San Bernardino County Employees' Retirement Association

Actuarial Valuation and Review as of June 30, 2019

Segal Consulting

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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November 14, 2019

Board of Retirement
San Bernardino County Employees' Retirement Association
348 West Hospitality Lane, Third Floor
San Bernardino, CA 92415-0014

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2019. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for July 1, 2020 to June 30, 2021.

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 Association. The census information and financial information on which our calculations were based was prepared by the staff of the Association. That assistance is gratefully acknowledged.

The actuarial calculations were directed under the supervision of John Monroe, ASA, MAAA 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 Association.

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

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

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

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San Bernardino County Employees' Retirement Association Actuarial Valuation and Review as of June 30, 2019

Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal Consulting ("Segal") to present a valuation of the San Bernardino County Employees' Retirement Association ("SBCERA" or "the Association") as of June 30, 2019. 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 pension plan, as administered by SBCERA;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2019, provided by SBCERA;
- The assets of the Plan as of June 30, 2019, provided by SBCERA;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Retirement Board for the June 30, 2019 valuation;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. adopted by the Retirement Board for the June 30, 2019 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 Association'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.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to evaluate the Association's liabilities and future contribution requirements. Our calculations are based upon member data and financial information provided to us by the Association'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 Association'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 last reviewed with the Board of Retirement in 2014. Details of the funding policy are provided in *Section 4, Exhibit I on pages 93 and 94.*

A schedule of current amortization balances and payments may be found in *Section 3, Exhibit H beginning on page 72.* A graphical projection of the Unfunded Actuarial Accrued Liability (UAAL) amortization balances and payments has been included in *Section 3, Exhibit I on pages 79 and 80.*

The Actuarial Standards Board Actuarial Standard of Practice (ASOP) No. 4 provides guidelines for actuaries to follow when measuring pension obligations. For a plan such as that offered by the Retirement Association that may use undesignated excess earnings to provide supplemental benefits, the valuation report must indicate that the impact of any such future use of undesignated excess earnings on the future financial condition of the plan has not been explicitly measured or otherwise reflected in the valuation. However, it should be noted that under the Board's Interest Crediting Policy, the balance of $3.3 billion (negative) in the Contra Account has to be fully restored out of future excess earnings before any subsequent earnings can be used to provide for any supplemental benefits.

The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2020 through June 30, 2021.

Significant Issues

Ref: Pg. 37
Ref: Pg. 29

1. The ratio of the Actuarial Value of Assets to Actuarial Accrued Liabilities increased from 79.5% to 80.0%. The ratio of the Market Value of Assets to the Actuarial Accrued Liability decreased from 79.9% to 79.6%. The Association's UAAL (which is based on the Actuarial Value of Assets) has increased from $2.58 billion to $2.66 billion. The increase in UAAL is primarily due to the investment return (after "smoothing") less than the 7.25% return assumption. A complete reconciliation of the Association's UAAL is provided in *Section 2, Subsection E*.

Ref: Pg. 31

2. The average employer contribution rate calculated in this valuation increased from 31.09% of payroll to 31.60% of payroll. This increase is primarily due to the investment return (after "smoothing") less than the 7.25% return assumption, offset to some extent by changes in member demographics amongst tiers. A complete reconciliation of the Association's average employer rate is provided in *Section 2, Subsection F*.

Ref: Pg. 32

3. The average member rate calculated in this valuation has decreased from 11.21% of payroll to 10.99% of payroll. This change was due to changes in member demographics amongst the tiers. A complete reconciliation of the Association's average member rate is provided in *Section 2, Subsection F*.

   This report reflects the $184,963 additional contribution made by LAFCO towards their UAAL on June 25, 2019. This amount will be amortized as a level percent of pay over a period twenty years and be credited with earnings based on the Plan's market value investment return every year. A separate recommended employer UAAL contribution rate has been developed in *Section 2, Subsection F* for LAFCO that is different from the rest of the Other General cost group.

Ref: Pg. 19

4. The total unrecognized net investment <u>loss</u> as of June 30, 2019 is about $54 million as compared to an unrecognized net investment <u>gain</u> of $46 million in the previous valuation. This deferred investment loss of $54 million will be recognized in the determination of the Actuarial Value of Assets for funding purposes in the next few years as shown in *Section 2, Subsection B*.

   The net deferred losses of $54 million represent about 0.5% of the Market Value of Assets. Unless offset by future investment gains or other favorable experience, the recognition of the $54 million market losses is expected to have an impact on the Association's future funded ratio and contribution rate requirements. This potential impact may be illustrated as follows:

   a. If the net deferred losses in this year's valuation were recognized immediately and entirely in the Actuarial Value of Assets, the funded ratio would decrease from 80.0% to 79.6%.

      For comparison purposes, if all the net deferred gains in the June 30, 2018 valuation had been recognized immediately in the June 30, 2018 valuation, the funded ratio in last year's valuation would have increased from 79.5% to 79.9%.

b. If the net deferred losses in this year’s valuation were recognized immediately and entirely in the Actuarial Value of Assets, the average employer contribution rate would increase from 31.60% to 31.85% of payroll.

For comparison purposes, if all the net deferred gains in the June 30, 2018 valuation had been recognized immediately in the June 30, 2018 valuation, the average employer contribution rate in last year’s valuation would have decreased from 31.09% to 30.87% of payroll.

5. Inland Library System terminated from SBCERA on May 31, 2019. The assets and liabilities (valued using ongoing assumptions) associated with this employer has been transferred from Other General cost group to Withdrawn Employers cost group.

6. The actuarial valuation report as of June 30, 2019 is based on financial information as of that date. Changes in the assets subsequent to that date, to the extent that they exist, 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.

Ref: Pg. 41

7. The Actuarial Standards Board approved a new Actuarial Standard of Practice No. 51 (ASOP 51) regarding risk assessment. ASOP 51 is effective with SBCERA’s June 30, 2019 actuarial valuation. ASOP 51 requires actuaries to identify and assess risks that “may reasonably be anticipated to significantly affect the plan’s future financial condition”. Examples of key risks listed that are particularly relevant to SBCERA are asset/liability mismatch risk, investment risk, and longevity risk. The standard also requires an actuary to consider if there is any ongoing contribution risk to the plan, however it does not require the actuary to evaluate the particular ability or willingness 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 initial assessment can be strictly a qualitative discussion about potential adverse experience and the possible effect on future results, but it may also include quantitative numerical demonstrations where informative. The actuary is also encouraged to consider a recommendation as to whether a more detailed assessment or risk report would be significantly beneficial for the intended user in order to examine particular financial risks. When making that recommendation, the actuary will take into account such factors as the plan’s design, risk profile, maturity, size, funded status, asset allocation, cash flow, possible insolvency and current market conditions.

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. We have not yet been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Association's future financial condition, but have included a brief discussion of key risks that may affect the Association in *Section 2, Subsection J*. A more detailed assessment of the risks tailored to specific interests or concerns of the Board would provide the Board with a better understanding of the inherent risks and is recommended. This assessment would further discuss and highlight information and risks particular to SBCERA such as detailed historical experience and key events, growing plan maturity, heightened contribution sensitivity to asset and liability changes, and projected sensitivity to potential future investment returns through selected scenario or stress test projections.

Summary of Key Valuation Results

		June 30, 2019		June 30, 2018	
		Total Rate	Estimated Annual Dollar Amount(1) ($ in '000s)	Total Rate	Estimated Annual Dollar Amount(1) ($ in '000s)
Employer Contribution Rates:	• County General Tier 1	25.84%	$171,904	25.39%	$174,000
	• County General Tier 2	23.32%	94,220	22.86%	76,012
	• Safety Tier 1	57.11%	102,730	55.08%	100,552
	• Safety Tier 2	51.51%	43,352	49.61%	38,187
	• County General and Safety Combined	30.91%	412,206	30.43%	388,751
	• Superior Court Tier 1	28.55%	14,578	28.36%	15,241
	• Superior Court Tier 2	26.03%	6,934	25.83%	5,468
	• South Coast Air Quality Management District Tier 1	44.22%	25,353	42.31%	25,856
	• South Coast Air Quality Management District Tier 2	39.36%	9,101	38.04%	6,173
	• Other General Tier 1 (Non-LAFCO)	38.38%	14,112	38.02%	13,794
	• Other General Tier 2 (Non-LAFCO)	35.86%	4,921	35.61%	3,866
	• Other General Tier 1 (LAFCO)	35.76%	155	38.02%	125
	• Other General Tier 2 (LAFCO)	33.24%	22	35.61%	22
	All Categories Combined	31.60%	$487,382	31.09%	$459,296
Average Member Contribution Rates:(2)	• County General Tier 1	11.34%	$75,441	11.47%	$78,605
	• County General Tier 2	9.11%	36,807	9.10%	30,258
	• Safety Tier 1	13.05%	23,475	13.27%	24,225
	• Safety Tier 2	16.13%	13,576	16.19%	12,462
	• County General and Safety Combined	11.20%	149,299	11.39%	145,550
	• Superior Court Tier 1	11.13%	5,683	11.32%	6,084
	• Superior Court Tier 2	9.11%	2,427	9.10%	1,926
	• South Coast Air Quality Management District Tier 1	8.43%	4,833	9.11%	5,567
	• South Coast Air Quality Management District Tier 2	8.16%	1,887	8.18%	1,328
	• Other General Tier 1	11.07%	4,118	11.35%	4,155
	• Other General Tier 2	9.06%	1,250	9.07%	990
	All Categories Combined	10.99%	$169,497	11.21%	$165,600

(1) Based on projected annual compensation for each valuation date.

(2) The refundability factors are 1.05 for General Tier 1 and 1.02 for Safety Tier 1 as of June 30, 2019 and 1.06 for General Tier 1 and 1.02 for Safety Tier 1 as of June 30, 2018. See *Section 4, Exhibit III* for the individual member contribution rates.

Summary of Key Valuation Results (continued)

		June 30, 2019 ($ in '000s)	June 30, 2018 ($ in '000s)
Actuarial Accrued Liability as of June 30:	• Retired members and beneficiaries	$7,190,038	$6,732,330
	• Inactive vested members[1]	506,241	457,774
	• Active members	5,578,854	5,385,786
	• Survivor Benefit & Burial Allowance	29,550	29,052
	• Total Actuarial Accrued Liability	13,304,683	12,604,942
	• Normal Cost for plan year beginning June 30	359,612	349,866
Assets as of June 30:[4]	• Market Value of Assets (MVA)[2]	$10,588,407	$10,066,990
	• Actuarial Value of Assets (AVA)[2][3]	10,642,401	10,020,863
Funded status as of June 30:	• Unfunded Actuarial Accrued Liability on Market Value of Assets basis	2,716,276	2,537,952
	• Funded percentage on MVA basis	79.58%	79.87%
	• Unfunded Actuarial Accrued Liability on Actuarial Value of Assets basis	2,662,282	2,584,079
	• Funded percentage on AVA basis	79.99%	79.50%
Key assumptions:	• Net investment return	7.25%	7.25%
	• Price inflation	3.00%	3.00%
	• Payroll growth	3.50%	3.50%

(1) Includes inactive members with member contributions on deposit.

(2) The June 30, 2019 and June 30, 2018 values exclude $15.7 million and $16.6 million, respectively. These amounts represent the associated present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

(3) Includes assets held for Survivor Benefit and Burial Allowance reserves. For June 30, 2019 those amounts are $74,376 and $576, respectively. The AVA for retirement plan benefits is $10,567,449 as of June 30, 2019.

(4) See *Section 2, Subsection B on page 20* for the development of the Valuation Value of Assets (VVA) by cost group.

Summary of Key Valuation Results (continued)

		June 30, 2019	June 30, 2018	Change From Prior Year
Demographic data as of June 30:	**Active Members:**			
	• Number of members	21,823	21,465	1.7%
	• Average age	44.0	44.0	0.0
	• Average service	10.6	10.7	-0.1
	• Total projected compensation	$1,542,495,237	$1,477,131,264	4.4%
	• Average projected compensation	$70,682	$68,816	2.7%
	Retired Members and Beneficiaries:			
	• Number of members:			
	– Service retired	9,861	9,417	4.7%
	– Disability retired	1,620	1,593	1.7%
	– Beneficiaries[1]	1,763	1,706	3.3%
	– Total	13,244	12,716	4.2%
	• Average age	69.4	69.2	0.2
	• Average monthly benefit	$3,679	$3,571	3.0%
	Inactive Vested Members:			
	• Number of members[2]	6,726	6,211	8.3%
	• Average Age	44.2	44.3	-0.1
	Total Members:	41,793	40,392	3.5%

(1) Excludes beneficiaries that are only receiving Survivor Benefit amounts.

(2) Includes inactive members with member contributions on deposit.

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 Consulting ("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 Association. 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 Association. The Association 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.

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 Association. 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; and
  - Changes in statutory provisions.
- If the Association 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 Association should look to their other advisors for expertise in these areas.

As Segal Consulting 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: 2010 – 2019

Year Ended June 30	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
2010	19,520	3,635	8,843	12,478	0.64	0.45
2011	19,258	3,723	9,265	12,988	0.67	0.48
2012	19,306	3,782	9,736	13,518	0.70	0.50
2013	19,401	3,921	10,173	14,094	0.73	0.52
2014	19,497	4,356	10,618	14,974	0.77	0.54
2015	19,938	4,804	11,128	15,932	0.80	0.56
2016	20,538	5,136	11,630	16,766	0.82	0.57
2017	21,110	5,547	12,179	17,726	0.84	0.58
2018	21,465	6,211	12,716	18,927	0.88	0.59
2019	21,823	6,726	13,244	19,970	0.92	0.61

(1) Includes inactive members with member contributions on deposit.

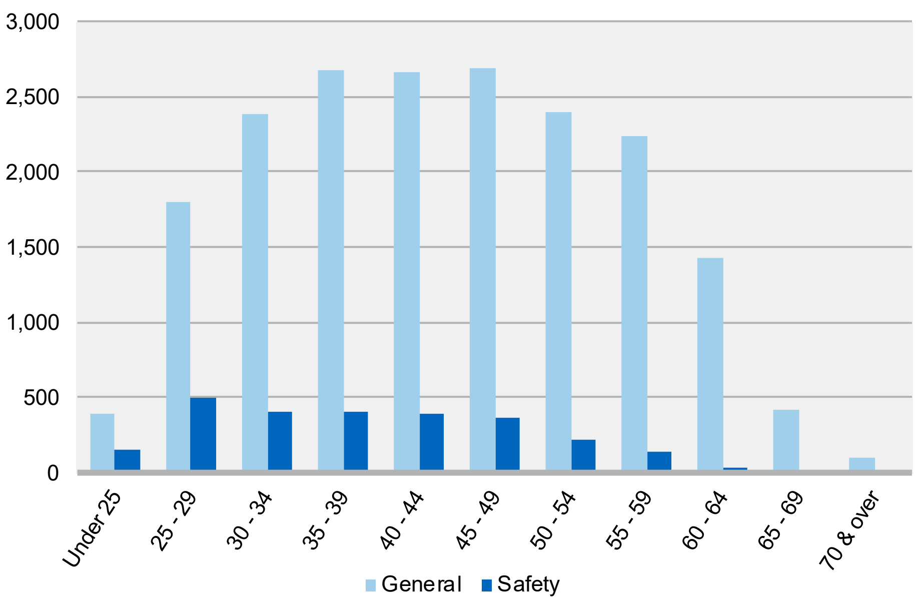
Active Members

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 21,823 active members with an average age of 44.0, average years of service of 10.6 years and average compensation of $70,682. The 21,465 active members in the prior valuation had an average age of 44.0, average service of 10.7 years and average compensation of $68,816.

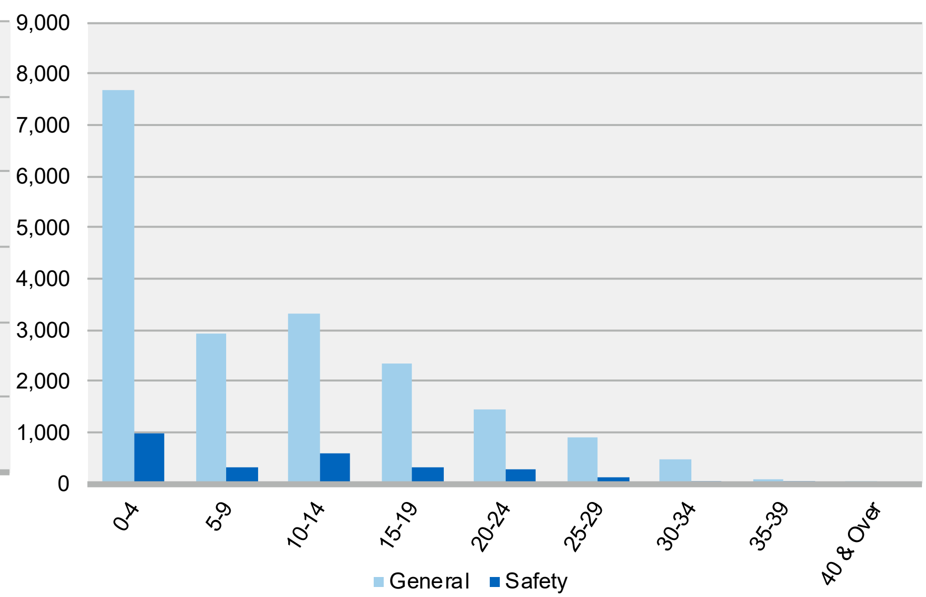
Among the active members, there were none with unknown age information.

Distribution of Active Participants as of June 30, 2019

ACTIVES BY AGE



ACTIVES BY YEARS OF SERVICE



Inactive Members

In this year's valuation, there were 6,726 members with a vested right to a deferred or immediate vested benefit or entitled to a return of their member contributions versus 6,211 in the prior valuation.

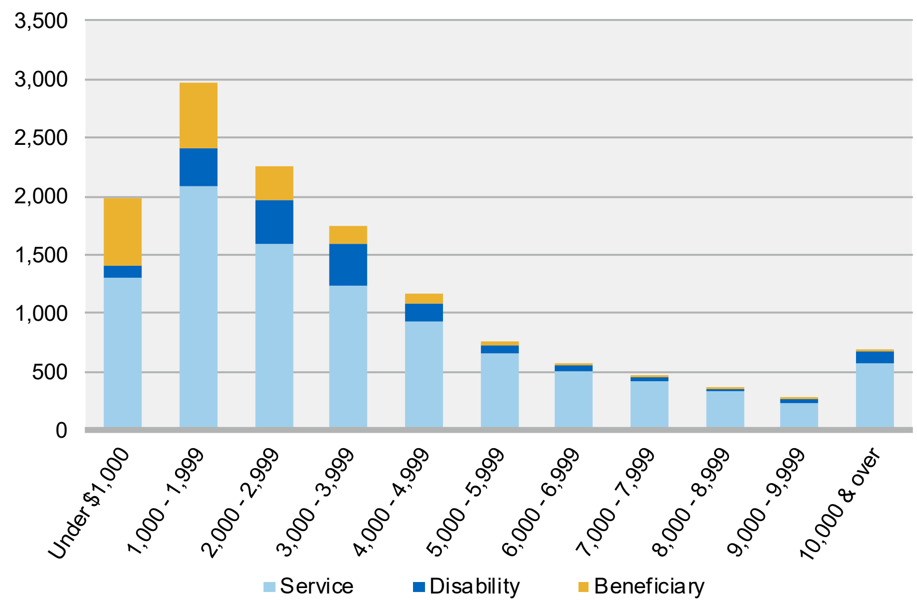
Retired Members and Beneficiaries

As of June 30, 2019, 11,481 retired members and 1,763 beneficiaries were receiving total monthly benefits of $48,721,947. For comparison, in the previous valuation, there were 11,010 retired members and 1,706 beneficiaries receiving monthly benefits of $45,408,154.

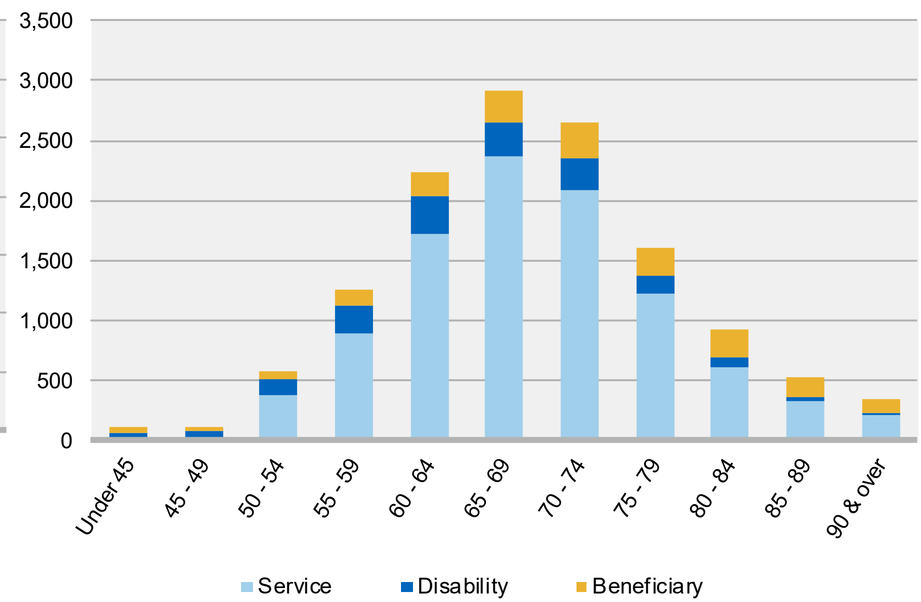
As of June 30, 2019, the average monthly benefit for retired members and beneficiaries is $3,679, compared to $3,571 in the previous valuation. The average age for retired members and beneficiaries is 69.4 in the current valuation, compared with 69.2 in the prior valuation.

