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Office of the President

TO MEMBERS OF THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

DISCUSSION ITEM

For Meeting of November 14, 2018

ANNUAL ACTUARIAL VALUATIONS FOR THE UNIVERSITY OF CALIFORNIA RETIREMENT PLAN AND ITS SEGMENTS AND FOR THE 1991 UNIVERSITY OF CALIFORNIA-PUBLIC EMPLOYEES' RETIREMENT SYSTEM VOLUNTARY EARLY RETIREMENT INCENTIVE PROGRAM

EXECUTIVE SUMMARY

Each year, the Regents' Consulting Actuary performs an actuarial valuation of the University of California Retirement Plan (UCRP or Plan). Consistent with the funding policy approved by the Regents for the non-Laboratory segment of UCRP, and separate agreements with the Department of Energy (DOE) for the funding of each Laboratory segment of UCRP, the highlights of the annual valuation results for each of these segments are provided below. All UCRP assets are maintained in one trust and are available to pay benefits of all members, regardless of the segment to which they are allocated. Highlights of the separate annual valuation of the 1991 University of California-Public Employees' Retirement System Voluntary Early Retirement Incentive Program (UC-PERS Plus 5 Plan) are also provided.

Overall UCRP Valuation Results (all segments and tiers combined)

- The Plan's June 30, 2018 overall market value of assets was $66.8 billion, up from $62.1 billion as of the previous June 30. The assets reflect a net investment return of approximately 7.8 percent. The June 30, 2018 actuarial value of assets was $66.6 billion.

- The Plan's July 1, 2018 Actuarial Accrued Liability grew to $76.9 billion from $73 billion as of the previous July 1.

- The Plan's funded ratio on an actuarial value of assets basis increased from 85 percent as of July 1, 2017 to 87 percent as of July 1, 2018. On a market value of assets basis, the funded ratio also increased from 85 percent to 87 percent.

- The Plan's Normal Cost calculated as of July 1, 2018 is $2 billion. The Normal Cost rate is 17.9 percent of the $11.6 billion covered payroll, after a mid-year adjustment to reflect a uniform accrual of costs throughout the year.

- Based on the Regents' funding policy for UCRP, the total funding policy contribution rate for 2019-20 for the non-Laboratory segment is 26.33 percent of projected covered payroll, which results in an estimated annual dollar amount of $3 billion.

BACKGROUND

Each year, the Regents' Consulting Actuary, Segal Consulting (Segal), performs an actuarial valuation of the University of California Retirement Plan (UCRP or Plan) and of the 1991 University of California-Public Employees' Retirement System Voluntary Early Retirement Incentive Program (UC-PERS Plus 5 Plan).

The purpose of the annual actuarial valuation for UCRP is to disclose the Plan's funded position as of the beginning of the current Plan Year, analyze the preceding years' experience, and determine total funding policy contribution rates for the coming Plan Year. The purpose of the annual actuarial valuation for the UC-PERS Plus 5 Plan is to review the fiscal position of its trust account and funding status to assure that the UC-PERS Plus 5 Plan remains adequately funded.

State Proposition 2 Contributions

Upon the Regents' approval of the Retirement Choice Program and the UCRP 2016 Tier, the 2015-16 California State budget signed by the Governor included the principal elements of a funding framework that the University negotiated with the Governor and which was incorporated into the Governor's May 2015 Revision. As per the agreement with the Governor, the University received $436 million in one-time Proposition 2 debt repayment funds for UCRP in three annual installments, which were $96 million in 2015-16, $171 million in 2016-17, and $169 million in 2017-18. As specified in the State Constitution, Proposition 2 funds must be supplemental, above Regentally-approved contribution rates, and were used to help pay down the UCRP Unfunded Actuarial Accrued Liability (UAAL).

Retirement Choice Program

The Retirement Choice Program was implemented effective July 1, 2016, subject to collective bargaining for represented employees, and offers Eligible Employees a choice between Pension Choice (UCRP) and Savings Choice (Defined Contribution Plan). Employees have 90 days to make their election or the employee will default to the Pension Choice option at the end of the 90-day window if no action is taken. Election activity for all eligible employees hired from Program effective date and from July 1, 2017 to June 30, 2018 is:

Program Election Type	Rates Since July 1, 2016	Rates During 2017-2018 Year
Pension Choice (active election)	35%	37%
Pension Choice (default)	28%	25%
Savings Choice (active election)	37%	38%

The total in Pension Choice was 62 percent during 2017-18. The Savings Choice election rate is known as the "take rate" for the Program. The 38 percent take rate for elections during 2017-18 is consistent with the take rate of 37 percent since Program inception. Take rates are currently still considered emerging information and will continue to be monitored closely in the future.

For employees who elect Savings Choice, an employer contribution amount of six percent (on pay up to the IRC Section 401(a)(17) limit) goes towards funding the non-Laboratory segment of UCRP's UAAL (4.2 percent towards the LBNL segment UAAL for 2018-19). As of June 30, 2018, there were 5,375 active members who elected Savings Choice.

UCRP Valuation Results

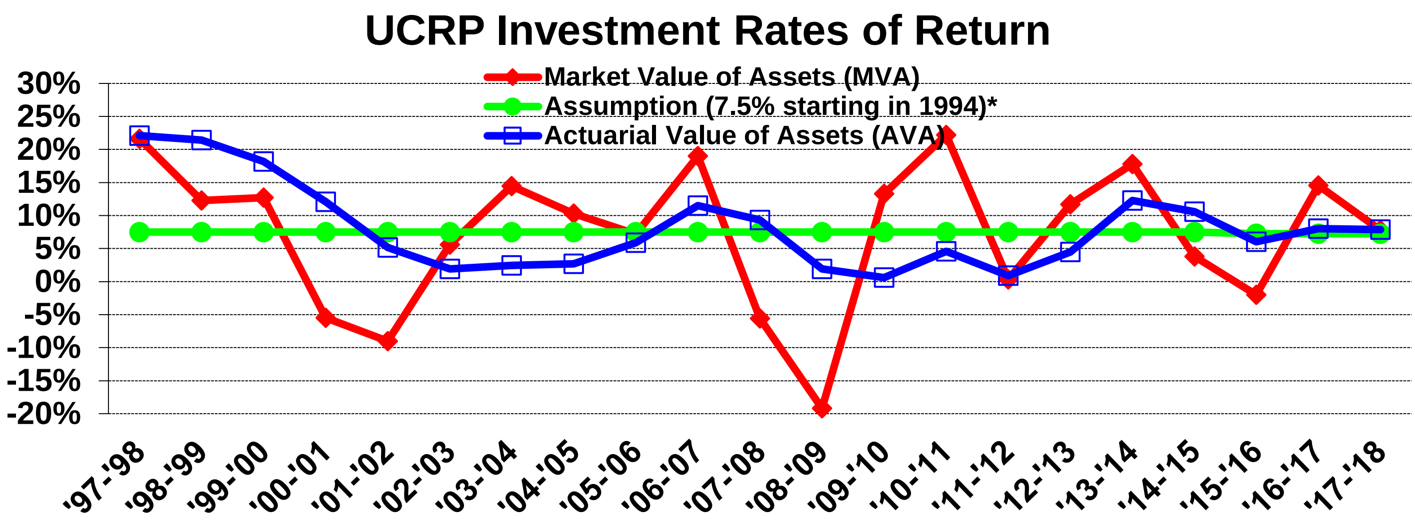
There were a total of 298,420 members included in the July 1, 2018 valuation: 75,924 retired members and beneficiaries, 35,647 terminated vested members, 56,970 terminated non-vested members and 129,879 active members; compared to a total of 289,429 members included in the July 1, 2017 valuation.

Approximately 58 percent of the active members are under the 1976 Tier and the remaining 42 percent are under either the 2013 Tier or 2016 Tier (compared to a 63/37 percent split as of the previous valuation). The expectation is that in a few years the 1976 Tier will no longer have an absolute majority (over 50 percent share) and over time, due to its "frozen" membership, will have its share decrease further.

As of June 30, 2018, the UCRP market value of assets (MVA), after subtracting benefit claims currently payable and other current payables of UCRP, was $66.8 billion as compared to $62.1 billion as of the prior June 30. During 2017-18, the Plan experienced an investment return on its MVA of approximately 7.8 percent.

When determining the Plan's funded ratio, the Plan's Actuarial Accrued Liability (AAL) is compared to the Actuarial (smoothed) Value of Assets (AVA). The "smoothing" method reduces the short-term impact of market volatility by recognizing in each year only 20 percent of the investment gains and losses in each of the preceding five years. As of June 30, 2018, this five-year period includes investment returns which in total were more favorable than the Plan's assumed earnings rate (7.25 percent). The net result is a 7.9 percent investment return for 2017-18 on an AVA basis.

The chart below shows the investment rates of return on the MVA (red line) and on the AVA (blue line) as compared to the Plan's assumed earnings rate (green line) for the most recent 20-year period. The assumed earnings rate was 7.5 percent through 2014-15 and was changed to 7.25 percent effective with Plan Year 2015-16.



***Investment rate of return assumption changed to 7.25% per annum starting July 1, 2015**

Comparing the MVA of $66.8 billion to the AVA of $66.6 billion shows that the total unrecognized investment gain is $0.2 billion as of July 1, 2018. This investment gain will be recognized in the determination of the AVA for valuation purposes over the next few years. Thus, even if the Plan earns the current assumed rate of investment return of 7.25 percent per year (net of investment expenses) on a MVA basis, the deferred gains will be recognized on the AVA in the next few years. More information concerning the impact of these unrecognized investment gains is presented later in this discussion.

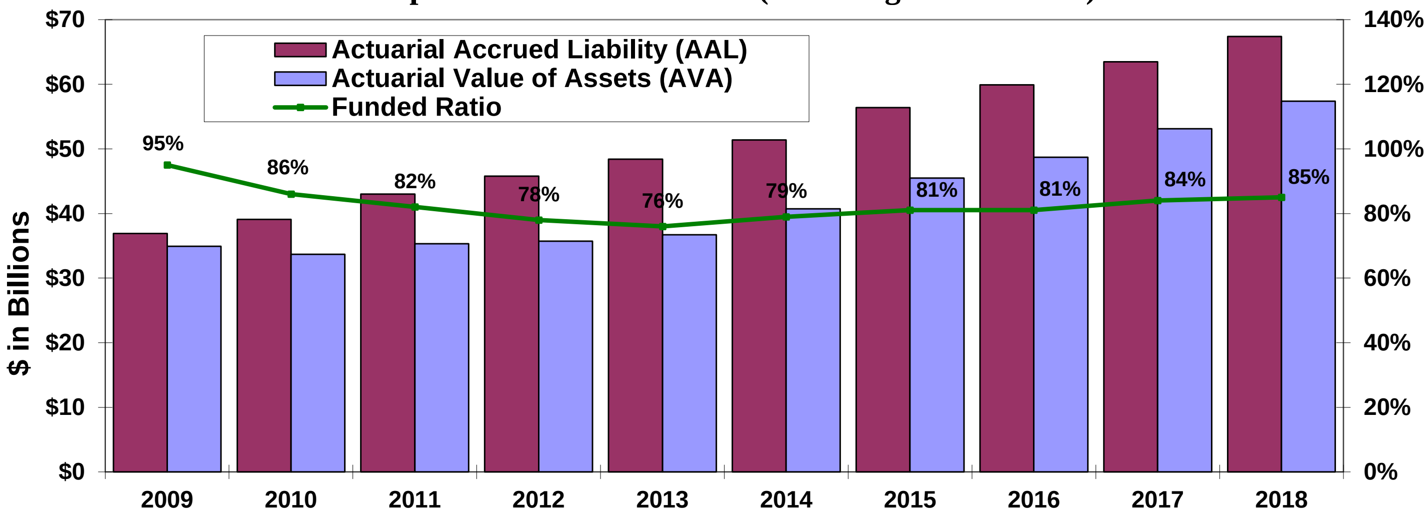
The Plan's overall AAL increased from $73 billion as of July 1, 2017 to $76.9 billion as of July 1, 2018. The Plan's funded ratio on an AVA basis increased from 85 percent as of July 1, 2017 to 87 percent as of July 1, 2018 mainly due to contributions fully funding the total funding policy contribution as well as the investment gain on the AVA. Note that on an MVA basis the funded ratio also increased from 85 percent to 87 percent due to similar events.

The Plan's overall Normal Cost is the annual amount measured as of the valuation date, expressed as a percent of payroll (the Normal Cost rate), that if accrued over the total career of each active member will fully provide for future UCRP benefits. Under the entry age actuarial cost method, the UCRP Normal Cost rate calculated as of the beginning of 2018-19 is 17.29 percent of covered payroll.

Overview of Funded Status of the Campus and Medical Centers (excluding the Laboratories) Segment of UCRP

The chart below shows the recent history of AAL growth along with changes in the funded ratio on an actuarial value of assets (AVA) basis for the campus and medical centers segment of UCRP. This segment has a slightly lower funded ratio than the Plan as a whole.

Campus and Medical Centers (excluding Laboratories)



Total Funding Policy Contribution Rates for 2019-20

After applying the UCRP funding policy to the July 1, 2018 valuation results of the non-Laboratory segment of UCRP, the total funding policy contribution rate for 2019-20 is 26.33 percent of projected covered payroll. The components of the total funding policy contribution rate are shown below:

Normal Cost	17.90%
Amortization of Unfunded Actuarial Accrued Liability (or Surplus)	8.43%
	======
Total funding policy contribution rate	26.33%

The total funding policy contribution as an estimated dollar amount for the non-Laboratory segment of UCRP is $3 billion, based on projected covered payroll of $11.5 billion for 2019-20.

Actual Contribution Rates

The University and member contribution rates for 2018-19 are as follows:

University Contributions

Type of Member/Participant	University Contribution Rates on Covered Compensation[1]
For UCRP Members (Non-lab / LBNL)	14% / 12.2%
For Savings Choice Participants UAAL Surcharge (Non-lab / LBNL)	6% / 4.2%

Member Contributions

Member / Tier	Member Contribution Rates on Covered Compensation[2]
1976 Tier Members Certain Bargaining Units[3] / All Others	9% / 8%
2013 Tier Members Certain Bargaining Units[3] / All Others	9% / 7%
2016 Tier Members	7%
Safety Members	9%
Tier Two Members	None

For years in which the actual contributions, including amounts borrowed (see below), are less than the total funding policy contributions, future actuarial losses are generated that will lead to increases in future total funding policy contributions.

University and member contributions for the LBNL Segment of UCRP are made subject to the terms of the University's contract with the DOE, with member contribution rates subject to collective bargaining for represented members at LBNL.

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[1] There are no contribution rates for the LANL and LLNL Retained Segments of UCRP. The annual contribution amount is determined based on provisions in each Contract between the DOE and the University.

[2] Contribution amounts are reduced by $19 per month for 1976 Tier and Safety members.

[3] California Nurses Association (CNA), University Professional and Technical Employees-Communication Workers of America (UPTE-CWA) Local 9919, and American Federation of State, County and Municipal Employees (AFSCME)–Service employees hired prior to July 1, 2018, Patient Care Technical employees hired prior to November 1, 2018, including Santa Cruz Skilled Crafts Employees.

Funding of Total Funding Policy Contribution

In November 2015, the Regents delegated authority and discretion to the President of the University to make additional contributions to UCRP for fiscal years 2015-16, 2016-17, and 2017-18. The transfer amounts were $563.5 million for 2015-16 (transferred in November 2015), $481 million for 2016-17 (transferred in six installments ending in December 2016), and $391.8 million for 2017-18 (transferred in six installments ending in December 2017).

In July 2017, the Regents delegated authority and discretion to the President of the University to make additional contributions to UCRP up to the following amounts: $500 million for fiscal years 2018-19 and 2019-20, $600 million for 2020-21, and $700 million for 2021-22.

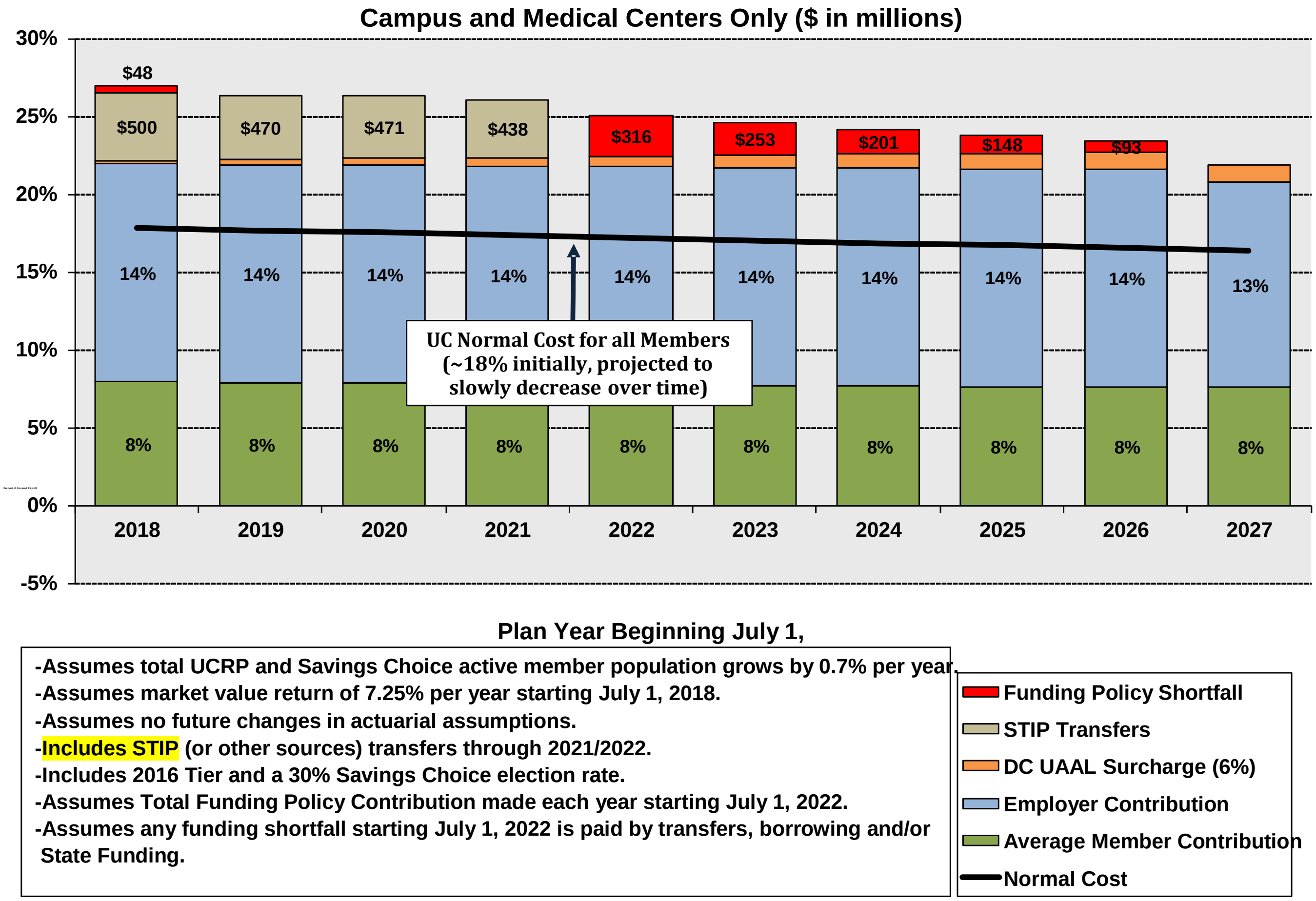
The President of the University may utilize one or more of the following options: borrowing from the Short Term Investment Pool (STIP) or funding from other internal or external sources to transfer funds to UCRP for the previously stated fiscal years in amounts not to exceed the difference between the approved total UCRP contribution and total funding policy contribution. In the event that the STIP would have insufficient funds for these transfers, funds equal to the shortfall(s) will first be transferred from the Total Return Investment Pool (TRIP) to STIP.

All non-Laboratory locations are assessed a separate supplementary amount to pay for the debt service on the supplemental contributions to UCRP. The additional assessment for 2018-19 is 1.7 percent of covered compensation.[1]

[1] The additional assessment is repaid to the University accounts that provided the borrowed funds; it is not contributed into UCRP. The assessment amount will be reset each year and is projected to range from 1.7 percent to 3.15 percent of covered payroll over the next five-year period.

UCRP Funding Illustration

The chart below shows the funding elements and projected total funding policy contribution for the non-Laboratory segment of UCRP over the next ten years, if all of the assumptions below are met.



Impact of Unrecognized Investment Gains for UCRP

The unrecognized investment gains represent about 0.3 percent of the Plan's MVA. Unless offset by future investment losses or other unfavorable experience, the future recognition of the $196 million in market gains is expected to have an impact on the Plan's future funded ratio and future total funding policy contributions. This potential impact may be illustrated as follows:

- If the deferred gains were recognized immediately in the AVA, the funded percentage would increase from 86.6 percent to 86.9 percent.

- If the deferred gains were recognized immediately in the AVA, the total funding policy contribution would decrease from 26.33 percent of covered payroll to 26.19 percent of covered payroll.

Actuarial Experience Study

Periodically, the Regents' Consulting Actuary for UCRP conducts an actuarial experience study. The next experience study of economic and demographic assumptions will be performed in early 2019 and presented to the Regents mid-2019 to be effective for the July 1, 2019 valuation report. As part of this study, recommendations for changes in actuarial assumptions may be made. For each of UCRP's demographic actuarial assumptions, these recommendations will generally be based on a comparison of actual experience versus that which was expected to occur. For each of UCRP's economic actuarial assumptions, a determination will be made on whether the current economic assumptions (including price inflation, wage inflation, and investment return) are still appropriate. The review of the investment return assumption will be coordinated with the Office of the Chief Investment Officer. The last actuarial experience study covered the period from July 1, 2010 through June 30, 2014.

UNIVERSITY OF CALIFORNIA RETIREMENT PLAN
Overall Actuarial Valuation Highlights (Dollars in 000,000's)

Valuation Date	**7/1/2009**	**7/1/2010**	**7/1/2011** [1]	**7/1/2012**	**7/1/2013**	**7/1/2014**	**7/1/2015** [2]	**7/1/2016**	**7/1/2017**	**7/1/2018**
Asset Information										
(1) Plan Assets at Fair Market Value (MVA)	$32,259	$34,574	$41,873	$41,806	$45,341	$52,784	$55,055	$54,165	$62,114	$66,774
(2) Actuarial Value of Assets (AVA)[3]	42,799	41,195	42,757	42,965	43,572	48,328	53,762	57,228	61,885	66,577
Actuarial Valuation Results – Contribution Basis										
(3) Normal Cost (Beginning of Plan Year)	$1,339	$1,354	$1,404	$1,500	$1,563	$1,636	$1,760	$1,860	$1,928	$2,005
(4) % Payroll (Beginning of Plan Year)	17.00%	16.94%	17.20%	17.44%	17.70%	17.59%	17.73%	17.54%	17.38%	17.29%
(5) Actuarial Accrued Liability (AAL: Entry Age)[4]	45,161	47,504	51,831	54,620	57,381	60,417	65,841	69,305	72,965	76,881
(6) AAL in Excess of Actuarial Value of Assets	2,362	6,309	9,074	11,655	13,809	12,089	12,079	12,077	11,081	10,304

[1] Liabilities and costs reflect the economic and demographic assumptions adopted 7/1/2011.

[2] Liabilities and costs reflect the economic and demographic assumptions adopted 7/1/2015.

[3] Actuarial Value of Assets: The expected market value plus investment gains/losses recognized over a five-year period.

[4] AAL: The actuarial accrued liability based on the funding method used to value UCRP. The actuarial present value of plan benefits allocated to years prior to the valuation date.

UC-PERS Plus 5 Plan Valuation Results

On October 18, 1990, the Regents approved an early retirement incentive program for University employees who were covered under the California Public Employees' Retirement System (CalPERS) pension plan. The most tax-effective method to provide this group with a benefit generally comparable to an incentive offered to UCRP members was to establish a "frozen" defined benefit plan described in Section 401(a) of the IRC.

The UC-PERS Plus 5 Plan required campus and Laboratory locations to fund their individual liabilities over a period no longer than five years. The UC-PERS Plus 5 Plan is a standard terminal funding arrangement under a wasting trust which, in this instance, is obligated to make fixed lifetime payments under either a single life or joint and survivor annuity option. The assets must remain in the trust until all benefit obligations have been satisfied. MVA, rather than a smoothed value, is used for actuarial valuation purposes. Segal reviews the trust's fiscal position and funding status annually to assure that the UC-PERS Plus 5 Plan is adequately funded.

As of July 1, 2018, the PERS Plus 5 Plan's funded ratio is 221.5 percent, compared to the funded ratio on July 1, 2017 of 203.1 percent. The increase in the funded ratio was mainly the result of the decrease in the AAL due to the continued decline in the number of members receiving benefits. In addition, there was a higher-than-expected market value return of approximately 7.8 percent during the 2017-18 Plan Year. The net assets of the wasting trust as of July 1, 2018 are $65.3 million and the AAL is $29 million.

As of July 1, 2018, there were 492 retired members and beneficiaries in the UC-PERS Plus 5 Plan, down from 522 as of July 1, 2017.

Key to Acronyms

AAL	Actuarial Accrued Liability
AFSCME	American Federation of State, County and Municipal Employees
AVA	Actuarial Value of Assets
CNA	California Nurses Association
DOE	U.S. Department of Energy
IRC	Internal Revenue Code
MVA	Market Value of Assets
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LLNL	Lawrence Livermore National Laboratory
OCIO	UC Office of the Chief Investment Officer
PEPRA	Public Employees' Pension Reform Act of 2013
PERS or CalPERS	California Public Employees Retirement System
STIP	Short Term Investment Pool
TRIP	Total Return Investment Pool
UAAL	Unfunded Actuarial Accrued Liability
UCRP	University of California Retirement Plan
UPTE	University Professional and Technical Employees

APPENDIX I – Summary of Actuarial Valuation Results by UCRP Segment

APPENDIX II - Glossary of Actuarial Terms

Attachment 1 - UCRP Actuarial Valuation Report as of July 1, 2018

Attachment 2 - UC-PERS Plus 5 Plan Actuarial Valuation Report as of July 1, 2018

APPENDIX I

SUMMARY OF ACTUARIAL VALUATION RESULTS BY UCRP SEGMENT

UCRP Non-Laboratory (Campus and Medical Centers) Segment Valuation Results
- The June 30, 2018 non-Laboratory segment (segment) MVA and AVA were $57.6 billion and $57.4 billion, respectively.
- The July 1, 2018 segment Actuarial Accrued Liability was $67.4 billion.
- The segment funded ratio on an AVA basis was 85.2 percent as of July 1, 2018.
- The segment Normal Cost calculated as of July 1, 2018 is $2 billion. The Normal Cost rate is 17.9 percent of the $11.3 billion covered payroll, after a mid-year adjustment to reflect a uniform accrual of costs throughout the year.
- Based on the Regents’ funding policy for UCRP, the total funding policy contribution rate is 26.33 percent of projected covered payroll, which results in an estimated annual dollar amount of $3 billion for 2019-20.

