	7.13%	7.15%	10.05%	5.17%	6.50%	5.17%	7.20%
18	5.26%	7.26%	7.27%	10.22%	5.26%	6.62%	5.26%	7.33%
19	5.35%	7.39%	7.40%	10.40%	5.35%	6.74%	5.35%	7.46%
20	5.45%	7.52%	7.53%	10.59%	5.45%	6.86%	5.45%	7.59%
21	5.54%	7.65%	7.66%	10.77%	5.54%	6.98%	5.54%	7.73%
22	5.64%	7.78%	7.80%	10.96%	5.64%	7.10%	5.64%	7.86%
23	5.74%	7.92%	7.93%	11.16%	5.74%	7.23%	5.74%	8.00%
24	5.84%	8.06%	8.07%	11.35%	5.84%	7.35%	5.84%	8.14%
25	5.95%	8.20%	8.22%	11.55%	5.95%	7.48%	5.95%	8.29%
26	6.05%	8.35%	8.36%	11.76%	6.05%	7.61%	6.05%	8.43%
27	6.16%	8.49%	8.51%	11.96%	6.16%	7.75%	6.16%	8.58%
28	6.26%	8.64%	8.66%	12.18%	6.26%	7.88%	6.26%	8.73%
29	6.37%	8.79%	8.81%	12.39%	6.37%	8.02%	6.37%	8.88%
30	6.49%	8.95%	8.97%	12.61%	6.49%	8.16%	6.49%	9.04%
31	6.60%	9.11%	9.13%	12.84%	6.60%	8.31%	6.60%	9.20%
32	6.72%	9.27%	9.30%	13.07%	6.72%	8.45%	6.72%	9.36%
33	6.84%	9.43%	9.47%	13.31%	6.84%	8.60%	6.84%	9.53%
34	6.96%	9.60%	9.64%	13.55%	6.96%	8.76%	6.96%	9.70%
35	7.08%	9.77%	9.82%	13.81%	7.08%	8.91%	7.08%	9.87%
36	7.21%	9.95%	10.00%	14.07%	7.21%	9.07%	7.21%	10.05%
37	7.34%	10.13%	10.19%	14.32%	7.34%	9.24%	7.34%	10.23%
38	7.47%	10.31%	10.37%	14.58%	7.47%	9.41%	7.47%	10.42%
39	7.61%	10.50%	10.54%	14.83%	7.61%	9.58%	7.61%	10.61%
40	7.75%	10.69%	10.72%	15.07%	7.75%	9.76%	7.75%	10.80%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan B (non OCTA, non OCSD)		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%	10.90%	10.89%	15.31%	7.90%	9.94%	7.90%	11.01%
42	8.04%	11.10%	11.06%	15.55%	8.04%	10.12%	8.04%	11.21%
43	8.19%	11.30%	11.24%	15.80%	8.19%	10.30%	8.19%	11.41%
44	8.33%	11.48%	11.42%	16.06%	8.33%	10.48%	8.33%	11.60%
45	8.46%	11.67%	11.59%	16.30%	8.46%	10.65%	8.46%	11.79%
46	8.60%	11.86%	11.74%	16.51%	8.60%	10.82%	8.60%	11.98%
47	8.73%	12.05%	11.84%	16.65%	8.73%	10.99%	8.73%	12.17%
48	8.87%	12.24%	11.90%	16.74%	8.87%	11.17%	8.87%	12.37%
49	9.02%	12.44%	11.90%	16.73%	9.02%	11.35%	9.02%	12.57%
50	9.15%	12.62%	11.82%	16.62%	9.15%	11.52%	9.15%	12.75%
51	9.27%	12.79%	11.66%	16.39%	9.27%	11.66%	9.27%	12.92%
52	9.35%	12.90%	11.40%	16.03%	9.35%	11.77%	9.35%	13.03%
53	9.40%	12.97%	11.77%	16.56%	9.40%	11.83%	9.40%	13.10%
54	9.40%	12.96%	12.16%	17.10%	9.40%	11.82%	9.40%	13.10%
55	9.33%	12.88%	12.16%	17.10%	9.33%	11.75%	9.33%	13.01%
56	9.20%	12.70%	12.16%	17.10%	9.20%	11.58%	9.20%	12.83%
57	9.00%	12.42%	12.16%	17.10%	9.00%	11.33%	9.00%	12.55%
58	9.30%	12.82%	12.16%	17.10%	9.30%	11.70%	9.30%	12.96%
59	9.60%	13.25%	12.16%	17.10%	9.60%	12.09%	9.60%	13.39%
60 & Over	9.60%	13.25%	12.16%	17.10%	9.60%	12.09%	9.60%	13.39%
COLA Loading:		37.95%		40.61%		25.84%		39.37%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit I

