

**San Bernardino County Employees'  
Retirement Association**

**Actuarial Valuation and Review  
as of June 30, 2018**



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 27, 2018*

*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, 2018. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2019-2020 and analyzes the preceding year's experience.*

*This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census information on which our calculations were based was prepared by SBCERA and the financial information was provided by the Retirement Association. 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, EA, MAAA. 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 the expectations for the Plan.*

*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, EA, MAAA, FCA  
Senior Vice President and Actuary*

*AW/bbf*

  
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Vice President and Actuary*

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## **SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association**

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### **Purpose and Scope**

This report has been prepared by Segal Consulting to present an actuarial valuation of the San Bernardino County Employees' Retirement Association (SBCERA) as of June 30, 2018. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Retirement Association, as administered by SBCERA;
- The characteristics of covered active members, terminated vested members, and retired members and beneficiaries as of June 30, 2018, provided by SBCERA;
- The assets of the Plan as of June 30, 2018, provided by SBCERA;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the June 30, 2018 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the June 30, 2018 valuation.

The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2019 through June 30, 2020.

One of the general goals of an actuarial valuation is to establish contributions that fully fund the system's liabilities, and that, 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 assets, 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 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 \$2.9 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.

## SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association

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*Ref: Pgs. 76-77*

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 2002, the Board of Retirement elected to amortize the Association's unfunded actuarial accrued liability as of June 30, 2002 over a declining 20-year period. Any change in unfunded actuarial accrued liability that arises due to actuarial gains or losses or due to changes in actuarial assumptions or methods at each valuation after June 30, 2002 is amortized over its own declining 20-year period. Effective with the June 30, 2012 valuation, any change in unfunded actuarial accrued liability that arises due to plan amendments is amortized over its own declining 15-year period (with the exception of a change due to retirement incentives, which is amortized over its own declining period of up to 5 years).

*Ref: Pgs. 54-61*

A schedule of current amortization balances and payments may be found in Section 3, Exhibit J. A graphical projection of the UAAL amortization bases and payments is shown in Exhibit K.

### **Significant Issues in this Valuation**

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

*Ref: Pgs. 11-12*

➤ The market value of assets earned a return of 8.60% for the July 1, 2017 to June 30, 2018 plan year. The actuarial value of assets earned a return of 6.97% for the same period due to the deferral of most of the current year investment gains and the recognition of prior investment gains and losses. This resulted in an actuarial loss when measured against the assumed rate of return for 2017-2018 of 7.25%.

*Ref: Pgs. 24, 53*

➤ The ratio of the actuarial value of assets to actuarial accrued liabilities increased from 78.7% to 79.5%. The Association's Unfunded Actuarial Accrued Liability (UAAL) increased from \$2.54 billion as of June 30, 2017 to \$2.58 billion as of June 30, 2018. The increase in the UAAL is primarily due to actual contributions less than expected and a loss from retirement experience. A reconciliation of the Association's UAAL is provided in Section 3, Exhibit I.

*Ref: Pg. 21*

➤ The average recommended employer contribution rate increased from 30.91% of payroll as of June 30, 2017 to 31.09% of payroll in the June 30, 2018 valuation. The increase in the average employer contribution rate is primarily due to actual contributions less than expected and a loss from retirement experience. The increase is offset to some extent by lower than expected salary increases for active members and changes in demographics of members amongst the tiers. A complete reconciliation of the Association's aggregate employer rate is provided in Section 2, Subsection D, Chart 15.

*Ref: Pg. 22*

➤ The average recommended member contribution rate decreased from 11.32% of payroll in the June 30, 2017 valuation to 11.21% of payroll in the June 30, 2018 valuation. This decrease was mainly the result of changes in demographics of members amongst the tiers. A complete reconciliation of the Association's aggregate member rate is provided in Section 2, Subsection D, Chart 16.

## SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association

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*Ref: Pg. 5*

- As of June 30, 2018, the Big Bear Fire Authority transferred active members from CalPERS to the SBCERA Safety cost group. Accordingly, both assets and liabilities for these members were transferred from CalPERS to the SBCERA Safety cost group. In addition, in order to prevent a decrease in the Safety employer rate at the time of the transfer, we have reduced the assets of the Safety cost group by \$4.8 million. This represents the present value of additional future contribution credits from SBCERA to the Big Bear Fire Authority.
- As indicated in Section 2, Subsection B, Chart 7 of this report, the total unrecognized investment gain as of June 30, 2018 is \$46 million as compared to an unrecognized loss of \$98 million in the June 30, 2017 valuation. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes over the next few years. This implies that even if the assets earn the assumed rate of investment return of 7.25% per year (net of expenses) on a **market value** basis, there would be investment gains on the actuarial value of assets in the next few years as shown in the footnote on Chart 7. Therefore, if the actual net market return is equal to the assumed 7.25% rate and all other actuarial assumptions are met, the contribution requirements would decrease in each of the next few years as those gains are recognized.
- The June 30, 2018 unrecognized investment gain of \$46 million represents about 0.5% of the market value of assets. Unless offset by future investment losses or other unfavorable experience, the recognition of the \$46 million market gains is expected to have an impact on the Association's future funded ratio and the aggregate employer contribution rate. This potential impact may be illustrated as follows:
  - If the deferred gains were recognized immediately in the actuarial value of assets, the funded ratio would increase from 79.5% to 79.9%.

For comparison purposes, if all the deferred losses in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the funded percentage would have decreased from 78.7% to 77.9%.
  - If the deferred gains were recognized immediately in the actuarial value of assets, the aggregate employer contribution rate would decrease from 31.09% to 30.87%.

For comparison purposes, if all the deferred losses in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the aggregate employer contribution rate would have increased from 30.91% to 31.40%.
- The actuarial report as of June 30, 2018 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the plan, while increases will decrease the actuarial cost of the plan.

## **SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association**

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### New Actuarial Standard of Practice on Risk Assessment

The Actuarial Standards Board approved a new Actuarial Standard of Practice No. 51 (ASOP 51) regarding risk assessment. ASOP 51 will be effective with SBCERA's June 30, 2019 actuarial valuation. ASOP 51 requires actuaries to identify risks that "may reasonably be anticipated to significantly affect the plan's future financial condition". Investment risk, asset/liability mismatch risk, interest rate risk, longevity and other demographic risks and contribution risk are also cited as examples in ASOP 51. The standard does not require the actuary to evaluate the likelihood of contributing entities to make contributions when due, nor does it require the actuary to assess the likelihood or consequences of future changes in applicable law.

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

We plan on discussing with SBCERA what we would recommend be included in SBCERA's risk report for the June 30, 2019 valuation.

### Impact of Future Experience on Contribution Rates

Future contribution requirements may differ from those determined in the valuation because of:

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

**SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association**

**Summary of Key Valuation Results (all dollar amounts in thousands)**

	June 30, 2018		June 30, 2017	
	Total Rate	Estimated Annual Amount <sup>(1)</sup>	Total Rate	Estimated Annual Amount <sup>(1)</sup>
<b>Employer Contribution Rates:</b>				
County General Tier 1	25.39%	\$174,000	25.27%	\$178,582
County General Tier 2	22.86	76,012	22.73	61,902
Safety Tier 1	55.08	100,552	55.57	101,530
Safety Tier 2	49.61	38,187	50.30	27,014
County General and Safety combined	30.43	388,751	30.36	369,028
Superior Court Tier 1	28.36	15,241	28.17	15,087
Superior Court Tier 2	25.83	5,468	25.63	4,704
South Coast Air Quality Management District (SCAQMD) Tier 1	42.31	25,856	40.34	25,029
South Coast Air Quality Management District (SCAQMD) Tier 2	38.04	6,173	36.89	4,162
Other General Tier 1	38.02	13,919	37.03	13,890
Other General Tier 2	35.61	3,888	34.30	2,841
All employers combined	31.09	459,296	30.91	434,741
<b>Average Member Contribution Rates<sup>(2)</sup>:</b>				
	Total Rate	Estimated Annual Amount <sup>(1)</sup>	Total Rate	Estimated Annual Amount <sup>(1)</sup>
County General Tier 1	11.47%	\$78,605	11.53%	\$81,482
County General Tier 2	9.10	30,258	9.16	24,946
Safety Tier 1	13.27	24,225	13.30	24,300
Safety Tier 2	16.19	12,462	16.54	8,883
County General and Safety combined	11.39	145,550	11.49	139,611
Superior Court Tier 1	11.32	6,084	11.31	6,057
Superior Court Tier 2	9.10	1,926	9.16	1,681
South Coast Air Quality Management District (SCAQMD) Tier 1	9.11	5,567	9.66	5,994
South Coast Air Quality Management District (SCAQMD) Tier 2	8.18	1,328	8.39	947
Other General Tier 1	11.35	4,155	11.31	4,243
Other General Tier 2	9.07	990	9.05	749
All employers combined	11.21	165,600	11.32	159,282

<sup>(1)</sup> Based on projected annual compensation for each valuation date.

<sup>(2)</sup> The refundability factors as of both June 30, 2018 and June 30, 2017 are 1.06 for General Tier 1 and 1.02 for Safety Tier 1. See Appendix A and B for the individual member contribution rates.

**SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association**

**Summary of Key Valuation Results (all dollar amounts in thousands)**

	June 30, 2018	June 30, 2017
<b>Funded Status:</b>		
Actuarial accrued liability (AAL) <sup>(1)</sup>	\$12,604,942	\$11,928,310
Actuarial value of assets (AVA) <sup>(2)(3)</sup>	\$10,020,863	\$9,385,977
Market value of assets (MVA) <sup>(3)</sup>	\$10,066,990	\$9,288,441
Funded ratio on AVA basis (AVA/AAL)	79.50%	78.69%
Funded ratio on MVA basis (MVA/AAL)	79.87%	77.87%
Unfunded actuarial accrued liability (UAAL) on AVA basis	\$2,584,079	\$2,542,333
Unfunded actuarial accrued liability (UAAL) on MVA basis	\$2,537,952	\$2,639,869
<b>Key Assumptions:</b>		
Interest rate	7.25%	7.25%
Inflation rate	3.00%	3.00%
Salary increases (excluding merit)	3.50%	3.50%

<sup>(1)</sup> Includes liabilities held for Survivor Benefit and Burial Allowance reserves. For June 30, 2018 those amounts are \$28,423 and \$629, respectively. The AAL for retirement plan benefits is \$12,575,890 as of June 30, 2018.

<sup>(2)</sup> Includes assets held for Survivor Benefit and Burial Allowance reserves. For June 30, 2018 those amounts are \$70,067 and \$629, respectively. The AVA for retirement plan benefits is \$9,950,167 as of June 30, 2018.

<sup>(3)</sup> The June 30, 2018 and June 30, 2017 market and actuarial value of assets exclude \$16.6 million and \$21.6 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.

## SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association

### Summary of Key Valuation Demographic and Financial Data

	June 30, 2018	June 30, 2017	Percentage Change
<b>Active Members:</b>			
Number of members	21,465	21,110	1.7%
Average age	44.0	44.2	-0.2
Average service	10.7	10.7	0.0
Projected total compensation	\$1,477,131,264	\$1,406,470,110	5.0%
Average projected compensation	\$68,816	\$66,626	3.3%
<b>Retired Member and Beneficiaries:</b>			
Number of members:			
Service retired	9,417	8,983	4.8%
Disability retired	1,593	1,570	1.5%
Beneficiaries <sup>(1)</sup>	1,706	1,626	4.9%
Total	12,716	12,179	4.4%
Average age	69.2	69.0	0.2
Average monthly benefit <sup>(2)</sup>	\$3,571	\$3,459	3.2%
<b>Vested Terminated Members:</b>			
Number of vested terminated members <sup>(3)</sup>	6,211	5,547	12.0%
Average age	44.3	44.8	-0.5
<b>Summary of Financial Data (dollar amounts in thousands):</b>			
Market value of assets	\$10,066,990	\$9,288,441	8.4%
Return on market value of assets	8.60%	13.40%	N/A
Actuarial value of assets	\$10,020,863	\$9,385,977	6.8%
Return on actuarial value of assets	6.97%	7.51%	N/A
Valuation value of assets <sup>(4)</sup>	\$10,036,803	\$9,406,929	6.7%
Return on valuation value of assets	6.97%	7.51%	N/A

<sup>(1)</sup> Excludes beneficiaries that are only receiving Survivor Benefit amounts.

<sup>(2)</sup> Excludes monthly benefits for Supplemental Disability and Survivor Benefit.

<sup>(3)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(4)</sup> The June 30, 2018 and June 30, 2017 valuation value of assets include \$16.6 million and \$21.6 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.

## SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association

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### 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 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 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 valuation 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 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 SBCERA. Segal is not responsible for the use or misuse of its report, particularly by any other party.

## SECTION 1: Valuation Summary for the San Bernardino County Employees' Retirement Association

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- 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 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 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.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**A. MEMBER DATA (ALL EMPLOYERS COMBINED)**

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

*A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.*

**CHART 1**  
**Member Population: 2009 – 2018**

<b>Year Ended June 30</b>	<b>Active Members</b>	<b>Vested Terminated Members<sup>(1)</sup></b>	<b>Retired Members and Beneficiaries</b>	<b>Ratio of Non-Actives to Actives</b>
2009	18,955	3,635	8,519	0.64
2010	19,520	3,635	8,843	0.64
2011	19,258	3,723	9,265	0.67
2012	19,306	3,782	9,736	0.70
2013	19,401	3,921	10,173	0.73
2014	19,497	4,356	10,618	0.77
2015	19,938	4,804	11,128	0.80
2016	20,538	5,136	11,630	0.82
2017	21,110	5,547	12,179	0.84
2018	21,465	6,211	12,716	0.88

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**Active Members**

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 21,465 active members with an average age of 44.0, average years of service of 10.7 years and average projected compensation of \$68,816. The 21,110 active members in the prior valuation had an average age of 44.2, average service of 10.7 years and average compensation of \$66,626.

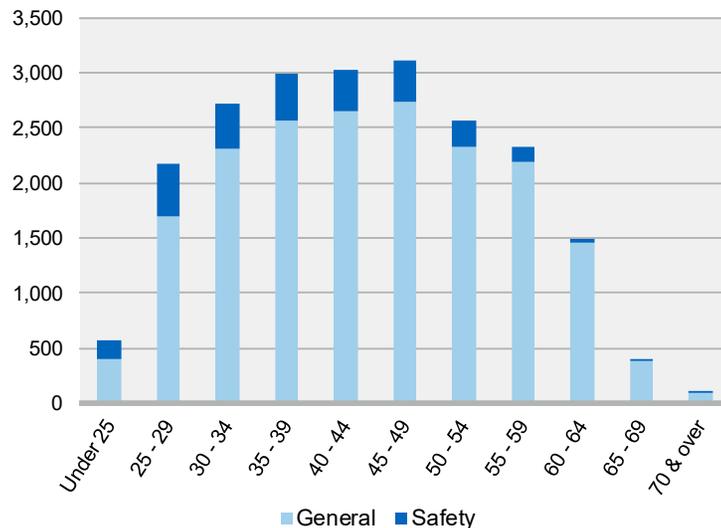
Among the active members, there were none with unknown age information.

**Inactive Members**

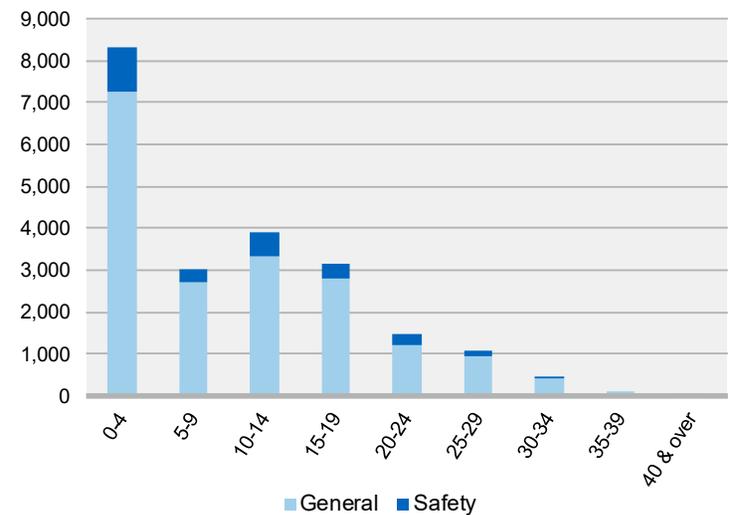
In this year's valuation, there were 6,211 members with a vested right to a deferred or immediate vested benefit or entitled to a return of their member contributions versus 5,547 in the prior valuation.

*These graphs show a distribution of active members by age and by years of service.*

**CHART 2**  
**Distribution of Active Members by Age as of June 30, 2018**



**CHART 3**  
**Distribution of Active Members by Years of Service as of June 30, 2018**



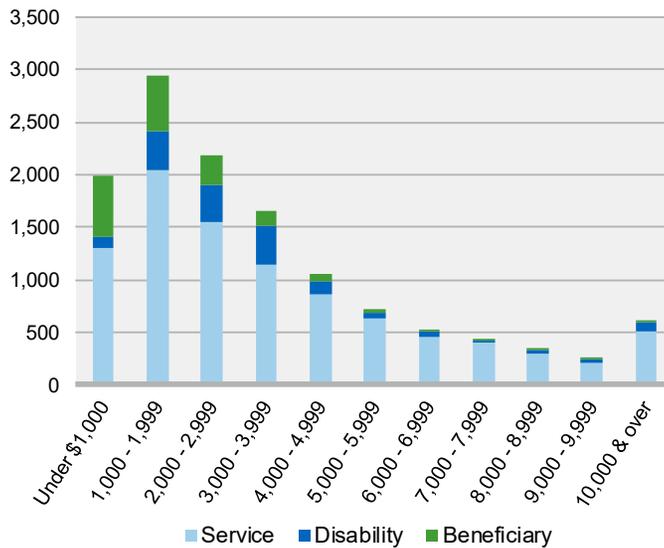
**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**Retired Members and Beneficiaries**

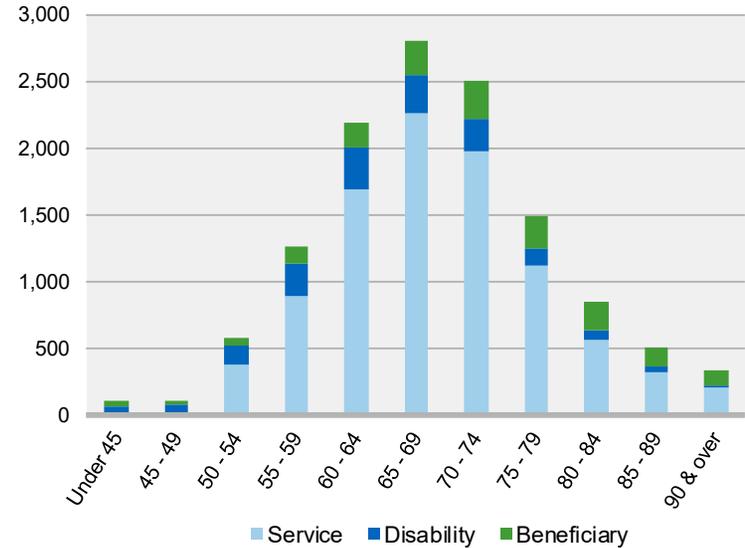
As of June 30, 2018, 11,010 retired members and 1,706 beneficiaries were receiving total monthly benefits of \$45,408,154. For comparison, in the previous valuation, there were 10,553 retired members and 1,626 beneficiaries receiving monthly benefits of \$42,121,789. These monthly benefits exclude benefits for Supplemental Disability and Survivor Benefit.