Lawrence Berkeley National Laboratory Segment (LBNL) Valuation Results
- The June 30, 2018 LBNL MVA and AVA were both $2.4 billion.
- The July 1, 2018 LBNL Actuarial Accrued Liability is $2.5 billion.
- The LBNL funded ratio on an AVA basis was 96.8 percent as of July 1, 2018.
- Based on the employer contribution rate methodology for LBNL approved by the Regents on September 17, 2015, the LBNL employer contribution rate is 12.2 percent of payroll for 2018-19. Based on the results of this valuation, the LBNL employer contribution rate will then change to 12.3 percent of payroll effective July 1, 2019. The member contributions for LBNL will be made on the same basis as determined for the non-Laboratory segment of UCRP, subject to the terms of the University’s contract with the DOE and subject to collective bargaining for represented members at LBNL.

Lawrence Livermore National Laboratory Retained Segment (LLNL) Valuation Results
- The June 30, 2018 LLNL MVA and AVA were $3.8 billion and $3.7 billion, respectively.
- The July 1, 2018 LLNL Actuarial Accrued Liability was $3.9 billion.
- The LLNL funded ratio on an AVA basis was 97.3 percent as of July 1, 2018.
- Based on a contractual obligation, the required contribution from the DOE, subject to available funding, for 2018-19 (due by February 29, 2020) is $48.6 million.

Los Alamos National Laboratory Retained Segment (LANL) Valuation Results
- The June 30, 2018 LANL MVA and AVA were both $3 billion.
- The July 1, 2018 LANL Actuarial Accrued Liability was $3.1 billion.
- The LANL funded ratio on an AVA basis was 95.5 percent as of July 1, 2018.
- Based on a contractual obligation, the required contribution from the DOE, subject to available funding, for 2018-19 (due by February 29, 2020) is $49.2 million.

APPENDIX II: GLOSSARY OF ACTUARIAL TERMS

- **Present Value of Benefits (PVB)**: the "value" at a particular point in time of all projected future benefit payments for current plan members. The "future benefit payments" and the "value" of those payments are determined using actuarial assumptions as to future events. Examples of these assumptions are estimates of retirement patterns, salary increases, investment returns, etc. Another way to think of the PVB is that if the plan has assets equal to the PVB and all actuarial assumptions are met, then no future contributions would be needed to provide all future service benefits for all current members, including future service and salary increases for active members.
- **Actuarial Cost Method**: allocates a portion of the total cost (PVB) to each year of service, both past service and future service.
- **Normal Cost (NC)**: the cost allocated under the Actuarial Cost Method to each year of active member service.
- **Actuarial Accrued Liability (AAL)**: the value at a particular point in time of all past Normal Costs. Plan assets would match this amount if the current plan provisions, actuarial assumptions and participant data had always been in effect, contributions equal to the Normal Cost had been made and all actuarial assumptions came true.
- **Actuarial Value of Assets (AVA) or "smoothed value"**: a market-related value of the plan assets for determining contribution requirements. The AVA tracks the market value of assets over time, smooths out short-term fluctuations in market values and produces a smoother pattern of contributions than would result from using market value.
- **Market Value of Assets (MVA)**: the fair value of assets of the plan as reported by the plan's trustee, typically shown in the plan's audited financial statements.
- **Unfunded Actuarial Accrued Liability (UAAL)**: the positive difference, if any, between the AAL and the AVA.
- **Surplus**: the positive difference, if any, between the AVA and the AAL.
- **Actuarial Value Funded Ratio**: the ratio of the AVA to the AAL.
- **Market Value Funded Ratio**: the ratio of the MVA to the AAL.
- **Actuarial Gains and Losses**: changes in UAAL or surplus due to actual experience different from what is assumed in the actuarial valuation. For example, if during a given year the assets earn more than the current assumption of 7.25 percent, the amount of earnings above 7.25 percent will cause an unexpected reduction in UAAL, or "actuarial gain" as of the next valuation. These include contribution gains and losses that result from actual contributions made being greater or less than the level determined under the funding policy.

Attachment 1

University of California Retirement Plan

ACTUARIAL VALUATION REPORT
AS OF JULY 1, 2018

Segal Consulting

Segal Consulting

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October 15, 2018

Mr. Dwaine B. Duckett
Vice President, Human Resources
University of California
1111 Franklin Street, 5th Floor
Oakland, California 94607

Dear Vice President Duckett:

We are pleased to submit this funding Actuarial Valuation Report as of July 1, 2018 for the University of California Retirement Plan ("UCRP" or "Plan"). It summarizes the actuarial data used in the valuation, determines total funding policy contribution rates for the 2019-2020 Plan Year and analyzes the preceding year's experience.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. The census and financial information on which our calculations were based was provided by the UC HR Staff. 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 those 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 this actuarial valuation is complete and accurate. Further, in our opinion the assumptions as approved by the Regents are reasonably related to the experience of and future expectations for the Plan.

We look forward to reviewing this report at the November 2018 Regents meeting and to answering any questions.

Sincerely,

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

By:

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

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SECTION 1

EXECUTIVE SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION AND PROJECTIONS

SECTION 1: Executive Summary for the University of California Retirement Plan

Purpose and Scope

This report has been prepared by Segal Consulting to present a valuation of the University of California Retirement Plan ("UCRP" or "Plan") as of July 1, 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 Plan,
- The characteristics of covered active members, terminated vested members, retired members, disabled members and beneficiaries as of July 1, 2018,
- The assets of the Plan as of June 30, 2018,
- The funding policy adopted by the Regents,
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding member terminations, retirement, death, etc.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to evaluate the Plan's assets, liabilities and total funding policy contribution. Our calculations are based upon member data and financial information provided to us by the UC HR staff. This information has not been audited by us, but it has been reviewed and found to be reasonably consistent, both internally and with prior years' information.

Reference: Pg. 29

The total funding policy contribution is determined as a percentage of payroll. The total funding policy contribution provides a payment to cover normal cost and to amortize any unfunded or overfunded actuarial accrued liabilities. The July 1, 2010 amortization bases were combined into a single amortization base and amortized over 30 years. Any subsequent changes in unfunded actuarial accrued liability (UAAL) due to actuarial experience gains or losses after July 1, 2010 and before July 1, 2014 wereamortized over their own separate declining 30-year period. Any changes in UAAL during this period due to a change in actuarial assumptions or plan provisions were amortized over a 15-year period.

Reference: Pgs. 30-31

Effective with the July 1, 2014 valuation, any change in UAAL due to actuarial experience gains or losses or a change in actuarial assumptions are separately amortized over a declining 20-year period. Note that a graphical projection of the UAAL amortization bases and payments has been included as a new Exhibit I. This projection assumes that no future UAAL amortization bases are created.

Significant Issues in Valuation Year

CONTRIBUTIONS

Reference: Pgs. 10-11

- The total funding policy contribution rate decreased from 27.00% of covered payroll to 26.33% of covered payroll. The decrease in the total funding policy contribution rate was mainly due to the effect of an increase in total payroll on the Unfunded Actuarial Accrued Liability (UAAL) amortization rate and an investment gain on the actuarial value of assets. This total funding policy contribution rate is for the 2019-2020 Plan Year and applies to the non-laboratory segment of UCRP (i.e., campuses, medical centers and Hastings College of Law). Contributions for the laboratories are subject to the terms of the University's contracts with the Department of Energy (DOE). More information on the various UCRP segments can be found in Section 1, page viii. Unless otherwise noted, results shown in this report are for all of UCRP.

Reference: Pg. 25

- During the 2017-2018 fiscal year, the Plan received a contribution of $169 million, representing the third of three annual installments from State Prop 2 Funds, to be used for the purpose of paying down the UAAL. This contribution is reflected in the results shown in the valuation report.

Reference: Pg. 55

- For the Plan Year beginning July 1, 2018, the University contribution rate is 14% of covered compensation for the non-laboratory segment of UCRP while the rate for most members is 8% of covered compensation (less $19 per month). Member rates are subject to collective bargaining for represented employees. In March 2018, the Regents rescinded an increase in the University contribution rate to 15% of covered compensation for the Plan Year beginning July 1, 2018. For years in which the actual contributions are less than the total funding policy contributions, future actuarial losses are generated that will lead to increases in future total funding policy contributions. Appendix A contains projections that illustrate the effect of such actuarial losses on both future total funding policy contributions and future funded status.

Reference: Pg. 25

- In November 2015, the Regents delegated to the President of the University authority and discretion to fully fund the Actuarially Determined Contribution (ADC) for the non-laboratory segment of the Plan during fiscal years 2015-2016 through 2017-2018. For UCRP the ADC is the total funding policy contribution less expected member contributions. A transfer of $391.8 million from the UC Short-Term Investment Pool (STIP) to UCRP was made during the 2017-2018 fiscal year. The $391.8 million represents an amount that along with other contributions results in full funding of the ADC for 2017-2018. The transfer is reflected in the results shown in this valuation report.
- In July 2017, the Regents approved additional transfers from STIP and/or external financing to fully fund the ADC for fiscal years 2018-2019, 2019-2020, 2020-2021 and 2021-2022. These amounts will be reflected in future actuarial valuations as they are contributed to UCRP.

Significant Issues in Valuation Year (continued)

ASSETS

Reference: Pgs. 7-8

- During the 2017-2018 Plan Year, the rate of return on the market value of assets was approximately 7.8%. Based on a partial recognition of this return as well as prior investment experience, the rate of return on the actuarial value of assets was 7.9%, which is more than the expected return of 7.25% for 2017-2018 (based on the July 1, 2017 valuation).

Reference: Pgs. 4-5

- The total unrecognized investment gain as of July 1, 2018 is about $0.20 billion as compared to a $0.23 billion unrecognized gain in the previous valuation. This investment gain will be recognized in the determination of the actuarial value of assets for valuation purposes over the next few years. This means that, if the Plan earns the current assumed rate of investment return of 7.25% per year (net of investment expenses) on a **market value** basis, then the deferred gains will be recognized over the next few years as shown in the footnote on Chart 6.
- This actuarial valuation report as of July 1, 2018 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected. Declines in asset values will increase the actuarial cost of the Plan, while increases will decrease the actuarial cost of the Plan.

FUNDED RATIO

Reference: Pgs. 12-13, 27

- The Plan's funded ratio on an actuarial value basis increased from 84.8% as of July 1, 2017 to 86.6% as of July 1, 2018. This increase in funded ratio is mainly a result of the contributions funding the total funding policy contribution as well as the investment gain on the actuarial value of assets. On a market value basis, the Plan's funded ratio increased from 85.1% as of July 1, 2017 to 86.9% as of July 1, 2018 due to similar reasons. The Plan is in an underfunded position as the Actuarial Accrued Liability (AAL) exceeds the actuarial value of assets by $10.3 billion. Information on the funded ratio and UAAL for each UCRP segment can be found on page viii.

FUTURE EXPECTATIONS

- The unrecognized investment gains of $0.20 billion represent about 0.3% of the market value of assets. Unless offset by future investment losses or other unfavorable experience, the future recognition of the $0.20 billion in market gains is expected to have an impact on the Plan's future funded ratio and future total funding policy contributions. This potential impact may be illustrated as follows:
  - If the deferred gains were recognized immediately in the actuarial value of assets, the funded percentage would increase from 86.6% to 86.9%.

    For comparison purposes, if all the deferred gains in the July 1, 2017 valuation had been recognized immediately in the July 1, 2017 valuation, the funded percentage would have increased from 84.8% to 85.1%.

Significant Issues in Valuation Year (continued)

- If the deferred gains were recognized immediately in the actuarial value of assets, the total funding policy contribution would decrease from 26.33% of covered payroll to 26.19% of covered payroll.

  For comparison purposes, if all the deferred gains in the July 1, 2017 valuation had been recognized immediately in the July 1, 2017 valuation, the total funding policy contribution rate would have decreased from 27.00% of covered payroll to 26.82% of covered payroll.

Reference: Pgs. 60-74

- Appendix A presents projected valuation results for the non-laboratory segment of UCRP based on contributions already approved by the Regents ("approved contributions" which exclude future transfers from STIP or State Funding except as noted) versus the total funding policy contributions. The scenarios vary 2018-2019 investment returns and the Savings Choice election rate for new hires. Under all scenarios, our longer term projections show that the current assets combined with projected future contributions and investment earnings are expected to be sufficient to pay all future expected benefits for all plan members (both current and future).

- The last actuarial experience study covered the period from July 1, 2010 through June 30, 2014. We anticipate performing another actuarial experience study during the first half of 2019. As part of this study, recommendations for changes in actuarial assumptions may be made. For each of UCRP's demographic actuarial assumptions, these recommendations will generally be based on a comparison of actual experience versus that which was expected to occur. For each of UCRP's economic actuarial assumptions, a determination will be made on whether the current economic assumptions (including price inflation, wage inflation, and investment return) are still appropriate.

DEMOGRAPHIC EXPERIENCE

Reference: Pgs. 15-17

- Overall, the number of active members increased by 0.4% from 129,382 as of July 1, 2017 to 129,879 as of July 1, 2018. The Plan has 75,924 members currently receiving benefits, an increase of 4.0% from 2017. Total monthly benefits in pay status increased by 7.1%, to a level of $271 million. There are also 92,617 terminated members in the Plan who are entitled to future benefits. Within this group of terminated members there are 35,647 terminated vested members who are entitled to a deferred or immediate vested benefit and 51,870 terminated nonvested members who are entitled to a refund of member contributions or payment of their Capital Accumulation Provision (CAP) balance. There are also 5,100 members that transferred to the Los Alamos National Security (LANS) or Lawrence Livermore National Security (LLNS) defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate from employment with LANS or LLNS.

Reference: Pg. 27

- The actual average increase in salary for UCRP members that were active in this valuation and the previous valuation was 5.5%. When compared to the average assumed increase of approximately 4.1% (based on the 2017 valuation), this produced an actuarial loss due to individual salary increases greater than expected.

Significant Issues in Valuation Year (continued)

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 UCRP's July 1, 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 <u>not</u> 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 <u>not</u> 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.
- Much of what is required by the new ASOP is already found in UCRP's annual actuarial valuation.

Summary of Key Valuation Results

	2018 ($ in 000s)	2017 ($ in 000s)
Total funding policy contributions:		
Percentage of payroll[(1)]	26.33%	27.00%
Estimated annual dollar amount[(2)]	$3,022,924	$3,022,763
Funding elements for Plan Year beginning July 1:		
Normal cost (beginning of year)	$2,004,593	$1,928,483
Percentage of payroll (beginning of year)	17.29%	17.38%
Percentage of payroll (middle of year)	17.90%	18.00%
Market value of assets (MVA)	$66,773,590	$62,114,261
Actuarial value of assets (AVA)	66,577,372	61,884,530
Actuarial accrued liability (AAL)	76,881,052	72,965,272
Unfunded/(Overfunded) actuarial accrued liability on AVA basis	10,303,680	11,080,742
Unfunded/(Overfunded) actuarial accrued liability on MVA basis	10,107,462	10,851,011
Funded ratio on actuarial value basis (AVA / AAL)	86.6%	84.8%
Funded ratio on market value basis (MVA / AAL)	86.9%	85.1%
Demographic data for Plan Year beginning July 1:		
Number of retired members and beneficiaries[(3)]	75,924	72,995
Number of vested terminated members[(4)]	92,617	87,052
Number of active members	129,879	129,382
Average covered compensation (actual dollars)	$99,707	$95,938

(1) *Total funding policy contributions are for the Plan Year starting one year after the date of the actuarial valuation. The total funding policy contributions shown are for the non-laboratory segment of UCRP and exclude contributions for the Lawrence Berkeley National Laboratory Segment, the Lawrence Livermore National Laboratory Retained Segment and the Los Alamos National Laboratory Retained Segment of UCRP. Page viii shows those contributions for each segment. The Normal Cost plus interest on the July 1, 2018 UAAL represents 24.07% of covered payroll.*

(2) *Based on estimated covered payroll of $11,480,913 (also in thousands) for the 2019-2020 Plan Year and $11,195,418 for the 2018-2019 Plan Year. Actual contributions are set by the Regents and will be made based on actual payroll.*

(3) *Includes deferred retirees and deferred beneficiaries who are entitled to future benefits.*

(4) *Includes terminated nonvested members due a refund of member contributions or CAP balance payment and members that transferred to the LANS or LLNS defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate from employment with LANS or LLNS.*

FIVE-YEAR HISTORY OF TOTAL FUNDING POLICY CONTRIBUTIONS AND FUNDED STATUS

Effective with the July 1, 2008 valuation, a funding policy was adopted that determines total funding policy contributions based on the Plan's normal cost adjusted by an amortization of any surplus or underfunding.

The total funding policy contribution rate is effective for the Plan Year starting one year after the date of the actuarial valuation and applies to the non-laboratory segment of UCRP. The total funding policy contribution rate for the 2019-2020 Plan Year is based on this valuation and is 26.33% of payroll.

For the Plan Year beginning July 1, 2018, the University contribution rate is 14% of covered compensation for the non-laboratory segment of UCRP while the rate for most members is 8% of covered compensation (less $19 per month).

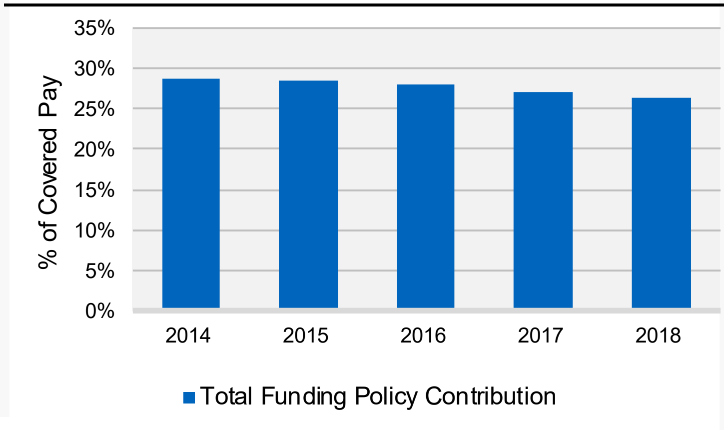
The Plan's funded percentage (actuarial value of assets divided by actuarial accrued liability) over the past five years is shown below:

Plan Year Beg. 7/1	AAL $ in Billions	AVA $ in Billions	Funded Percentage
2014	$60.4	$48.3	80%
2015	65.8	53.8	82
2016	69.3	57.2	83
2017	73.0	61.9	85
2018	76.9	66.6	87

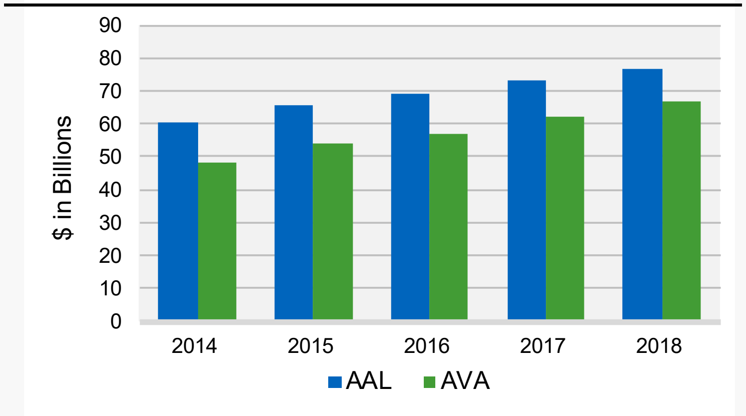
The actuarial accrued liability has shown a steady increase over the five-year period. The actuarial value of assets has shown a steady increase over the five-year period due to investment returns and contributions that have approximately funded the total funding policy contribution.

The first graph shows a five-year history of the total funding policy contributions (non-laboratory segment of UCRP). The second graph shows the five-year history of the funded status – actuarial accrued liability versus the actuarial value of assets.

Five-Year History of Total Funding Policy Contributions Based on July 1 Actuarial Valuation Date



Five-Year History of Actuarial Accrued Liability and Actuarial Value of Assets for Plan Years Beginning July 1



Summary of UCRP July 1, 2018 Valuation Results by Segment ($ in 000s)

	Total UCRP	Campus and Medical Centers[1]	Lawrence Berkeley National Laboratory (LBNL)	Lawrence Livermore National Laboratory (LLNL)	Los Alamos National Laboratory (LANL)
Normal Cost (beginning of year)	$2,004,593	$1,957,266	$47,327	$0	$0
Market value of assets (MVA)	66,773,590	57,608,162	2,399,472	3,758,960	3,006,996
Actuarial value of assets (AVA)	66,577,372	57,438,895	2,392,391	3,747,907	2,998,179
Actuarial accrued liability (AAL)	76,881,052	67,415,520	2,472,730	3,852,492	3,140,310
Unfunded/(Overfunded) actuarial accrued liability on AVA basis	10,303,680	9,976,625	80,339	104,585	142,131
Unfunded/(Overfunded) actuarial accrued liability on MVA basis	10,107,462	9,807,358	73,258	93,532	133,314
Funded Ratio on AVA basis (AVA/AAL)	86.6%	85.2%	96.8%	97.3%	95.5%
Funded Ratio on MVA basis (MVA/AAL)	86.9%	85.5%	97.0%	97.6%	95.8%
Estimated Covered Payroll for 2018-2019 Plan Year	$11,596,220	$11,321,531	$274,689	$0	$0
Estimated Covered Payroll for 2019-2020 Plan Year	11,756,280	11,480,913	275,367	0	0
Total funding policy contributions[2]					
Percent of payroll[3]		26.33%	N/A	N/A	N/A
Estimated dollar amount in 000s		$3,022,924	N/A	N/A	N/A
Required Contractual Contributions[4]					
Percent of pay or dollar amount in 000s		N/A	12.3%	$48,554	$49,154
Number of retired members and beneficiaries[5]	75,924	62,704	2,187	5,736	5,297
Number of vested terminated members	92,617	82,855	1,694	3,858	4,210
Number of active members	129,879	127,506	2,373	0	0
Average covered compensation (actual dollars)	$99,707	$99,173	$128,409	N/A	N/A

(1) *This is the non-laboratory segment and includes Hastings College of Law.*

(2) *All total funding policy contributions are based on valuation results as of July 1, 2018. Please see Section 2, page 10 for more detailed information on this calculation.*

(3) *The total funding policy contributions shown for the campus and medical centers are for the Plan Year beginning July 1, 2019. Actual contributions for this segment will be set by the Regents.*

(4) *The contributions shown for the LLNL and LANL Retained Segments are required (subject to available funding by the National Nuclear Security Agency (NNSA)) for the Plan Year beginning July 1, 2018 under the terms of the University's contracts with the Department of Energy, and are due by February 29, 2020. They are not included in the asset values shown above. The Contractual Contributions shown for the LBNL segment are based on the actual employer contribution rate of 14% of payroll for 2019-2020 adjusted by the funded ratios of the campus and medical centers segment and the LBNL segment. It is effective for the Plan Year beginning July 1, 2019 and the estimated annual dollar amount of the contribution is $33,870 (also in thousands). The LBNL segment UAAL contribution rate on behalf of new hires in the defined contribution plan ("Savings Choice") effective July 1, 2019 is 4.3% of pay up to the IRC limit.*

(5) *Includes deferred retirees and deferred beneficiaries who are entitled to future benefits.*

Note: Results may not add due to rounding.

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 the University of California (UC). 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 UC.
- **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 UC. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

- If UC 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 Plan should look to their other advisors for expertise in these areas.

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

SECTION 2: Valuation Results for the University of California Retirement Plan

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographics of covered members, including active members, vested terminated members, retired members, disabled members and beneficiaries.

This section presents a summary of significant statistical data on these participant 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 participant population has changed over the past ten valuations can be seen in this chart.

CHART 1

Member Population: 2009 – 2018

Year Beginning July 1	Active Members	Terminated Vested Members[1]	Retired Members, Disabled Members and Beneficiaries[2]	Ratio of Retirees to Actives
2009	115,745	54,883	51,653	0.45
2010	114,928	55,037	53,902	0.47
2011	115,568	60,903	56,296	0.49
2012	116,888	67,318	58,934	0.50
2013	118,321	73,589	61,715	0.52
2014	120,568	78,229	64,191	0.53
2015	123,768	75,165	67,321	0.54
2016	128,513	81,595	70,077	0.55
2017	129,382	87,052	72,995	0.56
2018	129,879	92,617	75,924	0.58

(1) *Includes terminated nonvested members due a refund of member contributions or CAP balance payment and members that transferred to the LANS or LLNS defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate from employment with LANS or LLNS.*

(2) *Beginning in 2017, this figure includes deferred retirees and deferred beneficiaries who are entitled to future benefits.*

Active Members
Plan costs and liabilities are affected by the age, service credit and covered compensation of active members. In this year's valuation, there are 129,879 active members with an average age of 44.8 years, average service credit of 9.4 years and average covered compensation of $99,707.

Inactive Members
In this year's valuation, there were 92,617 terminated members. Within this group of terminated members there are 35,647 members with a vested right to a deferred or immediate vested benefit and 51,870 terminated nonvested members who are entitled to a return of their member contributions or a distribution of their CAP balance. There are also 5,100 members that transferred to the LANS or LLNS defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate from employment with LANS or LLNS.

These graphs show a distribution of active members by age and by service credit. In Chart 3 there are 327 members who have 40 or more years of service credit.