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

Additional Cashouts: See Section 4, Exhibit I

Exhibit III: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2020 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%	7.70%	6.09%	8.41%	7.02%	9.64%
16	5.08%	7.70%	6.09%	8.41%	7.02%	9.64%
17	5.17%	7.83%	6.20%	8.56%	7.15%	9.81%
18	5.26%	7.97%	6.31%	8.71%	7.27%	9.99%
19	5.35%	8.11%	6.42%	8.87%	7.40%	10.16%
20	5.45%	8.26%	6.54%	9.03%	7.53%	10.34%
21	5.54%	8.40%	6.65%	9.18%	7.66%	10.52%
22	5.64%	8.55%	6.77%	9.35%	7.80%	10.71%
23	5.74%	8.70%	6.89%	9.51%	7.93%	10.90%
24	5.84%	8.85%	7.01%	9.68%	8.07%	11.09%
25	5.95%	9.01%	7.13%	9.85%	8.22%	11.28%
26	6.05%	9.17%	7.26%	10.02%	8.36%	11.48%
27	6.16%	9.33%	7.39%	10.20%	8.51%	11.69%
28	6.26%	9.49%	7.52%	10.38%	8.66%	11.89%
29	6.37%	9.66%	7.65%	10.56%	8.81%	12.10%
30	6.49%	9.83%	7.78%	10.75%	8.97%	12.32%
31	6.60%	10.00%	7.92%	10.94%	9.13%	12.54%
32	6.72%	10.18%	8.06%	11.13%	9.30%	12.77%
33	6.84%	10.36%	8.20%	11.33%	9.47%	13.00%
34	6.96%	10.55%	8.35%	11.53%	9.64%	13.24%
35	7.08%	10.73%	8.50%	11.73%	9.82%	13.49%
36	7.21%	10.93%	8.65%	11.94%	10.00%	13.74%
37	7.34%	11.12%	8.81%	12.16%	10.19%	13.99%
38	7.47%	11.33%	8.97%	12.38%	10.37%	14.24%
39	7.61%	11.53%	9.13%	12.61%	10.54%	14.48%
40	7.75%	11.75%	9.30%	12.84%	10.72%	14.72%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2020 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%	11.97%	9.48%	13.08%	10.89%	14.95%
42	8.04%	12.19%	9.65%	13.33%	11.06%	15.19%
43	8.19%	12.41%	9.83%	13.56%	11.24%	15.43%
44	8.33%	12.62%	9.99%	13.79%	11.42%	15.69%
45	8.46%	12.82%	10.15%	14.02%	11.59%	15.92%
46	8.60%	13.03%	10.31%	14.24%	11.74%	16.12%
47	8.73%	13.23%	10.48%	14.47%	11.84%	16.27%
48	8.87%	13.45%	10.65%	14.70%	11.90%	16.35%
49	9.02%	13.67%	10.82%	14.94%	11.90%	16.34%
50	9.15%	13.87%	10.98%	15.16%	11.82%	16.24%
51	9.27%	14.05%	11.12%	15.35%	11.66%	16.01%
52	9.35%	14.17%	11.22%	15.49%	11.40%	15.66%
53	9.40%	14.24%	11.28%	15.57%	11.77%	16.17%
54	9.40%	14.24%	11.28%	15.57%	12.16%	16.71%
55	9.33%	14.14%	11.20%	15.46%	12.16%	16.71%
56	9.20%	13.95%	11.04%	15.25%	12.16%	16.71%
57	9.00%	13.64%	10.80%	14.92%	12.16%	16.71%
58	9.30%	14.09%	11.16%	15.40%	12.16%	16.71%
59	9.60%	14.56%	11.53%	15.91%	12.16%	16.71%
60 & Over	9.60%	14.56%	11.53%	15.91%	12.16%	16.71%
<i>COLA Loading:</i>		<i>51.54%</i>		<i>38.05%</i>		<i>37.34%</i>