*These graphs show a distribution of the current retired members and beneficiaries based on their monthly amount and age, by type of pension.*

**CHART 4**  
**Distribution of Retired Members and Beneficiaries by Type and by Monthly Amount as of June 30, 2018**



**CHART 5**  
**Distribution of Retired Members and Beneficiaries by Type and by Age as of June 30, 2018**



## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

### B. FINANCIAL INFORMATION

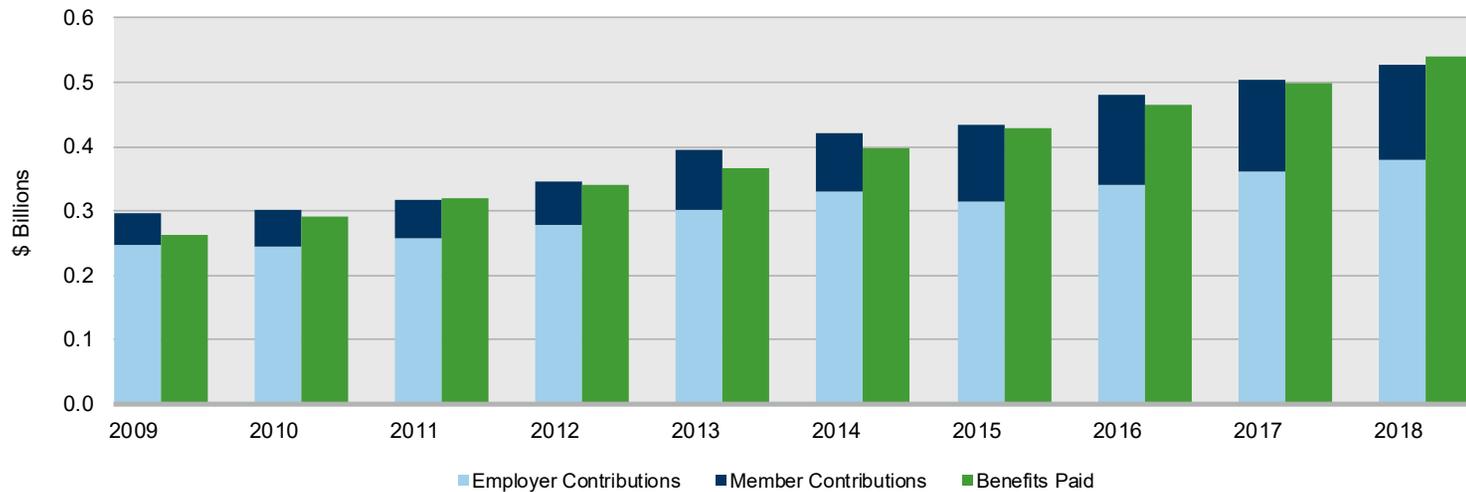
Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses starting in 2015) and net investment earnings (less investment expenses) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

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

*The chart depicts two components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets due to contributions during each year while the second bar details the decreases due to benefit payments.*

**CHART 6**

**Comparison of Contributions with Benefits for Years Ended June 30, 2009 – 2018**



## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Retirement 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 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.

### CHART 7

#### Determination of Actuarial and Valuation Value of Assets

Plan Year Ending <sup>(1)</sup>	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain / (Loss)	Deferred Factor	Deferred Return
6/30/2014	\$868,148,758	\$551,469,681	\$316,679,077	0.0	\$0
6/30/2015	280,841,907	599,470,791	(318,628,884)	0.2	(63,725,777)
6/30/2016	(80,027,512)	620,574,772	(700,602,284)	0.4	(280,240,914)
6/30/2017	1,098,198,034	614,520,648	483,677,386	0.6	290,206,432
6/30/2018	797,480,630	672,621,127	124,859,503	0.8	<u>99,887,602</u>
1. Total Deferred Return <sup>(2)</sup>					\$46,127,343
2. Market Value Of Assets					\$10,066,990,216
3. Actuarial Value of Assets (2) – (1)					\$10,020,862,873
4. Ratio of Actuarial Value To Market Value (3) / (2)					99.5%
5. Non-valuation Reserves					
(a) Burial allowance reserve					<u>\$629,218</u>
6. Preliminary Valuation Value of Assets (3) – (5)(a)					\$10,020,233,655
7. Valuation Value of Assets <sup>(3)</sup>					<u>\$10,036,803,242</u>

<sup>(1)</sup> Recognition at 20% per year over five years.

<sup>(2)</sup> Deferred return amount as of June 30, 2018 recognized in each of the next four years

(i)	Amount Recognized during 2018-2019	\$(82,138,856)
(ii)	Amount Recognized during 2019-2020	(18,413,079)
(iii)	Amount Recognized during 2020-2021	121,707,378
(iv)	Amount Recognized during 2021-2022	<u>24,971,900</u>
		<u>\$46,127,343</u>

<sup>(3)</sup> 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.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**CHART 8**

**Allocation of Valuation Value of Assets as of June 30, 2018**

The calculation of the valuation value of assets from June 30, 2017 to June 30, 2018 by employer categories is provided below:

	General			
	County	Superior Court	SCAQMD	Others
1 Allocated Valuation Value of Assets as of Beginning of Plan Year	\$5,904,510,010	\$348,513,815	\$640,918,190	\$237,526,642
2 Allocated Valuation Value of Assets as of Beginning of Plan Year Including Future Safety Contributions	5,904,510,010	348,513,815	640,918,190	237,526,642
3 Member Contributions	96,812,974	7,187,103	6,573,616	4,848,765
4 Employer Contributions	203,162,966	16,892,776	25,301,120	15,024,688
5 Big Bear Fire Authority Asset Transfer from CalPERS	0	0	0	0
6 Allocated Administrative Expenses	8,417,170	618,209	630,443	393,703
7 Benefit Payments Excluding Burial Allowance Payments (\$250)	326,896,800	15,881,902	40,740,963	14,875,408
8 Subtotal (Item 1+3+4+5-6-7)	\$5,869,171,980	\$356,093,583	\$631,421,520	\$242,130,984
9 Weighted Average Fund Balance	5,886,840,995	352,303,699	636,169,855	239,828,813
10 Earnings Allocated in Proportion to Item 9	410,407,328	24,561,224	44,351,252	16,719,919
11 Allocated Valuation Value of Assets as of End of Plan Year (Item 8+10)	\$6,279,579,308	\$380,654,807	\$675,772,772	\$258,850,903
12 Allocated Valuation Value of Assets as of End of Plan Year Including Future Safety Contributions	\$6,279,579,308	\$380,654,807	\$675,772,772	\$258,850,903

*Note: Results may not add due to rounding.*

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

### CHART 8 (continued)

#### Allocation of Valuation Value of Assets as of June 30, 2018

The calculation of the valuation value of assets from June 30, 2017 to June 30, 2018 by employer categories is provided below:

	Safety	Withdrawn Employers <sup>(1)</sup>	Survivor Benefit Reserve	Total
1 Allocated Valuation Value of Assets as of Beginning of Plan Year	\$2,172,506,580	\$15,682,212	\$65,633,394	\$9,385,290,843
2 Allocated Valuation Value of Assets as of Beginning of Plan Year Including Future Safety Contributions	2,194,144,787 <sup>(2)</sup>	15,682,212	65,633,394	9,406,929,050
3 Member Contributions	33,246,686	0	809,140	149,478,284
4 Employer Contributions	117,475,821	0	809,938	378,667,309
5 Big Bear Fire Authority Asset Transfer from CalPERS	4,311,546	0	0	4,311,546
6 Allocated Administrative Expenses	2,032,542	0	0	12,092,067
7 Benefit Payments Excluding Burial Allowance Payments (\$250)	138,329,987	497,302	2,017,985	539,240,347
8 Subtotal (Item 1+3+4+5-6-7)	\$2,187,178,104	\$15,184,910	\$65,234,487	\$9,366,415,568
9 Weighted Average Fund Balance	2,178,399,648	15,433,561	65,433,941	9,374,410,512
10 Earnings Allocated in Proportion to Item 9	151,869,429	1,075,967	4,832,968 <sup>(3)</sup>	653,818,087
11 Allocated Valuation Value of Assets as of End of Plan Year (Item 8+10)	\$2,339,047,533	\$16,260,877	\$70,067,455	\$10,020,233,655
12 Allocated Valuation Value of Assets as of End of Plan Year Including Future Safety Contributions	\$2,355,617,120 <sup>(4)</sup>	\$16,260,877	\$70,067,455	\$10,036,803,242

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

<sup>(2)</sup> Includes \$21.6 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 to SBCERA for their transfers.

<sup>(3)</sup> Actual Earnings for Survivor Benefit Reserve.

<sup>(4)</sup> 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.

Note: Results may not add due to rounding.

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

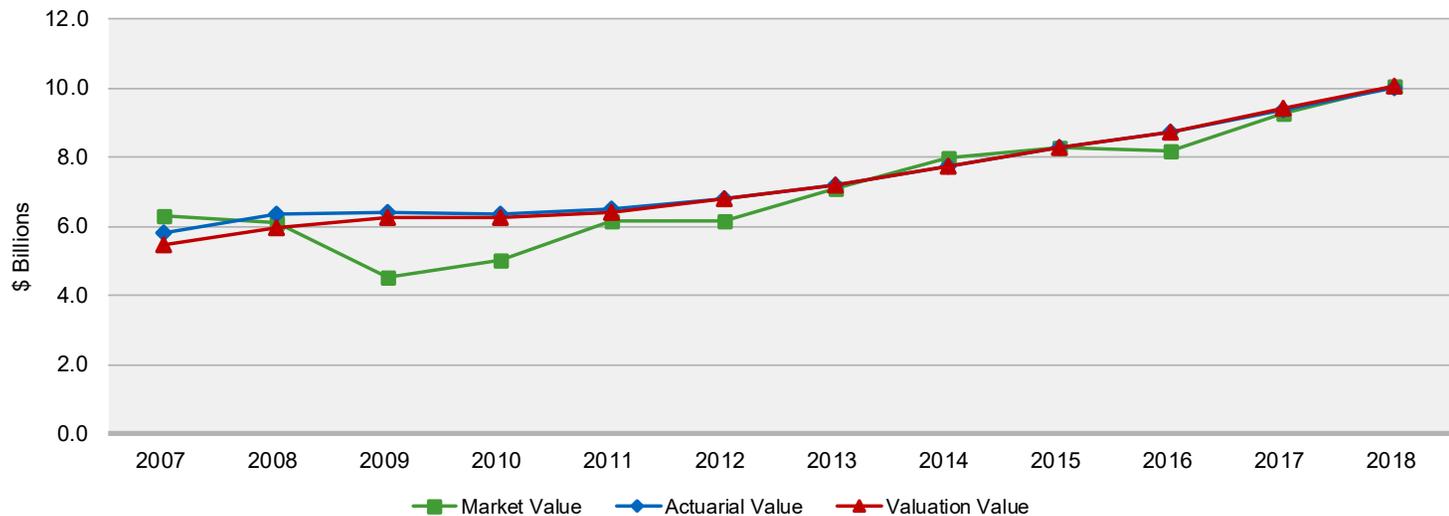
The valuation value of assets is significant because SBCERA's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

The market value, actuarial value and valuation value of assets are representations of SBCERA's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets, but with less volatility. The valuation value of assets is the actuarial value, excluding any non-valuation reserves.

*This chart shows the change in the market value, actuarial value and valuation value over the past twelve years.*

**CHART 9**

**Relative Values of Market Value, Actuarial Value and Valuation Value of Assets for Years Ended June 30, 2007 – 2018**



**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

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**C. ACTUARIAL EXPERIENCE**

To calculate the required 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 contribution requirement will decrease from the previous year. On the other hand, the contribution requirement 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.

The total experience loss is \$126.6 million, a \$25.8 million loss from investments, a loss of \$71.9 million from contribution experience and a \$28.8 million loss from all other sources. The net experience variation from individual sources other than investment and contribution experience was 0.2% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience during the past year.*

**CHART 10**  
**Actuarial Experience for Year Ended June 30, 2018**

1. Net gain/(loss) from investments <sup>(1)</sup>	\$(25,827,000)
2. Net gain/(loss) from contribution experience	(71,875,000)
3. Net gain/(loss) from other experience <sup>(2)</sup>	<u>(28,848,000)</u>
4. Net experience gain/(loss): (1) + (2) + (3)	<u>\$(126,550,000)</u>

<sup>(1)</sup> Details in Chart 11.

<sup>(2)</sup> See Section 3, Exhibit I for further details. Does not include the effect of plan, assumption or method changes, if any.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**Investment Rate of Return**

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 SBCERA's investment policy. For valuation purposes, the assumed rate of return on the valuation value of assets was 7.25% for the 2017-2018 plan year (based on the June 30, 2017 actuarial valuation). The actual rate of return on the valuation value of assets for the 2017-2018 plan year was 6.97%.

Since the actual return for the year was less than the assumed return, the SBCERA experienced an actuarial loss on the valuation value of assets during the year ended June 30, 2018 with regard to its investments.

*This chart shows the gain/(loss) due to investment experience.*

**CHART 11**

**Investment Experience for Year Ended June 30, 2018 – Market, Actuarial and Valuation Value of Assets**

	<b>Market Value</b>	<b>Actuarial Value</b>	<b>Valuation Value</b>
1. Value of investment return	\$797,480,630	\$653,818,087	\$653,818,087
2. Average value of assets	9,277,532,780	9,375,067,980	9,374,410,512
3. Rate of return: (1) ÷ (2)	8.60%	6.97%	6.97%
4. Assumed rate of return	7.25%	7.25%	7.25%
5. Expected return: (2) x (4)	\$672,621,127	\$679,692,429	\$679,644,762
6. Actuarial gain/(loss): (1) – (5)	<u>\$124,859,503</u>	<u>\$(25,874,342)</u>	<u>\$(25,826,675)</u>

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

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, valuation, and market value basis for the last ten years.

**CHART 12**

**Investment Return – Market Value, Actuarial Value and Valuation Value: 2009 – 2018**

Year Ended June 30	Market Value Investment Return		Actuarial Value Investment Return		Valuation Value Investment Return	
	Amount	Percent	Amount	Percent	Amount	Percent
2009	\$(1,594,063,075)	(26.04%)	\$8,853,979	0.14%	\$159,672,616	2.64%
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%
Five-Year Average Return		7.26%		6.82%		6.82%
Ten-Year Average Return		5.66%		4.90%		5.21%

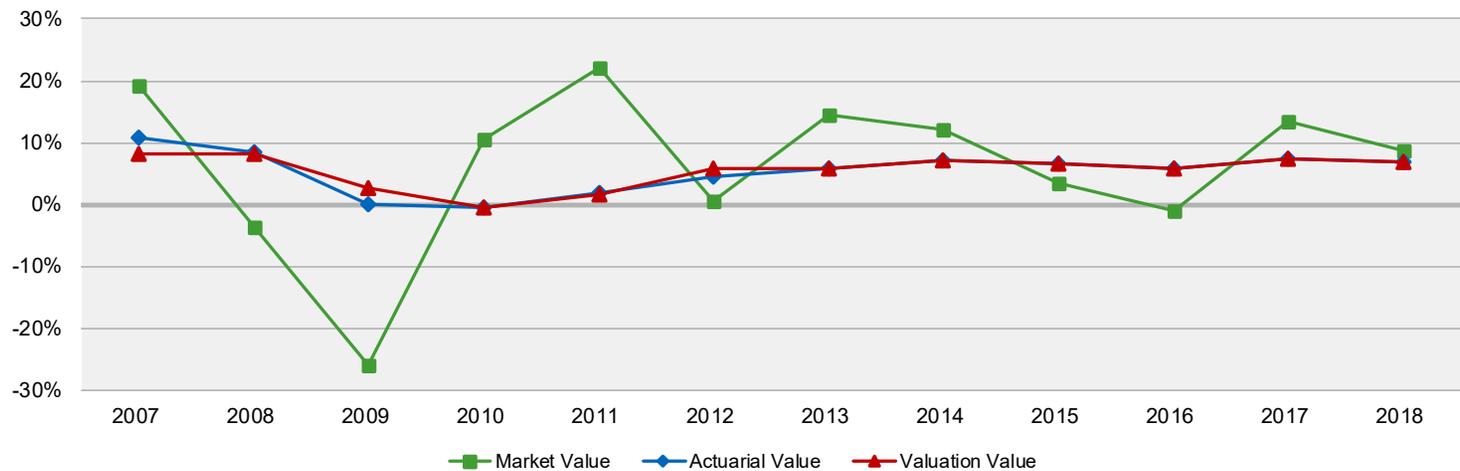
*Note: Each year's yield is weighted by the average asset value in that year.*

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

*This chart illustrates how this leveling effect has actually worked over the years 2007 - 2018.*

**CHART 13**  
**Market, Actuarial, and Valuation Rates of Return for Years Ended June 30, 2007 - 2018**



## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

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### 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 the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the year ended June 30, 2018 amounted to \$28.8 million, which was 0.2% of the actuarial accrued liability. See Section 3, Exhibit I for a detailed development of the Unfunded Actuarial Accrued Liability.

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

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### D. EMPLOYER AND MEMBER 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 expressed 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 unfunded actuarial accrued liability) 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 combined annual inflation rate and "across the board" increases of 3.50%. The June 30, 2002 UAAL is being recognized over a 20-year declining period effective June 30, 2002. The change in unfunded liability that arises due to actuarial gains or losses or due to changes in actuarial assumptions or methods at each valuation is amortized over its own declining 20-year period. Effective with the June 30, 2012 valuation, any change in unfunded actuarial accrued liability that arises due to plan amendments is amortized over its own declining 15-year period (with the exception of retirement incentives which are amortized over its own declining period of up to 5 years). 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 recommended employer contributions are provided on Chart 14. Chart 14a shows the employer rates in the June 30, 2018 valuation. Chart 14b shows the employer rates in the June 30, 2017 valuation. Please note that the employer rates provided in this report exclude any debt payments associated with any pension obligation bonds.

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

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### Member Contributions

#### *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. The member contribution rates on a refundable basis are provided in Appendix A. Appendix B contains the member contribution rates on a nonrefundable basis. Note that member rates provided in the report are the full rate before reflecting any employer pickup.

#### *Tier 2 Members*

Pursuant to Section 7522.30(a) of the Government Code, General Tier 2 and Safety 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).

The member contribution rates on a refundable basis are provided in Appendix A. Appendix B contains the member contribution rates on a nonrefundable basis.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

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*Administrative Expense*

The Board adopted an explicit administrative expense assumption of 0.70% of payroll effective with the June 30, 2017 valuation. This assumption will be reviewed as part of each regular triennial experience study.

This explicit administrative expense is 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 shown in the following table:

	<b><u>Average Contribution Rates Before Administrative Expense</u></b>	<b><u>Weighting</u></b>	<b><u>Total Loading</u></b>
Employer	30.58%	73.51%	0.51%
Member	11.02%	<u>26.49%</u>	<u>0.19%</u>
		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.