Distribution of Retired Members and Beneficiaries as of June 30, 2019

RETIRED MEMBERS AND BENEFICIARIES BY TYPE AND MONTHLY AMOUNT



RETIRED MEMBERS AND BENEFICIARIES BY TYPE AND AGE



Historical Plan Population

The chart below demonstrates the progression 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 STATISTICS: 2010 – 2019

	Active Participants			Retired Members and Beneficiaries		
Year Ended June 30	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2010	19,520	44.2	10.4	8,843	68.2	$2,628
2011	19,258	44.6	10.8	9,265	68.3	2,775
2012	19,306	44.7	11.1	9,736	68.5	2,909
2013	19,401	44.8	11.3	10,173	68.5	3,037
2014	19,497	44.7	11.3	10,618	68.6	3,128
2015	19,938	44.5	11.1	11,128	68.8	3,228
2016	20,538	44.4	10.9	11,630	68.9	3,331
2017	21,110	44.2	10.7	12,179	69.0	3,459
2018	21,465	44.0	10.7	12,716	69.2	3,571
2019	21,823	44.0	10.6	13,244	69.4	3,679

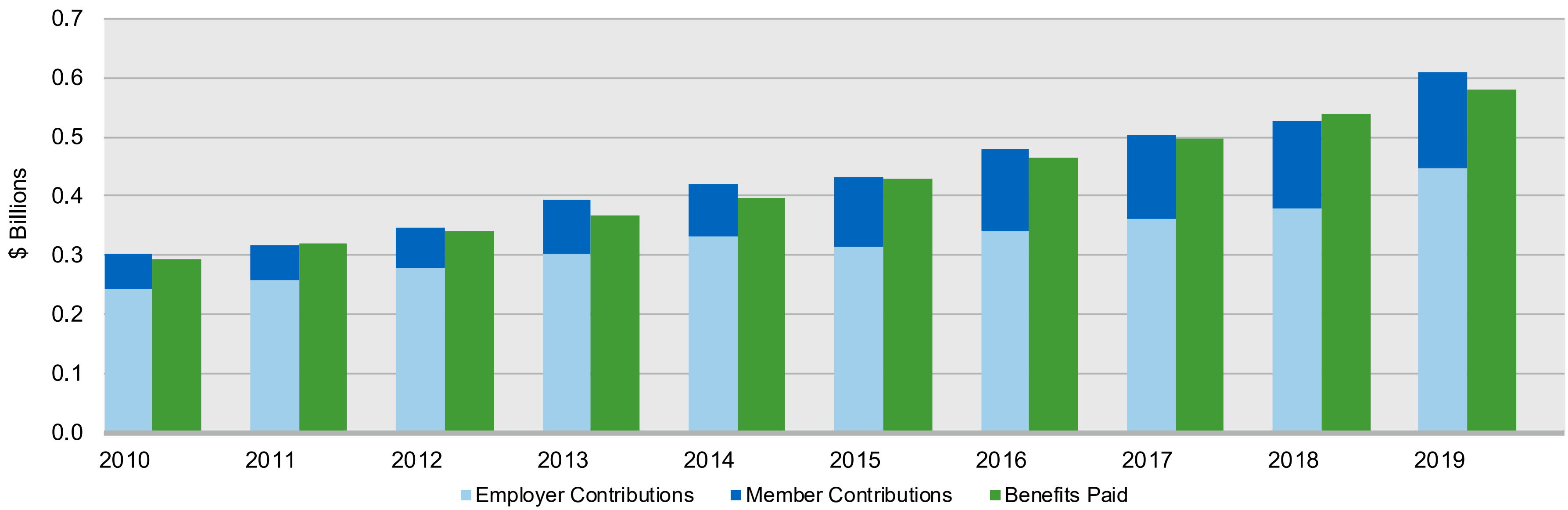
B. Financial Information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) 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 WITH BENEFITS FOR YEARS ENDED JUNE 30, 2010 – 2019



DETERMINATION OF ACTUARIAL VALUE OF ASSETS

		Actual Return	Expected Return	Investment Gain / (Loss)	Percent Deferred	Unrecognized Amount
1	Market Value of Assets					$10,588,406,657
2	Calculation of unrecognized return[1]					
a)	Year ended June 30, 2015	$280,841,907	$599,470,791	$(318,628,884)	0%	$0
b)	Year ended June 30, 2016	(80,027,512)	620,574,772	(700,602,284)	20	(140,120,457)
c)	Year ended June 30, 2017	1,098,198,034	614,520,648	483,677,386	40	193,470,954
d)	Year ended June 30, 2018	797,480,630	672,621,127	124,859,503	60	74,915,702
e)	Year ended June 30, 2019	502,752,677	730,578,345	(227,825,668)	80	(182,260,534)
f)	Total unrecognized return[2]					$(53,994,335)
3	Actuarial Value of Assets 1 – 2f					$10,642,400,992
4	Actuarial Value of Assets as a percentage of Market Value of Assets 3 / 1					100.5%
5	Non-valuation reserves:					
a)	Burial allowance reserve					$576,218
6	Preliminary Valuation Value of Assets 3 – 5a					$10,641,824,774
7	Valuation Value of Assets[3]					$10,657,548,954

(1) Recognition at 20% per year over five years.

(2) Deferred return as of June 30, 2019 recognized in each of the next four years:

(a) Amount recognized on June 30, 2020	$(63,978,212)
(b) Amount recognized on June 30, 2021	76,142,244
(c) Amount recognized on June 30, 2022	(20,593,233)
(d) Amount recognized on June 30, 2023	(45,565,134)
(f) Subtotal	$(53,994,335)

(3) Includes $15.7 million that represents the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

ALLOCATION OF VALUATION VALUE OF ASSETS AS OF JUNE 30, 2019

		General			
		County	Superior Court	SCAQMD	Others
1	**Allocated Valuation Value of Assets as of Beginning of Plan Year**	**$6,279,579,308**	**$380,654,807**	**$675,772,772**	**$258,850,903**
2	Allocated Valuation Value of Assets as of Beginning of Plan Year Including Future Safety Contributions	6,279,579,308	380,654,807	675,772,772	258,850,903
3	Member Contributions	106,247,852	7,836,740	7,014,757	5,231,529
4	Employer Contributions	240,097,689	19,948,434	30,268,982	17,348,319
5	Allocated Administrative Expenses	8,733,766	642,809	663,660	407,839
6	Benefit Payments Excluding Burial Allowance Payments ($250)	347,930,502	17,706,496	45,172,039	15,525,309
7	Subtotal (Item 1+3+4-5-6)	$6,269,260,581	$390,090,676	$667,220,812	$265,497,603
8	Weighted Average Fund Balance	6,274,419,944	385,372,742	671,496,792	262,081,772
9	Earnings Allocated in Proportion to Item 8	376,518,679	23,125,649	40,295,531	15,727,140
10	Withdrawn Employer Asset Transfer	0	0	0	(3,810,080)[1]
11	**Allocated Valuation Value of Assets as of End of Plan Year (Item 7+10)**	**$6,645,779,260**	**$413,216,325**	**$707,516,343**	**$277,414,663**
12	**Allocated Valuation Value of Assets as of End of Plan Year Including Future Safety Contributions**	**$6,645,779,260**	**$413,216,325**	**$707,516,343**	**$277,414,663**

Note: Results may be slightly off due to rounding.

[1] Asset transfer to Withdrawn Employers cost group with respect to the Inland Library System termination.

ALLOCATION OF VALUATION VALUE OF ASSETS AS OF JUNE 30, 2019 (CONTINUED)

		Safety	Withdrawn Employers[1]	Survivor Benefit Reserve	Total
1	**Allocated Valuation Value of Assets as of Beginning of Plan Year**	**$2,339,047,533**	**$16,260,877**	**$70,067,455**	**$10,020,233,655**
2	Allocated Valuation Value of Assets as of Beginning of Plan Year Including Future Safety Contributions	2,355,617,120[2]	16,260,877	70,067,455	10,036,803,242
3	Member Contributions	36,572,771	0	648,135	163,551,784
4	Employer Contributions	137,983,309	0	648,244	446,294,977
5	Allocated Administrative Expenses	2,226,980	0	0	12,675,054
6	Benefit Payments Excluding Burial Allowance Payments ($250)	149,481,471	496,306	2,142,820	578,454,943
7	Subtotal (Item 1+3+4-5-6)	$2,361,895,162	$15,764,571	$69,221,014	$10,038,950,419
8	Weighted Average Fund Balance	2,351,184,426	16,012,724	69,644,235	10,030,212,635
9	Earnings Allocated in Proportion to Item 8	141,091,106	960,900	5,155,350[3]	602,874,355
10	Withdrawn Employer Asset Transfer	0	3,810,080[5]	0	0
11	**Allocated Valuation Value of Assets as of End of Plan Year (Item 7+10)**	**$2,502,986,268**	**$20,535,551**	**$74,376,364**	**$10,641,824,774**
12	**Allocated Valuation Value of Assets as of End of Plan Year Including Future Safety Contributions**	**$2,518,710,448[4]**	**$20,535,551**	**$74,376,364**	**$10,657,548,954**

Note: Results may be slightly off due to rounding.

(1) Withdrawn employers include San Bernardino International Airport Authority, Inland Valley Development Agency, Rim of the World Recreation & Park District and Inland Library System.

(2) Includes $16.6 million that represents the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

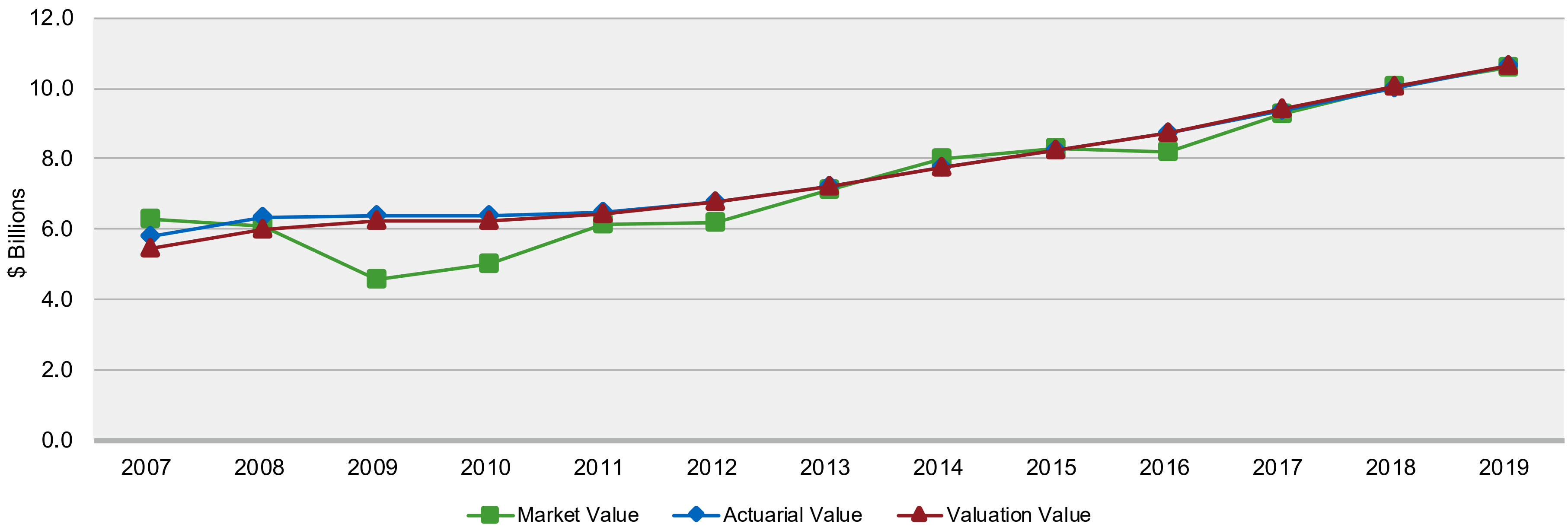
(3) Actual Earnings for Survivor Benefit Reserve.

(4) Includes $15.7 million that represents the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

(5) Asset transfer from Other General cost group with respect to the Inland Library System termination.

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 generally 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 JUNE 30, 2007 – 2019



C. Actuarial Experience

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

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

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

The net total loss is $172.3 million, which includes $124.3 million from investment losses, a loss of $18.9 million from contribution experience and $29.0 in losses from all other sources. The net experience variation from individual sources other than investments and contributions was 0.2% of the Actuarial Accrued Liability. A discussion of the major components of the actuarial experience is on the following pages.

ACTUARIAL EXPERIENCE FOR YEAR ENDED JUNE 30, 2019

1	Net loss from investments[1]	$(124,316,000)
2	Net loss from contribution experience	(18,922,000)
3	Net loss from other experience[2]	(29,018,000)
4	Net experience loss: 1 + 2 + 3	$(172,256,000)

(1) Details on next page.

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

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 4.99% for the year ended June 30, 2019.

For valuation purposes, the assumed rate of return on the Valuation Value of Assets is 7.25%. The actual rate of return on a valuation basis for the 2018-2019 plan year was 6.01%. Since the actual return for the year was less than the assumed return, the Plan experienced an actuarial loss during the year ended June 30, 2019 with regard to its investments.

INVESTMENT EXPERIENCE FOR YEAR ENDED JUNE 30, 2019

		Market Value	Actuarial Value	Valuation Value
1	Net investment income	$502,752,677	$602,874,355	$602,874,355
2	Average value of assets	10,076,942,696	10,030,815,353	10,030,212,635
3	Rate of return: **1 ÷ 2**	4.99%	6.01%	6.01%
4	Assumed rate of return	7.25%	7.25%	7.25%
5	Expected investment income: **2 x 4**	$730,578,345	$727,234,113	$727,190,416
6	Actuarial gain/(loss): **1 – 5**	$(227,825,668)	$(124,359,758)	$(124,316,061)

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.

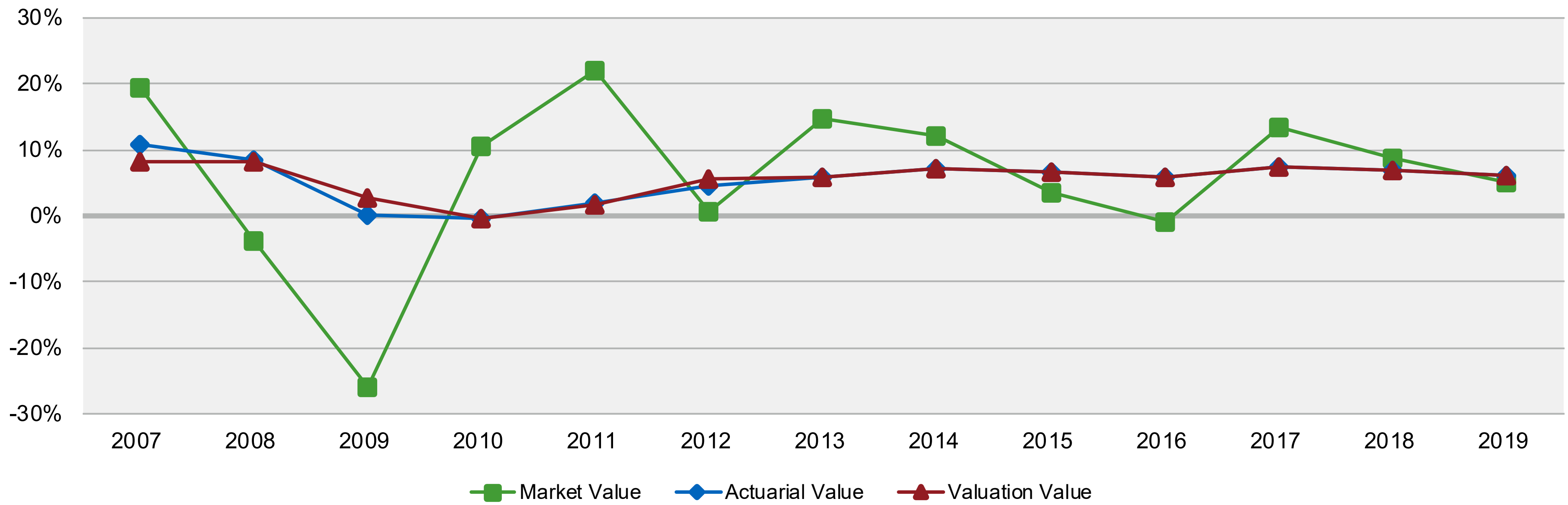
INVESTMENT RETURN – MARKET VALUE, ACTUARIAL VALUE AND VALUATION VALUE: 2010 - 2019

Year Ended June 30	Market Value Investment Return		Actuarial Value Investment Return		Valuation Value Investment Return	
	Amount	Percent	Amount	Percent	Amount	Percent
2010	$476,972,282	10.49%	$(24,237,257)	(0.38%)	$(28,227,423)	(0.45%)
2011	1,109,874,395	22.07%	120,048,766	1.89%	108,235,350	1.72%
2012	31,767,425	0.52%	299,992,593	4.62%	365,138,308	5.69%
2013	904,479,788	14.62%	388,686,270	5.71%	388,686,270	5.71%
2014	868,148,759	12.20%	524,022,197	7.26%	524,022,197	7.26%
2015	280,841,907	3.51%	508,297,528	6.56%	508,297,528	6.56%
2016	(80,027,512)	(0.97%)	476,264,294	5.77%	476,264,294	5.77%
2017	1,098,198,034	13.40%	655,747,751	7.51%	655,747,751	7.51%
2018	797,480,630	8.60%	653,818,087	6.97%	653,818,087	6.97%
2019	502,752,677	4.99%	602,874,355	6.01%	602,874,355	6.01%
Most recent five-year geometric average return		**5.94%**		**6.56%**		**6.56%**
Most recent ten-year geometric average return		**8.23%**		**5.43%**		**5.51%**

Note: Each year's yield is weighted by the average asset value in that year.

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 ENDING JUNE 30, 2007 – 2019



Contributions

Contributions for the year ended June 30, 2019 totaled $606.6 million, compared to the projected amount of $624.9 million. This resulted in a loss of $18.9 million from contribution experience for the year, when adjusted for timing.

Other Experience

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

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

The net loss from this other experience for the year ended June 30, 2019 amounted to $29.0 million, which is 0.2% of the Actuarial Accrued Liability. See *Subsection E* for a detailed development of the Unfunded Actuarial Accrued Liability.

D. Other Changes in the Actuarial Accrued Liability

The Actuarial Accrued Liability as of June 30, 2019 is $13.3 billion, an increase of $0.7 billion, or 5.6%, 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

- There are no assumption changes reflected in this valuation report.
- 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*.

E. Development of Unfunded Actuarial Accrued Liability

DEVELOPMENT FOR YEAR ENDED JUNE 30, 2019 ($ IN '000s)

1	**Unfunded Actuarial Accrued Liability at beginning of year[1]**		**$2,609,154**
2	Total Normal Cost at middle of year[2]		344,259
3	Expected administrative expenses		10,335
4	Expected employer and member contributions[3]		(624,896)
5	Interest		180,852
6	Expected Unfunded Actuarial Accrued Liability at end of year		$2,519,704
7	Changes due to:		
	a) Investment return less than expected (after "smoothing")	$124,316	
	b) Actual contributions less than expected[4]	18,922	
	c) Individual salary increases higher than expected	3,688	
	d) Retirement experience loss on actives[5]	16,592	
	e) Other experience loss	8,738	
	Total changes		$172,256
8	**Unfunded Actuarial Accrued Liability at end of year[1]**		**$2,691,960**

Note: The sum of items 7c through 7e equals the "Net loss from other experience" shown in Subsection C. Results include four withdrawn employers

(1) Beginning of the year and end of the year values are reduced by $16.6 million and $15.7 million, respectively. These amounts represent the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers. Excludes Survivor Benefit Reserve which had a surplus of assets over liabilities of $41.6 million at the beginning of the year and $45.4 million at the end of the year.

(2) Excludes administrative expense load.

(3) Excludes contributions made to Survivor Benefit Reserve during the year ended June 30, 2019. Includes contributions towards administrative expenses.

(4) Includes contribution loss from one-year delay in implementing higher contribution rates recommended in June 30, 2018 valuation.

(5) Reflects differences between the actual and assumed date of retirement and leave cashouts.

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 June 30, 2019, the average recommended employer contribution is 31.60% 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 June 30, 2019 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 ENDING JUNE 30

All Tiers Combined		June 30, 2019		June 30, 2018	
		Amount ($ in '000s)	% of Projected Compensation[1]	Amount ($ in '000s)	% of Projected Compensation[1]
1	Total Normal Cost[2]	$359,612	23.32%	$349,866	23.68%
2	Expected member contributions	169,497	10.99%	165,600	11.21%
3	Employer Normal Cost: 1 – 2	$190,115	12.33%	$184,266	12.47%
4	Actuarial Accrued Liability[3]	13,262,612		12,567,649	
5	Valuation Value of Assets[4]	10,562,637		9,950,475	
6	Unfunded Actuarial Accrued Liability: 4 – 5	2,699,975		2,617,174	
7	Payment on Unfunded Actuarial Accrued Liability	$297,267	19.27%	$275,030	18.62%
8	Total average recommended employer contribution: 3 + 7	$487,382	31.60%	$459,296	31.09%
9	Projected compensation	$1,542,496		$1,477,132	

Note: Results exclude withdrawn employers.

(1) Contributions are assumed to be paid at the middle of the year.

(2) Includes administrative expense load.

(3) Excludes liabilities held for Survivor Benefit, Burial Allowance and Excess Earnings reserves.

(4) Excludes assets held for Survivor Benefit, Burial Allowance and Excess Earnings reserves. The June 30, 2019 and June 30, 2018 values include $15.7 million and $16.6 million, respectively. These amounts represent the associated present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

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 OF AVERAGE RECOMMENDED EMPLOYER CONTRIBUTION RATE FROM JUNE 30, 2018 TO JUNE 30, 2019

	Contribution Rate	Estimated Annual Dollar Amount[1] ($ in '000s)
Average Recommended Employer Contribution as of June 30, 2018	**31.09%**	**$459,296**
• Effect of investment return less than expected (after "smoothing")	0.57%	$8,792
• Effect of actual contributions less than expected[2]	0.09%	1,388
• Effect of individual salary increases higher than expected	0.02%	308
• Effect of amortizing prior year's UAAL over a larger than expected projected total payroll	(0.08%)	(1,234)
• Effect of retirement experience loss on actives[3]	0.08%	1,234
• Effect of changes in demographics of members amongst tiers on Normal Cost	(0.14%)	(2,159)
• Effect of change in administrative expense load	0.01%	154
• Effect of other experience loss[4]	(0.04%)	19,603
Total change	0.51%	$28,086
Average Recommended Employer Contribution as of June 30, 2019	**31.60%**	**$487,382**

(1) Based on projected compensation for each valuation date shown.

(2) Includes contribution loss from one-year delay in implementing higher contribution rates recommended in June 30, 2018 valuation.

(3) Reflects differences between the actual and assumed date of retirement and leave cashouts.

(4) Other differences in actual versus expected experience. Estimated annual dollar cost also reflects change in payroll from prior valuation.

Reconciliation of Average Recommended Member Contribution Rate

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

RECONCILIATION OF AVERAGE RECOMMENDED MEMBER CONTRIBUTION RATE FROM JUNE 30, 2018 TO JUNE 30, 2019

	Contribution Rate	Estimated Annual Dollar Amount[1] ($ in '000s)
Average Recommended Member Contribution as of June 30, 2018	**11.21%**	**$165,600**
• Effect of change in administrative expense load	(0.01%)	$(154)
• Effect of changes in member demographics amongst tiers[2]	(0.21%)	4,051
Total change	(0.22%)	$3,897
Average Recommended Member Contribution as of June 30, 2019	**10.99%**	**$169,497**

(1) Based on projected compensation for each valuation date shown.

(2) Includes changes in demographic profile of the active membership. Estimated annual dollar cost also reflects change in payroll from prior valuation.

Recommended Employer Contribution Rates

	June 30, 2019 Actuarial Valuation Recommended Rates for FY 2020-21[1]				June 30, 2018 Actuarial Valuation Recommended Rates for FY 2019-20[2]			
	Basic	COLA	Total	Estimated Annual Dollar Amount[3] ($ in '000s)	Basic	COLA	Total	Estimated Annual Dollar Amount[3] ($ in '000s)
County General Tier 1								
Normal Cost	9.91%	1.72%	11.63%	$77,370	9.89%	1.74%	11.63%	$79,701
UAAL	8.29%	5.92%	14.21%	94,534	7.88%	5.88%	13.76%	94,299
Total Contributions	18.20%	7.64%	25.84%	$171,904	17.77%	7.62%	25.39%	$174,000
County General Tier 2								
Normal Cost	7.48%	1.63%	9.11%	$36,807	7.47%	1.63%	9.10%	$30,258
UAAL	8.29%	5.92%	14.21%	57,413	7.88%	5.88%	13.76%	45,754
Total Contributions	15.77%	7.55%	23.32%	$94,220	15.35%	7.51%	22.86%	$76,012
Safety Tier 1								
Normal Cost	18.31%	3.42%	21.73%	$39,088	18.26%	3.40%	21.66%	$39,542
UAAL	16.91%	18.47%	35.38%	63,642	16.01%	17.41%	33.42%	61,010
Total Contributions	35.22%	21.89%	57.11%	$102,730	34.27%	20.81%	55.08%	$100,552
Safety Tier 2								
Normal Cost	12.76%	3.37%	16.13%	$13,575	12.81%	3.38%	16.19%	$12,462
UAAL	16.91%	18.47%	35.38%	29,777	16.01%	17.41%	33.42%	25,725
Total Contributions	29.67%	21.84%	51.51%	$43,352	28.82%	20.79%	49.61%	$38,187
All County Members								
Normal Cost	10.49%	2.02%	12.51%	$166,840	10.63%	2.05%	12.68%	$161,963
UAAL	10.00%	8.40%	18.40%	245,366	9.53%	8.22%	17.75%	226,788
Total Contributions	20.49%	10.42%	30.91%	$412,206	20.16%	10.27%	30.43%	$388,751
Superior Court Tier 1								
Normal Cost	9.91%	1.72%	11.63%	$5,938	9.89%	1.74%	11.63%	$6,250
UAAL	13.06%	3.86%	16.92%	8,640	12.83%	3.90%	16.73%	8,991
Total Contributions	22.97%	5.58%	28.55%	$14,578	22.72%	5.64%	28.36%	$15,241
Superior Court Tier 2								
Normal Cost	7.48%	1.63%	9.11%	$2,427	7.47%	1.63%	9.10%	$1,926
UAAL	13.06%	3.86%	16.92%	4,507	12.83%	3.90%	16.73%	3,542
Total Contributions	20.54%	5.49%	26.03%	$6,934	20.30%	5.53%	25.83%	$5,468

Note: Applicable footnotes are shown on page 35.