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit I

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

Additional Cashouts: See Section 4, Exhibit I

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2020 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	6.00%	8.12%	3.75%	5.02%	5.18%	7.03%	3.87%	4.58%
16	6.00%	8.12%	3.75%	5.02%	5.18%	7.03%	3.87%	4.58%
17	5.73%	7.76%	3.82%	5.11%	4.95%	6.72%	3.94%	4.66%
18	5.46%	7.38%	3.89%	5.20%	4.71%	6.39%	4.01%	4.75%
19	5.55%	7.52%	3.96%	5.29%	4.80%	6.51%	4.08%	4.83%
20	5.65%	7.65%	4.03%	5.39%	4.88%	6.62%	4.15%	4.92%
21	5.76%	7.79%	4.10%	5.48%	4.97%	6.74%	4.23%	5.00%
22	5.86%	7.93%	4.17%	5.58%	5.06%	6.86%	4.30%	5.09%
23	5.96%	8.07%	4.25%	5.68%	5.15%	6.99%	4.38%	5.18%
24	6.07%	8.21%	4.32%	5.78%	5.24%	7.11%	4.45%	5.27%
25	6.18%	8.36%	4.40%	5.88%	5.33%	7.24%	4.53%	5.37%
26	6.29%	8.51%	4.48%	5.98%	5.43%	7.36%	4.61%	5.46%
27	6.40%	8.66%	4.55%	6.09%	5.53%	7.50%	4.69%	5.56%
28	6.51%	8.81%	4.63%	6.20%	5.62%	7.63%	4.78%	5.66%
29	6.63%	8.97%	4.72%	6.31%	5.72%	7.76%	4.86%	5.76%
30	6.75%	9.13%	4.80%	6.42%	5.82%	7.90%	4.95%	5.86%
31	6.86%	9.29%	4.89%	6.53%	5.93%	8.04%	5.04%	5.96%
32	6.99%	9.45%	4.97%	6.65%	6.03%	8.18%	5.12%	6.07%
33	7.11%	9.62%	5.06%	6.77%	6.14%	8.33%	5.22%	6.18%
34	7.23%	9.79%	5.15%	6.89%	6.25%	8.47%	5.31%	6.29%
35	7.36%	9.96%	5.24%	7.01%	6.36%	8.62%	5.41%	6.40%
36	7.49%	10.14%	5.34%	7.14%	6.47%	8.78%	5.50%	6.52%
37	7.63%	10.32%	5.44%	7.27%	6.58%	8.93%	5.60%	6.63%
38	7.76%	10.50%	5.54%	7.40%	6.70%	9.09%	5.71%	6.76%
39	7.90%	10.69%	5.64%	7.54%	6.82%	9.25%	5.81%	6.88%
40	8.04%	10.88%	5.75%	7.68%	6.94%	9.42%	5.92%	7.01%
41	8.18%	11.07%	5.86%	7.83%	7.07%	9.59%	6.04%	7.15%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2020 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	8.33%	11.27%	5.97%	7.98%	7.19%	9.76%	6.15%	7.28%
43	8.48%	11.48%	6.07%	8.12%	7.32%	9.93%	6.26%	7.41%
44	8.64%	11.68%	6.18%	8.26%	7.46%	10.12%	6.37%	7.54%
45	8.80%	11.90%	6.28%	8.40%	7.59%	10.30%	6.47%	7.67%
46	8.96%	12.12%	6.38%	8.54%	7.74%	10.49%	6.58%	7.79%
47	9.13%	12.35%	6.49%	8.68%	7.88%	10.69%	6.69%	7.92%
48	9.30%	12.59%	6.60%	8.82%	8.03%	10.90%	6.80%	8.05%
49	9.48%	12.82%	6.71%	8.97%	8.18%	11.10%	6.92%	8.19%
50	9.65%	13.05%	6.82%	9.11%	8.33%	11.30%	7.03%	8.32%
51	9.81%	13.28%	6.91%	9.24%	8.47%	11.50%	7.12%	8.43%
52	9.98%	13.50%	6.98%	9.34%	8.62%	11.69%	7.20%	8.52%
53	10.14%	13.72%	7.03%	9.40%	8.76%	11.88%	7.25%	8.58%
54	10.31%	13.95%	7.04%	9.42%	8.90%	12.08%	7.26%	8.59%
55	10.48%	14.18%	7.02%	9.38%	9.05%	12.28%	7.23%	8.56%
56	10.66%	14.42%	6.95%	9.29%	9.21%	12.49%	7.16%	8.48%
57	10.83%	14.65%	6.84%	9.15%	9.35%	12.68%	7.05%	8.35%
58	10.98%	14.85%	7.06%	9.45%	9.48%	12.86%	7.28%	8.62%
59	11.09%	15.01%	7.30%	9.76%	9.58%	12.99%	7.52%	8.91%
60	11.17%	15.11%	7.30%	9.76%	9.64%	13.08%	7.52%	8.91%
61	11.19%	15.14%	7.30%	9.76%	9.66%	13.10%	7.52%	8.91%
62	11.14%	15.08%	7.30%	9.76%	9.62%	13.05%	7.52%	8.91%
63	11.04%	14.93%	7.30%	9.76%	9.53%	12.93%	7.52%	8.91%
64	10.87%	14.70%	7.30%	9.76%	9.38%	12.73%	7.52%	8.91%
65	11.22%	15.18%	7.30%	9.76%	9.69%	13.14%	7.52%	8.91%
66 & Over	11.59%	15.69%	7.30%	9.76%	10.01%	13.58%	7.52%	8.91%
<i>COLA Loading:</i>		35.29%		33.71%		35.66%		18.40%