<b><u>Allocation of Administrative Expense Load as % of Payroll</u></b>	
Addition to Employer Basic Normal Cost Rate	0.19%
Addition to Employer Basic UAAL Rate	0.32%
Addition to Member Basic Rate	<u>0.19%</u>
Total Addition to Contribution Rates	0.70%

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

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**CHART 14a  
Recommended Employer Contribution Rates**

	June 30, 2018 Actuarial Valuation					
	Basic		COLA		Total	
	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>
<b>County General Tier 1</b>						
Normal Cost	9.89%	\$67,777	1.74%	\$11,924	11.63%	\$79,701
UAAL	7.88%	54,003	5.88%	40,296	13.76%	94,299
Total Contribution	17.77%	\$121,780	7.62%	\$52,220	25.39%	\$174,000
<b>County General Tier 2</b>						
Normal Cost	7.47%	\$24,838	1.63%	\$5,420	9.10%	\$30,258
UAAL	7.88%	26,202	5.88%	19,552	13.76%	45,754
Total Contribution	15.35%	\$51,040	7.51%	\$24,972	22.86%	\$76,012
<b>Safety Tier 1</b>						
Normal Cost	18.26%	\$33,335	3.40%	\$6,207	21.66%	\$39,542
UAAL	16.01%	29,227	17.41%	31,783	33.42%	61,010
Total Contribution	34.27%	\$62,562	20.81%	\$37,990	55.08%	\$100,552
<b>Safety Tier 2</b>						
Normal Cost	12.81%	\$9,860	3.38%	\$2,602	16.19%	\$12,462
UAAL	16.01%	12,324	17.41%	13,401	33.42%	25,725
Total Contribution	28.82%	\$22,184	20.79%	\$16,003	49.61%	\$38,187
<b>All County Members</b>						
Normal Cost	10.63%	\$135,810	2.05%	\$26,153	12.68%	\$161,963
UAAL	9.53%	121,756	8.22%	105,032	17.75%	226,788
Total Contribution	20.16%	\$257,566	10.27%	\$131,185	30.43%	\$388,751
<b>Superior Court Tier 1</b>						
Normal Cost	9.89%	\$5,315	1.74%	\$935	11.63%	\$6,250
UAAL	12.83%	6,895	3.90%	2,096	16.73%	8,991
Total Contribution	22.72%	\$12,210	5.64%	\$3,031	28.36%	\$15,241
<b>Superior Court Tier 2</b>						
Normal Cost	7.47%	\$1,581	1.63%	\$345	9.10%	\$1,926
UAAL	12.83%	2,716	3.90%	826	16.73%	3,542
Total Contribution	20.30%	\$4,297	5.53%	\$1,171	25.83%	\$5,468
<b>SCAQMD Tier 1</b>						
Normal Cost	10.52%	\$6,429	1.93%	\$1,179	12.45%	\$7,608
UAAL	21.62%	13,212	8.24%	5,036	29.86%	18,248
Total Contribution	32.14%	\$19,641	10.17%	\$6,215	42.31%	\$25,856
<b>SCAQMD Tier 2</b>						
Normal Cost	6.70%	\$1,087	1.48%	\$240	8.18%	\$1,327
UAAL	21.62%	3,509	8.24%	1,337	29.86%	4,846
Total Contribution	28.32%	\$4,596	9.72%	\$1,577	38.04%	\$6,173

<sup>(1)</sup> Amounts are in thousands and are based on June 30, 2018 projected compensation (also in thousands) as shown on page 18. The 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.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**CHART 14a (continued)  
Recommended Employer Contribution Rates**

	<b>June 30, 2018 Actuarial Valuation</b>					
	Basic		COLA		Total	
	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>
<b>Other General Tier 1</b>						
Normal Cost	9.78%	\$3,580	1.70%	\$622	11.48%	\$4,202
UAAL	20.10%	7,359	6.44%	2,358	26.54%	9,717
Total Contribution	29.88%	\$10,939	8.14%	\$2,980	38.02%	\$13,919
<b>Other General Tier 2</b>						
Normal Cost	7.45%	\$813	1.62%	\$177	9.07%	\$990
UAAL	20.10%	2,195	6.44%	703	26.54%	2,898
Total Contribution	27.55%	\$3,008	8.06%	\$880	35.61%	\$3,888
<b>All Employers Combined</b>						
Normal Cost	10.47%	\$154,615	2.00%	\$29,651	12.47%	\$184,266
UAAL	10.67%	157,642	7.95%	117,388	18.62%	275,030
Total Contribution	21.14%	\$312,257	9.95%	\$147,039	31.09%	\$459,296

<sup>(1)</sup> Amounts are in thousands and are based on June 30, 2018 projected compensation (also in thousands) as shown below. The 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.

County General Tier 1	\$685,311
County General Tier 2	332,509
Safety Tier 1	182,555
Safety Tier 2	76,974
Superior Court Tier 1	53,744
Superior Court Tier 2	21,168
SCAQMD Tier 1	61,111
SCAQMD Tier 2	16,231
Other General Tier 1	36,610
Other General Tier 2	<u>10,919</u>
Total	\$1,477,132

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**CHART 14b  
Recommended Employer Contribution Rates**

	June 30, 2017 Actuarial Valuation					
	Basic		COLA		Total	
	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>
<b>County General Tier 1</b>						
Normal Cost	9.93%	\$70,175	1.77%	\$12,509	11.70%	\$82,684
UAAL	7.83%	55,334	5.74%	40,564	13.57%	95,898
Total Contribution	17.76%	\$125,509	7.51%	\$53,073	25.27%	\$178,582
<b>County General Tier 2</b>						
Normal Cost	7.40%	\$20,153	1.76%	\$4,793	9.16%	\$24,946
UAAL	7.83%	21,324	5.74%	15,632	13.57%	36,956
Total Contribution	15.23%	\$41,477	7.50%	\$20,425	22.73%	\$61,902
<b>Safety Tier 1</b>						
Normal Cost	18.38%	\$33,581	3.43%	\$6,267	21.81%	\$39,848
UAAL	16.33%	29,836	17.43%	31,846	33.76%	61,682
Total Contribution	34.71%	\$63,417	20.86%	\$38,113	55.57%	\$101,530
<b>Safety Tier 2</b>						
Normal Cost	12.99%	\$6,976	3.55%	\$1,907	16.54%	\$8,883
UAAL	16.33%	8,770	17.43%	9,361	33.76%	18,131
Total Contribution	29.32%	\$15,746	20.98%	\$11,268	50.30%	\$27,014
<b>All County Members</b>						
Normal Cost	10.77%	\$130,885	2.09%	\$25,476	12.86%	\$156,361
UAAL	9.48%	115,264	8.02%	97,403	17.50%	212,667
Total Contribution	20.25%	\$246,149	10.11%	\$122,879	30.36%	\$369,028
<b>Superior Court Tier 1</b>						
Normal Cost	9.93%	\$5,318	1.77%	\$948	11.70%	\$6,266
UAAL	12.68%	6,791	3.79%	2,030	16.47%	8,821
Total Contribution	22.61%	\$12,109	5.56%	\$2,978	28.17%	\$15,087
<b>Superior Court Tier 2</b>						
Normal Cost	7.40%	\$1,358	1.76%	\$323	9.16%	\$1,681
UAAL	12.68%	2,327	3.79%	696	16.47%	3,023
Total Contribution	20.08%	\$3,685	5.55%	\$1,019	25.63%	\$4,704
<b>SCAQMD Tier 1</b>						
Normal Cost	10.01%	\$6,211	1.83%	\$1,135	11.84%	\$7,346
UAAL	20.77%	12,887	7.73%	4,796	28.50%	17,683
Total Contribution	30.78%	\$19,098	9.56%	\$5,931	40.34%	\$25,029
<b>SCAQMD Tier 2</b>						
Normal Cost	6.77%	\$764	1.62%	\$183	8.39%	\$947
UAAL	20.77%	2,343	7.73%	872	28.50%	3,215
Total Contribution	27.54%	\$3,107	9.35%	\$1,055	36.89%	\$4,162

<sup>(1)</sup> Amounts are in thousands and are based on June 30, 2017 projected compensation (also in thousands) as shown on page 20. The 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.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**CHART 14b (continued)  
Recommended Employer Contribution Rates**

	<b>June 30, 2017 Actuarial Valuation</b>					
	Basic		COLA		Total	
	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>	Rate	Estimated Annual Amount <sup>(1)</sup>
<b>Other General Tier 1</b>						
Normal Cost	10.01%	\$3,755	1.77%	\$664	11.78%	\$4,419
UAAL	19.24%	7,217	6.01%	2,254	25.25%	9,471
Total Contribution	29.25%	\$10,972	7.78%	\$2,918	37.03%	\$13,890
<b>Other General Tier 2</b>						
Normal Cost	7.30%	\$605	1.75%	\$145	9.05%	\$750
UAAL	19.24%	1,593	6.01%	498	25.25%	2,091
Total Contribution	26.54%	\$2,198	7.76%	\$643	34.30%	\$2,841
<b>All Employers Combined</b>						
Normal Cost	10.59%	\$148,896	2.05%	\$28,874	12.64%	\$177,770
UAAL	10.55%	148,422	7.72%	108,549	18.27%	256,971
Total Contribution	21.14%	\$297,318	9.77%	\$137,423	30.91%	\$434,741

<sup>(1)</sup> Amounts are in thousands and are based on June 30, 2017 projected compensation (also in thousands) as shown below. The 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.

County General Tier 1	\$706,697
County General Tier 2	272,333
Safety Tier 1	182,706
Safety Tier 2	53,706
Superior Court Tier 1	53,553
Superior Court Tier 2	18,353
SCAQMD Tier 1	62,046
SCAQMD Tier 2	11,283
Other General Tier 1	37,512
Other General Tier 2	8,281
Total	\$1,406,470

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

The employer contribution rates as of June 30, 2018 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

### Reconciliation of Recommended Average Employer Contribution

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

#### CHART 15

#### Reconciliation of Recommended Average Employer Contribution from June 30, 2017 to June 30, 2018 (Dollar Amounts in Thousands)

	Contribution Rate	Estimated Annual Dollar Cost <sup>(1)</sup>
<b>Recommended Average Employer Contribution Rate in June 30, 2017 Valuation</b>	30.91%	\$434,741
Effect of investment loss <sup>(2)</sup>	0.12%	1,773
Effect of actual contributions less than expected <sup>(3)</sup>	0.35%	5,170
Effect of lower than expected individual salary increases for actives	(0.14%)	(2,068)
Effect of amortizing prior year's UAAL over a higher than expected projected total payroll	(0.42%)	(6,204)
Effect of retirement experience loss on actives <sup>(4)</sup>	0.25%	3,693
Effect of changes in demographics of members amongst tiers on Normal Cost	(0.17%)	(2,511)
Effect of other experience (gains)/losses <sup>(5)</sup>	<u>0.19%</u>	<u>24,702</u>
<b>Total change</b>	<u>0.18%</u>	<u>\$24,555</u>
<b>Recommended Average Employer Contribution Rate in June 30, 2018 Valuation</b>	31.09%	\$459,296

*The chart reconciles the employer contribution from the prior valuation to the amount determined in this valuation.*

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

(2) Return on the valuation value of assets of 6.97% was lower than the 7.25% assumed rate of return.

(3) Including contribution loss from one-year delay in implementing higher contribution rates recommended in June 30, 2017 valuation.

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

(5) Other differences in actual versus expected experience. Estimated annual dollar cost also reflects the change in projected compensation from the prior valuation.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

The member contribution rates as of June 30, 2018 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

**Reconciliation of Recommended Average Member Contribution Rate**

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

*The chart reconciles the member contribution from the prior valuation to the amount determined in this valuation.*

**CHART 16**

**Reconciliation of Recommended Average Member Contribution from June 30, 2017 to June 30, 2018  
(Dollar Amounts in Thousands)**

	Contribution Rate	Estimated Annual Dollar Cost <sup>(1)</sup>
<b>Recommended Average Member Contribution Rate in June 30, 2017 Valuation</b>	11.32%	\$159,282
Effect of changes in demographics of members amongst tiers <sup>(2)</sup>	<u>(0.11%)</u>	<u>6,318</u>
<b>Total change</b>	<u>(0.11%)</u>	<u>\$6,318</u>
<b>Recommended Average Member Contribution Rate in June 30, 2018 Valuation</b>	11.21%	\$165,600

<sup>(1)</sup> Based on projected compensation for each valuation date shown.

<sup>(2)</sup> Also reflects differences in actual versus expected experience. Estimated annual dollar cost also reflects the change in projected compensation from the prior valuation.

## SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association

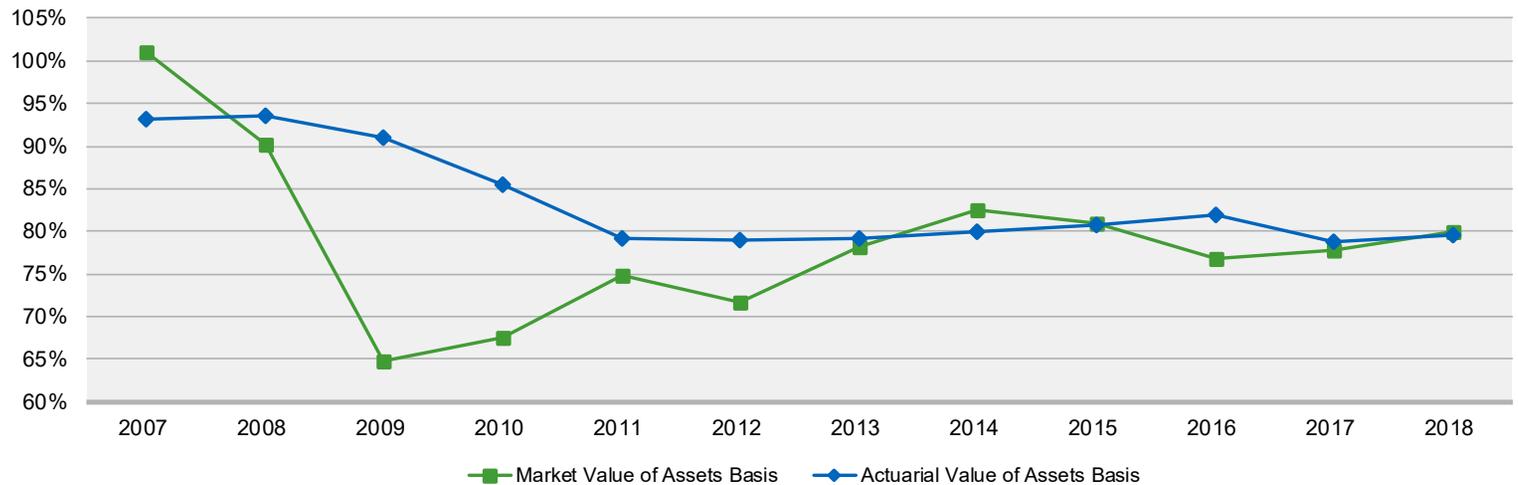
### E. FUNDED RATIO

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. These ratios compare the actuarial value of assets and market value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors. The chart below depicts a history of the funded

ratio for this plan. Chart 18 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 valuation or market value of assets is used.

**CHART 17**  
**Funded Ratio for Plan Years Ending June 30, 2007 - 2018**



**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**CHART 18**  
**Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets<sup>(1)</sup> (a)</b>	<b>Actuarial Accrued Liability ("AAL")<sup>(2)</sup> (b)</b>	<b>Unfunded/ (Overfunded) AAL ("UAAL") (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Projected Total Compensation (c)</b>	<b>UAAL as a Percentage of Projected Total Compensation [(b) - (a)] / (c)</b>
06/30/2009	\$6,383,388,113	\$7,013,534,026	\$630,145,913	91.02%	\$1,226,431,276	51.38%
06/30/2010 <sup>(3)</sup>	6,367,232,362	7,444,986,223	1,077,753,861	85.52%	1,250,192,961	86.21%
06/30/2011	6,484,506,557	8,189,645,890	1,705,139,333	79.18%	1,244,554,740	137.01%
06/30/2012	6,789,492,338	8,606,576,657	1,817,084,319	78.89%	1,260,309,037	144.18%
06/30/2013 <sup>(4)</sup>	7,204,918,478	9,088,635,907	1,883,717,429	79.27%	1,262,751,964	149.18%
06/30/2014 <sup>(5)</sup>	7,751,308,595	9,694,825,407	1,943,516,812	79.95%	1,267,666,810	153.31%
06/30/2015 <sup>(5)</sup>	8,255,352,815	10,214,472,907	1,959,120,092	80.82%	1,309,095,254	149.65%
06/30/2016 <sup>(5)</sup>	8,736,959,429	10,669,687,907	1,932,728,478	81.89%	1,346,408,201	143.55%
06/30/2017 <sup>(6)</sup>	9,385,976,561	11,928,309,718	2,542,333,157	78.69%	1,406,470,110	180.76%
06/30/2018 <sup>(7)</sup>	10,020,862,873	12,604,942,218	2,584,079,345	79.50%	1,477,131,264	174.94%

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

<sup>(2)</sup> Includes liabilities held for Survivor Benefit, Burial Allowance, General Retiree Subsidy, and Excess Earnings reserves.

<sup>(3)</sup> Does not reflect the subsequent transfer of \$40.6 million from the General Retiree Subsidy reserve to the Current Service reserve.

<sup>(4)</sup> Excludes \$5.8 million that represents the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer.

<sup>(5)</sup> Excludes \$5.9 million that represents the present value of additional future contributions payable from the County to SBCERA related to the Crest Forest Fire District transfer.

<sup>(6)</sup> Excludes \$21.6 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 to SBCERA for their transfers.

<sup>(7)</sup> Excludes \$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.

**SECTION 2: Valuation Results for the San Bernardino County Employees' Retirement Association**

**F. 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 measure since it is based on the current level of assets.

For SBCERA, the current AVR is about 6.8. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 6.8% of one-year's payroll. Since SBCERA amortizes actuarial gains and losses over a period of 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. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

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.

For SBCERA, the current LVR is about 8.5. This is about 25% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

*This chart shows how the asset and liability volatility ratios have varied over time, both for the plan in total and separately for General and Safety.*

**CHART 19**  
**Volatility Ratios for Years Ended June 30, 2009 – 2018**

Year Ended June 30	Asset Volatility Ratios			Liability Volatility Ratios		
	General	Safety	Total	General	Safety	Total
2009	3.4	5.4	3.7	5.2	8.5	5.7
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

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A**

**Table of Plan Coverage**

**i. County General Tier 1**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	10,102	10,844	-6.8%
Average age	49.0	48.4	0.6
Average service	15.5	14.7	0.8
Projected total compensation	\$685,311,272	\$706,696,575	-3.0%
Projected average compensation	\$67,839	\$65,169	4.1%
Account balances	\$742,223,789	\$735,185,287	1.0%
Total active vested members	10,006	10,288	-2.7%
<b>Vested terminated members<sup>(1)</sup></b>			
	3,724	3,646	2.1%
<b>Retired members:</b>			
Number in pay status	7,213	6,942	3.9%
Average age	70.3	70.2	0.1
Average monthly benefit	\$3,273	\$3,187	2.7%
<b>Disabled members:</b>			
Number in pay status	756	757	-0.1%
Average age	66.3	66.2	0.1
Average monthly benefit <sup>(2)</sup>	\$2,218	\$2,142	3.5%
<b>Beneficiaries:</b>			
Number in pay status	1,223	1,166	4.9%
Average age	74.1	73.8	0.3
Average monthly benefit <sup>(3)</sup>	\$1,669	\$1,590	5.0%

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**ii. County General Tier 2**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	6,455	5,582	15.6%
Average age	37.9	37.6	0.3
Average service	2.3	1.8	0.5
Projected total compensation	\$332,508,863	\$272,332,997	22.1%
Projected average compensation	\$51,512	\$48,788	5.6%
Account balances	\$54,291,876	\$36,409,923	49.1%
Total active vested members	250	29	762.1%
<b>Vested terminated members<sup>(1)</sup></b>			
	1,565	1,053	48.6%
<b>Retired members:</b>			
Number in pay status	6	1	500.0%
Average age	68.7	70.7	-2.0
Average monthly benefit	\$1,030	\$1,232	-16.4%
<b>Disabled members:</b>			
Number in pay status	3	1	200.0%
Average age	43.5	45.4	-1.9
Average monthly benefit <sup>(2)</sup>	\$1,776	\$1,465	21.2%
<b>Beneficiaries:</b>			
Number in pay status	4	4	0.0%
Average age	30.8	29.8	1.0
Average monthly benefit <sup>(3)</sup>	\$1,512	\$1,482	2.0%

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**iii. Safety Tier 1**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018<sup>(1)</sup></b>	<b>2017<sup>(2)</sup></b>	
<b>Active members in valuation:</b>			
Number	1,672	1,762	-5.1%
Average age	43.4	43.0	0.4
Average service	16.4	15.8	0.6
Projected total compensation	\$182,554,541	\$182,706,153	-0.1%
Projected average compensation	\$109,183	\$103,692	5.3%
Account balances	\$195,509,948	\$195,010,175	0.3%
Total active vested members	1,661	1,683	-1.3%
<b>Vested terminated members<sup>(3)</sup></b>	226	218	3.7%
<b>Retired members:</b>			
Number in pay status	1,000	929	7.6%
Average age	64.0	64.0	0.0
Average monthly benefit	\$6,968	\$6,809	2.3%
<b>Disabled members:</b>			
Number in pay status	767	750	2.3%
Average age	63.0	62.5	0.5
Average monthly benefit	\$5,179	\$5,031	2.9%
<b>Beneficiaries:</b>			
Number in pay status	354	338	4.7%
Average age	67.1	66.8	0.3
Average monthly benefit	\$2,755	\$2,728	1.0%

<sup>(1)</sup> Includes transferred Big Bear Fire Authority employees from CalPERS.