Recommended Employer Contribution Rates (continued)

	June 30, 2019 Actuarial Valuation Recommended Rates for FY 2020-21[1]				June 30, 2018 Actuarial Valuation Recommended Rates for FY 2019-20[2]			
	Basic	COLA	Total	Estimated Annual Dollar Amount[3] ($ in '000s)	Basic	COLA	Total	Estimated Annual Dollar Amount[3] ($ in '000s)
SCAQMD Tier 1								
Normal Cost	10.99%	2.03%	13.02%	$7,465	10.52%	1.93%	12.45%	$7,608
UAAL	22.54%	8.66%	31.20%	17,888	21.62%	8.24%	29.86%	18,248
Total Contributions	33.53%	10.69%	44.22%	$25,353	32.14%	10.17%	42.31%	$25,856
SCAQMD Tier 2								
Normal Cost	6.68%	1.48%	8.16%	$1,887	6.70%	1.48%	8.18%	$1,327
UAAL	22.54%	8.66%	31.20%	7,214	21.62%	8.24%	29.86%	4,846
Total Contributions	29.22%	10.14%	39.36%	$9,101	28.32%	9.72%	38.04%	$6,173
Other General Tier 1 (Non-LAFCO)								
Normal Cost	9.87%	1.71%	11.58%	$4,258	9.78%	1.70%	11.48%	$4,164
UAAL	20.38%	6.42%	26.80%	9,854	20.10%	6.44%	26.54%	9,630
Total Contributions	30.25%	8.13%	38.38%	$14,112	29.88%	8.14%	38.02%	$13,794
Other General Tier 2 (Non-LAFCO)								
Normal Cost	7.44%	1.62%	9.06%	$1,244	7.45%	1.62%	9.07%	$984
UAAL	20.38%	6.42%	26.80%	3,677	20.10%	6.44%	26.54%	2,882
Total Contributions	27.82%	8.04%	35.86%	$4,921	27.55%	8.06%	35.61%	$3,866
Other General Tier 1 (LAFCO)								
Normal Cost	9.87%	1.71%	11.58%	$50	9.78%	1.70%	11.48%	$38
UAAL[4]	18.36%	5.82%	24.18%	105	20.10%	6.44%	26.54%	87
Total Contributions	28.23%	7.53%	35.76%	$155	29.88%	8.14%	38.02%	$125
Other General Tier 2 (LAFCO)								
Normal Cost	7.44%	1.62%	9.06%	$6	7.45%	1.62%	9.07%	$6
UAAL[4]	18.36%	5.82%	24.18%	16	20.10%	6.44%	26.54%	16
Total Contributions	25.80%	7.44%	33.24%	$22	27.55%	8.06%	35.61%	$22
All Employers Combined								
Normal Cost	10.34%	1.99%	12.33%	$190,115	10.47%	2.00%	12.47%	$184,266
UAAL	11.15%	8.12%	19.27%	297,267	10.67%	7.95%	18.62%	275,030
Total Contributions	21.49%	10.11%	31.60%	$487,382	21.14%	9.95%	31.09%	$459,296

Note: Applicable footnotes are shown on page 35.

Recommended Employer Contribution Rates (continued)

(1) The June 30, 2019 Basic Normal Cost and UAAL rates shown for each cost group include an explicit administrative expense of 0.18% and 0.34% of payroll, respectively.

(2) The June 30, 2018 Basic Normal Cost and UAAL rates shown for each cost group include an explicit administrative expense of 0.19% and 0.32% of payroll, respectively.

(3) The projected compensation that is used to estimate the annual dollar amount shown on the prior pages as of June 30, 2019 and June 30, 2018 are as follows:

	June 30, 2019 Projected Compensation ($ in '000s)	June 30, 2018 Projected Compensation ($ in '000s)
County General Tier 1	$665,262	$685,311
County General Tier 2	404,030	332,509
Safety Tier 1	179,882	182,555
Safety Tier 2	84,165	76,974
Superior Court Tier 1	51,063	53,744
Superior Court Tier 2	26,642	21,168
SCAQMD Tier 1	57,333	61,111
SCAQMD Tier 2	23,122	16,231
Other General Tier 1 (Non-LAFCO)	36,765	36,283
Other General Tier 2 (Non-LAFCO)	13,731	10,857
Other General Tier 1 (LAFCO)	435	327
Other General Tier 2 (LAFCO)	66	62
Total	$1,542,496	$1,477,132

(4) LAFCO made an additional contribution towards their UAAL during 2018-2019.

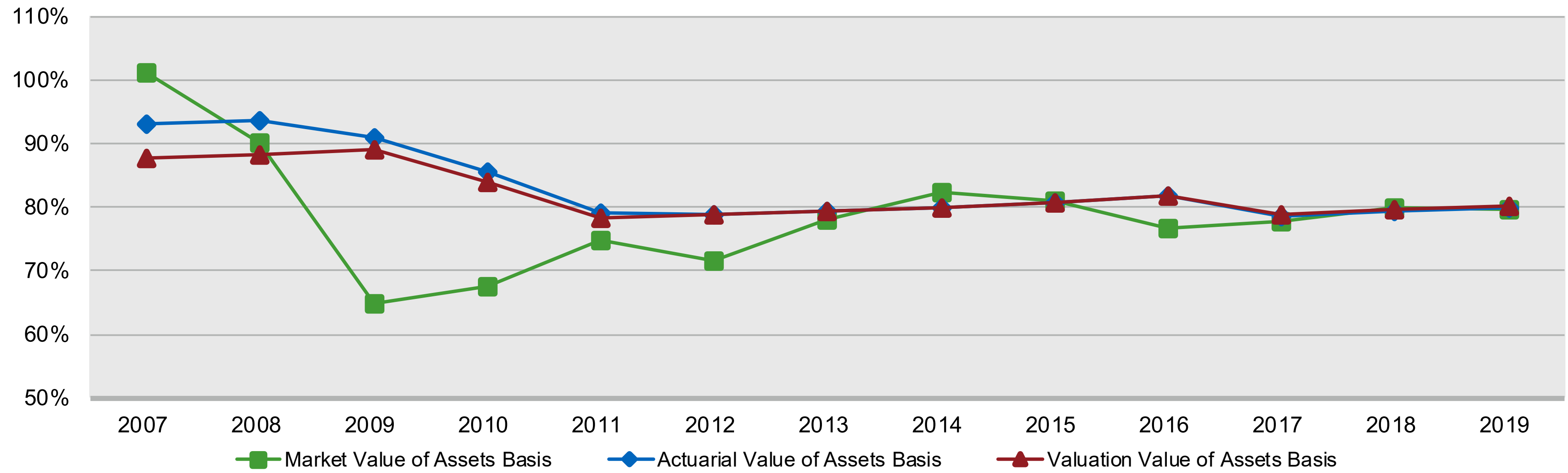
G. Funded Status

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. These ratios compare the Market, Actuarial 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 causes.

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, Actuarial or Valuation Value of Assets is used.

FUNDED RATIO FOR PLAN YEARS ENDING JUNE 30, 2007 – 2019



SCHEDULE OF FUNDING PROGRESS
FOR PLAN YEARS ENDING JUNE 30, 2010 - 2019

Actuarial Valuation Date as of June 30	Actuarial Value of Assets[(1),(2)] (a)	Actuarial Accrued Liability (AAL)[(3)] (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (%) (a) / (b)	Projected Covered Payroll (c)	UAAL as a Percentage of Projected Covered Payroll (%) [(b) - (a)] / (c)
2010[(4)]	$6,367,232,362	$7,444,986,223	$1,077,753,861	85.52%	$1,250,192,961	86.21%
2011	6,484,506,557	8,189,645,890	1,705,139,333	79.18%	1,244,554,740	137.01%
2012	6,789,492,338	8,606,576,657	1,817,084,319	78.89%	1,260,309,037	144.18%
2013	7,204,918,478	9,088,635,907	1,883,717,429	79.27%	1,262,751,964	149.18%
2014	7,751,308,595	9,694,825,407	1,943,516,812	79.95%	1,267,666,810	153.31%
2015	8,255,352,815	10,214,472,907	1,959,120,092	80.82%	1,309,095,254	149.65%
2016	8,736,959,429	10,669,687,907	1,932,728,478	81.89%	1,346,408,201	143.55%
2017	9,385,976,561	11,928,309,718	2,542,333,157	78.69%	1,406,470,110	180.76%
2018	10,020,862,873	12,604,942,218	2,584,079,345	79.50%	1,477,131,264	174.94%
2019	10,642,400,992	13,304,683,218	2,662,282,226	79.99%	1,542,495,237	172.60%

(1) Includes assets for Survivor Benefit, Burial Allowance, General Retiree Subsidy, and Excess Earnings reserves.

(2) Excludes present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers, if any.

(3) Includes liabilities held for Survivor Benefit, Burial Allowance, General Retiree Subsidy, and Excess Earnings reserves.

(4) Does not reflect the subsequent transfer of $40.6 million from the General Retiree Subsidy reserve to the Current Service reserve.

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	
	June 30, 2019 ($ in '000s)	**June 30, 2018 ($ in '000s)**
Actuarial Present Value of Future Benefits		
• Present value of benefits for retired members and beneficiaries	$7,190,038	$6,732,330
• Present value of benefits for inactive vested members[1]	506,241	457,774
• Present value of benefits for active members	8,548,546	8,288,660
Total Actuarial Present Value of Future Benefits	**$16,244,825**	**$15,478,764**
Current and future assets		
• Total Valuation Value of Assets[2]	$10,583,173	$9,966,736
• Present value of future contributions by members	1,393,026	1,353,104
• Present value of future employer contributions for:		
» Entry age Normal Cost	1,576,666	1,549,770
» Unfunded Actuarial Accrued Liability	2,691,960	2,609,154
Total of current and future assets	**$16,244,825**	**$15,478,764**

Note: Excludes assets and liabilities for Survivor Benefit, Burial Allowance and Excess Earnings reserves.

[1] Includes inactive members with member contributions on deposit.

[2] Includes $15.7 million and $16.6 million for June 30, 2019 and June 30, 2018 valuations, respectively, that represents the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

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 6.9. This means that a 1% asset gain or loss (relative to the assumed investment return) translates to about 6.9% of one year's payroll. Since actuarial gains and losses are amortized over 20 years, there would be a 0.5% 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 8.6, but is 7.7 for General compared to 12.9 for Safety. This means, for example, 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.

VOLATILITY RATIOS FOR YEARS ENDED JUNE 30, 2010 – 2019

Year Ended June 30	Asset Volatility Ratio			Liability Volatility Ratio		
	General	Safety	Total	General	Safety	Total
2010	3.7	5.9	4.0	5.4	9.0	6.0
2011	4.5	7.1	4.9	6.0	9.9	6.6
2012	4.5	7.1	4.9	6.2	10.4	6.8
2013	5.2	8.1	5.6	6.5	11.0	7.2
2014	5.8	9.2	6.3	6.8	12.0	7.6
2015	5.8	9.0	6.3	6.9	12.3	7.8
2016	5.6	8.4	6.1	7.1	11.9	7.9
2017	6.1	9.2	6.6	7.6	12.8	8.5
2018	6.3	9.1	6.8	7.7	12.4	8.5
2019	6.3	9.5	6.9	7.7	12.9	8.6

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 section 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 it may be interested in discussing and could include tailored scenario testing, sensitivity testing, stress testing and stochastic modeling.

This section provides descriptions and basic assessments of the primary risks that are likely to have an ongoing influence on the Plan's financial condition, 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 changes 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, however investment experience can still have a sizable impact. As discussed in *Section 2, Subsection I, Volatility Ratios,* on page 39, a 1% asset gain or loss (relative to the assumed investment return) translates to about 6.9% of one-year's payroll. Since actuarial gains and losses are amortized over 20 years, there would be a 0.5% of payroll decrease/(increase) in the required contribution for each 1% asset gain or loss.

The single year market value rate of return over the last 10 years has ranged from a low of -0.97% to a high of 22.07%.

- 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.

- 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 employers have 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 Actuarial Value of Assets basis has decreased from 85.5% to 80.0%. This is primarily due to the recognition of investment losses from 2008 and 2009 and the adoption of more conservative investment and mortality assumptions. For a more detailed history see *Section 2, Subsection G, Funded Status* starting on page 37.
- The geometric average investment return on the Valuation Value of Assets over the last 10 years was 5.51%. This includes a high of a 7.51% return and a low of -0.45%. The average over the last 5 years was 6.56%. For more details see the Investment Return table in *Section 2, Subsection C* on page 25.
- The primary source of new UAAL was the strengthening of assumptions through multiple assumption changes. For example, the assumption changes in 2014 reduced the discount rate from 7.75% to 7.50% and updated mortality tables, adding $331 million in

unfunded liability. The assumption changes in 2017 reduced the discount rate from 7.50% to 7.25% and again updated mortality tables, adding $663 million in unfunded liability. For more details on the unfunded liability changes see *Section 3, Exhibit H, Table of Amortization Bases* starting on page 72.

- The plan's funding policy effectively deals with these unfunded liabilities over time. This can be seen most clearly in *Section 3, Exhibit I, Projection of UAAL Balances and Payments* provided on pages 79 and 80.

Maturity Measures

In the last 10 years the ratio of members in pay status to active participants has increased from 0.45 to 0.61. An increased ratio indicates that the plan has grown in maturity over time. This is to be expected, but is also informative for understanding plan sensitivity to particular risks. For more details see *Section 2, Subsection A, Member Data* on page 14.

As pension plans mature, the cash needed to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities. For the prior year, contributions received (net of administrative expenses) were $19 million more than benefits paid. Please note that 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. For more details on historical cash flows see the Comparison of Contributions with Benefits in *Section 2, Subsection B, Financial Information* on page 18.

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* starting on page 39.

EXHIBIT A – TABLE OF PLAN COVERAGE
TOTAL PLAN

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	21,823	21,465	1.7%
• Average age	44.0	44.0	0.0
• Average years of service	10.6	10.7	-0.1
• Total projected compensation	$1,542,495,237	$1,477,131,264	4.4%
• Average projected compensation	$70,682	$68,816	2.7%
• Account balances	$1,212,740,399	$1,151,639,659	5.3%
• Total active vested members	13,456	13,459	0.0%
Inactive vested members:[(1)]			
• Number	6,726	6,211	8.3%
• Average age	44.2	44.3	-0.1
Retired members:			
• Number in pay status	9,861	9,417	4.7%
• Average age	69.6	69.4	0.2
• Average monthly benefit	$3,957	$3,853	2.7%
Disabled members:			
• Number in pay status	1,620	1,593	1.7%
• Average age	64.8	64.5	0.3
• Average monthly benefit[(2)]	$3,835	$3,674	4.4%
Beneficiaries:			
• Number in pay status	1,763	1,706	3.3%
• Average age	72.0	72.3	-0.3
• Average monthly benefit[(3)]	$1,980	$1,917	3.3%

(1) Includes inactive members with member contributions on deposit.

(2) Excludes Supplemental Disability Benefit amounts.

(3) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
COUNTY GENERAL TIER 1

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	9,370	10,102	-7.2%
• Average age	49.7	49.0	0.7
• Average years of service	16.4	15.5	0.9
• Total projected compensation	$665,261,811	$685,311,272	-2.9%
• Average projected compensation	$70,999	$67,839	4.7%
• Account balances	$754,119,371	$742,223,789	1.6%
• Total active vested members	9,318	10,006	-6.9%
Inactive vested members:(1)			
• Number	3,752	3,724	0.8%
• Average age	48.2	47.8	0.4
Retired members:(2)			
• Number in pay status	7,570	7,254	4.4%
• Average age	70.6	70.4	0.2
• Average monthly benefit	$3,354	$3,268	2.6%
Disabled members:(2)			
• Number in pay status	763	766	-0.4%
• Average age	66.8	66.4	0.4
• Average monthly benefit(3)	$2,315	$2,230	3.8%
Beneficiaries:(2)			
• Number in pay status	1,261	1,233	2.3%
• Average age	73.6	74.1	-0.5
• Average monthly benefit(4)	$1,710	$1,666	2.6%

(1) Includes inactive members with member contributions on deposit.

(2) Includes all General pre-January 1, 1996 retirees and beneficiaries.

(3) Excludes Supplemental Disability Benefit amounts.

(4) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
COUNTY GENERAL TIER 2

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	7,488	6,455	16.0%
• Average age	38.3	37.9	0.4
• Average years of service	2.6	2.3	0.3
• Total projected compensation	$404,029,597	$332,508,863	21.5%
• Average projected compensation	$53,957	$51,512	4.7%
• Account balances	$79,064,743	$54,291,876	45.6%
• Total active vested members	934	250	273.6%
Inactive vested members:[1]			
• Number	1,968	1,565	25.8%
• Average age	37.6	37.1	0.5
Retired members:			
• Number in pay status	14	6	133.3%
• Average age	66.6	68.7	-2.1
• Average monthly benefit	$763	$1,030	-25.9%
Disabled members:			
• Number in pay status	6	3	100.0%
• Average age	53.1	43.5	9.6
• Average monthly benefit[2]	$2,060	$1,776	16.0%
Beneficiaries:			
• Number in pay status	4	4	0.0%
• Average age	31.8	30.8	1.0
• Average monthly benefit[3]	$1,542	$1,512	2.0%

(1) Includes inactive members with member contributions on deposit.

(2) Excludes Supplemental Disability Benefit amounts.

(3) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
SAFETY TIER 1

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	1,575	1,672	-5.8%
• Average age	43.9	43.4	0.5
• Average years of service	17.0	16.4	0.6
• Total projected compensation	$179,882,085	$182,554,541	-1.5%
• Average projected compensation	$114,211	$109,183	4.6%
• Account balances	$200,089,336	$195,509,948	2.3%
• Total active vested members	1,568	1,661	-5.6%
Inactive vested members:[1]			
• Number	230	226	1.8%
• Average age	41.9	41.3	0.6
Retired members:			
• Number in pay status	1,039	1,000	3.9%
• Average age	64.4	64.0	0.4
• Average monthly benefit	$7,152	$6,968	2.6%
Disabled members:			
• Number in pay status	790	767	3.0%
• Average age	63.3	63.0	0.3
• Average monthly benefit	$5,373	$5,179	3.7%
Beneficiaries:			
• Number in pay status	369	354	4.2%
• Average age	67.3	67.1	0.2
• Average monthly benefit	$2,891	$2,755	4.9%

(1) Includes inactive members with member contributions on deposit.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
SAFETY TIER 2

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	1,058	995	6.3%
• Average age	31.4	30.7	0.7
• Average years of service	3.0	2.3	0.7
• Total projected compensation	$84,165,290	$76,974,001	9.3%
• Average projected compensation	$79,551	$77,361	2.8%
• Account balances	$30,599,463	$19,706,377	55.3%
• Total active vested members	147	28	425.0%
Inactive vested members:(1)			
• Number	182	134	35.8%
• Average age	30.6	30.4	0.2
Retired members:			
• Number in pay status	3	0	N/A
• Average age	56.4	N/A	N/A
• Average monthly benefit	$998	N/A	N/A
Disabled members:			
• Number in pay status	3	2	50.0%
• Average age	52.8	49.5	3.3
• Average monthly benefit	$4,301	$4,185	2.8%
Beneficiaries:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit	N/A	N/A	N/A

(1) Includes inactive members with member contributions on deposit.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
SUPERIOR COURT TIER 1

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	615	668	-7.9%
• Average age	49.5	49.0	0.5
• Average years of service	17.1	16.3	0.8
• Total projected compensation	$51,062,725	$53,743,725	-5.0%
• Average projected compensation	$83,029	$80,455	3.2%
• Account balances	$60,202,126	$58,900,564	2.2%
• Total active vested members	614	667	-7.9%
Inactive vested members:[1]			
• Number	171	162	5.6%
• Average age	48.0	47.2	0.8
Retired members:[2]			
• Number in pay status	339	313	8.3%
• Average age	66.6	66.1	0.5
• Average monthly benefit	$4,154	$4,079	1.8%
Disabled members:[2]			
• Number in pay status	24	23	4.3%
• Average age	58.6	57.7	0.9
• Average monthly benefit[3]	$2,529	$2,518	0.4%
Beneficiaries:[2]			
• Number in pay status	19	15	26.7%
• Average age	63.6	61.5	2.1
• Average monthly benefit[4]	$1,744	$1,547	12.7%

(1) Includes inactive members with member contributions on deposit.

(2) Excludes pre-January 1, 1996 retirees and beneficiaries.

(3) Excludes Supplemental Disability Benefit amounts.

(4) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
SUPERIOR COURT TIER 2

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	445	363	22.6%
• Average age	36.3	36.0	0.3
• Average years of service	2.7	2.2	0.5
• Total projected compensation	$26,642,103	$21,168,157	25.9%
• Average projected compensation	$59,870	$58,314	2.7%
• Account balances	$5,400,782	$3,380,900	59.7%
• Total active vested members	53	7	657.1%
Inactive vested members:[(1)]			
• Number	53	46	15.2%
• Average age	37.4	35.6	1.8
Retired members:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit	N/A	N/A	N/A
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[(3)]	N/A	N/A	N/A

(1) Includes inactive members with member contributions on deposit.

(2) Excludes Supplemental Disability Benefit amounts.

(3) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
SCAQMD TIER 1

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	463	505	-8.3%
• Average age	52.1	52.0	0.1
• Average years of service	20.5	20.3	0.2
• Total projected compensation	$57,332,850	$61,111,176	-6.2%
• Average projected compensation	$123,829	$121,012	2.3%
• Account balances	$48,366,057	$47,493,310	1.8%
• Total active vested members	462	504	-8.3%
Inactive vested members:(1)			
• Number	95	99	-4.0%
• Average age	49.9	49.5	0.4
Retired members:(2)			
• Number in pay status	554	512	8.2%
• Average age	69.3	69.0	0.3
• Average monthly benefit	$6,329	$6,083	4.0%
Disabled members:(2)			
• Number in pay status	16	16	0.0%
• Average age	67.5	66.5	1
• Average monthly benefit(3)	$4,030	$3,951	2.0%
Beneficiaries:(2)			
• Number in pay status	81	74	9.5%
• Average age	73.4	72.3	1.1
• Average monthly benefit(4)	$2,286	$2,301	-0.7%

(1) Includes inactive members with member contributions on deposit.

(2) Excludes pre-January 1, 1996 retirees and beneficiaries.

(3) Excludes Supplemental Disability Benefit amounts.

(4) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
SCAQMD TIER 2

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	296	218	35.8%
• Average age	35.5	35.1	0.4
• Average years of service	2.3	1.9	0.4
• Total projected compensation	$23,121,858	$16,230,933	42.5%
• Average projected compensation	$78,114	$74,454	4.9%
• Account balances	$3,639,896	$2,038,328	78.6%
• Total active vested members	19	3	533.3%
Inactive vested members:[(1)]			
• Number	22	15	46.7%
• Average age	36.9	37.4	-0.5
Retired members:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit	N/A	N/A	N/A
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[(3)]	N/A	N/A	N/A

(1) Includes inactive members with member contributions on deposit.

(2) Excludes Supplemental Disability Benefit amounts.

(3) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
OTHER GENERAL TIER 1

Category	Year Ended June 30 2019[1]	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	319	330	-3.3%
• Average age	49.3	48.5	0.8
• Average years of service	16.1	15.2	0.9
• Total projected compensation	$37,199,569	$36,610,078	1.6%
• Average projected compensation	$116,613	$110,940	5.1%
• Account balances	$28,882,460	$26,472,354	9.1%
• Total active vested members	318	327	-2.8%
Inactive vested members:[2]			
• Number	188	187	0.5%
• Average age	48.2	47.8	0.4
Retired members:[3]			
• Number in pay status	314	311	1.0%
• Average age	68.3	67.7	0.6
• Average monthly benefit	$3,816	$3,781	0.9%
Disabled members:[3]			
• Number in pay status	18	16	12.5%
• Average age	61.3	60.5	0.8
• Average monthly benefit[4]	$2,878	$2,347	22.6%
Beneficiaries:[3]			
• Number in pay status	28	25	12.0%
• Average age	70.1	68.1	2.0
• Average monthly benefit[5]	$1,472	$1,547	-4.8%

(1) Starting in 2019, the Inland Library System's members have been transferred to the Withdrawn Other General Employers cost group.