Section 4: Actuarial Valuation Basis

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

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 2021 is equal to \$153,671 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2021 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2020 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	5.62%	7.59%	6.46%	8.77%	5.73%	7.70%	5.75%	7.78%
16	5.62%	7.59%	6.46%	8.77%	5.73%	7.70%	5.75%	7.78%
17	5.37%	7.25%	6.17%	8.38%	5.48%	7.36%	5.49%	7.44%
18	5.11%	6.90%	5.87%	7.97%	5.21%	7.00%	5.22%	7.08%
19	5.20%	7.02%	5.98%	8.12%	5.30%	7.13%	5.32%	7.20%
20	5.29%	7.15%	6.08%	8.26%	5.40%	7.25%	5.41%	7.33%
21	5.39%	7.28%	6.19%	8.41%	5.50%	7.38%	5.51%	7.46%
22	5.49%	7.41%	6.30%	8.56%	5.59%	7.52%	5.61%	7.60%
23	5.58%	7.54%	6.42%	8.71%	5.69%	7.65%	5.71%	7.73%
24	5.68%	7.68%	6.53%	8.87%	5.80%	7.79%	5.81%	7.87%
25	5.78%	7.81%	6.65%	9.03%	5.90%	7.92%	5.92%	8.01%
26	5.89%	7.95%	6.77%	9.19%	6.00%	8.07%	6.02%	8.15%
27	5.99%	8.09%	6.89%	9.35%	6.11%	8.21%	6.13%	8.30%
28	6.10%	8.24%	7.01%	9.52%	6.22%	8.35%	6.24%	8.45%
29	6.21%	8.38%	7.13%	9.68%	6.33%	8.50%	6.35%	8.60%
30	6.32%	8.53%	7.26%	9.86%	6.44%	8.65%	6.46%	8.75%
31	6.43%	8.68%	7.39%	10.03%	6.55%	8.81%	6.57%	8.90%
32	6.54%	8.83%	7.52%	10.21%	6.67%	8.96%	6.69%	9.06%
33	6.66%	8.99%	7.65%	10.39%	6.79%	9.12%	6.81%	9.22%
34	6.77%	9.15%	7.79%	10.57%	6.91%	9.28%	6.93%	9.38%
35	6.89%	9.31%	7.92%	10.76%	7.03%	9.44%	7.05%	9.55%
36	7.01%	9.48%	8.06%	10.95%	7.15%	9.61%	7.17%	9.72%
37	7.14%	9.64%	8.21%	11.14%	7.28%	9.78%	7.30%	9.89%
38	7.27%	9.81%	8.35%	11.34%	7.41%	9.96%	7.43%	10.06%
39	7.40%	9.99%	8.50%	11.54%	7.54%	10.13%	7.56%	10.24%
40	7.53%	10.17%	8.65%	11.75%	7.68%	10.31%	7.70%	10.43%
41	7.66%	10.35%	8.81%	11.96%	7.81%	10.50%	7.84%	10.61%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2020 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	7.80%	10.54%	8.97%	12.17%	7.95%	10.69%	7.98%	10.80%
43	7.94%	10.73%	9.13%	12.39%	8.10%	10.88%	8.12%	11.00%
44	8.09%	10.92%	9.29%	12.62%	8.25%	11.08%	8.27%	11.20%
45	8.23%	11.12%	9.46%	12.85%	8.40%	11.28%	8.42%	11.41%
46	8.39%	11.33%	9.64%	13.09%	8.55%	11.49%	8.58%	11.62%
47	8.55%	11.54%	9.82%	13.34%	8.71%	11.71%	8.74%	11.84%
48	8.71%	11.76%	10.01%	13.59%	8.88%	11.93%	8.91%	12.06%
49	8.87%	11.98%	10.20%	13.85%	9.05%	12.15%	9.07%	12.29%
50	9.03%	12.20%	10.38%	14.10%	9.21%	12.38%	9.24%	12.51%
51	9.19%	12.41%	10.56%	14.34%	9.37%	12.59%	9.40%	12.73%
52	9.34%	12.62%	10.74%	14.58%	9.53%	12.80%	9.55%	12.94%
53	9.49%	12.83%	10.91%	14.82%	9.68%	13.01%	9.71%	13.15%
54	9.65%	13.04%	11.09%	15.06%	9.84%	13.22%	9.87%	13.37%
55	9.81%	13.25%	11.28%	15.31%	10.01%	13.44%	10.04%	13.59%
56	9.98%	13.48%	11.47%	15.58%	10.18%	13.68%	10.21%	13.83%
57	10.14%	13.69%	11.65%	15.82%	10.34%	13.89%	10.37%	14.04%
58	10.28%	13.88%	11.81%	16.04%	10.48%	14.08%	10.51%	14.24%
59	10.38%	14.03%	11.94%	16.21%	10.59%	14.23%	10.62%	14.38%
60	10.46%	14.12%	12.02%	16.32%	10.66%	14.33%	10.69%	14.48%
61	10.47%	14.15%	12.04%	16.35%	10.68%	14.35%	10.71%	14.51%
62	10.43%	14.09%	11.99%	16.28%	10.64%	14.30%	10.67%	14.45%
63	10.33%	13.96%	11.87%	16.12%	10.54%	14.16%	10.57%	14.31%
64	10.18%	13.74%	11.70%	15.88%	10.38%	13.94%	10.41%	14.10%
65	10.51%	14.19%	12.08%	16.40%	10.71%	14.39%	10.74%	14.55%
66 & Over	10.85%	14.66%	12.48%	16.94%	11.07%	14.87%	11.10%	15.04%
<i>COLA Loading:</i>		35.08%		35.78%		34.35%		35.45%

Section 4: Actuarial Valuation Basis

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

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 2021 is equal to \$153,671 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2021 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group 11 (Plan U)		Rate Group 12 (Plan U)	
	Normal	Total	Normal	Total
15	6.32%	8.56%	5.61%	7.34%
16	6.32%	8.56%	5.61%	7.34%
17	6.04%	8.18%	5.36%	7.01%
18	5.75%	7.78%	5.10%	6.67%
19	5.85%	7.92%	5.19%	6.79%
20	5.96%	8.07%	5.29%	6.91%
21	6.06%	8.21%	5.38%	7.04%
22	6.17%	8.36%	5.48%	7.16%
23	6.28%	8.51%	5.58%	7.29%
24	6.39%	8.66%	5.68%	7.42%
25	6.51%	8.81%	5.78%	7.55%
26	6.62%	8.97%	5.88%	7.69%
27	6.74%	9.13%	5.98%	7.82%
28	6.86%	9.29%	6.09%	7.96%
29	6.98%	9.45%	6.20%	8.10%
30	7.11%	9.62%	6.31%	8.25%
31	7.23%	9.79%	6.42%	8.39%
32	7.36%	9.96%	6.53%	8.54%
33	7.49%	10.14%	6.65%	8.69%
34	7.62%	10.32%	6.76%	8.85%
35	7.76%	10.50%	6.88%	9.00%
36	7.89%	10.69%	7.01%	9.16%
37	8.03%	10.88%	7.13%	9.32%
38	8.18%	11.07%	7.26%	9.49%
39	8.32%	11.27%	7.38%	9.66%
40	8.47%	11.47%	7.52%	9.83%
41	8.62%	11.67%	7.65%	10.01%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