<sup>(2)</sup> Starting in 2017, the Other Safety cost group has transferred to the County Safety cost group.

<sup>(3)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**iv. Safety Tier 2**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018<sup>(1)</sup></b>	<b>2017<sup>(2)</sup></b>	
<b>Active members in valuation:</b>			
Number	995	729	36.5%
Average age	30.7	30.7	0.0
Average service	2.3	1.9	0.4
Projected total compensation	\$76,974,001	\$53,705,773	43.3%
Projected average compensation	\$77,361	\$73,670	5.0%
Account balances	\$19,706,377	\$11,254,282	75.1%
Total active vested members	28	1	2700.0%
<b>Vested terminated members<sup>(3)</sup></b>			
	134	90	48.9%
<b>Retired members:</b>			
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
<b>Disabled members:</b>			
Number in pay status	2	0	N/A
Average age	49.5	N/A	N/A
Average monthly benefit	\$4,185	N/A	N/A
<b>Beneficiaries:</b>			
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

<sup>(1)</sup> Includes transferred Big Bear Fire Authority employees from CalPERS.

<sup>(2)</sup> Starting in 2017, the Other Safety cost group has transferred to the County Safety cost group.

<sup>(3)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage  
v. Superior Court Tier 1**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	668	698	-4.3%
Average age	49.0	48.2	0.8
Average service	16.3	15.4	0.9
Projected total compensation	\$53,743,725	\$53,553,088	0.4%
Projected average compensation	\$80,455	\$76,724	4.9%
Account balances	\$58,900,564	\$56,023,048	5.1%
Total active vested members	667	694	-3.9%
<b>Vested terminated members<sup>(1)</sup></b>			
	162	155	4.5%
<b>Retired members:</b>			
Number in pay status	313	293	6.8%
Average age	66.1	65.6	0.5
Average monthly benefit	\$4,079	\$4,030	1.2%
<b>Disabled members:</b>			
Number in pay status	23	22	4.5%
Average age	57.7	57.9	-0.2
Average monthly benefit <sup>(2)</sup>	\$2,518	\$2,483	1.4%
<b>Beneficiaries:</b>			
Number in pay status	15	14	7.1%
Average age	61.5	60.5	1.0
Average monthly benefit <sup>(3)</sup>	\$1,547	\$1,427	8.4%

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**vi. Superior Court Tier 2**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	363	322	12.7%
Average age	36.0	35.6	0.4
Average service	2.2	1.6	0.6
Projected total compensation	\$21,168,157	\$18,353,408	15.3%
Projected average compensation	\$58,314	\$56,998	2.3%
Account balances	\$3,380,900	\$2,091,205	61.7%
Total active vested members	7	4	75.0%
<b>Vested terminated members<sup>(1)</sup></b>	46	31	48.4%
<b>Retired members:</b>			
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
<b>Disabled members:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(2)</sup>	N/A	N/A	N/A
<b>Beneficiaries:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(3)</sup>	N/A	N/A	N/A

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**vii. SCAQMD Tier 1**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	505	540	-6.5%
Average age	52.0	51.6	0.4
Average service	20.3	19.9	0.4
Projected total compensation	\$61,111,176	\$62,046,116	-1.5%
Projected average compensation	\$121,012	\$114,900	5.3%
Account balances	\$47,493,310	\$46,167,244	2.9%
Total active vested members	504	538	-6.3%
<b>Vested terminated members<sup>(1)</sup></b>			
	99	105	-5.7%
<b>Retired members:</b>			
Number in pay status	549	514	6.8%
Average age	70.0	69.7	0.3
Average monthly benefit	\$5,837	\$5,588	4.5%
<b>Disabled members:</b>			
Number in pay status	24	22	9.1%
Average age	70.8	70.2	0.6
Average monthly benefit <sup>(2)</sup>	\$3,646	\$3,400	7.2%
<b>Beneficiaries:</b>			
Number in pay status	84	78	7.7%
Average age	73.4	74.0	-0.6
Average monthly benefit <sup>(3)</sup>	\$2,178	\$2,147	1.4%

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**viii. SCAQMD Tier 2**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	218	162	34.6%
Average age	35.1	35.9	-0.8
Average service	1.9	1.6	0.3
Projected total compensation	\$16,230,933	\$11,282,993	43.9%
Projected average compensation	\$74,454	\$69,648	6.9%
Account balances	\$2,038,328	\$1,171,270	74.0%
Total active vested members	3	2	50.0%
<b>Vested terminated members<sup>(1)</sup></b>			
	15	10	50.0%
<b>Retired members:</b>			
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
<b>Disabled members:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(2)</sup>	N/A	N/A	N/A
<b>Beneficiaries:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(3)</sup>	N/A	N/A	N/A

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**ix. Other General Tier 1**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	330	346	-4.6%
Average age	48.5	48.6	-0.1
Average service	15.2	14.6	0.6
Projected total compensation	\$36,610,078	\$37,512,014	-2.4%
Projected average compensation	\$110,940	\$108,416	2.3%
Account balances	\$26,472,354	\$25,819,266	2.5%
Total active vested members	327	329	-0.6%
<b>Vested terminated members<sup>(1)</sup></b>			
	187	194	-3.6%
<b>Retired members:</b>			
Number in pay status	315	282	11.7%
Average age	67.9	67.6	0.3
Average monthly benefit	\$3,760	\$3,553	5.8%
<b>Disabled members:</b>			
Number in pay status	18	18	0.0%
Average age	62.4	61.4	1.0
Average monthly benefit <sup>(2)</sup>	\$2,484	\$2,390	3.9%
<b>Beneficiaries:</b>			
Number in pay status	25	25	0.0%
Average age	68.1	67.4	0.7
Average monthly benefit <sup>(3)</sup>	\$1,547	\$1,507	2.7%

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**x. Other General Tier 2**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	157	125	25.6%
Average age	38.2	38.0	0.2
Average service	2.2	1.9	0.3
Projected total compensation	\$10,918,518	\$8,280,993	31.9%
Projected average compensation	\$69,545	\$66,248	5.0%
Account balances	\$1,622,213	\$1,017,617	59.4%
Total active vested members	6	3	100.0%
<b>Vested terminated members<sup>(1)</sup></b>	38	30	26.7%
<b>Retired members:</b>			
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
<b>Disabled members:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(2)</sup>	N/A	N/A	N/A
<b>Beneficiaries:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(3)</sup>	N/A	N/A	N/A

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(3)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT A (continued)**

**Table of Plan Coverage**

**xi. Withdrawn Other General Employers<sup>(1)</sup>**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2018</b>	<b>2017</b>	
<b>Active members in valuation:</b>			
Number	0	0	N/A
Average age	N/A	N/A	N/A
Average service	N/A	N/A	N/A
Projected total compensation	N/A	N/A	N/A
Projected average compensation	N/A	N/A	N/A
Account balances	N/A	N/A	N/A
Total active vested members	0	0	N/A
<b>Vested terminated members<sup>(2)</sup></b>	15	15	0.0%
<b>Retired members:</b>			
Number in pay status	21	22	-4.5%
Average age	67.8	67.1	0.7
Average monthly benefit	\$1,917	\$1,816	5.6%
<b>Disabled members:</b>			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit <sup>(3)</sup>	N/A	N/A	N/A
<b>Beneficiaries:</b>			
Number in pay status	1	1	0.0%
Average age	62.6	61.6	1.0
Average monthly benefit <sup>(4)</sup>	\$1,768	\$1,734	2.0%

<sup>(1)</sup> Includes Tier 1 members for San Bernardino International Airport Authority, Inland Valley Development Agency and Rim of the World Recreation & Park District.

<sup>(2)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(3)</sup> Excludes Supplemental Disability Benefit amounts.

<sup>(4)</sup> Excludes Survivor Benefit amounts.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**i. County General Tier 1**

Age	Total	Years of Service									
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	
Under 25	--	--	--	--	--	--	--	--	--	--	--
25 - 29	88	10	76	2	--	--	--	--	--	--	--
30 - 34	\$51,491	\$52,613	\$50,359	\$88,913	--	--	--	--	--	--	--
35 - 39	680	38	438	204	--	--	--	--	--	--	--
40 - 44	56,274	62,815	55,352	57,036	--	--	--	--	--	--	--
45 - 49	1,282	50	461	614	156	1	--	--	--	--	--
50 - 54	62,970	67,315	57,187	66,593	\$64,560	\$39,476	--	--	--	--	--
55 - 59	1,603	41	359	581	512	109	1	--	--	--	--
60 - 64	67,020	70,366	59,497	67,606	70,531	70,727	\$88,157	--	--	--	--
65 - 69	1,805	31	312	509	551	308	91	3	--	--	--
70 & over	69,391	57,983	53,998	69,002	73,259	77,587	76,502	\$86,916	--	--	--
Total	1,613	21	213	371	445	256	233	70	4	--	--
	72,153	81,755	63,466	66,139	72,736	80,171	76,479	80,698	\$62,752	--	--
	1,547	16	171	297	402	216	240	147	58	--	--
	71,280	60,031	57,565	66,317	70,982	73,733	76,749	87,052	70,567	--	--
	1,104	13	122	232	303	172	168	66	21	7	7
	70,441	47,855	66,297	67,032	69,970	73,564	73,892	70,040	107,967	\$49,547	\$49,547
	303	4	37	87	86	46	30	11	1	1	1
	65,907	57,038	62,838	65,549	66,522	65,805	70,539	66,208	44,448	77,079	77,079
	77	--	10	19	27	11	7	2	1	--	--
	61,182	--	52,873	56,793	61,595	69,586	72,500	58,023	51,193	--	--
Total	10,102	224	2,199	2,916	2,482	1,119	770	299	85	8	8
	\$67,839	\$64,683	\$57,729	\$66,416	\$70,925	\$75,551	\$75,749	\$80,847	\$78,904	\$52,989	\$52,989

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**ii. County General Tier 2**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	343	343	--	--	--	--	--	--	--	--
	\$44,250	\$44,250	--	--	--	--	--	--	--	--
25 - 29	1,412	1,399	13	--	--	--	--	--	--	--
	49,412	49,406	\$50,055	--	--	--	--	--	--	--
30 - 34	1,369	1,317	52	--	--	--	--	--	--	--
	50,494	50,257	56,505	--	--	--	--	--	--	--
35 - 39	993	957	35	1	--	--	--	--	--	--
	52,368	52,100	58,934	\$78,923	--	--	--	--	--	--
40 - 44	751	713	36	2	--	--	--	--	--	--
	52,271	52,186	52,489	78,645	--	--	--	--	--	--
45 - 49	646	610	34	2	--	--	--	--	--	--
	53,238	53,364	48,550	94,691	--	--	--	--	--	--
50 - 54	404	377	27	--	--	--	--	--	--	--
	53,521	53,783	49,867	--	--	--	--	--	--	--
55 - 59	323	309	14	--	--	--	--	--	--	--
	56,545	56,374	60,310	--	--	--	--	--	--	--
60 - 64	162	151	11	--	--	--	--	--	--	--
	58,944	59,248	54,768	--	--	--	--	--	--	--
65 - 69	44	39	5	--	--	--	--	--	--	--
	66,085	62,214	96,283	--	--	--	--	--	--	--
70 & over	8	7	1	--	--	--	--	--	--	--
	55,410	51,190	84,954	--	--	--	--	--	--	--
Total	6,455	6,222	228	5	--	--	--	--	--	--
	\$51,512	\$51,355	\$55,051	\$85,119	--	--	--	--	--	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**iii. Safety Tier 1**

Age	Total	Years of Service									
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	
Under 25	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	--
25 - 29	52	10	41	1	--	--	--	--	--	--	--
	\$80,044	\$76,682	\$80,948	\$76,631	--	--	--	--	--	--	--
30 - 34	200	11	94	95	--	--	--	--	--	--	--
	92,741	88,734	84,293	101,564	--	--	--	--	--	--	--
35 - 39	358	25	59	211	62	1	--	--	--	--	--
	101,790	93,443	89,880	102,769	\$113,264	\$95,070	--	--	--	--	--
40 - 44	358	18	30	132	128	49	1	--	--	--	--
	108,148	104,840	94,660	102,546	112,207	122,367	\$95,336	--	--	--	--
45 - 49	363	14	16	80	95	116	41	1	--	--	--
	116,925	110,776	93,967	107,052	114,831	123,864	130,595	\$193,724	--	--	--
50 - 54	202	5	5	20	46	44	54	28	--	--	--
	126,496	98,316	103,014	109,194	111,963	119,501	133,329	169,769	--	--	--
55 - 59	109	1	13	12	15	22	30	16	--	--	--
	117,738	111,402	108,422	114,884	109,900	114,700	122,439	130,552	--	--	--
60 - 64	24	--	1	6	2	4	6	5	--	--	--
	124,391	--	115,053	124,218	154,645	110,243	118,396	132,876	--	--	--
65 - 69	4	--	--	1	--	2	1	--	--	--	--
	133,342	--	--	120,643	--	120,845	171,034	--	--	--	--
70 & over	2	--	--	--	2	--	--	--	--	--	--
	169,164	--	--	--	169,164	--	--	--	--	--	--
Total	1,672	84	259	558	350	238	133	50	--	--	--
	\$109,183	\$96,666	\$88,526	\$103,832	\$113,544	\$121,527	\$129,354	\$154,009	--	--	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**iv. Safety Tier 2**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	174	174	--	--	--	--	--	--	--	--
	\$74,744	\$74,744	--	--	--	--	--	--	--	--
25 - 29	437	426	11	--	--	--	--	--	--	--
	74,390	74,412	\$73,522	--	--	--	--	--	--	--
30 - 34	214	210	4	--	--	--	--	--	--	--
	74,023	73,999	75,259	--	--	--	--	--	--	--
35 - 39	68	65	3	--	--	--	--	--	--	--
	75,499	75,483	75,853	--	--	--	--	--	--	--
40 - 44	20	19	1	--	--	--	--	--	--	--
	76,917	76,982	75,673	--	--	--	--	--	--	--
45 - 49	19	18	1	--	--	--	--	--	--	--
	101,918	101,193	114,967	--	--	--	--	--	--	--
50 - 54	37	35	2	--	--	--	--	--	--	--
	113,642	115,119	87,808	--	--	--	--	--	--	--
55 - 59	24	23	1	--	--	--	--	--	--	--
	107,704	107,095	121,715	--	--	--	--	--	--	--
60 - 64	1	1	--	--	--	--	--	--	--	--
	102,564	102,564	--	--	--	--	--	--	--	--
65 - 69	1	1	--	--	--	--	--	--	--	--
	118,432	118,432	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	995	972	23	--	--	--	--	--	--	--
	\$77,361	\$77,313	\$79,361	--	--	--	--	--	--	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**v. Superior Court Tier 1**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	--	--	--	--	--	--	--	--	--	--
25 - 29	4	--	4	--	--	--	--	--	--	--
30 - 34	\$63,459	--	\$63,459	--	--	--	--	--	--	--
35 - 39	41	--	17	24	--	--	--	--	--	--
40 - 44	66,157	--	65,197	\$66,837	--	--	--	--	--	--
45 - 49	90	1	27	50	12	--	--	--	--	--
50 - 54	69,444	\$29,714	68,463	71,262	\$67,387	--	--	--	--	--
55 - 59	105	1	25	35	37	7	--	--	--	--
60 - 64	78,228	194,467	78,529	77,148	73,964	\$88,493	--	--	--	--
65 - 69	107	3	14	45	31	8	6	--	--	--
70 & over	82,829	135,137	71,512	85,470	82,773	76,237	\$72,356	--	--	--
Total	125	7	16	30	28	20	14	9	1	--
	83,140	132,216	84,363	81,135	76,361	83,142	73,421	\$81,384	\$121,805	--
	111	--	7	19	27	16	23	15	4	--
	81,447	--	107,215	76,188	83,639	85,787	68,631	87,654	79,581	--
	66	--	3	19	21	8	9	4	2	--
	88,708	--	81,960	81,270	93,882	90,567	79,760	131,291	62,818	--
	14	--	3	5	2	4	--	--	--	--
	115,690	--	78,854	140,521	81,358	129,443	--	--	--	--
	5	--	--	2	2	1	--	--	--	--
	108,677	--	--	77,269	142,369	104,110	--	--	--	--
Total	668	12	116	229	160	64	52	28	7	--
	\$80,455	\$129,592	\$75,499	\$78,587	\$80,791	\$87,675	\$72,277	\$91,872	\$80,823	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**vi. Superior Court Tier 2**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	25	25	--	--	--	--	--	--	--	--
	\$41,942	\$41,942	--	--	--	--	--	--	--	--
25 - 29	95	95	--	--	--	--	--	--	--	--
	46,410	46,410	--	--	--	--	--	--	--	--
30 - 34	81	80	1	--	--	--	--	--	--	--
	52,559	52,723	\$39,466	--	--	--	--	--	--	--
35 - 39	52	51	1	--	--	--	--	--	--	--
	65,836	65,200	98,277	--	--	--	--	--	--	--
40 - 44	42	42	--	--	--	--	--	--	--	--
	60,826	60,826	--	--	--	--	--	--	--	--
45 - 49	31	30	1	--	--	--	--	--	--	--
	74,766	75,752	45,179	--	--	--	--	--	--	--
50 - 54	20	20	--	--	--	--	--	--	--	--
	79,331	79,331	--	--	--	--	--	--	--	--
55 - 59	11	11	--	--	--	--	--	--	--	--
	85,058	85,058	--	--	--	--	--	--	--	--
60 - 64	4	4	--	--	--	--	--	--	--	--
	110,161	110,161	--	--	--	--	--	--	--	--
65 - 69	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
70 & over	2	2	--	--	--	--	--	--	--	--
	97,307	97,307	--	--	--	--	--	--	--	--
Total	363	360	3	--	--	--	--	--	--	--
	\$58,314	\$58,292	\$60,974	--	--	--	--	--	--	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**vii. SCAQMD Tier 1**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	--	--	--	--	--	--	--	--	--	--
25 - 29	1	--	1	--	--	--	--	--	--	--
30 - 34	23	1	15	6	1	--	--	--	--	--
35 - 39	45	1	16	26	2	--	--	--	--	--
40 - 44	60	2	19	21	18	--	--	--	--	--
45 - 49	59	2	11	17	18	6	4	1	--	--
50 - 54	89	2	7	10	24	5	27	13	1	--
55 - 59	129	1	9	7	15	8	43	39	7	--
60 - 64	86	1	7	5	11	3	32	23	3	1
65 - 69	11	--	2	1	1	1	4	1	1	--
70 & over	2	1	--	--	--	--	1	--	--	--
	67,898	65,000	--	--	--	--	70,797	--	--	--
Total	505	11	87	93	90	23	111	77	12	1
	\$121,012	\$107,916	\$114,457	\$108,963	\$120,724	\$128,499	\$130,027	\$131,239	\$113,941	\$106,395