(2) Includes inactive members with member contributions on deposit.

(3) Excludes pre-January 1, 1996 retirees and beneficiaries.

(4) Excludes Supplemental Disability Benefit amounts.

(5) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
OTHER GENERAL TIER 2

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	194	157	23.6%
• Average age	38.6	38.2	0.4
• Average years of service	2.8	2.2	0.6
• Total projected compensation	$13,797,350	$10,918,518	26.4%
• Average projected compensation	$71,120	$69,545	2.3%
• Account balances	$2,376,165	$1,622,213	46.5%
• Total active vested members	23	6	283.3%
Inactive vested members:(1)			
• Number	50	38	31.6%
• Average age	38.9	41.2	-2.3
Retired members:			
• Number in pay status	1	0	N/A
• Average age	57.6	N/A	N/A
• Average monthly benefit	$904	N/A	N/A
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(3)	N/A	N/A	N/A

(1) Includes inactive members with member contributions on deposit.

(2) Excludes Supplemental Disability Benefit amounts.

(3) Excludes Survivor Benefit amounts.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
WITHDRAWN OTHER GENERAL EMPLOYERS

Category	Year Ended June 30		Change From Prior Year
	2019[1]	2018	
Active members in valuation:			
• Number	0	0	N/A
• Average age	N/A	N/A	N/A
• Average years of service	N/A	N/A	N/A
• Total projected compensation	N/A	N/A	N/A
• Average projected compensation	N/A	N/A	N/A
• Account balances	N/A	N/A	N/A
• Total active vested members	0	0	N/A
Inactive vested members:[2]			
• Number	15	15	0.0%
• Average age	50.6	49.6	1.0
Retired members:			
• Number in pay status	27	21	28.6%
• Average age	68.4	67.8	0.6
• Average monthly benefit	$2,581	$1,917	34.6%
Disabled members:			
• Number in pay status	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit[3]	N/A	N/A	N/A
Beneficiaries:			
• Number in pay status	1	1	0.0%
• Average age	63.6	62.6	1.0
• Average monthly benefit[4]	$1,804	$1,768	2.0%

(1) Starting in 2019, the Inland Library System's members have been transferred to the Withdrawn Other General Employers cost group.

(2) Includes inactive members with member contributions on deposit.

(3) Excludes Supplemental Disability Benefit amounts.

(4) Excludes Survivor Benefit amounts.

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
TOTAL PLAN

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	541	541	- -	- -	- -	- -	- -	- -	- -	- -
	$53,884	$53,884	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	2,299	2,126	173	- -	- -	- -	- -	- -	- -	- -
	$57,237	$56,604	$65,017	- -	- -	- -	- -	- -	- -	- -
30 - 34	2,798	1,861	680	254	3	- -	- -	- -	- -	- -
	$60,299	$56,937	$63,727	$75,381	$92,059	- -	- -	- -	- -	- -
35 - 39	3,079	1,298	682	925	173	1	- -	- -	- -	- -
	$67,155	$58,499	$62,701	$79,962	$80,962	$104,977	- -	- -	- -	- -
40 - 44	3,062	935	492	842	615	176	2	- -	- -	- -
	$73,085	$60,344	$65,509	$79,804	$84,455	$90,054	$75,679	- -	- -	- -
45 - 49	3,061	704	423	681	587	513	142	11	- -	- -
	$77,314	$62,069	$59,231	$80,195	$86,004	$93,329	$98,678	$83,529	- -	- -
50 - 54	2,618	555	317	452	480	400	301	109	3	1
	$78,306	$67,358	$63,485	$76,990	$80,417	$88,747	$91,583	$97,672	$113,653	$45,791
55 - 59	2,371	406	230	375	411	306	317	258	66	2
	$79,043	$63,392	$65,316	$74,645	$77,571	$80,822	$89,631	$107,230	$87,554	$94,591
60 - 64	1,463	178	166	246	288	226	207	121	24	7
	$78,454	$65,179	$68,225	$78,035	$75,506	$84,159	$83,607	$97,782	$92,312	$76,438
65 - 69	424	55	65	89	83	60	47	19	6	- -
	$72,633	$77,546	$57,590	$75,167	$71,278	$75,777	$78,175	$61,227	$132,988	- -
70 & over	107	11	8	26	29	21	9	2	1	- -
	$73,195	$92,134	$64,591	$69,062	$72,850	$75,019	$69,501	$69,909	$52,639	- -
Total	**21,823**	**8,670**	**3,236**	**3,890**	**2,669**	**1,703**	**1,025**	**520**	**100**	**10**
	$70,682	**$58,997**	**$63,462**	**$78,507**	**$81,290**	**$87,613**	**$89,512**	**$100,702**	**$91,856**	**$77,004**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
COUNTY GENERAL TIER 1

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	37	5	32	- -	- -	- -	- -	- -	- -	- -
	$46,951	$51,014	$46,316	- -	- -	- -	- -	- -	- -	- -
30 - 34	478	20	311	146	1	- -	- -	- -	- -	- -
	$58,279	$59,804	$58,509	$57,562	$60,715	- -	- -	- -	- -	- -
35 - 39	1,154	29	393	619	113	- -	- -	- -	- -	- -
	$64,566	$69,957	$57,368	$68,596	$66,145	- -	- -	- -	- -	- -
40 - 44	1,477	32	289	605	438	112	1	- -	- -	- -
	$70,277	$76,499	$62,097	$71,149	$73,309	$73,200	$51,483	- -	- -	- -
45 - 49	1,702	24	266	507	442	361	97	5	- -	- -
	$72,971	$68,823	$55,720	$71,497	$77,358	$79,462	$84,614	$77,948	- -	- -
50 - 54	1,560	23	183	357	390	313	220	71	2	1
	$73,882	$101,495	$58,086	$70,249	$74,236	$81,421	$77,640	$76,478	$109,917	$45,791
55 - 59	1,522	13	138	316	349	254	240	159	51	2
	$75,297	$57,067	$61,971	$70,404	$72,916	$75,598	$81,361	$93,098	$76,336	$94,591
60 - 64	1,041	6	106	205	262	196	163	78	20	5
	$73,540	$57,568	$65,430	$73,835	$71,958	$76,549	$74,595	$78,714	$81,403	$70,850
65 - 69	314	3	41	80	77	51	42	17	3	- -
	$67,157	$161,367	$50,719	$66,088	$69,388	$70,309	$72,833	$57,438	$90,845	- -
70 & over	85	- -	7	21	26	20	9	1	1	- -
	$66,601	- -	$61,237	$68,454	$63,860	$70,424	$69,501	$47,878	$52,639	- -
Total	**9,370**	**155**	**1,766**	**2,856**	**2,098**	**1,307**	**772**	**331**	**77**	**8**
	$70,999	**$74,099**	**$58,673**	**$69,799**	**$73,447**	**$77,711**	**$78,640**	**$83,946**	**$78,782**	**$73,653**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
COUNTY GENERAL TIER 2

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	337	337	- -	- -	- -	- -	- -	- -	- -	- -
	$44,463	$44,463	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,526	1,474	52	- -	- -	- -	- -	- -	- -	- -
	$50,693	$50,647	$51,996	- -	- -	- -	- -	- -	- -	- -
30 - 34	1,621	1,413	208	- -	- -	- -	- -	- -	- -	- -
	$53,230	$52,807	$56,104	- -	- -	- -	- -	- -	- -	- -
35 - 39	1,210	1,045	164	1	- -	- -	- -	- -	- -	- -
	$54,042	$53,490	$57,416	$77,889	- -	- -	- -	- -	- -	- -
40 - 44	890	763	127	- -	- -	- -	- -	- -	- -	- -
	$56,307	$56,120	$57,432	- -	- -	- -	- -	- -	- -	- -
45 - 49	705	586	116	3	- -	- -	- -	- -	- -	- -
	$56,291	$56,623	$53,880	$84,701	- -	- -	- -	- -	- -	- -
50 - 54	527	433	92	2	- -	- -	- -	- -	- -	- -
	$57,158	$57,466	$55,253	$78,126	- -	- -	- -	- -	- -	- -
55 - 59	405	339	65	1	- -	- -	- -	- -	- -	- -
	$57,432	$57,318	$58,270	$41,845	- -	- -	- -	- -	- -	- -
60 - 64	194	151	43	- -	- -	- -	- -	- -	- -	- -
	$61,083	$62,590	$55,789	- -	- -	- -	- -	- -	- -	- -
65 - 69	65	46	19	- -	- -	- -	- -	- -	- -	- -
	$66,075	$65,666	$67,066	- -	- -	- -	- -	- -	- -	- -
70 & over	8	7	1	- -	- -	- -	- -	- -	- -	- -
	$85,603	$85,250	$88,069	- -	- -	- -	- -	- -	- -	- -
Total	**7,488**	**6,594**	**887**	**7**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**
	$53,957	**$53,614**	**$56,331**	**$75,727**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
SAFETY TIER 1

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	32	4	28	- -	- -	- -	- -	- -	- -	- -
	$86,126	$76,588	$87,488	- -	- -	- -	- -	- -	- -	- -
30 - 34	162	11	68	82	1	- -	- -	- -	- -	- -
	$96,380	$83,585	$87,581	$105,122	$118,746	- -	- -	- -	- -	- -
35 - 39	327	21	54	206	45	1	- -	- -	- -	- -
	$105,966	$100,367	$88,274	$108,434	$118,536	$104,977	- -	- -	- -	- -
40 - 44	367	22	15	152	127	50	1	- -	- -	- -
	$111,761	$106,270	$96,217	$106,034	$117,119	$122,883	$99,875	- -	- -	- -
45 - 49	352	9	4	83	87	132	36	1	- -	- -
	$122,129	$112,897	$105,158	$109,209	$117,578	$129,760	$138,405	$148,021	- -	- -
50 - 54	190	6	3	29	37	52	49	14	- -	- -
	$128,055	$111,425	$88,781	$113,543	$116,980	$124,519	$134,892	$192,128	- -	- -
55 - 59	113	1	4	15	16	24	27	25	1	- -
	$127,699	$117,168	$82,450	$117,325	$114,841	$117,309	$130,707	$154,576	$176,769	- -
60 - 64	28	- -	- -	6	2	5	9	6	- -	- -
	$128,615	- -	- -	$117,974	$124,965	$124,845	$120,049	$156,465	- -	- -
65 - 69	3	- -	- -	1	- -	1	1	- -	- -	- -
	$123,071	- -	- -	$124,160	- -	$102,017	$143,035	- -	- -	- -
70 & over	1	- -	- -	- -	1	- -	- -	- -	- -	- -
	$124,974	- -	- -	- -	$124,974	- -	- -	- -	- -	- -
Total	**1,575**	**74**	**176**	**574**	**316**	**265**	**123**	**46**	**1**	**- -**
	$114,211	**$100,989**	**$88,818**	**$108,055**	**$117,395**	**$126,016**	**$133,697**	**$166,109**	**$176,769**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
SAFETY TIER 2

	Years of Service									
Age	**Total**	**0 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40 & over**
Under 25	153	153	- -	- -	- -	- -	- -	- -	- -	- -
	$76,204	$76,204	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	460	406	54	- -	- -	- -	- -	- -	- -	- -
	$76,663	$76,538	$77,600	- -	- -	- -	- -	- -	- -	- -
30 - 34	248	202	46	- -	- -	- -	- -	- -	- -	- -
	$76,351	$75,850	$78,554	- -	- -	- -	- -	- -	- -	- -
35 - 39	81	64	17	- -	- -	- -	- -	- -	- -	- -
	$79,274	$79,134	$79,800	- -	- -	- -	- -	- -	- -	- -
40 - 44	30	25	5	- -	- -	- -	- -	- -	- -	- -
	$79,908	$80,087	$79,016	- -	- -	- -	- -	- -	- -	- -
45 - 49	18	15	3	- -	- -	- -	- -	- -	- -	- -
	$98,632	$101,897	$82,307	- -	- -	- -	- -	- -	- -	- -
50 - 54	35	32	3	- -	- -	- -	- -	- -	- -	- -
	$113,309	$114,496	$100,647	- -	- -	- -	- -	- -	- -	- -
55 - 59	25	22	3	- -	- -	- -	- -	- -	- -	- -
	$114,079	$112,785	$123,564	- -	- -	- -	- -	- -	- -	- -
60 - 64	7	5	2	- -	- -	- -	- -	- -	- -	- -
	$109,860	$102,174	$129,076	- -	- -	- -	- -	- -	- -	- -
65 - 69	1	- -	1	- -	- -	- -	- -	- -	- -	- -
	$125,361	- -	$125,361	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**1,058**	**924**	**134**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**
	$79,551	**$79,336**	**$81,034**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
SUPERIOR COURT TIER 1

		Years of Service								
Age	**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	- -	- -	- -	- -	- -	- -	- -
	$71,219	- -	$71,219	- -	- -	- -	- -	- -	- -	- -
30 - 34	32	1	14	17	- -	- -	- -	- -	- -	- -
	$68,806	$22,273	$70,283	$70,326	- -	- -	- -	- -	- -	- -
35 - 39	79	- -	15	52	12	- -	- -	- -	- -	- -
	$73,412	- -	$64,198	$75,936	$73,992	- -	- -	- -	- -	- -
40 - 44	95	1	24	34	28	8	- -	- -	- -	- -
	$77,800	$58,542	$81,576	$76,202	$75,130	$85,013	- -	- -	- -	- -
45 - 49	103	3	10	42	29	10	5	4	- -	- -
	$83,988	$141,132	$68,423	$89,408	$77,252	$85,286	$79,639	$74,175	- -	- -
50 - 54	125	6	12	35	26	22	12	11	1	- -
	$85,975	$147,543	$82,131	$83,577	$83,391	$87,677	$73,633	$77,189	$121,125	- -
55 - 59	103	- -	6	20	21	18	19	15	4	- -
	$81,874	- -	$99,011	$74,156	$84,302	$86,957	$70,276	$90,659	$81,272	- -
60 - 64	55	- -	2	17	12	9	10	4	- -	1
	$94,883	- -	$93,829	$87,260	$92,416	$124,396	$76,577	$119,958	- -	$73,356
65 - 69	18	- -	2	4	2	7	2	- -	1	- -
	$117,803	- -	$89,247	$151,685	$98,973	$104,791	$77,079	- -	$249,576	- -
70 & over	4	- -	- -	2	1	1	- -	- -	- -	- -
	$107,375	- -	- -	$78,307	$105,969	$166,918	- -	- -	- -	- -
Total	**615**	**11**	**86**	**223**	**131**	**75**	**48**	**34**	**6**	**1**
	$83,029	**$126,316**	**$76,814**	**$81,369**	**$80,788**	**$93,961**	**$73,687**	**$87,809**	**$115,965**	**$73,356**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
SUPERIOR COURT TIER 2

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	31	31	- -	- -	- -	- -	- -	- -	- -	- -
	$37,780	$37,780	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	116	113	3	- -	- -	- -	- -	- -	- -	- -
	$49,784	$49,668	$54,135	- -	- -	- -	- -	- -	- -	- -
30 - 34	103	94	9	- -	- -	- -	- -	- -	- -	- -
	$50,867	$50,568	$53,985	- -	- -	- -	- -	- -	- -	- -
35 - 39	57	44	13	- -	- -	- -	- -	- -	- -	- -
	$69,067	$66,847	$76,580	- -	- -	- -	- -	- -	- -	- -
40 - 44	48	44	4	- -	- -	- -	- -	- -	- -	- -
	$64,665	$64,813	$63,039	- -	- -	- -	- -	- -	- -	- -
45 - 49	37	31	5	1	- -	- -	- -	- -	- -	- -
	$77,429	$81,544	$58,269	$45,660	- -	- -	- -	- -	- -	- -
50 - 54	26	19	7	- -	- -	- -	- -	- -	- -	- -
	$79,032	$81,554	$72,185	- -	- -	- -	- -	- -	- -	- -
55 - 59	16	14	2	- -	- -	- -	- -	- -	- -	- -
	$87,398	$87,313	$87,997	- -	- -	- -	- -	- -	- -	- -
60 - 64	6	5	1	- -	- -	- -	- -	- -	- -	- -
	$91,551	$90,764	$95,486	- -	- -	- -	- -	- -	- -	- -
65 - 69	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	$99,451	$99,451	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	3	3	- -	- -	- -	- -	- -	- -	- -	- -
	$116,574	$116,574	- -	- -	- -	- -	- -	- -	- -	- -
Total	**445**	**400**	**44**	**1**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**
	$59,870	**$59,081**	**$67,366**	**$45,660**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
SCAQMD TIER 1

	Years of Service									
Age	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	- -	- -	- -	- -	- -	- -	- -	- -
	$45,634	$45,634	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	15	1	9	5	- -	- -	- -	- -	- -	- -
	$111,656	$120,455	$115,354	$103,241	- -	- -	- -	- -	- -	- -
35 - 39	42	1	6	33	2	- -	- -	- -	- -	- -
	$115,950	$66,569	$132,946	$115,063	$104,275	- -	- -	- -	- -	- -
40 - 44	65	2	9	37	14	3	- -	- -	- -	- -
	$121,331	$94,966	$135,871	$110,979	$132,922	$168,871	- -	- -	- -	- -
45 - 49	53	1	4	24	15	7	2	- -	- -	- -
	$121,825	$67,137	$124,717	$123,203	$125,738	$123,968	$90,012	- -	- -	- -
50 - 54	72	1	4	14	19	9	12	13	- -	- -
	$124,361	$181,730	$124,914	$100,400	$119,190	$142,875	$136,593	$129,030	- -	- -
55 - 59	118	2	2	11	13	5	22	54	9	- -
	$127,786	$119,227	$78,303	$117,768	$109,851	$143,125	$132,701	$130,737	$140,599	- -
60 - 64	84	- -	4	11	10	5	20	29	4	1
	$129,307	- -	$106,956	$112,671	$132,853	$129,688	$137,339	$130,204	$146,857	$107,462
65 - 69	10	1	- -	1	2	1	2	1	2	- -
	$128,092	$182,752	- -	$101,385	$86,322	$125,283	$159,016	$105,001	$137,910	- -
70 & over	3	1	- -	1	- -	- -	- -	1	- -	- -
	$74,597	$67,000	- -	$64,850	- -	- -	- -	$91,939	- -	- -
Total	**463**	**11**	**38**	**137**	**75**	**30**	**58**	**98**	**15**	**1**
	$123,829	**$105,424**	**$122,149**	**$113,015**	**$121,991**	**$138,321**	**$134,541**	**$129,694**	**$141,909**	**$107,462**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
SCAQMD TIER 2

	Years of Service									
Age	**Total**	**0 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40 & over**
Under 25	13	13	- -	- -	- -	- -	- -	- -	- -	- -
	$72,340	$72,340	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	87	86	1	- -	- -	- -	- -	- -	- -	- -
	$71,840	$72,027	$55,803	- -	- -	- -	- -	- -	- -	- -
30 - 34	73	71	2	- -	- -	- -	- -	- -	- -	- -
	$77,705	$77,330	$91,005	- -	- -	- -	- -	- -	- -	- -
35 - 39	54	48	6	- -	- -	- -	- -	- -	- -	- -
	$84,835	$84,187	$90,024	- -	- -	- -	- -	- -	- -	- -
40 - 44	25	22	3	- -	- -	- -	- -	- -	- -	- -
	$85,368	$83,300	$100,528	- -	- -	- -	- -	- -	- -	- -
45 - 49	13	12	1	- -	- -	- -	- -	- -	- -	- -
	$99,936	$95,846	$149,016	- -	- -	- -	- -	- -	- -	- -
50 - 54	15	14	1	- -	- -	- -	- -	- -	- -	- -
	$69,322	$68,615	$79,227	- -	- -	- -	- -	- -	- -	- -
55 - 59	9	8	1	- -	- -	- -	- -	- -	- -	- -
	$78,400	$77,169	$88,242	- -	- -	- -	- -	- -	- -	- -
60 - 64	7	6	1	- -	- -	- -	- -	- -	- -	- -
	$71,282	$71,346	$70,900	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**296**	**280**	**16**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**
	$78,114	**$77,339**	**$91,683**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
OTHER GENERAL TIER 1

		Years of Service								
Age	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	- -	- -	- -	- -	- -	- -	- -	- -
	$79,353	$79,353	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	23	6	12	4	1	- -	- -	- -	- -	- -
	$96,157	$92,732	$95,638	$102,710	$96,716	- -	- -	- -	- -	- -
35 - 39	44	15	14	14	1	- -	- -	- -	- -	- -
	$101,443	$109,183	$98,628	$95,962	$101,494	- -	- -	- -	- -	- -
40 - 44	42	6	11	14	8	3	- -	- -	- -	- -
	$108,821	$139,034	$98,986	$95,389	$123,962	$106,759	- -	- -	- -	- -
45 - 49	57	4	12	21	14	3	2	1	- -	- -
	$121,104	$108,984	$130,946	$108,948	$138,327	$114,279	$121,987	$84,357	- -	- -
50 - 54	50	6	9	15	8	4	8	- -	- -	- -
	$135,540	$157,289	$147,525	$129,378	$110,933	$81,041	$169,155	- -	- -	- -
55 - 59	55	3	8	12	12	5	9	5	1	- -
	$112,683	$166,395	$112,916	$96,993	$116,519	$86,693	$122,516	$115,719	$118,206	- -
60 - 64	34	- -	5	7	2	11	5	4	- -	- -
	$129,833	- -	$180,605	$89,961	$102,603	$147,650	$110,950	$124,371	- -	- -
65 - 69	10	2	2	3	2	- -	- -	1	- -	- -
	$122,483	$142,015	$42,893	$190,176	$101,309	- -	- -	$81,865	- -	- -
70 & over	3	- -	- -	2	1	- -	- -	- -	- -	- -
	$119,323	- -	- -	$68,311	$221,347	- -	- -	- -	- -	- -
Total	**319**	**43**	**73**	**92**	**49**	**26**	**24**	**11**	**1**	**- -**
	$116,613	**$122,572**	**$115,185**	**$106,730**	**$123,293**	**$117,111**	**$135,608**	**$112,936**	**$118,206**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
OTHER GENERAL TIER 2

	Years of Service									
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	7	7	- -	- -	- -	- -	- -	- -	- -	- -
	$56,610	$56,610	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	38	36	2	- -	- -	- -	- -	- -	- -	- -
	$59,235	$58,845	$66,264	- -	- -	- -	- -	- -	- -	- -
30 - 34	43	42	1	- -	- -	- -	- -	- -	- -	- -
	$70,331	$70,531	$61,910	- -	- -	- -	- -	- -	- -	- -
35 - 39	31	31	- -	- -	- -	- -	- -	- -	- -	- -
	$69,279	$69,279	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	23	18	5	- -	- -	- -	- -	- -	- -	- -
	$59,838	$58,172	$65,836	- -	- -	- -	- -	- -	- -	- -
45 - 49	21	19	2	- -	- -	- -	- -	- -	- -	- -
	$87,367	$90,223	$60,230	- -	- -	- -	- -	- -	- -	- -
50 - 54	18	15	3	- -	- -	- -	- -	- -	- -	- -
	$97,728	$87,546	$148,637	- -	- -	- -	- -	- -	- -	- -
55 - 59	5	4	1	- -	- -	- -	- -	- -	- -	- -
	$90,656	$97,200	$64,484	- -	- -	- -	- -	- -	- -	- -
60 - 64	7	5	2	- -	- -	- -	- -	- -	- -	- -
	$65,759	$82,512	$23,876	- -	- -	- -	- -	- -	- -	- -
65 - 69	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$94,587	$94,587	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**194**	**178**	**16**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**
	$71,120	**$70,759**	**$75,139**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**

EXHIBIT C – RECONCILIATION OF MEMBER DATA

	Active Members	Inactive Vested Members[1]	Retired Members	Disableds[2]	Beneficiaries	Total
Number as of June 30, 2018	**21,465**	**6,211**	**9,417**	**1,593**	**1,706**	**40,392**
• New members	2,186	195	N/A	N/A	141	2,522
• Terminations	(917)	917	N/A	N/A	N/A	0
• Contribution refunds	(391)	(358)	N/A	N/A	N/A	(749)
• Retirements	(562)	(123)	685	N/A	N/A	0
• New disabilities	(28)	(5)	(38)	71	N/A	0
• Return to work	99	(97)	(2)	0	N/A	0
• Died with or without beneficiary	(29)	(14)	(201)	(44)	(80)	(368)
• Data adjustments	0	0	0	0	(4)	(4)
Number as of June 30, 2019	**21,823**	**6,726**	**9,861**	**1,620**	**1,763**	**41,793**

(1) Includes inactive members with member contributions on deposit.