CHART 2

Distribution of Active Members by Age as of July 1, 2018

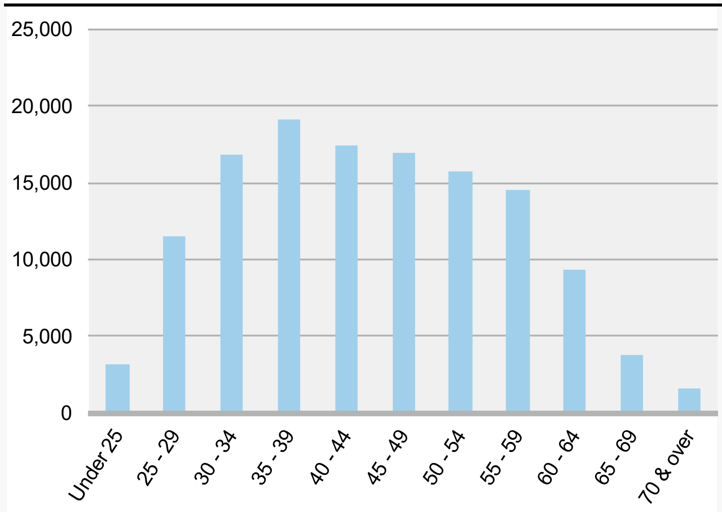
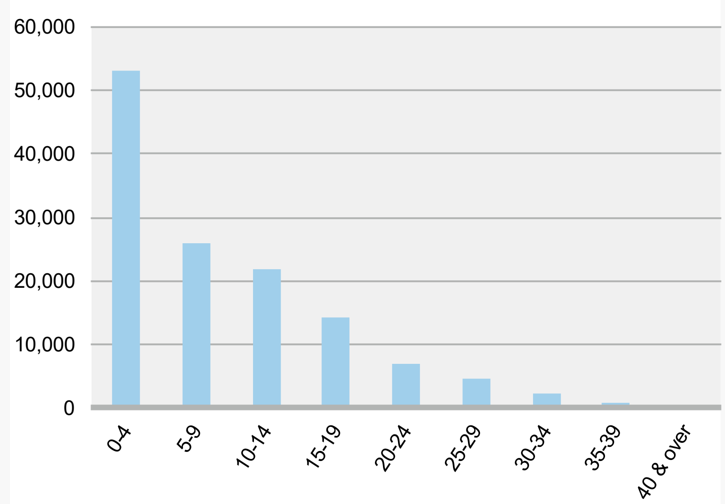


CHART 3

Distribution of Active Members by Service Credit as of July 1, 2018



Retired Members, Disabled Members and Beneficiaries
As of July 1, 2018, 65,438 retired members, 1,386 disabled members and 9,100 beneficiaries were receiving total monthly benefits of $271,363,621. This includes 2 deferred retirees and 122 deferred beneficiaries who are entitled to future benefits.

These graphs show a distribution of the current retired members, disabled members and beneficiaries based on their monthly benefit and age.

CHART 4

Distribution of Retired Members, Disabled Members and Beneficiaries by Monthly Benefit as of July 1, 2018

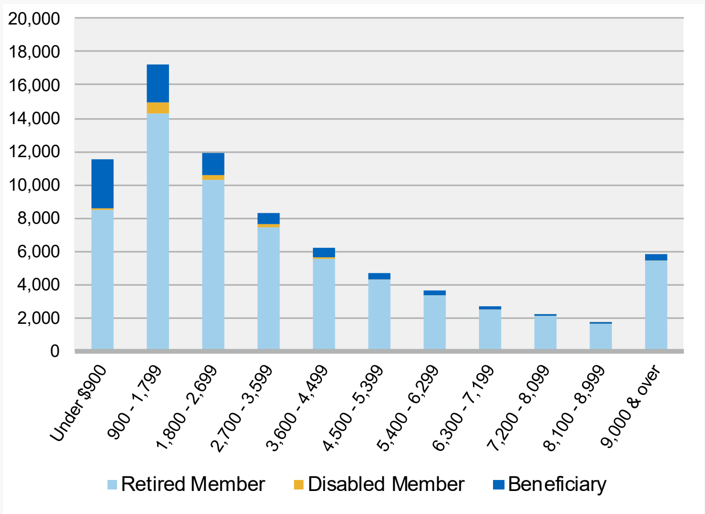
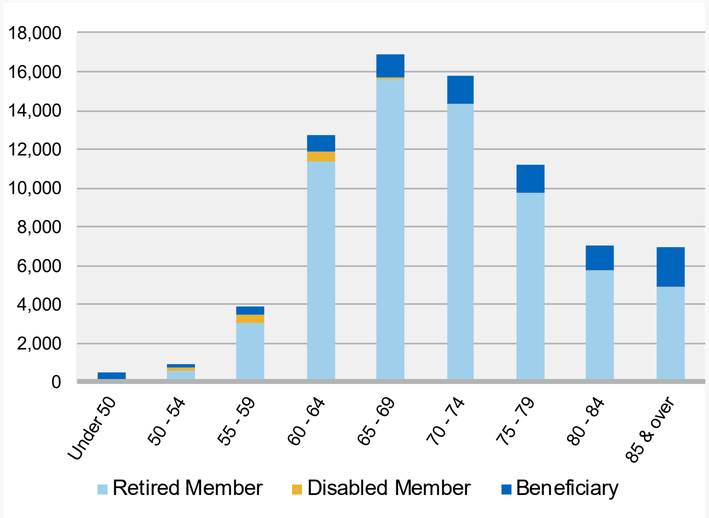


CHART 5

Distribution of Retired Members, Disabled Members and Beneficiaries by Age as of July 1, 2018



B. FINANCIAL INFORMATION

Retirement plan funding anticipates that, over the long term, both contributions (net of administration expenses) and investment earnings (net of investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information for UCRP, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D and E.

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Regents have approved an asset valuation method for UCRP that smoothes market value investment gains and losses over a five-year period. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset values and the plan costs are more stable.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 6

Determination of Actuarial Value of Assets for Year Ended June 30, 2018 ($ in 000s)

From	To	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain/(Loss)[1]	Deferred Factor	Unrecognized Return[2]
7/2013	6/2014	$8,009,979	$3,379,298	$4,630,681	0.0	$0
7/2014	6/2015	1,993,802	3,969,206	(1,975,404)	0.2	(395,081)
7/2015	6/2016	(1,104,655)	3,995,788	(5,100,443)	0.4	(2,040,177)
7/2016	6/2017	7,866,282	3,923,755	3,942,527	0.6	2,365,517
7/2017	6/2018	4,837,553	4,505,104	332,449	0.8	265,959
1. Total Unrecognized Return[3]						$196,218
2. Market Value of Assets						66,773,590
3. Actuarial Value of Assets (Item 2 – Item 1)						$66,577,372
4. Actuarial Value of Assets as a Percentage of Market Value (Item 3 ÷ Item 2)						99.7%

(1) *Total return minus expected return, both on a market value basis.*

(2) *Recognition at 20% per year over 5 years.*

(3) *Deferred return as of June 30, 2018 recognized in each of the next four years:*

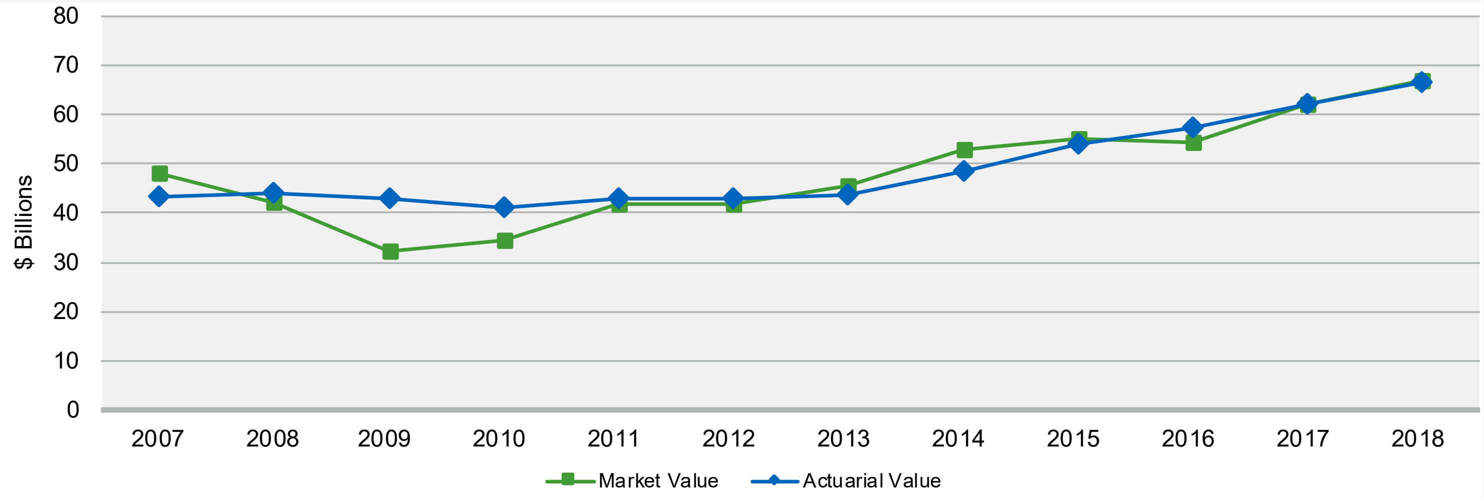
(a) Amount Recognized during 2018-2019	$(560,174)
(b) Amount Recognized during 2019-2020	(165,093)
(c) Amount Recognized during 2020-2021	854,995
(d) Amount Recognized during 2021-2022	66,490
	$196,218

Both the actuarial value and market value of assets are representations of the Plan's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial value of assets is significant because UCRP's liabilities are compared to the actuarial value of assets to determine what portion, if any, remains unfunded or overfunded. Amortization of any unfunded or overfunded liability is an important element in determining future contribution rates.

This chart shows the change in the actuarial value of assets versus the market value over the past twelve years.

CHART 7

Market Value of Assets vs. Actuarial Value of Assets for Years Ended June 30, 2007 – 2018



C. ACTUARIAL EXPERIENCE

To calculate contribution rates, 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 rate will decrease from the previous year. On the other hand, the contribution rate 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 rates to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution rate is adjusted to take into account a change in experience anticipated for all future years.

The components of the total gain of $0.4 billion are shown below. The net experience loss from sources other than investments and contributions was 0.4% 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 8

Actuarial Experience for Year Ended June 30, 2018

		($ in 000s)
1.	Net gain from contributions more than expected under funding policy	$307,474
2.	Net gain from investments[(1)]	382,618
3.	Net (loss) from individual salary increases greater than assumed	(160,418)
4.	Net (loss) from other experience[(2)]	(150,730)
5.	Net experience gain: (1) + (2) + (3) + (4)[(3)]	$378,944

(1) *Details in Chart 9.*
(2) *See Section 3, Exhibit F for further details. Does not include the effect of Plan or assumption changes, if any.*
(3) *Non-laboratory segment amount is an actuarial experience gain of $208,223.*

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 UCRP's investment policy. For valuation purposes, the assumed rate of return was 7.25% for the 2017-2018 Plan Year (based on the July 1, 2017 valuation). As shown below, the actual rate of return on the actuarial value of assets for the 2017-2018 Plan Year was 7.9%.

Since the actual return for the year was more than the assumed return, the Plan experienced an actuarial gain during the year ended June 30, 2018 with regard to its investments, when measured based on the actuarial value of assets. The amount of this gain is derived below.

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

CHART 9
Market and Actuarial Value Investment Experience for Year Ended June 30, 2018

	Market Value ($ in 000s)	Actuarial Value ($ in 000s)
1. Actual return	$4,837,553	$4,871,066
2. Average value of assets[1]	62,139,367	61,909,636
3. Actual rate of return: (1) ÷ (2)	7.79%	7.87%
4. Assumed rate of return	7.25%	7.25%
5. Expected return: (2) x (4)	$4,505,104	$4,488,449
6. Actuarial gain/(loss): (1) – (5)	332,449	382,618

[1] *Assumes that non-investment cash-flows (i.e., benefit payments, contributions, and administrative expenses) all occur at mid-year on average, except for the following: State Funding is assumed to occur at the beginning of the year, STIP transfers are assumed to occur one-quarter into the year on average, and LLNL and LANL employer contributions are assumed to occur three-quarters into the year on average.*

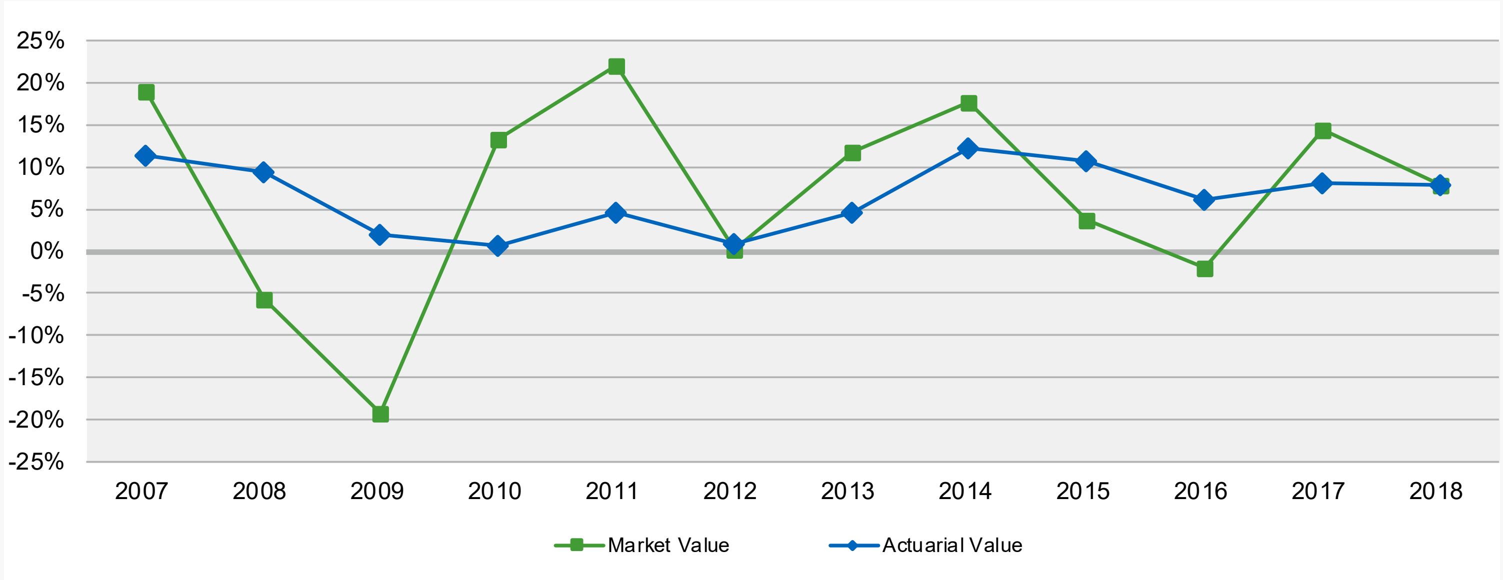
Note: Results may not add due to rounding.

In the preceding subsection B, we described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this method is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs. This effect is clear in the chart below, where the year-to-year returns on actuarial value are less volatile than the returns on market value.

CHART 10

Market and Actuarial Rates of Return for Years Ended June 30, 2007 - 2018

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



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 members,
- 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 $311 million which is 0.4% of the actuarial accrued liability. Of this amount, $160 million was due to individual salary increases greater than assumed.

D. TOTAL FUNDING POLICY CONTRIBUTION

The funding policy adopted determines total funding policy contributions based on the Plan's normal cost adjusted by an amortization of any surplus (overfunding) or underfunding. The total funding policy contribution is for the Plan Year beginning one year after the valuation date.

The total funding policy contribution is based on various amortization periods for different components of the UAAL as of July 1, 2018 as shown in Section 3, Exhibit H. It reflects the changes to amortization periods adopted by the Regents effective with the July 1, 2015 valuation. The amortization periods for amortization bases established in valuations prior to 2015 were not affected.

The calculation of the total funding policy contribution rates for the current and prior valuation are shown below.

This total funding policy contribution rate applies to the non-laboratory segment of UCRP (i.e., campuses, medical centers and Hastings College of Law). Contributions for the laboratories are subject to the terms of the University's contracts with the Department of Energy. For more information on the various UCRP segments please see Section 1, page viii. For more details on the UCRP funding policy please see Section 4, Exhibit IV.

The chart shows the calculation of the total funding policy contribution for the non-laboratory segment of UCRP.

CHART 11
Total Funding Policy Contribution (Non-Laboratory Segment of UCRP)

	Actuarial Valuation Date			
	July 1, 2018 ($ in 000s)		July 1, 2017 ($ in 000s)	
	Amount	% of Payroll	Amount	% of Payroll
1. Normal cost (beginning of year)	$1,957,266	17.29%	$1,880,011	17.38%
2. Actuarial value of assets	57,438,895		53,054,598	
3. Actuarial accrued liability	67,415,520		63,490,517	
4. Unfunded/(Overfunded) actuarial accrued liability	9,976,625		10,435,919	
5. Amortization of Unfunded/(Overfunded) actuarial accrued liability(1)	920,873	8.13%	939,558	8.69%
6. Total funding policy contribution rate, before timing adjustment: (1) + (5)		25.42%		26.07%
7. Total funding policy contribution rate, adjusted for timing(2)		26.33%		27.00%
8. Estimated total funding policy contribution amount(3)	$3,022,924		$3,022,763	

(1) *Layered amortization of unfunded actuarial accrued liability (UAAL). See Section 3, Exhibit H for more details.*
(2) *Total funding policy contribution includes an adjustment to account for contributions made throughout the year. No additional adjustment is included to account for contributions not starting until the beginning of the next Plan Year.*
(3) *The total funding policy contributions shown are for the non-laboratory segment of UCRP and are based on estimated covered payroll of $11,480,913 (also in thousands) for the 2019-2020 Plan Year and $11,195,418 for the 2018-2019 Plan Year. Actual contributions are set by the Regents and will be made based on actual payroll.*

The total funding policy contribution rate as of July 1, 2018 is 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 Total Funding Policy Contribution Rate

The chart below details the changes in the total funding policy contribution rate for the non-laboratory segment of UCRP from the prior valuation to the current year's valuation.

The chart reconciles the total funding policy contribution rate from the prior valuation to the rate determined in this valuation.

CHART 12

Reconciliation of Total Funding Policy Contribution Rate from July 1, 2017 to July 1, 2018

Total Funding Policy Contribution Rate as of July 1, 2017	27.00%
Effect of contributions more than those determined under funding policy as of July 1, 2017	-0.18%
Effect of investment gain	-0.26%
Effect of losses on individual salary increases greater than assumed	0.13%
Effect of increase in total payroll on UAAL amortization rate	-0.40%
Effect of lower normal cost of 2013 Tier, Modified 2013 Tier and 2016 Tier	-0.10%
Effect of other experience[1]	0.14%
Total change	-0.67%
Total Funding Policy Contribution Rate as of July 1, 2018	26.33%

[1] *Includes effect of differences in actual versus expected experience including mortality, disability, withdrawal and retirement experience.*

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 the Plan. Chart 14 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 actuarial or market value of assets is used. The chart below depicts a history of the funded ratios for the Plan.

CHART 13

Funded Ratio for Plan Years Beginning July 1, 2007 - 2018

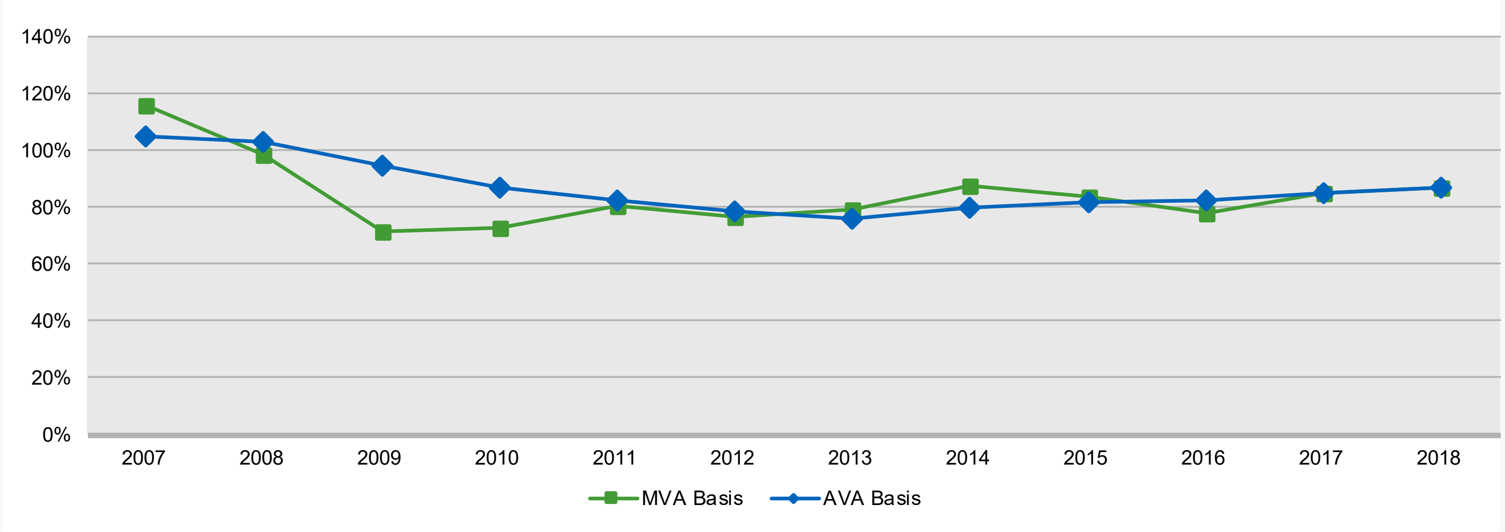


CHART 14

Schedule of Funding Progress ($ in 000s)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Projected Covered Payroll[1] (c)	UAAL as a Percentage of Projected Covered Payroll [(b) - (a)] / (c)
07/01/2009	$42,798,773	$45,160,525	$2,361,752	94.8%	$7,873,694	30.0%
07/01/2010	41,195,318	47,504,309	6,308,991	86.7%	7,995,421	78.9%
07/01/2011	42,757,271	51,831,306	9,074,035	82.5%	8,163,021	111.2%
07/01/2012	42,965,028	54,619,620	11,654,592	78.7%	8,598,114	135.5%
07/01/2013	43,572,353	57,380,961	13,808,608	75.9%	8,836,498	156.3%
07/01/2014	48,327,981	60,417,177	12,089,196	80.0%	9,299,817	130.0%
07/01/2015	53,762,286	65,841,255	12,078,969	81.7%	9,927,833	121.7%
07/01/2016	57,228,542	69,305,423	12,076,881	82.6%	10,607,630	113.9%
07/01/2017	61,884,530	72,965,272	11,080,742	84.8%	11,095,864	99.9%
07/01/2018	66,577,372	76,881,052	10,303,680	86.6%	11,596,220	88.9%

(1) *Covered payroll is reduced to anticipate members who leave active status during the year.*

F. VOLATILITY RATIOS

Retirement plans are subject to volatility in the level of total funding policy 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 funding policy contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of funding policy contribution volatility. This is a current measure since it is based on the current level of assets.

For UCRP, the current AVR is about 5.8. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 5.8% of one year's payroll. Since UCRP amortizes actuarial gains and losses over a period of 20 years, there would be a 0.5% of payroll decrease/(increase) in the total funding policy 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 assumptions.

For UCRP, the current LVR is about 6.6. This is about 14% higher than the AVR. Therefore, we would expect that funding policy contribution volatility will increase over the long-term.

This chart shows how the asset and liability volatility ratios have varied over time.