General CalPEPRA Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Rate Group 11 (Plan U)		Rate Group 12 (Plan U)	
	Normal	Total	Normal	Total
42	8.78%	11.88%	7.79%	10.19%
43	8.93%	12.10%	7.93%	10.37%
44	9.10%	12.32%	8.07%	10.56%
45	9.27%	12.55%	8.22%	10.75%
46	9.44%	12.78%	8.38%	10.95%
47	9.62%	13.02%	8.53%	11.16%
48	9.80%	13.27%	8.70%	11.37%
49	9.98%	13.52%	8.86%	11.59%
50	10.16%	13.76%	9.02%	11.80%
51	10.34%	14.00%	9.18%	12.00%
52	10.51%	14.23%	9.33%	12.20%
53	10.68%	14.47%	9.48%	12.40%
54	10.86%	14.70%	9.64%	12.60%
55	11.04%	14.95%	9.80%	12.81%
56	11.23%	15.21%	9.97%	13.04%
57	11.41%	15.45%	10.12%	13.24%
58	11.57%	15.66%	10.26%	13.42%
59	11.68%	15.82%	10.37%	13.56%
60	11.76%	15.93%	10.44%	13.65%
61	11.78%	15.96%	10.46%	13.68%
62	11.74%	15.90%	10.42%	13.63%
63	11.62%	15.74%	10.32%	13.49%
64	11.45%	15.50%	10.16%	13.29%
65	11.82%	16.01%	10.49%	13.72%
66 & Over	12.21%	16.54%	10.84%	14.18%
<i>COLA Loading:</i>		35.40%	30.77%	

Section 4: Actuarial Valuation Basis

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

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 2021 is equal to \$153,671 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2021 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2020 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%	14.66%	9.26%	15.57%	8.98%	14.74%
16	8.83%	14.66%	9.26%	15.57%	8.98%	14.74%
17	8.95%	14.87%	9.40%	15.79%	9.11%	14.95%
18	9.08%	15.08%	9.53%	16.01%	9.24%	15.16%
19	9.21%	15.30%	9.66%	16.24%	9.37%	15.38%
20	9.34%	15.52%	9.80%	16.47%	9.50%	15.60%
21	9.48%	15.75%	9.94%	16.71%	9.64%	15.82%
22	9.62%	15.97%	10.08%	16.95%	9.78%	16.05%
23	9.76%	16.21%	10.23%	17.19%	9.92%	16.28%
24	9.90%	16.45%	10.38%	17.44%	10.07%	16.52%
25	10.05%	16.69%	10.53%	17.69%	10.22%	16.77%
26	10.20%	16.95%	10.68%	17.96%	10.37%	17.02%
27	10.36%	17.21%	10.84%	18.23%	10.53%	17.28%
28	10.52%	17.47%	11.01%	18.50%	10.69%	17.54%
29	10.68%	17.75%	11.18%	18.79%	10.86%	17.82%
30	10.86%	18.04%	11.35%	19.08%	11.03%	18.10%
31	11.04%	18.33%	11.53%	19.39%	11.21%	18.40%
32	11.22%	18.65%	11.72%	19.71%	11.40%	18.71%
33	11.41%	18.96%	11.91%	20.02%	11.59%	19.02%
34	11.60%	19.27%	12.10%	20.34%	11.78%	19.33%
35	11.80%	19.59%	12.29%	20.66%	11.97%	19.65%
36	12.00%	19.94%	12.50%	21.01%	12.18%	19.98%
37	12.22%	20.31%	12.71%	21.37%	12.40%	20.35%
38	12.44%	20.67%	12.93%	21.73%	12.62%	20.70%
39	12.65%	21.01%	13.12%	22.05%	12.81%	21.03%
40	12.79%	21.25%	13.25%	22.27%	12.96%	21.26%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2020 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%	21.39%	13.31%	22.37%	13.03%	21.39%
42	12.90%	21.43%	13.30%	22.35%	13.04%	21.40%
43	12.86%	21.36%	13.22%	22.21%	12.98%	21.31%
44	12.75%	21.18%	13.06%	21.95%	12.86%	21.10%
45	12.57%	20.88%	12.81%	21.53%	12.65%	20.77%
46	12.30%	20.43%	12.44%	20.91%	12.35%	20.27%
47	11.91%	19.79%	11.91%	20.02%	11.91%	19.55%
48	12.29%	20.42%	12.29%	20.66%	12.29%	20.17%
49	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
50	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
51	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
52	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
53	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
54	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
55	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
56	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
57	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
58	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
59	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
60 & Over	12.69%	21.08%	12.69%	21.33%	12.69%	20.82%
<i>COLA Loading:</i>		66.12%		68.09%		64.10%

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit I

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

Additional Cashouts: See Section 4, Exhibit I

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan R (OCFA)		Plan R (Law Enforcement)	
	Normal	Total	Normal	Total
15	8.83%	14.48%	9.26%	14.67%
16	8.83%	14.48%	9.26%	14.67%
17	8.95%	14.69%	9.40%	14.87%
18	9.08%	14.90%	9.53%	15.08%
19	9.21%	15.11%	9.66%	15.30%
20	9.34%	15.33%	9.80%	15.51%
21	9.48%	15.55%	9.94%	15.73%
22	9.62%	15.78%	10.08%	15.96%
23	9.76%	16.01%	10.23%	16.19%
24	9.90%	16.24%	10.38%	16.42%
25	10.05%	16.49%	10.53%	16.66%
26	10.20%	16.74%	10.68%	16.91%
27	10.36%	16.99%	10.84%	17.16%
28	10.52%	17.26%	11.01%	17.42%
29	10.68%	17.53%	11.18%	17.69%
30	10.86%	17.81%	11.35%	17.97%
31	11.04%	18.11%	11.53%	18.26%
32	11.22%	18.41%	11.72%	18.56%
33	11.41%	18.72%	11.91%	18.86%
34	11.60%	19.04%	12.10%	19.16%
35	11.80%	19.35%	12.29%	19.46%
36	12.00%	19.69%	12.50%	19.78%
37	12.22%	20.06%	12.71%	20.13%
38	12.44%	20.42%	12.93%	20.46%
39	12.65%	20.75%	13.12%	20.76%
40	12.79%	20.99%	13.25%	20.97%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2020 Actuarial Valuation
(as a % of monthly payroll)