(2) As of June 30, 2019 includes 339 members receiving a non-service connected disability and 1,281 members receiving a service connected disability.

EXHIBIT D – SUMMARY STATEMENT OF INCOME AND EXPENSES ON A MARKET VALUE BASIS

		Year Ended June 30, 2019		Year Ended June 30, 2018
Net assets at market value at the beginning of the year		**$10,066,990,216**		**$9,288,441,361**
Contribution income:				
• Employer contributions	$446,294,977		$378,667,309	
• Employee contributions	163,551,784		149,478,284	
• Less administrative expenses	(12,675,054)		(12,092,067)	
Net contribution income		$597,171,707		$516,053,526
Investment income:				
• Interest, dividends, asset appreciation and other income	$658,910,771		$958,146,607	
• Less investment expenses	(156,158,094)		(160,665,976)	
Net investment income		$502,752,677		$797,480,631
Total income available for benefits		**$1,099,924,384**		**$1,313,534,157**
Big Bear Fire Authority asset transfer from CalPERS		**$0**		**$4,311,546**
Less benefit payments:		**$(578,507,943)**		**$(539,296,847)**
Change in net assets at market value		**$521,416,441**		**$778,548,855**
Net assets at market value at the end of the year		**$10,588,406,657**		**$10,066,990,216**

Note: Results may be slightly off due to rounding.

EXHIBIT E – SUMMARY STATEMENT OF PLAN ASSETS

		Year Ended June 30, 2019		Year Ended June 30, 2018
Cash equivalents		$857,282,812		$953,512,388
Accounts receivable:				
• Securities sold	$58,021,009		$56,608,760	
• Accrued interest and dividends	5,804,234		5,367,424	
• Employee and employer contributions	37,434,941		35,138,955	
• Other	2,039,905		5,618,177	
Total accounts receivable		$103,300,089		$102,733,316
Investments:				
• Equities	$2,283,142,248		$2,140,527,457	
• Fixed income	712,724,521		564,147,916	
• Real estate	438,658,252		414,467,631	
• Other Domestic	4,114,472,355		3,992,659,187	
• Other Foreign	2,135,236,731		1,977,845,508	
• Other	4,907,328		5,811,410	
• Investments received on securities lending	113,709,669		77,824,566	
Total investments at market value		$9,802,851,105		$9,173,283,675
Total assets		$10,763,434,006		$10,229,529,379
Liabilities:				
• Securities lending	$(113,695,088)		$(77,806,687)	
• Payable for securities purchased	(46,696,559)		(71,917,685)	
• Securities options payable	(269,613)		0	
• Other liabilities	(14,366,090)		(12,814,791)	
Total liabilities		$(175,027,349)		$(162,539,163)
Net assets at market value		**$10,588,406,657**		**$10,066,990,216**
Net assets at actuarial value		**$10,642,400,992**		**$10,020,862,873**
Net assets at valuation value[1]		**$10,657,548,954**		**$10,036,803,242**

Note: Results may be slightly off due to rounding.

[1] The June 30, 2019 and June 30, 2018 values include $15.7 million and $16.6 million, respectively. These amounts represent the associated present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

EXHIBIT F – SUMMARY OF REPORTED RESERVE INFORMATION

	June 30, 2019	June 30, 2018
Used in Development of Valuation Value of Assets:		
• Member Deposit Reserve	$1,517,087,913	$1,418,874,534
• Current Service Reserve	2,762,602,990	2,558,812,522
• Contra Account	(3,303,286,468)	(2,938,179,590)
• Pension Reserve	4,883,597,029	4,603,736,020
• Cost-of-Living Reserve	2,277,978,690	2,080,398,418
• Annuity Reserve	2,422,029,428	2,218,705,004
• Supplemental Disability Reserve	7,438,828	7,819,292
• Survivor Benefit Reserve	74,376,364	70,067,455
Subtotal: Valuation Value of Assets[1]	$10,641,824,774	$10,020,233,655
Not Used in Development of Valuation Value of Assets:		
• Burial Allowance Reserve	$576,218	$629,218
• Restricted Balance Reserved for Deficiencies	0	0
• Additional Contingency Reserve	0	0
• Undesignated Excess Earnings	0	0
Subtotal	$576,218	$629,218
Subtotal: Actuarial Value of Assets	$10,642,400,992	$10,020,862,873
• Net Unrecognized Gains/(Losses)	(53,994,335)	46,127,343
Total: Market Value of Assets	**$10,588,406,657**	**$10,066,990,216**

Note: Results may be slightly off due to rounding.

(1) The June 30, 2019 and June 30, 2018 values exclude $15.7 million and $16.6 million, respectively. These amounts represent the associated present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

EXHIBIT G – DEVELOPMENT OF THE FUND THROUGH JUNE 30, 2019

Year Ended June 30	Employer Contributions	Member Contributions	Other[1]	Administrative and Other Expenses	Net Investment Return[2]	Benefit Payments	Actuarial Value of Assets at Year-End
2010	$243,772,596	$56,985,679	$0	$0	$(24,237,257)	$(292,676,769)	$6,367,232,362
2011	258,128,093	59,611,897	0	0	120,048,766	(320,514,561)	6,484,506,557
2012	278,090,808	68,630,635	0	0	299,992,593	(341,728,255)	6,789,492,338
2013	303,080,499	91,055,576	0	0	388,686,270	(367,396,205)	7,204,918,478
2014	330,330,400	89,860,998	0	0	524,022,197	(397,823,478)	7,751,308,595
2015	315,239,709	117,899,734	0	(8,917,907)	508,297,528	(428,474,844)	8,255,352,815
2016	340,511,616	139,132,004	0	(10,233,264)	476,264,294	(464,068,036)	8,736,959,429
2017	360,477,890	143,858,526	0	(13,163,171)	655,747,751	(497,903,864)	9,385,976,561
2018	378,667,309	149,478,284	4,311,546	(12,092,067)	653,818,087	(539,296,847)	10,020,862,873
2019	446,294,977	163,551,784	0	(12,675,054)	602,874,355	(578,507,943)	10,642,400,992

[1] Represents asset transfer from CalPERS related to the transfer of Big Bear Fire Authority employees.

[2] Net of investment fees and administrative expenses prior to 2015. Starting in 2015, administrative expenses are included in the previous column.

EXHIBIT H – TABLE OF AMORTIZATION BASES

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
County General						
June 30, 2002	Restart Amortization	$59,439	20	$23,137	3	$8,297
June 30, 2003	Actuarial Loss	246,112	20	120,323	4	32,929
June 30, 2004	Actuarial Loss	132,439	20	76,078	5	16,947
June 30, 2004	POB Credit	(306,658)	20	(176,145)	5	(39,238)
June 30, 2005	Actuarial Loss	58,743	20	38,280	6	7,229
June 30, 2005	Assumption Change	55,627	20	36,253	6	6,847
June 30, 2006	Actuarial Gain	(12,586)	20	(9,019)	7	(1,485)
June 30, 2007	Actuarial Gain	(32,324)	20	(24,971)	8	(3,660)
June 30, 2008	Actuarial Gain	(10,022)	20	(8,218)	9	(1,089)
June 30, 2008	Assumption Change	(9,277)	20	(7,609)	9	(1,008)
June 30, 2009	Actuarial Loss	116,693	20	100,304	10	12,163
June 30, 2010	Actuarial Loss	283,409	20	252,815	11	28,339
June 30, 2011	Actuarial Loss	169,715	20	155,846	12	16,282
June 30, 2011	Assumption Change	199,335	20	183,040	12	19,123
June 30, 2012	Actuarial Loss	70,313	20	66,161	13	6,486
June 30, 2012	Burial Allowance Method Change	2,392	20	2,249	13	220
June 30, 2013	Actuarial Loss	36,166	20	34,672	14	3,209
June 30, 2014	Actuarial Gain	(143,442)	20	(139,381)	15	(12,236)
June 30, 2014	Assumption Change	186,163	20	180,894	15	15,880
June 30, 2015	Actuarial Gain	(34,431)	20	(33,856)	16	(2,832)
June 30, 2016	Actuarial Gain	(19,728)	20	(19,550)	17	(1,564)
June 30, 2017	Actuarial Gain	(23,503)	20	(23,392)	18	(1,796)
June 30, 2017	Assumption Change	391,305	20	389,383	18	29,892
June 30, 2018	Actuarial Loss	36,468	20	36,433	19	2,692
June 30, 2019	Actuarial Loss	94,349	20	94,349	20	6,728
County General Subtotal				**$1,348,076**		**$148,355**

EXHIBIT H – TABLE OF AMORTIZATION BASES (CONTINUED)

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
Superior Court						
June 30, 2002	Restart Amortization	$3,493	20	$1,359	3	$487
June 30, 2003	Actuarial Loss	14,458	20	7,076	4	1,936
June 30, 2004	Actuarial Loss	6,840	20	3,935	5	877
June 30, 2005	Actuarial Loss	3,451	20	2,247	6	424
June 30, 2005	Assumption Change	3,269	20	2,126	6	402
June 30, 2006	Actuarial Loss	4,889	20	3,501	7	577
June 30, 2007	Actuarial Loss	4,076	20	3,143	8	461
June 30, 2008	Actuarial Loss	729	20	601	9	80
June 30, 2008	Assumption Change	(1,520)	20	(1,250)	9	(166)
June 30, 2009	Actuarial Loss	6,270	20	5,394	10	654
June 30, 2010	Actuarial Loss	10,935	20	9,769	11	1,095
June 30, 2011	Actuarial Loss	8,620	20	7,916	12	827
June 30, 2011	Assumption Change	10,323	20	9,471	12	989
June 30, 2012	Actuarial Loss	3	20	0	13	0
June 30, 2012	Burial Allowance Method Change	68	20	53	13	5
June 30, 2013	Actuarial Gain	(2,565)	20	(2,449)	14	(227)
June 30, 2014	Actuarial Gain	(5,786)	20	(5,624)	15	(494)
June 30, 2014	Assumption Change	10,501	20	10,198	15	895
June 30, 2015	Actuarial Gain	(307)	20	(309)	16	(26)
June 30, 2016	Actuarial Loss	11,583	20	11,463	17	917
June 30, 2017	Actuarial Gain	(1,529)	20	(1,524)	18	(117)
June 30, 2017	Assumption Change	37,250	20	37,063	18	2,845
June 30, 2018	Actuarial Loss	3,765	20	3,754	19	277
June 30, 2019	Actuarial Loss	2,285	20	2,285	20	163
Superior Court Subtotal				**$110,198**		**$12,881**

EXHIBIT H – TABLE OF AMORTIZATION BASES (CONTINUED)

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
Other General						
June 30, 2002	Restart Amortization	$13,036	20	$5,063	3	$1,816
June 30, 2003	Actuarial Loss	9,507	20	4,640	4	1,270
June 30, 2004	Actuarial Loss	5,542	20	3,178	5	708
June 30, 2005	Actuarial Loss	6,630	20	4,329	6	818
June 30, 2005	Assumption Change	(490)	20	(323)	6	(61)
June 30, 2006	Actuarial Loss	2,390	20	1,697	7	279
June 30, 2007	Actuarial Loss	1,995	20	1,540	8	226
June 30, 2008	Actuarial Loss	4,106	20	3,359	9	445
June 30, 2008	Assumption Change	(278)	20	(234)	9	(31)
June 30, 2009	Actuarial Loss	5,568	20	4,780	10	580
June 30, 2010	Actuarial Loss	11,345	20	10,129	11	1,135
June 30, 2011	Actuarial Loss	9,098	20	8,342	12	872
June 30, 2011	Assumption Change	8,263	20	7,589	12	793
June 30, 2012	Actuarial Loss	2,766	20	2,586	13	254
June 30, 2012	Burial Allowance Method Change	71	20	53	13	5
June 30, 2013	Actuarial Loss	4,155	20	3,993	14	370
June 30, 2014	Actuarial Gain	(6,086)	20	(5,907)	15	(519)
June 30, 2014	Assumption Change	7,714	20	7,498	15	658
June 30, 2015	Actuarial Loss	2,754	20	2,685	16	225
June 30, 2016	Actuarial Loss	6,644	20	6,586	17	527
June 30, 2017	Actuarial Loss	1,676	20	1,672	18	128
June 30, 2017	Assumption Change	22,659	20	22,556	18	1,732
June 30, 2018	Actuarial Loss	9,110	20	9,105	19	673
June 30, 2019	Actuarial Loss	8,108	20	8,108	20	578
Other General Subtotal				**$113,024**		**$13,481**

EXHIBIT H – TABLE OF AMORTIZATION BASES (CONTINUED)

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
SCAQMD						
June 30, 2002	Restart Amortization	$18,462	20	$7,187	3	$2,577
June 30, 2003	Actuarial Loss	27,792	20	13,592	4	3,720
June 30, 2004	Actuarial Loss	24,821	20	14,292	5	3,184
June 30, 2004	POB Credit	(46,375)	20	(26,697)	5	(5,947)
June 30, 2005	Actuarial Loss	11,432	20	7,464	6	1,410
June 30, 2005	Assumption Change	(3,613)	20	(2,368)	6	(447)
June 30, 2006	Actuarial Gain	(1,328)	20	(955)	7	(157)
December 31, 2006	UAAL Prepayment	(10,000)	20	(7,458)	7.5	(1,156)
June 30, 2007	Actuarial Loss	12,093	20	9,350	8	1,370
June 30, 2008	Actuarial Loss	16,095	20	13,194	9	1,748
June 30, 2008	Assumption Change	1,425	20	1,172	9	155
June 30, 2009	Actuarial Loss	8,947	20	7,682	10	932
June 30, 2010	Actuarial Loss	34,808	20	31,051	11	3,481
June 30, 2011	Actuarial Loss	26,766	20	24,569	12	2,567
June 30, 2011	Assumption Change	21,411	20	19,655	12	2,053
June 30, 2012	Actuarial Loss	6,060	20	5,711	13	560
June 30, 2012	Burial Allowance Method Change	131	20	95	13	9
June 30, 2013	Actuarial Loss	4,599	20	4,396	14	407
June 30, 2014	Actuarial Gain	(39,137)	20	(38,034)	15	(3,339)
June 30, 2014	Assumption Change	19,750	20	19,194	15	1,685
June 30, 2015	Actuarial Loss	29,235	20	28,745	16	2,404
June 30, 2016	Actuarial Loss	13,576	20	13,456	17	1,076
June 30, 2017	Actuarial Loss	11,818	20	11,757	18	903
June 30, 2017	Assumption Change	38,515	20	38,317	18	2,941
June 30, 2018	Actuarial Loss	20,453	20	20,423	19	1,509
June 30, 2019	Actuarial Loss	16,556	20	16,556	20	1,181
SCAQMD Subtotal				**$232,346**		**$24,826**

EXHIBIT H – TABLE OF AMORTIZATION BASES (CONTINUED)

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
Safety						
June 30, 2002	Restart Amortization	$(58,253)	20	$(22,672)	3	$(8,130)
June 30, 2003	Actuarial Loss	218,078	20	106,613	4	29,177
June 30, 2004	Actuarial Loss	79,928	20	46,007	5	10,248
June 30, 2004	POB Credit	(152,154)	20	(87,554)	5	(19,503)
June 30, 2004	Plan Change	1,245	20	711	5	158
June 30, 2005	Actuarial Loss	40,552	20	26,410	6	4,988
June 30, 2005	Assumption Change	(13,306)	20	(8,664)	6	(1,636)
June 30, 2006	Actuarial Gain	(10,294)	20	(7,366)	7	(1,213)
June 30, 2007	Actuarial Loss	7,498	20	5,812	8	852
June 30, 2007	Plan Change	586	20	445	8	65
June 30, 2008	Actuarial Loss	8,545	20	7,007	9	928
June 30, 2008	Assumption Change	(1,042)	20	(844)	9	(112)
June 30, 2009	Actuarial Loss	68,665	20	59,037	10	7,159
June 30, 2010	Actuarial Loss	113,805	20	101,547	11	11,383
June 30, 2011	Actuarial Loss	106,674	20	97,960	12	10,234
June 30, 2011	Assumption Change	72,902	20	66,951	12	6,995
June 30, 2012	Actuarial Loss	42,867	20	40,349	13	3,956
June 30, 2012	Burial Allowance Method Change	348	20	327	13	32
June 30, 2013	Actuarial Loss	37,091	20	35,589	14	3,293
June 30, 2014	Actuarial Gain	(38,209)	20	(37,138)	15	(3,260)
June 30, 2014	Assumption Change	107,305	20	104,259	15	9,153
June 30, 2015	Actuarial Loss	61,791	20	60,745	16	5,081
June 30, 2016	Actuarial Loss	12,071	20	11,955	17	956
June 30, 2017	Actuarial Loss	8,617	20	8,575	18	658
June 30, 2017	Assumption Change	172,986	20	172,142	18	13,215
June 30, 2018	Actuarial Loss	57,238	20	57,178	19	4,225
June 30, 2019	Actuarial Loss	50,950	20	50,950	20	3,633
Safety Subtotal				**$896,331**		**$92,535**

EXHIBIT H – TABLE OF AMORTIZATION BASES (CONTINUED)

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
Combined						
June 30, 2002	Restart Amortization	$36,177	20	$14,074	3	$5,047
June 30, 2003	Actuarial Loss	515,947	20	252,244	4	69,032
June 30, 2004	Actuarial Loss	249,570	20	143,490	5	31,964
June 30, 2004	POB Credit	(505,187)	20	(290,396)	5	(64,688)
June 30, 2004	Plan Change	1,245	20	711	5	158
June 30, 2005	Actuarial Loss	120,808	20	78,730	6	14,869
June 30, 2005	Assumption Change	41,487	20	27,024	6	5,105
June 30, 2006	Actuarial Gain	(16,929)	20	(12,142)	7	(1,999)
December 31, 2006	UAAL Prepayment	(10,000)	20	(7,458)	7.5	(1,156)
June 30, 2007	Actuarial Gain	(6,662)	20	(5,126)	8	(751)
June 30, 2007	Plan Change	586	20	445	8	65
June 30, 2008	Actuarial Loss	19,453	20	15,943	9	2,112
June 30, 2008	Assumption Change	(10,692)	20	(8,765)	9	(1,162)
June 30, 2009	Actuarial Loss	206,143	20	177,197	10	21,488
June 30, 2010	Actuarial Loss	454,302	20	405,311	11	45,433
June 30, 2011	Actuarial Loss	320,873	20	294,633	12	30,782
June 30, 2011	Assumption Change	312,234	20	286,706	12	29,953
June 30, 2012	Actuarial Loss	122,009	20	114,807	13	11,256
June 30, 2012	Burial Allowance Method Change	3,010	20	2,777	13	271
June 30, 2013	Actuarial Loss	79,446	20	76,201	14	7,052
June 30, 2014	Actuarial Gain	(232,660)	20	(226,084)	15	(19,848)
June 30, 2014	Assumption Change	331,433	20	322,043	15	28,271
June 30, 2015	Actuarial Loss	59,042	20	58,010	16	4,852
June 30, 2016	Actuarial Loss	24,146	20	23,910	17	1,912
June 30, 2017	Actuarial Gain	(2,921)	20	(2,912)	18	(224)
June 30, 2017	Assumption Change	662,715	20	659,461	18	50,625

EXHIBIT H – TABLE OF AMORTIZATION BASES (CONTINUED)

Date Established	Source	Initial Amount ($ in '000s)	Initial Period	Outstanding Balance ($ in '000s)	Years Remaining	Amortization Amount ($ in '000s)
Combined						
June 30, 2018	Actuarial Loss	$127,034	20	$126,893	19	$9,376
June 30, 2019	Actuarial Loss	172,248	20	172,248	20	12,283
Grand Total[1]				**$2,699,975**		**$292,078**

[1] Excludes four withdrawn employers as of June 2019. Using ongoing valuation assumptions, their UAAL as of June 30, 2019 was $(8,015,000). The present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers has been reflected in this Exhibit.