CHART 15

Volatility Ratios for Years Ended June 30, 2009 – 2018

Year Ended June 30	Asset Volatility Ratio	Liability Volatility Ratio
2009	4.1	5.7
2010	4.3	5.9
2011	5.1	6.3
2012	4.9	6.4
2013	5.1	6.5
2014	5.7	6.5
2015	5.5	6.6
2016	5.1	6.5
2017	5.6	6.6
2018	5.8	6.6

SECTION 3: Supplemental Information from the Valuation of the University of California Retirement Plan

EXHIBIT A

Table of Plan Coverage
i. Active Members

Category	Year Beginning July 1: 2018	Year Beginning July 1: 2017	Change From Prior Year
1976 Tier Members:[1]			
Number	75,104	81,274	-7.6%
Average age	49.6	49.0	0.6
Average service credit	14.3	13.5	0.8
Total covered compensation	$8,263,237,332	$8,494,072,326	-2.7%
Average covered compensation	$110,024	$104,512	5.3%
2013 Tier Members:[2][3]			
Number	21,307	24,531	-13.1%
Average age	40.1	38.7	1.4
Average service credit	3.6	2.6	1.0
Total covered compensation	$1,932,091,599	$2,037,018,164	-5.2%
Average covered compensation	$90,679	$83,039	9.2%
Modified 2013 Tier Members:[2][4]			
Number	22,672	18,680	21.4%
Average age	36.0	35.5	0.5
Average service credit	2.2	1.8	0.4
Total covered compensation	$1,902,792,891	$1,501,132,958	26.8%
Average covered compensation	$83,927	$80,360	4.4%
2016 Tier Members:[2][5]			
Number	10,384	4,494	131.1%
Average age	38.3	38.1	0.2
Average service credit	1.5	1.1	0.4
Total covered compensation	$803,945,616	$337,593,094	138.1%
Average covered compensation	$77,422	$75,121	3.1%

(1) *Includes 4 members with Tier Two Benefits (3 of whom are not coordinated with social security) and 280 members whose 1976 Tier service is not coordinated with Social Security.*

(2) *Includes multi-tier members earning future Service Credit under this tier.*

(3) *Includes 4 members whose 1976 Tier service is not coordinated with Social Security.*

(4) *Includes 1 member whose 1976 Tier service is not coordinated with Social Security.*

(5) *Includes 20 members whose 1976 Tier service is not coordinated with Social Security.*

EXHIBIT A (continued)

Table of Plan Coverage
i. Active Members (continued)

Category	Year Beginning July 1 2018	Year Beginning July 1 2017	Change From Prior Year
Safety Members:			
Number	412	403	2.2%
Average age	42.8	42.2	0.6
Average service credit	10.2	9.9	0.3
Total covered compensation	$47,836,254	$42,775,128	11.8%
Average covered compensation	$116,107	$106,142	9.4%
All active Members:[6]			
Number	129,879	129,382	0.4%
Average age	44.8	44.7	0.1
Average service credit	9.4	9.3	0.1
Total covered compensation	$12,949,903,692	$12,412,591,670	4.3%
Average covered compensation	$99,707	$95,938	3.9%

(6) *As of July 1, 2018 there were also 5,375 active employees who were part of the Savings Choice plan.*

EXHIBIT A (continued)

Table of Plan Coverage
ii. Nonactive Members

Category	Year Beginning July 1[1] 2018	2017	Change From Prior Year
Terminated vested members:			
Number	35,647	35,351	0.8%
Average age	49.6	49.4	0.2
Total monthly benefit[2]	$58,293,772	$56,747,634	2.7%
Average monthly benefit	$1,635	$1,605	1.9%
Terminated nonvested members:[3]			
Number	56,970	51,701	10.2%
Average member refund and CAP balance	$6,887	$6,431	7.1%
Retired members:			
Number[4]	65,438	62,753	4.3%
Average age	71.6	71.4	0.2
Total monthly benefit	$246,422,492	$229,677,192	7.3%
Average monthly benefit	$3,766	$3,660	2.9%
Disabled members:			
Number	1,386	1,440	-3.8%
Average age	58.0	58.1	-0.1
Total monthly benefit	$2,936,503	$2,965,672	-1.0%
Average monthly benefit	$2,119	$2,059	2.9%
Beneficiaries (includes Eligible Survivors, Contingent Annuitants, and Spouses/Domestic Partners):			
Number[5]	9,100	8,802	3.4%
Average age	74.6	74.4	0.2
Total monthly benefit	$22,004,626	$20,689,346	6.4%
Average monthly benefit	$2,418	$2,351	2.8%

Note: Monthly benefits shown include temporary Social Security Supplement

(1) *CAP balances total $1.122 billion as of July 1, 2018 and $1.163 billion as of July 1, 2017 for all members.*

(2) *Benefit is calculated based on assumed retirement age (age 60 as of July 1, 2018 and July 1, 2017 for all Tiers) or current age if later.*

(3) *For July 1, 2018, includes 5,100 members that transferred to the LANS or LLNS defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate employment with LANS or LLNS. For July 1, 2017, 5,512 members were included.*

(4) *For July 1, 2018, includes 2 deferred retirees who are entitled to future benefits. For July 1, 2017, 3 deferred retirees were included.*

(5) *For July 1, 2018, includes 122 deferred beneficiaries who are entitled to future benefits. For July 1, 2017, 112 deferred beneficiaries were included.*

EXHIBIT B

Active Members and Average Covered Compensation as of July 1, 2018
By Age and Service Credit

i. All Active Members

		Service Credit								
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	3,228	3,222	6	- -	- -	- -	- -	- -	- -	- -
	$52,663	$52,672	$48,106	- -	- -	- -	- -	- -	- -	- -
25 - 29	11,476	10,401	1,052	23	- -	- -	- -	- -	- -	- -
	68,855	68,792	69,855	$51,775	- -	- -	- -	- -	- -	- -
30 - 34	16,819	11,606	4,206	1,004	3	- -	- -	- -	- -	- -
	84,173	84,400	86,249	72,944	$53,842	- -	- -	- -	- -	- -
35 - 39	19,171	9,762	5,365	3,431	604	9	- -	- -	- -	- -
	94,230	91,752	101,414	92,147	82,334	$91,908	- -	- -	- -	- -
40 - 44	17,414	6,035	4,729	4,179	2,058	406	7	- -	- -	- -
	101,827	94,583	109,362	108,262	94,683	91,838	$95,136	- -	- -	- -
45 - 49	16,904	4,336	3,669	4,309	3,115	1,213	257	5	- -	- -
	105,983	95,553	107,553	113,080	111,686	100,974	95,487	$83,887	- -	- -
50 - 54	15,703	3,182	2,658	3,421	3,261	1,830	1,057	289	5	- -
	107,941	94,314	103,975	107,096	117,224	124,255	108,664	93,890	$100,551	- -
55 - 59	14,475	2,404	2,140	2,687	2,688	1,921	1,591	861	180	3
	110,340	95,787	105,821	101,975	111,103	128,332	128,427	112,900	107,978	$95,739
60 - 64	9,335	1,344	1,396	1,751	1,714	1,114	1,127	657	210	22
	119,214	102,367	109,306	101,113	112,975	133,848	149,049	156,622	140,652	112,973
65 - 69	3,735	473	543	688	643	378	409	329	219	53
	138,366	112,286	116,563	121,215	126,344	145,621	168,460	186,125	191,023	164,960
70 & over	1,619	181	190	209	196	142	164	131	157	249
	173,533	125,038	127,548	137,665	157,273	168,926	198,732	200,704	223,894	226,763
Total	129,879	52,946	25,954	21,702	14,282	7,013	4,612	2,272	771	327
	$99,707	$84,790	$101,539	$104,132	$110,577	$123,007	$133,101	$138,727	$164,022	$207,888

Average Age: 44.8

Average Service Credit: 9.4

EXHIBIT B (continued)

Active Members and Average Covered Compensation as of July 1, 2018
By Age and Service Credit

ii. 1976 Tier Active Members (including active members with Tier Two Benefits)

		Service Credit								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	13	7	6	- -	- -	- -	- -	- -	- -	- -
	$43,185	$38,968	$48,106	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,140	144	973	23	- -	- -	- -	- -	- -	- -
	70,040	75,186	69,710	$51,775	- -	- -	- -	- -	- -	- -
30 - 34	5,138	298	3,849	988	3	- -	- -	- -	- -	- -
	83,765	94,426	85,813	72,661	$53,842	- -	- -	- -	- -	- -
35 - 39	9,012	339	4,768	3,306	590	9	- -	- -	- -	- -
	96,727	101,429	101,534	92,006	81,706	$91,908	- -	- -	- -	- -
40 - 44	10,969	276	4,244	4,032	2,007	403	7	- -	- -	- -
	105,936	114,403	109,560	108,578	94,666	91,857	$95,136	- -	- -	- -
45 - 49	12,187	202	3,329	4,182	3,043	1,178	249	4	- -	- -
	109,538	103,003	107,336	113,381	111,871	100,345	94,997	$92,026	- -	- -
50 - 54	12,180	139	2,389	3,318	3,194	1,808	1,042	285	5	- -
	111,417	104,817	103,570	107,051	117,216	124,409	108,835	93,460	$100,551	- -
55 - 59	11,824	123	1,959	2,574	2,644	1,905	1,582	855	179	3
	113,257	101,515	105,633	101,921	110,977	128,556	128,394	112,784	107,401	$95,739
60 - 64	7,880	85	1,287	1,704	1,693	1,102	1,122	656	209	22
	121,954	101,771	108,830	100,683	112,917	133,736	149,233	156,738	140,803	112,973
65 - 69	3,276	67	521	672	636	372	407	329	219	53
	141,301	105,213	116,335	120,420	125,605	145,198	168,572	186,125	191,023	164,960
70 & over	1,485	64	182	206	196	139	163	131	156	248
	177,567	124,753	129,018	138,346	157,273	168,690	197,467	200,704	223,620	226,149
Total	75,104	1,744	23,507	21,005	14,006	6,916	4,572	2,260	768	326
	$110,024	$101,344	$101,389	$104,148	$110,558	$123,008	$133,220	$138,841	$163,899	$207,363

Average Age: 49.6

Average Service Credit: 14.3

EXHIBIT B (continued)

Active Members and Average Covered Compensation as of July 1, 2018
By Age and Service Credit

iii. 2013 Tier Active Members (including multi-tier active members earning future Service Credit under the 2013 Tier)

		Service Credit								
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	392	392	- -	- -	- -	- -	- -	- -	- -	- -
	$51,266	$51,266	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	3,166	3,132	34	- -	- -	- -	- -	- -	- -	- -
	59,948	59,872	$67,004	- -	- -	- -	- -	- -	- -	- -
30 - 34	4,115	3,935	173	7	- -	- -	- -	- -	- -	- -
	79,620	79,438	83,712	$80,600	- -	- -	- -	- -	- -	- -
35 - 39	4,700	4,302	355	42	1	- -	- -	- -	- -	- -
	94,724	94,475	99,002	82,764	$150,271	- -	- -	- -	- -	- -
40 - 44	2,999	2,615	307	62	14	1	- -	- -	- -	- -
	99,881	99,106	107,520	99,472	81,192	$69,471	- -	- -	- -	- -
45 - 49	2,034	1,730	195	70	26	11	2	- -	- -	- -
	103,684	102,871	113,379	100,223	99,327	95,886	$82,760	- -	- -	- -
50 - 54	1,519	1,290	136	45	32	9	5	2	- -	- -
	107,563	106,560	109,961	117,427	129,758	110,015	71,686	$93,233	- -	- -
55 - 59	1,213	1,012	107	54	26	9	4	1	- -	- -
	110,096	109,931	109,360	106,224	122,944	82,277	175,454	220,708	- -	- -
60 - 64	787	675	64	26	14	8	- -	- -	- -	- -
	116,555	116,834	111,861	120,015	105,887	138,056	- -	- -	- -	- -
65 - 69	295	259	16	10	4	5	1	- -	- -	- -
	128,842	125,663	120,176	167,061	190,783	179,227	208,976	- -	- -	- -
70 & over	87	79	3	2	- -	2	- -	- -	1	- -
	140,771	141,775	81,392	99,714	- -	168,319	- -	- -	$266,610	- -
Total	21,307	19,421	1,390	318	117	45	12	3	1	- -
	$90,679	$89,341	$102,882	$104,509	$115,075	$115,379	$119,562	$135,725	$266,610	- -

Average Age: 40.1

Average Service Credit: 3.6

EXHIBIT B (continued)

Active Members and Average Covered Compensation as of July 1, 2018
By Age and Service Credit

iv. Modified 2013 Tier Active Members (including multi-tier active members earning future Service Credit under the Modified 2013 Tier)

		Service Credit								
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	2,035	2,035	- -	- -	- -	- -	- -	- -	- -	- -
	$55,137	$55,137	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	5,416	5,386	30	- -	- -	- -	- -	- -	- -	- -
	77,493	77,544	$68,477	- -	- -	- -	- -	- -	- -	- -
30 - 34	5,380	5,239	139	2	- -	- -	- -	- -	- -	- -
	91,913	91,668	101,382	$73,768	- -	- -	- -	- -	- -	- -
35 - 39	3,450	3,241	168	38	3	- -	- -	- -	- -	- -
	92,767	91,980	107,605	93,556	$102,238	- -	- -	- -	- -	- -
40 - 44	2,164	2,012	108	36	8	- -	- -	- -	- -	- -
	92,003	91,020	110,806	94,031	76,392	- -	- -	- -	- -	- -
45 - 49	1,687	1,561	81	25	16	3	1	- -	- -	- -
	90,399	89,331	109,078	94,025	93,131	$110,649	$49,956	- -	- -	- -
50 - 54	1,184	1,058	79	27	14	6	- -	- -	- -	- -
	81,807	79,669	101,512	108,818	82,674	75,721	- -	- -	- -	- -
55 - 59	846	766	31	36	10	1	1	1	- -	- -
	79,162	77,691	84,181	104,779	86,297	97,823	61,783	$55,041	- -	- -
60 - 64	386	349	19	12	2	1	2	1	- -	- -
	79,037	76,939	102,574	103,625	109,072	65,019	50,129	80,788	- -	- -
65 - 69	104	98	3	1	2	- -	- -	- -	- -	- -
	85,676	84,953	77,464	150,377	101,077	- -	- -	- -	- -	- -
70 & over	20	18	2	- -	- -	- -	- -	- -	- -	- -
	75,130	76,503	62,774	- -	- -	- -	- -	- -	- -	- -
Total	22,672	21,763	660	177	55	11	4	2	- -	- -
	$83,927	$83,221	$102,973	$99,110	$88,157	$86,283	$52,999	$67,915	- -	- -

Average Age: 36.0

Average Service Credit: 2.2

EXHIBIT B (continued)

Active Members and Average Covered Compensation as of July 1, 2018
By Age and Service Credit

v. 2016 Tier Active Members (including multi-tier active members earning future Service Credit under the 2016 Tier)

		Service Credit								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	780	780	- -	- -	- -	- -	- -	- -	- -	- -
	$46,747	$46,747	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,703	1,697	6	- -	- -	- -	- -	- -	- -	- -
	56,367	56,344	$62,947	- -	- -	- -	- -	- -	- -	- -
30 - 34	2,150	2,118	31	1	- -	- -	- -	- -	- -	- -
	74,203	74,157	76,930	$85,813	- -	- -	- -	- -	- -	- -
35 - 39	1,940	1,865	60	12	3	- -	- -	- -	- -	- -
	83,325	83,278	86,263	81,739	$60,046	- -	- -	- -	- -	- -
40 - 44	1,217	1,123	59	24	10	1	- -	- -	- -	- -
	86,360	85,560	101,650	86,250	88,786	$61,097	- -	- -	- -	- -
45 - 49	926	835	52	18	14	5	1	1	- -	- -
	90,817	90,132	92,103	114,075	99,245	97,259	$66,982	$51,334	- -	- -
50 - 54	760	673	51	20	11	1	4	- -	- -	- -
	92,603	91,052	110,322	82,175	115,813	233,304	80,947	- -	- -	- -
55 - 59	557	491	34	19	7	3	2	1	- -	- -
	95,216	92,977	114,344	90,315	143,359	157,861	105,031	92,842	- -	- -
60 - 64	266	231	19	7	3	3	3	- -	- -	- -
	103,310	98,176	132,777	124,169	137,294	186,701	145,980	- -	- -	- -
65 - 69	58	48	3	4	1	1	1	- -	- -	- -
	115,491	104,730	175,884	134,374	388,890	134,940	82,442	- -	- -	- -
70 & over	27	20	3	1	- -	1	1	- -	- -	1
	130,136	103,519	127,703	73,158	- -	202,943	405,000	- -	- -	$379,103
Total	10,384	9,881	318	106	49	15	12	2	- -	1
	$77,422	$76,157	$99,599	$94,617	$112,973	$143,484	$127,184	$72,088	- -	$379,103

Average Age: 38.3

Average Service Credit: 1.5

EXHIBIT B (continued)

Active Members and Average Covered Compensation as of July 1, 2018
By Age and Service Credit

vi. Active Safety Members

		Service Credit								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	8	8	- -	- -	- -	- -	- -	- -	- -	- -
	$84,151	$84,151	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	51	42	9	- -	- -	- -	- -	- -	- -	- -
	94,984	92,746	$105,426	- -	- -	- -	- -	- -	- -	- -
30 - 34	36	16	14	6	- -	- -	- -	- -	- -	- -
	101,757	94,051	107,802	$108,201	- -	- -	- -	- -	- -	- -
35 - 39	69	15	14	33	7	- -	- -	- -	- -	- -
	114,218	96,554	112,373	120,408	$126,581	- -	- -	- -	- -	- -
40 - 44	65	9	11	25	19	1	- -	- -	- -	- -
	114,786	94,990	111,414	120,634	117,243	$137,160	- -	- -	- -	- -
45 - 49	70	8	12	14	16	16	4	- -	- -	- -
	130,052	104,815	129,837	120,194	126,176	150,135	$150,848	- -	- -	- -
50 - 54	60	22	3	11	10	6	6	2	- -	- -
	121,948	113,984	111,698	119,773	129,715	129,706	128,274	$155,792	- -	- -
55 - 59	35	12	9	4	1	3	2	3	1	- -
	127,504	114,472	147,024	109,576	159,923	105,129	116,503	135,946	$211,295	- -
60 - 64	16	4	7	2	2	- -	- -	- -	1	- -
	134,530	134,366	127,968	125,964	179,117	- -	- -	- -	109,082	- -
65 - 69	2	1	- -	1	- -	- -	- -	- -	- -	- -
	138,929	163,037	- -	114,821	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	412	137	79	96	55	26	12	5	2	- -
	$116,107	$100,707	$118,595	$119,206	$126,324	$139,729	$133,837	$143,884	$160,189	- -

Average Age: 42.8

Average Service Credit: 10.2

EXHIBIT C

Reconciliation of Member Data

	Active Members	Terminated Vested Members[1]	Retired Members[2]	Disabled Members	Beneficiaries[3]	Total
Number as of July 1, 2017	129,382	87,052	62,753	1,440	8,802	289,429
New members	14,119	0	0	0	675 [4]	14,794
Terminations – with vested rights	(9,636)	9,636	0	0	0	0
Terminations – without vested rights[5]	(1,424)	(1,389)	0	0	0	(2,813)
Retirements	(2,977)	(931)	4,056	(148)	0	0
Disabilities	(82)	(39)	(19)	140	0	0
Lump Sum Cashouts	(460)	(553)	0	(17)	(1)	(1,031)
Benefits Expired	0	0	0	0	(36)	(36)
Returned to work	1,101	(1,085)	(16)	0	0	0
Died with or without beneficiary	(129)	(107)	(1,310)	(27)	(340)	(1,913)
Data adjustments	(15)	33	(26)	(2)	0	(10)
Number as of July 1, 2018	129,879	92,617	65,438	1,386	9,100	298,420

(1) *Includes terminated nonvested members due a refund of member contributions or CAP balance payment and members that transferred to the LANS or LLNS defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate employment with LANS or LLNS.*

(2) *Includes 2 deferred retirees who are entitled to future benefits as of July 1, 2018. Includes 3 deferred retirees as of July 1, 2017.*

(3) *Includes 122 deferred beneficiaries who are entitled to future benefits as of July 1, 2018. Includes 112 deferred beneficiaries as of July 1, 2017.*

(4) *Includes 73 new QDRO/Alternate Payees.*

(5) *Includes those members who terminated and received a refund of member contributions or a distribution of their CAP balance.*

Note: There were approximately 64 QDRO/Alternate Payees who received a lump sum cashout during 2017-2018.

EXHIBIT D

Summary Statement of Income and Expenses (Actuarial Value Basis)

	Year Ended June 30, 2018 ($ in 000s)		Year Ended June 30, 2017 ($ in 000s)	
Contribution income:				
Employer contributions[1]	$2,504,874		$2,556,576	
Members contributions	941,144		891,988	
Less administration expense	(36,689)		(44,128)	
Net contribution income		$3,409,329		$3,404,436
Investment income:				
Interest and dividends	$1,062,724		$928,658	
Recognition of capital appreciation	3,777,242		3,613,226	
Securities lending income	88,274		53,636	
Securities lending fees and rebates	(58,320)		(24,452)	
Net investment income		4,869,920		4,571,068
Other income		1,148		1,472
Total income available for future benefits		$8,280,397		$7,976,976
Less benefit payments		$(3,587,555)		$(3,320,988)
Change in assets available for future benefits		$4,692,842		$4,655,988

(1) *Including State Prop 2 Funds and STIP Transfers, $169.0 million and $391.8 million respectively for 2017-2018 and $171.0 and $481.0 million respectively for 2016-2017. Also includes an estimated $20.0 million in employer contributions during 2017-2018 towards paying down UCRP's UAAL on behalf of members in the Savings Choice Plan.*

EXHIBIT E
Summary Statement of Assets

	Year Ended June 30, 2018 ($ in 000s)		Year Ended June 30, 2017 ($ in 000s)	
Cash equivalents		$2,608,036		$2,224,574
Accounts receivable:				
Contributions	$58,422		$13,932	
Interest and dividends	57,755		53,507	
Investment of cash collateral	3,827,737		3,820,400	
Securities sales and other	40,701		868,893	
Total accounts receivable		3,984,615		4,756,732
Investments:				
Equity securities	$23,501,711		$20,982,545	
Fixed income securities	15,404,071		13,896,918	
Real estate	4,062,758		3,099,388	
Commingled funds	22,311,311		22,803,500	
Derivative investments	(15,899)		(1,979)	
Total investments at market value		65,263,952		60,780,372
Total assets		$71,856,603		$67,761,678
Less accounts payable:				
Payable for securities purchased	$(1,173,840)		$(1,745,473)	
Member withdrawals, refunds and other payables	(82,170)		(83,284)	
Collateral held for securities lending	(3,827,003)		(3,818,660)	
Total accounts payable		(5,083,013)		(5,647,417)
Net assets at market value		$66,773,590		$62,114,261
Net assets at actuarial value (for comparison purposes)		$66,577,372		$61,884,530

EXHIBIT F

Development of Unfunded/(Overfunded) Actuarial Accrued Liability ($ in 000s)

		Year Ended June 30, 2018
1. Unfunded/(Overfunded) actuarial accrued liability at beginning of year		$11,080,742
2. Normal cost at beginning of year		1,928,483
3. Expected total funding policy and required contractual contributions		(3,163,794)
4. Interest		
(a) For whole year on (1) + (2)	$943,169	
(b) For partial year on (3) [1]	(105,976)	
(c) Total interest		837,193
5. Expected Unfunded/(Overfunded) actuarial accrued liability		$10,682,624
6. Changes due to:		
(a) Gain from contributions more than expected under funding policy	$(307,474)	
(b) Gain from investments	(382,618)	
(c) Loss from individual salary increases greater than assumed	160,418	
(d) Loss from other experience	150,730	
(e) Total changes[2]		(378,944)
7. Unfunded/(Overfunded) actuarial accrued liability at end of year		$10,303,680

(1) *Expected contributions for LLNL and LANL are calculated as of the end of the year, therefore no interest has been included on those amounts.*

(2) *Non-laboratory segment amount is an actuarial experience gain of $208,223.*

EXHIBIT G

Actuarial Liabilities

	July 1, 2018 ($ in 000s)	July 1, 2017 ($ in 000s)
Actuarial Accrued Liability		
Members in pay status		
Retirees[1]	$34,819,868	$32,647,370
Beneficiaries[2]	2,470,284	2,342,204
Disableds	634,074	634,448
Total in pay status	$37,924,226	$35,624,022
Active members		
1976 Tier members	$30,547,158	$29,897,227
2013 Tier members	1,286,965	986,207
Modified 2013 Tier members	799,057	508,390
2016 Tier members	249,844	84,150
Safety	183,371	162,433
Total actives	$33,066,395	$31,638,407
Terminated members		
Vested	$5,498,080	$5,370,352
Nonvested	392,351	332,491
Total terminated	$5,890,431	$5,702,843
Total actuarial accrued liability	$76,881,052	$72,965,272
Actuarial Present Value of Projected Benefits		
Members in pay status[1] [2]	$37,924,226	$35,624,022
Active members	50,414,763	48,295,156
Terminated members	5,890,431	5,702,843
Total present value of projected benefits	$94,229,420	$89,622,021

(1) *For July 1, 2018, includes a liability of $83.4 million for Lump Sum Cashouts, CAP balance payments and refunds of member contributions that were paid on or after July 1, 2018. For July 1, 2017, includes a liability of $60.2 million for Lump Sum Cashouts, CAP balance payments and refunds of member contributions that were paid on or after July 1, 2017. Includes liability for deferred retirees.*

(2) *Includes liability for deferred beneficiaries.*

EXHIBIT H

Table of Amortization Bases as of July 1, 2018 (Non-Laboratory Segment of UCRP - $ in 000s)

Type	Date Established	Initial Years	Initial Amount	Annual Payment[1]	Years Remaining	Outstanding Balance
Restart Amortization[2]	07/01/2010	30	$5,389,886	$416,227	22	$4,837,066
Actuarial Loss	07/01/2011	30	905,208	69,867	23	826,915
Change in Assumptions	07/01/2011	15	1,513,127	157,872	8	1,001,322
Plan Amendment	07/01/2011	15	(59,179)	(6,174)	8	(39,162)
Actuarial Loss	07/01/2012	30	2,457,582	189,587	24	2,281,780
Actuarial Loss	07/01/2013	30	1,866,282	143,901	25	1,758,755
Actuarial Gain	07/01/2014	30	(886,657)	(68,334)	26	(847,055)
Actuarial Gain	07/01/2015	20	(1,440,456)	(129,251)	17	(1,330,273)
Change in Assumptions	07/01/2015	20	1,850,713	166,063	17	1,709,149
Actuarial Loss	07/01/2016	20	450,296	40,405	18	428,145
Actuarial Gain	07/01/2017	20	(452,535)	(40,606)	19	(441,794)
Actuarial Gain	07/01/2018	20	(208,223)	(18,684)	20	(208,223)
Total				$920,873		$9,976,625

(1) *Level dollar amount. Payment shown is as of beginning of year. The amounts shown are based on results for the non-laboratory segment of UCRP (i.e., campuses, medical centers and Hastings College of Law). They are used in the determination of the total funding policy contribution shown in Section 2, Chart 11, page 10. For more details on the UCRP funding policy please see Section 4, Exhibit IV.*

(2) *The July 1, 2010 amortization bases were combined into a single amortization base and amortized over 30 years as a level dollar amount.*

Note: Effective with the July 1, 2015 valuation the Regents approved a change to the amortization periods used for actuarial experience gains and changes in actuarial assumptions to be 20 years. The amortization periods for amortization bases established in prior valuations are not affected.

The average effective remaining amortization period as of July 1, 2018 was 18.83 years.