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**viii. SCAQMD Tier 2**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	17	17	--	--	--	--	--	--	--	--
	\$64,859	\$64,859	--	--	--	--	--	--	--	--
25 - 29	61	61	--	--	--	--	--	--	--	--
	70,571	70,571	--	--	--	--	--	--	--	--
30 - 34	51	51	--	--	--	--	--	--	--	--
	75,709	75,709	--	--	--	--	--	--	--	--
35 - 39	40	39	1	--	--	--	--	--	--	--
	75,597	75,560	\$77,026	--	--	--	--	--	--	--
40 - 44	20	20	--	--	--	--	--	--	--	--
	90,108	90,108	--	--	--	--	--	--	--	--
45 - 49	5	5	--	--	--	--	--	--	--	--
	91,450	91,450	--	--	--	--	--	--	--	--
50 - 54	11	11	--	--	--	--	--	--	--	--
	66,831	66,831	--	--	--	--	--	--	--	--
55 - 59	8	7	1	--	--	--	--	--	--	--
	75,685	74,193	86,127	--	--	--	--	--	--	--
60 - 64	5	5	--	--	--	--	--	--	--	--
	67,692	67,692	--	--	--	--	--	--	--	--
65 - 69	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	218	216	2	--	--	--	--	--	--	--
	\$74,454	\$74,388	\$81,577	--	--	--	--	--	--	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**ix. Other General Tier 1**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	--	--	--	--	--	--	--	--	--	--
25 - 29	2	2	--	--	--	--	--	--	--	--
30 - 34	\$74,678	\$74,679	--	--	--	--	--	--	--	--
35 - 39	33	13	14	5	1	--	--	--	--	--
40 - 44	92,844	96,920	\$88,011	\$97,442	\$84,532	--	--	--	--	--
45 - 49	43	8	16	18	1	--	--	--	--	--
50 - 54	98,961	100,483	97,960	99,496	93,158	--	--	--	--	--
55 - 59	41	6	8	16	10	1	--	--	--	--
60 - 64	100,384	134,582	87,646	84,814	114,926	\$100,813	--	--	--	--
65 - 69	62	9	15	21	10	3	4	--	--	--
70 & over	118,106	136,690	123,018	116,318	104,714	106,644	\$109,345	--	--	--
Total	52	5	9	11	10	6	10	--	1	--
	124,312	99,928	157,752	107,900	115,881	113,704	140,222	--	\$114,676	--
	53	3	9	9	13	5	8	4	2	--
	110,046	178,220	110,463	86,367	112,324	112,887	112,638	\$91,176	117,918	--
	33	2	8	5	4	8	6	--	--	--
	120,270	136,162	139,417	81,617	115,199	120,834	124,284	--	--	--
	10	--	5	2	2	--	--	1	--	--
	140,040	--	136,642	179,614	142,268	--	--	73,426	--	--
	1	--	1	--	--	--	--	--	--	--
	37,227	--	37,227	--	--	--	--	--	--	--
Total	330	48	85	87	51	23	28	5	3	--
	\$110,940	\$115,781	\$112,890	\$101,257	\$112,518	\$114,525	\$124,515	\$87,626	\$116,838	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT B (continued)**

**Members in Active Service and Projected Average Compensation as of June 30, 2018  
By Age and Years of Service**

**x. Other General Tier 2**

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	10	10	--	--	--	--	--	--	--	--
	\$52,764	\$52,764	--	--	--	--	--	--	--	--
25 - 29	31	30	1	--	--	--	--	--	--	--
	64,571	64,360	\$70,905	--	--	--	--	--	--	--
30 - 34	27	27	--	--	--	--	--	--	--	--
	68,631	68,631	--	--	--	--	--	--	--	--
35 - 39	26	26	--	--	--	--	--	--	--	--
	69,412	69,412	--	--	--	--	--	--	--	--
40 - 44	23	22	1	--	--	--	--	--	--	--
	57,353	58,246	37,715	--	--	--	--	--	--	--
45 - 49	17	17	--	--	--	--	--	--	--	--
	77,335	77,335	--	--	--	--	--	--	--	--
50 - 54	12	11	1	--	--	--	--	--	--	--
	102,949	99,102	145,270	--	--	--	--	--	--	--
55 - 59	7	6	1	--	--	--	--	--	--	--
	75,986	82,962	34,131	--	--	--	--	--	--	--
60 - 64	3	2	1	--	--	--	--	--	--	--
	79,401	113,781	10,642	--	--	--	--	--	--	--
65 - 69	1	1	--	--	--	--	--	--	--	--
	92,099	92,099	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	157	152	5	--	--	--	--	--	--	--
	\$69,545	\$69,867	\$59,733	--	--	--	--	--	--	--

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT C**

**Reconciliation of Member Data – June 30, 2017 to June 30, 2018**

	<b>Active Members</b>	<b>Vested Terminated Members<sup>(1)</sup></b>	<b>Pensioners</b>	<b>Disableds<sup>(2)</sup></b>	<b>Beneficiaries</b>	<b>Total</b>
Number as of June 30, 2017	21,110	5,547	8,983	1,570	1,626	38,836
New members	2,116	250	0	0	139	2,505
Terminations	-867	867	0	0	0	0
Contribution refunds	-348	-255	0	0	0	-603
Retirements	-532	-134	666	0	0	0
New disabilities	-36	-7	-23	66	0	0
Return to work	53	-51	-2	0	0	0
Died with or without beneficiary	-29	-6	-209	-43	-56	-343
Data adjustments	<u>-2</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>-3</u>	<u>-3</u>
Number as of June 30, 2018	21,465	6,211	9,417	1,593	1,706	40,392

<sup>(1)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(2)</sup> As of June 30, 2018 includes 351 members receiving a non-service connected disability and 1,242 members receiving a service connected disability.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT D**

**Summary Statement of Income and Expenses on Actuarial Value of Assets**

	Year Ended June 30, 2018	Year Ended June 30, 2017
<b>Net Contribution income:</b>		
Employer contributions	\$378,667,309	\$360,477,890
Employee contributions	149,478,284	143,858,526
Less administrative expenses	<u>(12,092,067)</u>	<u>(13,163,171)</u>
Net contribution income	\$516,053,526	\$491,173,245
<b>Investment income:</b>		
Interest, dividends and other income	\$108,148,202	\$128,196,535
Adjustment toward market value <sup>(1)</sup>	706,335,861	691,540,838
Less investment fees	<u>(160,665,976)</u>	<u>(163,989,622)</u>
Net investment income	\$653,818,087	\$655,747,751
<b>Big Bear Fire Authority Asset Transfer from CalPERS</b>	\$4,311,546	\$0
<b>Total income available for benefits</b>	<b>\$1,174,183,159</b>	<b>\$1,146,920,996</b>
<b>Less benefit payments</b>	<b>\$(539,296,847)</b>	<b>\$(497,903,864)</b>
<b>Change in reserve for future benefits</b>	<b>\$634,886,312</b>	<b>\$649,017,132</b>

<sup>(1)</sup> Equals the "non-cash" earnings on investments implicitly included in the Actuarial Value of Assets.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT E**

**Summary Statement of Net Assets ("Fiduciary Net Position")**

	<b>Year Ended June 30, 2018</b>	<b>Year Ended June 30, 2017</b>
<b>Cash equivalents</b>	\$953,512,388	\$1,217,317,144
<b>Accounts receivable:</b>		
Securities sold	\$56,608,760	\$26,403,620
Accrued interest and dividends	5,367,424	7,072,225
Employee and employer contributions	35,138,955	32,432,170
Other	<u>5,618,177</u>	<u>4,442,595</u>
Total accounts receivable	\$102,733,316	\$70,350,611
<b>Investments:</b>		
Equities	\$2,140,527,457	\$1,939,818,755
Fixed income	564,147,916	512,678,586
Real estate	414,467,631	494,424,722
Other Domestic	3,992,659,187	3,621,664,815
Other Foreign	1,977,845,508	1,496,716,700
Other	5,811,410	6,390,853
Investments received on securities lending	<u>77,824,566</u>	<u>103,709,061</u>
Total investments at market value	<u>\$9,173,283,675</u>	<u>\$8,175,403,492</u>
<b>Total assets</b>	<u>\$10,229,529,379</u>	<u>\$9,463,071,247</u>
<b>Liabilities:</b>		
Securities lending	\$(77,806,687)	\$(103,668,110)
Payable for securities purchased	(71,917,685)	(45,646,504)
Securities options payable	0	(13,231,341)
Other liabilities	<u>(12,814,791)</u>	<u>(12,083,932)</u>
Total liabilities	\$(162,539,163)	\$(174,629,886)
<b>Net assets at market value</b>	<u>\$10,066,990,216</u>	<u>\$9,288,441,361</u>
<b>Net assets at actuarial value</b>	<u>\$10,020,862,873</u>	<u>\$9,385,976,561</u>
<b>Net assets at valuation value<sup>(1)</sup></b>	<u>\$10,036,803,242</u>	<u>\$9,406,929,050</u>

(1) The June 30, 2018 and June 30, 2017 values include \$16.6 million and \$21.6 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.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT F**

**Development of the Fund Through June 30, 2018**

<b>Year Ended June 30</b>	<b>Employer Contributions</b>	<b>Member Contributions</b>	<b>Other</b>	<b>Administrative and Other Expenses</b>	<b>Net Investment Return<sup>(1)</sup></b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
2009	\$246,232,150	\$49,550,489	\$0	\$0	\$8,853,979	\$(262,779,370)	\$6,383,388,113
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 <sup>(2)</sup>	(12,092,067)	653,818,087	(539,296,847)	10,020,862,873

<sup>(1)</sup> Net of investment fees and administrative expenses prior to 2015. Starting in 2015, administrative expenses are included in the previous column.

<sup>(2)</sup> Represents asset transfer from CalPERS related to the transfer of Big Bear Fire Authority employees.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT G**

**Actuarial Balance Sheet**

An overview of the plan's funding is given by an Actuarial Balance Sheet. In this approach, we first determine the amount and timing of all future payments that will be made by the Plan for current participants. We then discount these payments at the valuation interest rate to the date of the valuation, thereby determining their present value. We refer to this present value as the "liability" of the Plan.

Second, we determine how this liability will be met. These actuarial "assets" 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.

	<b>Total SBCERA (\$ in 000s)<sup>(1)</sup></b>	
	<b>June 30, 2018</b>	<b>June 30, 2017</b>
<u>Assets</u>		
1 Total valuation value of assets	\$9,966,736 <sup>(2)</sup>	\$9,341,296 <sup>(3)</sup>
2 Present value of future contributions by members	1,353,104	1,288,299
3 Present value of future employer contributions for:		
a. entry age normal cost	1,549,770	1,487,012
b. unfunded actuarial accrued liability	2,609,154	2,557,370
4 Total current and future assets	<u>\$15,478,764</u>	<u>\$14,673,977</u>
<u>Liabilities</u>		
5 Present value of benefits for retirees and beneficiaries	\$6,732,330	\$6,275,754
6 Present value of benefits for active members	8,288,660	7,980,908
7 Present value of benefits for vested terminated members <sup>(4)</sup>	457,774	417,315
8 Total liabilities	<u>\$15,478,764</u>	<u>\$14,673,977</u>

<sup>(1)</sup> Excludes assets and liabilities for Survivor Benefit, Burial Allowance and Excess Earnings reserves.

<sup>(2)</sup> 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.

<sup>(3)</sup> Includes \$21.6 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 to SBCERA for their transfers as of June 30, 2017.

<sup>(4)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT H**

**Summary of Allocated Reserves**

<b>Reserves</b>	<b>June 30, 2018</b>	<b>June 30, 2017</b>
Member deposit reserve <sup>(1)</sup>	\$1,418,874,534	\$1,345,261,815
Current service reserve <sup>(1)</sup>	2,558,812,522	2,398,394,639
Contra account <sup>(1)</sup>	(2,938,179,590)	(2,689,760,262)
Pension reserve <sup>(1)</sup>	4,603,736,020	4,327,170,451
Cost-of-living reserve <sup>(1)</sup>	2,080,398,418	1,913,071,537
Annuity reserve <sup>(1)</sup>	2,218,705,004	2,017,324,864
Supplemental disability reserve <sup>(1)</sup>	7,819,292	8,194,405
Survivor benefit reserve <sup>(1)</sup>	70,067,455	65,633,394
Valuation reserves <sup>(2)</sup>	\$10,020,233,655	\$9,385,290,843
Burial allowance reserve <sup>(3)</sup>	\$629,218	\$685,718
Restricted balance reserved for deficiencies <sup>(3)</sup>	0	0
Additional contingency reserve <sup>(3)</sup>	0	0
Undesignated excess earnings <sup>(3)</sup>	0	0
Total reserves	\$10,020,862,873	\$9,385,976,561
Net unrecognized gains/(losses)	46,127,343	(97,535,200)
Net market value	\$10,066,990,216	\$9,288,441,361

<sup>(1)</sup> Included in valuation value of assets.

<sup>(2)</sup> The June 30, 2018 and June 30, 2017 values exclude \$16.6 million and \$21.6 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.

<sup>(3)</sup> Not included in valuation value of assets.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT I**

**Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2018**

1.	Unfunded actuarial accrued liability at beginning of year <sup>(1)</sup>		\$2,557,370,000
2.	Total normal cost at middle of year <sup>(2)</sup>		331,704,000
3.	Expected administrative expenses		9,850,000
4.	Expected employer and member contributions <sup>(3)</sup>		(594,023,000)
5.	Interest for whole year on (1) and half year on (2) + (3) + (4)		<u>177,703,000</u>
6.	Expected unfunded actuarial accrued liability		<u>\$2,482,604,000</u>
7.	Actuarial (gain)/loss due to all changes		
	(a) Investment return less than expected	\$25,827,000	
	(b) Actual contributions less than expected <sup>(4)</sup>	71,875,000	
	(c) Lower than expected individual salary increases	(28,311,000)	
	(d) Retirement experience loss on actives <sup>(5)</sup>	52,241,000	
	(e) Loss due to Big Bear Fire Authority transfer <sup>(6)</sup>	6,441,000	
	(f) Other experience gains	<u>(1,523,000)</u>	
	(g) Total changes		<u>\$126,550,000</u>
8.	Unfunded actuarial accrued liability at end of year <sup>(1)</sup>		<u>\$2,609,154,000</u>

Note: The "Net gain/(loss) from other experience" of \$(28,848,000) shown in Section 2, Chart 10 is equal to the sum of items 7(c) through 7(f).  
Results include three withdrawn employers as of June 30, 2018.

(1) Beginning of the year and end of the year values are reduced by \$21,638,207 and \$16,569,587, 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 \$36,675,000 at the beginning of the year and \$41,644,000 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, 2018. Includes contributions towards administrative expenses.

(4) Including contribution loss from one-year delay in implementing higher contribution rates recommended in June 30, 2017 valuation.

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

(6) Although this transfer increased the UAAL, it would have resulted in a decrease to the Safety employer rate because the Big Bear Fire Authority has a lower UAAL relative to payroll as compared to Safety due to transferring only active employees.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT J**

**Table of Amortization Bases**

	<b>Date Established</b>	<b>Source</b>	<b>Initial Amount</b>	<b>Outstanding Balance</b>	<b>Years Remaining</b>	<b>Annual Payment</b>
<b>County General</b>	June 30, 2002	Restart Amortization	\$59,439,000	\$29,291,000	4	\$8,016,000
	June 30, 2003	Actuarial (Gain)/Loss	246,112,000	142,822,000	5	31,815,000
	June 30, 2004	Actuarial (Gain)/Loss	132,439,000	86,699,000	6	16,374,000
	June 30, 2004	POB Credit	(306,658,000)	(200,740,000)	6	(37,911,000)
	June 30, 2005	Actuarial (Gain)/Loss	58,743,000	42,419,000	7	6,985,000
	June 30, 2005	Assumption Change	55,627,000	40,169,000	7	6,615,000
	June 30, 2006	Actuarial (Gain)/Loss	(12,586,000)	(9,788,000)	8	(1,435,000)
	June 30, 2007	Actuarial (Gain)/Loss	(32,324,000)	(26,685,000)	9	(3,536,000)
	June 30, 2008	Actuarial (Gain)/Loss	(10,022,000)	(8,672,000)	10	(1,052,000)
	June 30, 2008	Assumption Change	(9,277,000)	(8,032,000)	10	(974,000)
	June 30, 2009	Actuarial (Gain)/Loss	116,693,000	104,843,000	11	11,752,000
	June 30, 2010	Actuarial (Gain)/Loss	283,409,000	262,088,000	12	27,381,000
	June 30, 2011	Actuarial (Gain)/Loss	169,715,000	160,457,000	13	15,731,000
	June 30, 2011	Assumption Change	199,335,000	188,454,000	13	18,476,000
	June 30, 2012	Actuarial (Gain)/Loss	70,313,000	67,722,000	14	6,267,000
	June 30, 2012	Burial Allowance Method Change	2,392,000	2,304,000	14	213,000
	June 30, 2013	Actuarial (Gain)/Loss	36,166,000	35,311,000	15	3,100,000
	June 30, 2014	Actuarial (Gain)/Loss	(143,442,000)	(141,339,000)	16	(11,822,000)
	June 30, 2014	Assumption Change	186,163,000	183,436,000	16	15,343,000
	June 30, 2015	Actuarial (Gain)/Loss	(34,431,000)	(34,196,000)	17	(2,736,000)
	June 30, 2016	Actuarial (Gain)/Loss	(19,728,000)	(19,684,000)	18	(1,511,000)
	June 30, 2017	Actuarial (Gain)/Loss	(23,503,000)	(23,477,000)	19	(1,735,000)
	June 30, 2017	Assumption Change	391,305,000	390,864,000	19	28,881,000
	June 30, 2018	Actuarial (Gain)/Loss	36,468,000	<u>36,468,000</u>	20	<u>2,601,000</u>
<b>Subtotal</b>				\$1,300,734,000		\$136,838,000

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT J**

**Table of Amortization Bases (continued)**

	<b>Date Established</b>	<b>Source</b>	<b>Initial Amount</b>	<b>Outstanding Balance</b>	<b>Years Remaining</b>	<b>Annual Payment</b>
<b>Superior Court</b>	June 30, 2002	Restart Amortization	\$3,493,000	\$1,721,000	4	\$471,000
	June 30, 2003	Actuarial (Gain)/Loss	14,458,000	8,400,000	5	1,871,000
	June 30, 2004	Actuarial (Gain)/Loss	6,840,000	4,483,000	6	847,000
	June 30, 2005	Actuarial (Gain)/Loss	3,451,000	2,489,000	7	410,000
	June 30, 2005	Assumption Change	3,269,000	2,357,000	7	388,000
	June 30, 2006	Actuarial (Gain)/Loss	4,889,000	3,799,000	8	557,000
	June 30, 2007	Actuarial (Gain)/Loss	4,076,000	3,359,000	9	445,000
	June 30, 2008	Actuarial (Gain)/Loss	729,000	632,000	10	77,000
	June 30, 2008	Assumption Change	(1,520,000)	(1,323,000)	10	(160,000)
	June 30, 2009	Actuarial (Gain)/Loss	6,270,000	5,641,000	11	632,000
	June 30, 2010	Actuarial (Gain)/Loss	10,935,000	10,125,000	12	1,058,000
	June 30, 2011	Actuarial (Gain)/Loss	8,620,000	8,150,000	13	799,000
	June 30, 2011	Assumption Change	10,323,000	9,755,000	13	956,000
	June 30, 2012	Actuarial (Gain)/Loss	3,000	0	14	0
	June 30, 2012	Burial Allowance Method Change	68,000	56,000	14	5,000
	June 30, 2013	Actuarial (Gain)/Loss	(2,565,000)	(2,499,000)	15	(219,000)
	June 30, 2014	Actuarial (Gain)/Loss	(5,786,000)	(5,705,000)	16	(477,000)
	June 30, 2014	Assumption Change	10,501,000	10,345,000	16	865,000
	June 30, 2015	Actuarial (Gain)/Loss	(307,000)	(311,000)	17	(25,000)
	June 30, 2016	Actuarial (Gain)/Loss	11,583,000	11,541,000	18	886,000
	June 30, 2017	Actuarial (Gain)/Loss	(1,529,000)	(1,527,000)	19	(113,000)
	June 30, 2017	Assumption Change	37,250,000	37,204,000	19	2,749,000
	June 30, 2018	Actuarial (Gain)/Loss	3,765,000	<u>3,765,000</u>	20	<u>268,000</u>
<b>Subtotal</b>				\$112,457,000		\$12,290,000