EXHIBIT I – PROJECTION OF UAAL BALANCES AND PAYMENTS

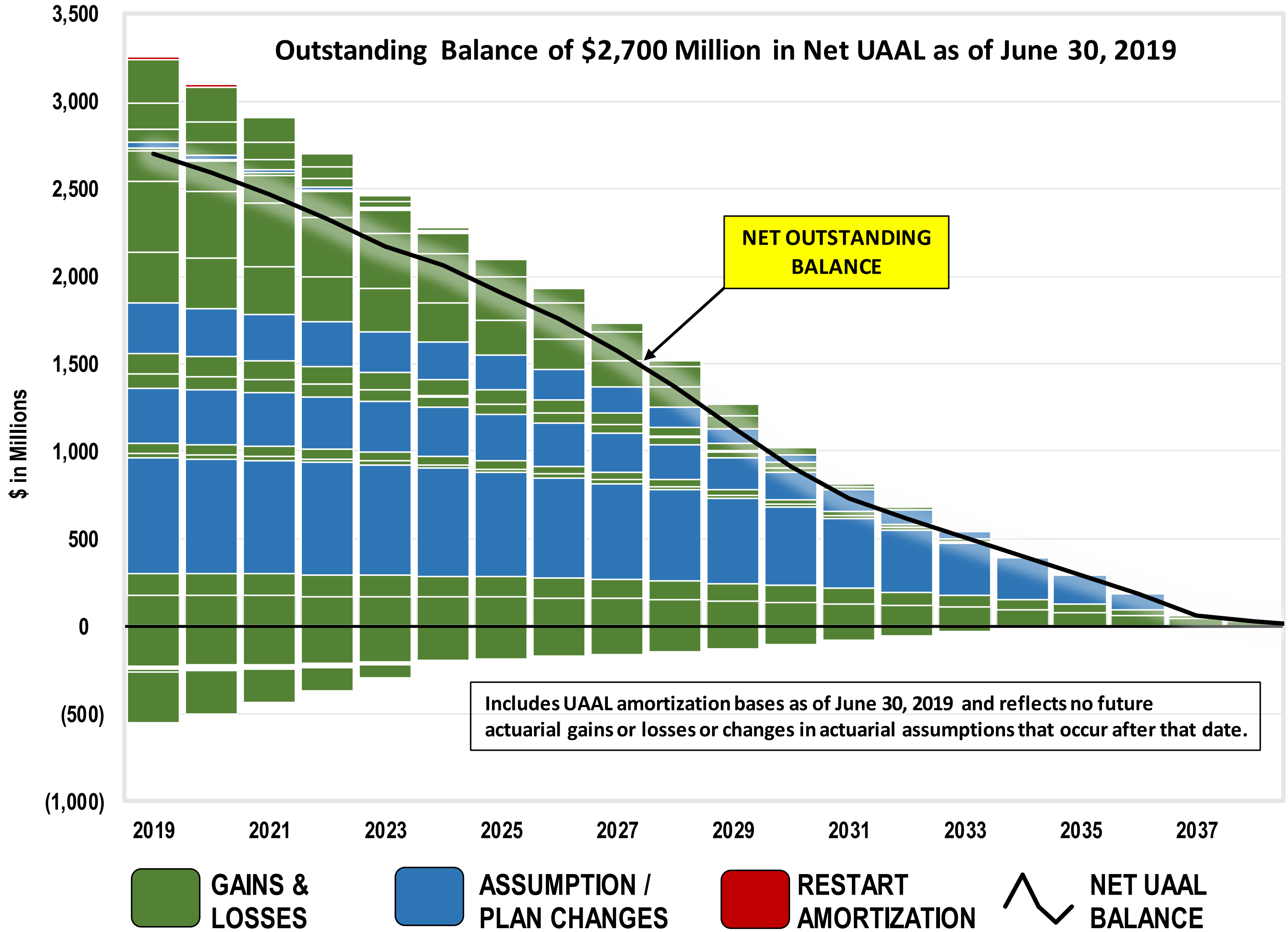


EXHIBIT I – PROJECTION OF UAAL BALANCES AND PAYMENTS (CONTINUED)

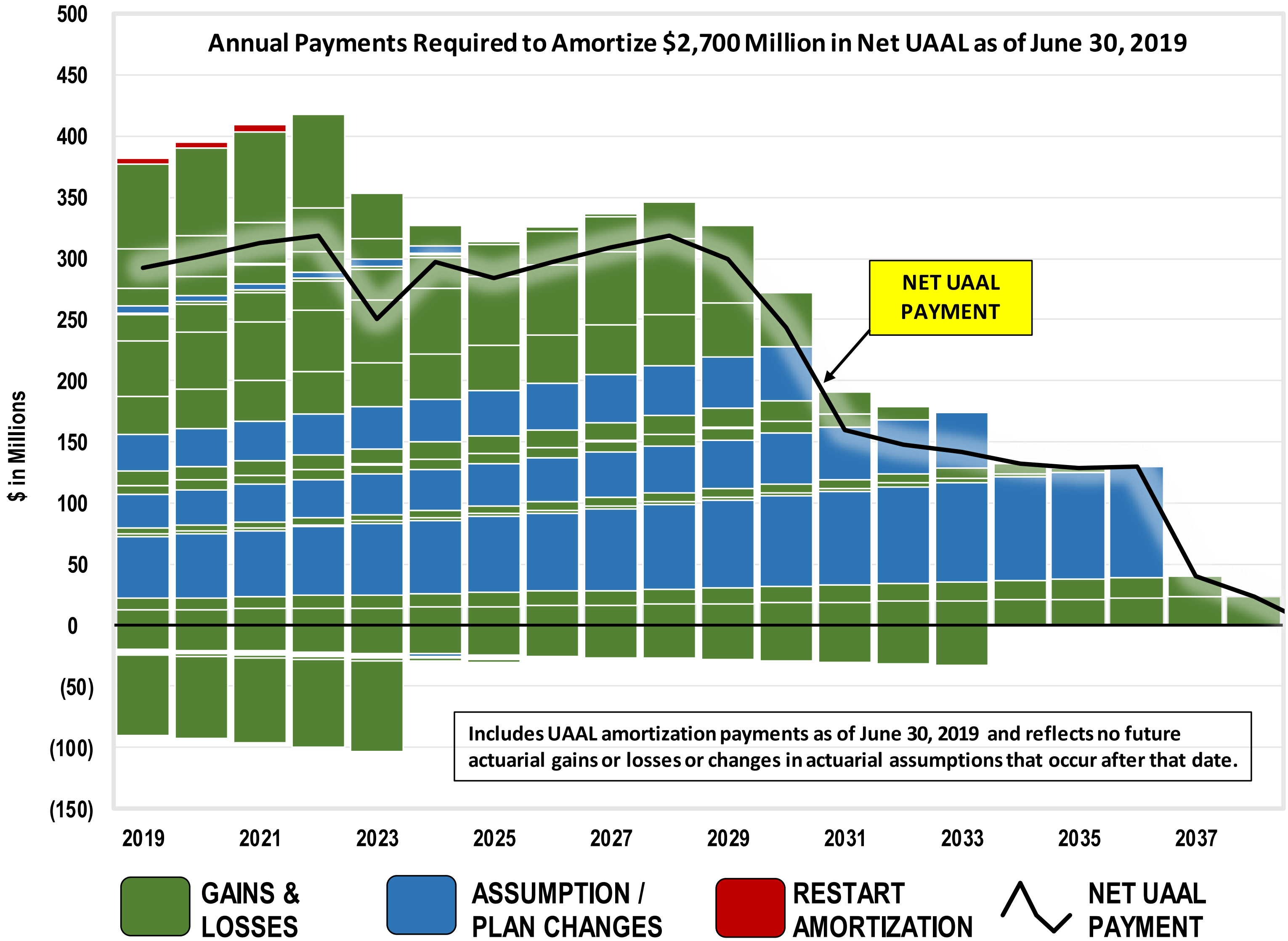


EXHIBIT J – DEFINITION OF PENSION TERMS

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:	Actuarial Present 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 recommended 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. 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 actuarial liabilities that are larger than projected.
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):	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: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future 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 Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions 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, as well as Actuarially Determined Contributions.
Actuarial Value of Assets (AVA):	The value of the Plan'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 Actuarially Determined Contribution.
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 Plan.
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 Unfunded Actuarial Accrued Liability. 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 Unfunded Actuarial Accrued Liability. 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 intended to payoff the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Plan is calculated, including: Investment return - the rate of investment yield that the Plan will earn over the long-term future; Mortality rates - the rate or probability of death at a given age for employees and pensioners; Retirement rates - the rate or probability of retirement at a given age or service; Disability rates – the rate or probability of disability retirement at a given age; Termination rates - the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.
Closed Amortization Period:	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.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.
Defined Contribution Plan:	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.
Experience Study:	A periodic review and analysis of the actual experience of the Plan 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 based on recommendations from the Actuary.
Funded Ratio:	The ratio of the Valuation Value of Assets (VVA) to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the VVA.
Investment Return:	The rate of earnings of the Plan 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.
Normal Cost:	The portion of the Actuarial Present Value of Future Benefits allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member 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 each future year in determining the Amortization Period.
Payroll or Compensation:	Compensation Earnable and Pensionable Compensation expected to be paid to active members during the twelve months following the valuation date. Only Compensation Earnable and Pensionable Compensation that would possibly go into the determination of retirement benefits are included.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Valuation 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 or an Overfunded Actuarial Accrued Liability.
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 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. It includes the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

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 July 1, 2013 through June 30, 2016 Actuarial Experience Study dated April 7, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to members for all tiers. These assumptions were adopted by the Board.

Economic Assumptions

Net Investment Return:

7.25%; net of investment expenses.

Based on the Actuarial Experience Study reference above, expected investment expenses represent about 1.25% of the Actuarial Value of Assets.

Administrative Expenses:

0.70% of payroll allocated to both the employer and member based on the components of the total average contribution rate (before expenses) for the employer and member. This results in an administrative expense load as shown below:

Average Contribution Rate Before Administrative Expense		Weighting	Total Loading
Employer	31.08%	74.19%	0.52%
Member	10.81%	25.81%	0.18%
Total		100.00%	0.70%

Under this approach, the employer Normal Cost rate is then increased by the same percent of payroll as the member rate with the remaining employer loading allocated to the employer UAAL rate. This is done to maintain a 50/50 sharing of Normal Cost for those in Tier 2. The table below shows this allocation.

Allocation of Administrative Expense Load as a % of Payroll	
Addition to Employer Basic Normal Cost Rate	0.18%
Addition to Employer Basic UAAL Rate	0.34%
Addition to Member Basic Rate	0.18%
Total Addition to Contribution Rates	0.70%

The administrative expense load is added to the Basic rates for employers and members.

Member Contribution Crediting Rate:

3.00% (Actual rate is based on six-month Treasury rate).

Consumer Price Index:

Increase of 3.00% per year; retiree COLA increases due to CPI are limited to maximum of 2.00% per year.

Payroll Growth:	Inflation of 3.00% per year plus “across the board” real salary increases of 0.50% per year.
Increase in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 3.00% per year from the valuation date.
Increase in Section 7522.10 Compensation Limit:	Increase of 3.00% per year from the valuation date.
Salary Increases:	The annual rate of compensation increase includes: inflation at 3.00%, plus “across the board” salary increases of 0.50% per year, plus the following merit and promotion increases:

Merit and Promotion Increases

Years of Service	Rate (%)	
	General	Safety
Less than 1	11.00	11.00
1-2	8.00	7.00
2-3	4.75	4.00
3-4	4.25	3.75
4-5	3.75	3.50
5-6	3.25	3.25
6-7	2.75	3.00
7-8	2.25	2.50
8-9	2.00	1.75
9-10	1.75	1.50
10-11	1.50	1.45
11-12	1.40	1.40
12-13	1.30	1.35
13-14	1.20	1.30
14-15	1.10	1.25
15 & Over	1.00	1.20

Demographic Assumptions	
Post-Retirement Mortality Rates:	*Healthy* • **General Members and All Beneficiaries:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward one year for males, projected generationally with the two-dimensional MP-2016 projection scale. • **Safety Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back one year, projected generationally with the two-dimensional MP-2016 projection scale. *Disabled* • **General Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward seven years, projected generationally with the two-dimensional MP-2016 projection scale. • **Safety Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back one year, projected generationally with the two-dimensional MP-2016 projection scale. The RP-2014 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.
Pre-Retirement Mortality Rates:	• **General and Safety Members:** Headcount-Weighted RP-2014 Employee Mortality Table times 90%, projected generationally with the two-dimensional MP-2016 projection scale.

	Rate (%)			
	General(1)		Safety(1)	
Age	Male	Female	Male	Female
25	0.06	0.02	0.06	0.02
30	0.05	0.02	0.05	0.02
35	0.06	0.03	0.06	0.03
40	0.07	0.04	0.07	0.04
45	0.11	0.07	0.11	0.07
50	0.19	0.12	0.19	0.12
55	0.31	0.19	0.31	0.19
60	0.51	0.27	0.51	0.27
65	0.88	0.40	0.88	0.40
70	1.43	0.66	1.43	0.66

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

(1) Generational projections beyond the base year (2014) are not reflected in the above mortality rates.

Mortality Rates for Member Contributions:	• **General Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward one year for males, projected to 2034 with the two-dimensional MP-2016 projection scale, weighted 30% male and 70% female. • **Safety Members:** Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back one year, projected to 2034 with the two-dimensional MP-2016 projection scale, weighted 90% male and 10% female.
Disability Incidence:	

Disability Incidence

	Rate (%)	
Age	**General**	**Safety**
20	0.02	0.20
25	0.02	0.23
30	0.03	0.31
35	0.05	0.41
40	0.08	0.54
45	0.16	0.87
50	0.27	2.13
55	0.37	5.34
60	0.58	7.60
65	0.88	3.20
70	1.24	0.00

50% of General disabilities are assumed to be service connected (duty) disabilities and the other 50% are assumed to be non-service connected (ordinary) disabilities.

100% of Safety disabilities are assumed to be service connected (duty) disabilities.

Termination:

Termination		
Years of Service	Rate (%)	
	General	Safety
Less than 1	15.00	5.00
1-2	11.00	4.50
2-3	9.00	3.50
3-4	7.50	2.75
4-5	5.50	2.25
5-6	5.25	2.00
6-7	5.00	1.75
7-8	4.50	1.60
8-9	4.25	1.50
9-10	4.00	1.25
10-11	4.00	1.25
11-12	4.00	1.00
12-13	3.75	1.00
13-14	3.75	1.00
14-15	3.50	1.00
15-16	3.50	1.00
16-17	3.25	1.00
17-18	3.25	1.00
18-19	3.00	1.00
19-20	3.00	1.00
20 & Over	3.00	1.00

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

Termination (continued):

Rate (%) of Electing a Refund of Contributions upon Termination				
	General		Safety	
Years of Service	Rate if Elected Refundable Contributions	Rate if Elected Non-refundable Contributions	Rate if Elected Refundable Contributions	Rate if Elected Non-refundable Contributions
Less than 5	100.0	100.0	100.0	100.0
5-6	40.0	20.0	25.0	12.5
6-7	40.0	20.0	25.0	12.5
7-8	40.0	20.0	25.0	12.5
8-9	40.0	20.0	25.0	12.5
9-10	40.0	20.0	25.0	12.5
10-11	40.0	20.0	25.0	12.5
11-12	40.0	20.0	25.0	12.5
12-13	40.0	20.0	15.0	7.5
13-14	40.0	20.0	15.0	7.5
14-15	40.0	20.0	15.0	7.5
15-16	40.0	20.0	15.0	7.5
16-17	20.0	10.0	10.0	5.0
17-18	20.0	10.0	10.0	5.0
18-19	20.0	10.0	5.0	2.5
19-20	20.0	10.0	5.0	2.5
20 & Over	20.0	10.0	0.0	0.0

Retirement Rates:

	Retirement Rates (%)			
Age	General Tier 1 (§31676.15)	General Tier 2 (§7522.20(a))	Safety Tier 1 (§31664.1)	Safety Tier 2 (§7522.25(d))
45	0.00	0.00	1.00	0.00
46	0.00	0.00	2.00	0.00
47	0.00	0.00	2.50	0.00
48	0.00	0.00	2.00	0.00
49	50.00	0.00	9.00	0.00
50	2.50	0.00	10.00	4.00
51	2.00	0.00	9.00	3.00
52	3.25	2.00	11.00	4.00
53	3.25	2.00	13.00	5.00
54	3.25	2.00	13.00	10.00
55	5.00	4.50	20.00	20.00
56	6.00	4.50	18.00	20.00
57	6.00	6.00	20.00	22.00
58	8.00	7.00	20.00	25.00
59	11.00	8.00	15.00	25.00
60	15.00	9.00	25.00	25.00
61	16.00	12.00	25.00	25.00
62	18.00	20.00	25.00	25.00
63	18.00	20.00	25.00	25.00
64	25.00	20.00	25.00	25.00
65	40.00	25.00	100.00	100.00
66	30.00	30.00	100.00	100.00
67	25.00	30.00	100.00	100.00
68	25.00	25.00	100.00	100.00
69	25.00	25.00	100.00	100.00
70	25.00	40.00	100.00	100.00
71	20.00	40.00	100.00	100.00
72	20.00	40.00	100.00	100.00
73	20.00	40.00	100.00	100.00
74	20.00	40.00	100.00	100.00
75	100.00	100.00	100.00	100.00

Retirement Age and Benefit for Deferred Vested Members:	General Retirement Age: 59 Safety Retirement Age: 53 40% of future General and 60% of future Safety deferred vested members are assumed to continue to work for a reciprocal employer. For reciprocals, 4.50% and 4.70% compensation increases are assumed per annum for General and Safety, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Definition of Active Members:	All active members of SBCERA as of the valuation date.
Form of Payment:	All active and inactive members are assumed to elect the unmodified option at retirement.
Percent Married:	For all active and inactive members, 65% of male members and 55% of female members are assumed to be married at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.
Supplemental Disability Benefit:	35% of future General service connected (duty) disableds are assumed to be eligible for this benefit; 75% of future General non-service connected (ordinary) disableds are assumed to be eligible for this benefit.
Leave Cashouts:	No leave cashouts are assumed to occur during the member's final average earnings period above what the member cashes out on an annual basis.

Actuarial Funding Policy	
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is the age on the valuation date minus years of 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, as if the current benefit formula for each individual has always been in effect (i.e., “replacement life within a tier”).
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 following non-valuation reserves and designations: (1) Burial Allowance Reserve; (2) Undesignated Excess Earnings Reserve; (3) Restricted Balance Reserved for Deficiencies; and (4) Additional Contingency Reserve. It includes the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer and from the Barstow Fire Protection District and the City of Big Bear Lake (including the Big Bear Fire Authority) to SBCERA for their transfers.

Amortization Policy:	20 years for all UAAL prior to June 30, 2002. Any changes in UAAL after June 30, 2002 are amortized over a 20-year closed period effective with each valuation. The UAAL (i.e., the difference between the Actuarial Accrued Liability and the Valuation Value of Assets), as of June 30, 2011 shall continue to be amortized over separate 20-year period amortization layers based on the valuations during which each separate layer was previously established. Any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of June 30 will be amortized over a period of 20 years. Any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period of 20 years. Unless an alternative amortization period is recommended by the Actuary and accepted by the Board based on the results of an actuarial analysis: • With the exception noted in b., below, the increase in UAAL as a result of any plan amendments will be amortized over a period of 15 years; • The increase in UAAL resulting from a temporary retirement incentive, including the impact of benefits resulting from additional service permitted in Section 31641.04 of the 1937 CERL (Golden Handshake), will be funded over a period of up to 5 years. UAAL shall be amortized over “closed” amortization periods so that the amortization period for each layer decreases by one year with each actuarial valuation. UAAL shall be amortized as a level percentage of payroll so that the amortization amount in each year during the amortization period shall be expected to be a level percentage of covered payroll, taking into consideration the current assumption for general payroll increase (i.e., wage inflation). If an overfunding exists (i.e., the total of all UAAL becomes negative so that there is a surplus), such surplus and any subsequent surpluses will be amortized over an “open” amortization period of 30 years. Any prior UAAL amortization layers will be considered fully amortized, and any subsequent UAAL will be amortized over 20 years as the first of a new series of amortization layers. These amortization policy components will apply separately to each of SBCERA’s UAAL cost sharing groups.

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. Please note that the normal cost rate for County General and Superior Court members is a combined rate based on the members at both employers. *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 Association) 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 rate of 3.50% (i.e., 3.00% inflation plus 0.50% "across the board" salary increase). Please note that all pre-January 1, 1996 retirees and beneficiaries are included as County members for purposes of this calculation and all information shown throughout this report. The amortization policy is described on the previous page. Please note that the employer rates provided in this report exclude any debt payments associated with any pension obligation bonds. The recommended employer contributions are provided in *Section 2, Subsection F.*
Member Contributions:	The member contribution rates for all members are provided in *Section 4, Exhibit III*. Note that the member rates provided in the report are the full rate before reflecting any employer pickup. **Tier 1 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 1/100 of Final Average Salary. That age is 55 for General members and 50 for Safety members. It is assumed that contributions are made annually at the same rate, starting at entry age. In addition to their basic contributions, members pay one-half of the total normal cost necessary to fund their cost-of-living benefits. Accumulation includes semi-annual crediting of interest at the lesser of the assumed investment earning rate or the six-month T-bill rate. Any difference between the assumed investment earning rate and the actual interest crediting rate will be credited to the annuity reserve.

	Tier 2 Members Pursuant to Section 7522.30(a) of the Government Code, Tier 2 members are required to contribute at least 50% of the Normal Cost rate. In addition, there are certain additional requirements that would have to be met such as requiring the new employees to pay the contribution rate of "similarly situated employees", if it is greater. (reference: Section 7522.30(c)). We further understand that different rules may have to be applied for collectively bargained employees, non-represented, managerial or other supervisory employees. (reference: Section 7522.30(e)). In preparing the Normal Cost rates in this report, we have assumed that exactly 50% of the Normal Cost would be paid by the new members and we have taken into account in this valuation only the requirements of Section 7522.30(c), but not the requirements of Section 7522.30(e).
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 $225,000 for 2019. 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. Tier 1 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. Contribution rates determined in this valuation have not been reduced for the Section 415 limitations. However, it is anticipated that Tier 2 members will not be limited in the future due to the PEPRA compensation limit applied in the determination of their benefit. Actual limitations will result in actuarial gains as they occur.
Changed Actuarial Assumptions:	There have been no changes in actuarial assumptions since the last valuation.

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:	July 1 through June 30
Membership Eligibility:	All permanent employees of the County of San Bernardino or contracting district, scheduled to work 20 or more hours weekly, are eligible, subject to classification below:
General	All employees not eligible for Safety.
Safety	Employees in law enforcement and fire suppression.
Tier 1	All members with membership dates before January 1, 2013.
Tier 2	All members with membership dates on or after January 1, 2013.
Final Compensation for Benefit Determination:	
Tier 1	Highest consecutive twelve months of compensation earnable (§31462.1) (FAS1).
Tier 2	Highest consecutive thirty-six months of pensionable compensation (§7522.10(c), §7522.32 and §7522.34) (FAS3).
Compensation Limit:	
Tier 1	For members with membership dates on or after July 1, 1996, Compensation Earnable is limited to Internal Revenue Code Section 401(a)(17). The limit as of July 1, 2019 is $280,000. The limit is indexed for inflation on an annual basis.
Tier 2	Pensionable Compensation is limited to $149,016 for 2019. The limit is indexed for inflation on an annual basis.
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:	
General Tier 1	Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years regardless of age (§31672).
General Tier 2	Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service (§31672.3).
Safety Tier 1	Age 50 with 10 years of service, or age 70 regardless of service, or after 20 years regardless of age (§31663.25).
Safety Tier 2	Age 50 with 5 years of service (§7522.25(d)) or age 70 regardless of service (§31672.3).

Benefit Formula:		
General Tier 1 (§31676.15)	**Retirement Age**	**Benefit Formula**
	50	1.49% x FAS1 x Yrs
	55	2.00% x FAS1 x Yrs
	60	2.62% x FAS1 x Yrs
	62	2.82% x FAS1 x Yrs
	65 and over	3.13% x FAS1 x Yrs
General Tier 2 (§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 Tier 1 (§31664.1)	**Retirement Age**	**Benefit Formula**
	50 and over	3.00% x FAS1 x Yrs
Safety Tier 2 (§7522.25(d))	**Retirement Age**	**Benefit Formula**
	50	2.00% x FAS3 x Yrs
	55	2.50% x FAS3 x Yrs
	57 and over	2.70% x FAS3 x Yrs

Maximum Benefit:	
Tier 1	100% of Highest Average Compensation (§31676.15, §31664.1).
Tier 2	There is no final compensation limit on the maximum retirement benefit.

Ordinary Disability:	
Eligibility	Five years of service (§31720).
Benefit	For members entering before January 1, 1981, 1.8% per year of service (in most cases a minimum of 33% of Final Compensation) (§31727.3, §31727, and §31727.2). For members entering on or after January 1, 1981, 20% of Final Compensation, plus 2% of Final Compensation for each year of service in excess of five years, up to a maximum of 40%. For all members, 100% of the Service Retirement benefit will be paid, if greater.
Line-of-Duty Disability:	
Eligibility	No age or service requirements (§31720).
Benefit	50% of the Final Compensation or 100% of Service Retirement benefit, if greater (§31727.4).
Supplemental Disability:	
Eligibility	Must be a General member and incapable of gainful employment.
Benefit	$300 per month payable as long as the member is incapable of gainful employment. This benefit is not considered when calculating Cost-of-Living increases.
Pre-Retirement Death:	
All Members	
Eligibility	None.
Basic lump sum benefit	Refund of member contributions with interest, plus one month's compensation for each year of service, to a maximum of six months' compensation (§31781).
Line-of-Duty Death	50% of Final Compensation payable to spouse or minor children (§31787).
Vested Members	
Eligibility	Five years of service.
Basic benefit	60% of the greater of Service Retirement or Ordinary Disability Retirement benefit payable to surviving eligible spouse or eligible children (§31765.1, §31781.1), in lieu of the basic lump sum benefit above. An additional lump sum payment of one-year of compensation is paid if Line-of-Duty death for Safety member (§31787.6).