Entry Age	Plan R (OCFA)		Plan R (Law Enforcement)	
	Normal	Total	Normal	Total
41	12.88%	21.13%	13.31%	21.07%
42	12.90%	21.16%	13.30%	21.05%
43	12.86%	21.09%	13.22%	20.92%
44	12.75%	20.92%	13.06%	20.67%
45	12.57%	20.62%	12.81%	20.27%
46	12.30%	20.18%	12.44%	19.69%
47	11.91%	19.54%	11.91%	18.86%
48	12.29%	20.16%	12.29%	19.45%
49	12.69%	20.82%	12.69%	20.09%
50	12.69%	20.82%	12.69%	20.09%
51	12.69%	20.82%	12.69%	20.09%
52	12.69%	20.82%	12.69%	20.09%
53	12.69%	20.82%	12.69%	20.09%
54	12.69%	20.82%	12.69%	20.09%
55	12.69%	20.82%	12.69%	20.09%
56	12.69%	20.82%	12.69%	20.09%
57	12.69%	20.82%	12.69%	20.09%
58	12.69%	20.82%	12.69%	20.09%
59	12.69%	20.82%	12.69%	20.09%
60 & Over	12.69%	20.82%	12.69%	20.09%
COLA Loading:		64.06%	58.30%	

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit I

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

Additional Cashouts: See Section 4, Exhibit I

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

Safety CalPEPRA Members' Contribution Rates Based on the December 31, 2020 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	9.44%	13.21%	10.10%	14.25%	8.82%	12.57%
16	9.44%	13.21%	10.10%	14.25%	8.82%	12.57%
17	9.57%	13.40%	10.24%	14.46%	8.95%	12.75%
18	9.70%	13.59%	10.38%	14.66%	9.07%	12.93%
19	9.84%	13.78%	10.53%	14.87%	9.20%	13.11%
20	9.98%	13.98%	10.68%	15.08%	9.33%	13.30%
21	10.12%	14.17%	10.83%	15.29%	9.46%	13.49%
22	10.26%	14.37%	10.98%	15.50%	9.59%	13.68%
23	10.41%	14.58%	11.14%	15.73%	9.73%	13.87%
24	10.56%	14.79%	11.30%	15.95%	9.87%	14.07%
25	10.71%	15.00%	11.46%	16.18%	10.01%	14.27%
26	10.86%	15.21%	11.62%	16.41%	10.15%	14.48%
27	11.02%	15.43%	11.79%	16.65%	10.30%	14.68%
28	11.18%	15.66%	11.96%	16.89%	10.45%	14.90%
29	11.34%	15.89%	12.14%	17.14%	10.60%	15.12%
30	11.51%	16.12%	12.32%	17.39%	10.76%	15.34%
31	11.68%	16.36%	12.50%	17.65%	10.92%	15.57%
32	11.86%	16.60%	12.69%	17.91%	11.08%	15.80%
33	12.04%	16.86%	12.88%	18.18%	11.25%	16.04%
34	12.22%	17.12%	13.08%	18.46%	11.43%	16.29%
35	12.41%	17.38%	13.28%	18.75%	11.60%	16.54%
36	12.61%	17.66%	13.49%	19.05%	11.79%	16.81%
37	12.82%	17.95%	13.71%	19.36%	11.98%	17.08%
38	13.03%	18.25%	13.94%	19.68%	12.18%	17.36%
39	13.26%	18.56%	14.18%	20.02%	12.39%	17.66%
40	13.48%	18.88%	14.42%	20.36%	12.60%	17.96%
41	13.71%	19.19%	14.67%	20.70%	12.81%	18.26%

Section 4: Actuarial Valuation Basis

Exhibit III: Member Contribution Rates (continued)

Safety CalPEPRA Members' Contribution Rates Based on the December 31, 2020 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	13.94%	19.52%	14.91%	21.05%	13.03%	18.57%
43	14.19%	19.86%	15.18%	21.43%	13.26%	18.90%
44	14.45%	20.24%	15.46%	21.83%	13.51%	19.26%
45	14.72%	20.61%	15.75%	22.23%	13.76%	19.61%
46	14.96%	20.95%	16.01%	22.60%	13.99%	19.94%
47	15.15%	21.21%	16.21%	22.88%	14.16%	20.18%
48	15.26%	21.36%	16.32%	23.04%	14.26%	20.33%
49	15.29%	21.41%	16.36%	23.10%	14.29%	20.37%
50	15.25%	21.36%	16.32%	23.04%	14.26%	20.32%
51	15.14%	21.20%	16.20%	22.87%	14.15%	20.18%
52	14.95%	20.93%	15.99%	22.58%	13.97%	19.92%
53	14.66%	20.53%	15.68%	22.14%	13.70%	19.53%
54	14.24%	19.95%	15.24%	21.52%	13.31%	18.98%
55	14.70%	20.58%	15.72%	22.20%	13.74%	19.58%
56 & Over	15.18%	21.25%	16.24%	22.92%	14.19%	20.22%
<i>COLA Loading:</i>		<i>40.03%</i>		<i>41.18%</i>		<i>42.55%</i>

Interest: 7.00% per annum

COLA: 2.75%

Mortality: See Section 4, Exhibit I

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

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 2021 is equal to \$153,671 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2021 (reference: Section 7522.10(d)).