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT J**

**Table of Amortization Bases (continued)**

	<b>Date Established</b>	<b>Source</b>	<b>Initial Amount</b>	<b>Outstanding Balance</b>	<b>Years Remaining</b>	<b>Annual Payment</b>
<b>Other General</b>	June 30, 2002	Restart Amortization	\$13,036,000	\$6,410,000	4	\$1,754,000
	June 30, 2003	Actuarial (Gain)/Loss	9,507,000	5,510,000	5	1,227,000
	June 30, 2004	Actuarial (Gain)/Loss	5,542,000	3,623,000	6	684,000
	June 30, 2005	Actuarial (Gain)/Loss	6,630,000	4,796,000	7	790,000
	June 30, 2005	Assumption Change	(490,000)	(358,000)	7	(59,000)
	June 30, 2006	Actuarial (Gain)/Loss	2,390,000	1,843,000	8	270,000
	June 30, 2007	Actuarial (Gain)/Loss	1,995,000	1,648,000	9	218,000
	June 30, 2008	Actuarial (Gain)/Loss	4,106,000	3,542,000	10	430,000
	June 30, 2008	Assumption Change	(278,000)	(248,000)	10	(30,000)
	June 30, 2009	Actuarial (Gain)/Loss	5,568,000	4,995,000	11	560,000
	June 30, 2010	Actuarial (Gain)/Loss	11,345,000	10,501,000	12	1,097,000
	June 30, 2011	Actuarial (Gain)/Loss	9,098,000	8,593,000	13	842,000
	June 30, 2011	Assumption Change	8,263,000	7,812,000	13	766,000
	June 30, 2012	Actuarial (Gain)/Loss	2,766,000	2,651,000	14	245,000
	June 30, 2012	Burial Allowance Method Change	71,000	56,000	14	5,000
	June 30, 2013	Actuarial (Gain)/Loss	4,155,000	4,068,000	15	357,000
	June 30, 2014	Actuarial (Gain)/Loss	(6,086,000)	(5,989,000)	16	(501,000)
	June 30, 2014	Assumption Change	7,714,000	7,598,000	16	636,000
	June 30, 2015	Actuarial (Gain)/Loss	2,754,000	2,717,000	17	217,000
	June 30, 2016	Actuarial (Gain)/Loss	6,644,000	6,633,000	18	509,000
	June 30, 2017	Actuarial (Gain)/Loss	1,676,000	1,681,000	19	124,000
	June 30, 2017	Assumption Change	22,659,000	22,636,000	19	1,673,000
	June 30, 2018	Actuarial (Gain)/Loss	9,110,000	<u>9,110,000</u>	20	<u>650,000</u>
<b>Subtotal</b>				\$109,828,000		\$12,464,000

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT J**

**Table of Amortization Bases (continued)**

	<b>Date Established</b>	<b>Source</b>	<b>Initial Amount</b>	<b>Outstanding Balance</b>	<b>Years Remaining</b>	<b>Annual Payment</b>
<b>SCAQMD</b>	June 30, 2002	Restart Amortization	\$18,462,000	\$9,099,000	4	\$2,490,000
	June 30, 2003	Actuarial (Gain)/Loss	27,792,000	16,132,000	5	3,594,000
	June 30, 2004	Actuarial (Gain)/Loss	24,821,000	16,288,000	6	3,076,000
	June 30, 2004	POB Credit	(46,375,000)	(30,427,000)	6	(5,746,000)
	June 30, 2005	Actuarial (Gain)/Loss	11,432,000	8,271,000	7	1,362,000
	June 30, 2005	Assumption Change	(3,613,000)	(2,621,000)	7	(432,000)
	June 30, 2006	Actuarial (Gain)/Loss	(1,328,000)	(1,038,000)	8	(152,000)
	December 31, 2006	UAAL Prepayment	(10,000,000)	(8,028,000)	8.5	(1,117,000)
	June 30, 2007	Actuarial (Gain)/Loss	12,093,000	9,991,000	9	1,324,000
	June 30, 2008	Actuarial (Gain)/Loss	16,095,000	13,929,000	10	1,689,000
	June 30, 2008	Assumption Change	1,425,000	1,238,000	10	150,000
	June 30, 2009	Actuarial (Gain)/Loss	8,947,000	8,033,000	11	900,000
	June 30, 2010	Actuarial (Gain)/Loss	34,808,000	32,188,000	12	3,363,000
	June 30, 2011	Actuarial (Gain)/Loss	26,766,000	25,295,000	13	2,480,000
	June 30, 2011	Assumption Change	21,411,000	20,238,000	13	1,984,000
	June 30, 2012	Actuarial (Gain)/Loss	6,060,000	5,849,000	14	541,000
	June 30, 2012	Burial Allowance Method Change	131,000	101,000	14	9,000
	June 30, 2013	Actuarial (Gain)/Loss	4,599,000	4,480,000	15	393,000
	June 30, 2014	Actuarial (Gain)/Loss	(39,137,000)	(38,571,000)	16	(3,226,000)
	June 30, 2014	Assumption Change	19,750,000	19,465,000	16	1,628,000
	June 30, 2015	Actuarial (Gain)/Loss	29,235,000	29,033,000	17	2,323,000
	June 30, 2016	Actuarial (Gain)/Loss	13,576,000	13,550,000	18	1,040,000
	June 30, 2017	Actuarial (Gain)/Loss	11,818,000	11,808,000	19	872,000
	June 30, 2017	Assumption Change	38,515,000	38,464,000	19	2,842,000
	June 30, 2018	Actuarial (Gain)/Loss	20,453,000	<u>20,453,000</u>	20	<u>1,458,000</u>
	<b>Subtotal</b>				\$223,220,000	

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT J**

**Table of Amortization Bases (continued)**

	<b>Date Established</b>	<b>Source</b>	<b>Initial Amount</b>	<b>Outstanding Balance</b>	<b>Years Remaining</b>	<b>Annual Payment</b>
<b>Safety</b>	June 30, 2002	Restart Amortization	\$(58,253,000)	\$(28,701,000)	4	\$(7,855,000)
	June 30, 2003	Actuarial (Gain)/Loss	218,078,000	126,550,000	5	28,190,000
	June 30, 2004	Actuarial (Gain)/Loss	79,928,000	52,431,000	6	9,902,000
	June 30, 2004	POB Credit	(152,154,000)	(99,781,000)	6	(18,844,000)
	June 30, 2004	Plan Change	1,245,000	811,000	6	153,000
	June 30, 2005	Actuarial (Gain)/Loss	40,552,000	29,264,000	7	4,819,000
	June 30, 2005	Assumption Change	(13,306,000)	(9,604,000)	7	(1,581,000)
	June 30, 2006	Actuarial (Gain)/Loss	(10,294,000)	(7,994,000)	8	(1,172,000)
	June 30, 2007	Actuarial (Gain)/Loss	7,498,000	6,210,000	9	823,000
	June 30, 2007	Plan Change	586,000	477,000	9	63,000
	June 30, 2008	Actuarial (Gain)/Loss	8,545,000	7,400,000	10	897,000
	June 30, 2008	Assumption Change	(1,042,000)	(888,000)	10	(108,000)
	June 30, 2009	Actuarial (Gain)/Loss	68,665,000	61,706,000	11	6,917,000
	June 30, 2010	Actuarial (Gain)/Loss	113,805,000	105,271,000	12	10,998,000
	June 30, 2011	Actuarial (Gain)/Loss	106,674,000	100,862,000	13	9,888,000
	June 30, 2011	Assumption Change	72,902,000	68,927,000	13	6,758,000
	June 30, 2012	Actuarial (Gain)/Loss	42,867,000	41,304,000	14	3,822,000
	June 30, 2012	Burial Allowance Method Change	348,000	336,000	14	31,000
	June 30, 2013	Actuarial (Gain)/Loss	37,091,000	36,242,000	15	3,182,000
	June 30, 2014	Actuarial (Gain)/Loss	(38,209,000)	(37,655,000)	16	(3,150,000)
	June 30, 2014	Assumption Change	107,305,000	105,726,000	16	8,843,000
	June 30, 2015	Actuarial (Gain)/Loss	61,791,000	61,366,000	17	4,909,000
	June 30, 2016	Actuarial (Gain)/Loss	12,071,000	12,040,000	18	924,000
	June 30, 2017	Actuarial (Gain)/Loss	8,617,000	8,601,000	19	636,000
	June 30, 2017	Assumption Change	172,986,000	172,796,000	19	12,768,000
	June 30, 2018	Actuarial (Gain)/Loss	57,238,000	<u>57,238,000</u>	20	<u>4,082,000</u>
<b>Subtotal</b>				\$870,935,000		\$85,895,000

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT J**

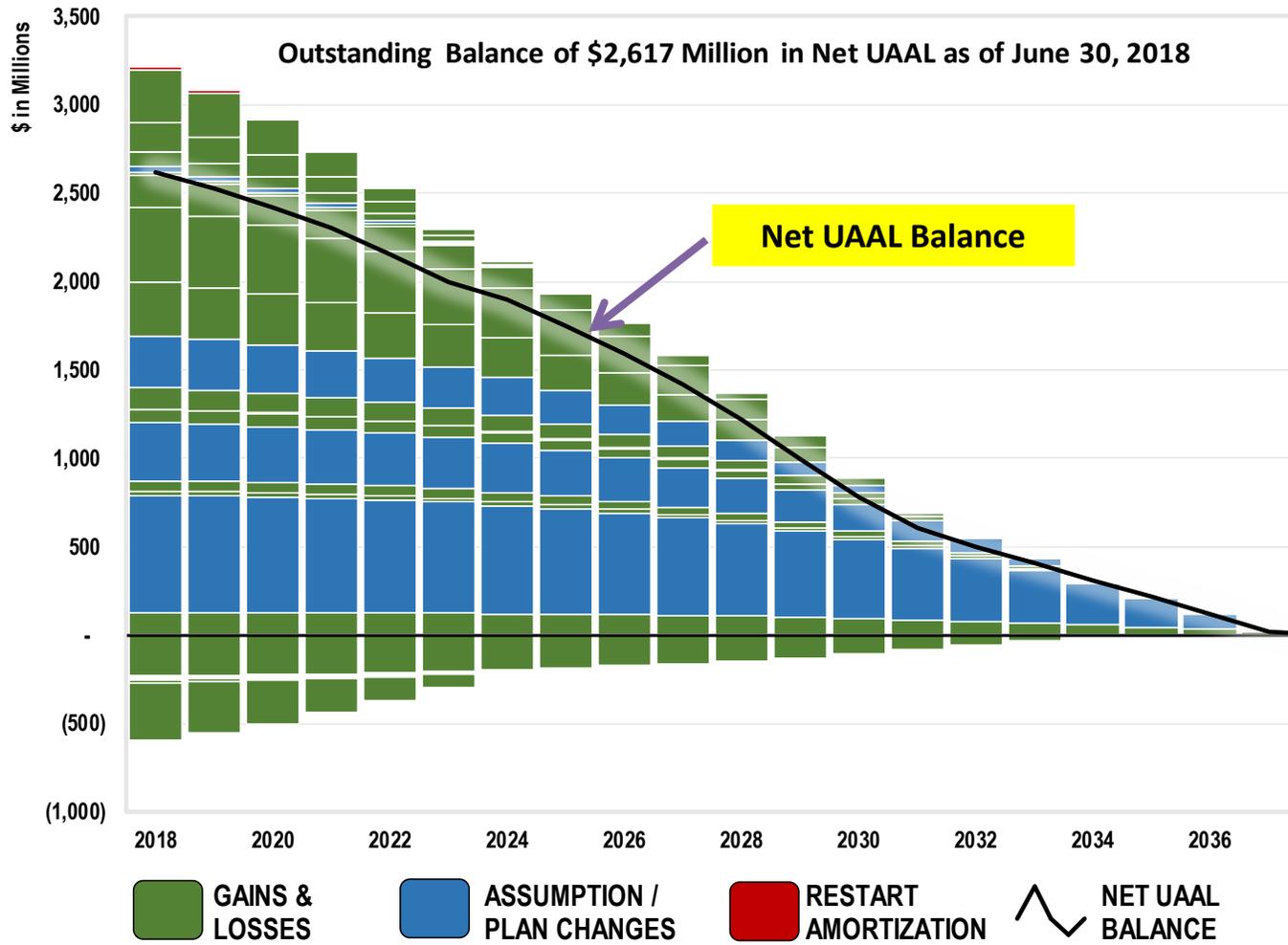
**Table of Amortization Bases (continued)**

	<b>Date Established</b>	<b>Source</b>	<b>Initial Amount</b>	<b>Outstanding Balance</b>	<b>Years Remaining</b>	<b>Annual Payment</b>
<b>Combined</b>	June 30, 2002	Restart Amortization	\$36,177,000	\$17,820,000	4	\$4,876,000
	June 30, 2003	Actuarial (Gain)/Loss	515,947,000	299,414,000	5	66,697,000
	June 30, 2004	Actuarial (Gain)/Loss	249,570,000	163,524,000	6	30,883,000
	June 30, 2004	POB Credit	(505,187,000)	(330,948,000)	6	(62,501,000)
	June 30, 2004	Plan Change	1,245,000	811,000	6	153,000
	June 30, 2005	Actuarial (Gain)/Loss	120,808,000	87,239,000	7	14,366,000
	June 30, 2005	Assumption Change	41,487,000	29,943,000	7	4,931,000
	June 30, 2006	Actuarial (Gain)/Loss	(16,929,000)	(13,178,000)	8	(1,932,000)
	December 31, 2006	UAAL Prepayment	(10,000,000)	(8,028,000)	8.5	(1,117,000)
	June 30, 2007	Actuarial (Gain)/Loss	(6,662,000)	(5,477,000)	9	(726,000)
	June 30, 2007	Plan Change	586,000	477,000	9	63,000
	June 30, 2008	Actuarial (Gain)/Loss	19,453,000	16,831,000	10	2,041,000
	June 30, 2008	Assumption Change	(10,692,000)	(9,253,000)	10	(1,122,000)
	June 30, 2009	Actuarial (Gain)/Loss	206,143,000	185,218,000	11	20,761,000
	June 30, 2010	Actuarial (Gain)/Loss	454,302,000	420,173,000	12	43,897,000
	June 30, 2011	Actuarial (Gain)/Loss	320,873,000	303,357,000	13	29,740,000
	June 30, 2011	Assumption Change	312,234,000	295,186,000	13	28,940,000
	June 30, 2012	Actuarial (Gain)/Loss	122,009,000	117,526,000	14	10,875,000
	June 30, 2012	Burial Allowance	3,010,000	2,853,000	14	263,000
	June 30, 2013	Actuarial (Gain)/Loss	79,446,000	77,602,000	15	6,813,000
	June 30, 2014	Actuarial (Gain)/Loss	(232,660,000)	(229,259,000)	16	(19,176,000)
	June 30, 2014	Assumption Change	331,433,000	326,570,000	16	27,315,000
	June 30, 2015	Actuarial (Gain)/Loss	59,042,000	58,609,000	17	4,688,000
	June 30, 2016	Actuarial (Gain)/Loss	24,146,000	24,080,000	18	1,848,000
	June 30, 2017	Actuarial (Gain)/Loss	(2,921,000)	(2,914,000)	19	(216,000)
	June 30, 2017	Assumption Change	662,715,000	661,964,000	19	48,913,000
	June 30, 2018	Actuarial (Gain)/Loss	127,034,000	<u>127,034,000</u>	20	<u>9,059,000</u>
<b>Grand Total<sup>(1)</sup></b>				\$2,617,174,000		\$270,332,000

<sup>(1)</sup> Excludes three withdrawn employers as of June 2018. Using ongoing valuation assumptions, their UAAL as of the June 30, 2018 was \$(8,020,000) with \$(484,000) due to an actuarial gain in their UAAL during 2017-2018. 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.

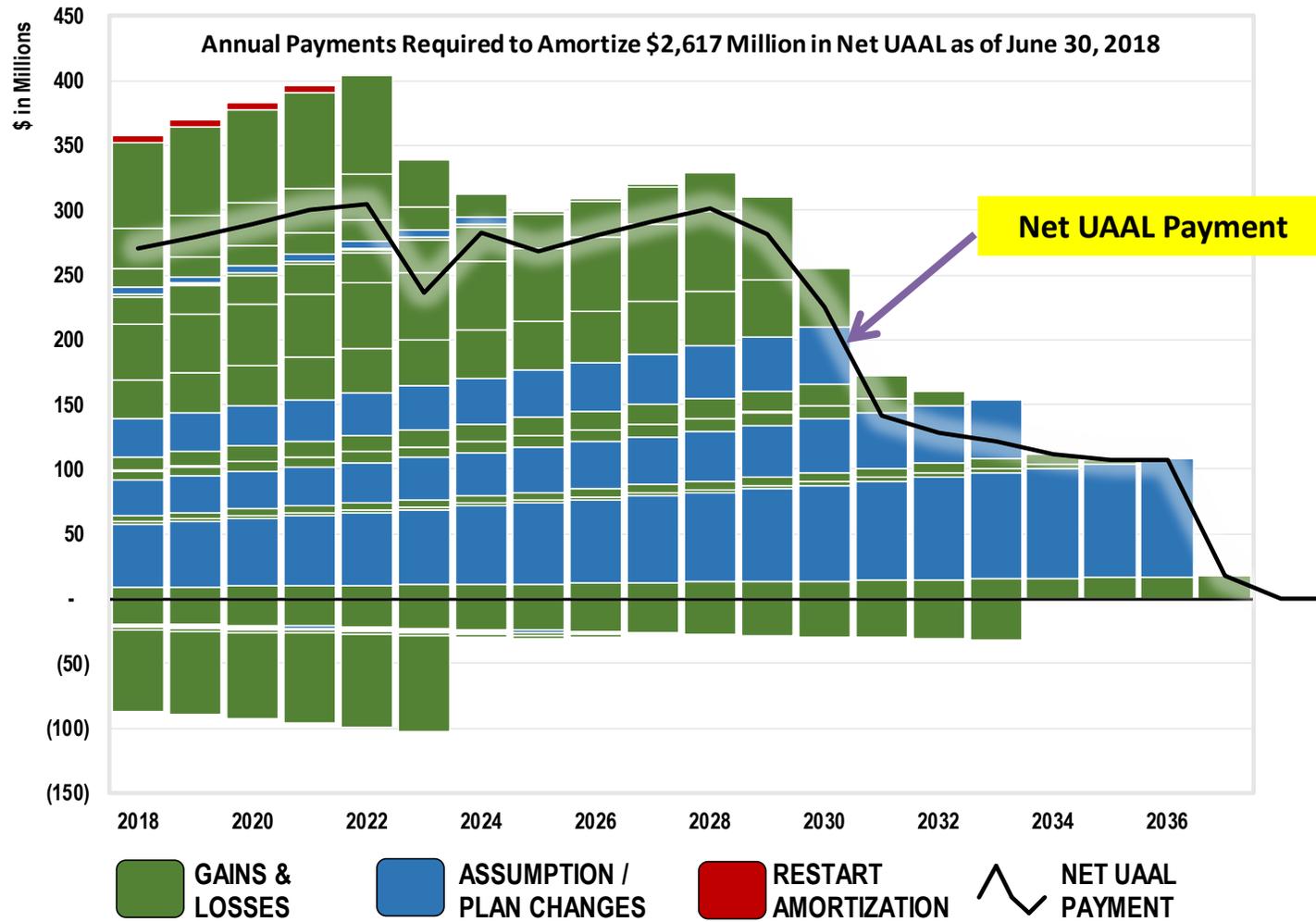
SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association

EXHIBIT K  
Projection of UAAL Balances and Payments



SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association

EXHIBIT K  
Projection of UAAL Balances and Payments (continued)



**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

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**EXHIBIT L**

**Section 415 Limitations**

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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 \$220,000 for 2018. Normal Retirement Age is generally age 62 for these purposes. 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. Limits are also affected by the "grandfather" election under Section 415(b)(10).

For non-Tier 2 members, benefits in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m) of the IRC and Section 7522.43 of PEPRA.

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. Actual limitations will result in gains as they occur.

**SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association**

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**EXHIBIT M**

**Definitions of Pension Terms**

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

**Assumptions or Actuarial**

**Assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age; and
- (d) Turnover rates — the rates at which members of various years of service are expected to leave employment for reasons other than death, disability, or retirement.

**Normal Cost:**

The amount of contributions required to fund the determined cost allocated to the current year of service, as a level % of payroll over the members' career.

**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:**

The single sum value of lifetime benefits to benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

### SECTION 3: Supplemental Information for San Bernardino County Employees' Retirement Association

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**Unfunded Actuarial Accrued Liability:**

The extent to which the actuarial accrued liability of the Plan exceeds (or is exceeded by) the assets of the Plan. There are many approaches to paying off the unfunded or overfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

**Amortization of the Unfunded Actuarial Accrued Liability:**

Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

**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 market gains and losses to avoid significant swings in the value of assets from one year to the next.