EXHIBIT I

Projection of UAAL Outstanding Balances and Payments (Non-Laboratory Segment of UCRP)

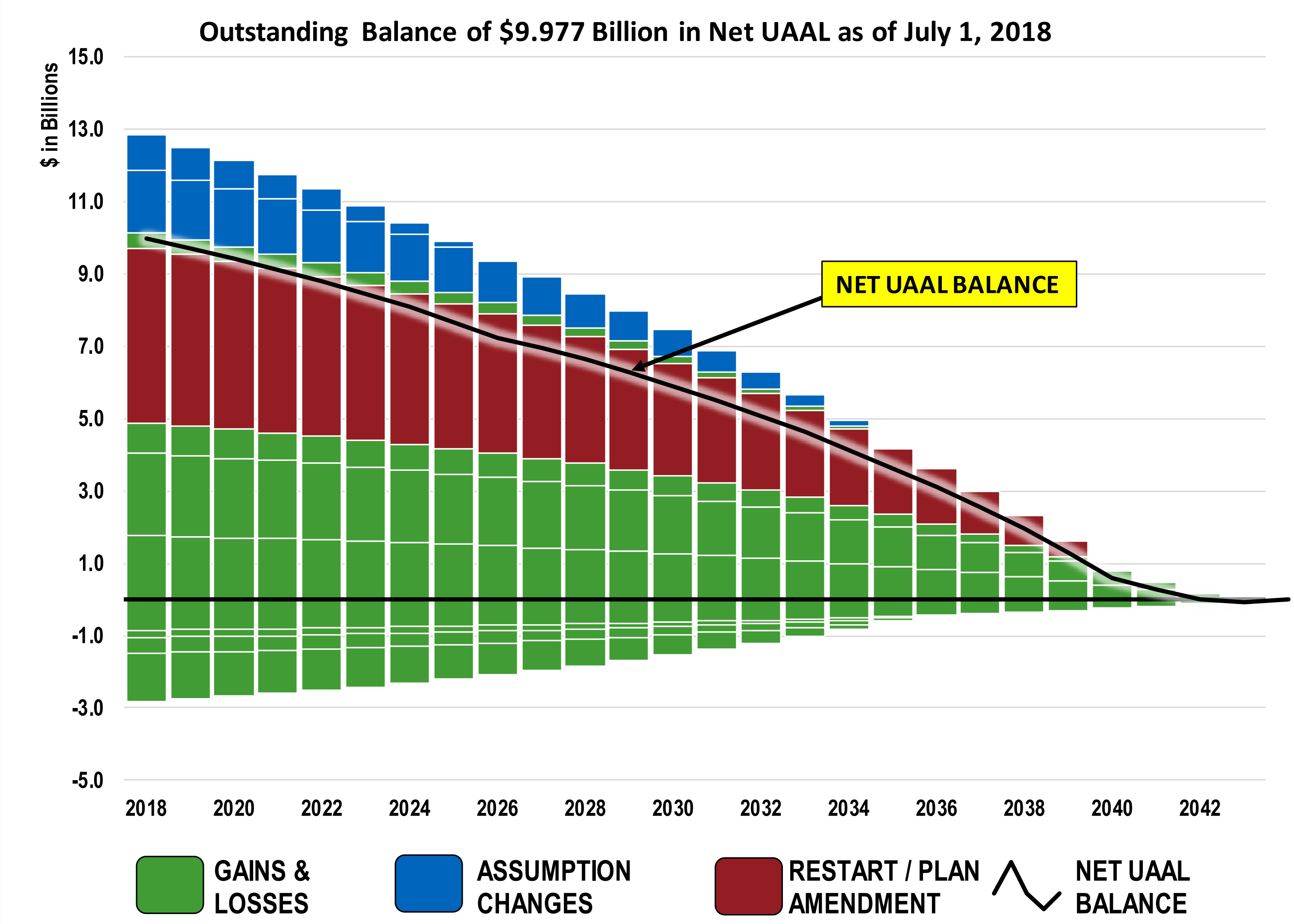


EXHIBIT I (continued)

Projection of UAAL Outstanding Balances and Payments (Non-Laboratory Segment of UCRP)

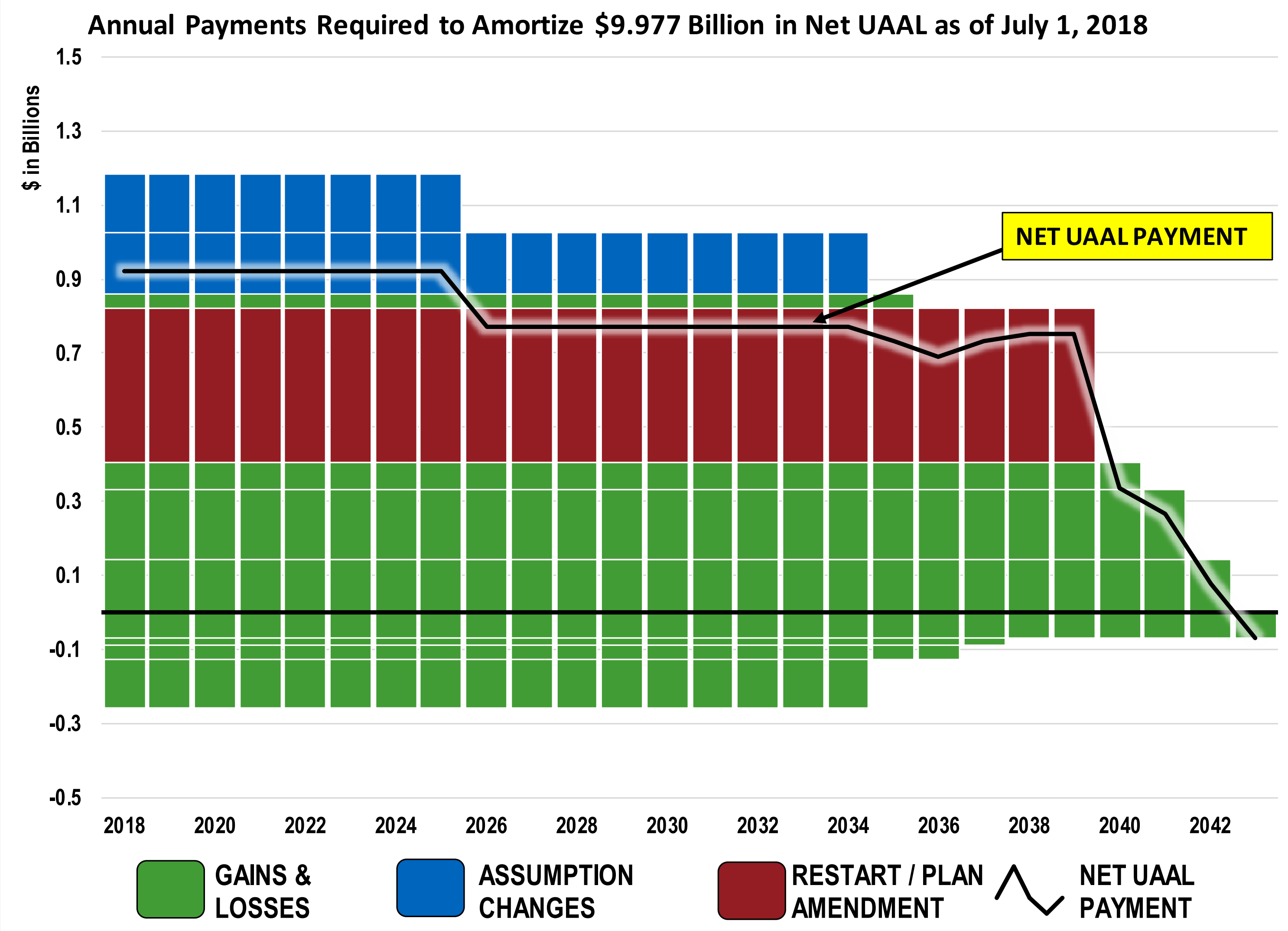


EXHIBIT J

Section 415 Limitations

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 indexed for inflation. That limit is $215,000 for 2017 and $220,000 for 2018. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, form of benefits chosen and after tax contributions.

The University pays benefits in excess of the limits through a 415(m) Restoration Plan. These costs are excluded in this valuation.

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

EXHIBIT K
Definitions of Pension Terms

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 employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal Cost: The amount required to fund the level cost allocated to the current year of service.

Actuarial Accrued Liability for Actives: The accumulated value of normal costs allocated to the years before the valuation date.

Actuarial Accrued Liability for Pensioners: The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and of the interest which the sum is expected to earn before it is entirely paid out in benefits.

Unfunded/(Overfunded) Actuarial Accrued Liability: The extent to which the actuarial accrued liability of the Plan exceeds (or is exceeded by) the actuarial value of assets of the Plan.

Actuarial Value of Assets: The dollar amount of assets for purposes of calculating the total funding policy contribution determined under the actuarial asset valuation method adopted by the Regents.

Amortization of the Unfunded/ (Overfunded) Actuarial Accrued Liability:	Payments made over a period of years equal in value to the Plan's unfunded or overfunded 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 reflects a smoothing of market gains and losses to avoid significant swings in the value of assets from one year to the next.
Beneficiary:	Includes Eligible Survivors, Contingent Annuitants, Spouses/Domestic Partners, and QDROs/Alternate Payees.

SECTION 4: Reporting Information and Projections from the Valuation of the University of California Retirement Plan

EXHIBIT I

Summary of Actuarial Valuation Results as of July 1, 2018 ($ in 000s)

The valuation was made with respect to the following data supplied to us:			
1.	Retired members as of the valuation date (including 9,100 beneficiaries)[1]		75,924
2.	Members inactive during year ended June 30, 2018 with vested rights[2]		92,617
3.	Members active during the year ended June 30, 2018		129,879
The actuarial factors as of the valuation date are as follows:			
1.	Normal cost (beginning of year)		$2,004,593
2.	Present value of future benefits		94,229,420
3.	Present value of future normal costs		17,348,368
4.	Actuarial accrued liability		76,881,052
	Retired members and beneficiaries[3]	$37,924,226	
	Inactive members with vested rights[2]	5,890,431	
	Active members	33,066,395	
5.	Actuarial value of assets ($66,773,590 at market value as reported by the UCOP)		66,577,372
6.	Unfunded actuarial accrued liability		$10,303,680

(1) *Includes deferred retirees and deferred beneficiaries who are entitled to future benefits.*

(2) *Includes terminated nonvested members due a refund of member contributions or CAP balance payment and members that transferred to the LANS or LLNS defined benefit plans who will be entitled to a CAP balance payment from UCRP after they separate from employment with LANS or LLNS.*

(3) *Includes liability for deferred retirees and deferred beneficiaries.*

EXHIBIT I (continued)

Summary of Actuarial Valuation Results as of July 1, 2018 ($ in 000s)

The determination of the normal cost is as follows:	Dollar Amount[1]	% of Payroll[2]
1. Total normal cost (middle of year)	$2,075,988	17.90%
2. Expected employee contributions (middle of year)	-923,229	-7.96%
3. Employer normal cost: (1) + (2)	$1,152,759	9.94%

(1) *Based on estimated covered payroll of $11,596,220 (also in thousands) for the 2018-2019 Plan Year.*

(2) *The total normal cost as a percentage of payroll (middle of year) for each tier is as follows:*

1976 Tier	*18.56%*
2013 Tier	*16.30%*
Modified 2013 Tier	*17.19%*
2016 Tier	*15.87%*
Safety	*25.40%*
Tier Two	*9.28%*

EXHIBIT II

Actuarial Assumptions and Methods

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2010 through June 30, 2014 Actuarial Experience Study dated August 17, 2015.

Economic Assumptions

Net Investment Return: 7.25% (including 3.00% for inflation).

Consumer Price Index: Increase of 3.00% per year; COLA increases are assumed to be 2.00% per year.

Administrative Expenses: 0.50% of payroll added to normal cost.

Increase in 401(a)(17) and PEPRA Compensation Limits: Increase of 3.0% per year from the valuation date.

Increase in 415 Dollar Limit: Increase of 3.0% per year from the valuation date.

Salary Increases:

Annual Rate of Compensation Increase

Inflation: 3.00% per year, plus "across the board" salary increases of 0.50% per year, plus the following merit and promotional increases:

Years of Service	Faculty	Staff and Safety
Less than 1	2.65%	2.60%
1	2.65	2.40
2	2.65	2.20
3	2.65	2.00
4	2.65	1.85
5	2.65	1.65
6	2.60	1.45
7	2.55	1.35
8	2.50	1.25
9	2.40	1.15
10	2.35	1.05
11	2.30	0.95
12	2.20	0.85
13	2.10	0.75
14	2.00	0.65
15	1.90	0.55
16	1.80	0.45
17	1.70	0.40
18	1.60	0.35
19	1.45	0.30
20 & over	1.25	0.25

Demographic Assumptions

Pre – Retirement Mortality Rates: RP-2014 White Collar Employee Mortality Table projected with the two-dimensional MP2014 projection scale to 2029.

Post – Retirement Mortality Rates:

Healthy: RP-2014 White Collar Healthy Annuitant Mortality Table projected with the two-dimensional MP2014 projection scale to 2029. Ages are set forward one year for males and females.

Disabled: RP-2014 Disabled Retiree Mortality Table projected with the two-dimensional MP2014 projection scale to 2029. Ages are set back one year for males and set forward 5 years for females.

The RP-2014 mortality tables projected with the two-dimensional MP2014 projection scale to 2019 and adjusted as noted above reasonably reflects the projected mortality experience as of the measurement date. The additional projection to 2029 is a provision for future mortality improvement.

Sample Termination Rates Before Retirement:

	Rate (%)					
	Healthy Mortality(1)		Disabled Mortality(2)		Disability Incidence(3)	
Age	Male	Female	Male	Female	Male	Female
20	0.02	0.01	0.50	0.20	0.01	0.01
25	0.03	0.01	0.73	0.26	0.02	0.02
30	0.03	0.02	0.64	0.34	0.03	0.03
35	0.03	0.02	0.74	0.46	0.04	0.04
40	0.04	0.03	0.86	0.75	0.07	0.08
45	0.06	0.05	1.24	1.00	0.10	0.16
50	0.10	0.08	1.59	1.25	0.17	0.26
55	0.16	0.12	1.88	1.45	0.25	0.33
60	0.28	0.18	2.21	1.73	0.28	0.38
65	0.49	0.26	2.59	2.29	0.20	0.28

(1) *All pre-retirement deaths are assumed to be non-duty related.*
(2) *Assumed to apply only when valuing UCRP Disability Income.*
(3) *All disabilities are assumed to be non-duty related.*

Sample Termination Rates Before Retirement (continued):

	Rate (%) Withdrawal[1]	
Years of Service	**Faculty**	**Staff and Safety**
Less than 1	20.00	21.00
1	13.00	17.00
2	8.50	14.00
3	7.00	11.00
4	5.75	9.00
5	5.75	8.25
6	5.50	7.25
7	5.25	6.75
8	5.00	6.25
9	4.75	5.75
10	4.25	5.25
11	4.00	5.00
12	3.75	4.75
13	3.50	4.50
14	3.25	4.25
15	3.00	4.00
16	2.75	3.75
17	2.50	3.50
18	2.25	3.25
19	2.00	3.00
20 & over	1.75	2.75

(1) *The greater of a refund of member contributions and a deferred annuity or lump sum is valued when a member withdraws. No withdrawal is assumed after a member is first assumed to retire.*

Retirement Rates:

Retirement Rates – Unisex

Age	1976 Tier Faculty	2013 Tier & 2016 Tier Faculty	1976 Tier Staff[1]	Modified 2013 Tier Staff[1]	2013 Tier & 2016 Tier Staff[1]	Safety
50	2.00%	0.00%	3.50%	2.00%	0.00%	20.00%
51	1.00	0.00	2.50	1.50	0.00	15.00
52	1.00	0.00	2.75	1.50	0.00	10.00
53	1.00	0.00	2.75	1.50	0.00	15.00
54	1.00	0.00	3.50	2.00	0.00	15.00
55	2.00	2.00	4.00	2.00	5.00	25.00
56	2.00	1.00	5.00	2.50	1.50	25.00
57	2.00	1.00	5.00	3.00	2.00	25.00
58	2.00	1.00	7.00	3.50	2.50	25.00
59	3.00	1.00	9.00	5.00	3.00	25.00
60	5.00	2.00	12.00	12.00	3.50	25.00
61	5.00	2.00	14.00	10.00	6.00	30.00
62	5.00	2.00	16.00	10.00	9.00	40.00
63	5.00	2.00	16.00	10.00	10.00	50.00
64	7.00	3.00	20.00	12.00	12.00	60.00
65	9.00	20.00	25.00	40.00	40.00	100.00
66	10.00	13.00	22.00	30.00	30.00	100.00
67	11.00	15.00	22.00	30.00	45.00	100.00
68	12.00	15.00	22.00	30.00	30.00	100.00
69	15.00	15.00	22.00	22.00	30.00	100.00
70	15.00	15.00	20.00	20.00	20.00	100.00
71	12.00	12.00	20.00	20.00	20.00	100.00
72	12.00	12.00	20.00	20.00	20.00	100.00
73	12.00	12.00	20.00	20.00	20.00	100.00
74	12.00	12.00	20.00	20.00	20.00	100.00
75	100.00	100.00	100.00	100.00	100.00	100.00

(1) *These rates apply for those with ten to twenty years of service. For ages under 65, 70% of these rates will be used for those with less than ten years of service and 160% of these rates will be used for those with twenty or more years of service, with the exception that the age 64 rate is set equal to the age 63 rate for those with twenty or more years of service.*

Members with Tier Two Benefits:	Assumptions specific to the 1976 Tier are also applied to members with Tier Two Benefits.
Retirement Age for Deferred Vested Members:	Deferred vested members are assumed to retire at age 60.
Benefit for Terminated Nonvested Members:	Immediate refund of member contribution and CAP balance.
Disability Income Cross Over Age:	Members receiving Disability Income are assumed to "cross over" at age 65.
Form of Payment:	1976 Tier Members not electing a Lump Sum Cashout: • Life annuity for members without an Eligible Survivor; • 25% contingent annuity for 1976 Tier Members with Social Security who have an Eligible Survivor; • 50% contingent annuity for 1976 Tier Members without Social Security who have an Eligible Survivor; • 50% contingent annuity for members with Safety Benefits who have an Eligible Survivor. 2013 Tier and 2016 Tier Members are assumed to elect a life annuity. Modified 2013 Tier Members not electing a Lump Sum Cashout are assumed to elect a life annuity. It is also assumed that some 1976 and Modified 2013 Tier Members elect a Lump Sum Cashout (see Lump Sum Assumptions).
Future Benefit Accruals:	1.0 year of service per year for the full-time employees. Part-time employees are assumed to earn full-time service for all future years.
Definition of Active Members:	All members of UCRP who are not separated from active membership as of the valuation date or have not started receiving a monthly pension on or before the valuation date.

Percent with Eligible Survivors: 80% of male members and 60% of female members are assumed to have Eligible Survivors at time of decrement.

Eligible Survivor Ages: Members are assumed to have an opposite sex Eligible Spouse or Eligible Domestic Partner, with females three years younger than males.

Number of Survivors (Samples):

	Number of Survivors per Active Member with Survivors	
Age	Male	Female
20	1.0	1.0
25	1.8	2.1
30	2.2	2.7
35	2.7	2.8
40	3.0	2.4
45	2.8	2.1
50	2.5	1.7
55	2.0	1.4
60	1.5	1.2
65	1.3	1.1

Actuarial Methods

Actuarial Value of Assets: The market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual and the expected returns on a market value basis and is recognized over a five-year period.

For the actuarial value of assets allocated to the non-laboratory segment, this is approximated as the total UCRP actuarial value multiplied by the ratio of the market value of the non-laboratory segment allocated assets to the total UCRP market value.

Actuarial Cost Method: Entry Age Actuarial Cost Method. Entry Age is calculated as the valuation date minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salaries as if the current benefit accrual rate has always been in effect (“replacement life within each tier”).

Covered Payroll: Covered compensation for a Plan Year is determined by annualizing actual payroll for the prior Plan Year increased by the total assumed salary increases. Covered payroll shown for the 2019-2020 Plan Year is based on the assumptions used in the projections for Scenario #1 in Appendix A. Covered payroll is covered compensation reduced to anticipate members who leave active status during the year.

Other Actuarial Assumptions

Lump Sum Assumptions:

Conversion Basis:

Discount Rate: 7.25%

COLA: 2.00%

Mortality: RP-2014 White Collar Healthy Annuitant Mortality Table projected with the two-dimensional MP2014 projection scale to 2029, and with ages set forward one year; weighted 40% male and 60% female.

Take-rate for Members Eligible to Elect a Lump Sum Cashout:

Years of Service	Actives	Inactives	Disability Crossovers
5 & under	45.0%	45.0%	17.0%
6	42.0%	45.0%	17.0%
7	40.0%	45.0%	17.0%
8	35.0%	45.0%	17.0%
9	25.0%	42.0%	17.0%
10	20.0%	42.0%	13.0%
11	18.0%	40.0%	13.0%
12	16.0%	40.0%	13.0%
13	14.0%	40.0%	13.0%
14	12.0%	40.0%	13.0%
15 – 19	11.0%	40.0%	10.0%
20 – 24	7.0%	30.0%	7.0%
25 – 29	5.0%	20.0%	5.0%
30 & over	4.0%	15.0%	4.0%

Approximations:	
Sick Leave	Only for purposes of determining projected benefits, service has been increased by 0.15% for Faculty, 1.50% for Staff, and 1.90% for Safety members to account for unused sick leave. This assumption applies only for members retiring from active membership and not electing a Lump Sum Cashout. For all other benefits there is assumed to be no conversion of unused sick leave to service credit.
Data Adjustments	The actuarial data files received for the July 1, 2018 actuarial valuation were missing information for approximately 1% of the total UCRP population. Due to timing and other constraints, the member's status and other various information for these individuals were approximated based on past values. These adjustments did not have a material impact on the results of this valuation.
Changes in Actuarial Assumptions:	There were no changes in actuarial assumptions or methods since the prior valuation that had a material impact on Plan liabilities and normal cost.

EXHIBIT III

Summary of Plan Provisions

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

Effective Date:	April 24, 1954. Includes amendments through July 1, 2018.
Covered Employees:	Generally all employees who are not members of another retirement system to which the Regents contribute, and who: a. Are appointed to work 50% time or more for one year or longer or b. Have generally accumulated at least 1,000 hours in a 12-month period.
Membership Classification:	Members are divided into four classes: (1) Members with Coordinated Benefits (covered under Social Security); (2) Members with Noncoordinated Benefits (not covered under Social Security); (3) Members with Tier Two Benefits; and (4) Members with Safety Benefits. The classes of Members with Coordinated Benefits and Members with Noncoordinated Benefits have the following member tiers: the 1976 Tier, the 2013 Tier, the Modified 2013 Tier, and the 2016 Tier. Generally, members hired before July 1, 2013 accrue service under the 1976 Tier. Members who are represented by the CNA, UPTE, and AFSCME bargaining units, who were hired (or rehired after a break in service) on or after July 1, 2013 and before July 1, 2016 accrue service under the Modified 2013 Tier, while all others hired on or after July 1, 2013 and before July 1, 2016 accrue service under the 2013 Tier. Generally, members hired on or after July 1, 2016 who elect to be covered under UCRP, accrue service under the 2016 Tier. A member who has service credit in two or more tiers is referred to as a multi-tier member. Unless otherwise noted, the Plan provisions for Members with Tier Two Benefits are the same as those shown for 1976 Tier Members.

Highest Average Plan Compensation (HAPC): Highest average monthly full-time-equivalent base compensation rate received during any period of 36 consecutive months.

Compensation Limit:

1976 Tier Service, 2013 Tier Service, Modified 2013 Tier Service and Safety Service

Annual compensation is limited based on Internal Revenue Code (IRC) Section 401(a)(17). The limit for the Plan Year beginning July 1, 2018 is $275,000 for employees who became members on or after July 1, 1994. The limit is $405,000 for those active members who became employees before July 1, 1994. The compensation limit is indexed for inflation on an annual basis.

2016 Tier Service

Annual compensation is limited similar to the limit prescribed by the California Public Employees' Pension Reform Act of 2013 (PEPRA). The limit for the Plan Year beginning July 1, 2018 is $121,388 ($145,666 for members with Noncoordinated benefits). The PEPRA compensation limit is indexed for inflation on an annual basis.

Age Factor: Percentage of HAPC per year of service credit (interpolated for fractional ages).

1976 Tier Service and Modified 2013 Tier Service

Age	Factor	Age	Factor
50	1.10%	56	1.94%
51	1.24	57	2.08
52	1.38	58	2.22
53	1.52	59	2.36
54	1.66	60+	2.50
55	1.80		

2013 Tier and 2016 Tier Service

Age	Factor	Age	Factor
55	1.10%	61	1.94%
56	1.24	62	2.08
57	1.38	63	2.22
58	1.52	64	2.36
59	1.66	65+	2.50
60	1.80		

Safety Service	3.0% at all ages 50 and above.
Tier Two Service	Equal to one-half of the Age Factor for 1976 Tier Service.
Benefit Percentage:	Age Factor multiplied by years of service credit.
Basic Retirement Income (BRI):	
1976 Tier Members with Social Security	Benefit Percentage x HAPC in excess of $133 per month.
All other Members, except Multi-Tier Members	Benefit Percentage x HAPC.
Multi-Tier Members	The applicable benefit percentages from the 1976 Tier, the 2013 Tier, the Modified 2013 Tier and the 2016 Tier are multiplied by HAPC or HAPC - $133, if applicable. These benefits are subject to a limit of 100% of HAPC or HAPC - $133, if applicable.

Service Retirement:	
Eligibility	Age 50 (age 55 for the 2013 Tier and the 2016 Tier) with 5 years of service credit, or Age 62 regardless of service credit if membership began on or before July 1, 1989, or Retirement on Normal Retirement Date.
Benefit	BRI.
Form of Payment	Single Life Annuity plus any Postretirement Survivor Continuance.
Payment Options	Full continuance to contingent annuitant; two-thirds continuance to contingent annuitant; one-half continuance to contingent annuitant; one-half continuance (including Postretirement Survivor Continuance) to surviving spouse or domestic partner (for 1976 Tier Members with Social Security only).
Lump Sum Cashout	May be elected in lieu of non-2013 Tier and non-2016 Tier monthly retirement income.
Temporary Social Security Supplement:	
Eligibility	For 1976 Tier Members with Social Security and retirement must occur before age 65.
Benefit	Annuity in the amount of $133 per month multiplied by 1976 Tier Benefit Percentage.
Form of Payment	Temporary Single Life Annuity plus any Postretirement Survivor Continuance payable to age 65.
Payment Options	None.
Disability Income:	
Eligibility	Disablement after five years of service credit; Safety members are eligible for duty disability without regard to years of service credit. Service credit continues to accrue during disabled period.
Benefit	
1976 Tier Members without Social Security and Members with Safety Benefits (Non-duty)	25% of final salary, plus 5% of final salary per year of service credit greater than two, total not to exceed 40% of final salary, plus 5% of final salary for each eligible child, total not to exceed 20% of final salary.
1976 Tier Members with Social Security	15% of final salary, plus 2.5% of final salary per year of service credit greater than two, total not to exceed 40% of final salary, less $106.40 per month.