Death After Retirement:	
All Members	
Service Retirement or Ordinary Disability Retirement	Unless another option was selected at retirement, 60% of member's unmodified allowance continued to eligible spouse (§31760.1).
Line-of-Duty Disability	Unless another option was selected at retirement, 100% of member's unmodified allowance continued to eligible spouse (§31786).
Additional Death Benefit	A lump sum benefit of $750 is payable to the member's beneficiary for all post-retirement deaths (§31789.1). In addition, the Board of Retirement approved a discretionary $250 post-retirement lump sum death benefit (i.e., burial allowance) (§31789.13). This benefit is funded from undesignated excess earnings and is subject at all times to the availability of funds in the Burial Allowance reserve. This benefit is not valued in the actuarial valuation.
Withdrawal Benefits:	
Less than Five Years of Service	Refund of accumulated employee contributions with interest (§31628) or entitled to earned benefits commencing anytime after eligible to retire (§31629.5) if eligible for benefits at a reciprocal system.
Five or More Years of Service	If contributions left on deposit, a member is entitled to earned benefits commencing at any time after eligible to retire (§31700). Service for eligibility includes service credited as an employee of a reciprocal system.
Post-retirement Cost-of-Living Benefits:	Annual adjustment based on Consumer Price Index to a maximum of 2% per year; excess "banked". There is a one-time 7% increase at retirement for members hired before August 19, 1975.
Member Contributions:	Please refer to *Section 4, Exhibit III* for the specific rates.
General Tier 1	
Basic	Entry-age based rates that provide for an annuity at age 55 equal to 1/100 of FAS1 (§31621.6).
Cost-of-Living	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
Safety Tier 1	
Basic	Entry-age based rates that provide for an annuity at age 50 equal to 1/100 of FAS1 (§31639.25).
Cost-of-Living	Entry-age based rates that provide for one-half of future Cost-of-Living costs.
General and Safety Tier 2	Non-entry age based rates that provide for 50% of total Normal Cost Rate.
Other Information:	Tier 1 members with 30 or more years of service are exempt from paying member contributions (§31625.2, §31625.3).
Changed 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 Association should find the plan summary not in accordance with the actual provisions, the Association should alert the actuary so they can both be sure the proper provisions are valued.

EXHIBIT III – MEMBER CONTRIBUTION RATES

General Tier 1 Members' Contribution Rates (Refundable Basis) Based on the June 30, 2019 Actuarial Valuation (as a % of monthly payroll)

Entry Age	Basic	Total	Entry Age	Basic	Total
16	7.26%	9.15%	36	9.93%	12.53%
17	7.37%	9.29%	37	10.10%	12.75%
18	7.48%	9.43%	38	10.28%	12.97%
19	7.60%	9.58%	39	10.46%	13.20%
20	7.72%	9.73%	40	10.65%	13.44%
21	7.84%	9.88%	41	10.83%	13.67%
22	7.96%	10.04%	42	11.01%	13.90%
23	8.08%	10.19%	43	11.19%	14.13%
24	8.21%	10.35%	44	11.38%	14.37%
25	8.34%	10.52%	45	11.56%	14.60%
26	8.47%	10.68%	46	11.72%	14.80%
27	8.60%	10.85%	47	11.88%	15.00%
28	8.73%	11.01%	48	12.01%	15.17%
29	8.87%	11.19%	49	12.11%	15.29%
30	9.01%	11.37%	50	12.19%	15.39%
31	9.16%	11.56%	51	12.25%	15.47%
32	9.30%	11.73%	52	12.31%	15.55%
33	9.45%	11.92%	53	12.13%	15.32%
34	9.61%	12.13%	54 & Over	11.75%	14.84%
35	9.77%	12.33%			

Interest:	7.25% per annum
COLA:	2.00%
Administrative Expense	0.18% of payroll added to Basic rates.
Mortality:	See *Section 4, Exhibit I*
Salary Increase:	Inflation (3.00%) + Across-the-Board Increase (0.50%) + Merit (See *Section 4, Exhibit I*)
COLA Loading Factor:	26.68%, applied to Basic rates prior to adjustment for administrative expenses.

Note: These rates are determined before any pickups by the employer, if any.

EXHIBIT III – MEMBER CONTRIBUTION RATES (CONTINUED)

General Tier 1 Members' Contribution Rates (Nonrefundable Basis) Based on the June 30, 2019 Actuarial Valuation (as a % of monthly payroll)

Entry Age	Basic	Total	Entry Age	Basic	Total
16	6.91%	8.71%	36	9.46%	11.93%
17	7.02%	8.85%	37	9.62%	12.14%
18	7.12%	8.98%	38	9.79%	12.35%
19	7.24%	9.12%	39	9.96%	12.57%
20	7.35%	9.27%	40	10.14%	12.80%
21	7.47%	9.41%	41	10.31%	13.02%
22	7.58%	9.56%	42	10.49%	13.24%
23	7.70%	9.70%	43	10.66%	13.46%
24	7.82%	9.86%	44	10.84%	13.69%
25	7.94%	10.02%	45	11.01%	13.90%
26	8.07%	10.17%	46	11.16%	14.10%
27	8.19%	10.33%	47	11.31%	14.29%
28	8.31%	10.49%	48	11.44%	14.45%
29	8.45%	10.66%	49	11.53%	14.56%
30	8.58%	10.83%	50	11.61%	14.66%
31	8.72%	11.01%	51	11.67%	14.73%
32	8.86%	11.17%	52	11.72%	14.81%
33	9.00%	11.35%	53	11.55%	14.59%
34	9.15%	11.55%	54 & Over	11.19%	14.13%
35	9.30%	11.74%			

Interest:	7.25% per annum
COLA:	2.00%
Administrative Expense	0.18% of payroll added to Basic rates.
Mortality:	See *Section 4, Exhibit I*
Salary Increase:	Inflation (3.00%) + Across-the-Board Increase (0.50%) + Merit (See *Section 4, Exhibit I*)
COLA Loading Factor:	26.68%, applied to Basic rates prior to adjustment for administrative expenses.
Refundability Factor:	1.05

Note: These rates are determined before any pickups by the employer, if any.

EXHIBIT III – MEMBER CONTRIBUTION RATES (CONTINUED)

Safety Tier 1 Members' Contribution Rates (Refundable Basis) Based on the June 30, 2019 Actuarial Valuation (as a % of monthly payroll)

Entry Age	Basic	Total	Entry Age	Basic	Total
16	8.29%	11.81%	36	11.11%	15.85%
17	8.40%	11.97%	37	11.29%	16.11%
18	8.52%	12.14%	38	11.47%	16.37%
19	8.64%	12.31%	39	11.66%	16.64%
20	8.77%	12.50%	40	11.86%	16.93%
21	8.89%	12.67%	41	12.05%	17.20%
22	9.02%	12.85%	42	12.18%	17.38%
23	9.15%	13.04%	43	12.28%	17.53%
24	9.28%	13.23%	44	12.36%	17.64%
25	9.41%	13.41%	45	12.44%	17.76%
26	9.55%	13.61%	46	12.52%	17.87%
27	9.69%	13.81%	47	12.62%	18.02%
28	9.83%	14.02%	48	12.52%	17.87%
29	9.97%	14.22%	49 & Over	12.12%	17.30%
30	10.12%	14.43%			
31	10.27%	14.65%			
32	10.43%	14.88%			
33	10.60%	15.12%			
34	10.76%	15.35%			
35	10.94%	15.61%			

Interest:	7.25% per annum
COLA:	2.00%
Administrative Expense	0.18% of payroll added to Basic rates.
Mortality:	See *Section 4, Exhibit I*
Salary Increase:	Inflation (3.00%) + Across-the-Board Increase (0.50%) + Merit (See *Section 4, Exhibit I*)
COLA Loading Factor:	43.37%, applied to Basic rates prior to adjustment for administrative expenses.

Note: These rates are determined before any pickups by the employer, if any.

EXHIBIT III – MEMBER CONTRIBUTION RATES (CONTINUED)

Safety Tier 1 Members' Contribution Rates (Nonrefundable Basis) Based on the June 30, 2019 Actuarial Valuation (as a % of monthly payroll)

Entry Age	Basic	Total	Entry Age	Basic	Total
16	8.13%	11.58%	36	10.89%	15.54%
17	8.24%	11.74%	37	11.07%	15.79%
18	8.35%	11.90%	38	11.25%	16.05%
19	8.47%	12.07%	39	11.43%	16.31%
20	8.60%	12.25%	40	11.63%	16.60%
21	8.72%	12.42%	41	11.81%	16.86%
22	8.84%	12.60%	42	11.94%	17.04%
23	8.97%	12.78%	43	12.04%	17.19%
24	9.10%	12.97%	44	12.12%	17.29%
25	9.23%	13.15%	45	12.20%	17.41%
26	9.36%	13.34%	46	12.27%	17.52%
27	9.50%	13.54%	47	12.37%	17.67%
28	9.64%	13.75%	48	12.27%	17.52%
29	9.77%	13.94%	49 & Over	11.88%	16.96%
30	9.92%	14.15%			
31	10.07%	14.36%			
32	10.23%	14.59%			
33	10.39%	14.82%			
34	10.55%	15.05%			
35	10.73%	15.30%			

Interest:	7.25% per annum
COLA:	2.00%
Administrative Expense	0.18% of payroll added to Basic rates.
Mortality:	See *Section 4, Exhibit I*
Salary Increase:	Inflation (3.00%) + Across-the-Board Increase (0.50%) + Merit (See *Section 4, Exhibit I*)
COLA Loading Factor:	43.37%, applied to Basic rates prior to adjustment for administrative expenses.
Refundability Factor:	1.02

Note: These rates are determined before any pickups by the employer, if any.

EXHIBIT III – MEMBER CONTRIBUTION RATES (CONTINUED)

Tier 2 Members' Contribution Rates (Refundable Basis) Based on the June 30, 2019 Actuarial Valuation (as a % of monthly payroll)

All Entry Age	Basic	COLA	Total
County General and Superior Court	7.48%	1.63%	9.11%
Safety	12.76%	3.37%	16.13%
SCAQMD	6.68%	1.48%	8.16%
Other General	7.44%	1.62%	9.06%

Note: The Tier 2 member contribution rate is 50% of the Normal Cost rate. The Basic rates shown above also includes an administrative expense load of 0.18% of payroll.

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Segal Consulting

San Bernardino County Employees' Retirement Association

Survivor Benefit Valuation

Review of Contribution Rate and Funded Status as of June 30, 2019

This report has been prepared at the request of the Board of Retirement to assist in administering the Plan. 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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November 14, 2019

Board of Retirement
San Bernardino County Employees' Retirement Association
348 West Hospitality Lane, 3rd Floor
San Bernardino, California 92415-0014

Dear Members of the Board:

We are pleased to submit this Survivor Benefit Valuation as of June 30, 2019. It summarizes the actuarial data used in the valuation and establishes the funding requirements for fiscal year 2020-2021.

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 Association. The census information and financial information on which our calculations were based was prepared by the staff of the Association. That assistance is gratefully acknowledged.

The actuarial calculations were directed under the supervision of John Monroe, ASA, MAAA, 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 Association.

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

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

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

John Monroe, ASA, MAAA, EA
Vice President and Actuary

Table of Contents

San Bernardino County Employees' Retirement Association Survivor Benefit Valuation as of June 30, 2019

Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal Consulting ("Segal") to present a survivor benefit valuation of the San Bernardino County Employees' Retirement Association ("SBCERA" or "the Association") as of June 30, 2019. 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 for the survivor benefits, as administered by the Board of Retirement;
- The characteristics of covered active members and beneficiaries as of June 30, 2019, provided by SBCERA;
- The assets of the Plan as of June 30, 2019, provided by SBCERA;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Retirement Board for the June 30, 2019 valuation;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. adopted by the Retirement Board for the June 30, 2019 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 Association's liabilities. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

Contribution Recommendations and Funded Status

1. The following table summarizes the biweekly pay period contribution rate recommendations for the employers and the members:

	General Employers	Estimated Annual Amount June 30, 2019	General Members	Estimated Annual Amount June 30, 2019
Current Contribution Rate	$1.35	$660,000	$1.35	$660,000
Recommended Contribution Rate	$1.35	$674,000	$1.35	$674,000

2. We have continued to exclude any potential liabilities associated with current or future terminated vested members in the valuation. This change was made after discussions with SBCERA and is consistent with how these benefits have historically been administered.

3. The Board has elected to include the Survivor Benefit Valuation in the regular valuation process. Therefore, the Actuarial Valuation and Review includes the Survivor Benefit liabilities and Normal Cost and the valuation assets will include the Survivor Benefit Reserve. We will continue to issue this separate report for the Survivor Benefit as the contribution rate structure is different and there are special assumptions used only for this valuation.

4. The following table compares the reserves and liabilities for the Survivor Benefit as of June 30, 2019:

1. June 30, 2019 Reserves	$74,376,000
2. June 30, 2019 Actuarial Accrued Liabilities:	
Current Recipients	$21,104,000
Future Recipients	7,870,000
Total	$28,974,000
3. Liabilities minus Reserves (2) – (1)	-$45,402,000
4. Funded Ratio (1) ÷ (2)	256.7%

5. The Actuarial Standards Board approved a new Actuarial Standard of Practice No. 51 (ASOP 51) regarding risk assessment. ASOP 51 is effective with SBCERA's June 30, 2019 survivor benefit actuarial valuation. ASOP 51 requires actuaries to identify and assess risks that "may reasonably be anticipated to significantly affect the plan's future financial condition". The key risk that is particularly relevant to the survivor benefit is longevity risk.

   The actuary's initial assessment can be strictly a qualitative discussion about potential adverse experience and the possible effect on future results, but it may also include quantitative numerical demonstrations where informative.

   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. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the future financial condition of the plan, but have included a brief discussion of key risks that may affect the Association in *Section 2, Subsection D*.

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 Consulting ("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 Association. 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 Association. The Association uses a "Valuation Value of Assets" that differs from market value to gradually reflect six-month 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. 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.

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 Association. 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; and
  - Changes in statutory provisions.
- If the Association 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 Association should look to their other advisors for expertise in these areas.

As Segal Consulting 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. Introduction

The Survivor Benefit program was adopted by the County (in January 1976) and South Coast Air Quality District (in February 1977) to replace similar benefits formerly provided by Social Security. These benefits are provided only to eligible beneficiaries of members who are General active employees. The cost of the program is equally shared between the employers and the active employee members.

The contribution rates are calculated to provide for the ongoing cost of benefits, plus any amounts necessary to recognize any shortfall of reserves relative to the actuarial accrued liabilities. A summary of the Survivor Benefit provisions is displayed in *Section 4, Exhibit II.*

B. Review of Experience and Recommendations

Section 4, Exhibit I provides a summary of the actuarial assumptions used in this actuarial valuation. Assumptions regarding the number and type of beneficiaries for future deaths were derived from 2016 U.S. Census data. The Board adopted these assumptions as part of the 2017 Actuarial Experience Study. Additional assumptions are necessary for this valuation because the benefit amount varies depending upon the number and type of survivors receiving it.

The following table provides a summary of the number and type of beneficiaries as of June 30, 2019.

SBCERA Survivor Benefit Recipients as of June 30, 2019	Death Before 4/2/1994	Death 4/2/1994 or Later
1. Surviving spouse caring for one child OR two children only	0	18
2. Surviving spouse caring for two or more children OR three or more children	0	10
3. One child only OR each of two dependent parents age 62	0	15
4. Widow or widower age 62 (no child) or in deferred status	58	120
5. Widow or widower age 60 (no child)	0	85
6. Total	58	248

SBCERA Covered Members as of June 30, 2019	As of June 30, 2019
1. Active members	19,190

C. Valuation Results and Contribution Requirements

The funding of the Survivor Benefit comes from the following sources:

1. The Survivor Benefit Reserve, which equals $74,376,000 as of June 30, 2019; and
2. Equal contributions from employers and members.

1. June 30, 2019 Reserves	$74,376,000
2. June 30, 2019 Actuarial Accrued Liabilities:	
Current Recipients	$21,104,000
Future Recipients	7,870,000
Total	$28,974,000
3. Liabilities minus Reserves (2) – (1)	-$45,402,000
4. Funded Ratio (1) ÷ (2)	256.7%

The contribution requirements are determined based on the Entry Age Actuarial Cost Method. Based on advice received from SBCERA's legal counsel, the Excess of Assets over the Actuarial Accrued Liability (Item 3 in the above table) can no longer be used to reduce the contribution rates. This is because CalPEPRA requires contributions be at least equal to the Normal Cost unless the provisions of Section 7522.52 are met. It is our understanding that those provisions are currently not met and it is not anticipated they will be met in the future. The employer and member contribution rates are derived on the following page.

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.

1. Biweekly Entry Age Normal Cost per Active Member	$2.70
2. Employer Portion (50% of (1))	$1.35
3. Member Portion (50% of (1))	$1.35
4. Estimated Annual Employer Contribution	$674,000
5. Estimated Annual Member Contribution	$674,000

Note: Contributions include an adjustment to account for contributions being made throughout the year.

D. Risk

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 section 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 future financial condition of the survivor benefits. We do not recommend that a more detailed assessment of the risks be performed due to the relatively small liabilities of the survivor benefits as compared to the main retirement benefits paid by SBCERA.

This section provides descriptions and basic assessments of the primary risks that are likely to have an ongoing influence on the financial health of the survivor benefits program.

Risk Assessments

- 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. Because the survivor benefit provides for death benefits payable to surviving spouses and children rather than a retirement annuity such as that paid by the main SBCERA plan, members living longer than expected generally results in a decrease in liabilities and contribution rates.

- Other Risks

  In addition to longevity, the valuation includes a variety of other assumptions that are unlikely to match future experience exactly. Examples including demographic assumptions such as pre-retirement mortality, retirement, termination and disability assumptions.

For the evaluation of historical trends and maturity measures, please see *Section 2, Subsection J* of the June 30, 2019 Actuarial Valuation Report for SBCERA.

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 July 1, 2013 through June 30, 2016 Actuarial Experience Study dated April 7, 2017. These assumptions were adopted by the Board.

Actuarial Assumptions

Those described in the SBCERA June 30, 2019 actuarial valuation report; and

The following assumptions derived from 2016 U.S. Census data.

Member's Age at Death	Percent Married	Not Married No Children	Not Married One Child	Not Married Two Children	Married No Children	Married One Child	Married Two Children	1st Child's Age	2nd Child's Age
Under 25	19%	67%	9%	5%	9%	6%	4%	3	1
25-34	56%	30%	6%	8%	17%	14%	25%	6	4
35-44	78%	14%	4%	5%	15%	17%	45%	10	8
45-54	76%	19%	3%	2%	39%	18%	19%	14	12
55-59	72%	27%	1%	0%	65%	5%	2%	18	16
60-64	72%	27%	1%	0%	65%	5%	2%	21	19
65-74	70%	30%	0%	0%	68%	1%	1%	N/A	N/A
75+	48%	52%	0%	0%	47%	0%	1%	N/A	N/A
Total	66%	28%	3%	3%	40%	10%	16%	N/A	N/A

Child payments are assumed to end when the child reaches age 22.

Widows or widowers are assumed to start payment at age 62 (or later if they are caring for an eligible child).

Actuarial Funding Policy

Actuarial Cost Method: Entry Age Actuarial Cost Method. Entry Age is the age on the valuation date minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated by service, as if the current benefit formula for each individual has always been in effect (i.e., "replacement life within a tier").

Actuarial Value of Assets: Survivor Benefit Reserve value as of valuation date.

Amortization Policy:	If an overfunding exists (i.e., the total of all UAAL becomes negative so that there is a surplus), such surplus and any subsequent surpluses will be amortized over an "open" amortization period of 30 years. However, since the provisions of Section 7522.52 have not been met, the surplus has not been amortized. Any prior UAAL amortization layers will be considered fully amortized, and any subsequent UAAL will be amortized over 20 years as the first of a new series of amortization layers. Other parameters of the amortization policy follow those established for SBCERA's other retirement benefits, with the exception that a level dollar methodology will be used instead of level percent of payroll.
Changed Actuarial Assumptions and Methods:	None.

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:	July 1 through June 30
Covered Members:	This Plan provides a survivor benefit for active general members who die prior to retirement or disability and have been a member continuously for not less than 18 months immediately prior to death. All General active employees at SBCERA are eligible for this benefit.
Member Contribution Rate:	50% of benefit cost, charged to all active General members
Employer Contribution Rate:	50% of benefit cost
Table of Benefits for Members with Death Date on or After 4/1/1994	

Member's Survivor(s)	Monthly Allowance
Surviving spouse caring for one child	$1,390
Surviving spouse caring for two or more children	$1,622
One child only	$695
Two children only (divided between children)	$1,390
Three children only (divided between children)	$1,622
Widow or widower age 60 (no children)	$663
Widow or widower age 62 or older (no children)	$768
Each of two dependent parents age 62 or older	$695
One dependent parent only, age 62 or older	$795
One–time burial allowance	$255

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Segal Consulting

San Bernardino County Employees' Retirement Association

Governmental Accounting Standards Board Statement No. 67 (GASB 67)

Actuarial Valuation as of June 30, 2019

Segal Consulting

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T 415.263.8200 www.segalco.com

November 14, 2019

Board of Retirement
San Bernardino County Employees' Retirement Association
348 West Hospitality Lane, Third Floor
San Bernardino, CA 92415-0014

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board Statement No. 67 (GASB 67) Actuarial Valuation as of June 30, 2019. It contains various information that will need to be disclosed in order to comply with GASB 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist SBCERA in preparing items related to the pension plan in their financial report. The census and financial information on which our calculations were based was prepared by SBCERA. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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 (such as the end of an amortization period); and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of John Monroe, ASA, MAAA, 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 the 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 expectations for the Plan.

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

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

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

John Monroe, ASA, MAAA, EA
Vice President and Actuary

AW/jl

SECTION 1

VALUATION SUMMARY

SECTION 2

GASB 67 INFORMATION

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board Statement No. 67 (GASB 67) as of June 30, 2019. This valuation is based on:

- The benefit provisions of SBCERA, as administered by the Board;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2019, provided by SBCERA;
- The assets of the Plan as of June 30, 2019, provided by SBCERA;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the June 30, 2019 valuation; and
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. adopted by the Board for the June 30, 2019 valuation.

General Observations on GASB 67 Actuarial Valuation

The following points should be considered when reviewing this GASB 67 report:

- The Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans develop and adopt funding policies under current practices.
- When measuring pension liability GASB uses the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as SBCERA uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on the same basis as SBCERA's Actuarial Accrued Liability (AAL) measure for funding. We note that the same is generally true for the Normal Cost component of the annual plan cost for funding and financial reporting.
- The TPL and the Plan's Fiduciary Net Position include liabilities and assets held for Survivor Benefit and Burial Allowance reserves. In the case of the Burial Allowance, the TPL only includes a liability up to the amount in the Burial Allowance Reserve. This is because we understand that the $250 portion of the Burial Allowance is a nonvested benefit and once the reserve is depleted no further benefits would need to be paid.

- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis. The NPL reflects all investment gains and losses as of the measurement date. This is different from the UAAL on an actuarial value of assets basis in the funding valuation that reflects investment gains and losses over five-year periods.
- For this report, the reporting dates for the Plan are June 30, 2019 and June 30, 2018. The NPLs measured as of June 30, 2019 and 2018 have been determined from the actuarial valuations as of June 30, 2019 and June 30, 2018, respectively.
- Based on discussions with SBCERA and their auditors, starting with the June 30, 2015 measurement date for the plan, member paid employer contributions are included as part of the Actuarially Determined Contribution (ADC). Previously these amounts were classified as member contributions and excluded from the ADC.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The NPL increased from $2.53 billion as of June 30, 2018 to $2.71 billion as of June 30, 2019 primarily due to the 4.99% return on the market value of assets during 2018-2019 (that was lower than the assumed return of 7.25%). Changes in these values during the last two fiscal years ending June 30, 2019 and June 30, 2018 can be found in Exhibit 3.

- The discount rate used to determine the TPL and NPL as of June 30, 2019 and 2018 was 7.25%, following the same assumptions used by the Association in the funding valuations as of the same dates. Details on the derivation of the discount rates can be found in Exhibits 5 and 6 of Section 2. Various other information that is required to be disclosed can be found throughout Exhibits 1 through 4 in Section 2.