**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.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT I**

**Summary of Actuarial Valuation Results**

**The valuation was made with respect to the following data supplied to us:**

1. Retired members as of the valuation date (including 1,706 beneficiaries in pay status)	12,716
2. Members inactive during year ended June 30, 2018 with vested rights	6,211
3. Members active during the year ended June 30, 2018	21,465

**The actuarial factors as of the valuation date are as follows (amounts in 000s):**

1. Normal cost <sup>(1)</sup>	\$349,866
2. Present value of future benefits	15,478,764
3. Present value of future normal costs	2,902,874
4. Actuarial accrued liability <sup>(2)</sup>	12,575,890
Retired members and beneficiaries	\$6,732,330
Inactive members with vested rights	457,774
Active members	5,385,786
5. Valuation value of assets <sup>(3)</sup> (\$10,066,990 at market value as reported by Retirement Association)	9,966,736
6. Unfunded actuarial accrued liability	\$2,609,154

<sup>(1)</sup> Includes administrative expense load.

<sup>(2)</sup> Excludes liabilities held for Survivor Benefit, Burial Allowance and Excess Earnings reserves.

<sup>(3)</sup> Excludes assets held for Survivor Benefit, Burial Allowance and Excess Earnings reserves. 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.

Note: Results include three withdrawn employers as of June 30, 2018.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**EXHIBIT I (continued)**

**Summary of Actuarial Valuation Results**

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The determination of the recommended average employer contribution is as follows  
(amounts in 000s):

	<b>Dollar Amount</b>	<b>% of Payroll</b>
1. Total normal cost	\$349,866	23.68%
2. Expected employee contributions	<u>(165,600)</u>	<u>(11.21%)</u>
3. Employer normal cost: (1) + (2)	\$184,266	12.47%
4. Amortization of unfunded actuarial accrued liability	<u>275,030</u>	<u>18.62%</u>
5. Total recommended average employer contribution: (3) + (4)	\$459,296	31.09%
6. Projected compensation	\$1,477,132	

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*Note: Results exclude three withdrawn employers.*

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**EXHIBIT II**

**Actuarial Assumptions and Methods**

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**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 both Tier 1 and Tier 2 members.

**Economic Assumptions**

**Net Investment Return:** 7.25%, net of investment expenses.

**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.

**Employee 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.

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**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.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Individual Salary Increases:**

<b>Annual Rate of Compensation Increase</b>		
Inflation: 3.00% per year; plus "across the board" real salary increases of 0.50% per year; plus the following promotional and merit increases:		
<b>Years of Service</b>	<b>General</b>	<b>Safety</b>
Less than 1	11.00%	11.00%
1	8.00	7.00
2	4.75	4.00
3	4.25	3.75
4	3.75	3.50
5	3.25	3.25
6	2.75	3.00
7	2.25	2.50
8	2.00	1.75
9	1.75	1.50
10	1.50	1.45
11	1.40	1.40
12	1.30	1.35
13	1.20	1.30
14	1.10	1.25
15	1.00	1.20
16	1.00	1.20
17	1.00	1.20
18	1.00	1.20
19	1.00	1.20
20 and Over	1.00	1.20

## SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association

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### Demographic Assumptions

#### **Mortality Rates:**

*Healthy:*

For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward one year for males, projected generationally with the two-dimensional MP-2016 projection scale.

For 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:*

For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward seven years, projected generationally with the two-dimensional MP-2016 projection scale.

For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back one year, projected generationally with the two-dimensional MP-2016 projection scale.

*Beneficiaries:*

Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who is receiving a service (non-disability) retirement.

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.

*Member Contribution Rates:*

For 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.

For 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.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Pre – Retirement Mortality Rates:** Headcount-Weighted RP-2014 Employee Mortality Table times 90%, projected generationally with the two-dimensional MP-2016 projection scale.

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

*All pre-retirement deaths are assumed to be non-service connected. Note that generational projections beyond the base year (2014) are not reflected in the above mortality rates.*

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Termination Rates Before Retirement:**

<b>Age</b>	<b>Rate (%)</b>	
	<b>Disability</b>	
	<b>General<sup>(1)</sup></b>	<b>Safety<sup>(2)</sup></b>
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

<sup>(1)</sup> 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.

<sup>(2)</sup> 100% of Safety disabilities are assumed to be service connected (duty) disabilities.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Termination Rates Before Retirement (continued):**

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

<sup>(1)</sup> Refer to the next table that contains rates for electing a refund of contributions upon withdrawal. No withdrawal is assumed after a member is first assumed to retire.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Termination Rates Before Retirement (continued):**

Rate (%)				
Electing a Refund of Contributions upon Termination				
Years of Service	General		Safety	
	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	100.00	100.00	100.00	100.00
5	40.00	20.00	25.00	12.50
6	40.00	20.00	25.00	12.50
7	40.00	20.00	25.00	12.50
8	40.00	20.00	25.00	12.50
9	40.00	20.00	25.00	12.50
10	40.00	20.00	25.00	12.50
11	40.00	20.00	25.00	12.50
12	40.00	20.00	15.00	7.50
13	40.00	20.00	15.00	7.50
14	40.00	20.00	15.00	7.50
15	40.00	20.00	15.00	7.50
16	20.00	10.00	10.00	5.00
17	20.00	10.00	10.00	5.00
18	20.00	10.00	5.00	2.50
19	20.00	10.00	5.00	2.50
20 or more	20.00	10.00	0.00	0.00

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Retirement Rates:**

Age	Rate (%)			
	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

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Retirement Age and Benefit for Deferred Vested Members:**

For current and future deferred vested members, retirement age assumptions are as follows:

General Age: 59

Safety Age: 53

We assume that 40% of future General and 60% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocal members, we assume 4.50% and 4.70% compensation increases per annum for General and Safety members, respectively.

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**Future Benefit Accruals:**

1.0 year of service per year.

**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 members are assumed to elect the unmodified option at retirement.

**Percent Married:**

65% of male members and 55% of female members are assumed to be married at pre-retirement death or retirement.

**Age of Spouse:**

Male retirees are 3 years older than their spouses, and female retirees are 2 years younger than their spouses.

**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.

## SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association

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### Actuarial Methods

**Actuarial Cost Method:**

Entry Age Actuarial Cost Method. Entry Age is calculated as 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 formulas have always been in effect (i.e., “replacement life within each tier”).

**Actuarial Value of Assets:**

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 the market value, and are recognized over a five-year period.

**Valuation Value of Assets:**

The Actuarial Value of Assets reduced by the value of the Burial Allowance Reserve, Undesignated Excess Earnings Reserve, Restricted Balance Reserved for Deficiencies, and 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.

#### **SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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Unless an alternative amortization period is recommended by the Actuary and accepted by the Board based on the results of an actuarial analysis:

- a. 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;
- b. 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.

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.

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#### **Changes in Actuarial Assumptions and Methods:**

There have been no changes in actuarial assumptions or methods since the previous actuarial valuation.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**EXHIBIT III**

**Summary of Plan Provisions**

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This exhibit summarizes the major provisions of the SBCERA included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions. Unless otherwise noted, all plan provisions shown below apply to both Tier 1 and Tier 2 members.

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<b>Membership Eligibility:</b>	All permanent employees of the County of San Bernardino or another participating employer working 20 hours per week or more must become a member of SBCERA subject to classification below:
<i>General</i>	All employees not eligible for Safety.
<i>Safety</i>	Employees in law enforcement and fire suppression.
<i>Tier 1</i>	All members with membership dates before January 1, 2013.
<i>Tier 2</i>	All members with membership dates on or after January 1, 2013.

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**Final Compensation for Benefit Determination:**

<i>Tier 1</i>	Highest consecutive twelve months of compensation earnable (FAS1)(§31462.1).
<i>Tier 2</i>	Highest consecutive thirty-six months of pensionable compensation (FAS3)(§7522.32).

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**Compensation Limit:**

<i>Tier 1</i>	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, 2018 is \$275,000. The limit is indexed for inflation on an annual basis.
<i>Tier 2</i>	Pensionable Compensation is limited to \$145,666 for 2018. The limit is indexed for inflation on an annual basis.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Service Requirement:**

Eligibility:

<i>General Tier 1</i>	Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years, regardless of age (§31672).
<i>General Tier 2</i>	Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service (§31672.3).
<i>Safety Tier 1</i>	Age 50 with 10 years of service, or age 70 regardless of service, or after 20 years, regardless of age (§31663.25).
<i>Safety Tier 2</i>	Age 50 with 5 years of service (§7522.25(a)) or age 70 regardless of service (§31672.3).

---

**Benefit Formula:**

<i>General Tier 1 (§31676.15)</i>	<u>Retirement Age</u>	<u>Benefit Formula</u>
	50	1.49% x FAS1 x Years of Service
	55	2.00% x FAS1 x Years of Service
	60	2.62% x FAS1 x Years of Service
	62	2.82% x FAS1 x Years of Service
	65	3.13% x FAS1 x Years of Service
<i>General Tier 2 (§7522.20(a))</i>	52	1.00% x FAS3 x Years of Service
	55	1.30% x FAS3 x Years of Service
	60	1.80% x FAS3 x Years of Service
	62	2.00% x FAS3 x Years of Service
	65	2.30% x FAS3 x Years of Service
	67	2.50% x FAS3 x Years of Service

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**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

**Benefit Formula:**

	<b>Retirement Age</b>	<b>Benefit Formula</b>
<i>Safety Tier 1 (§31664.1)</i>	50 and later	3.00% x FAS1 x Years of Service
<i>Safety Tier 2 (§7522.25(d))</i>	50	2.00% x FAS3 x Years of Service
	55	2.50% x FAS3 x Years of Service
	57 and later	2.70% x FAS3 x Years of Service

**Maximum Benefit:**

<i>Tier 1</i>	100% of Final Compensation (§31676.15), (§31664.1)
<i>Tier 2</i>	There is no final compensation limit on the maximum retirement benefit.

**Ordinary Disability:**

<i>Eligibility</i>	Five years of service (§31720).
<i>Benefit Formula</i>	For members entering before January 1, 1981, 1.8% per year of service (in most cases a minimum of 33% of compensation) (§31727.3, §31727, and §31727.2). For members entering on or after January 1, 1981, 20% of final compensation, plus 2% of final average compensation for each year of service in excess of five years, up to a maximum of 40%. Members can instead receive service retirement benefit, if greater.

**Line-of-Duty Disability:**

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

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Supplemental Disability:**

<i>Eligibility</i>	Must be a General member and incapable of gainful employment.
<i>Benefit</i>	\$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.

---

**Death Before Retirement:**

<i>Less than Five Years of Service</i>	Refund of employee contributions with interest, plus one month's compensation for each year of service to a maximum of six months' compensation (§31781); 50% of Final Compensation payable to spouse (or child) if service-connected death (§31787).
<i>Five or More Years of Service</i>	60% of the greater of Service Retirement or Ordinary Disability retirement benefit payable to surviving eligible spouse (§31765.1, §31781.1), in lieu of above.  An additional lump sum payment of one-year of compensation is paid if Line-of-Duty death for Safety member (§31787.6).

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**Death After Retirement:**

<i>Service Retirement or Ordinary Disability Retirement</i>	60% of member's unmodified allowance continued to eligible spouse (§31760.1).
<i>Line-of-Duty Disability</i>	100% of member's allowance continued to eligible spouse (§31786).  An additional 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) pursuant to §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.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Withdrawal Benefits:**

<i>Less than Five Years of Service</i>	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.
<i>Five or More Years of Service</i>	If contributions left on deposit, 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.

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**Post-retirement  
Cost-of-Living Benefits:**

Future changes based on the 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.

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**Employer Contributions:**

Determined based on the actuarial methods described in Exhibit II.

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**Member Contributions:**

Please refer to page Appendix A for the specific rates.

**General Tier 1:**

<i>Basic</i>	Entry age based rates that provide for an average annuity at age 55 equal to $\frac{1}{100}$ of FAS1 (§31621.6).
<i>Cost-of-Living</i>	Entry age based rates that provide for one-half of future Cost-of-Living costs.

**Safety Tier 1:**

<i>Basic</i>	Entry age based rates that provide for an average annuity at age 50 equal to $\frac{1}{100}$ of FAS1 (§31639.25).
<i>Cost-of-Living</i>	Entry age based rates that provide for one-half of future Cost-of-Living costs.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**General Tier 2:** Non-entry age based rates that provide for 50% of total Normal Cost Rate.

**Safety Tier 2:** Non-entry age based rates that provide for 50% of total Normal Cost Rate.

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**Other Information:** Tier 1 members with 30 or more years of service are exempt from paying member contributions (§31625.2, §31625.3).

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**Plan Changes:** There have been no changes in plan provisions since the previous valuation.

**NOTE:** *The summary of major plan provisions is designed to outline principal plan benefits as interpreted for purposes of the actuarial valuations. If the Association should find the plan summary not in accordance with the actual provisions, the Association should alert the actuary to ensure the proper provisions are valued.*

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

**Appendix A**

**Member Contribution Rates (Refundable Basis)**

**General Tier 1 Members' Contribution Rates (Refundable Basis) from the June 30, 2018 Actuarial Valuation  
Expressed as a Percentage of Monthly Compensation**

<u>Entry Age</u>	<u>General Basic</u>	<u>General Total</u>	<u>Entry Age</u>	<u>General Basic</u>	<u>General Total</u>
16	7.27%	9.14%	36	9.94%	12.52%
17	7.38%	9.28%	37	10.11%	12.73%
18	7.49%	9.42%	38	10.29%	12.96%
19	7.61%	9.57%	39	10.47%	13.19%
20	7.73%	9.72%	40	10.66%	13.43%
21	7.85%	9.87%	41	10.84%	13.65%
22	7.97%	10.03%	42	11.02%	13.88%
23	8.09%	10.18%	43	11.20%	14.11%
24	8.22%	10.34%	44	11.39%	14.35%
25	8.35%	10.51%	45	11.57%	14.58%
26	8.48%	10.67%	46	11.73%	14.78%
27	8.61%	10.84%	47	11.89%	14.98%
28	8.74%	11.00%	48	12.02%	15.15%
29	8.88%	11.18%	49	12.12%	15.27%
30	9.02%	11.35%	50	12.20%	15.37%
31	9.17%	11.54%	51	12.26%	15.45%
32	9.31%	11.72%	52	12.32%	15.53%
33	9.46%	11.91%	53	12.14%	15.30%
34	9.62%	12.11%	54 & Over	11.76%	14.82%
35	9.78%	12.31%			

Interest: 7.25%  
 COLA: 2.00%  
 Administrative Expense: 0.19% of payroll added to Basic rates.  
 COLA Loading Factor: 26.43% applied to Basic rates prior to adjustment for administrative expenses.  
 Mortality: See Exhibit II, page 69.  
 Salary Increase: See Exhibit II, page 68.  
 Note: These rates are determined before any pickups by the employer.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Safety Tier 1 Members' Contribution Rates (Refundable Basis) from the June 30, 2018 Actuarial Valuation  
Expressed as a Percentage of Monthly Compensation**

<u>Entry Age</u>	<u>Safety Basic</u>	<u>Safety Total</u>	<u>Entry Age</u>	<u>Safety Basic</u>	<u>Safety Total</u>
16	8.30%	11.80%	36	11.12%	15.83%
17	8.41%	11.95%	37	11.30%	16.09%
18	8.53%	12.13%	38	11.48%	16.35%
19	8.65%	12.30%	39	11.67%	16.62%
20	8.78%	12.48%	40	11.87%	16.91%
21	8.90%	12.65%	41	12.06%	17.18%
22	9.03%	12.84%	42	12.19%	17.36%
23	9.16%	13.03%	43	12.29%	17.51%
24	9.29%	13.21%	44	12.37%	17.62%
25	9.42%	13.40%	45	12.45%	17.74%
26	9.56%	13.60%	46	12.53%	17.85%
27	9.70%	13.80%	47	12.63%	17.99%
28	9.84%	14.00%	48	12.53%	17.85%
29	9.98%	14.20%	49 & Over	12.13%	17.28%
30	10.13%	14.42%			
31	10.28%	14.63%			
32	10.44%	14.86%			
33	10.61%	15.10%			
34	10.77%	15.33%			
35	10.95%	15.59%			

Interest: 7.25%  
 COLA: 2.00%  
 Administrative Expense: 0.19% of payroll added to Basic rates.  
 COLA Loading Factor: 43.11% applied to Basic rates prior to adjustment for administrative expenses.  
 Mortality: See Exhibit II, page 69.  
 Salary Increase: See Exhibit II, page 68.  
 Note: These rates are determined before any pickups by the employer.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Tier 2 Members' Contribution Rates (Refundable Basis) from the June 30, 2018 Actuarial Valuation  
Expressed as a Percentage of Monthly Compensation**

	<b>Basic</b>	<b>COLA</b>	<b>Total</b>
County General and Superior Court	7.47%	1.63%	9.10%
Safety	12.81%	3.38%	16.19%
SCAQMD	6.70%	1.48%	8.18%
Other General	7.45%	1.62%	9.07%

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 0.19% of payroll.

Note: It is our understanding that in the determination of pension benefits under the CalPEPRA formulas for Tier 2 members, the maximum compensation that can be taken into account for 2018 is \$145,666. (reference: Section 7522.10). This amount should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2018. (reference: Section 7522.10(d))

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

**Appendix B**

**Member Contribution Rates (Nonrefundable Basis)**

**General Tier 1 Members' Contribution Rates (Nonrefundable Basis) from the June 30, 2018 Actuarial Valuation  
Expressed as a Percentage of Monthly Compensation**

<u>Entry Age</u>	<u>General Basic</u>	<u>General Total</u>	<u>Entry Age</u>	<u>General Basic</u>	<u>General Total</u>
16	6.86%	8.62%	36	9.38%	11.81%
17	6.96%	8.75%	37	9.54%	12.01%
18	7.07%	8.89%	38	9.71%	12.23%
19	7.18%	9.03%	39	9.88%	12.44%
20	7.29%	9.17%	40	10.06%	12.67%
21	7.41%	9.31%	41	10.23%	12.88%
22	7.52%	9.46%	42	10.40%	13.09%
23	7.63%	9.60%	43	10.57%	13.31%
24	7.75%	9.75%	44	10.75%	13.54%
25	7.88%	9.92%	45	10.92%	13.75%
26	8.00%	10.07%	46	11.07%	13.94%
27	8.12%	10.23%	47	11.22%	14.13%
28	8.25%	10.38%	48	11.34%	14.29%
29	8.38%	10.55%	49	11.43%	14.41%
30	8.51%	10.71%	50	11.51%	14.50%
31	8.65%	10.89%	51	11.57%	14.58%
32	8.78%	11.06%	52	11.62%	14.65%
33	8.92%	11.24%	53	11.45%	14.43%
34	9.08%	11.42%	54 & Over	11.09%	13.98%
35	9.23%	11.61%			

Interest: 7.25%  
 COLA: 2.00%  
 Administrative Expense: 0.19% of payroll added to Basic rates.  
 COLA Loading Factor: 26.43% applied to Basic rates prior to adjustment for administrative expenses.  
 Refundability Factor: 1.06  
 Mortality: See Exhibit II, page 69.  
 Salary Increase: See Exhibit II, page 68.  
 Note: These rates are determined before any pickups by the employer.