Section 4: Actuarial Valuation Basis

Exhibit IV: 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, 2020 Valuation	December 31, 2019 Valuation
General Members		
Rate Group #1 – Plans A, B and U (County and IHSS) ¹	85.72%	82.53%
Rate Group #2 – Plans I, J, O, P, S, T, U and W (County et al.)	72.50%	70.64%
Rate Group #3 – Plans B, G, H and U (OCSD) ²	103.17%	100.00%
Rate Group #5 – Plans A, B and U (OCTA)	79.32%	75.38%
Rate Group #9 – Plans M, N and U (TCA)	102.48%	99.29%
Rate Group #10 – Plans I, J, M, N and U (OCFA)	87.82%	82.58%
Rate Group #11 – Plans M and N, future service, and U (Cemetery)	94.89%	94.39%
Rate Group #12 – Plans G, H, future service, and U (Law Library)	104.44%	99.72%
Safety Members		
Rate Group #6 – Plans E, F and V (Probation)	78.22%	71.80%
Rate Group #7 – Plans E, F, Q, R and V (Law Enforcement)	75.26%	70.33%
Rate Group #8 – Plans E, F, Q, R and V (OCFA)	87.57%	79.69%

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

² Reflects asset transfers of \$18,631,000 as of December 31, 2019 from O.C. Sanitation District UAAL Deferred Account to valuation assets.

Section 4: Actuarial Valuation Basis

Exhibit V: 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, 2019	15.48%	39.04%	11.70%	31.41%
• Effect of investment gain (after smoothing)	(0.58%)	(1.21%)	(1.64%)	(1.14%)
• Effect of additional UAAL contributions from OCFA	0.00%	0.00%	0.00%	0.00%
• Effect of difference in actual versus expected contributions	0.16%	0.46%	0.11%	0.53%
• Effect of higher than expected COLA increases in 2020 ¹	0.02%	0.12%	0.09%	0.09%
• Effect of lower than expected COLA increases in 2021 ²	(0.18%)	(0.64%)	(0.58%)	(0.54%)
• Effect of difference in actual versus expected salary increases	0.03%	(0.11%)	(1.96%)	(1.05%)
• Effect of growth in total payroll (greater)/less than expected	0.31%	0.75%	0.00%	1.14%
• Effect of other experience (gain)/loss ³	0.06%	0.45%	0.63%	(0.07%)
• Effect of changes in actuarial assumptions	(0.18%)	1.87%	1.12%	0.97%
• Effect of reallocating present value benefits between NC and AAL, increase in NC	0.03%	0.18%	0.35%	0.29%
• Effect of reallocating present value benefits between NC and AAL, decrease in UAAL	(0.02%)	(0.09%)	(0.23%)	(0.15%)
• Effect of minimum funding requirement	<u>0.00%</u>	<u>0.00%</u>	<u>2.40%</u>	<u>0.00%</u>
Total change	(0.35%)	1.78%	0.29%	0.07%
Average Recommended Employer Contribution as of December 31, 2020	15.13%	40.82%	11.99%	31.48%

¹ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

² Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

³ Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.

Section 4: Actuarial Valuation Basis

Exhibit V: 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, 2019	13.15%	26.40%	14.85%	13.70%
• Effect of investment gain (after smoothing)	(1.27%)	(1.07%)	(1.00%)	(1.61%)
• Effect of additional UAAL contributions from OCFA	0.00%	(1.31%)	0.00%	0.00%
• Effect of difference in actual versus expected contributions	0.17%	(0.17%)	0.18%	0.02%
• Effect of higher than expected COLA increases in 2020 ¹	0.06%	0.07%	0.43%	0.07%
• Effect of lower than expected COLA increases in 2021 ²	(0.40%)	(0.48%)	(0.31%)	(0.57%)
• Effect of difference in actual versus expected salary increases	(0.70%)	(0.06%)	0.11%	(1.27%)
• Effect of growth in total payroll (greater)/less than expected	0.06%	(0.50%)	(0.12%)	0.01%
• Effect of other experience (gain)/loss ³	0.02%	0.25%	(0.69%)	(0.55%)
• Effect of changes in actuarial assumptions	0.19%	0.98%	1.17%	0.16%
• Effect of reallocating present value benefits between NC and AAL, increase in NC	0.47%	0.70%	0.84%	0.00%
• Effect of reallocating present value benefits between NC and AAL, decrease in UAAL	(0.15%)	(0.42%)	(0.10%)	0.00%
• Effect of minimum funding requirement	<u>1.47%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>3.28%</u>
Total change	(0.08%)	(2.01%)	0.51%	(0.46%)
Average Recommended Employer Contribution as of December 31, 2020	13.07%	24.39%	15.36%	13.24%

¹ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

² Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

³ Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.

Section 4: Actuarial Valuation Basis

Exhibit V: 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	RG #7	RG #8
Average Recommended Employer Contribution as of December 31, 2019	59.63%	67.22%	48.12%
• Effect of investment gain (after smoothing)	(1.86%)	(1.89%)	(1.62%)
• Effect of additional UAAL contributions from OCFA	0.00%	0.00%	(0.71%)
• Effect of difference in actual versus expected contributions	0.87%	0.40%	0.11%
• Effect of higher than expected COLA increases in 2020 ¹	0.32%	0.17%	0.11%
• Effect of lower than expected COLA increases in 2021 ²	(0.77%)	(1.06%)	(0.76%)
• Effect of difference in actual versus expected salary increases	(1.02%)	0.40%	(0.59%)
• Effect of growth in total payroll (greater)/less than expected	3.12%	0.19%	(0.68%)
• Effect of other experience (gain)/loss ³	0.30%	(0.21%)	(0.36%)
• Effect of changes in actuarial assumptions	(3.73%)	(2.11%)	(3.07%)
• Effect of reallocating present value benefits between NC and AAL, increase in NC	0.00%	0.27%	0.48%
• Effect of reallocating present value benefits between NC and AAL, decrease in UAAL	(0.01%)	(0.13%)	(0.38%)
• Effect of minimum funding requirement	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
• Total change	(2.78%)	(3.97%)	(7.47%)
Average Recommended Employer Contribution as of December 31, 2020	56.85%	63.25%	40.65%

¹ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

² Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

³ Net of an adjustment to reflect 18-month delay between date of valuation and date of rate implementation for all actuarial experience.