Summary of Key Valuation Results

	2019	2018
Disclosure elements for fiscal year ending June 30:		
Service cost[(1)(2)]	$334,062,066	$321,930,580
Total Pension Liability	13,300,303,218	12,600,570,218
Plan's Fiduciary Net Position	10,588,406,657	10,066,990,216
Net Pension Liability	2,711,896,561	2,533,580,002
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions[(3)]	$446,294,977	$378,667,309
Actual employer contributions	446,294,977	378,667,309
Contribution deficiency (excess)	0	0
Demographic data for plan year ending June 30:		
Number of retired members and beneficiaries	13,244	12,716
Number of inactive vested members[(4)]	6,726	6,211
Number of active members	21,823	21,465
Key assumptions as of June 30:		
Investment rate of return	7.25%	7.25%
Inflation rate	3.00%	3.00%
Projected salary increases[(5)]	General: 4.50% to 14.50% and Safety: 4.70% to 14.50%	General: 4.50% to 14.50% and Safety: 4.70% to 14.50%

(1) *The service cost is based on the previous year's valuation, meaning the 2019 and 2018 values are based on the valuations as of June 30, 2018 and June 30, 2017, respectively. Both of the service costs have been calculated using the assumptions shown in the 2018 column as there were no changes in the actuarial assumptions between the June 30, 2018 and June 30, 2017 valuations.*

(2) *Excludes administrative expense load.*

(3) *See footnote (1) under Exhibit 4 on page 9.*

(4) *Includes terminated members due a refund of member contributions plus accumulated interest.*

(5) *Includes inflation at 3.00% plus real across-the-board salary increase of 0.50% plus merit and promotion increases.*

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 an actuarial valuation, Segal Consulting ("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. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan provisions.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by SBCERA. 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** This valuation is based on the market value of assets as of the measurement date, as provided by SBCERA.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. 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 possibility does not mean that the previous assumptions were unreasonable.

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

- The valuation is prepared at the request of the Board to assist SBCERA in preparing items related to the pension plan in their financial reports. 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.
- If SBCERA is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

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

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Cost-Sharing Pension Plan

Plan Description

Plan administration. The San Bernardino County Employees' Retirement Association (SBCERA) was established by the County of San Bernardino in 1945. SBCERA is governed by the County Employees' Retirement Law of 1937 (California Government Code Section 31450 et. seq), the California Public Employees' Pension Reform Act of 2013 (CalPEPRA), and the regulations, procedures, and policies adopted by SBCERA's Board of Retirement. SBCERA is a cost-sharing multiple employer defined benefit public employee Retirement Association whose main function is to provide service retirement, disability, death and survivor benefits to the General and Safety members employed by the County of San Bernardino. SBCERA also provides retirement benefits to the employee members for 16 other employers which are members of SBCERA.

The management of SBCERA is vested with the SBCERA Board of Retirement. The Board consists of twelve trustees. Of the twelve members, three are alternates. Four trustees are appointed by the San Bernardino County Board of Supervisors; two General member trustees are elected by the General members; two Safety member trustees (including one alternate) are elected by the Safety members; two Retired member trustees (including one alternate) are elected by the Retired members; and the San Bernardino County Treasurer serves as an ex-officio member who has designated an alternate. Board members serve three-year terms, with the exception of the County Treasurer, who serves during his tenure in office.

Plan membership. At June 30, 2019, pension plan membership consisted of the following:

San Bernardino County Employees' Retirement Association
June 30, 2019

	Tier 1			Tier 2			
	General	Safety	Sub-Total	General	Safety	Sub-Total	Total
Active members - vested	10,712	1,568	12,280	1,029	147	1,176	13,456
Active members - nonvested	55	7	62	7,394	911	8,305	8,367
Inactive plan members or beneficiaries currently receiving benefits							
Retirees currently receiving benefits	9,625	1,829	11,454	21	6	27	11,481
Beneficiaries and dependents currently receiving benefits	1,390	369	1,759	4	0	4	1,763
Inactive plan members entitled to but not yet receiving benefits							
Inactive members eligible for, but not yet receiving benefits	2,401	173	2,574	174	38	212	2,786
Inactive members eligible for refund value of account only[1]	1,820	57	1,877	1,919	144	2,063	3,940
Total	26,003	4,003	30,006	10,541	1,246	11,787	41,793

[1] *Inactive members with less than 5 years of service are entitled to withdraw their refundable contributions made, together with accumulated interest only.*

Benefits provided. SBCERA provides service retirement, disability, death and survivor benefits to eligible employees. Generally, any employee of the County of San Bernardino or participating employers who is appointed to a regular position whose service is at least fifty percent of the full standard of hours required by a participating SBCERA employer (e.g. 20 hours per week or more) must become a member of SBCERA effective on the first day of employment. There are separate retirement benefits for General and Safety member employees. Safety membership is extended to those involved in active law enforcement and fire suppression. All other members are classified as General members.

There are currently two tiers applicable to both General and Safety members. Members with membership dates before January 1, 2013 are included in General Tier 1 or Safety Tier 1. Any new member who becomes a member on or after January 1, 2013 is designated as General Tier 2 or Safety Tier 2 and is subject to the provisions of CalPEPRA and California Government Code 7522 et seq.

General Tier 1 members are eligible for Early Retirement once they attain the age of 70 regardless of service or at age 50 and have acquired 10 or more years of retirement service credit or with 30 years of service regardless of age. General Tier 2 members are eligible for Early Retirement once they attain the age of 70 regardless of service or at age 52 and have acquired five or more years of retirement service credit.

Safety Tier 1 members are eligible for Early Retirement once they attain the age of 70 regardless of service or at age 50 and have acquired 10 or more years of retirement service credit or with 20 years of service regardless of age. Safety Tier 2 members are eligible for Early Retirement once they attain the age of 70 regardless of service or at age 50 and have acquired five or more years of retirement service credit.

The retirement benefit the member will receive is based upon age at retirement, final average compensation, years of retirement service credit and retirement plan and tier.

General Tier 1 benefit is calculated pursuant to the provisions of California Government Code of Section 31676.15. The monthly allowance is equal to 2% of final compensation times years of accrued retirement service credit times age factor from Section 31676.15. General Tier 2 benefit is calculated pursuant to the provisions found in California Government Code Section 7522.20(a). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.20(a).

Safety Tier 1 benefit is calculated pursuant to the provisions of California Government Code Section 31664.1. The monthly allowance is equal to 3% of final compensation times years of accrued retirement service credit times age factor from Section 31664.1. Safety Tier 2 benefit is calculated pursuant to the provisions found in California Government Code Section 7522.25(d). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.25(d).

For Tier 1 members, the maximum monthly retirement allowance is 100% of final compensation. There is no final compensation limit on the maximum retirement benefit for Tier 2 members. However, the maximum amount of compensation earnable that can be taken into account for 2019 for Tier 1 members with membership dates on or after July 1, 1996 is $280,000. The maximum amount of pensionable compensation for Tier 2 members that can be taken into account for 2019 is equal to $149,016. These limits are adjusted on an annual basis. Tier 1 members and employers are exempt from paying contributions on compensation earnable paid in excess of the annual cap. In addition, Tier 1 members are exempt from paying member contributions once they have reached 30 or more years of service. Tier 2 members and employers are exempt from paying contributions on pensionable compensation paid in excess of the annual cap.

Final average compensation consists of the highest 12 consecutive months for Tier 1 members and the highest 36 consecutive months for Tier 2 members.

The member may elect an unmodified retirement allowance, or choose an optional retirement allowance. The unmodified retirement allowance provides the highest monthly benefit and a 60% continuance to an eligible surviving spouse or domestic partner. An eligible surviving spouse or domestic partner is one married to or registered with the member one year prior to the effective retirement date or at least two years prior to the date of death and has attained age 55 on or prior to the date of death. There are four optional retirement allowances the member may choose. Each of the optional retirement allowances requires a reduction in the unmodified retirement allowance in order to allow the member the ability to provide certain benefits to a surviving spouse, domestic partner, or named beneficiary having an insurable interest in the life of the member.

SBCERA provides an annual cost-of-living benefit to all retirees. The cost-of-living adjustment, based upon the Consumer Price Index for All Urban Consumers for the Riverside-San Bernardino-Ontario Area, is capped at 2.0%.

The County of San Bernardino and 16 other participating employers contribute to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Retirement. Employer contribution rates are adopted annually based upon recommendations received from SBCERA's actuary after the completion of the annual actuarial valuation. The average employer contribution rate as of June 30, 2019 for 2018-2019 (based on the June 30, 2017 valuation) was 30.91% of compensation.

Members are required to make contributions to SBCERA regardless of the retirement plan or tier in which they are included. Tier 1 members with 30 or more years of service are exempt from paying member contributions. The average member contribution rate as of June 30, 2019 for 2018-2019 (based on the June 30, 2017 valuation) was 11.32% of compensation.

EXHIBIT 2

Net Pension Liability

The components of the Net Pension Liability as follows:	June 30, 2019	June 30, 2018
Total Pension Liability	$13,300,303,218	$12,600,570,218
Plan's Fiduciary Net Position	(10,588,406,657)	(10,066,990,216)
Net Pension Liability	$2,711,896,561	$2,533,580,002
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	79.61%	79.89%

The Net Pension Liability (NPL) for the plan was measured as of June 30, 2019 and 2018. The Plan's Fiduciary Net Position (plan assets) and Total Pension Liability (TPL) were valued as of the measurement date and are from actuarial valuations as of June 30, 2019 and 2018, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL are the same as those used in the SBCERA actuarial valuations as of June 30, 2019 and 2018, respectively. The TPL and the Plan's Fiduciary Net Position include liabilities and assets held for Survivor Benefit and Burial Allowance Reserve.

Actuarial assumptions and actuarial cost method. The TPLs as of June 30, 2019 and 2018 that were measured by actuarial valuations as of June 30, 2019 and 2018, respectively, used the same actuarial assumptions and actuarial cost method as the June 30, 2019 and 2018 funding valuations. The actuarial assumptions used in both valuations were based on the results of an experience study for the period from July 1, 2013 through June 30, 2016. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation:	3.00%
Salary increases:	General: 4.50% to 14.50% and Safety: 4.70% to 14.50%, varying by service, including inflation
Investment rate of return:	7.25%, net of pension plan investment expense, including inflation
Administrative expenses:	0.70% of payroll allocated to both the employer and member based on components of the total contribution rate (before expenses) for the employer and member

Mortality:	Mortality rates are based on the Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected generationally with the two-dimensional MP-2016 projection scale. For healthy General members, ages are set forward one year for males. For healthy Safety members, ages are set back one year for both males and females. For disabled General members, ages are set forward seven years for both males and females. For disabled Safety members, ages are set back one year for both males and females. Beneficiaries are assumed to have the same mortality as a General member of the opposite sex who is receiving a service retirement.
Other assumptions:	Same as those used in the June 30, 2019 and 2018 funding valuations. These assumptions were developed in the actuarial experience study for the period July 1, 2013 through June 30, 2016.

The Entry Age Actuarial Cost Method used in SBCERA's annual actuarial valuations for funding purposes has also been applied in measuring the Service Cost and TPL with one exception. For purposes of measuring the Service Cost and TPL, we have applied the Entry Age method with costs allocated as a level percent of compensation. This is different from the version of this method applied in SBCERA's annual funding valuation for the Survivor Benefit, where costs are allocated as a level dollar amount based on service. The Service Cost associated with the Survivor Benefit as of June 30, 2019 was $1,642,000 while the TPL was $24,594,000.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation but before deducting investment expenses are shown in the following table. This information was used in the derivation of the long-term expected investment rate of return assumption for the June 30, 2019 and 2018 actuarial valuations. This information will change every three years based on the actuarial experience study.

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Large Cap U.S. Equity	8.00%	5.61%
Small Cap U.S. Equity	2.00%	6.37%
Developed International Equity	6.00%	6.96%
Emerging Market Equity	6.00%	9.28%
U.S. Core Fixed Income	2.00%	1.06%
High Yield/Credit Strategies	13.00%	3.65%
Global Core Fixed Income	1.00%	0.07%
Emerging Market Debt	6.00%	3.85%
Real Estate	9.00%	4.37%
Cash & Equivalents	2.00%	-0.17%
International Credit	11.00%	6.75%
Absolute Return	13.00%	3.56%
Other Real Assets	5.00%	6.35%
Private Equity	16.00%	8.47%
Total	100.00%	

Discount rate: The discount rate used to measure the TPL was 7.25% for both June 30, 2019 and June 30, 2018. The projection of cash flows used to determine the discount rate assumed employer and member contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employee and employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of returns on pension plan investments of 7.25% was applied to all periods of projected benefit payments to determine the TPL as of both June 30, 2019 and June 30, 2018.

Sensitivity of the June 30, 2019 Net Pension Liability to changes in the discount rate. The following presents the NPL as of June 30, 2019, calculated using the discount rate of 7.25%, as well as what the NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25%) or 1-percentage-point higher (8.25%) than the current rate:

	1.00% Decrease (6.25%)	**Current Discount Rate (7.25%)**	**1.00% Increase (8.25%)**
Net Pension Liability as of June 30, 2019	$4,531,326,064	$2,711,896,561	$1,220,254,052

Sensitivity of the June 30, 2018 Net Pension Liability to changes in the discount rate. The following presents the NPL as of June 30, 2018, calculated using the discount rate of 7.25%, as well as what the NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25%) or 1-percentage-point higher (8.25%) than the current rate:

	1.00% Decrease (6.25%)	**Current Discount Rate (7.25%)**	**1.00% Increase (8.25%)**
Net Pension Liability as of June 30, 2018	$4,267,950,568	$2,533,580,002	$1,110,972,450

EXHIBIT 3

Schedules of Changes in Net Pension Liability – Last Two Fiscal Years

	2019	2018
Total Pension Liability		
1. Service cost	$334,062,066	$321,930,580
2. Interest	916,789,928	868,276,521
3. Liability transfer from outside plan(1)	0	5,923,347
4. Differences between expected and actual experience	27,388,949	19,790,899
5. Changes of assumptions	0	0
6. Benefit payments, including refunds of member contributions	(578,507,943)	(539,296,847)
7. Net change in Total Pension Liability	$699,733,000	$676,624,500
8. Total Pension Liability – beginning	12,600,570,218	11,923,945,718
9. Total Pension Liability – ending	$13,300,303,218	$12,600,570,218
Plan's Fiduciary Net Position		
10. Contributions – employer	$446,294,977	$378,667,309
11. Contributions – plan members	163,551,784	149,478,284
12. Asset transfer from outside plan(1)	0	4,311,546
13. Net investment income	502,752,677	797,480,630
14. Benefit payments, including refunds of member contributions	(578,507,943)	(539,296,847)
15. Administrative expense	(9,382,875)	(8,752,366)
16. Other expenses	(3,292,179)	(3,339,701)
17. Net change in Plan's Fiduciary Net Position	$521,416,441	$778,548,855
18. Plan's Fiduciary Net Position – beginning	10,066,990,216	9,288,441,361
19. Plan's Fiduciary Net Position – ending	$10,588,406,657	$10,066,990,216
10. Net Pension Liability – ending (9) – (19)	$2,711,896,561	$2,533,580,002
21. Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	79.61%	79.89%
22. Covered payroll(2)	$1,477,131,264	$1,406,470,110
23. Plan's Net Pension Liability as percentage of covered payroll	183.59%	180.14%

(1) *Represents transfer of assets and liabilities from CalPERS related to the transfer of Big Bear Fire Authority employees as of June 30, 2018.*

(2) *Covered payroll represents payroll on which contributions to the pension plan are based. The covered payroll shown is an estimate based on the prior year's valuation for each date shown.*

Notes to Schedule: *Results include Survivor Benefit.*

EXHIBIT 4

Schedule of Employer Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contributions[1]	Contributions in Relation to the Actuarially Determined Contributions[1]	Contribution Deficiency (Excess)	Covered Payroll[2]	Contributions as a Percentage of Covered Payroll
2010	$163,959,509	$163,959,509	$0	$1,226,431,276	13.37%
2011	180,755,714	180,755,714	0	1,250,192,961	14.46%
2012	210,000,343	210,000,343	0	1,244,554,740	16.87%
2013	248,840,990	248,840,990	0	1,260,309,037	19.74%
2014	278,352,174	278,352,174	0	1,262,751,964	22.04%
2015	303,243,387	303,243,387	0	1,267,666,810	23.92%
2016	340,511,616	340,511,616	0	1,309,095,254	26.01%
2017	360,477,890	360,477,890	0	1,346,408,201	26.77%
2018	378,667,309	378,667,309	0	1,406,470,110	26.92%
2019	446,294,977	446,294,977	0	1,477,131,264	30.21%

See accompanying notes to this schedule on next page.

[1] *The Board has approved all contribution rates recommended by the actuary. Actuarially determined contributions include contributions required for the survivor benefit, and exclude employer paid member contributions, UAAL prepayments, golden handshake payments, funds deposited for purchase of service credit, payments made by withdrawn employers, member paid employer contributions and member contributions. Starting from 2015, actuarially determined contributions include member paid employer contributions.*

[2] *Covered payroll represents payroll on which contributions to the pension plan are based. The covered payroll shown is an estimate based on the prior year's valuation for each date shown.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" rates:

Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported	
Actuarial cost method	Entry Age Actuarial Cost Method	
Amortization method	Level percent of payroll	
Remaining amortization period	20 years for all UAAL prior to June 30, 2002. Any changes in UAAL after June 30, 2002 are amortized over a 20-year closed period effective with each valuation. Effective June 30, 2012, any changes in UAAL due to actuarial gains or losses or due to changes in actuarial assumptions or methods will be amortized over a 20-year closed period effective with each valuation. Any change in unfunded actuarial accrued liability that arises due to plan amendments is amortized over its own declining 15-year period (with exception of a change due to retirement incentives, which is amortized over a declining period of up to 5 years).	
Asset valuation method	Market value of assets less unrecognized returns from each of the last five years. Unrecognized returns are equal to the difference between the actual market return and the expected return on a market value basis and are recognized over a five-year period. The Actuarial Value of Assets is reduced by the value of the non-valuation reserves.	
Actuarial assumptions:	June 30, 2019 Valuation Date	June 30, 2018 Valuation Date
Investment rate of return	7.25%, net of pension plan investment expenses, including inflation	7.25%, net of pension plan investment expenses, including inflation
Inflation rate	3.00%	3.00%
Real across-the-board salary increase	0.50%	0.50%
Projected salary increases(1)	General: 4.50% to 14.50% and Safety: 4.70% to 14.50%	General: 4.50% to 14.50% and Safety: 4.70% to 14.50%
Administrative Expenses	0.70% of payroll allocated to both the employer and member based on the components of the total contribution rate (before expenses) for the employer and member.	0.70% of payroll allocated to both the employer and member based on the components of the total contribution rate (before expenses) for the employer and member.
Cost of living adjustments	2.00% (actual increases contingent upon CPI increases with a 2% maximum)	2.00% (actual increases contingent upon CPI increases with a 2% maximum)
Other assumptions	Same as those used in the June 30, 2019 funding actuarial valuation	Same as those used in the June 30, 2018 funding actuarial valuation

(1) *Includes inflation at 3.00% plus real across-the-board salary increase of 0.50% plus merit and promotion increases for both June 30, 2019 and June 30, 2018.*

EXHIBIT 5

Projection of the Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2019

($ in millions)

Year Beginning July 1	Projected Beginning Plan's Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan's Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2019	$10,588	$626	$671	$10	$766	$11,299
2020	11,299	633	686	10	817	12,053
2021	12,053	630	727	10	870	12,817
2022	12,817	628	769	9	924	13,590
2023	13,590	554	812	9	976	14,298
2024	14,298	592	856	9	1,027	15,052
2025	15,052	568	901	9	1,079	15,789
2026	15,789	572	948	9	1,131	16,535
2027	16,535	574	994	8	1,184	17,291
2028	17,291	574	1,041	8	1,237	18,053
2044	23,472	93	1,772	3	1,642	23,432
2045	23,432	84	1,805	3	1,637	23,344
2046	23,344	74	1,836	3	1,630	23,209
2047	23,209	65	1,865	3	1,618	23,025
2048	23,025	56	1,890	2	1,604	22,793
2058	18,911	6	1,880	0 *	1,304	18,341
2068	12,946	0 *	1,462	0 *	887	12,370
2078	8,135	0	881	0	558	7,812
2088	6,859	0	344	0	485	7,000
2098	10,824	0	55	0	783	11,552
2108	21,457	0	2	0	1,556	23,012
2118	43,199	0	0 *	0	3,132	46,331
2128	86,986	0	0 *	0	6,307	93,293
2136	152,275	0	0 *	0	11,040	163,315
2137	163,315	0	0	0	11,840	175,155
2137 Discounted Value:	42 **					

* Less than $1 million, when rounded.

** $163,315 million when discounted with interest at the rate of 7.25% per annum has a value of $42 million as of June 30, 2019.

EXHIBIT 5

Projection of the Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2019 ($ in millions) - continued

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Certain years have been omitted from the table.

(3) Column (a): Except for the "discounted value" shown for 2137, none of the projected beginning Plan's Fiduciary Net Position amounts shown have been adjusted for the time value of money.

(4) Column (b): Projected total contributions include employee and employer normal cost rates applied to closed group projected payroll (based on covered active members as of June 30, 2019), plus employer contributions to the unfunded actuarial accrued liability, plus employee and employer contributions to fund each year's annual administrative expenses. Contributions are assumed to occur halfway through the year, on average.

(5) Column (c): Projected benefit payments have been determined in accordance with Paragraph 39 of GASB Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of June 30, 2019. The projected benefit payments are assumed to occur halfway through the year, on average and reflect the cost of living increase assumptions used in the June 30, 2019 valuation report.

(6) Column (d): Projected administrative expenses are assumed to be 0.7% of closed group projected payroll and are assumed to occur halfway through the year, on average.

(7) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.25% per annum.

(8) As illustrated in this Exhibit, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected "cross-over date" when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 7.25% per annum was applied to all periods of projected benefit payments to determine the Total Pension Liability as of June 30, 2019 shown earlier in this report, pursuant to Paragraph 44 of GASB Statement No. 67.

EXHIBIT 6

Projection of the Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2018

($ in millions)

Year Beginning July 1	Projected Beginning Plan's Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan's Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2018	$10,067	$595	$624	$10	$729	$10,757
2019	10,757	603	640	9	778	11,489
2020	11,489	606	680	9	830	12,236
2021	12,236	598	720	9	882	12,988
2022	12,988	592	761	9	935	13,744
2023	13,744	514	804	9	986	14,431
2024	14,431	551	849	8	1,035	15,160
2025	15,160	527	894	8	1,086	15,870
2026	15,870	530	940	8	1,136	16,588
2027	16,588	531	986	8	1,186	17,311
2043	22,787	91	1,711	3	1,594	22,758
2044	22,758	82	1,745	3	1,591	22,683
2045	22,683	73	1,776	3	1,584	22,561
2046	22,561	64	1,804	2	1,574	22,393
2047	22,393	55	1,830	2	1,560	22,176
2057	18,485	6	1,823	0 *	1,275	17,943
2067	12,837	0 *	1,419	0 *	880	12,297
2077	8,424	0	857	0	580	8,147
2087	7,686	0	337	0	545	7,894
2097	12,520	0	56	0	906	13,369
2107	24,855	0	2	0	1,802	26,655
2117	50,039	0	0 *	0	3,628	53,667
2127	100,759	0	0 *	0	7,305	108,064
2135	176,386	0	0 *	0	12,788	189,174
2136	189,174	0	0	0	13,715	202,889
2136 Discounted Value:	49 **					

* Less than $1 million, when rounded.

** $189,174 million when discounted with interest at the rate of 7.25% per annum has a value of $49 million as of June 30, 2018.

EXHIBIT 6

Projection of the Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2018

($ in millions) - continued

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Certain years have been omitted from the table.

(3) Column (a): Except for the "discounted value" shown for 2136, none of the projected beginning Plan's Fiduciary Net Position amounts shown have been adjusted for the time value of money.

(4) Column (b): Projected total contributions include employee and employer normal cost rates applied to closed group projected payroll (based on covered active members as of June 30, 2018), plus employer contributions to the unfunded actuarial accrued liability, plus employee and employer contributions to fund each year's annual administrative expenses. Contributions are assumed to occur halfway through the year, on average.

(5) Column (c): Projected benefit payments have been determined in accordance with Paragraph 39 of GASB Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of June 30, 2018. The projected benefit payments are assumed to occur halfway through the year, on average and reflect the cost of living increase assumptions used in the June 30, 2018 valuation report.

(6) Column (d): Projected administrative expenses are assumed to be 0.7% of closed group projected payroll and are assumed to occur halfway through the year, on average.

(7) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.25% per annum.

(8) As illustrated in this Exhibit, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected "cross-over date" when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 7.25% per annum was applied to all periods of projected benefit payments to determine the Total Pension Liability as of June 30, 2018 shown earlier in this report, pursuant to Paragraph 44 of GASB Statement No. 67.

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