**SECTION 4: Reporting Information for San Bernardino County Employees' Retirement Association**

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**Safety Tier 1 Members' Contribution Rates (Nonrefundable Basis) from the June 30, 2018 Actuarial Valuation  
Expressed as a Percentage of Monthly Compensation**

<u>Entry Age</u>	<u>Safety Basic</u>	<u>Safety Total</u>	<u>Entry Age</u>	<u>Safety Basic</u>	<u>Safety Total</u>
16	8.14%	11.57%	36	10.90%	15.52%
17	8.25%	11.72%	37	11.08%	15.77%
18	8.36%	11.89%	38	11.25%	16.03%
19	8.48%	12.06%	39	11.44%	16.29%
20	8.61%	12.24%	40	11.64%	16.58%
21	8.73%	12.40%	41	11.82%	16.84%
22	8.85%	12.59%	42	11.95%	17.02%
23	8.98%	12.77%	43	12.05%	17.17%
24	9.11%	12.95%	44	12.13%	17.27%
25	9.24%	13.14%	45	12.21%	17.39%
26	9.37%	13.33%	46	12.28%	17.50%
27	9.51%	13.53%	47	12.38%	17.64%
28	9.65%	13.73%	48	12.28%	17.50%
29	9.78%	13.92%	49 & Over	11.89%	16.94%
30	9.93%	14.14%			
31	10.08%	14.34%			
32	10.24%	14.57%			
33	10.40%	14.80%			
34	10.56%	15.03%			
35	10.74%	15.28%			

Interest: 7.25%  
 COLA: 2.00%  
 Administrative Expense: 0.19% of payroll added to Basic rates.  
 COLA Loading Factor: 43.11% applied to Basic rates prior to adjustment for administrative expenses.  
 Refundability Factor: 1.02  
 Mortality: See Exhibit II, page 69.  
 Salary Increase: See Exhibit II, page 68.  
 Note: These rates are determined before any pickups by the employer.

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**San Bernardino County Employees'  
Retirement Association  
Survivor Benefit Valuation**

**Review of Contribution Rate and Funded Status  
as of June 30, 2018**



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 27, 2018

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

*Dear Members of the Board:*

*We are pleased to submit our Survivor Benefit Valuation as of June 30, 2018. It summarizes the actuarial data used in the valuation and establishes the funding requirements for fiscal 2019-2020.*

*This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census information on which our calculations were based was prepared by SBCERA and the financial information was provided by the Retirement Association. 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 the expectations for the Plan.*

*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*

By:   
\_\_\_\_\_  
*Paul Angelo, FSA, EA, MAAA, FCA  
Senior Vice President and Actuary*

  
\_\_\_\_\_  
*John Monroe, ASA, EA, MAAA  
Vice President and Actuary*

*AW/bbf*

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## SECTION 1

### VALUATION SUMMARY

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**SECTION 1: Valuation Summary for SBCERA Survivor Benefit Valuation**

---

**CONTRIBUTION RECOMMENDATIONS AND FUNDED STATUS**

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

	General Employers	Estimated Annual Amount	General Members	Estimated Annual Amount
Current Contribution Rate	\$1.36	\$658,000	\$1.36	\$658,000
Recommended Contribution Rate	\$1.35	\$660,000	\$1.35	\$660,000

- 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.
- 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.
- The following table compares the reserves and liabilities for the Survivor Benefit as of June 30, 2018:

1. June 30, 2018 Reserves	\$70,067,000
2. June 30, 2018 Actuarial Accrued Liabilities:	
Current Recipients	20,523,000
Future Recipients	7,900,000
Total	28,423,000
3. Liabilities minus Reserves (2) – (1)	-\$41,644,000
4. Funded Ratio (1) ÷ (2)	246.5%

## SECTION 2: Review of Actuarial Assumptions for SBCERA Survivor Benefit Valuation

---

### 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 Exhibit I.

**SECTION 2: Review of Actuarial Assumptions for SBCERA Survivor Benefit Valuation**

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**B. REVIEW OF EXPERIENCE AND RECOMMENDATIONS**

Exhibit II in Section 4 provides a summary of the actuarial assumptions used in this actuarial valuation. 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.

Assumptions regarding the number and type of beneficiaries for future deaths were derived from 2016 U.S. Census data. Separate assumptions were developed for married versus non-married members. Those assumptions can be found in Exhibit II.

The following table provides a summary of the number and type of beneficiaries as of June 30, 2018.

---

**CHART 1**  
**Table of Coverage**

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<b>SBCERA Survivor Benefit Recipients as of June 30, 2018</b>	<b>Death Before 4/2/1994</b>	<b>Death 4/2/1994 or Later</b>
1. Surviving spouse caring for one child OR two children only	0	19
2. Surviving spouse caring for two or more children OR three or more children	0	12
3. One child only OR each of two dependent parents age 62	0	11
4. Widow or widower age 62 (no child) or in deferred status	59	104
5. Widow or widower age 60 (no child)	0	88
6. Total	59	234

<b>SBCERA Covered Members as of June 30, 2018</b>	<b>As of June 30, 2018</b>
1. Active members	18,798

---

### SECTION 3: Valuation Results for SBCERA Survivor Benefit Valuation

---

#### A. INTRODUCTION

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

1. The Survivor Benefit Reserve, which equals \$70,067,000 as of June 30, 2018; and
2. Equal contributions from employers and members.

The following table provides the funded status of the Survivor Benefit as of June 30, 2018:

1. June 30, 2018 Reserves	\$70,067,000
2. June 30, 2018 Actuarial Accrued Liabilities:	
Current Recipients	20,523,000
Future Recipients	7,900,000
Total	28,423,000
3. Liabilities minus Reserves	-\$41,644,000
4. Funded Ratio (1./2.)	246.5%

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.

### SECTION 3: Valuation Results for SBCERA Survivor Benefit Valuation

---

#### B. CONTRIBUTION REQUIREMENTS

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	\$660,000
5. Estimated Annual Member Contribution	\$660,000

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

**SECTION 4: Supporting Exhibits for SBCERA Survivor Benefit Valuation**

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**EXHIBIT I**

**Plan Summary for SBCERA Survivor Benefit**

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<b>Covered Members:</b>	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.
<b>Member Contribution Rate:</b>	50% of benefit cost, charged to all active General members
<b>Employer Contribution Rate:</b>	50% of benefit cost

**Table of Benefits for Members with Death Date on or After 4/1/1994**

---

<b><u>Member's Survivor(s)</u></b>	<b><u>Monthly Allowance</u></b>
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

**SECTION 4: Support Exhibits for SBCERA Survivor Benefit Valuation**

**EXHIBIT II**

**Actuarial Assumptions/Methods for SBCERA Survivor Benefit**

**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.

**Actuarial Assumptions**

The actuarial assumptions used in this valuation are:

- Those described in the SBCERA June 30, 2018 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	Children's Age	
								Child 1	Child 2
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).*

**SECTION 4: Support Exhibits for SBCERA Survivor Benefit Valuation**

---

**Actuarial Methods**

<b>Actuarial Cost Method:</b>	Entry Age Actuarial Cost Method. Entry Age is the age at the member’s hire date. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by service, with Normal Cost determined as though the current benefit accrual rate had always been in effect, (i.e., “replacement life”).
<b>Actuarial Value of Assets:</b>	Survivor Benefit Reserve value as of valuation date.
<b>Amortization Policy:</b>	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.

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**Changes in Actuarial Assumptions and Methods:** None.

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# **San Bernardino County Employees' Retirement Association**

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

**Actuarial Valuation as of June 30, 2018**

This report has been prepared at the request of the Board of Retirement to assist SBCERA in preparing items related to the pension plan in their financial report. 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 27, 2018*

*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 Board Standards No. 67 (GASB 67) Actuarial Valuation as of June 30, 2018. 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; and changes in plan provisions or applicable law.*

*The actuarial calculations were completed under the supervision of John Monroe, ASA, MAAA, EA. 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 Association.*

*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*

*JZM/bbf*

## SECTION 1

### VALUATION SUMMARY

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## **SECTION 1: Valuation Summary for San Bernardino County Employees' Retirement Association**

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### **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, 2018. 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, 2018, provided by SBCERA;
- The assets of the Plan as of June 30, 2018, provided by SBCERA;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the June 30, 2018 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the June 30, 2018 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.

## **SECTION 1: Valuation Summary for San Bernardino County Employees' Retirement Association**

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- 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 a five-year period.
- For this report, the reporting dates for the Plan are June 30, 2018 and 2017, respectively. The NPLs measured as of June 30, 2018 and 2017 have been determined from the actuarial valuations as of June 30, 2018 and June 30, 2017, 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 decreased from \$2.64 billion as of June 30, 2017 to \$2.53 billion as of June 30, 2018 primarily due to the 8.60% return on the market value of assets during 2017-2018 (that was higher than the assumed return of 7.25%). This decrease is offset to some extent by less than expected actual contributions and other experience losses. Changes in these values during the last two fiscal years ending June 30, 2018 and June 30, 2017 can be found in Exhibit 3.
- The discount rate used to determine the TPL and NPL as of June 30, 2018 and 2017 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.

## SECTION 1: Valuation Summary for San Bernardino County Employees' Retirement Association

### Summary of Key Valuation Results

	2018	2017
<b>Disclosure elements for fiscal year ending June 30:</b>		
Service cost <sup>(1)(2)</sup>	\$321,930,580	\$300,779,648
Total Pension Liability	12,600,570,218	11,923,945,718
Plan's Fiduciary Net Position	10,066,990,216	9,288,441,361
Net Pension Liability	2,533,580,002	2,635,504,357
<b>Schedule of contributions for fiscal year ending June 30:</b>		
Actuarially determined contributions <sup>(3)</sup>	\$378,667,309	\$360,477,890
Actual employer contributions	378,667,309	360,477,890
Contribution deficiency (excess)	0	0
<b>Demographic data for plan year ending June 30:</b>		
Number of retired members and beneficiaries	12,716	12,179
Number of vested terminated members <sup>(4)</sup>	6,211	5,547
Number of active members	21,465	21,110
<b>Key assumptions as of June 30:</b>		
Investment rate of return	7.25%	7.25%
Inflation rate	3.00%	3.00%
Projected salary increases <sup>(5)</sup>	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%

<sup>(1)</sup> The service cost is based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively. The 2018 service cost has been calculated using the assumptions shown in the 2017 column and the 2017 service cost has been calculated using the assumptions used in the 2016 valuation. The key assumptions as of June 30, 2016 are as follows:

#### Key assumptions as of June 30, 2016:

Investment rate of return	7.50%
Inflation rate	3.25%
Projected salary increases*	General: 4.60% to 13.75% and Safety: 4.55% to 13.75%

\* Includes inflation at 3.25% plus real across-the-board salary increases of 0.50% plus merit and promotional increases vary by service.

<sup>(2)</sup> Excludes administrative expense load.

<sup>(3)</sup> See footnote (1) under Exhibit 4 on page 9.

<sup>(4)</sup> Includes terminated members due a refund of member contributions plus accumulated interest.

<sup>(5)</sup> Includes inflation at 3.00% plus real across-the-board salary increase of 0.50% plus merit and promotional increases vary by service.

## SECTION 1: Valuation Summary for San Bernardino County Employees' Retirement Association

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### 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 valuation 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 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.

## SECTION 1: Valuation Summary for San Bernardino County Employees' Retirement Association

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- 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.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

**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, 2018, pension plan membership consisted of the following:

<b>San Bernardino County Employees' Retirement Association</b>							
<b>June 30, 2018</b>							
	Tier 1			Tier 2			Total
	General	Safety	Sub-Total	General	Safety	Sub-Total	
Active members - vested	11,504	1,661	13,165	266	28	294	13,459
Active members - nonvested	101	11	112	6,927	967	7,894	8,006
Inactive plan members or beneficiaries currently receiving benefits							
Retirees currently receiving benefits	9,232	1,767	10,999	9	2	11	11,010
Beneficiaries and dependents currently receiving benefits	1,348	354	1,702	4	0	4	1,706
Inactive plan members entitled to but not yet receiving benefits							
Inactive members eligible for, but not yet receiving benefits	2,293	166	2,459	78	19	97	2,556
Inactive members eligible for refund value of account only <sup>(1)</sup>	1,894	60	1,954	1,586	115	1,701	3,655
<b>Total</b>	<b>26,372</b>	<b>4,019</b>	<b>30,391</b>	<b>8,870</b>	<b>1,131</b>	<b>10,001</b>	<b>40,392</b>

<sup>(1)</sup> Inactive members with less than 5 years of service are entitled to withdraw their refundable contributions made, together with accumulated interest only.

## **SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

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*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 greater than 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. Safety Tier 2 members are eligible to retire 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).

## **SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

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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 2018 for Tier 1 members with membership dates on or after July 1, 1996 is \$275,000. The maximum amount of pensionable compensation for Tier 2 members that can be taken into account for 2018 is equal to \$145,666. 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 Los Angeles-Riverside-Orange County 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, 2018 for 2017-2018 (based on the June 30, 2016 valuation) was 27.55% of compensation.

All members are required to make contributions to SBCERA regardless of the retirement plan or tier in which they are included. The average member contribution rate as of June 30, 2018 for 2017-2018 (based on the June 30, 2016 valuation) was 10.77% of compensation.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

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**EXHIBIT 2**

**Net Pension Liability**

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The components of the Net Pension Liability are as follows:

	<b>June 30, 2018</b>	<b>June 30, 2017</b>
Total Pension Liability	\$12,600,570,218	\$11,923,945,718
Plan's Fiduciary Net Position	<u>(10,066,990,216)</u>	<u>(9,288,441,361)</u>
Net Pension Liability	\$2,533,580,002	\$2,635,504,357
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	79.89%	77.90%

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The Net Pension Liability (NPL) for the plan was measured as of June 30, 2018 and 2017. 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, 2018 and 2017, 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, 2018 and 2017, 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, 2018 and 2017 that were measured by actuarial valuations as of June 30, 2018 and 2017, respectively, used the same actuarial assumptions and actuarial cost method as the June 30, 2018 and 2017 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

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

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- 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, 2018 and 2017 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, 2018 was \$1,634,000 while the TPL was \$24,051,000.

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, 2018 and 2017 actuarial valuations. This information will change every three years based on the actuarial experience study.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

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<b>Asset Class</b>	<b>Target Allocation</b>	<b>Long-Term Expected Arithmetic Real Rate of Return</b>
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	<u>16.00%</u>	8.47%
<b>Total</b>	100.00%	

*Discount rate:* The discount rate used to measure the TPL was 7.25% for both June 30, 2018 and June 30, 2017. 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, 2018 and June 30, 2017.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

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*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:

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

*Sensitivity of the June 30, 2017 Net Pension Liability to changes in the discount rate.* The following presents the NPL as of June 30, 2017, 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:

	<b>1.00% Decrease (6.25%)</b>	<b>Current Discount Rate (7.25%)</b>	<b>1.00% Increase (8.25%)</b>
Net Pension Liability as of June 30, 2017	\$4,284,645,997	\$2,635,504,357	\$1,279,046,750

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT 3**

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

	<b>2018</b>	<b>2017</b>
<b>Total Pension Liability</b>		
1. Service cost	\$321,930,580	\$300,779,648
2. Interest	868,276,521	803,777,972
3. Liability transfer from outside plan <sup>(1)</sup>	5,923,347	0
4. Differences between expected and actual experience	19,790,899	(10,633,945)
5. Changes of assumptions	0	662,714,000
6. Benefit payments, including refunds of member contributions	<u>(539,296,847)</u>	<u>(497,903,864)</u>
7. Net change in Total Pension Liability	\$676,624,500	\$1,258,733,811
8. Total Pension Liability – beginning	<u>11,923,945,718</u>	<u>10,665,211,907</u>
9. Total Pension Liability – ending	<u>\$12,600,570,218</u>	<u>\$11,923,945,718</u>
<b>Plan's Fiduciary Net Position</b>		
10. Contributions – employer	\$378,667,309	\$360,477,890
11. Contributions – plan members	149,478,284	143,858,526
12. Asset transfer from outside plan <sup>(1)</sup>	4,311,546	0
13. Net investment income	797,480,630	1,098,198,034
14. Benefit payments, including refunds of member contributions	(539,296,847)	(497,903,864)
15. Administrative expense	(8,752,366)	(9,960,899)
16. Other expenses	<u>(3,339,701)</u>	<u>(3,202,272)</u>
17. Net change in Plan's Fiduciary Net Position	\$778,548,855	\$1,091,467,415
18. Plan's Fiduciary Net Position – beginning	<u>9,288,441,361</u>	<u>8,196,973,946</u>
19. Plan's Fiduciary Net Position – ending	\$10,066,990,216	\$9,288,441,361
10. Net Pension Liability – ending (9) – (19)	<u>\$2,533,580,002</u>	<u>\$2,635,504,357</u>
21. Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	79.89%	77.90%
22. Covered payroll <sup>(2)</sup>	\$1,406,470,110	\$1,346,408,201
23. Plan's Net Pension Liability as percentage of covered payroll	180.14%	195.74%

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

<sup>(2)</sup> 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.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT 4**

**Schedule of Employer's Contributions – Last Ten Fiscal Years**

<b>Year Ended June 30</b>	<b>Actuarially Determined Contributions<sup>(1)</sup></b>	<b>Contributions in Relation to the Actuarially Determined Contributions<sup>(1)</sup></b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll<sup>(2)</sup></b>	<b>Contributions as a Percentage of Covered Payroll</b>
2009	\$166,081,964	\$166,081,964	\$0	\$1,219,561,653	13.62%
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%

See accompanying notes to this schedule on next page.

<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

**Notes to Exhibit 4**

**Methods and assumptions used to establish “actuarially determined contribution” rates:**

<b>Valuation date</b>	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
<b>Actuarial cost method</b>	Entry Age Actuarial Cost Method
<b>Amortization method</b>	Level percent of payroll
<b>Remaining amortization period</b>	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).
<b>Asset valuation method</b>	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.

<b>Actuarial assumptions:</b>	<u>June 30, 2018 Valuation Date</u>	<u>June 30, 2017 Valuation Date</u>
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 <sup>(1)</sup>	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, 2018 funding actuarial valuation	Same as those used in the June 30, 2017 funding actuarial valuation

<sup>(1)</sup> Includes inflation at 3.00% plus real across-the-board salary increase of 0.50% plus merit and promotional increases for both June 30, 2018 and June 30, 2017.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT 5**

**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.

## SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association

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### EXHIBIT 5

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

(\$ in millions) - continued

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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.

**SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association**

**EXHIBIT 6**

**Projection of the Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2017**

(\$ in millions)

<b>Year Beginning July 1</b>	<b>Projected Beginning Plan's Fiduciary Net Position (a)</b>	<b>Projected Total Contributions (b)</b>	<b>Projected Benefit Payments (c)</b>	<b>Projected Administrative Expenses (d)</b>	<b>Projected Investment Earnings (e)</b>	<b>Projected Ending Plan's Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)</b>
2017	\$9,288	\$566	\$580	\$9	\$673	\$9,938
2018	9,938	571	597	9	719	10,623
2019	10,623	581	634	9	768	11,329
2020	11,329	586	674	8	818	12,051
2021	12,051	579	713	8	869	12,777
2022	12,777	574	755	8	920	13,508
2023	13,508	496	799	8	968	14,166
2024	14,166	533	843	7	1,016	14,864
2025	14,864	509	887	7	1,064	15,542
2026	15,542	511	932	7	1,112	16,226
2042	21,643	82	1,646	3	1,513	21,590
2043	21,590	74	1,678	2	1,508	21,492
2044	21,492	66	1,708	2	1,500	21,347
2045	21,347	58	1,734	2	1,488	21,156
2046	21,156	50	1,758	2	1,473	20,920
2056	17,102	5	1,735	0 *	1,178	16,550
2066	11,322	0 *	1,336	0 *	773	10,759
2076	6,505	0	789	0	443	6,159
2086	4,665	0	297	0	328	4,696
2096	6,834	0	47	0	494	7,281
2106	13,467	0	2	0	976	14,441
2116	27,109	0	0 *	0	1,965	29,074
2126	54,586	0	0 *	0	3,958	58,544
2129	67,340	0	0 *	0	4,882	72,223
2130	72,223	0	0	0	5,236	77,459
2130 Discounted Value:	27 **					

\* Less than \$1 million, when rounded.

\*\* \$72,223 million when discounted with interest at the rate of 7.25% per annum has a value of \$27 million as of June 30, 2017.

## SECTION 2: GASB 67 Information for San Bernardino County Employees' Retirement Association

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### EXHIBIT 6

#### Projection of the Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2017 (\$ in millions) - continued

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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 2130, 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, 2017), 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, 2017. 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, 2017 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, 2017 shown earlier in this report, pursuant to Paragraph 44 of GASB Statement No. 67.

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