2013 Tier Members, Modified 2013 Tier Members and 2016 Tier Members	13.1% of final salary, plus 1.7% of final salary per year of service credit greater than five, total not to exceed 25% of final salary.
Multi-Tier Members	Benefit calculated for each tier is multiplied by the ratio of service credit accrued under that tier to total service. Not less than the result under the 1976 Tier benefit formula using 1976 Tier service only.
Members with Safety Benefits (Duty)	50% of HAPC, or non-duty disability benefit if greater.
Form of Payment	Single life annuity payable until end of disability income period or retirement date if earlier.
Disability Income Period	
Members disabled before November 5, 1990	The earliest of: • Date member is eligible to retire and retirement income equals or exceeds disability income; • Age 62 (age 67 for members without Social Security); or • Date member retires.
Members disabled on or after November 5, 1990	If under age 65 at disablement: • 1976 Tier Members with Social Security, 2013 Tier Members, Modified 2013 Tier Members and 2016 Tier Members: to age 65 or five years if longer. • 1976 Tier Members without Social Security and Safety Members: to age 67 or five years if longer. If age 65 or older at disablement: to age 70 or 12 months if longer. Disability income ends if member is no longer disabled.

Vested Termination:

Eligibility	Five years of service credit, or age 62 regardless of service credit if membership began on or before July 1, 1989.
Benefit	BRI beginning at age 50 or later, calculated using HAPC at termination date, adjusting for CPI changes (see Cost-of-Living Adjustment), and benefit formula in effect when benefits commence. 2013 Tier and 2016 Tier benefits cannot commence earlier than age 55. HAPC for the 2013 Tier, the Modified 2013 Tier and the 2016 Tier benefit is not adjusted for CPI changes.
Form of Payment	Same as for service retirement.
Payment Options	Same as for service retirement.
Refund Option	Member may elect a refund of contributions with interest, thereby forfeiting all other benefits.
Lump Sum Cashout	May be elected in lieu of non-2013 Tier and non-2016 Tier retirement income, available only if at least age 50 with five years service credit at date of termination.

Preretirement Survivor Income:

Eligibility	Eligible survivor of deceased active or disabled member with two or more years of service credit; no service requirement for duty-related death of Safety Member.
Benefit	
1976 Tier Members without Social Security and Members with Safety Benefits (Non-duty death)	Percent of final salary as follows:

Eligible Survivors	Percent	Minimum Benefit
1	25.0%	$200
2	35.0	$300
3	40.0	$300 plus 5% of final salary
4	45.0	$300 plus 10% of final salary
5+	50.0	$300 plus 15% of final salary

1976 Tier Members with Social Security	25% of final salary less $106.40 per month.

2013 Tier Members, Modified 2013 Tier Members and 2016 Tier Members	15% of final salary.
Multi-Tier Members	Benefit calculated for each tier is multiplied by the ratio of service credit accrued under that tier to total service.
Members with Safety Benefits (Duty death)	Percentage of HAPC as follows, but not less than benefit for non-duty death.

Eligible Survivors	Percent of HAPC
1	50.0%
2	62.5
3	70.0
4+	75.0

Death while eligible to retire

Eligibility	Surviving spouse or surviving domestic partner of active, disabled or inactive member who dies while eligible to retire.
Benefit	Greater of benefit described above or monthly benefit (including the Temporary Social Security Supplement) to eligible spouse or eligible domestic partner assuming member had retired on date of death and elected full continuance option with spouse or domestic partner as contingent annuitant.

Postretirement Survivor Continuance:

Eligibility	Eligible surviving spouse, eligible surviving domestic partner, eligible children or eligible dependent parent of deceased retired member. Not applicable for 2013 Tier, Modified 2013 Tier and 2016 Tier benefit for multi-tier members, 2013 Tier Members, Modified 2013 Tier Members, or 2016 Tier Members.
Benefit	
1976 Tier Members without Social Security	50% of BRI including COLA.
1976 Tier Members with Social Security	25% of BRI including COLA, plus 25% of Temporary Social Security Supplement (ends when member would have reached age 65).
Members with Safety Benefits	50% of BRI including COLA.

Lump Sum Death Benefit:	
Eligibility	Beneficiary of active, inactive, disabled, or retired member.
Basic Benefit	
Active member who became a member before October 1, 1990	Greater of: $1,500 plus one month's final salary, or $7,500.
All others	$7,500
Residual Benefit	Refund of member contributions plus interest, reduced by a portion of benefits received (100% of retirement income, 50% of preretirement survivor income or disability income) payable to beneficiary if no survivor, surviving spouse, domestic partner, or contingent annuitant.
Normal Retirement Age:	
Members with Safety Benefits	Attainment of age 50 with five years of service credit.
All Other Members	Attainment of age 60 (age 65 for the 2013 Tier and the 2016 Tier) with five years of service credit.
Eligible Survivor:	
Eligible Spouse or Domestic Partner	Spouse or domestic partner of deceased active or disabled member in relationship for at least one year before date of death and who is: Responsible for care of eligible child, disabled, or age 60 (age 50 if spouse of member without Social Security and in Plan prior to October 19, 1973).
Eligible Child	Child that is either under age 18, under age 22 and a full-time student, or disabled, if disability occurred prior to age 18 or age 22 if a full-time student.
Eligible Dependent Parent	Parent of deceased active, disabled or retired member, supported by 50% or more by member for one year prior to earliest of death, disablement or retirement.
Inactive Member:	Former UCRP member who retains right to vested benefits.

Cost-of-Living Adjustment:	
Basic	100% of annual Consumer Price Index (CPI) increase up to 2% per year.
Supplemental	Generally 75% of annual CPI increase above 4%. The sum of the Basic and Supplemental COLA's cannot exceed 6% in a year.
COLA applies to: *Retired members, survivors, disabled members, and contingent annuitants receiving retirement income*	Benefits in pay status one or more years on July 1. For multi-tier members, separate dates apply to 1976 Tier, 2013 Tier and 2016 Tier benefits based on the dates those benefits start.
1976 Tier and Members with Safety Benefits	HAPC (used to calculate retirement income) adjusted for COLA up to 2% per year from separation date to retirement date; retirement income adjusted using COLA formula.
Disabled members receiving disability income since before November 5, 1990	HAPC (used to calculate retirement income) adjusted for COLA up to COLA formula above for years from disablement to retirement date.
Capital Accumulation Provision (CAP):	
Eligibility	Various UCRP nonretired members have CAP balances from allocations made periodically in the past. These balances are all vested.
Interest Credit	Regents' approved interest rate; currently 8.50% per year for pre-2002 CAPs and the assumed rate of investment return used in the actuarial valuation (currently 7.25%) for 2002 and later CAPs (CAP II).
Payment	Lump sum payment upon termination, retirement or death.

University Contributions:	Each year the Regents will determine the actual total contributions and the split between Member Contributions and University Contributions based on the total funding policy contribution and various other factors, including the availability of funds, the impact of employee contributions on the competitiveness of UC's total remuneration package, and collective bargaining. In no event will the University Contributions be lower than the Member Contributions. The total funding policy contribution is based on the Regents' funding policy as described in Exhibit IV. The Regents approved an employer contribution rate of 14% of covered compensation for the non-laboratory segment of UCRP starting July 1, 2014. Contributions for the LBNL, LLNL and LANL segments are based on the University's contracts with the Department of Energy. For new employees hired on or after July 1, 2016 that elect the defined contribution plan option ("Savings Choice"), the Regents approved an employer contribution rate of 6.0% (on pay up to the IRC Section 401(a)(17) limit) that goes towards funding the non-laboratory segment of UCRP's UAAL (4.2% towards the LBNL segment UAAL for 2018-2019).
Member Contributions:	
1976 Tier Members	9% of covered compensation for members represented by CNA, UPTE, or AFSCME bargaining units; 8% of covered compensation for all other 1976 Tier Members.
Members with 2013 Tier or 2016 Tier Benefits	7% of covered compensation.
Members with Modified 2013 Tier Benefits	9% of covered compensation.
Members with Safety Benefits	9% of covered compensation.
Members with Tier Two Benefits	None.
Offset	All contributions for 1976 Tier Members and members with Safety benefits are reduced by $19 per month.

Interest Credit	Regents' approved interest rate; currently 6.00% per year.
Cessation	Members are exempt from contributing once the Benefit Percentage reaches 100%.
Changes in Plan Provisions:	The following change in Plan provisions has been recognized since the prior valuation: ➤ The Regents rescinded an increase in the University Contribution rate to 15% of covered compensation effective July 1, 2018, including a corresponding increase in the University contribution rate on behalf of those employees who elect the defined contribution plan ("Savings Choice") that goes towards funding the non-laboratory segment of UCRP's UAAL.

EXHIBIT IV

UCRP Funding Policy

UCRP Funding Policy:

Effective with the July 1, 2008 valuation, a funding policy was adopted that determines total funding policy contributions based on the Plan's Normal Cost adjusted by an amortization of any surplus or underfunding. The funding policy was last amended in September 2015, effective with the July 1, 2015 actuarial valuation.

The UCRP funding policy has the following structure and parameters:

(1) The funding policy is effective with the July 1, 2008 actuarial valuation and determines total funding policy contributions starting with the Plan Year beginning July 1, 2009.

(2) Each year the funding policy contributions would be effective for the Plan Year starting one year after the date of the actuarial valuation.

(3) Each year the Regents will determine the actual total contributions and the split between Member Contributions and University Contributions based on the total funding policy contributions and various other factors, including the availability of funds, the impact of employee contributions on the competitiveness of UC's total remuneration package, and collective bargaining. In no event shall the University Contributions be lower than the Member Contributions.

(4) The funding policy determines total funding policy contribution rates based on an actuarial valuation of the non-laboratory segment of UCRP (i.e., campuses, medical centers and Hastings College of the Law). The Lawrence Berkeley National Laboratory contributes accordingly to the funding policy outlined in the terms of the University's contract with the Department of Energy. The Lawrence Livermore National Laboratory and Los Alamos National Laboratory Retained Segments in UCRP are subject to the funding policies outlined in the University's contracts with the Department of Energy. Throughout this funding policy, the term "UCRP" refers to the non-laboratory segment of UCRP.

(5) The total funding policy contributions to UCRP consists of the Normal Cost plus an amortization charge for any Unfunded Actuarial Accrued Liability (UAAL) or minus an amortization credit for any surplus.

(6) The Regents' Consulting Actuary conducts an annual actuarial valuation of UCRP. The Normal Cost and the Actuarial Accrued Liability (AAL) in each actuarial valuation is determined under the Entry Age Actuarial Cost Method, using actuarial assumptions adopted by the Regents.

(7) The asset smoothing method used to determine the Actuarial Value of Assets is based on the Market Value of Assets adjusted for "unrecognized returns" in each of the last five years. Unrecognized return is the difference between actual and expected returns on a market value basis and is recognized over a five-year period.

(8) As of the original effective date of this policy, any initial surplus as of that date is amortized as a level dollar amount over a period of three years.

- a. Any changes in surplus after the effective date due to actuarial gains and losses (including contribution gains and losses) is amortized as a level dollar amount over 15 years.
- b. Any change in surplus due to a change in actuarial assumptions, cost method or asset smoothing method is amortized as a level dollar amount over 15 years.
- c. Any change in surplus due to a Plan amendment is amortized as a level dollar amount over 15 years.
- d. In the first year after the effective date when UCRP has a UAAL all amortization bases are considered fully amortized and contributions would be determined under the remaining provisions of this policy.

(9) For any year when UCRP has a UAAL, the calculation of the UAAL would be maintained by source (as listed below) and each new portion of or change in UAAL is amortized as a level dollar amount over a fixed amortization period. For any UAAL identified prior to the July 1, 2015 actuarial valuation, the following applies:

- a. Any initial UAAL (after a period of surplus) or change in UAAL due to actuarial gains and losses (including contribution gains and losses) is amortized over 30 years.
- b. Any change in UAAL due to a change in actuarial assumptions, cost method or asset smoothing method is amortized over 15 years.

c. Any change in UAAL due to a Plan amendment is amortized over 15 years, unless a shorter period is adopted by the Regents reflecting the nature of the Plan amendment.

(10) For any UAAL identified beginning with the July 1, 2015 actuarial valuation (including the 2014-15 actuarial gain or loss), the following applies:

a. Any initial UAAL (after a period of surplus) or change in UAAL due to actuarial gains and losses (including contribution gains and losses) is amortized over 20 years.

b. Any change in UAAL due to a change in actuarial assumptions, cost method or asset smoothing method is amortized over 20 years.

c. Any change in UAAL due to a Plan amendment affecting active members is amortized over 15 years.

d. Any change in UAAL due to a Plan amendment affecting non-active members is amortized over 10 years.

(11) For any year in which UCRP has a surplus, such surplus would be amortized as a level dollar amount over 30 years, and all prior UAAL amortization bases would be considered fully amortized.

(12) Effective July 1, 2010, all UAAL amortization bases as of July 1, 2010 were combined and the combined base is amortized as a level dollar amount over 30 years.

(13) This funding policy supersedes any previous funding policies.

APPENDIX A

Projections for Non-Laboratory Segment of UCRP

This appendix includes 20-year projections for the non-laboratory segment (i.e., campus and medical center segment) of UCRP under various scenarios. The results shown include employer contribution rates that have been approved by the Regents ("approved contributions"), the employer portion of the total funding policy contribution rates, Actuarial Accrued Liability (AAL), Actuarial Value of Assets (AVA) and funded ratios. A description of the actuarial assumptions and methods used in the projections is included at the end of this appendix.

Under each projection scenario shown we illustrate the impact of making the approved contributions versus the total funding policy contributions. The approved contributions include the employer rate equal to 14% of covered compensation, transfers from STIP of up to $500 million in 2018-2019, $500 million in 2019-2020, $600 million in 2020-2021, and $700 million in 2021-2022 and a 6% of compensation (up to the IRC Section 401(a)(17) limit) contribution rate ("UAAL Surcharge") for new employees hired on or after July 1, 2016 that elect the defined contribution plan ("Savings Choice") that goes towards paying down UCRP's Unfunded Actuarial Accrued Liability (UAAL). All of these contributions have already been approved by the Regents. The approved contributions do not include any future transfers from STIP or other sources except as noted above. In addition to these employer contributions, member contributions are also made to UCRP and are 8% for most UCRP members. The member contributions are also reflected in the projections, but are not displayed in the contribution rate graphs.

For the total funding policy contribution scenario, we assume that in addition to the above contributions, additional employer contributions (i.e., transfers from STIP, State Funding and/or other sources) will be made so that the total funding policy contribution will be contributed each year.

In general, funding for the laboratory segments of UCRP is governed by provisions of the contracts between UC and the DOE. Various funding projections for those segments are provided at least semi-annually to the DOE under separate cover in a specified format.

Scenario #1: 7.25% Market Value Return Per Year Beginning July 1, 2018 and 30% Savings Choice Election

The first (baseline) scenario shows results based on the approved contributions being made versus the total funding policy contributions being made assuming 7.25% market value returns per year beginning July 1, 2018 and a 30% Savings Choice election rate for new hires on or after July 1, 2018.

The first graph shows a comparison of the employer contribution rates. The red line is the approved employer contributions. As noted above, they include the STIP transfers and borrowing in the first four years and are slightly above 14% of compensation thereafter since the Savings Choice contribution towards UCRP's UAAL is also included.

APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

The blue line is the employer portion of the total funding policy contribution rate assuming that the total funding policy contribution is made each year. This rate declines for various reasons including the lower Normal Cost for future hires under the 2016 Tier, lower level dollar UAAL amortization payments when expressed as an increasing amount of compensation and UAAL amortization layers being paid off.

The green line is the employer portion of the total funding policy contribution rate assuming that only the approved contributions are made. The shortfall between the approved and total funding policy contributions is represented by the orange area in the graph. These shortfalls are recognized as actuarial losses under UCRP's funding policy and amortized over 20 years. Over time these losses lead to higher total funding policy contribution rates (green line) and increased contribution shortfalls represented by the yellow area.

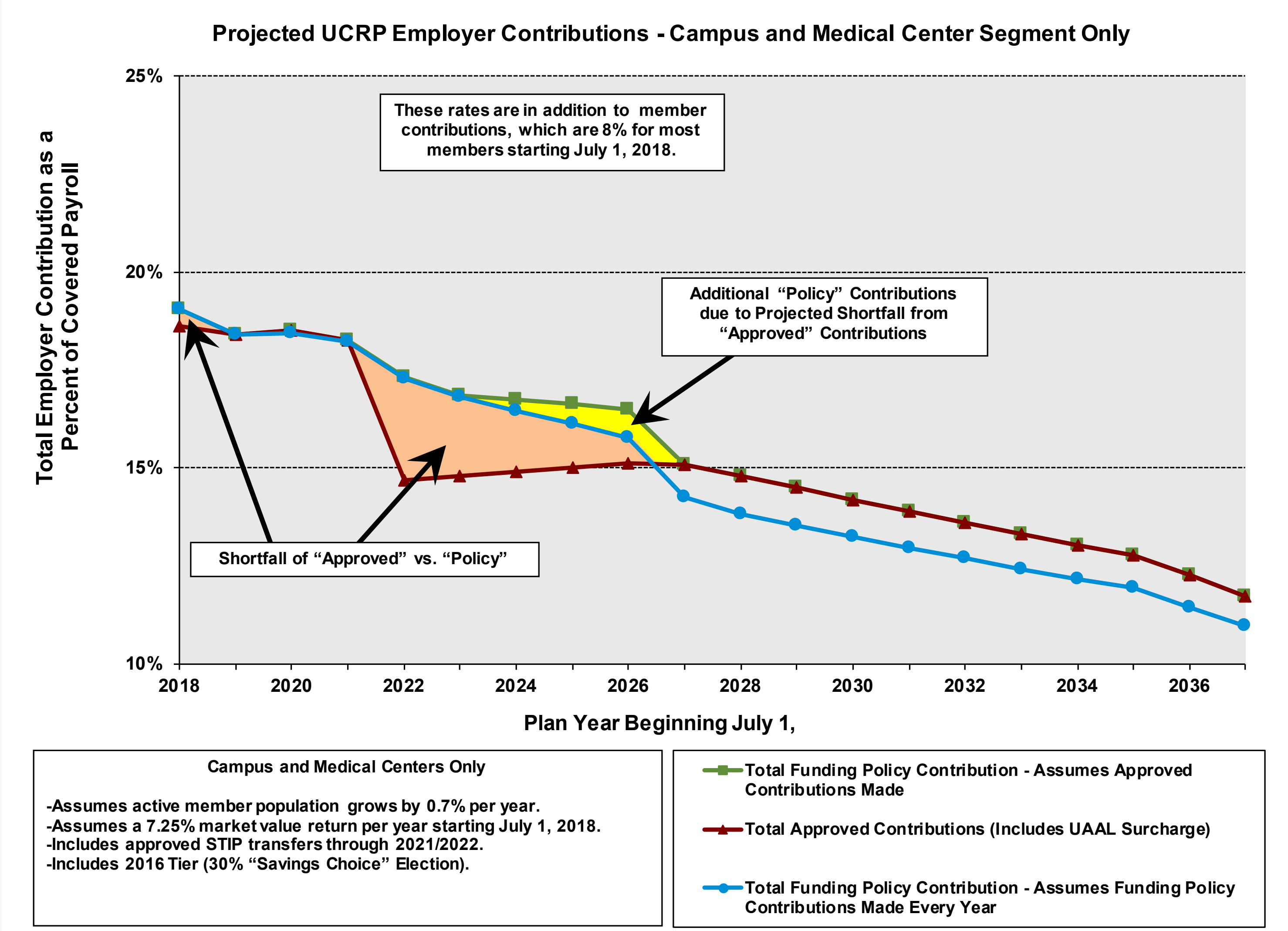
The two graphs that follow show the projected AAL, AVA and funded ratios under the two different contribution levels. The projected results based on contributing the approved contributions are shown first followed by the projected results based on contributing the total funding policy contributions. This same format is followed for the other two projection scenarios.

Based on contributing the approved contributions, the funded ratio (black line) increases steadily and is nearly 100% by 2037. The assets (AVA) increase at a faster pace than the AAL which results in a decrease in the UAAL from about $10 billion in 2018 to about $1.4 billion in 2037. Based on contributing the total funding policy contributions, the funded ratio increases slightly faster when compared to contributing the approved contributions and is also nearly 100% by 2037 while the UAAL reduces to about $0.7 billion.

Our longer term projections show that the current assets combined with projected future approved contributions and investment earnings are expected to be sufficient to pay all future expected benefits for all plan members (both current and future).

APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

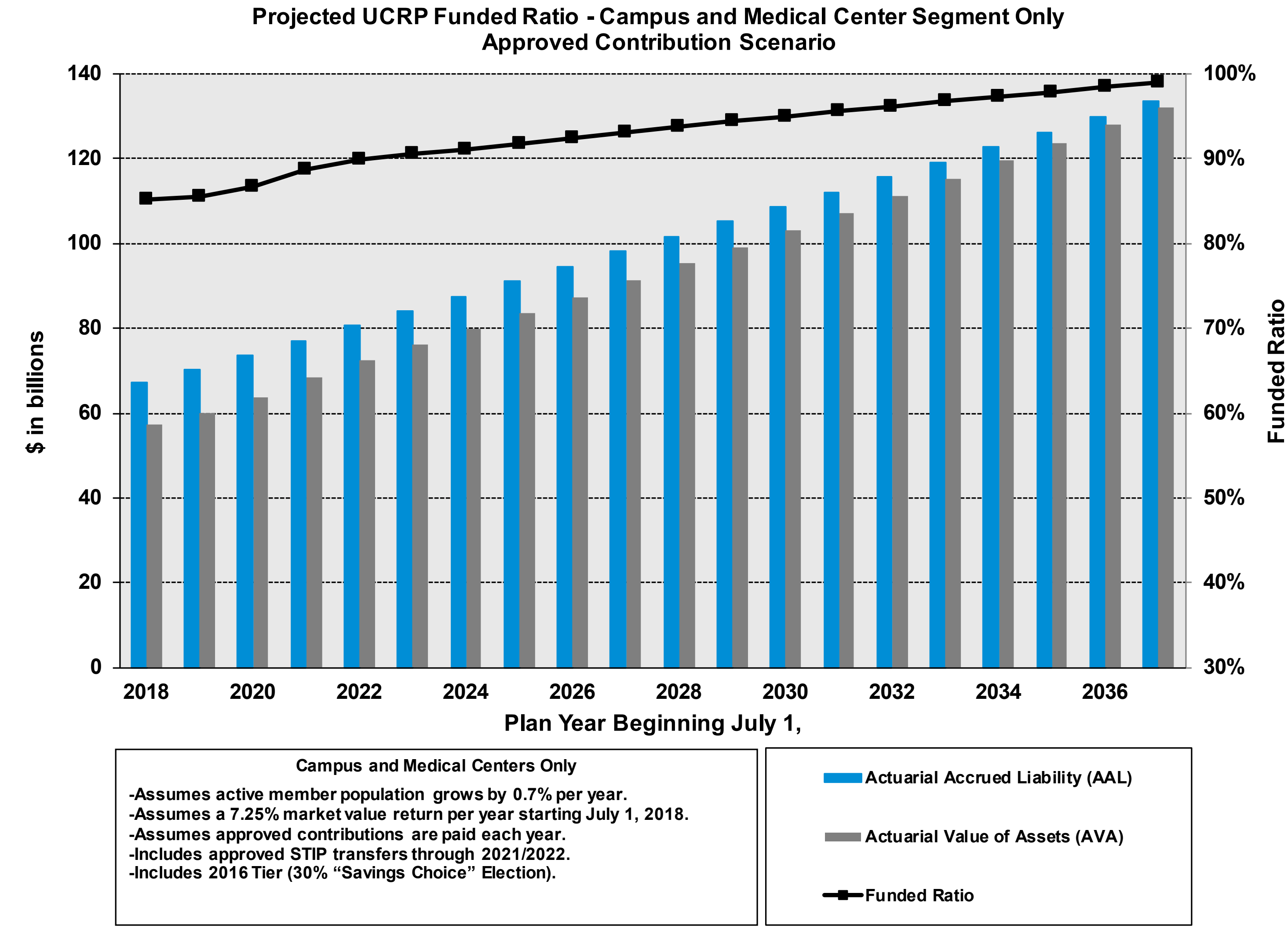
Scenario #1: 7.25% Market Value Return Per Year Beginning July 1, 2018 and 30% Savings Choice Election



APPENDIX A

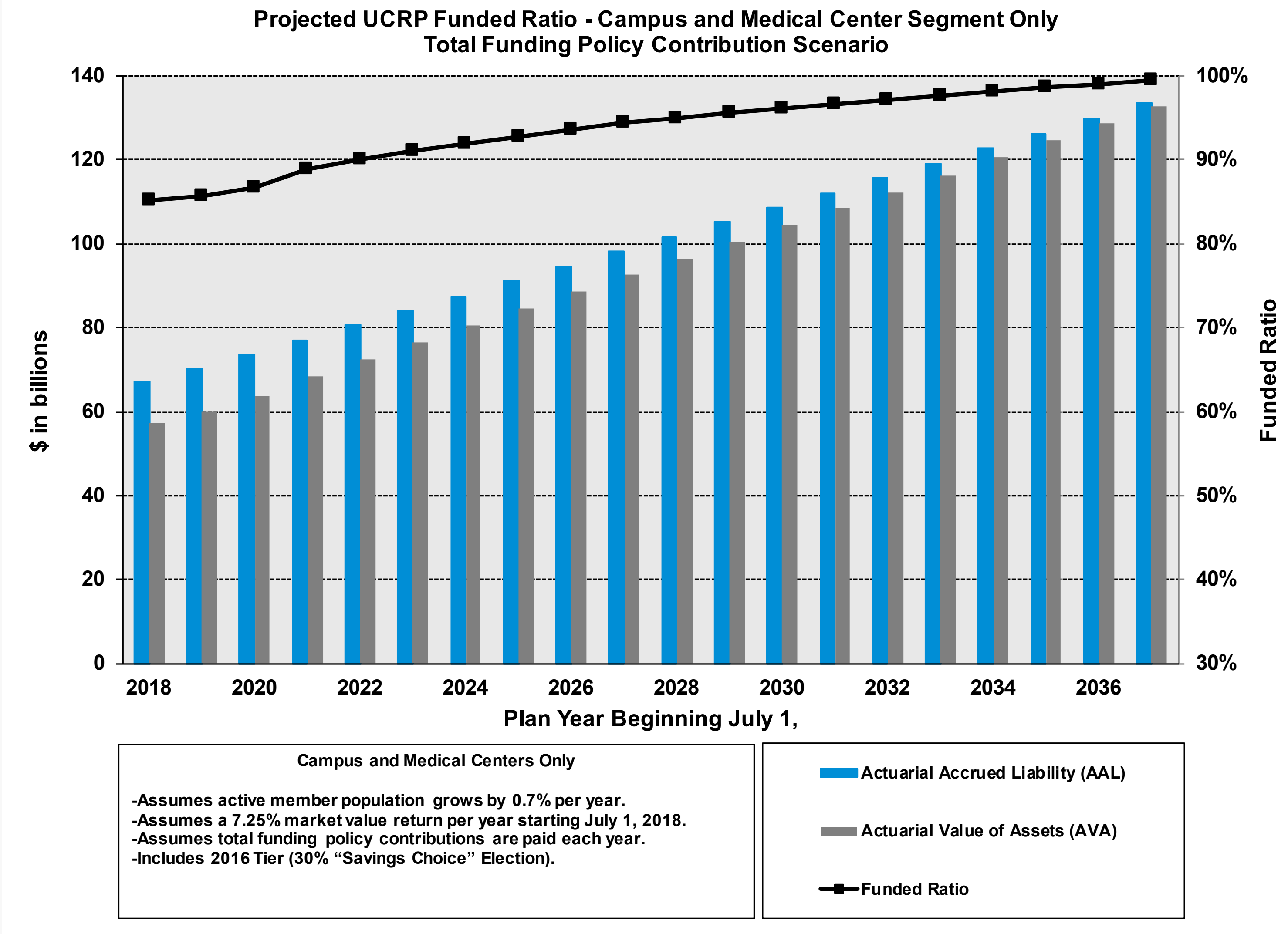
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #1: 7.25% Market Value Return Per Year Beginning July 1, 2018 and 30% Savings Choice Election



APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #1: 7.25% Market Value Return Per Year Beginning July 1, 2018 and 30% Savings Choice Election



APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #2: 0% Actual Market Return During 2018-2019 and 30% Savings Choice Election

The second scenario is the same as the first, except that we assume a 0% market value return during 2018-2019. Returns of 7.25% per year are assumed thereafter. This projection illustrates the impact of one year of low investment returns.