Section 4: Actuarial Valuation Basis

Exhibit VI: 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, 2019	\$89,621	\$3,553,748	\$0	\$249,186
2 Normal cost at middle of year	18,172	266,645	17,987	25,062
3 Expected employer and member contributions	(22,848)	(584,039)	(17,987)	(47,138)
4 Interest	<u>6,074</u>	<u>240,393</u>	<u>0</u>	<u>16,779</u>
5 Expected Unfunded Actuarial Accrued Liability as of December 31, 2020	\$91,019	\$3,476,747	\$0	\$243,889
6 Changes due to:				
a) Investment gains (after smoothing)	\$(9,649)	\$(197,219)	\$(17,364)	\$(17,567)
b) Additional UAAL payments from OCFA, DOE and U.C.I.	(3,520)	0	0	0
c) Difference in actual versus expected contributions	2,004	74,696	1,218	8,193
d) Difference in actual versus expected salary increases	336	(17,707)	(20,776)	(16,295)
e) Effect of higher than expected COLA increases in 2020 ¹	501	19,180	973	1,412
f) Effect of lower than expected COLA increases in 2021 ²	(3,298)	(86,145)	(5,718)	(7,110)
g) Changes in actuarial assumptions	(1,253)	183,271	12,086	4,801
h) Effect of reallocating present value benefits between NC and AAL	(222)	(15,846)	(2,355)	(2,414)
i) Other experience (gain)/loss	<u>(128)</u>	<u>89,041</u>	<u>7,016</u>	<u>500</u>
Total changes	\$(15,229)	\$49,271	\$(24,920)	\$(28,480)
7 Unfunded Actuarial Accrued Liability as of December 31, 2020	\$75,790	\$3,526,018	\$(24,920)	\$215,409

¹ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

² Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

Section 4: Actuarial Valuation Basis

Exhibit VI: 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, 2019	\$373	\$46,103	\$648	\$31
2 Normal cost at middle of year	1,738	7,602	368	300
3 Expected employer and member contributions	(1,767)	(12,045)	(418)	(302)
4 Interest	<u>28</u>	<u>3,011</u>	<u>47</u>	<u>2</u>
5 Expected Unfunded Actuarial Accrued Liability as of December 31, 2020	\$372	\$44,671	\$645	\$31
6 Changes due to:				
a) Investment gains (after smoothing)	\$(1,170)	\$(5,076)	\$(252)	\$(254)
b) Additional UAAL payments from OCFA, DOE and U.C.I.	0	(6,200)	0	0
c) Difference in actual versus expected contributions	159	(812)	45	3
d) Difference in actual versus expected salary increases	(650)	(282)	29	(201)
e) Effect of higher than expected COLA increases in 2020 ¹	55	318	109	11
f) Effect of lower than expected COLA increases in 2021 ²	(364)	(1,960)	(58)	(74)
g) Changes in actuarial assumptions	334	3,814	218	66
h) Effect of reallocating present value benefits between NC and AAL	(139)	(2,018)	(43)	0
i) Other experience (gain)/loss	<u>70</u>	<u>1,774</u>	<u>(51)</u>	<u>(89)</u>
Total changes	\$(1,705)	\$(10,442)	\$(3)	\$(538)
7 Unfunded Actuarial Accrued Liability as of December 31, 2020	\$(1,333)	\$34,229	\$642	\$(507)

¹ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

² Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.

Section 4: Actuarial Valuation Basis

Exhibit VI: 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, 2019	\$263,477	\$1,288,095	\$388,579
2 Normal cost at middle of year	24,857	106,912	60,206
3 Expected employer and member contributions	(48,151)	(220,388)	(95,298)
4 Interest	<u>17,873</u>	<u>86,925</u>	<u>26,124</u>
5 Expected Unfunded Actuarial Accrued Liability as of December 31, 2020	\$258,056	\$1,261,544	\$379,611
6 Changes due to:			
a) Investment gains (after smoothing)	\$(15,638)	\$(70,920)	\$(35,566)
b) Additional UAAL payments from OCFA, DOE and U.C.I.	0	0	(15,575)
c) Difference in actual versus expected contributions	7,328	14,966	2,329
d) Difference in actual versus expected salary increases	(8,618)	14,880	(13,007)
e) Effect of higher than expected COLA increases in 2020 ¹	2,697	6,337	2,451
f) Effect of lower than expected COLA increases in 2021 ²	(5,547)	(33,575)	(14,039)
g) Changes in actuarial assumptions	(36,195)	(88,103)	(54,766)
h) Effect of reallocating present value benefits between NC and AAL	(44)	(4,900)	(9,802)
i) Other experience (gain)/loss	<u>5,198</u>	<u>5,642</u>	<u>(214)</u>
Total changes	\$(50,819)	\$(155,673)	\$(138,189)
7 Unfunded Actuarial Accrued Liability as of December 31, 2020	\$207,237	\$1,105,871	\$241,422

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¹ Actuarial loss from payment of an April 1, 2020 COLA of 3.00%, which is 0.25% higher than the 2.75% COLA assumption.

² Actuarial gain from payment of an April 1, 2021 COLA of 1.50%, which is 1.25% lower than the 2.75% COLA assumption.