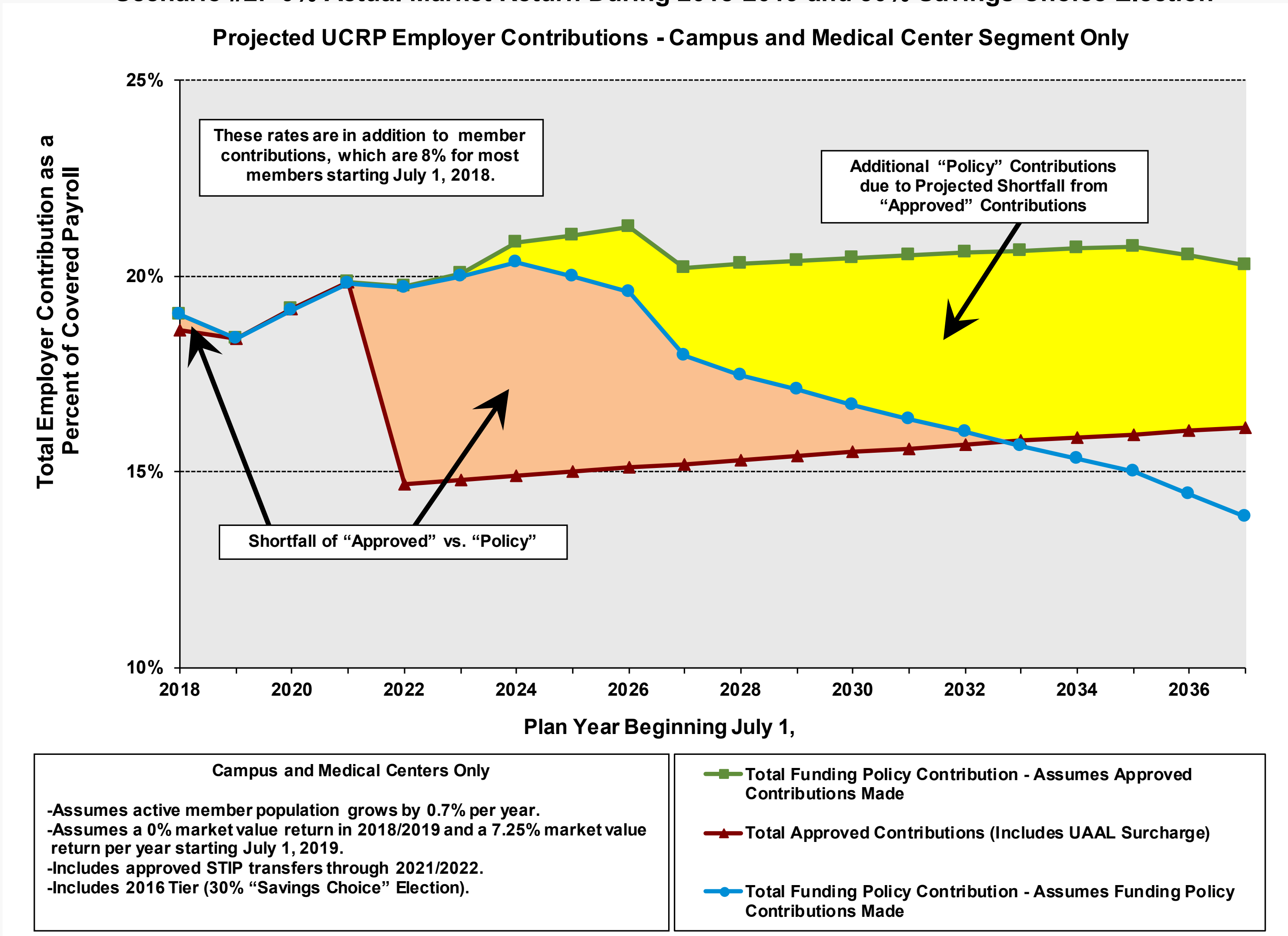
The red line (approved employer contributions) increases in the first few years as compared to the baseline scenario due to the recognition of the investment losses. This is because a higher amount of the approved STIP transfers are needed to meet the total funding policy contribution in those years. The green line (total funding policy contribution rates based on contributing the approved contributions) also shows an increase over the period and by 2037 is over 8% of compensation higher than in Scenario #1.

Based on contributing the approved contributions, the projected funded ratios remain around 85% in 2018 to 2023 (when the investment losses are fully recognized under 5-year smoothing) and then begins to slowly increase through 2037, while the UAAL increases to about $12 billion in 2037. Based on contributing the total funding policy contributions, the funded ratio still increases over time as a result of the higher contributions being made which are about 3% higher in 2037 as compared to Scenario #1, while the UAAL is $1.6 billion higher.

Our longer term projections show that the current assets combined with projected future approved contributions and investment earnings are expected to be sufficient to pay all future expected benefits for all plan members (both current and future).

APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

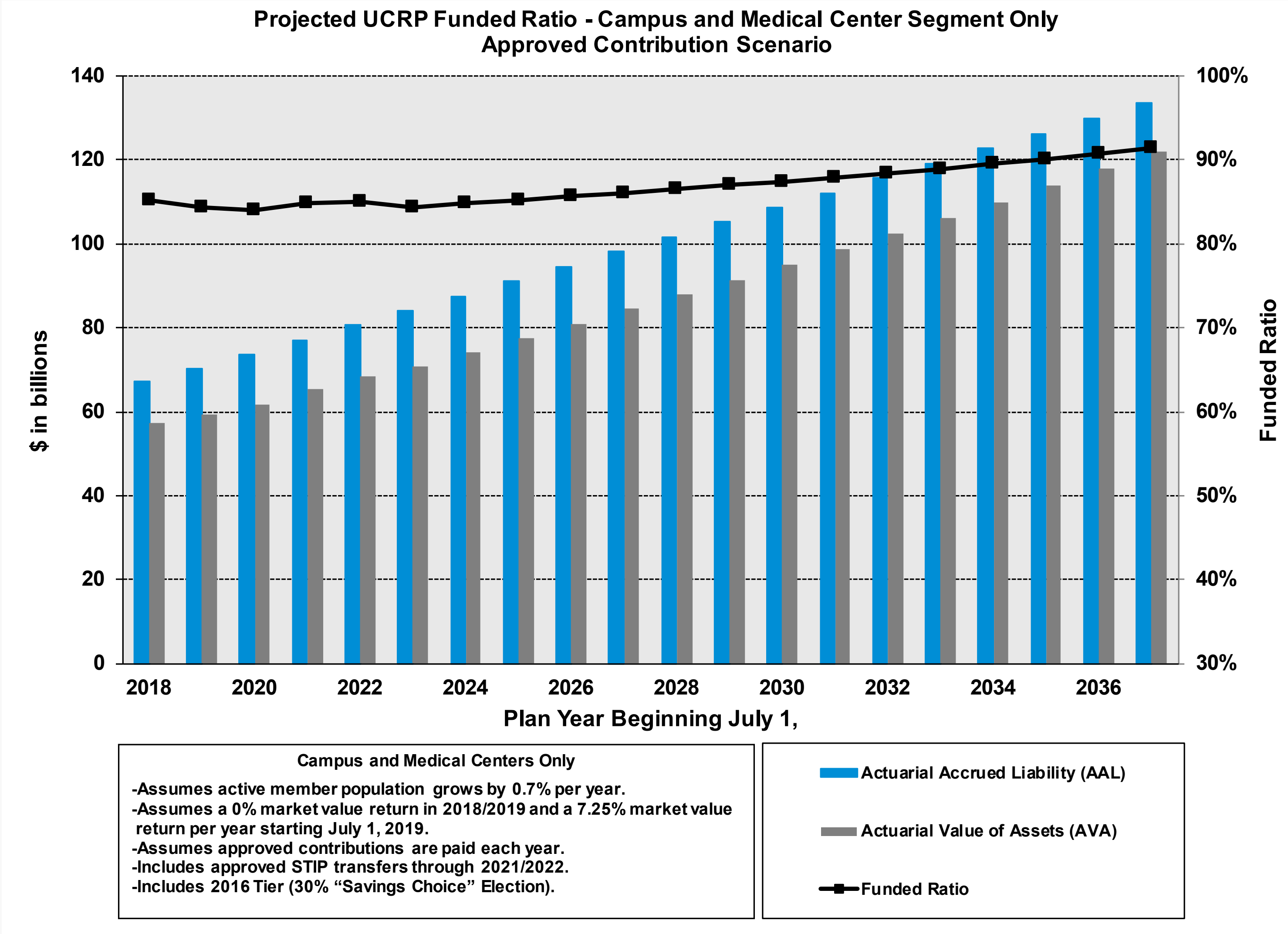
Scenario #2: 0% Actual Market Return During 2018-2019 and 30% Savings Choice Election



APPENDIX A

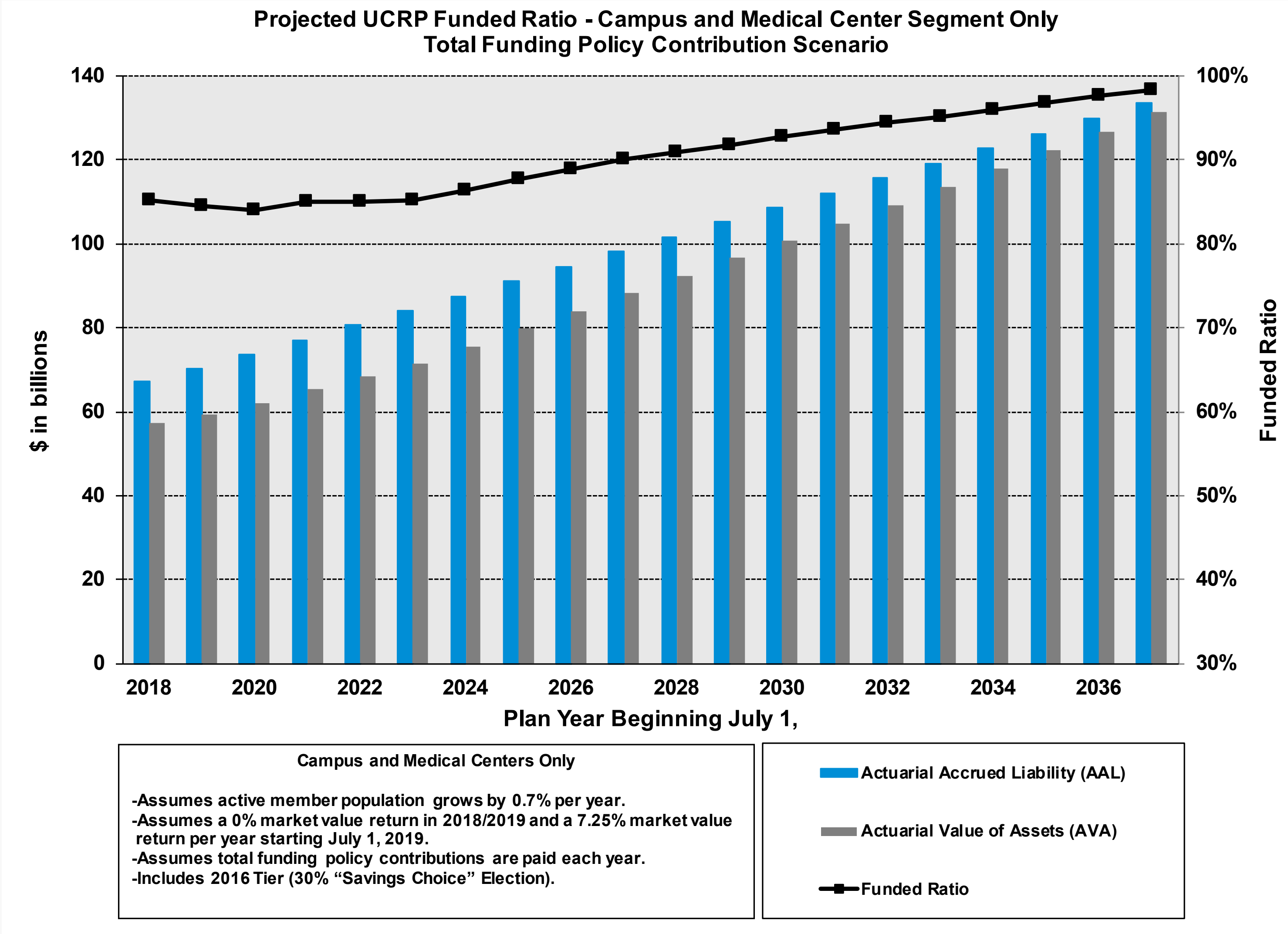
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #2: 0% Actual Market Return During 2018-2019 and 30% Savings Choice Election



APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #2: 0% Actual Market Return During 2018-2019 and 30% Savings Choice Election



APPENDIX A

Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #3: 7.25% Market Return Per Year Beginning July 1, 2018 and 40% Savings Choice Election

The third scenario is the same as the first, except that we assume 40% of new hires on or after July 1, 2018 elect the Savings Choice plan. This projection illustrates the impact of a variation in the Savings Choice election rate.

Employer contribution rates show a slight increase due to contribution dollars being expressed as a percent of the lower covered payroll of UCRP over the projection period as compared to Scenario #1.

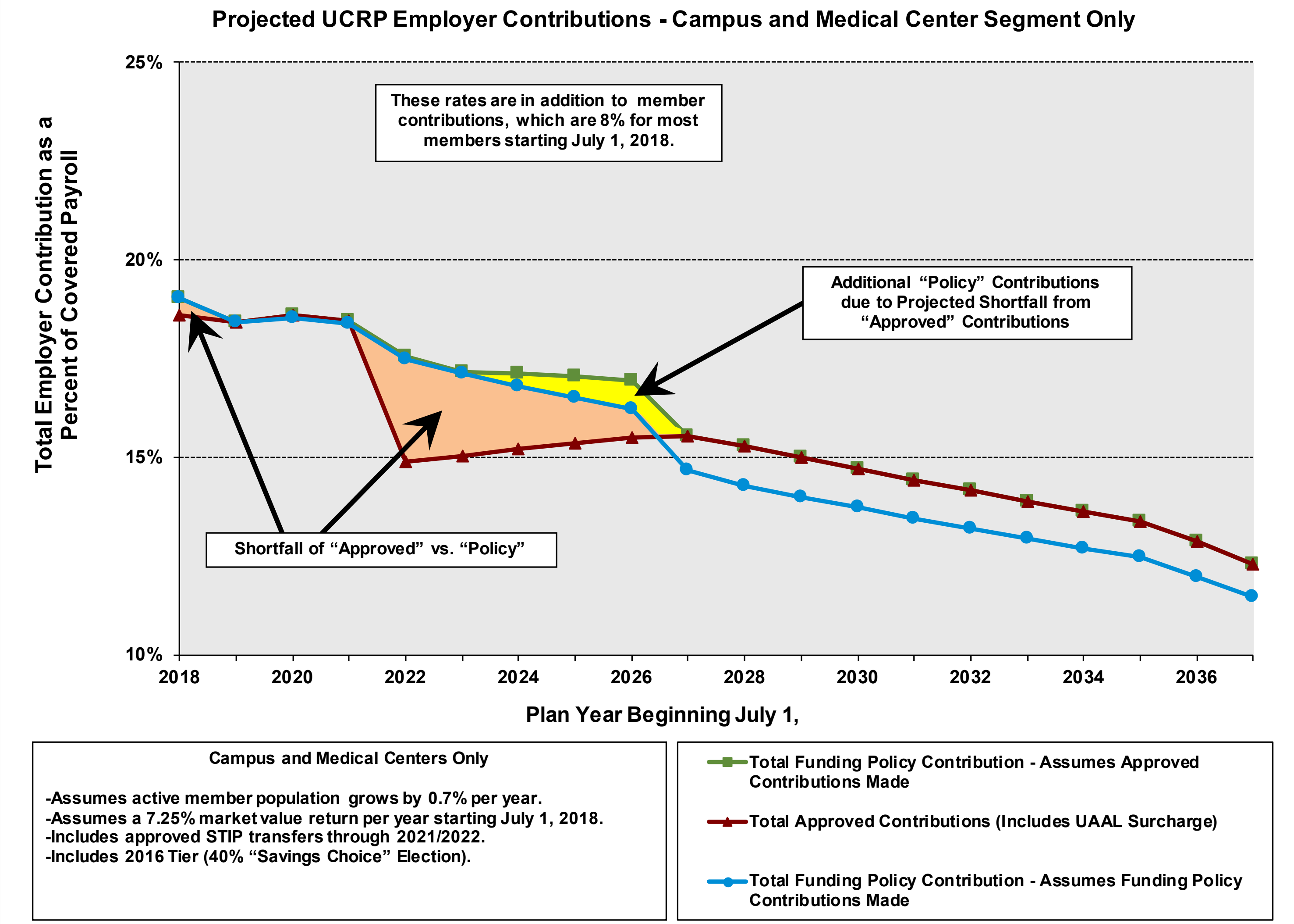
The projected funded ratios and the UAAL remain virtually unchanged regardless of the decrease in the UCRP covered payroll when compared to Scenario #1. This is because an increase in the number of actives who elect the Savings Choice plan decreases both the future AAL and assets for UCRP. As long as the 6% of compensation (up to the IRC limit) contribution rate ("UAAL Surcharge") for new employees that elect Savings Choice is collected, then Savings Choice elections have minimal impact on the long-term funding of UCRP.

Consistent with Scenario #1, our longer term projections show that under Scenario #3 the current assets combined with projected future approved contributions and investment earnings are expected to be sufficient to pay all future expected benefits for all plan members (both current and future).

APPENDIX A

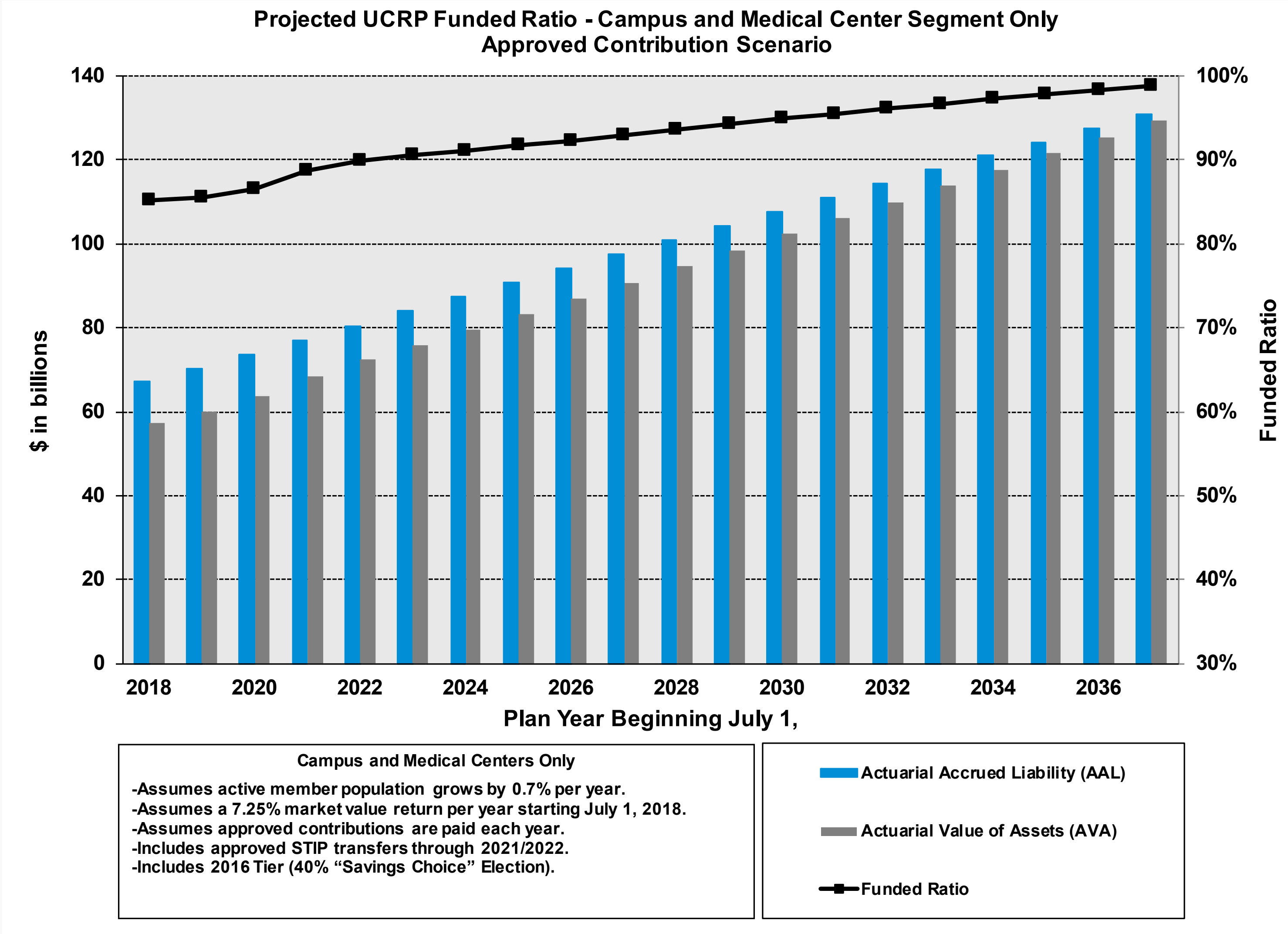
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #3: 7.25% Market Return Per Year Beginning July 1, 2018 and 40% Savings Choice Election



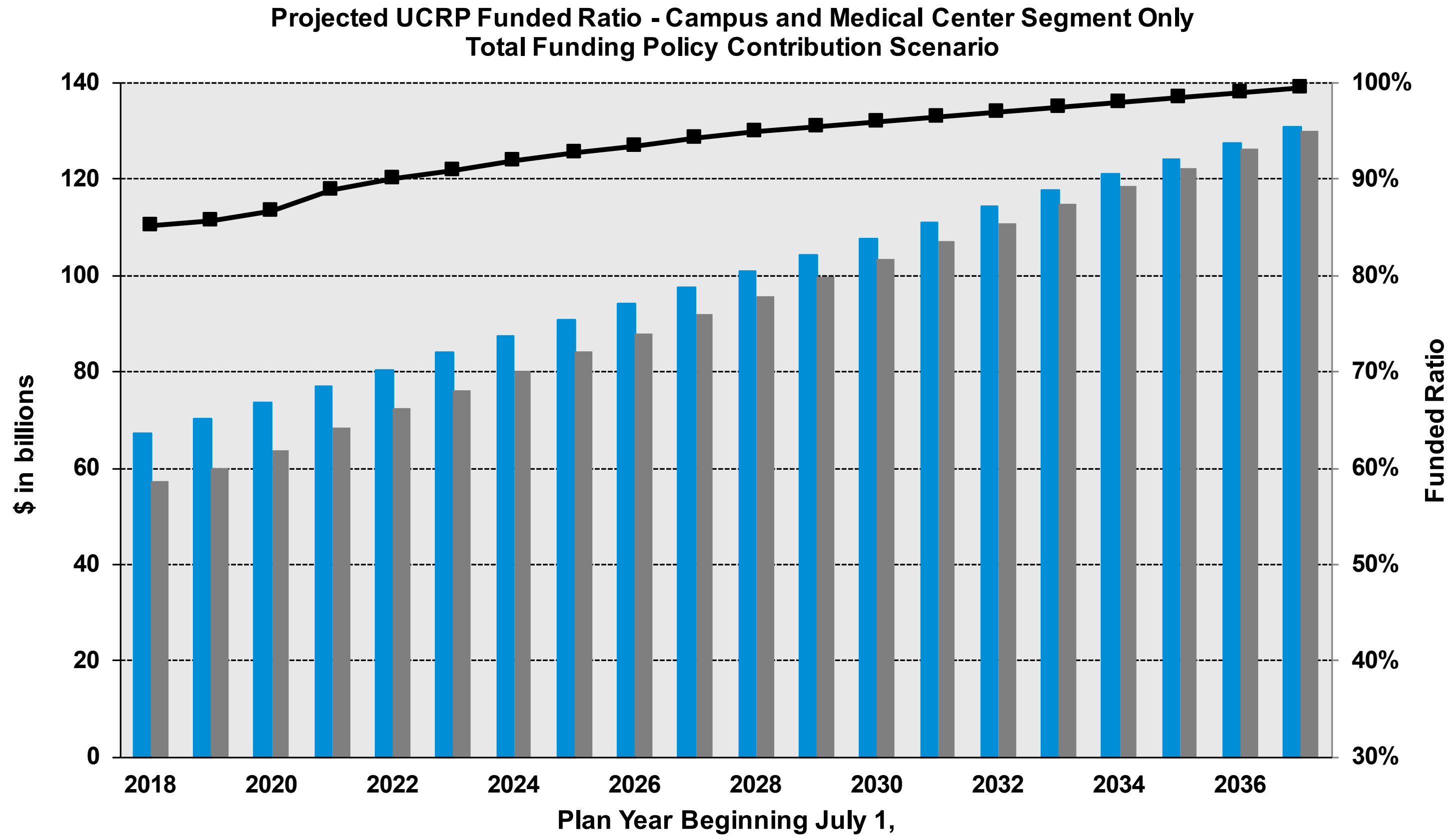
APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #3: 7.25% Market Return Per Year Beginning July 1, 2018 and 40% Savings Choice Election



APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

Scenario #3: 7.25% Market Return Per Year Beginning July 1, 2018 and 40% Savings Choice Election



Campus and Medical Centers Only

- Assumes active member population grows by 0.7% per year.
- Assumes a 7.25% market value return per year starting July 1, 2018.
- Assumes total funding policy contributions are paid each year.
- Includes 2016 Tier (40% "Savings Choice" Election).

APPENDIX A
Projections for Non-Laboratory Segment of UCRP (continued)

Actuarial Assumptions and Methods Used in Projections:

The projections shown in Appendix A were made using generally accepted actuarial practices and are based on the July 1, 2018 actuarial valuation results. This includes the participant data and actuarial assumptions on which that valuation was based. We have used a forecast model that includes new hires and calculates Normal Costs, Actuarial Accrued Liabilities (AAL) and other results consistent with the UCRP actuarial valuation throughout the projection period, as if all the actuarial assumptions have been met. The projection period is 20 years. Here are some of the important assumptions used:

- Includes non-laboratory segment (i.e., campus and medical centers segment) only.
- For Scenario #1 and #3, assumes market value returns of 7.25% per year beginning July 1, 2018. Scenario #2 assumes a 0% market value return during 2018-2019 and returns of 7.25% per year thereafter.
- Reflects choice of either the UCRP 2016 Tier ("Pension Choice") or the defined contribution plan ("Savings Choice") for all new hires on or after July 1, 2018. There is an employer contribution equal to 6% of compensation for employees that elect the defined contribution plan that goes towards paying down UCRP's UAAL.
- For Scenario #1 and #2, an election rate of 30% Savings Choice and 70% Pension Choice (UCRP 2016 Tier) is assumed for new hires on or after July 1, 2018. Scenario #3 assumes an election rate of 40% Savings Choice and 60% Pension Choice (UCRP 2016 Tier). All Scenarios include a cost of initial and second choice of 0.6% of total new hire compensation added to UCRP's Normal Cost for new hires.
- Assumes a 0.7% per year growth in the total (UCRP and Savings Choice) active member population. This means that members that leave active employment are assumed to be replaced with an amount of new hires such that the active member population increase by 0.7% per year throughout the projection.
- Employer contribution rate to UCRP remains at 14% of compensation.
- Transfers from STIP of up to $500 million in 2018-2019, $500 million in 2019-2020, $600 million in 2020-2021, and $700 million in 2021-2022 are reflected in all scenarios.
- Total of employer and member contribution rates are assumed to be no greater than the total funding policy contribution rate for any year with the exception that the employer contribution rate can be no less than the member contribution rate.
- Demographics for future new entrants are assumed to be the same as those for members hired during the two years prior to July 1, 2018.

APPENDIX A

Projections for Non-Laboratory Segment of UCRP (continued)

Projections, by their nature, are not a guarantee of future results. The modeling projections are intended to serve as illustrations of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed-upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.

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Attachment 2

University of California PERS Plus 5 Plan

ACTUARIAL VALUATION REPORT
AS OF JULY 1, 2018

Segal Consulting

Segal Consulting

100 MONTGOMERY STREET, SUITE 500 SAN FRANCISCO, CA 94104
T 415.263.8200 www.segalco.com

October 16, 2018

Mr. Dwaine B. Duckett
Vice President, Human Resources
University of California
1111 Franklin Street, 5th Floor
Oakland, California 94607

Dear Vice President Duckett:

We are pleased to submit this Actuarial Valuation Report as of July 1, 2018 for the University of California PERS Plus 5 Plan ("Plan"). It summarizes the actuarial data used in the valuation, recommends the funding requirements for the 2018-2019 Plan Year, analyzes the preceding year's experience, and determines the funded ratio for purposes of the July 1, 2019 annual COLA.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. The census and financial information on which our calculations were based was provided by the UC HR Staff. 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 those measurements; 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 this actuarial valuation is complete and accurate. Further, in our opinion the assumptions as approved by the Regents are reasonably related to the experience of and future expectations for the Plan.

We look forward to reviewing this report at the November 2018 Regents meeting and to answering any questions.

Sincerely,

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

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

MC/gxk

SECTION 1

EXECUTIVE SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION

SECTION 1: Executive Summary of the Valuation for the University of California PERS Plus 5 Plan

Purpose

This report has been prepared by Segal Consulting to present a valuation as of July 1, 2018 of the University of California PERS Plus 5 Plan - University of California Voluntary Early Retirement Incentive Program ("Plan" or "PERS Plus 5 Plan") for eligible employees with PERS membership related to employment at the University. The UC PERS Plus 5 Plan, established in 1991, is a frozen plan covering a closed group of members, all of whom are in retirement status. Since no additional benefits will accrue for these members in the future, the Plan has no normal cost. The valuation was performed to determine if 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 PERS Plus 5 Plan,
- The characteristics of retired members and beneficiaries as of July 1, 2018,
- The assets of the Plan as of June 30, 2018,
- Economic assumptions regarding future investment earnings, and
- Other actuarial assumptions, i.e., administration expenses and mortality.

Significant Issues in Valuation Year

ASSETS AND FUNDED RATIOS

- The Plan's funded ratio for valuation purposes (i.e., assets divided by Actuarial Accrued Liability (AAL); herein referred to as the "funded ratio") has been determined as of the current valuation date and includes all future assumed 2% annual cost-of-living adjustments (COLAs) in the calculation of the AAL. For purposes of granting an annual COLA as of July 1, 2019, an additional funded ratio has been developed that does not include any future annual COLAs in the calculation of the AAL. This additional funded ratio is herein referred to as the "funded ratio for COLA purposes."
- The Plan's funded ratio increased from 203.1% as of July 1, 2017 to 221.5% as of July 1, 2018. This increase in funded ratio is mainly a result of the decrease in the AAL due to the continued decline in the number of members receiving benefits. In addition, there was a higher than expected market value return of approximately 7.8% during the 2017/2018 Plan Year. Since the assumed rate of return for 2017/2018 was 7.25%, this return resulted in an actuarial gain from investments.

- Chart 6 (page 5) shows a graphical representation of the Plan's funded ratio over the past ten years. Similar information in numerical format can be found in Chart 7 (page 6).
- The actuarial valuation report as of July 1, 2018 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected. Declines in asset values will decrease the Plan's funded ratios, while increases will increase the Plan's funded ratios.

COLA TEST FOR 2019

- The Plan's funded ratio for COLA purposes as of July 1, 2018 is 242.%. Since this ratio is greater than 100%, it is our understanding that a July 1, 2019 COLA can be granted in a percentage equal to that determined under the University of California Retirement Plan (UCRP) formula for UCRP annuitants whose retirement income commenced July 2, 1991 through July 1, 1992.

FUTURE EXPECTATIONS

- Plan assets exceed liabilities by $35.8 million. Since the Plan covers only retired members and beneficiaries, the Plan's current assets along with future assumed investment returns are expected to be sufficient to fund all expected future Plan benefit payments based on current Plan provisions (including all future assumed 2% annual COLAs that have been reflected in this valuation as noted earlier). Therefore, no future contributions are expected to be necessary. Based on projections under the current actuarial assumptions, it is estimated that the Plan will be paying benefits through 2079.

DEMOGRAPHIC EXPERIENCE

- The Plan has 492 retired members and beneficiaries currently receiving benefits, a decrease of 30 from 2017. Total annual benefits in pay status are $4.5 million.

Summary of Key Valuation Results

	2018	2017
Funding elements for Plan Year beginning July 1:		
Normal cost (beginning of year)	$0	$0
Market value of assets	65,250,647	64,980,452
Actuarial value of assets (AVA)[1]	65,250,647	64,980,452
Actuarial accrued liability (AAL)[2]	29,460,992	31,997,188
Unfunded/(Overfunded) actuarial accrued liability	(35,789,655)	(32,983,264)
Funded ratio (AVA / AAL)	221.5%	203.1%
Funding elements for COLA purposes:		
Actuarial accrued liability for COLA purposes (AAL COLA)[3]	$26,873,051	$29,079,530
Funded ratio (AVA / AAL COLA)	242.8%	223.5%
Demographic data for Plan Year beginning July 1:		
Number of retired members and beneficiaries	492	522

(1) *For this Plan, the actuarial value of assets is the market value.*

(2) *Reflects all future assumed 2% annual COLAs.*

(3) *Excludes all future assumed 2% annual COLAs.*

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 the University of California (UC). 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 UC.
- **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 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 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 UC. Segal is not responsible for the use or misuse of its report, particularly by any other party.

- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If UC 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 Plan should look to their other advisors for expertise in these areas.

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

SECTION 2: Valuation Results for the University of California PERS Plus 5 Plan

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographics of covered retired members and beneficiaries.

This section presents a summary of significant statistical data on these participant groups. More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibit A.

Retired Members and Beneficiaries

As of July 1, 2018, 349 retired members and 143 beneficiaries were receiving total monthly benefits of $375,239.

These graphs show a distribution of the current retired members and beneficiaries based on their monthly benefit and age.

CHART 1

Distribution of Retired Members and Beneficiaries by Monthly Benefit as of July 1, 2018

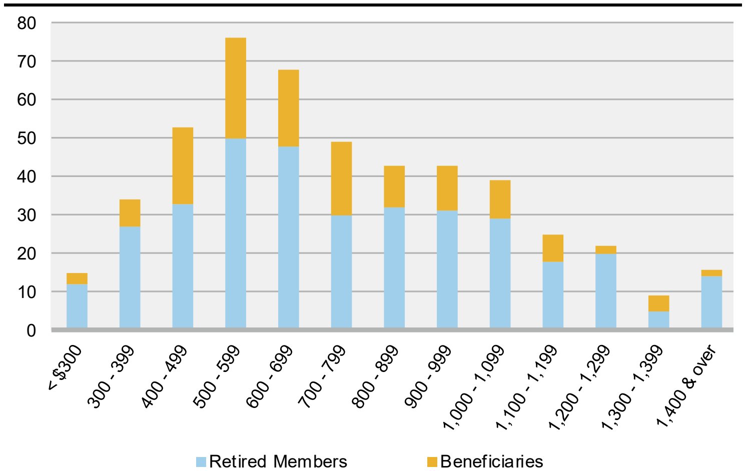
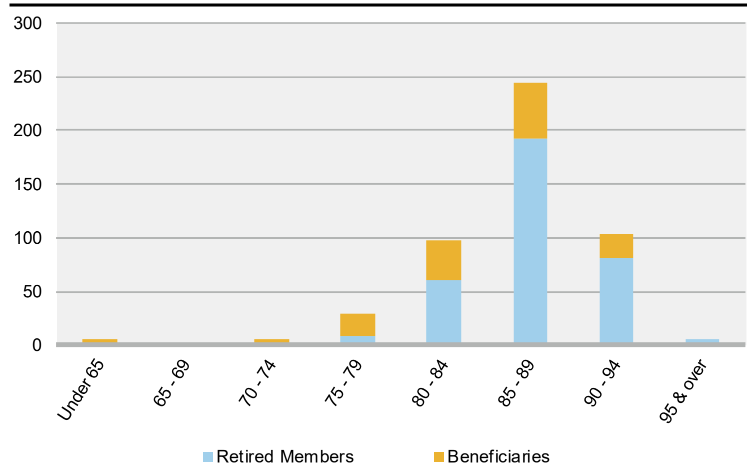


CHART 2

Distribution of Retired Members and Beneficiaries by Age as of July 1, 2018



B. FINANCIAL INFORMATION

Retirement plan assets change as a result of the net impact of income and expense components such as net investment earnings (less investment fees), administration expenses and benefit payments.

The chart below shows the net assets and changes to those asset values for the past two years.

The Regents have approved an asset valuation method that uses the market value of assets as the actuarial value of assets. The entire market value investment return is treated as income, which may be positive or negative.

The chart shows the market value of assets as of the last two valuation dates.

CHART 3

Asset Values for Years Ended June 30, 2017 – 2018

Assets as of June 30,	**2018**	**2017**
Total investments	$66,291,023	$65,810,391
Receivables[1]	87,339	1,068,247
Payables for securities purchased and other	(1,127,715)	(1,898,186)
Net assets	$65,250,647	$64,980,452
Change in Asset Values		
Value as of the beginning of the year	$64,980,452	$61,056,375
University contributions	0	0
Administration expenses	(5,080)	(5,390)
Benefit payments	(4,609,623)	(4,738,238)
Net investment return	4,884,898	8,667,705
Value as of the end of the year	$65,250,647	$64,980,452

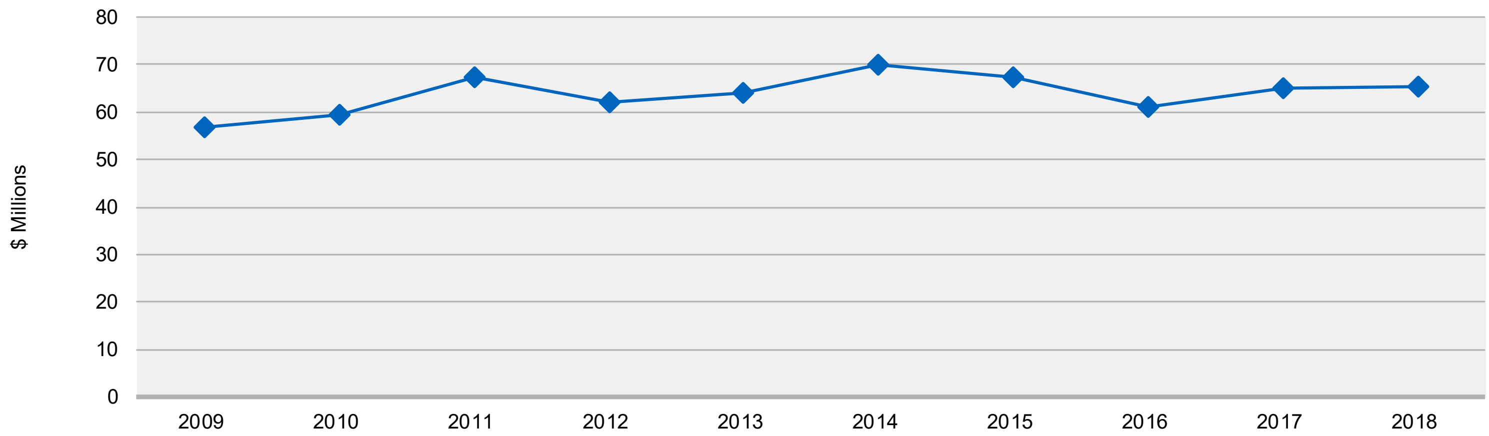
(1) *Represents securities traded and allotted to UC PERS Plus 5 Plan as of valuation date, not tied to contributions.*

The market value of assets is a representation of the Plan's financial status. The market value is significant because the Plan's liabilities are compared to its assets to determine what portion, if any, remains unfunded.

This chart shows the change in the market value of assets over the past ten years.

CHART 4

Market Value of Assets for Years Ended June 30, 2009 – 2018



C. ACTUARIAL EXPERIENCE

To calculate the surplus of assets over liabilities of the Plan, 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) then the surplus of assets over liabilities will be greater when compared to the surplus that was expected had all assumptions been met. On the other hand, the surplus of assets over liabilities will be less than expected 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.

However, note that no future contributions are expected to be necessary.

The components of the total gain of $0.4 million are shown below. The net experience gain from sources other than investments was 0.25% of the actuarial accrued liability.

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

CHART 5

Actuarial Experience for Year Ended June 30, 2018

1.	Net gain/(loss) from investments	$341,098
2.	Net gain/(loss) from other experience	74,006
3.	Net experience gain/(loss): (1) + (2)	$415,104

D. FUNDED RATIO

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the 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 ratios for this plan. Chart 7 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.

CHART 6

Funded Ratio for Plan Years beginning on July 1, 2009 - 2018

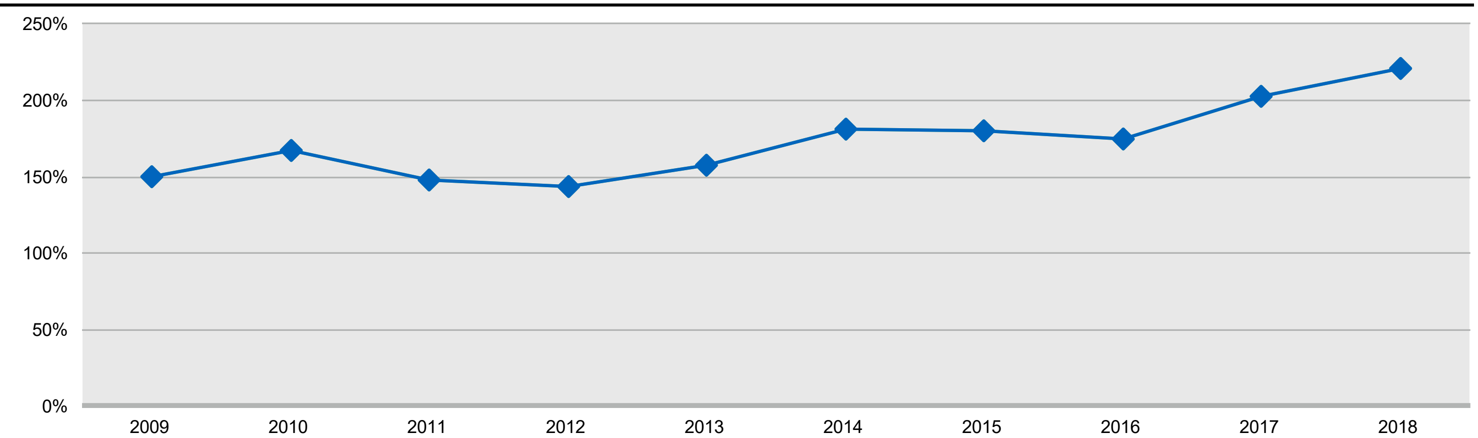


CHART 7

Schedule of Funding Progress ($ in 000s)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)[1]	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)
07/01/2009	$56,941	$37,833	$(19,108)	150.5%
07/01/2010	59,424	35,514	(23,910)	167.3%
07/01/2011	67,529	45,716	(21,813)	147.7%
07/01/2012	62,243	43,334	(18,909)	143.6%
07/01/2013	64,103	40,672	(23,431)	157.6%
07/01/2014	69,962	38,602	(31,360)	181.2%
07/01/2015	67,424	37,412	(30,012)	180.2%
07/01/2016	61,056	34,818	(26,238)	175.4%
07/01/2017	64,980	31,997	(32,983)	203.1%
07/01/2018	65,251	29,461	(35,790)	221.5%

[1] *Includes present value of administrative expenses equal to one percent of actuarial accrued liability. Starting in 2011, reflects all future assumed 2% annual COLAs.*

SECTION 3: Supplemental Information for the Valuation of the University of California PERS Plus 5 Plan

EXHIBIT A
Table of Plan Coverage

	Year Beginning July 1		
Category	2018	2017	Change From Prior Year
Retired members:			
Number in pay status	349	382	-8.6%
Average age	87.3	86.4	0.9
Total monthly benefit	$270,884	$289,170	-6.3%
Average monthly benefit	$776	$757	2.5%
Beneficiaries:			
Number in pay status	143	140	2.1%
Average age	83.1	81.8	1.3
Total monthly benefit	$104,355	$98,913	5.5%
Average monthly benefit	$730	$707	3.3%
Total members:			
Number in pay status	492	522	-5.7%
Average age	86.1	85.2	0.9
Total monthly benefit	$375,239	$388,083	-3.3%
Average monthly benefit	$763	$743	2.7%

EXHIBIT B
Actuarial Liabilities

	July 1, 2018	July 1, 2017
Plan assets		
Market value of assets	$65,250,647	$64,980,452
Present value of future contributions	0	0
Total Plan assets	$65,250,647	$64,980,452
Actuarial accrued liability(1)		
Retirees	$20,472,402	$23,010,782
Beneficiaries	8,696,897	8,669,602
Present value of future expenses	291,693	316,804
Total actuarial accrued liability	$29,460,992	$31,997,188
Excess of assets over liabilities	$35,789,655	$32,983,264
Funded ratio	221.5%	203.1%
Actuarial accrued liability for COLA purposes(2)		
Retirees	$18,742,410	$20,989,014
Beneficiaries	7,864,570	7,802,600
Present value of future expenses	266,071	287,916
Total actuarial accrued liability for COLA purposes	$26,873,051	$29,079,530
Funded ratio for COLA purposes	242.8%	223.5%

(1) *Reflects all future assumed 2% annual COLAs.*
(2) *Excludes all future assumed 2% annual COLAs.*

EXHIBIT C
Definitions of Pension Terms

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 which the Plan will earn over the long-term future; and

(b) Mortality rates — the death rates of pensioners; life expectancy is based on these rates.

Actuarial Accrued Liability for Pensioners: The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and of the interest which the sum is expected to earn before it is entirely paid out in benefits.

Unfunded/(Overfunded) 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 is a wide range of 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.

Investment Return: The rate of earnings of the Plan from its investments, including interest, dividends and capital gains and losses, computed as a percentage of the average value of the fund.

SECTION 4: Reporting Information for the Valuation of the University of California PERS Plus 5 Plan

EXHIBIT I

Statement of Actuarial Assumptions/Methods

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the UCRP July 1, 2010 through June 30, 2014 Actuarial Experience Study dated August 17, 2015. Historically, assumptions used for the UCRP actuarial valuation are also generally used for the PERS Plus 5 Plan actuarial valuation.
Economic Assumptions	
Net Investment Return:	7.25% (including 3.00% for inflation)
Consumer Price Index:	Increase of 3.00% per year; COLA increases are assumed to be 2.00% per year. For valuation purposes, all future assumed 2.00% annual COLAs have been reflected.
Administrative Expenses:	1.0% load added to the actuarial accrued liability
Demographic Assumption	
Post – Retirement Mortality Rates:	RP-2014 White Collar Healthy Annuitant Mortality table projected with the two-dimensional MP2014 projection scale to 2029. Ages are then set forward one year for males and females. The RP-2014 mortality tables projected with the two-dimensional MP2014 projection scale to 2019 and adjusted as noted above reasonably reflects the projected mortality experience as of the measurement date. The additional projection to 2029 is a provision for future mortality improvement.
Actuarial Methods	
Actuarial Value of Assets:	At Market Value
Actuarial Cost Method:	Unit Credit Actuarial Cost Method
Changes in Assumptions:	There have been no changes in assumptions since the last valuation.

EXHIBIT II

Summary of Plan Provisions

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

Effective Date:	October 1, 1991. Includes amendments through July 1, 2018.
Covered Members:	Active employees on October 1, 1991 who were active members of, and who were eligible to retire from the California Public Employee's Retirement System (PERS), whose age plus service equaled 75 or more (80 or more for faculty members), and who elected to retire from the University effective October 1, 1991.
UC PERS Plus 5 Average Pay:	Average monthly full-time-equivalent base compensation rate received during the 36 consecutive month period prior to June 30, 1990, multiplied by 1.07.
Retirement Date:	October 1, 1991.
Service Credit:	Each eligible member was granted five years of Service Credit.

Age Factor: Percentage of UC PERS Plus 5 Average Pay per year of Service Credit (interpolated for fractional ages).

Age	Factor	Age	Factor	Age	Factor
50	1.09%	55	1.50%	60	2.00%
51	1.16	56	1.60	61	2.13
52	1.22	57	1.70	62	2.27
53	1.30	58	1.80	63+	2.41
54	1.38	59	1.90		

Benefit Percentage: Age Factor multiplied by years of Service Credit.

Basic Retirement Income (BRI): Benefit Percentage x UC PERS Plus 5 Average Pay.

Transition Assistance: Single payment on November 1, 1991 equal to three (3) times the June 30, 1990 covered compensation, multiplied by 1.07.

Service Retirement:

Benefit BRI.

Form of Payment Single life annuity.

Payment Option Full continuance to contingent annuitant.

Post-retirement Automatic Survivor Benefit:	None.
Cost-of-Living Adjustment:	*Annual* The lesser of: • The same percentage increase for UCRP annuitants whose retirement income commenced July 2, 1991 up through and including July 1, 1992, and • The percentage that the Plan's funded ratio for COLA purposes (determined as of the previous July 1) exceeds 100%. The UCRP COLA is 100% of the annual Consumer Price Index (CPI) increase up to 2% per year, plus generally 75% of the annual CPI increase above 4%. The COLA cannot exceed 6% per year. *Ad hoc* A one-time ad hoc COLA of 25% was provided to all annuitants as of July 1, 2002. A one-time ad hoc COLA of 15.19% was provided to all annuitants as of April 1, 2011.
University Contributions:	The actuarial cost of the University of California PERS Plus 5 Plan was determined for each University location. Each location could elect to contribute their cost in a lump sum, over two, three or five years. The last contributions were made in 1995.
Changes in Plan Provisions:	There have been no changes in Plan provisions since the last valuation.

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